

**Appendix 3. Transportation Narrative and Supplements**

## **TRANSPORTATION**

Vanasse & Associates, Inc. (VAI) has completed a Transportation Impact Assessment (TIA) in support of this Application pursuant to Section 5 of the Cape Cod Commission Chapter A, *Enabling Regulations Governing Review of Developments of Regional Impact* (DRI), for a Limited DRI Review of a proposed extended stay hotel to be located at 556 Main Street (Route 28) in Falmouth, Massachusetts (the “Project”). The purpose of this TIA is to provide sufficient information to allow the Cape Cod Commission (the “Commission”) to make a finding that the Project meets the requirements for Limited DRI review with respect to Transportation and the goals and performance standards relative to Transportation as identified in the 2009 *Cape Cod Regional Policy Plan* as amended. The following details our findings with respect to the Project and its interface with the Transportation system.

### **PROJECT DESCRIPTION**

The Project will entail the redevelopment of an existing commercial property located at 556 Main Street (Route 28) in Falmouth, Massachusetts, to accommodate a 110-room extended stay hotel with 121 parking spaces (86 on-site and 35 off-site at 19 Nye Road). The Project site is generally bounded by residential properties to the north; Main Street to the south; and commercial properties to the east and west; and currently contains approximately 16,272 square feet (sf) of commercial/retail space (antique store and ancillary storage space) that will be removed to accommodate the redevelopment of the Project site. Figure 1 depicts the Project site location in relation to the existing roadway network.

Access to the Project site will be provided by way of Lantern Lane, a private way which bisects the Project site and intersects the north side of Main Street approximately 180 feet west of Nye Road. Lantern Lane will be reconstructed to accommodate the Project and will continue to provide access to the residential properties to the north of the Project site. Access to the off-site parking lot will be provided by way of a gated (key card activated) driveway that will intersect the west side of Nye Road approximately 190 feet south of Main Street. A sidewalk is provided along Nye Road that will be improved as a part of the Project and marked crosswalks are afforded at the Main Street/Nye Road intersection for hotel guests to cross Main Street between the Project site and the off-site parking lot.

### **TRAFFIC CHARACTERISTICS**

The anticipated traffic characteristics of the Project were developed using trip-generation statistics published by the Institute of Transportation Engineers (ITE).<sup>1</sup> The ITE provides trip-generation information for various types of land uses developed as a result of scientific studies that have been conducted over the past 50 plus years. This information includes trip characteristics for uses similar to those that currently occupy the Project site, as well as for the proposed use. The traffic characteristics of the existing uses (antique store and ancillary storage space) were calculated using ITE Land Use Code (LUC) 826, *Specialty Retail Center*, and assuming 16,272 sf of space,<sup>2</sup> with those of the proposed use (extended stay hotel) calculated using LUC 310, *Hotel*, and following the guidance provided in the Cape Cod Commission Technical Bulletin 96-003.

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<sup>1</sup>*Trip Generation*, 9<sup>th</sup> Edition; Institute of Transportation Engineers; Washington, DC; 2012.

<sup>2</sup>ITE LUC 820, *Shopping Center*, was also reviewed for use in developing the traffic characteristics of the existing uses and was determined to result in similar or higher trip estimates.

