Sal Tassone

From: Sal Tassone
Sent: Tuesday, July 01, 2014 10:47 AM
To: 'BALTRO@aol.com'
Cc: Adam Turner; Randall Benson
Subject: RE: Wall Street Sight Lines

Good morning Rob,

I reviewed your report and I have the following comments:

1) Page 6 of 9 refers to a "Hubbard Street". We do not have a Hubbard Street in Colchester.
2) Page 7 of 9 has some conflicting information. The third paragraph down from the top indicates the ISD looking to the right was measured at 350 feet while your table at the bottom of the page appears to indicated the "distance achieved in the field" is 380 feet.

With regards to my support for a variance request, as I have indicated in the past, as long as a formal traffic study completed by a Professional Engineer shows that the existing/proposed sightlines are adequate to meet AASHTO/DOT standards based on 85th percentile speed data, I would support the request.

Once you address the noted issues with your report, you should contact Zoning Agent, Randy Benson and or Town Planner, Adam Turner regarding the next step/submitting an application for a variance.

If you have any questions, please call me.

Thank you,

Sal Tassone P.E.
Town Engineer
860-537-7281

From: BALTRO@aol.com [mailto:BALTRO@aol.com]
Sent: Monday, June 30, 2014 7:46 AM
To: Sal Tassone
Subject: Wall Street Sight Lines

Good morning Sal,

First, I'm sorry to learn of the loss of a Town staff member. His family and friends have been in my prayers.

As you know, I have been working on analyzing traffic and sight line impacts for a proposed development along Wall Street for Steve Motto. In short, due to the vertical geometry of Wall Street the sight line to the right is less than the 500' required by Zoning Regs for a collector road but does meet the standards of AASHTO/ CDOT. Attached is my complete report. The sight lines were evaluated based on actual 85th percentile speeds and a sight line analysis in the field per AASHTO/ CDOT methodology.

I know you have had some conversations about this with Mr. Motto. After you have had an opportunity to review, I was hoping you could best direct me on our next steps. Would you support a variance application to the ZBA?

I look forward to hearing from you.

Rob

Robert V. Baltramaitis, P.E.
27 Tammy Hill Road
Wallingford, CT 06492

Robert V. Baltramaitis, P.E.
27 Tammy Hill Road
Wallingford, Connecticut 06492
Tel/ Fax: (203) 265-4539
baltro@aol.com

June 13, 2014

Mr. Steve Motto
National Development 8, LLC
344 North Main Street
Marlborough, CT 06447

RE: Traffic Impact/ Sight Line Analyses
Wall Street Project
Colchester, Connecticut

Dear Mr. Motto:

As requested, I have evaluated the traffic impact and intersection sight line issues associated with a proposed residential development of property located along Wall Street in Colchester, Connecticut. The property is located on the west side of Wall Street approximately 600 feet south of Gill Street. The site is graphically located in proximity to the roadway network in ***Figure 1***. This report is based on the development of thirty (30) new residential units with a single 24' foot wide site driveway intersecting Wall Street.

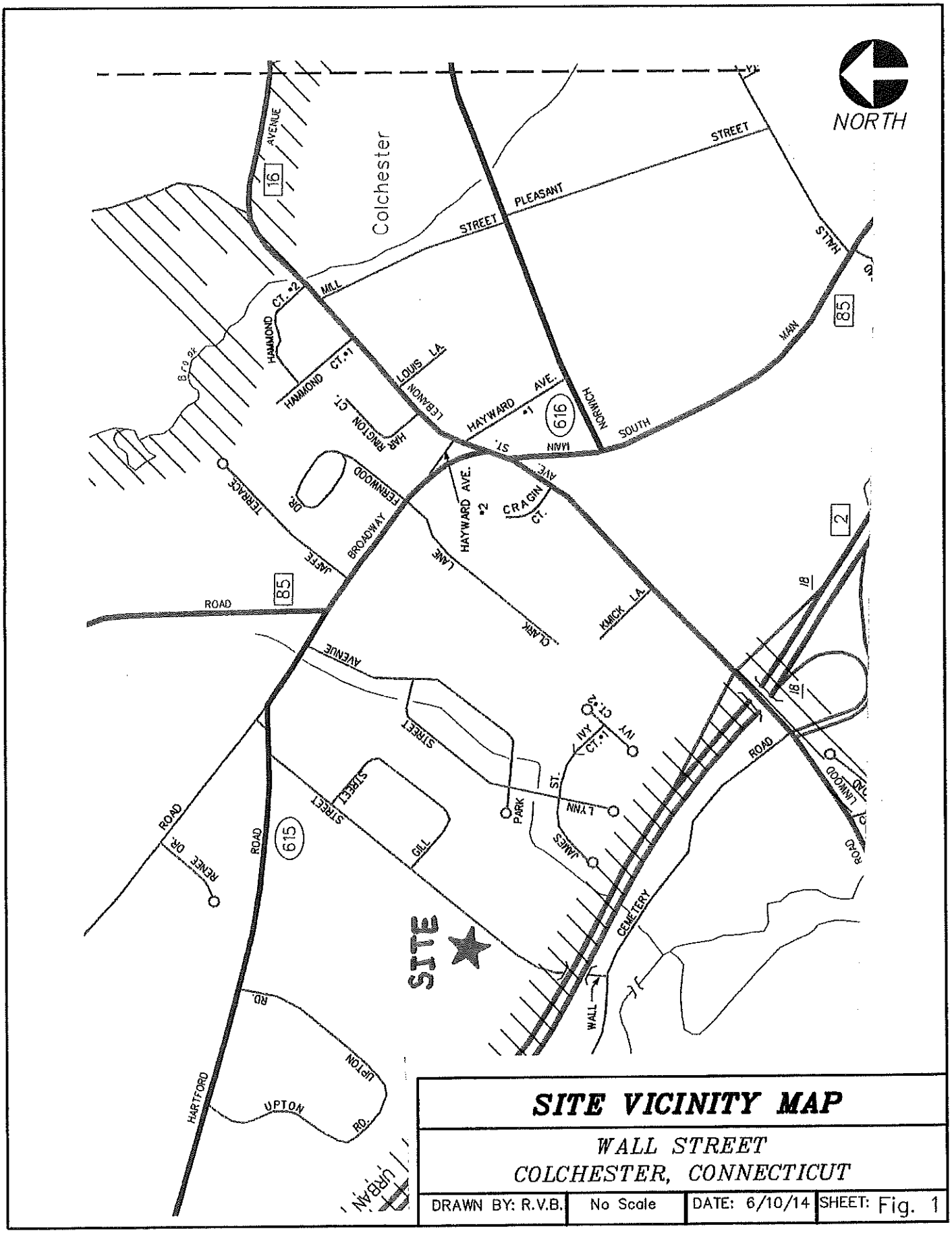
In the site vicinity, Wall Street is a two lane bi-directional roadway with a posted speed limit of 25 miles per hour in each direction. The pavement width along the site frontage is approximately 24 feet and is generally in good condition. The roadway has a north-south orientation and links Linwood Cemetery Road to the south with Old Hartford Road (State Route 615) to the north.

