

# **TRAFFIC IMPACT STUDY**

for

## **SUGARBUSH MEADOW APARTMENTS**

LOCATED ON

AMHERST ROAD

SUNDERLAND, MASSACHUSETTS

Prepared By

Traffic Engineering Solutions

August 2006

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Prepared By  
Traffic Engineering Solutions  
193 Lexington Road  
Glastonbury, Connecticut  
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August 2006

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## EXECUTIVE SUMMARY

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Sugarbush, LLC. proposes to construct Sugarbush Meadow, an apartment complex with 150 units, located within the southwest quadrant of Amherst Road (Route 116) and Plumtree Road in Sunderland, Massachusetts. The development site has a total of 63.27 acres and is presently undeveloped. Access to the apartment complex will be provided by full access roads along Amherst Road (between the Pioneer Auction building and KSE Inc.) and along Plumtree Road about a quarter mile west of Amherst Road.

New trips to the roadway system associated with the Sugarbush Meadow apartments were estimated from the trip generation information included in the ITE Trip Generation reference for Apartments. Based on the ITE trip generation information, the 150 apartment units will generate 15 vehicles entering the site and 62 vehicles leaving during the morning peak hour and 65 vehicles entering the site and 35 vehicles leaving during the afternoon peak hour.

Capacity analyses were completed for the intersection of Amherst Road (Route 116) at Plumtree Road and East Plumtree Road for the 2005 Existing conditions and for the Design Year 2011 No-Build and 2011 Build conditions and for the intersection of the site access roads with Amherst Road and Plumtree Road for the 2011 Build conditions.

Twenty-four hour machine counts were made on Amherst Road and Plumtree Road on November 16 and 17, 2005 and morning and afternoon peak period turning movement traffic counts were made on November 17, 2005 at the intersection of Amherst Road at Plumtree Road and East Plumtree Road.

### Findings – Amherst Road at Plumtree Road and East Plumtree Road

- Based on the trip generation for 150 apartment units and the capacity analyses completed for this intersection, there will be minimal traffic impact with little change in operating Levels of Service from those expected without the proposed homes.
- Left turns from Amherst Road onto Plumtree Road and East Plumtree Road presently operate at Level of Service (LOS) A during the morning peak hours. If no building is done, left turns from Amherst Road onto Plumtree Road during 2011 will operate at LOS B during the morning peak hour and LOS A during the afternoon peak hour and left turns from Amherst Road onto East Plumtree Road will operate at LOS A during both peak hours.

When the 150 apartment units are completed and fully occupied, left turns from Amherst Road onto Plumtree Road will continue to operate at LOS B during the morning peak hour and LOS A during the afternoon peak hour and left turns from Amherst Road onto East Plumtree Road will continue to operate at LOS A during both peak hours.

- The Plumtree Road approach to Amherst Road presently operates at LOS C during the morning and afternoon peak hours. If no building is done this approach will operate at LOS D during the morning peak hour and will continue to operate at LOS C during the afternoon peak hour for the 2011 No-Build conditions.

When the 150 apartment units are completed and fully occupied the Plumtree Road approach to Amherst Road will operate at LOS D during both peak hours.

- The East Plumtree Road approach to Amherst Road presently operates at LOS D during the morning peak hour and LOS E during the afternoon peak hour. If no building is done this approach will operate at LOS E during the morning peak hour and LOS F during the afternoon peak hour.

When the 150 apartment units are completed and fully occupied there will be no further changes in operating Level of Service. This approach will continue to operate at LOS E during the morning peak hour and LOS F during the afternoon peak hour

#### Findings – Amherst Road at Site Access Road

- When the 150 apartment units are completed and fully occupied left turns from Amherst Road onto the site access road will operate at LOS B during the morning peak hour and LOS A during the afternoon peak hour
- When the 150 apartment units are completed and fully occupied the site access road approach to Amherst Road will operate at LOS D during the morning peak hour and LOS C during the afternoon peak.
- The sight distances looking left and right from the access road onto Amherst Road are greater than the sight distances presented in the AASHTO reference for the 85<sup>th</sup> percentile speeds of travel on Amherst Road.

#### Findings – Plumtree Road at Site Access Road

- When the 150 apartment units are completed and fully occupied all movements at the intersection of Plumtree Road at the site access road will operate at LOS A during the morning and afternoon peak hours.
- The sight distances looking left and right from the access road onto Plumtree Road are greater than the sight distances presented in the AASHTO reference for the 85<sup>th</sup> percentile speeds of travel on Plumtree Road.

## INTRODUCTION

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Sugarbush, LLC. proposes to construct Sugarbush Meadow, an apartment complex with 150 units, located within the southwest quadrant of Amherst Road (Route 116) and Plumtree Road in Sunderland, Massachusetts. The development site has a total of 63.27 acres and is situated just north of the Amherst Town Line a short distance from the University of Massachusetts Campus. This report was prepared by Traffic Engineering Solutions to address the traffic impact on roadways surrounding this apartment development. The following scope of work was included in this study:

- Making turning movement traffic counts during the morning (7:00 AM to 9:00 AM) and afternoon (4:00 PM to 6:00 PM) peak periods at the following location:
  - ◇ Amherst Road (Route 116) at Plumtree Road and East Plumtree Road;
- Making 24-hour directional machine counts on Amherst Road (Route 116) and on Plumtree Road in the vicinity of the site access roads for a weekday and a Saturday. The counts included directional speed studies to determine the 85th percentile speed of travel in each direction on these two roads (85th percentile speed was used to determine the sight distances needed at the site access roads).
- Making visual observations of roadways and land use conditions along Amherst Road and Plumtree Road in the vicinity of the site.
- Determining the number of trips expected to be added to the roadway system by the proposed 150 apartment units proposed for the site.
- Completing morning and afternoon and peak hour capacity analyses for the intersection of Amherst Road (Route 116) at Plumtree Road to determine the existing and anticipated operating Levels of Service (LOS) for the traffic volumes expected upon completion of the 150 apartment units (for a design year five years into the future). Also, completing capacity analyses for the intersections of Amherst Road and Plumtree Road at the site access roads for the traffic volumes anticipated (for a design year five years into the future) upon completion of the apartment complex.

## EXISTING CONDITIONS

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Sugarbush, LLC. proposes to construct Sugarbush Meadow, a 150-Unit apartment complex, on 63.27 acres located within the southwest quadrant of Amherst Road and Plumtree Road in the Town of Sunderland just north of the Town Line with Amherst. Access to the apartment complex will be provided by full access roads located along Amherst Road (Route 116) between the Pioneer Auction building and KSE Inc. and along Plumtree Road about a quarter mile west of Amherst Road. Visual observations were made for Amherst Road and Plumtree Road, turning movement traffic counts were made at the intersection of Amherst Road at Plumtree Road

and East Plumtree Road, and 24-hour traffic counts were made on Amherst Road and Plumtree Road.

## **Roadways**

**Amherst Road (Route 116)** runs through the Town of Sunderland beginning at the Connecticut River and Town Line with South Deerfield at its northerly end and continuing southeasterly and southerly through Sunderland into Amherst at its southerly end. The road name changes from Amherst Road to Sunderland Road as it crosses into Amherst. In the vicinity of the site and Plumtree Road the road is typically 42 feet wide with one travel lane in each direction. A double yellow centerline (with breaks to allow passing where sight distances are adequate) separates the two directions of travel and solid white edge lines delineate nine-foot shoulders along both sides of the road. The posted speed limit on Amherst Road in the vicinity of the site is 50 miles per hour (mph). Development along the road is a mixture of commercial and residential uses. Along the west side of Amherst Road (site side) between the Town Line with Amherst and Plumtree Road are an open field, four single family homes, Pioneer Auction (recently sold), KSE Inc. (radon testing - Process R & D) and a multi-family house; along the east side of Amherst Road are an open field, Bub's Bar-B-Q Restaurant, a Citgo Gasoline Station, and an office building which houses American Lease Insurance. The site access road will intersection the west side of Amherst Road about 500 feet south of Plumtree Road between the KSE Inc. and Pioneer Auction sites and a short distance north of the Amherst Town Line.

**Plumtree Road** runs from east to west beginning at its interchange with Amherst Road (Route 116) at its east end and continuing west for a distance of about 1.6 miles to its intersection with Hadley Road. The road continues easterly from the intersection with Amherst Road as East Plumtree Road. The road varies in width from 24 to 25 feet with a single travel lane in each direction. A double yellow centerline separates the two directions of travel and solid white edge lines delineate narrow (one to two-foot) shoulders along both sides of the road. The posted speed limit along most of Plumtree Road is 35 mph. The posted speed limit changes near Amherst Road to 30 mph. Development along Plumtree Road from just west of the site access road to Amherst Road is predominantly single family residential. The Sinauer Associates Publishers is located along the south side of Plumtree Road a short distance west of Amherst Road.

## **Existing Traffic Volumes**

Twenty-four hour machine counts were made on Amherst Road (Route 116) and Plumtree Road on November 16 and 17, 2005 for this study. Additionally, morning and afternoon peak period turning movement traffic counts were made on November 17, 2005 at the intersection of Amherst Road at Plumtree Road and East Plumtree Road. The machine counts indicate that the daily traffic volume on Amherst Road is 12,472 vehicles and the daily traffic volume on Plumtree Road is 1,399 vehicles. The turning movement counts indicate that the morning peak hour of travel on Amherst

Road occurred from 7:45 AM to 8:45 AM when 1,100 vehicles traveled the road (336 vehicles traveled toward the north and 764 vehicles traveled toward the south); the afternoon peak hour of travel on Amherst Road occurred from 4:15 PM to 5:15 PM when 1,258 vehicles traveled the road (746 vehicles traveled toward the north and 512 vehicles traveled toward the south). During the same morning peak hour 108 vehicles traveled Plumtree Road near its intersection with Amherst Road (78 vehicles traveled toward the east and 30 vehicles traveled toward the west); and during the afternoon peak hour 115 vehicles traveled Plumtree Road (33 vehicles traveled toward the east and 82 vehicles traveled toward the west). A copy of the machine and turning movement counts are included in the Appendix to this report.