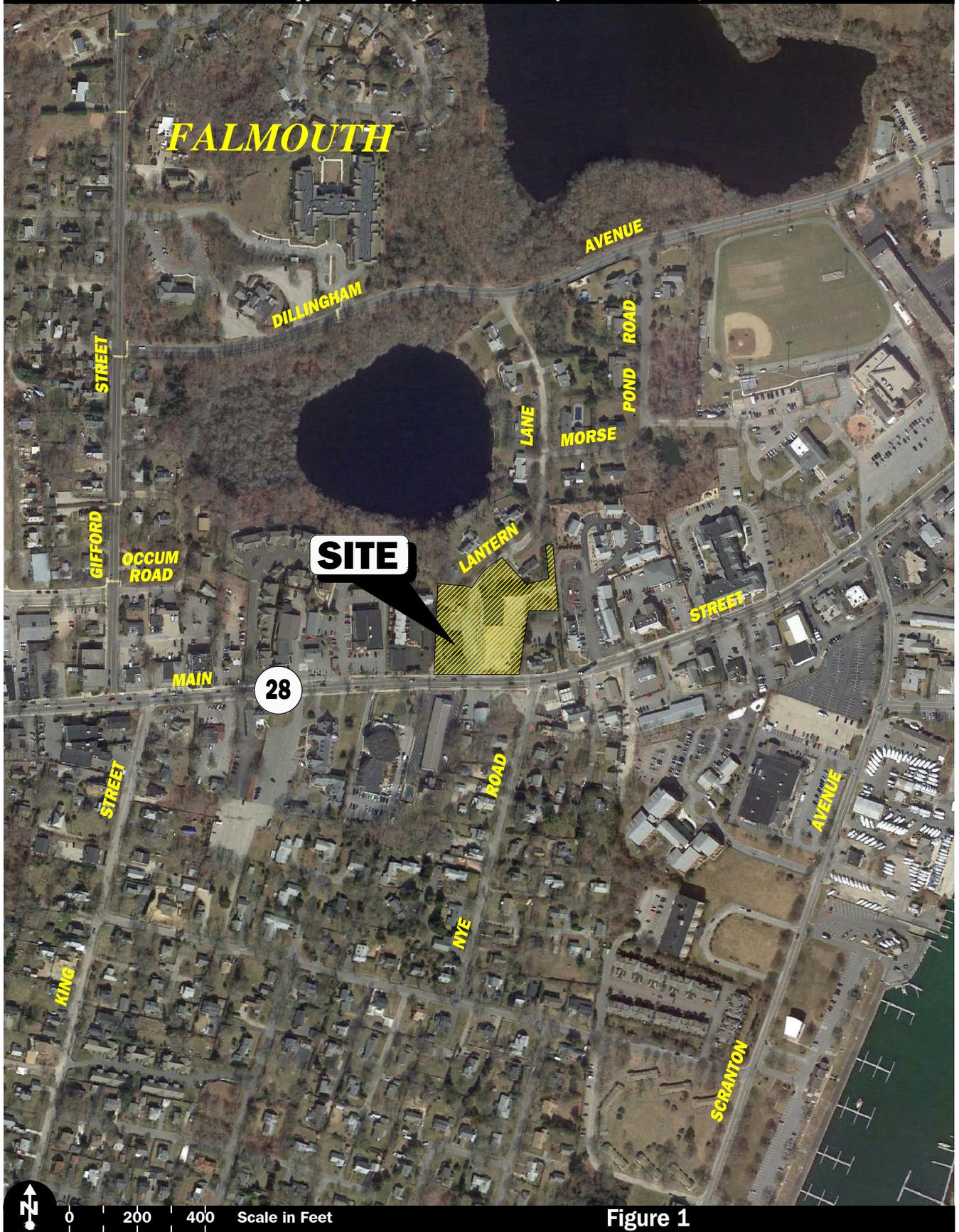


Figure 1

Site Location Map



Table 1 summarizes and compares the traffic characteristics of the current and proposed use of the Project site.

**Table 1**  
**566 MAIN STREET REDEVELOPMENT PROJECT**  
**EXISTING AND PROPOSED TRAFFIC VOLUME COMPARISON**

Time Period/Direction	Vehicle Trips		
	(A) Proposed Extended Stay Hotel (110 Rooms) <sup>a</sup>	(B) Existing Uses <sup>b</sup>	(C = A - B) Difference
<i>Average Weekday Daily:</i>			
Entering	445	361	
<u>Exiting</u>	<u>445</u>	<u>361</u>	
Total	900	722	+178
<i>Weekday Morning Peak-Hour of Generator:</i>			
Entering	33	53	
<u>Exiting</u>	<u>28</u>	<u>58</u>	
Total	61	111	-50
<i>Weekday Evening Peak-Hour of Generator:</i>			
Entering	39	46	
<u>Exiting</u>	<u>28</u>	<u>36</u>	
Total	67	82	-15
<i>Saturday Daily:</i>			
Entering	451	342	
<u>Exiting</u>	<u>451</u>	<u>342</u>	
Total	902	684	+218
<i>Saturday Midday Peak-Hour:</i>			
Entering	45	33	
<u>Exiting</u>	<u>35</u>	<u>33</u>	
Total	80	66	+14

<sup>a</sup>Based on ITE LUC 310, *Hotel*; 110 rooms.