In addition to providing access to Wall Street and Gill Street residents, given its grade separation from Route 2, Wall Street serves as a convenient alternative to Route 85. Wall Street is classified as a collector road under Town of Colchester Regulations.

TRAFFIC IMPACT ANALYSIS

Existing Traffic Volumes

An automatic traffic recorder (ATR) machine was placed along Wall Street at the site frontage to record traffic characteristics for typical weekday periods. The data includes traffic volumes, vehicle classifications and speed information by direction. The results of that effort indicate that Wall Street in the site vicinity has an Average Daily Traffic Volume (ADT) of 1,650 vehicles per day. During the AM peak hour, approximately 55 vehicles per hour (vph) are northbound while 54 vph are southbound. During the PM peak hour, 80 vph are northbound while 68 vph are southbound. The results are summarized on ***Appendix Sheet A-1*** and the 2014 Existing Volumes are depicted in ***Figure 2***.



SITE VICINITY MAP

WALL STREET
COLCHESTER, CONNECTICUT

DRAWN BY: R.V.B.	No Scale	DATE: 6/10/14	SHEET: Fig. 1

Background Traffic

Background traffic is defined as the existing traffic projected out to the year of project completion without the project being developed. While the complete build out of residential developments is market dependent, the year 2016 has been selected as the anticipated year of complete project build out. The 2014 Existing Volumes were projected out for two years at an average growth rate of 2% per year which is typical of most Connecticut roadways. Also included in background traffic is traffic anticipated to be generated by other developments in the area which are approved but not yet constructed. The State of Connecticut Department of Transportation and the Colchester Planning Department were contacted to determine if there were any proposed development or roadway improvement projects which may affect this study. Based on these discussions, no significant developments are proposed which would impact the background traffic volumes. The Background Traffic Volumes are also depicted in ***Figure 2***.

Full Development Traffic Volumes

Normally, estimates of the amount of site generated traffic by a proposed development are determined using Trip Generation, 8th edition, published by the Institute of Transportation Engineers (ITE). This publication is a compilation of trip generation data for various land uses that provides information on anticipated traffic relative to the size of the development, number of units, number of employees or other quantitative measure.

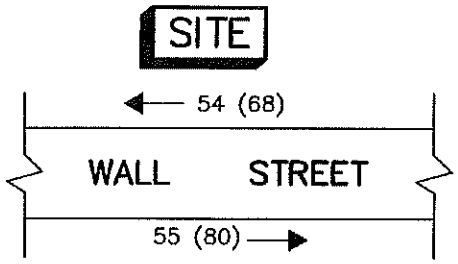
In the case of residential developments, the quantitative measure is the number of residential units. Trip Generation gives statistical data for various types of residential developments. The applicable ITE land use for the proposed development is Land Use Code #230 "Residential Condominium/ Townhouse". Based on the ITE data, this development is anticipated to generate 14 total trips during the AM peak hour and 16 total trips during the PM peak hour. The relevant ITE data is attached as ***Appendix Sheets A-2 and A-3***.

Trip distribution is the directional orientation of the new site traffic. Trip Generation suggests that during the AM peak period, 81% of the new site traffic is outbound, while 19% is inbound. Conversely, during the PM peak hour, 64% of the new site traffic is inbound, while only 36% is outbound. The site generated traffic by orientation can be summarized as follows:

	30 Townhouse Units		
	entering	exiting	TOTAL
Weekday AM Peak Hour	3	11	14
Weekday PM Peak Hour	10	6	16

To project the full development traffic volumes, all site traffic was assigned to the roadway network and then split by direction onto Wall Street based on existing travel patterns. Simply put, the proportion of existing northbound and southbound traffic was determined for each peak hour and assumed to represent the directional split of the new site traffic.