## PROJECT GENERATED TRAFFIC

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New trips to the roadway system generated by the proposed 150 apartment units in the proposed Sugarbush Meadow development were determined from the Institute of Transportation Engineers (ITE) reference, Trip Generation<sup>1</sup>. The ITE reference has established mathematical relationships based on studies of various land uses to determine their trip generation rates. These trip generation relationships have been standardized and published in the Trip Generation reference.

The ITE reference provides trip generation information for several types of apartments including Apartments, Low-Rise Apartment, High-Rise Apartment and Mid-Rise Apartment. Review of the trips associated with each of these Land Uses indicates that using the trip generation information for Apartments provided the highest (most conservative) number of morning and afternoon peak hour trips. Accordingly, the trip generation information included in Land Use Code 220 – Apartment was used to determine the number of trips associated with the 150 apartment units proposed for Sugarbush Meadow. The following trip generation relationships were used to determine the number of daily, morning and afternoon peak hour trips that would be generated by Sugarbush Meadow and the number of trips are summarized in Table 1.

### Apartments

Average Weekday Trips	$T = 6.01(X) + 150.35$
Morning Peak Hour	$T = 0.49(X) + 3.73$ 20/80
Afternoon Peak Hour	$T = 0.55(X) + 17.65$ 65/35

where T is the number of trips and X the number of apartment units

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<sup>1</sup> Trip Generation Seventh Edition published by the Institute of Transportation Engineers, 2003



**Table 1 - Trip Generation – 150 Apartment Units**

	Trips Entering	Trips Leaving
Daily	526	526
Morning Peak Hour	15	62
Afternoon Peak Hour	65	35

Table 1 indicates that the proposed 150 apartment units in Sugarbush Meadow will generate 77 trips during the morning peak hour with 15 vehicles entering the site and 62 vehicles leaving the site. During the afternoon peak hour the 150 apartment units will generate 100 new trips with 65 vehicles returning home and 35 leaving. The new trips shown in Table 1 were used with the capacity analyses completed for this study

## **CAPACITY ANALYSES**

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Capacity Analyses were done to determine the existing and anticipated quality of traffic operations at intersections and roadways surrounding the site. Letter designations from A to F are used to represent the Levels of Service (LOS) for the traffic operation at each intersection or roadway with LOS A representing the best operating conditions with the least delay per vehicle and LOS F the worst with greater delay per vehicle.

The Level of Service analysis for unsignalized intersections with STOP control on the minor street (or driveways) assumes that through and right-turning traffic on the major street is not affected by traffic on the side streets. Hence, the LOS is determined for the movements on the side street and the left-turn movement from the major street onto the side street. Levels of Service are defined by the average delay per vehicle as indicated below.

### Unsignalized Intersections

Level of Service	Avg. Delay/Vehicle (in Seconds)
LOS A	$\leq 10.0$
LOS B	$> 10.0$ and $\leq 15.0$
LOS C	$> 15.0$ and $\leq 25.0$
LOS D	$> 25.0$ and $\leq 35.0$
LOS E	$> 35.0$ and $\leq 50.0$
LOS F	$> 50.0$

Level-of-service capacity analyses were completed for the 2005 existing traffic volumes, 2011 Design Year traffic volumes without the 150 apartment units and the 2011 Design Year traffic volumes with the 150 apartment units in Sugarbush Meadow for the intersection of Amherst Road at Plumtree Road and East Plumtree Road and for the 2011 Design Year traffic volumes with the 150 apartment units for the intersections of the site access roads with Amherst Road and with Plumtree Road. The 2011 No-Build traffic volumes were determined by increasing the 2005 traffic volumes by a two

percent annual growth factor (112.62% total growth) to account for growth that may occur in the Towns of Sunderland and Amherst in the vicinity of the site. The 2011 Build conditions were determined by adding the trips generated by the 150 apartment units to the 2011 No Build traffic volumes.

The generated trips were assigned to the roadway system by assuming all the site trips would use the access road to Amherst Road with ninety percent of these vehicles turning right and ten percent turning left (the same split of vehicles presently turning left and right from Plumtree Road during the morning peak hour) and fifty percent of the site trips would use the access road to Plumtree Road with half traveling to and from the west and half to and from the east. Those trips traveling to and from the east were assumed to turn onto Amherst Road using the same split as existing traffic leaving Plumtree Road during the morning peak hour. The results of the analyses are presented in Table 2.

**Table 2: Unsignalized Intersection Capacity Analysis**

		2005 Existing		2011 No Build		2011 Build	
Location	Peak Hour	Delay	LOS	Delay	LOS	Delay	LOS
Amherst Road at Plumtree Road							
N-Bd Left Turn	AM Peak	9.6	A	10.1	B	10.1	B
S-Bd Left Turn		8.1	A	8.2	A	8.3	A
E-Bd Plumtree Road		20.5	C	26.0	D	28.9	D
W-Bd East Plumtree		27.6	D	39.1	E	43.1	E
N-Bd Left Turn	PM Peak	8.9	A	9.3	A	9.4	A
S-Bd Left Turn		9.3	A	9.7	A	9.7	A
E-Bd Plumtree Road		17.5	C	21.7	C	25.1	D
W-Bd East Plumtree		46.4	E	67.0	F	76.9	F
Amherst Road at Site Access Road							
N-Bd Left Turn	AM Peak	N/A	N/A	N/A	N/A	10.5	B
E-Bd Access Rd.						26.7	D
N-Bd Left Turn	PM Peak	N/A	N/A	N/A	N/A	9.2	A
E-Bd Access Rd.						19.1	C
Plumtree Road at Site Access Road							
W-Bd Left Turn	AM Peak	N/A	N/A	N/A	N/A	7.5	A
N-Bd Access Rd.						9.6	A
W-Bd Left Turn	PM Peak	N/A	N/A	N/A	N/A	7.4	A
N-Bd Access Rd.						9.5	A

**NOTES:**

**Delay** = Average stopped delay, in seconds, to all vehicles entering the intersection or to vehicles making the specified turn.

Table 2 indicates that the left turns from northbound and southbound Amherst Road onto Plumtree Road and East Plumtree Road presently operate at Level of Service (LOS) A during the morning and afternoon peak hours. Northbound left turns will operate at LOS B during the morning peak hour and will continue to operate at LOS A during the afternoon peak hour for the 2011 No-Build conditions and the southbound left turns will continue to operate at LOS A during both peak hours for the 2011 No-Build conditions. There will be no further changes in operating Levels of Service for these left turns during either peak hour for the 2011 Build conditions when the trips associated with the apartment units in Sugarbush Meadow are added to the roadway system. The Plumtree Road approach to Amherst Road presently operates at LOS C during the morning and afternoon peak hours. This approach will operate at LOS D during the morning peak hour and will continue to operate at LOS C during the afternoon peak hour for the 2011 No-Build conditions. The Plumtree Road approach to Amherst Road will operate at LOS D during both peak hours for the 2011 Build conditions. The East Plumtree Road approach to Amherst Road presently operates at LOS D during the morning peak hour and LOS E during the afternoon peak hour. This approach will operate at LOS E during the morning peak hour and LOS F during the afternoon peak hour for the 2011 No-Build conditions. There will be no further changes in operating Level of Service for the 2011 Build conditions. Left turns from Amherst Road onto the site access road will operate at LOS B during the morning peak hour and LOS A during the afternoon peak hour and the site access road approach to Amherst Road will operate at LOS D during the morning peak hour and LOS C during the afternoon peak hour for the 2011 Build conditions. All movements at the intersection of Plumtree Road at the site access road will operate at LOS A during the morning and afternoon peak hours for the 2011 Build conditions.

## **SITE ACCESS**

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Access to Sugarbush Meadow will be provided by full access roads along Amherst Road (about 500 feet south of Plumtree Road between the Pioneer Auction building and KSE Inc.) and Plumtree Road (about a quarter mile west of Amherst Road). The sight distances available to drivers leaving both access roads were measured and compared with the sight distance presented in the AASHTO Policy on Geometric Design on Highways and Streets for the 85<sup>th</sup> percentile speeds of travel on Amherst Road and Plumtree Road. Table 3 summarizes the available and required sight distances looking left and right from the two access roads.

**Table 3 – Comparison of Available and Required Intersection Sight Distances**

	Intersection Sight Distance that can be provided with clearing	Required Intersection Sight Distance per AASHTO
Looking Left from Amherst Road access road	> 1,000 Feet	599 Feet
Looking Right from Amherst Road access road	> 1,000 Feet	588 Feet
Looking Left from Plumtree Road access road	700 Feet	511 Feet
Looking Right from Plumtree Road access road	515 Feet	500 Feet

Table 3 shows that the sight distances looking left and right from the access roads along Amherst Road and Plumtree Road are greater than the sight distances presented in the AASHTO reference for the 85<sup>th</sup> percentile speeds (the speeds at which 85 percent of all vehicles travel at or less than) of travel on the two roads.

## CONCLUSIONS

Sugarbush, LLC. proposes to construct Sugarbush Meadow, an apartment complex with 150 units, located within the southwest quadrant of Amherst Road (Route 116) and Plumtree Road in Sunderland, Massachusetts. The development site has a total of 63.27 acres and is presently undeveloped. Access to the apartment complex will be provided by full access roads along Amherst Road (between the Pioneer Auction building and KSE Inc.) and along Plumtree Road about a quarter mile west of Amherst Road.

New trips to the roadway system associated with the Sugarbush Meadow apartments were estimated from the trip generation information included in the ITE Trip Generation reference for Apartments. Based on the ITE trip generation information, the 150 apartment units will generate 15 vehicles entering the site and 62 vehicles leaving during the morning peak hour and 65 vehicles entering the site and 35 vehicles leaving during the afternoon peak hour.

Capacity analyses were completed for the intersection of Amherst Road (Route 116) at Plumtree Road and East Plumtree Road for the 2005 Existing conditions and for the Design Year 2011 No-Build and 2011 Build conditions and for the intersection of the site access roads with Amherst Road and Plumtree Road for the 2011 Build conditions.

Twenty-four hour machine counts were made on Amherst Road and Plumtree Road on November 16 and 17, 2005 and morning and afternoon peak period turning movement traffic counts were made on November 17,

2005 at the intersection of Amherst Road at Plumtree Road and East Plumtree Road.