<sup>b</sup>Based on ITE LUC 826, *Specialty Retail*; 16,272 sf.

As can be seen in Table 1, the redevelopment of the Project site as an extended stay hotel is expected to result in 178 additional vehicle trips on an average weekday (two-way, 24-hour volume) when compared to the projected traffic characteristics of the existing uses that occupy the Project site, with 50 fewer vehicle trips predicted during the weekday morning peak-hour and 15 fewer vehicle trips predicted during the weekday evening peak-hour. On a Saturday, the redevelopment of the Project site is expected to result in 218 additional vehicle trips, with 14 additional vehicle trips predicted during the Saturday midday peak-hour. The detailed trip-generation calculations are attached.

## **PROJECT SITE ACCESS EVALUATION**

As described previously, access to the Project site will be provided by way of Lantern Lane, a private way that bisects the Project site and intersects the north side of Main Street approximately 180 feet west of Nye Road. Lantern Lane will be reconstructed to accommodate the Project and will continue to provide access to the residential properties to the north of the Project site. Access to the off-site parking lot will be provided by way of a gated (key card activated) driveway that will intersect the west side of Nye Road approximately 190 feet south of Main Street. A sidewalk is provided along Nye Road that will be improved as a part of the Project and marked crosswalks are afforded at the Main Street/Nye Road intersection for hotel guests to cross Main Street between the Project site and the off-site parking lot. The following provides a description of the roadways that will provide access to the Project site and includes an assessment of sight lines at the Project site driveway intersections with both Main Street and Nye Road.

### **Roadways**

#### **Main Street**

Within the study area, Main Street (Route 28) is a two-lane, urban principal arterial roadway that is under Town jurisdiction and traverses the study area in a general east-west direction. In the vicinity of the Project site, Main Street provides two (2) travel lanes per direction that are approximately 15-foot in width and are separated by a double-yellow centerline with no marked shoulders provided. Four to eight-foot wide cement concrete sidewalks are provided continuously along both sides of Main Street with wheelchair ramps provided for crossing intersecting roadways and driveways. Formal bicycle accommodations are not provided along Main Street; however, the 15-foot wide travel lanes provide sufficient width to accommodate bicycle travel in a shared travelled-way configuration.<sup>3</sup> The posted speed limit along Main Street within the study area is 35 miles per hour (mph). Traffic volume and speed data collected in May 2014 on Main Street in the vicinity of the Project site reported the following data:

- **Average Weekday Traffic:** 16,600 vehicles per day
- **Saturday Traffic:** 16,900 vehicles
- **Average Travel Speed:** 23 mph
- **85<sup>th</sup> Percentile Travel Speed:** 29 mph

Bus service is provided along Main Street by the Cape Cod Regional Transit Authority (CCRTA) by way of the *SeaLine* bus service and the Woods Hole Shuttle (*WHOOSH trolley*) (discussion follows). Land use along Main Street within the study area consists of the Project site and residential and commercial properties.

#### **Nye Road**

Nye Road is a two-lane local roadway that is under Town jurisdiction and traverses a general north-south direction between Main Street and Queen Street. Nye Road is approximately 18-foot in width and accommodates two-way travel with no marked centerline or shoulders provided. Four-foot wide cement or bituminous concrete sidewalks are provided along both sides of Nye Road. Formal bicycle accommodations are not provided along Nye Road; however, the low traffic volumes and travel speeds along this residential roadway are conducive to bicycle and motor vehicle travel within the travelled-way. A posted speed limit is not provided for Nye Road. Peak-hour traffic volumes measured in May 2014

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<sup>3</sup>A minimum width of 14-foot consisting of the travel lane and paved shoulder (where present) is required to support bicycle travel in a shared travelled-way configuration.

indicate that Nye Road accommodates approximately 45 vehicles per hour during both the weekday morning and evening peak hours, and approximately 30 vehicles per hour during the Saturday midday peak-hour. Land use along Nye Road consists of residential and commercial properties.