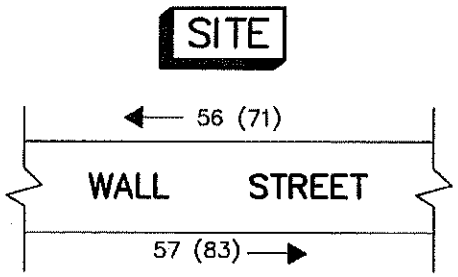
The anticipated site traffic was added to the Background Traffic Volumes to determine the 2016 Full Development Traffic Volumes. Site Generated Traffic Volumes and the 2016 Full Development Traffic Volumes are depicted on ***Figure 3***.



NOTES:

Existing volumes determined by traffic count program conducted by Connecticut Counts LLC during May 2014.

2014 EXISTING VOLUMES



NOTES:

Backgound volumes determined by increasing 2014 Exisating volumes by annual growth rate of 2% per year for two years.

2016 BACKGROUND VOLUMES

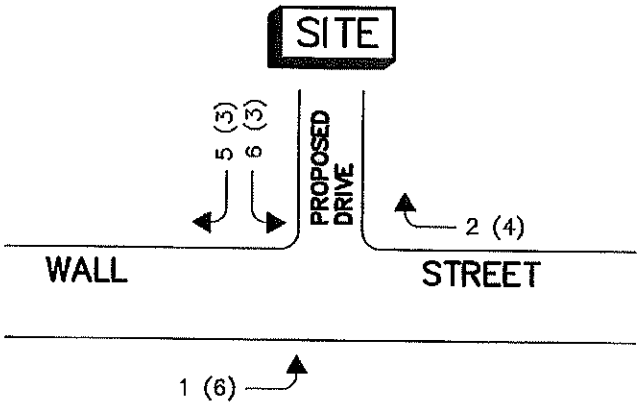
LEGEND:

XXX – Weekday AM Peak Hour
(XXX) – Weekday PM Peak Hour

EXISTING AND BACKGROUND TRAFFIC VOLUMES

WALL STREET
COLCHESTER, CONNECTICUT

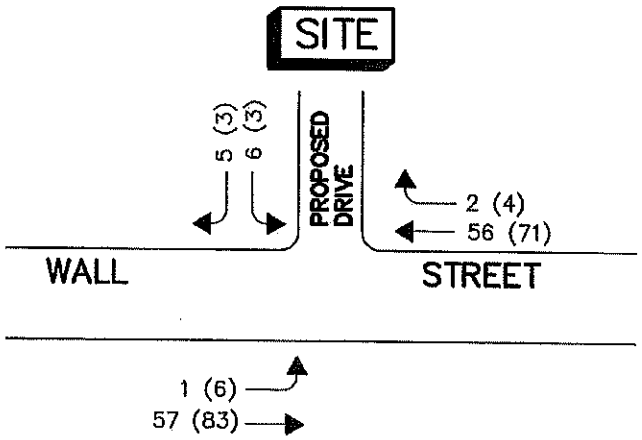
DRAWN BY: R.V.B.	SCALE: N.T.S.	DATE: 6/10/14	SHEET: Fig. 2



NOTES:

Site generated traffic volumes determined from ITE's Trip Generation, 8th Edition.

SITE GENERATED VOLUMES



NOTES:

Full development traffic volumes determined by superimposing site generated volumes onto 2016 Background volumes.

2016 FULL BUILD VOLUMES

LEGEND:

XXX – Weekday AM Peak Hour
(XXX) – Weekday PM Peak Hour

SITE GENERATED AND FULL BUILD TRAFFIC VOLUMES

WALL STREET
COLCHESTER, CONNECTICUT

DRAWN BY: R.V.B.	SCALE: N.T.S.	DATE: 6/10/14	SHEET: Fig. 3

Operations Analyses

Operation of unsignalized intersections is evaluated in terms of Level-of-Service (LOS) and is defined in terms of average control delay. For two-way stop sign controlled intersections, LOS is determined for each minor street movement and not the intersection as a whole. This is because the major street movement usually does not have a stop control and is not subject to significant delays. LOS is rated on a scale from A to F, with LOS A representing an intersection with minimum average control delay and LOS F indicating a complete breakdown of intersection operation. LOS evaluation criteria is summarized below:

Level of Service Criteria Unsignalized Intersections	
Level of Service	Delay Range (seconds/ vehicle)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

The methodology for calculating the average control delay and determining the LOS is taken from the "Highway Capacity Manual", published by the Transportation Research Board. It is this document which is the most widely accepted method by transportation and planning professionals for determining intersection operation.

LOS and intersection capacity analyses were conducted for the intersection of Hubbard Street at the site driveway for both AM and PM peak hours given the full development traffic volumes. The LOS results are summarized in the table below:

	AM Peak	**PM Peak**
Wall Street at Proposed Site Drive (average side street delay)	A (8.9 seconds)	A (9.1 seconds)

As summarized above, with full development of 30 units, the proposed site driveway intersection with Wall Street will operate at excellent levels of service, even during peak hours.

LOS/ intersection capacity calculations are included as ***Appendix Sheets A-4 and A-5***.

INTERSECTION SIGHT DISTANCE ANALYSIS

When considering safety at an intersection, it is important to look at the available Intersection Sight Distance (ISD). ISD is the length of roadway that a driver turning onto that roadway can see to recognize an approaching vehicle and make a decision to safely enter the roadway.