Findings – Amherst Road at Plumtree Road and East Plumtree Road

- Based on the trip generation for 150 apartment units and the capacity analyses completed for this intersection, there will be minimal traffic impact with little change in operating Levels of Service from those expected without the proposed homes.
- Left turns from Amherst Road onto Plumtree Road and East Plumtree Road presently operate at Level of Service (LOS) A during the morning peak hours. If no building is done, left turns from Amherst Road onto Plumtree Road during 2011 will operate at LOS B during the morning peak hour and LOS A during the afternoon peak hour and left turns from Amherst Road onto East Plumtree Road will operate at LOS A during both peak hours.

When the 150 apartment units are completed and fully occupied, left turns from Amherst Road onto Plumtree Road will continue to operate at LOS B during the morning peak hour and LOS A during the afternoon peak hour and left turns from Amherst Road onto East Plumtree Road will continue to operate at LOS A during both peak hours.

- The Plumtree Road approach to Amherst Road presently operates at LOS C during the morning and afternoon peak hours. If no building is done this approach will operate at LOS D during the morning peak hour and will continue to operate at LOS C during the afternoon peak hour for the 2011 No-Build conditions.

When the 150 apartment units are completed and fully occupied the Plumtree Road approach to Amherst Road will operate at LOS D during both peak hours.

- The East Plumtree Road approach to Amherst Road presently operates at LOS D during the morning peak hour and LOS E during the afternoon peak hour. If no building is done this approach will operate at LOS E during the morning peak hour and LOS F during the afternoon peak hour.

When the 150 apartment units are completed and fully occupied there will be no further changes in operating Level of Service. This approach will continue to operate at LOS E during the morning peak hour and LOS F during the afternoon peak hour

Findings – Amherst Road at Site Access Road

- When the 150 apartment units are completed and fully occupied left turns from Amherst Road onto the site access road will operate at LOS B during the morning peak hour and LOS A during the afternoon peak hour

- When the 150 apartment units are completed and fully occupied the site access road approach to Amherst Road will operate at LOS D during the morning peak hour and LOS C during the afternoon peak.
- The sight distances looking left and right from the access road onto Amherst Road are greater than the sight distances presented in the AASHTO reference for the 85<sup>th</sup> percentile speeds of travel on Amherst Road.

#### Findings – Plumtree Road at Site Access Road

- When the 150 apartment units are completed and fully occupied all movements at the intersection of Plumtree Road at the site access road will operate at LOS A during the morning and afternoon peak hours.
- The sight distances looking left and right from the access road onto Plumtree Road are greater than the sight distances presented in the AASHTO reference for the 85<sup>th</sup> percentile speeds of travel on Plumtree Road.

# **APPENDIX**

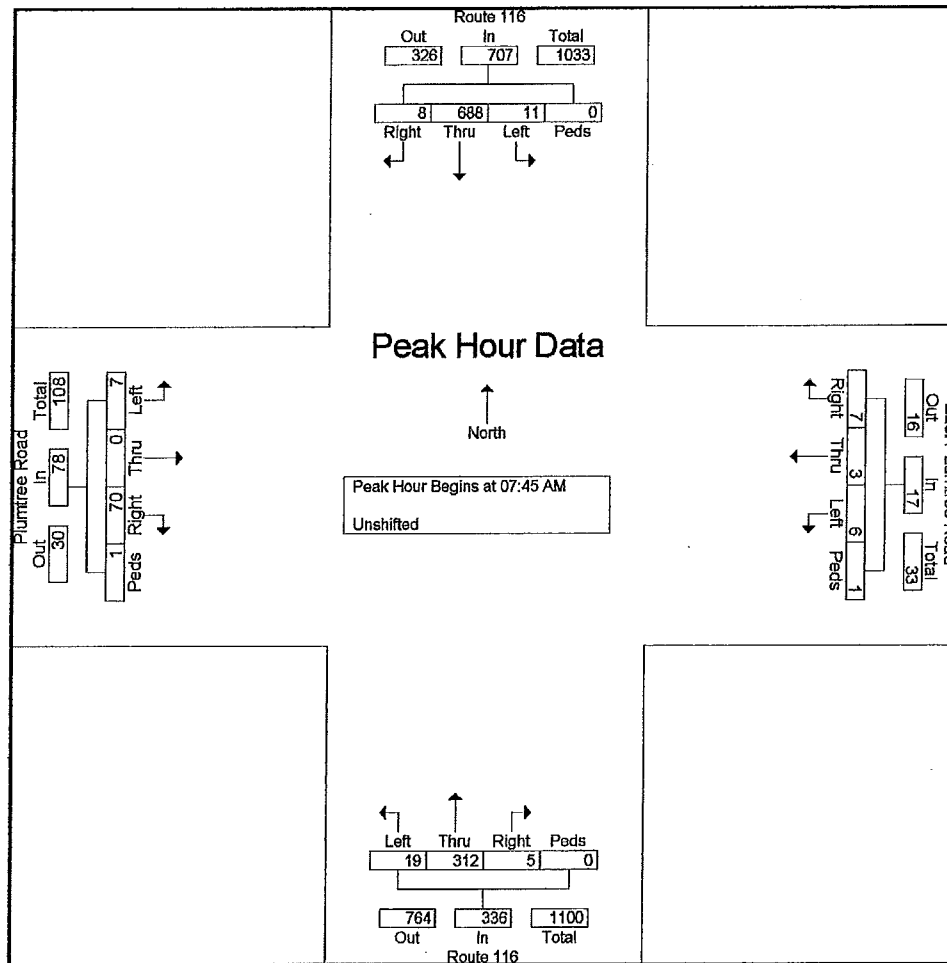
## **EXISTING TRAFFIC VOLUMES**



Connecticut Counts Inc.  
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 5186  
Site Code : 5186  
Start Date : 11/17/2005  
Page No : 2

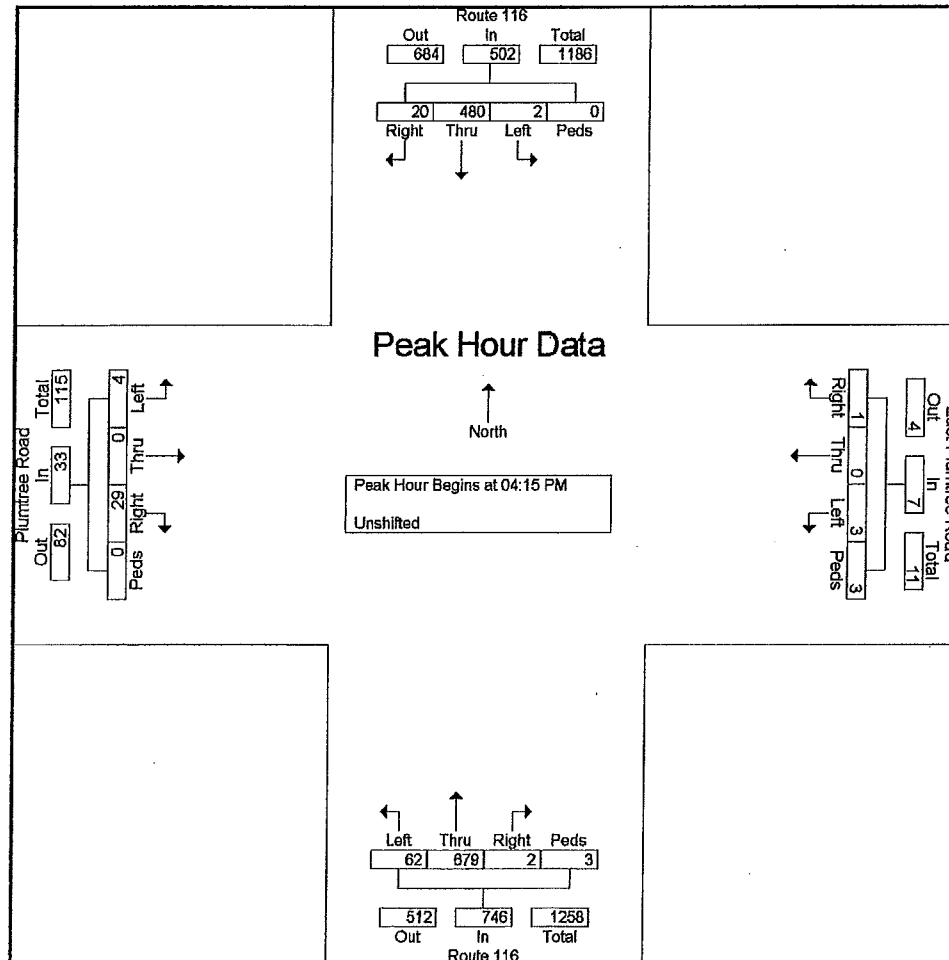
	Route 116 From North					East Plumtree Road From East					Route 116 From South					Plumtree Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	159	3	0	164	0	0	2	1	3	1	94	7	0	102	17	0	2	1	20	289
08:00 AM	1	158	5	0	164	3	2	2	0	7	3	83	6	0	92	14	0	2	0	16	279
08:15 AM	1	209	1	0	211	2	1	1	0	4	1	68	2	0	71	19	0	3	0	22	308
08:30 AM	4	162	2	0	168	2	0	1	0	3	0	67	4	0	71	20	0	0	0	20	262
Total Volume	8	688	11	0	707	7	3	6	1	17	5	312	19	0	336	70	0	7	1	78	1138
% App. Total	1.1	97.3	1.6	0		41.2	17.6	35.3	5.9		1.5	92.9	5.7	0		89.7	0	9	1.3		
PHF	.500	.823	.550	.000	.838	.583	.375	.750	.250	.607	.417	.830	.679	.000	.824	.875	.000	.583	.250	.886	.924