### **Intersection**

Nye Road intersects Main Street from the south to form a three-legged intersection under STOP-sign control. The Main Street east and westbound approaches consist of a 15-foot wide general purpose travel lane with no marked shoulder provided. The directions of travel along Main Street are separated by a double-yellow centerline. Nye Road consists of an 18-foot wide roadway that accommodates two-way travel with no marked centerline or shoulders provided and vehicles approaching Main Street under STOP-sign control. Sidewalks are provided along both sides of the intersecting roadways, with marked crosswalks for crossing Nye Road and the Main Street west leg of the intersection. Pedestrian crossing warning signs are provided in advance of the crossing on Main Street. Land use in the vicinity of the intersection consists of the Project site and commercial properties.

### **Public Transportation Services**

Public transportation services are provided to the Town of Falmouth by the Cape Cod Regional Transit Authority (CCRTA). Within the study area, the CCRTA operates the *SeaLine* bus service which will be available to both guests and employees of the Project. The *SeaLine* bus route travels along Route 28 and past the Project site from the Hyannis Transportation Center to the Woods Hole Ferry Terminal in Falmouth, with numerous local stops including: the Cape Cod Mall; Centerville; Osterville; Marstons Mills Marketplace; Mashpee Commons; South Cape Village; East Falmouth; the Falmouth Mall; and the Falmouth Bus Depot. Connections to other CCRTA bus routes and to regional bus service provided by Plymouth & Brockton (P&B) Street Railway Co. (service to Boston (South Station)) and Peter Pan Bus Lines (service to Providence and New York City) can be made at the Hyannis Transportation Center located in downtown Hyannis. During the summer, the *SeaLine* route terminates at the Falmouth Mall, with service between the Falmouth Mall and Woods Hole provided by trolley (the WHOOSH trolley). *SeaLine* service is provided Monday through Saturday, with 18 buses per day (nine in each direction); headways range from one to two hours. Fares for adults and youths are \$2.00, with a \$1.00 fare for senior citizens and people with disabilities. All CCRTA buses are handicapped and wheelchair accessible, and are equipped with bicycle racks.

The Woods Hole Shuttle (*WHOOSH trolley*) operates seven days a week from mid-June through late-September and provides service between the Falmouth Mall and the Woods Hole Aquarium. Service is provided every half-hour on weekdays and hourly on weekends. The adult trolley fare is \$1.00, with a \$0.50 fare for senior citizens and people with disabilities.

In addition to the fixed-route bus service, the CCRTA provides door-to-door bus service by way of the Dial-A-Ride Transportation (DART). DART service is provided by appointment to Cape Cod residents of all ages for trips of any purpose including school, work, shopping, medical visits, and visiting friends, and is provided in all 15 towns on Cape Cod. DART vehicles carry 19 passengers and have hydraulic lifts for people with disabilities. New subscribers must pre-enroll; once enrolled, reservations may be made up to one week in advance. DART service is generally provided between 7:00 AM and 7:00 PM Monday through Friday; between 9:00 AM and 7:00 PM on Saturday; and between 9:00 AM to 1:00 PM on Sunday. Fares for adults and youths is \$3.00, with a \$1.50 fare for seniors and people with disabilities; children five and younger ride for free when accompanied by a paying adult.

## Sight Distance Evaluation

Sight distance measurements were performed at the Project site driveway/Lantern Lane intersection with Main Street in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)<sup>4</sup> standards. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, at a minimum, sufficient SSD should be provided at an intersection. ISD, while desirable to maintain efficient traffic flow, is not required for an intersection to function in a safe manner.

As discussed previously, vehicle travel speed measurements were performed along Main Street in the vicinity of the Project site over a continuous 72-hour period (Thursday through Saturday) in May 2014. Based on these measurements, the average observed travel speed was found to be 23 mph and the 85<sup>th</sup> percentile vehicle travel speed was found to be 29 mph, or 5 mph below the posted speed limit along this section of Main Street (35 mph). The 85<sup>th</sup> percentile speed is used as the basis of engineering design and in the evaluation of sight distances. That being said, given that the measured 85<sup>th</sup> percentile vehicle travel speed was found to be below the posted speed limit, the posted speed limit (35 mph) was used to assess sight lines at the Project site driveway intersection. Table 2 presents the measured SSD and ISD at the subject intersection.