Section 12.3.13 of the Town of Colchester Zoning Regulations (Regs) gives criterion for clear sight distances from exit driveways for Class 2 Site Plans. The Regs require clear sight distances in each direction of 350 feet for local roads and 500 feet for collector roads and arterials. As the Regs classify Wall Street as a collector road, the required clear sight distance in each direction is 500 feet. The Regs assess sight lines from a 10-foot setback from the edge of travelway and assuming a height of driver's eye of 36 inches (3 feet) at each end.

A sight line assessment was conducted in the field utilizing the parameters described in the Regs. The ISD looking to the left was found to exceed the 500 feet required for collector roadways. The ISD looking to the right was measured at 350 feet and is limited by the vertical geometry of Wall Street. This distance, to the right, meets the Regs sight line requirement for local roads, but falls short of the requirement for collector roads.

The ConnDOT Guidelines for Highway Design, revised 2003, gives guidelines for measuring the available ISD as well as design standards for ISD's to provide for safe entrance to the roadway. The methodology is taken from the A Policy on Geometric Design of Highways and Streets, published by the American Association of State Highway and Transportation Officials (AASHTO); this manual is known as "the Green Book". These standards are based on the 85th percentile speeds for the major roadway. The 85th percentile speed is the speed at which 85 percent of the vehicles are traveling at or below and 15 percent are traveling higher than.

A spot speed study was conducted along Wall Street along the site frontage to determine the speed characteristics of the vehicles passing the site. The data collected by the ATR statistically determined the 85th percentile speeds in each direction. Based on that data, the 85th percentile speeds are 34 mph in the northbound direction and 32 mph in the southbound direction. The corresponding ConnDOT recommended ISD's are 379 feet and 357 feet to the right and left, respectively.

Sight lines were assessed in the field using parameters set forth by the AASHTO Green Book and the aforementioned ConnDOT Guidelines. Sight lines were measured in each direction from the center of the proposed egress lane from a 15-foot setback from the edge of travelway and assuming a height of driver's eye of 42 inches (3.5 feet) at each end. The following table summarizes the ISD data:

ConnDOT/ AASHTO SIGHT LINE REQUIREMENTS

I.S.D. Looking:	Design/ 85th %-ile Speed	ConnDOT Suggested	Distance Achieved in Field	Adequate? (Y/N)
Right	34 mph	379 ft	380 ft	Yes
Left	32 mph	357 ft	500 ft +	Yes

As summarized in the table above, the ISD's in each direction from the proposed site driveway onto Wall Street will meet or exceed the ConnDOT/ AASHTO recommendations. Data on the 85th percentile speed data and an excerpt from the ConnDOT Guidelines are contained on ***Appendix Sheets A-6, A-7 and A-8***. The ISD's are depicted below in ***Figure 4 and Figure 5***.

Figure 4 - ISD Looking to the Left

Figure 5 - ISD Looking to the Right

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings herein, the development of 30 residential units along Wall Street will have no significant impact to the adjacent roadway network. Additionally, the adjacent roadway network is adequate to accommodate the minimal volume of anticipated site traffic. The site driveway will operate at excellent levels of service, even during peak hours, and intersection sight distances in both directions meet or exceed the ConnDOT/ AASHTO recommended values.

The following recommendations are made to promote safe and efficient operation:

1. The site driveway shall have the proper signing and pavement markings for a "STOP" control condition installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) and as approved by the Town of Colchester Legal Traffic Authority.

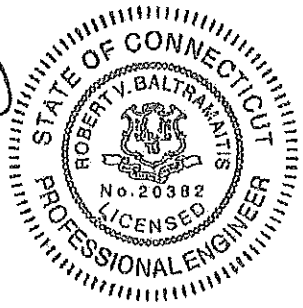
2. The site driveway should have sufficient width to accommodate ingress and egress traffic. A pavement width of 24-feet (two 12-foot wide lanes) is recommended and is required by Section 12.3.13 of the Town of Colchester Zoning Regulations.

3. The existing vegetation within the public right-of-way should be trimmed and pruned to promote the sight line looking left from the proposed driveway.

Thank you for the opportunity to review these issues associated with this development. In the meantime, if you have any questions, please feel free to contact me at (203) 915-8301.

Respectfully Prepared and Submitted,

Robert V. Baltramaitis, P.E.



Wall Street South of Gill Street
Colchester, Connecticut

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
_(860) 828-1693_

Site Code: 3346
Station ID:

Latitude: 0' 0.000 Undefined

Start	26-May-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	Northbound	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo
12:00 AM	1	0	1	1	3	0	*	*	*	*	*	*	*	*	2	0
01:00	3	4	1	0	1	1	*	*	*	*	*	*	*	*	2	2
02:00	1	1	1	1	3	2	*	*	*	*	*	*	*	*	2	1
03:00	0	0	2	8	2	4	*	*	*	*	*	*	*	*	1	4
04:00	0	1	9	27	13	27	*	*	*	*	*	*	*	*	7	18
05:00	6	12	20	59	25	64	*	*	*	*	*	*	*	*	17	45
06:00	10	19	49	53	46	**68**	*	*	*	*	*	*	*	*	35	47
07:00	23	34	42	**73**	46	50	*	*	*	*	*	*	*	*	37	52
08:00	20	36	37	51	27	47	*	*	*	*	*	*	*	*	28	45
09:00	43	55	57	38	36	33	*	*	*	*	*	*	*	*	45	42
10:00	42	45	52	38	39	36	*	*	*	*	*	*	*	*	44	40
11:00	**55**	**69**	**64**	49	**47**	45	*	*	*	*	*	*	*	*	**55**	**54**
12:00 PM	**57**	40	67	53	45	34	*	*	*	*	*	*	*	*	56	42
01:00	47	**42**	74	66	**55**	**67**	*	*	*	*	*	*	*	*	59	58
02:00	43	42	83	78	*	*	*	*	*	*	*	*	*	*	63	60
03:00	42	32	89	64	*	*	*	*	*	*	*	*	*	*	66	48
04:00	30	41	**130**	**96**	*	*	*	*	*	*	*	*	*	*	**80**	**68**
05:00	30	33	64	66	*	*	*	*	*	*	*	*	*	*	47	50
06:00	37	30	102	36	*	*	*	*	*	*	*	*	*	*	70	33
07:00	24	13	51	16	*	*	*	*	*	*	*	*	*	*	38	14
08:00	15	17	19	4	*	*	*	*	*	*	*	*	*	*	17	10
09:00	8	9	9	8	*	*	*	*	*	*	*	*	*	*	8	8
10:00	3	5	5	12	*	*	*	*	*	*	*	*	*	*	4	8
11:00	5	3	4	1	*	*	*	*	*	*	*	*	*	*	4	2
Lane	545	583	1032	898	388	478	0	0	0	0	0	0	0	0	787	751
Day	1128		1930		866		0		0		0		0		1538	
AM Peak	11:00	11:00	11:00	07:00	11:00	06:00									11:00	11:00
Vol.	55	69	64	73	47	68									55	54
PM Peak	12:00	13:00	16:00	16:00	13:00	13:00									16:00	16:00
Vol.	57	42	130	96	55	67									80	68

Comb. Total	1128	1930	1780	1655	1870	1614	2043	3401

ADT ADT 1,646 AADT 1,646

Avg Daily Traffic = 1,650 vpd

A-1

Residential Condominium/Townhouse
(230)

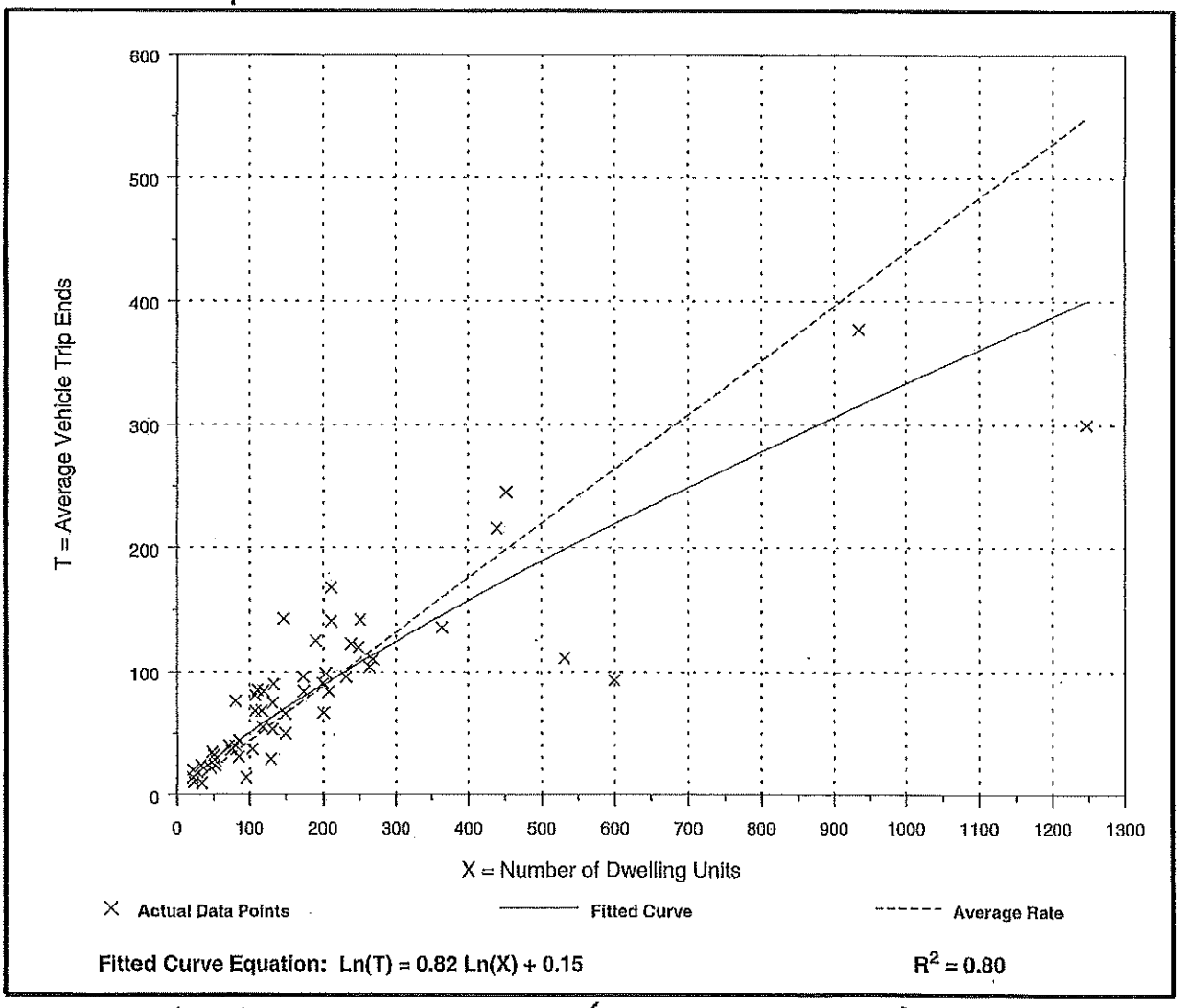
Average Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
A.M. Peak Hour of Generator