**Connecticut Counts Inc.**  
 Kensington, Connecticut 06037  
 (860) 828-1693

File Name : 5187  
 Site Code : 5187  
 Start Date : 11/17/2005  
 Page No : 2

	Route 116 From North					East Plumtree Road From East					Route 116 From South					Plumtree Road 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
<b>Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1</b>																					
<b>Peak Hour for Entire Intersection Begins at 04:15 PM</b>																					
04:15 PM	4	143	2	0	149	0	0	1	1	2	0	144	14	0	158	6	0	0	0	6	315
04:30 PM	3	111	0	0	114	1	0	2	0	3	0	196	15	1	212	8	0	3	0	11	340
04:45 PM	6	107	0	0	113	0	0	0	2	2	0	167	13	0	180	5	0	0	0	5	300
05:00 PM	7	119	0	0	126	0	0	0	0	0	2	172	20	2	196	10	0	1	0	11	333
Total Volume	20	480	2	0	502	1	0	3	3	7	2	679	62	3	746	29	0	4	0	33	1288
% App. Total	4	95.6	0.4	0		14.3	0	42.9	42.9		0.3	91	8.3	0.4		87.9	0	12.1	0		
PHF	.714	.839	.250	.000	.842	.250	.000	.375	.375	.583	.250	.866	.775	.375	.880	.725	.000	.333	.000	.750	.947



Route 116 500' South of Plumtree Road  
Sunderland, MA

Site Code: 793  
Station ID:

Northbound		Latitude: 0' 0.000 Undefined																		
Start	0	16	21	26	31	36	41	46	51	56	61	66	71	76	81	86	91	96	101	106
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
11/16/05	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	13	2	3	3	6	23	75	213	96	32	3	4	1	0	474	54	58	58	58	58
15:00	16	0	1	1	7	18	112	212	151	21	5	3	1	0	548	54	56	56	56	56
16:00	10	3	0	6	11	57	199	309	74	10	3	1	0	0	683	50	54	54	54	54
17:00	7	0	2	2	20	93	189	192	49	5	2	0	0	0	561	50	53	53	53	53
18:00	3	0	3	4	4	54	164	145	21	5	1	0	1	0	405	49	52	52	52	52
19:00	8	0	3	0	3	14	80	116	42	6	1	1	0	0	274	51	55	55	55	55
20:00	1	0	1	0	0	24	66	95	38	9	0	0	0	0	234	52	55	55	55	55
21:00	0	0	1	0	2	9	65	101	43	6	1	0	0	0	228	52	55	55	55	55
22:00	2	1	0	0	0	5	30	59	23	13	2	0	0	0	135	54	58	58	58	58
23:00	0	0	0	0	0	0	22	30	23	3	2	0	0	0	80	54	56	56	56	56
Total	60	6	14	16	53	297	1002	1472	560	110	20	9	3	0	3622					
Percent	1.7%	0.2%	0.4%	0.4%	1.5%	8.2%	27.7%	40.6%	15.5%	3.0%	0.6%	0.2%	0.1%	0.0%						
AM Peak																				
Vol.																				
PM Peak	15:00	16:00	14:00	16:00	17:00	17:00	16:00	16:00	15:00	14:00	15:00	14:00	14:00	14:00	16:00					
Vol.	16	3	3	6	20	93	199	309	151	32	5	4	1		683					

Route 116 500' South of Plumtree Road  
Sunderland, MA

Site Code: 793  
Station ID:

Latitude: 0' 0.000 Undefined																	
Northbound		0	16	21	26	31	36	41	46	51	56	61	66	71	76	85th	95th
Start	Time	15	20	25	30	35	40	45	50	55	60	65	70	75	9999	Total	Percent
11/17/05		0	0	0	0	0	5	15	28	16	3	1	0	0	0	68	53
01:00		0	0	0	0	0	0	4	16	8	3	0	0	0	0	31	53
02:00		0	0	0	0	0	0	5	6	2	1	2	0	0	0	16	60
03:00		0	0	0	0	0	0	0	3	4	4	0	0	0	0	11	57
04:00		1	0	0	0	0	0	1	5	4	7	0	0	0	0	18	59
05:00		0	0	0	0	0	3	10	17	16	8	1	0	0	0	55	56
06:00		2	1	0	1	1	1	16	47	35	13	5	0	0	0	122	58
07:00		9	1	1	0	4	4	27	121	109	23	2	1	1	0	303	55
08:00		8	1	0	1	4	3	41	123	62	26	5	2	0	0	276	55
09:00		5	0	0	0	6	7	28	76	69	30	5	2	1	0	229	56
10:00		3	0	1	3	4	14	37	103	83	23	0	0	0	0	271	54
11:00		7	1	3	0	2	19	50	100	81	26	3	2	0	0	294	55
12 PM		10	1	5	1	2	15	52	166	101	17	2	2	0	0	374	54
13:00		8	2	0	3	16	20	74	156	116	27	1	0	0	0	423	54
14:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total		53	7	10	9	39	91	360	967	706	211	27	9	2	0	2491	
Percent		2.1%	0.3%	0.4%	0.4%	1.6%	3.7%	14.5%	38.8%	28.3%	8.5%	1.1%	0.4%	0.1%	0.0%		
AM Peak		07:00	06:00	11:00	10:00	09:00	11:00	11:00	08:00	07:00	09:00	06:00	08:00	07:00		07:00	
Vol.		9	1	3	3	6	19	50	123	109	30	5	2	1		303	
PM Peak		12:00	13:00	12:00	13:00	13:00	13:00	13:00	12:00	13:00	13:00	12:00	12:00			13:00	
Vol.		10	2	5	3	16	20	74	166	116	27	2	2			423	
Grand Total		113	13	24	25	92	388	1362	2439	1266	321	47	18	5	0	6113	
Percent		1.8%	0.2%	0.4%	0.4%	1.5%	6.3%	22.3%	39.9%	20.7%	5.3%	0.8%	0.3%	0.1%	0.0%		

Statistics	10 MPH Pace Speed :	41-50 MPH
	Number in Pace :	3801
	Percent in Pace :	62.2%
	Number of Vehicles > 40 MPH :	5458
	Percent of Vehicles > 40 MPH :	89.3%
	Mean Speed(Average) :	47 MPH
Statistics	Mean Speed(Average) :	47 MPH
	10 MPH Pace Speed :	41-50 MPH
	Number in Pace :	3801
	Percent in Pace :	62.2%

Route 116 500' South of Plumtree Road  
Sunderland, MA

Site Code: 793  
Station ID:

Latitude: 0' 0.000 Undefined																
Southbound																
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	85th	95th
	15	20	25	30	35	40	45	50	55	60	65	70	75	9999	Total	Percent
11/16/05	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	38	5	8	7	5	14	69	142	80	22	4	1	3	0	398	54
15:00	47	9	3	12	12	39	76	173	99	19	2	2	1	0	494	53
16:00	28	3	1	7	5	20	85	152	58	7	2	4	1	0	373	55
17:00	17	5	3	10	5	29	118	153	48	14	2	1	3	0	408	51
18:00	9	8	6	2	4	11	59	100	47	7	2	0	1	0	256	55
19:00	1	5	0	3	1	7	42	81	34	5	2	0	1	0	182	53
20:00	4	2	0	0	0	5	28	59	30	9	1	1	1	0	140	58
21:00	1	3	0	0	0	1	17	46	38	11	0	0	0	0	117	54
22:00	0	3	0	1	0	2	20	48	18	6	1	0	0	0	99	57
23:00	1	0	0	0	0	2	5	18	12	6	1	0	0	0	45	53
Total	146	43	21	42	32	130	519	972	464	106	17	9	11	0	2512	55
Percent	5.8%	1.7%	0.8%	1.7%	1.3%	5.2%	20.7%	38.7%	18.5%	4.2%	0.7%	0.4%	0.4%	0.0%		
AM Peak																
Vol.																
PM Peak	15:00	15:00	14:00	15:00	15:00	15:00	17:00	15:00	15:00	14:00	14:00	16:00	14:00	15:00		
Vol.	47	9	8	12	12	39	118	173	99	22	4	4	3	494		

Route 116 500' South of Plumtree Road  
Sunderland, MA

Site Code: 793  
Station ID:

Southbound															Latitude: 0' 0.000 Undefined									
Start	0	16	21	26	31	36	41	46	51	56	61	66	71	76	Total		85th		95th					
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	9999	Percent	Percent	Percent	Percent	Percent	Percent				
11/17/05	1	3	0	1	0	1	1	14	9	3	0	1	0	0	34	54	54	57	58	58				
01:00	0	0	0	0	0	0	2	3	1	3	0	0	0	0	9	57	53	54	54	54				
02:00	0	0	0	0	0	0	2	4	6	0	0	0	0	0	12	53	54	55	55	55				
03:00	2	0	0	0	0	0	1	7	5	0	1	0	0	0	16	54	56	60	60	60				
04:00	2	0	1	0	0	0	1	17	10	5	1	1	0	0	38	55	58	58	58	58				
05:00	0	0	0	1	0	3	19	55	36	12	1	1	0	0	128	55	55	55	55	55				
06:00	1	5	3	2	1	5	54	150	114	30	2	3	1	0	371	55	55	55	58	58				
07:00	15	5	0	1	10	34	126	226	182	33	6	0	1	0	639	54	57	54	57	57				
08:00	8	3	7	1	8	23	126	312	143	38	7	2	0	0	689	53	53	53	57	57				
09:00	7	6	3	2	11	16	56	156	121	43	4	0	1	0	433	55	55	55	58	58				
10:00	5	3	4	3	4	16	62	121	126	40	5	2	1	0	392	55	55	55	59	59				
11:00	2	4	3	0	5	10	45	105	107	38	6	0	0	0	325	55	55	55	59	59				
12 PM	8	7	12	3	6	15	59	151	109	18	1	1	0	0	390	54	54	54	55	55				
13:00	9	5	0	7	7	12	51	137	112	25	5	0	1	0	371	54	54	54	58	58				
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*				
Total	60	41	33	21	52	153	605	1458	1081	288	39	11	5	0	3847									
Percent	1.6%	1.1%	0.9%	0.5%	1.4%	4.0%	15.7%	37.9%	28.1%	7.5%	1.0%	0.3%	0.1%	0.0%										
AM Peak	07:00	09:00	08:00	10:00	09:00	07:00	07:00	08:00	07:00	09:00	08:00	06:00	06:00	08:00										
Vol.	15	6	7	3	11	34	126	312	182	43	7	3	1		689									
PM Peak	13:00	12:00	12:00	13:00	13:00	12:00	12:00	12:00	13:00	13:00	13:00	12:00	13:00	12:00										
Vol.	9	7	12	7	7	15	59	151	112	25	5	1	1		390									
Grand Total	206	84	54	63	84	283	1124	2430	1545	394	56	20	16	0	6359									
Percent	3.2%	1.3%	0.8%	1.0%	1.3%	4.5%	17.7%	38.2%	24.3%	6.2%	0.9%	0.3%	0.3%	0.0%										