**Table 2**  
**SIGHT DISTANCE MEASUREMENTS<sup>a</sup>**

Intersection/Sight Distance Measurement	Feet		
	Recommended Minimum (SSD)	Desirable (ISD) <sup>b</sup>	Measured
<b><i>Main Street at the Project Site Driveway/Lantern Lane</i></b>			
<i>Stopping Sight Distance:</i>			
Main Street approaching from the east	250	--	325
Main Street approaching from the west	250	--	500+
<i>Intersection Sight Distance:</i>			
Looking to the east from the Project site driveway/Lantern Lane	250	455/395	250
Looking to the west from the Project site driveway/Lantern Lane	250	455/395	500+

<sup>a</sup>Recommended minimum values obtained from: *A Policy on Geometric Design of Highways and Streets*, 6<sup>th</sup> Edition; American Association of State Highway and Transportation Officials (AASHTO); 2011; and based on an approach speed of 35 mph along Main Street.

<sup>b</sup>Value shown is the intersection sight distance for a vehicle turning left/right exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

<sup>4</sup>*A Policy on Geometric Design of Highways and Streets*, 6<sup>th</sup> Edition; American Association of State Highway and Transportation Officials (AASHTO); 2011.

As can be seen in Table 2, lines of sight at the Project site driveway/Lantern Lane intersection with Main Street meet or exceed the recommended minimum sight distance (SSD) to function in a safe manner based on a 35 mph approach speed along Main Street, which is consistent with the posted speed limit and 6 mph above the measured 85<sup>th</sup> percentile travel speed (29 mph).

Lines of sight to and from the driveway that will serve the proposed overflow parking lot on Nye Road will meet or exceed 155 feet, the minimum sight distance required for a 25 mph approach speed, which is consistent with the residential setting of the abutting land use and the relatively low volume of traffic using the roadway.

## **MOTOR VEHICLE CRASH ANALYSIS**

Motor vehicle crash information for the study area intersections was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent three-year period available (2010 through 2012, inclusive) in order to examine motor vehicle crash trends occurring within the study area. Based on a review of this data, no motor vehicle crashes were reported to have occurred at the Main Street/Lantern Lane intersection. Three (3) motor vehicle crashes were reported at or in the vicinity of the Main Street/Nye Road intersection over the three-year review period, or approximately one (1) crash per year, none of which were reported to have involved a pedestrian or bicyclist. Of the three (3) reported crashes, two (2) involved property damage only; two (2) were reported a rear-end type collisions; and all three (3) crashes occurred on dry pavement. No roadway defects were noted as a contributing cause in any of the reported crashes; all were attributed to driver error or inattentiveness. The calculated motor vehicle crash rate for the Main Street/Nye Road intersection per million entering vehicles is 0.20, which is below both the MassDOT statewide and District 5 (the MassDOT Highway Division District in which the intersection is located) average crash rates for an unsignalized intersection of 0.60 and 0.58 crashes per million entering vehicles, respectively. The detailed MassDOT Crash Rate Worksheet is attached.

***Based on a review of the MassDOT motor vehicle crash data, no inherent safety deficiencies were noted with respect to the design or operation of the Main Street/Lantern Lane or Main Street/Nye Road intersections.***

## **SUMMARY**

VAI has completed a Transportation Impact Assessment in support of this Application pursuant to Section 5 of the Cape Cod Commission Chapter A, *Enabling Regulations Governing Review of Developments of Regional Impact* (DRI), for a Limited DRI Review of a proposed extended stay hotel to be located at 556 Main Street (Route 28) in Falmouth, Massachusetts. This assessment has provided relevant information and analyses to support a finding by the Cape Cod Commission that the Project meets the requirements for Limited DRI review with respect to Transportation and the goals and performance standards relative to Transportation as identified in the 2009 *Cape Cod Regional Policy Plan* as amended. Based on the information prepared as a part of this assessment, the following has been concluded with respect to the Project:

1. The redevelopment of the Project site as an extended stay hotel is expected to result in 178 additional vehicle trips on an average weekday (two-way, 24-hour volume) when compared to the projected traffic characteristics of the existing uses that occupy the Project site, with 50 fewer vehicle trips predicted during the weekday morning peak-hour and 15 fewer vehicle trips predicted during the weekday evening peak-hour. On a Saturday, the redevelopment of the

Project site is expected to result in 218 additional vehicle trips, with 14 additional vehicle trips predicted during the Saturday midday peak-hour;