Number of Studies: 54
Avg. Number of Dwelling Units: 196
Directional Distribution: 19% entering, 81% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 0.97	0.68

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.82 Ln(X) + 0.15

R^2 = 0.80

30 x (0.44) = 13.2 : 14 trips (3 entering, 11 exiting)

Residential Condominium/Townhouse
(230)

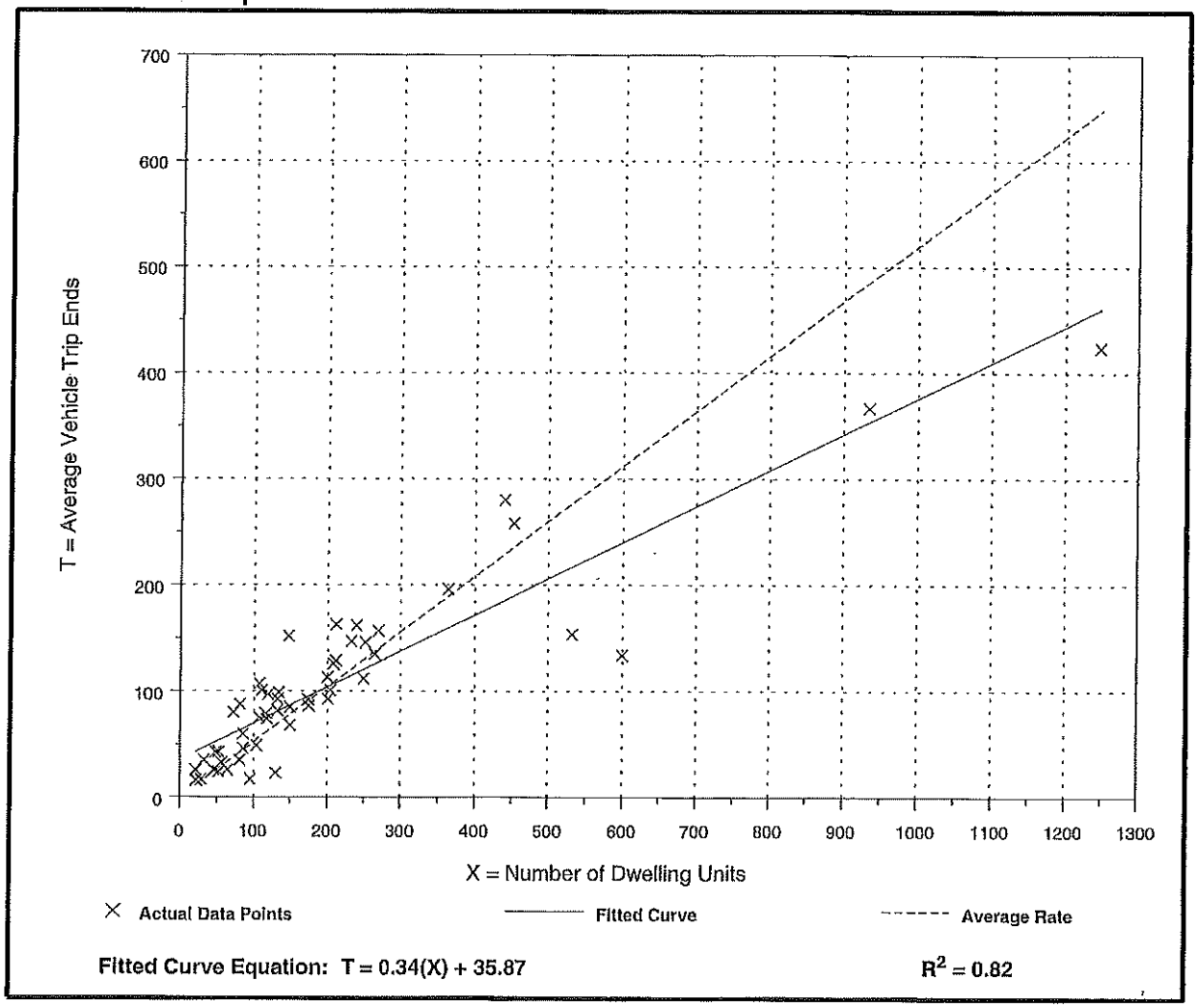
Average Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
P.M. Peak Hour of Generator

Number of Studies: 52
Avg. Number of Dwelling Units: 199
Directional Distribution: 64% entering, 36% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.18 - 1.24	0.75

Data Plot and Equation



Fitted Curve Equation: $T = 0.34(X) + 35.87$

$R^2 = 0.82$

30 units x (0.52) = 16 trips (10 entering, 6 exiting)