Statistics	10 MPH Pace Speed :	46-55 MPH
	Number in Pace :	3975
	Percent in Pace :	62.5%
	Number of Vehicles > 40 MPH :	5585
	Percent of Vehicles > 40 MPH :	87.8%
Mean Speed(Average) :		46 MPH
Statistics	Mean Speed(Average) :	46 MPH
	10 MPH Pace Speed :	46-55 MPH
	Number in Pace :	3975
	Percent in Pace :	62.5%

Latitude: 0' 0.000 Undefined																	
Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total	85th Percent	95th Percent
11/16/05	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	2	0	3	5	10	25	10	5	0	0	0	0	0	0	60	43	47
15:00	1	0	0	3	7	15	19	7	0	0	0	0	0	0	52	45	47
16:00	0	1	0	0	4	10	10	0	0	0	0	0	0	0	25	43	45
17:00	0	0	0	2	5	10	7	2	0	0	0	0	0	0	26	43	46
18:00	0	0	0	1	9	8	4	1	0	0	0	0	0	0	23	42	44
19:00	0	0	0	0	3	4	4	1	0	0	0	0	0	0	12	43	44
20:00	1	1	0	0	3	4	2	1	0	1	0	0	0	0	13	42	46
21:00	0	1	0	0	1	2	0	0	0	0	0	0	0	0	4	36	37
22:00	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	41	41
23:00	0	0	0	0	1	1	0	1	0	0	0	0	0	0	3	41	41
Total	4	3	3	12	44	79	57	18	0	1	0	0	0	0	221	46	46
Percent	1.8%	1.4%	1.4%	5.4%	19.9%	35.7%	25.8%	8.1%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%			
AM Peak																	
Vol.																	
PM Peak	14:00	16:00	14:00	14:00	14:00	14:00	15:00	15:00	20:00	20:00	15:00	14:00	14:00	14:00	14:00	14:00	14:00
Vol.	2	1	3	5	10	25	19	7	1	1	7	7	1	1	60	60	60

Plumtree Road 1/4 Mile West of Rte 116  
Sunderland, MA

Site Code: 794  
Station ID:

Eastbound		Latitude: 0' 0.000 Undefined																
Start	0	16	21	26	31	36	41	46	51	56	61	66	71	76	81	86	91	96
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	00
11/17/05	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	6	8	5	3	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	2	11	9	21	5	0	0	0	0	0	0	0	0	0	0
07:00	1	1	0	2	5	24	20	4	1	0	0	0	0	0	0	0	0	0
08:00	2	1	1	1	10	26	26	22	7	1	0	0	0	0	0	0	0	0
09:00	0	0	2	1	4	11	27	12	6	1	0	0	0	0	0	0	0	0
10:00	0	0	0	0	3	8	12	4	1	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	4	15	12	10	1	0	0	0	0	0	0	0	0	0
12 PM	0	0	0	0	5	15	15	9	3	0	0	1	0	0	0	0	0	0
13:00	0	0	0	0	6	14	20	6	0	0	0	0	0	0	0	0	0	0
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	3	2	4	10	56	132	162	77	19	2	0	1	0	0	0	0	0	468
Percent	0.6%	0.4%	0.9%	2.1%	12.0%	28.2%	34.6%	16.5%	4.1%	0.4%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	09:00	05:00	06:00	08:00	09:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	
Vol.	2	1	2	2	11	26	27	22	7	1								08:00
PM Peak				13:00	13:00	12:00	13:00	12:00	12:00	12:00		12:00						97
Vol.				1	6	15	20	9	3			1						12:00
Grand	7	5	7	22	100	211	219	95	19	3	0	1	0	0	0	0	0	689
Total	1.0%	0.7%	1.0%	3.2%	14.5%	30.6%	31.8%	13.8%	2.8%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
Percent																		

Statistics	10 MPH Pace Speed :	36-45 MPH
	Number in Pace :	430
	Percent in Pace :	62.4%
	Number of Vehicles > 25 MPH :	670
	Percent of Vehicles > 25 MPH :	97.2%
Mean Speed(Average) :		40 MPH
Statistics	Mean Speed(Average) :	40 MPH
	10 MPH Pace Speed :	36-45 MPH
	Number in Pace :	430
	Percent in Pace :	62.4%