2. Both Main Street and Nye Road provide pedestrian and bicycle accommodations that currently exist or will be improved as a part of the Project to safely convey patrons, guests and employees to and from the Project site and the overflow parking lot;
3. Public transportation services provided by the CCRTA are available to the Project site;
4. Lines of sight to and from the Project site driveway on Main Street (Lantern Lane) and for the overflow parking lot on Nye Road meet, exceed or will be made to meet or exceed the required minimum sight distance to function in a safe manner based on the appropriate approach speed along these roadways (35 mph along Main Street and 25 mph along Nye Road); and
5. No inherent safety deficiencies were noted with respect to the design or operation of Main Street proximate to the Project site or the Main Street/Nye Road intersection based on a review of motor vehicle crash data provided by MassDOT.

In consideration of the above and presuming a favorable finding by the Commission granting Limited DRI review with respect to Transportation, the Applicant will work with Commission Transportation Staff with respect to the design of the Project site driveway and other such measures as deemed appropriate to: i) mitigate the projected impact of the Project on the regional roadway network serving the Project locus; and ii) afford safe and convenient access to the Project site for all roadway users.

## **Limited DRI Review Scoping Checklist – Redevelopment/Change of Use - Transportation**

The following summarizes the guidance provided in the *Limited DRI Review Scoping Checklist* relative to Transportation as this guidance relates to the Project.

### ***Congestion Management***

*Guidance:* Will the Project generate more than 250 new daily trips?

*Response:* No. The Project is expected to generate 178 new daily vehicle trips on an average weekday and 218 new vehicle trips on a Saturday when compared to the existing uses that occupy the Project site.

### ***Transportation Balance and Efficiency***

*Guidance:* Will the Project generate more than 250 new daily trips?

*Response:* No. The Project is expected to generate 178 new daily vehicle trips on an average weekday and 218 new vehicle trips on a Saturday when compared to the existing uses that occupy the Project site.

### ***Safety***

*Guidance:* Does the Project have direct access on or does the Project directly abut a regional roadway?

*Response:* Yes. The Project site has direct access to and directly abuts Main Street (Route 28), a regional roadway under the jurisdiction of the Town of Falmouth.

### ***Safety***

*Guidance:* Will the Project generate more than 25 new peak hour trips at a high crash location?

*Response:* No. The Project is predicted to generate 14 new vehicle trips during the Saturday midday peak-hour (traffic volume hour with the highest predicted traffic volume increase).

**ATTACHMENTS**

AUTOMATIC TRAFFIC RECORDER COUNTS

MANUAL TURNING MOVEMENT COUNTS

VEHICLE TRAVEL SPEED MEASUREMENTS

TRIP-GENERATION CALCULATIONS

CCRTA BUS ROUTE, SCHEDULE AND FARE INFORMATION

MASSDOT CRASH RATE WORKSHEET

**AUTOMATIC TRAFFIC RECORDER COUNTS**

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Location : Main Street (Route 28)  
Location : East of Lantern Lane  
City/State: Falmouth, MA

Site Code: 66680001  
6668VOL1

Start Time	29-May-14 Thu	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		6	119			15	180				
12:15		3	149			3	193				
12:30		5	141			9	157				
12:45		4	143	18	552	3	157	30	687	48	1239
01:00		4	137			4	162				
01:15		2	121			2	145				
01:30		2	147			3	165				
01:45		2	105	10	510	5	167	14	639	24	1149
02:00		3	119			7	184				
02:15		4	129			4	222				
02:30		3	142			3	181				
02:45		2	139	12	529	1	168	15	755	27	1284
03:00		0	140			5	175				
03:15		1	118			2	192				
03:30		0	123			3	175				
03:45		6	123	7	504	3	157	13	699	20	1203
04:00		5	123			5	182				
04:15		11	137			5	198				
04:30		7	131			9	187				
04:45		20	115	43	506	7	197	26	764	69	1270
05:00		19	135			10	197				
05:15		22	117			13	227				
05:30		31	104			24	153				
05:45		41	122	113	478	20	142	67	719	180	1197
06:00		24	109			16	144				
06:15		40	106			35	125				
06:30		85	110			50	119				
06:45		95	117	244	442	54	119	155	507	399	949
07:00		96	109			57	126				
07:15		113	93			94	131				
07:30		122	100			112	141				
07:45		141	79	472	381	83	121	346	519	818	900
08:00		136	64			124	102				
08:15		115	66			118	82				
08:30		139	55			111	101				
08:45		146	64	536	249	146	95	499	380	1035	629
09:00		144	63			148	84				
09:15		128	44			141	69				
09:30		121	42			150	48				
09:45		130	43	523	192	125	57	564	258	1087	450
10:00		141	30			155	30				
10:15		160	24			118	55				
10:30		123	26			162	36				
10:45		137	23	561	103	142	28	577	149	1138	252
11:00		133	10			161	28				
11:15		124	19			139	18				
11:30		133	12			126	25				
11:45		142	12	532	53	153	14	579	85	1111	138
Total		3071	4499			2885	6161			5956	10660
Percent		40.6%	59.4%			31.9%	68.1%			35.8%	64.2%