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RVB*	Intersection	*Wall at Site*
Agency/Co.	*RVB PE*	Jurisdiction	*Colchester*
Date Performed	*6/8/2014*	Analysis Year	*2016 Full Dev*
Analysis Time Period	*Weekday AM Peak*		
Project Description	*Proposed 30 Unit Development*		
East/West Street:	*Site Drive*	North/South Street:	*Wall Street*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*1*	*57*	*0*	*0*	*56*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*1*	*63*	*0*	*0*	*62*	*2*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*6*	*0*	*5*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*6*	*0*	*5*
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*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*1*						*11*	
C (m) (vph)	*1551*						*927*	
v/c	*0.00*						*0.01*	
95% queue length	*0.00*						*0.04*	
Control Delay	*7.3*						*8.9*	
LOS	*A*						*A*	
Approach Delay	--	--					*8.9*	
Approach LOS	--	--					*A*	

Version 4.1d

A-4

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RVB*	Intersection	*Wall at Site*
Agency/Co.	*RVB PE*	Jurisdiction	*Colchester*
Date Performed	*6/8/2014*	Analysis Year	*2016 Full Dev*
Analysis Time Period	*Weekday PM Peak*		
Project Description	*Proposed 30 Unit Development*		
East/West Street:	*Site Drive*	North/South Street:	*Wall Street*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*6*	*83*	*0*	*0*	*71*	*4*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*6*	*92*	*0*	*0*	*78*	*4*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*3*	*0*	*3*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*3*	*0*	*3*
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*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*6*						*6*	
C (m) (vph)	*1528*						*888*	
v/c	*0.00*						*0.01*	
95% queue length	*0.01*						*0.02*	
Control Delay	*7.4*						*9.1*	
LOS	*A*						*A*	
Approach Delay	--	--					*9.1*	
Approach LOS	--	--					*A*	

A-5

Wall Street at Gill Street
Colchester, Connecticut

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Site Code: 3349
Station ID:

Northbound

Latitude: 0' 0.000 Undefined

Start Time	1 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	76 999	Total	85th Percent	95th Percent
06/03/14	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	*	*
04:00	1	0	0	2	1	0	0	0	0	0	0	0	0	0	4	*	*
05:00	1	0	1	6	7	2	1	0	0	0	0	0	0	0	18	35	36
06:00	0	6	4	12	16	10	1	1	0	0	0	0	0	0	50	36	39
07:00	1	7	6	19	18	11	2	0	0	0	0	0	0	0	64	35	38
08:00	1	2	6	21	21	4	1	0	0	0	0	0	0	0	56	34	37
09:00	2	4	9	24	12	6	1	0	0	0	0	0	0	0	58	34	38
10:00	2	9	6	13	14	6	0	0	0	0	0	0	0	0	50	34	37
11:00	0	2	0	14	9	5	0	0	0	0	0	0	0	0	30	35	38
12 PM	0	7	6	21	6	4	0	0	0	0	0	0	0	0	44	32	36
13:00	0	5	8	18	12	8	0	0	0	0	0	0	0	0	51	35	38
14:00	0	4	7	16	10	2	0	0	0	0	0	0	0	0	39	32	35
15:00	0	4	10	13	14	3	0	0	0	0	0	0	0	0	44	33	35
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	8	50	64	180	142	61	7	1	0	0	0	0	0	0	513		
Percent	1.6%	9.7%	12.5%	35.1%	27.7%	11.9%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	10:00	09:00	09:00	08:00	07:00	07:00	06:00							07:00		
Vol.	2	9	9	24	21	11	2	1							64		
PM Peak		12:00	15:00	12:00	15:00	13:00									13:00		
Vol.		7	10	21	14	8									51		
Total	14	74	115	295	264	92	12	1	0	0	0	0	0	0	867		
Percent	1.6%	8.5%	13.3%	34.0%	30.4%	10.6%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile :	19 MPH
50th Percentile :	28 MPH
85th Percentile :	34 MPH ←
95th Percentile :	38 MPH

Stats

10 MPH Pace Speed :	26-35 MPH
Number in Pace :	490
Percent in Pace :	56.5%
Number of Vehicles > 25 MPH :	609
Percent of Vehicles > 25 MPH :	70.2%
Mean Speed(Average) :	28 MPH

NB 85th %-ile = 34 mph
(looking to the right)

A-6

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63 Sugar Maple Lane
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Wall Street at Gill Street
Colchester, Connecticut

Site Code: 3349
Station ID:

Latitude: 0' 0.000 Undefined

Southbound

Start Time	1 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	76 999	Total	85th Percent	95th Percent
06/03/14	0	0	1	3	1	0	0	0	0	0	0	0	0	0	5	28	28
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	*	*
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	*	*
03:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	1	2	2	3	0	0	0	0	0	0	0	0	0	8	32	32
06:00	0	0	4	7	4	0	0	0	0	0	0	0	0	0	15	32	33
07:00	1	3	3	15	8	1	0	0	0	0	0	0	0	0	31	31	34
08:00	1	4	7	14	7	0	0	0	0	0	0	0	0	0	33	31	34
09:00	0	4	9	13	5	4	0	0	0	0	0	0	0	0	35	33	37
10:00	0	3	9	17	8	0	0	0	0	0	0	0	0	0	37	31	34
11:00	0	5	13	14	7	3	0	0	0	0	0	0	0	0	42	31	35
12 PM	1	5	17	14	10	1	0	0	0	0	0	0	0	0	48	31	34
13:00	0	7	13	13	15	0	0	0	0	0	0	0	0	0	48	32	34
14:00	0	2	13	15	5	1	2	0	0	0	0	0	0	0	38	30	34
15:00	1	6	11	18	8	1	1	0	0	0	0	0	0	0	46	30	33
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	4	42	103	147	81	11	3	0	0	0	0	0	0	0	391		
Percent	1.0%	10.7%	26.3%	37.6%	20.7%	2.8%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	11:00	11:00	10:00	07:00	09:00									11:00		
Vol.	1	5	13	17	8	4									42		
PM Peak	12:00	13:00	12:00	15:00	13:00	12:00	14:00								12:00		
Vol.	1	7	17	18	15	1	2								48		
Total	6	81	214	337	183	25	5	0	0	0	0	0	0	0	851		
Percent	0.7%	9.5%	25.1%	39.6%	21.5%	2.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 19 MPH
50th Percentile : 26 MPH
85th Percentile : 32 MPH ←
95th Percentile : 35 MPH

Stats

10 MPH Pace Speed : 23-32 MPH
Number in Pace : 511
Percent in Pace : 60.0%
Number of Vehicles > 25 MPH : 508
Percent of Vehicles > 25 MPH : 59.7%
Mean Speed(Average) : 26 MPH

SB 85th-ile = 32 mph
(looking to the left)

Design Speed (V_{major}) (mph)	ISD (ft)		
	Passenger Cars	Single-Unit Trucks	Tractor/Semitrailers
20	225	280	340
25	280	350	425
30	335	420	510
35	390	490	595
40	445	560	680
45	500	630	765
50	555	700	850
55	610	770	930
60	665	840	1015
65	720	910	1100
70	775	980	1185

Notes:

1. *These ISD values assume a left or right turn onto a 2-lane facility without a median.*
2. *These ISD values assume a minor road approach grade less than or equal to 3%.*

INTERSECTION SIGHT DISTANCES
(Two-Lane Highway or Street)

Figure 11-2C

Suggested ISD to Left:

SB 85th %-ile speed = 32 mph

$ISD = 335 + \frac{2}{5}(390 - 335) = 357$ feet

Suggested ISD to Right:

NB 85th %-ile speed = 34 mph

$ISD = 335 + \frac{4}{5}(390 - 335) = 379$ feet

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Wall Street South of Gill Street
Colchester, Connecticut

Site Code: 3346
Station ID:

Latitude: 0' 0.000 Undefined

Start	19-May-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	Northbound	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo
12:00 AM	*	*	*	*	*	*	6	2	1	0	2	1	4	2	3	1
01:00	*	*	*	*	*	*	0	0	2	0	4	4	1	2	2	2
02:00	*	*	*	*	*	*	1	0	2	1	1	0	1	2	1	1
03:00	*	*	*	*	*	*	4	3	2	3	1	1	5	5	3	3
04:00	*	*	*	*	*	*	10	26	9	26	5	8	3	10	7	18
05:00	*	*	*	*	*	*	21	51	19	54	15	19	10	17	16	35
06:00	*	*	*	*	*	*	37	**80**	36	**78**	21	36	13	16	27	52
07:00	*	*	*	*	*	*	**49**	73	46	71	40	50	52	53	47	62
08:00	*	*	*	*	*	*	41	54	28	45	48	68	47	41	41	52
09:00	*	*	*	*	*	*	28	37	40	36	56	**82**	48	63	43	54
10:00	*	*	*	*	*	*	40	38	44	34	91	80	91	100	66	63
11:00	*	*	*	*	*	*	42	48	**60**	53	**96**	62	**196**	**139**	**98**	**76**
12:00 PM	*	*	*	*	*	*	57	43	52	50	57	51	**205**	**166**	**93**	**78**
01:00	*	*	*	*	*	*	58	48	63	57	69	56	88	101	70	66
02:00	*	*	*	*	*	*	78	54	96	65	63	**59**	63	42	75	55
03:00	*	*	*	*	116	82	94	**60**	**109**	**81**	**70**	34	51	41	88	60
04:00	*	*	*	*	**157**	**90**	**117**	54	103	79	37	24	47	16	92	53
05:00	*	*	*	*	95	77	59	39	79	70	36	43	47	32	63	52
06:00	*	*	*	*	90	45	46	21	42	45	36	23	39	20	51	31
07:00	*	*	*	*	51	32	36	16	40	21	28	20	41	24	39	23
08:00	*	*	*	*	32	7	34	12	45	25	45	14	23	14	36	14
09:00	*	*	*	*	12	9	15	6	15	13	14	14	21	7	15	10
10:00	*	*	*	*	7	6	6	5	13	7	14	4	12	8	10	6
11:00	*	*	*	*	4	2	3	3	7	3	8	4	7	7	6	4
Lane	0	0	0	0	564	350	882	773	953	917	857	757	1115	928	992	871
Day	0		0		914		1655		1870		1614		2043		1863	
AM Peak							07:00	06:00	11:00	06:00	11:00	09:00	11:00	11:00	11:00	11:00
Vol.							49	80	60	78	96	82	196	139	98	76
PM Peak					16:00	16:00	16:00	15:00	15:00	15:00	15:00	14:00	12:00	12:00	12:00	12:00
Vol.					157	90	117	60	109	81	70	59	205	166	93	78