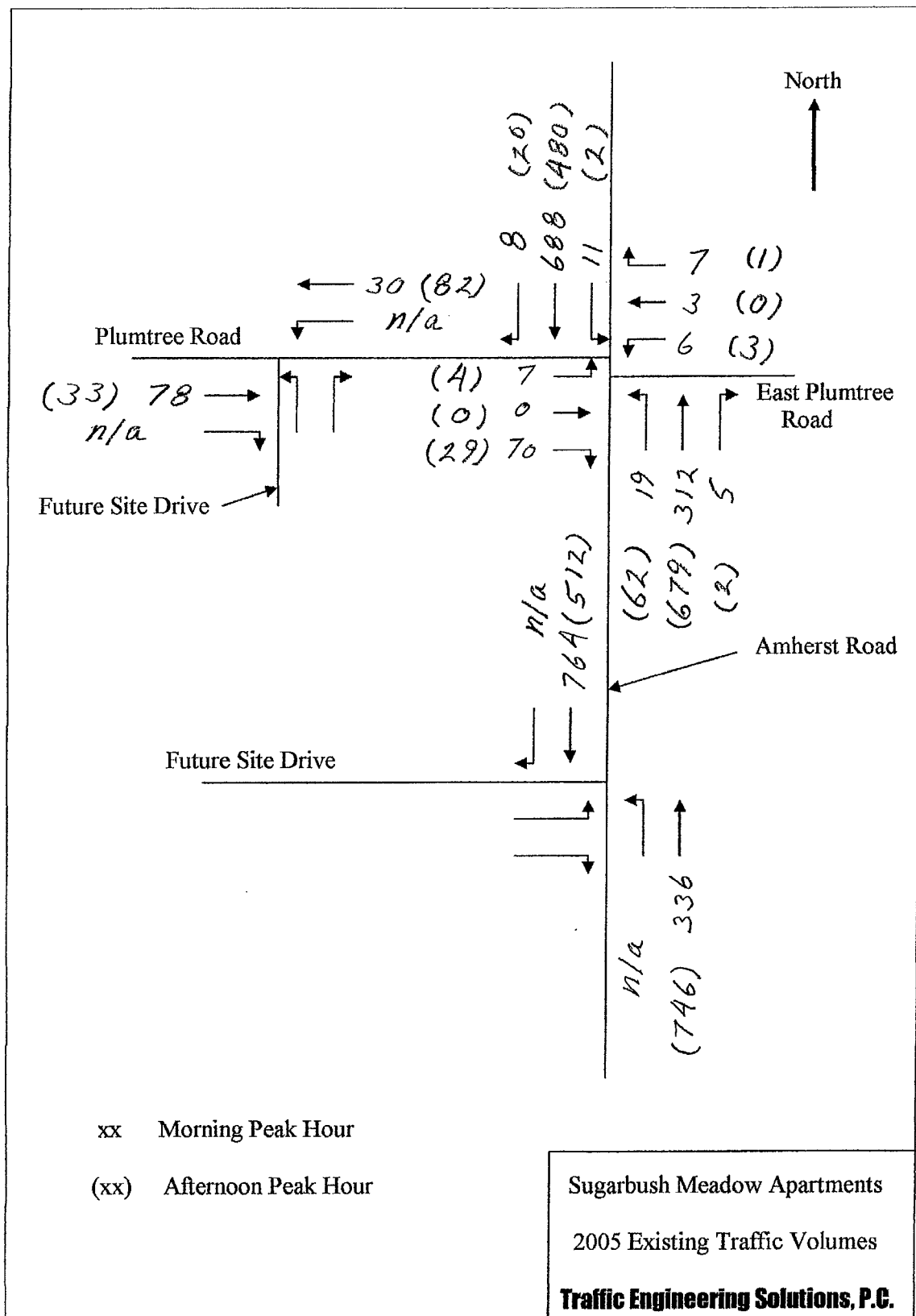


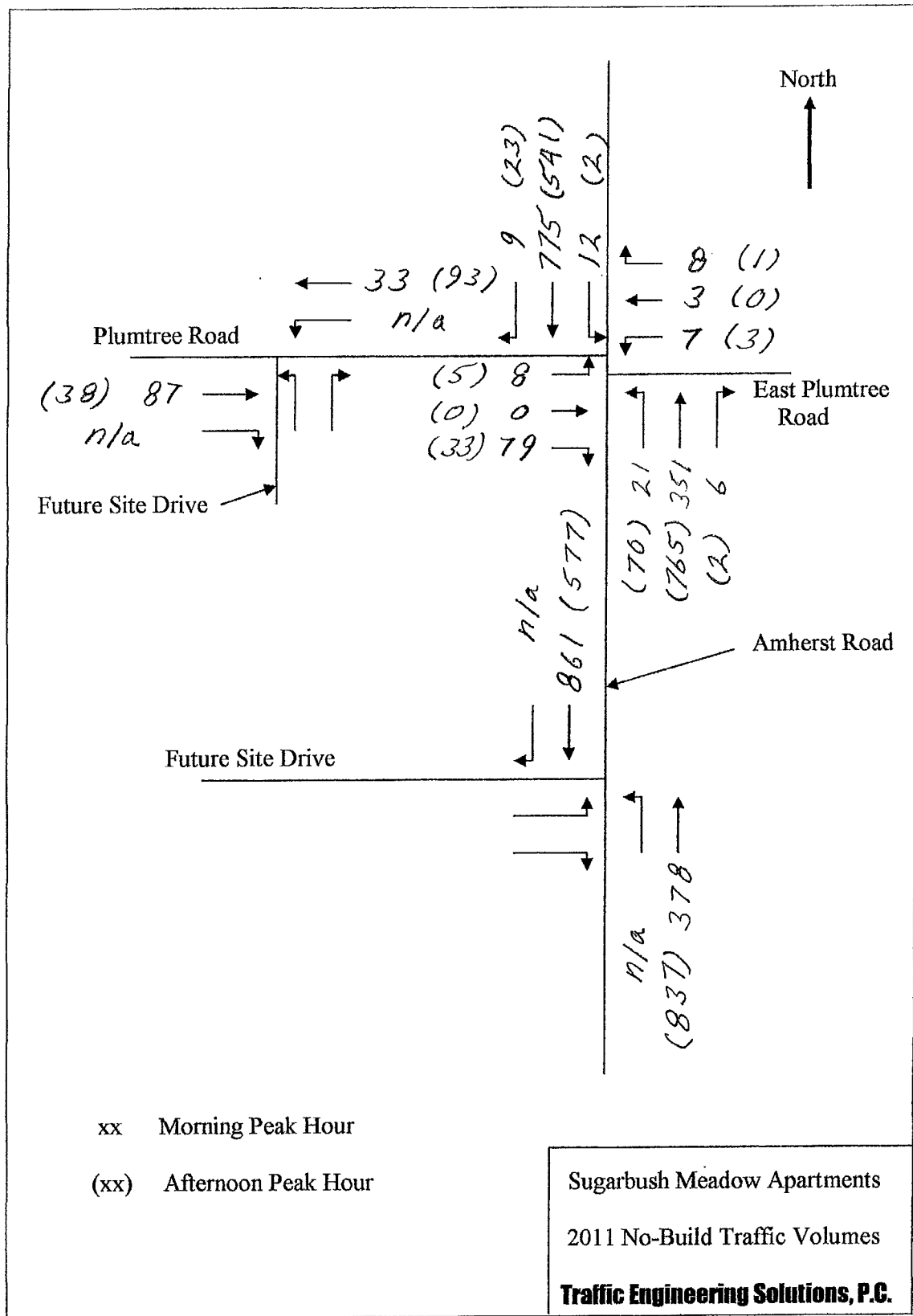
Latitude: 0' 0.000 Undefined															
Westbound															
Start Time	0	15	20	25	31	36	41	46	51	56	61	66	71	76	85th Percent
11/16/05	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	0	1	1	0	19	31	44	19	6	0	0	0	0	0	47
15:00	1	1	1	1	9	20	36	6	1	0	0	0	0	0	50
16:00	0	1	0	0	16	35	16	3	0	0	0	0	0	0	47
17:00	1	1	1	0	15	28	8	3	2	0	0	0	0	0	45
18:00	0	0	0	0	6	17	8	2	0	0	0	0	0	0	45
19:00	0	0	0	0	4	9	11	2	1	0	0	0	0	0	45
20:00	0	0	0	0	4	7	9	2	0	0	0	0	0	0	47
21:00	0	1	1	1	4	6	7	0	0	0	0	0	0	0	46
22:00	0	0	0	0	1	7	2	1	0	0	0	0	0	0	44
23:00	0	0	0	0	2	2	0	2	0	0	0	0	0	0	42
Total	2	5	1.1%	2	80	162	141	40	10	0	0	0	0	0	46
Percent	0.4%	1.1%	0.4%	1.6%	17.8%	36.1%	31.4%	8.9%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	47
AM Peak															
Vol.															
PM Peak	15:00	14:00	15:00	14:00	14:00	16:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00
Vol.	1	1	1	1	2	35	44	19	6						122

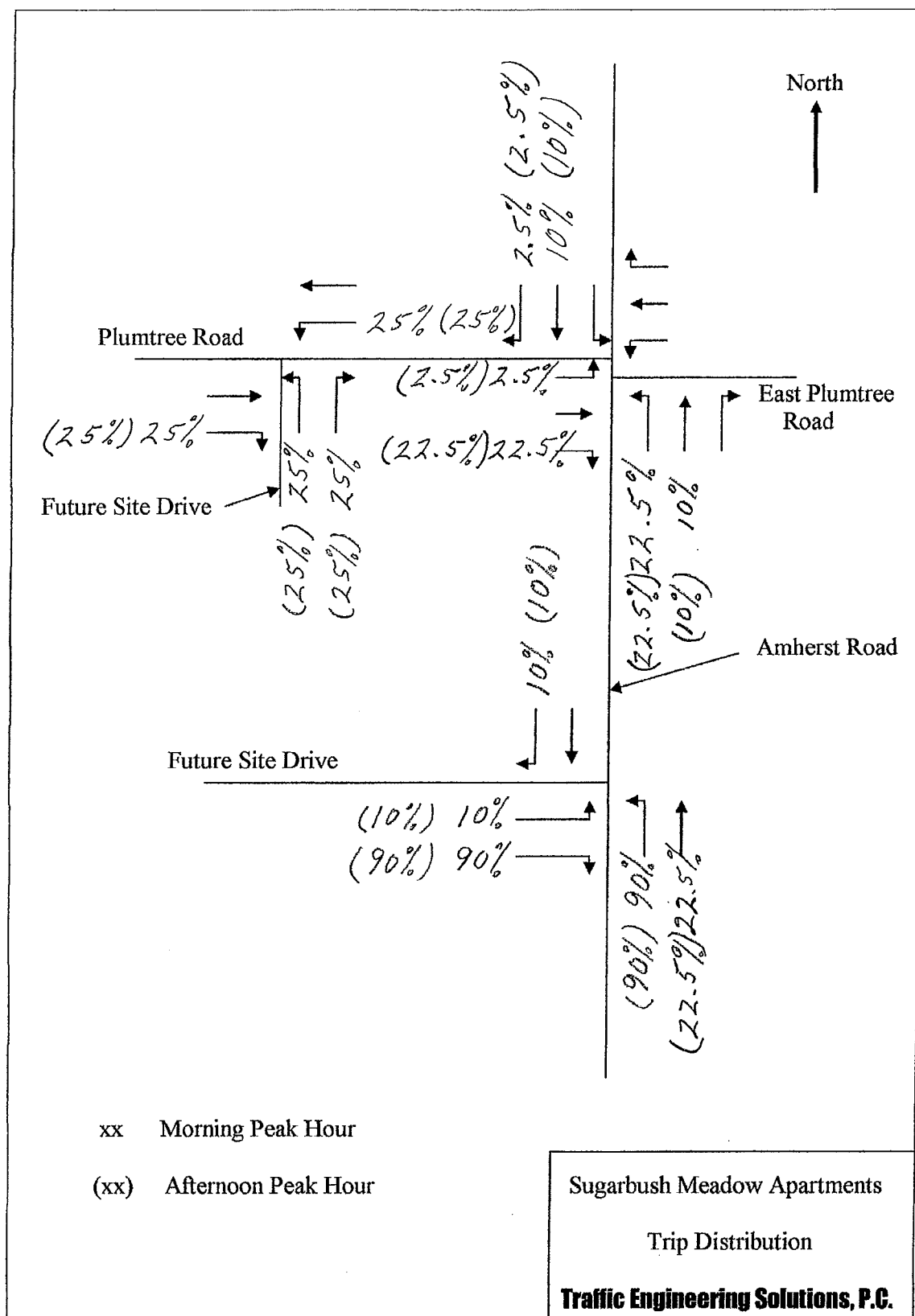
Westbound		Latitude: 0' 0.000 Undefined																	
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	81	86	91	96	99th
15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	99	Percent
11/17/05	0	0	0	0	2	3	2	1	0	0	0	0	0	0	0	0	0	0	46
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
02:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	36
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*
07:00	1	1	0	2	3	5	1	2	0	0	0	0	0	0	0	0	0	0	46
08:00	1	1	0	0	5	5	5	2	0	1	0	0	0	0	0	0	0	0	47
09:00	0	1	1	0	3	10	10	3	0	0	0	0	0	0	0	0	0	0	43
10:00	0	0	0	1	4	13	11	5	0	0	0	0	0	0	0	0	0	0	46
11:00	1	0	0	1	4	14	12	3	1	0	0	0	0	0	0	0	0	0	48
12 PM	0	0	0	0	4	13	13	10	2	0	0	0	0	0	0	0	0	0	47
13:00	0	0	1	0	7	16	20	5	1	0	0	0	0	0	0	0	0	0	50
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	48
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	3	2	3	5	36	98	78	31	4	1	0	0	0	0	0	0	0	0	261
Percent	1.1%	0.8%	1.1%	1.9%	13.8%	37.5%	29.9%	11.9%	1.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	06:00	07:00	09:00	11:00	10:00	11:00	07:00									09:00
Vol.	1	1	1	2	5	18	12	5	1	1									36
PM Peak			13:00	13:00	13:00	13:00	13:00	12:00	12:00										13:00
Vol.			1	7	7	16	20	10	2										50
Grand Total	5	7	5	12	116	260	219	71	14	1	0	0	0	0	0	0	0	0	710
Percent	0.7%	1.0%	0.7%	1.7%	16.3%	36.6%	30.8%	10.0%	2.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

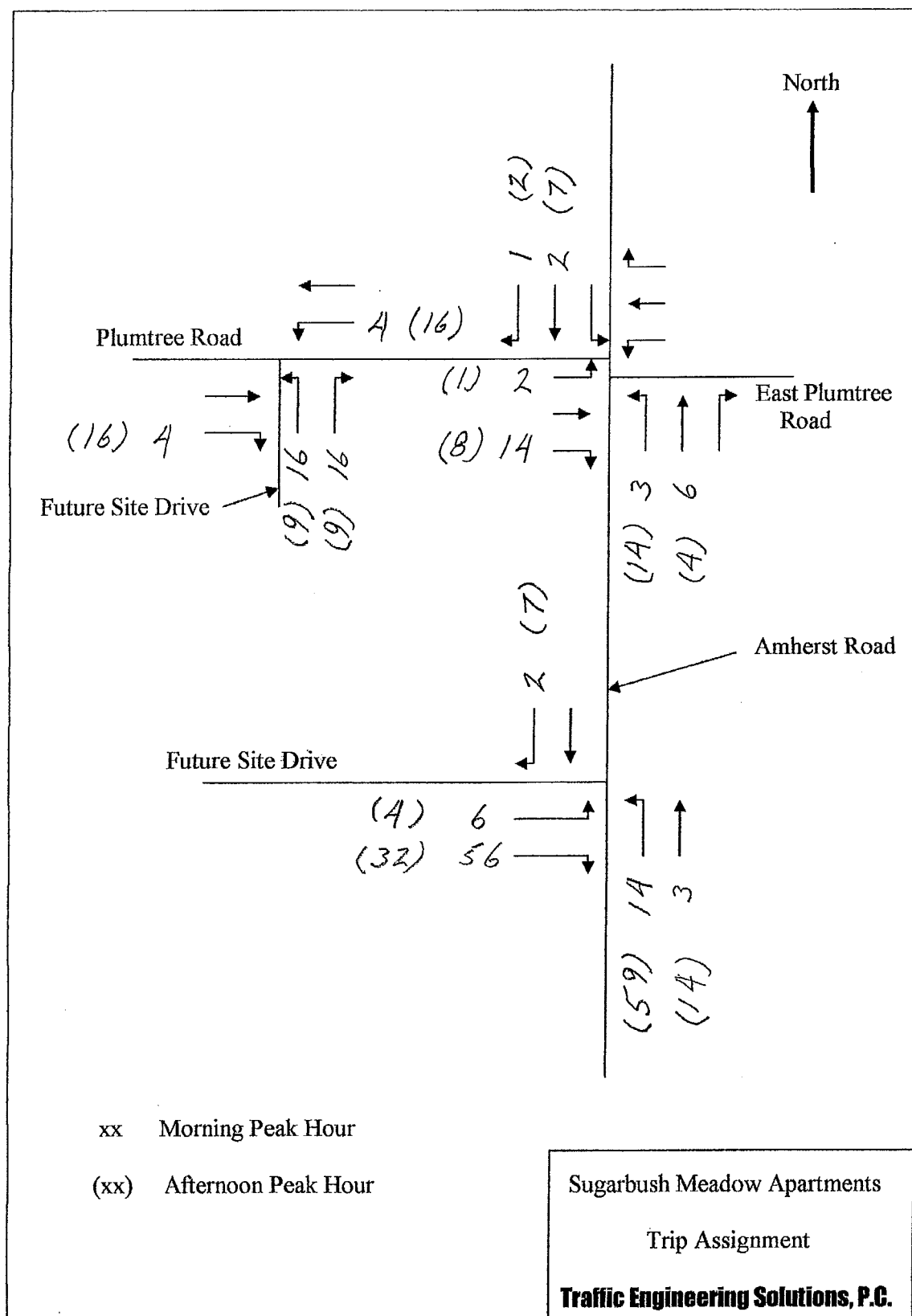
Statistics	10 MPH Pace Speed :	36-45 MPH
	Number in Pace :	479
	Percent in Pace :	67.5%
	Number of Vehicles > 25 MPH :	693
	Percent of Vehicles > 25 MPH :	97.6%
	Mean Speed(Average) :	39 MPH
Statistics	Mean Speed(Average) :	39 MPH
	10 MPH Pace Speed :	36-45 MPH
	Number in Pace :	479
	Percent in Pace :	67.5%

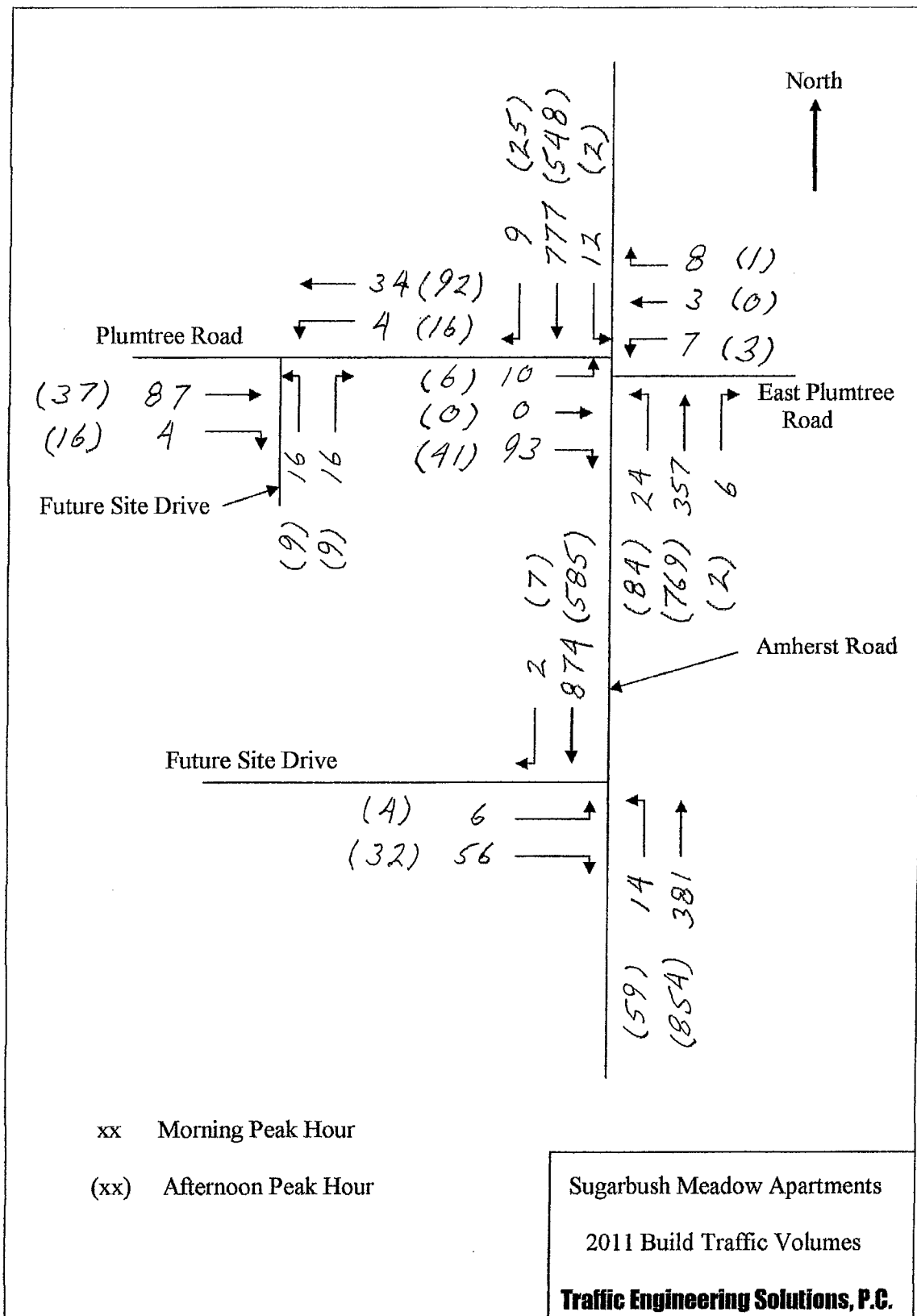
# **TRAFFIC FLOW DIAGRAMS**













**UNSIGNALIZED INTERSECTION**

**CAPACITY ANALYSES**

**2005 EXISTING CONDITIONS**

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	BAH			Intersection	Amherst Road at Plumtree Road		
Agency/Co.	Traffic Engineering Solutions			Jurisdiction	Sunderland		
Date Performed	12/5/2005			Analysis Year	2005 Existing Conditions		
Analysis Time Period	AM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Plumtree/East Plumtree Street				North/South Street: Amherst Road (Route 116)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	19	312	5	11	688	8	
Peak-Hour Factor, PHF	0.82	0.82	0.82	0.84	0.84	0.84	
Hourly Flow Rate, HFR (veh/h)	8	0	80	9	4	11	
Percent Heavy Vehicles	2	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
<b>Minor Street</b>	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	7	0	70	6	3	7	
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.61	0.61	0.61	
Hourly Flow Rate, HFR (veh/h)	13	819	9	23	380	6	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR	LTR			LTR	
v (veh/h)	23	13	24			88	
C (m) (veh/h)	803	1172	183			319	
v/c	0.03	0.01	0.13			0.28	
95% queue length	0.09	0.03	0.44			1.10	
Control Delay (s/veh)	9.6	8.1	27.6			20.5	
LOS	A	A	D			C	
Approach Delay (s/veh)	--	--	27.6			20.5	
Approach LOS	--	--	D			C	

TWO-WAY STOP CONTROL SUMMARY									
<b>General Information</b>					<b>Site Information</b>				
Analyst	BAH				Intersection	Amherst Road at Plumtree Road			
Agency/Co.	Traffic Engineering Solutions				Jurisdiction	Sunderland			
Date Performed	12/5/2005				Analysis Year	2005 Existing Conditions			
Analysis Time Period	PM Peak								
Project Description Sugarbush Meadow Apartments									
East/West Street: Plumtree/East Plumtree Street					North/South Street: Amherst Road (Route 116)				
Intersection Orientation: North-South					Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>									
<b>Major Street</b>	Northbound			Southbound					
Movement	1	2	3	4	5	6			
	L	T	R	L	T	R			
Volume (veh/h)	62	679	2	2	480	20			
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.84	0.84	0.84			
Hourly Flow Rate, HFR (veh/h)	5	0	38	5	0	1			
Percent Heavy Vehicles	2	--	--	2	--	--			
Median Type	Undivided								
RT Channelized			0			0			
Lanes	0	1	0	0	1	0			
Configuration	LTR			LTR					
Upstream Signal		0			0				
<b>Minor Street</b>	Eastbound			Westbound					
Movement	7	8	9	10	11	12			
	L	T	R	L	T	R			
Volume (veh/h)	4	0	29	3	0	1			
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.58	0.58	0.58			
Hourly Flow Rate, HFR (veh/h)	2	571	23	70	771	2			
Percent Heavy Vehicles	2	2	2	2	2	2			
Percent Grade (%)	0			0					
Flared Approach		N			N				
Storage		0			0				
RT Channelized			0			0			
Lanes	0	1	0	0	1	0			
Configuration		LTR			LTR				
<b>Delay, Queue Length, and Level of Service</b>									
Approach	Northbound	Southbound	Westbound			Eastbound			
Movement	1	4	7	8	9	10	11	12	
Lane Configuration	LTR	LTR	LTR			LTR			
v (veh/h)	70	2	6			43			
C (m) (veh/h)	982	842	93			332			
v/c	0.07	0.00	0.06			0.13			
95% queue length	0.23	0.01	0.20			0.44			
Control Delay (s/veh)	8.9	9.3	46.4			17.5			
LOS	A	A	E			C			
Approach Delay (s/veh)	--	--	46.4			17.5			
Approach LOS	--	--	E			C			

**UNSIGNALIZED INTERSECTION**

**CAPACITY ANALYSES**

**2011 NO-BUILD CONDITIONS**

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	BAH			Intersection	Amherst Road at Plumtree Road		
Agency/Co.	Traffic Engineering Solutions			Jurisdiction	Sunderland		
Date Performed	12/5/2005			Analysis Year	2011 No-Build Conditions		
Analysis Time Period	AM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Plumtree/East Plumtree Street				North/South Street: Amherst Road (Route 116)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	21	351	6	12	775	9	
Peak-Hour Factor, PHF	0.82	0.82	0.82	0.84	0.84	0.84	
Hourly Flow Rate, HFR (veh/h)	9	0	90	11	4	13	
Percent Heavy Vehicles	2	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
<b>Minor Street</b>	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	8	0	79	7	3	8	
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.61	0.61	0.61	
Hourly Flow Rate, HFR (veh/h)	14	922	10	25	428	7	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR	LTR			LTR	
v (veh/h)	25	14	28			99	
C (m) (veh/h)	734	1125	133			269	
v/c	0.03	0.01	0.21			0.37	
95% queue length	0.11	0.04	0.76			1.62	
Control Delay (s/veh)	10.1	8.2	39.1			26.0	
LOS	B	A	E			D	
Approach Delay (s/veh)	--	--	39.1			26.0	
Approach LOS	--	--	E			D	

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	BAH			Intersection	Amherst Road at Plumtree Road		
Agency/Co.	Traffic Engineering Solutions			Jurisdiction	Sunderland		
Date Performed	12/5/2005			Analysis Year	2011 No-Build Conditions		
Analysis Time Period	PM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Plumtree/East Plumtree Street				North/South Street: Amherst Road (Route 116)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	70	765	2	2	541	23	
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.84	0.84	0.84	
Hourly Flow Rate, HFR (veh/h)	6	0	44	5	0	1	
Percent Heavy Vehicles	2	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
<b>Minor Street</b>	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	5	0	33	3	0	1	
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.58	0.58	0.58	
Hourly Flow Rate, HFR (veh/h)	2	644	27	79	869	2	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR	LTR			LTR	
v (veh/h)	79	2	6			50	
C (m) (veh/h)	919	774	64			265	
v/c	0.09	0.00	0.09			0.19	
95% queue length	0.28	0.01	0.30			0.68	
Control Delay (s/veh)	9.3	9.7	67.0			21.7	
LOS	A	A	F			C	
Approach Delay (s/veh)	--	--	67.0			21.7	
Approach LOS	--	--	F			C	

**UNSIGNALIZED INTERSECTION**

**CAPACITY ANALYSES**

**2011 BUILD CONDITIONS**

TWO-WAY STOP CONTROL SUMMARY								
<b>General Information</b>					<b>Site Information</b>			
Analyst	BAH				Intersection	Amherst Road at Plumtree Road		
Agency/Co.	Traffic Engineering Solutions				Jurisdiction	Sunderland		
Date Performed	12/5/2005				Analysis Year	2011 Build Conditions		
Analysis Time Period	AM Peak							
Project Description Sugarbush Meadow Apartments								
East/West Street: Plumtree/East Plumtree Street					North/South Street: Amherst Road (Route 116)			
Intersection Orientation: North-South					Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>								
<b>Major Street</b>	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	24	357	6	12	777	9		
Peak-Hour Factor, PHF	0.82	0.82	0.82	0.84	0.84	0.84		
Hourly Flow Rate, HFR (veh/h)	11	0	106	11	4	13		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
<b>Minor Street</b>	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10	0	93	7	3	8		
Peak-Hour Factor, PHF	0.87	0.87	0.87	0.61	0.61	0.61		
Hourly Flow Rate, HFR (veh/h)	14	925	10	29	435	7		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
<b>Delay, Queue Length, and Level of Service</b>								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (veh/h)	29	14	28			117		
C (m) (veh/h)	732	1118	122			265		
v/c	0.04	0.01	0.23			0.44		
95% queue length	0.12	0.04	0.83			2.13		
Control Delay (s/veh)	10.1	8.3	43.1			28.9		
LOS	B	A	E			D		
Approach Delay (s/veh)	--	--	43.1			28.9		
Approach LOS	--	--	E			D		



TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	BAH			Intersection	Amherst Road at Plumtree Road		
Agency/Co.	Traffic Engineering Solutions			Jurisdiction	Sunderland		
Date Performed	12/5/2005			Analysis Year	2011 Build Conditions		
Analysis Time Period	PM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Plumtree/East Plumtree Street				North/South Street: Amherst Road (Route 116)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	84	769	2	2	548	25	
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.84	0.84	0.84	
Hourly Flow Rate, HFR (veh/h)	8	0	54	5	0	1	
Percent Heavy Vehicles	2	--	--	2	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LTR			LTR			
Upstream Signal		0			0		
<b>Minor Street</b>	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	6	0	41	3	0	1	
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.58	0.58	0.58	
Hourly Flow Rate, HFR (veh/h)	2	652	29	95	873	2	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LTR	LTR		LTR			LTR
v (veh/h)	95	2		6			62
C (m) (veh/h)	912	771		56			240
v/c	0.10	0.00		0.11			0.26
95% queue length	0.35	0.01		0.34			1.00
Control Delay (s/veh)	9.4	9.7		76.9			25.1
LOS	A	A		F			D
Approach Delay (s/veh)	--	--	76.9			25.1	
Approach LOS	--	--	F			D	

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	BAH			Intersection	Amherst Road at Site Access		
Agency/Co.	Traffic Engineering Solutions			Jurisdiction	Sunderland		
Date Performed	12/5/2005			Analysis Year	2011 Build Conditions		
Analysis Time Period	AM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Site Access Road				North/South Street: Amherst Road (Route 116)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	14	381			874	2	
Peak-Hour Factor, PHF	0.75	0.83	0.83	0.83	0.83	0.75	
Hourly Flow Rate, HFR (veh/h)	8	0	74	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LT					TR	
Upstream Signal		0			0		
<b>Minor Street</b>	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	6		56				
Peak-Hour Factor, PHF	0.75	0.83	0.75	0.83	0.83	0.83	
Hourly Flow Rate, HFR (veh/h)	0	1053	2	18	459	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LR
v (veh/h)	18						82
C (m) (veh/h)	668						247
v/c	0.03						0.33
95% queue length	0.08						1.40
Control Delay (s/veh)	10.5						26.7
LOS	B						D
Approach Delay (s/veh)	--	--				26.7	
Approach LOS	--	--				D	

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	BAH			Intersection	Amherst Road at Site Access		
Agency/Co.	Traffic Engineering Solutions			Jurisdiction	Sunderland		
Date Performed	12/5/2005			Analysis Year	2011 Build Conditions		
Analysis Time Period	PM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Site Access Road				North/South Street: Amherst Road (Route 116)			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	59	854			585	7	
Peak-Hour Factor, PHF	0.75	0.84	0.83	0.83	0.88	0.75	
Hourly Flow Rate, HFR (veh/h)	5	0	42	0	0	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LT					TR	
Upstream Signal		0			0		
<b>Minor Street</b>	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	4		32				
Peak-Hour Factor, PHF	0.75	0.83	0.75	0.83	0.83	0.83	
Hourly Flow Rate, HFR (veh/h)	0	664	9	78	1016	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LR
v (veh/h)	78						47
C (m) (veh/h)	927						302
v/c	0.08						0.16
95% queue length	0.27						0.54
Control Delay (s/veh)	9.2						19.1
LOS	A						C
Approach Delay (s/veh)	--	--				19.1	
Approach LOS	--	--				C	

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>				<b>Site Information</b>			
Analyst	BAH			Intersection	Plumtree Road at Site Access		
Agency/Co.	Traffic Engineering Solutions			Jurisdiction	Sunderland		
Date Performed	12/5/2005			Analysis Year	2011 Build Conditions		
Analysis Time Period	AM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Plumtree/East Plumtree Street				North/South Street: Site Access Road			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		87	4	4	34		
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60	
Hourly Flow Rate, HFR (veh/h)	0	144	6	6	56	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
<b>Minor Street</b>	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	16		16				
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60	
Hourly Flow Rate, HFR (veh/h)	26	0	26	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
<b>Delay, Queue Length, and Level of Service</b>							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		6		52			
C (m) (veh/h)		1444		835			
v/c		0.00		0.06			
95% queue length		0.01		0.20			
Control Delay (s/veh)		7.5		9.6			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.6				
Approach LOS	--	--	A				

TWO-WAY STOP CONTROL SUMMARY							
<b>General Information</b>			<b>Site Information</b>				
Analyst	BAH		Intersection	Plumtree Road at Site Access			
Agency/Co.	Traffic Engineering Solutions		Jurisdiction	Sunderland			
Date Performed	12/5/2005		Analysis Year	2011 Build Conditions			
Analysis Time Period	PM Peak						
Project Description Sugarbush Meadow Apartments							
East/West Street: Plumtree/East Plumtree Street			North/South Street: Site Access Road				
Intersection Orientation: East-West			Study Period (hrs): 0.25				
<b>Vehicle Volumes and Adjustments</b>							
<b>Major Street</b>	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		37	16	16	92		
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60	
Hourly Flow Rate, HFR (veh/h)	0	61	26	26	153	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration			TR	LT			
Upstream Signal		0			0		
<b>Minor Street</b>	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	9		9				
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60	
Hourly Flow Rate, HFR (veh/h)	14	0	14	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
<b>Delay, Queue Length, and Level of Service</b>							
<b>Approach</b>	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		LT		LR			
v (veh/h)		26		28			
C (m) (veh/h)		1522		823			
v/c		0.02		0.03			
95% queue length		0.05		0.11			
Control Delay (s/veh)		7.4		9.5			
LOS		A		A			
Approach Delay (s/veh)	--	--	9.5				
Approach LOS	--	--	A				