Location : Main Street (Route 28)  
Location : East of Lantern Lane  
City/State: Falmouth, MA

Site Code: 66680001  
6668VOL1

Start Time	30-May-14 Fri	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		7	136			16	194				
12:15		4	164			6	175				
12:30		3	146			7	202				
12:45		4	148	18	594	14	188	43	759	61	1353
01:00		6	145			6	195				
01:15		1	143			3	196				
01:30		1	142			8	181				
01:45		6	148	14	578	6	178	23	750	37	1328
02:00		3	127			5	207				
02:15		3	122			2	198				
02:30		3	160			2	185				
02:45		1	141	10	550	2	199	11	789	21	1339
03:00		1	144			0	205				
03:15		1	130			2	213				
03:30		1	139			4	202				
03:45		1	121	4	534	2	171	8	791	12	1325
04:00		8	119			2	189				
04:15		9	128			8	197				
04:30		6	142			10	195				
04:45		17	115	40	504	6	195	26	776	66	1280
05:00		15	102			16	212				
05:15		23	116			15	178				
05:30		47	122			24	172				
05:45		32	134	117	474	25	145	80	707	197	1181
06:00		44	113			32	165				
06:15		65	94			48	146				
06:30		76	102			65	130				
06:45		100	118	285	427	53	140	198	581	483	1008
07:00		76	111			63	122				
07:15		109	120			99	150				
07:30		132	106			105	142				
07:45		139	98	456	435	104	113	371	527	827	962
08:00		145	78			108	114				
08:15		129	83			129	118				
08:30		138	68			116	109				
08:45		166	67	578	296	133	81	486	422	1064	718
09:00		134	63			189	92				
09:15		146	67			134	76				
09:30		167	59			154	75				
09:45		145	58	592	247	141	71	618	314	1210	561
10:00		137	72			143	102				
10:15		149	36			174	81				
10:30		145	42			175	53				
10:45		147	34	578	184	187	60	679	296	1257	480
11:00		154	28			170	44				
11:15		124	22			219	41				
11:30		130	23			199	31				
11:45		159	15	567	88	179	30	767	146	1334	234
Total		3259	4911			3310	6858			6569	11769
Percent		39.9%	60.1%			32.6%	67.4%			35.8%	64.2%





**MANUAL TURNING MOVEMENT COUNTS**

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# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 1

### Groups Printed- Cars - Trucks

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	1	90	2	1	66	1	161
07:15 AM	4	96	3	2	91	2	198
07:30 AM	2	138	3	5	82	2	232
07:45 AM	6	140	2	0	94	0	242
Total	13	464	10	8	333	5	833
08:00 AM	4	153	2	2	102	2	265
08:15 AM	6	128	3	5	117	0	259
08:30 AM	0	128	5	1	127	1	262
08:45 AM	3	153	6	1	106	1	270
Total	13	562	16	9	452	4	1056
Grand Total	26	1026	26	17	785	9	1889
Apprch %	2.5	97.5	60.5	39.5	98.9	1.1	
Total %	1.4	54.3	1.4	0.9	41.6	0.5	
Cars	24	1010	26	16	761	9	1846
% Cars	92.3	98.4	100	94.1	96.9	100	97.7
Trucks	2	16	0	1	24	0	43
% Trucks	7.7	1.6	0	5.9	3.1	0	2.3

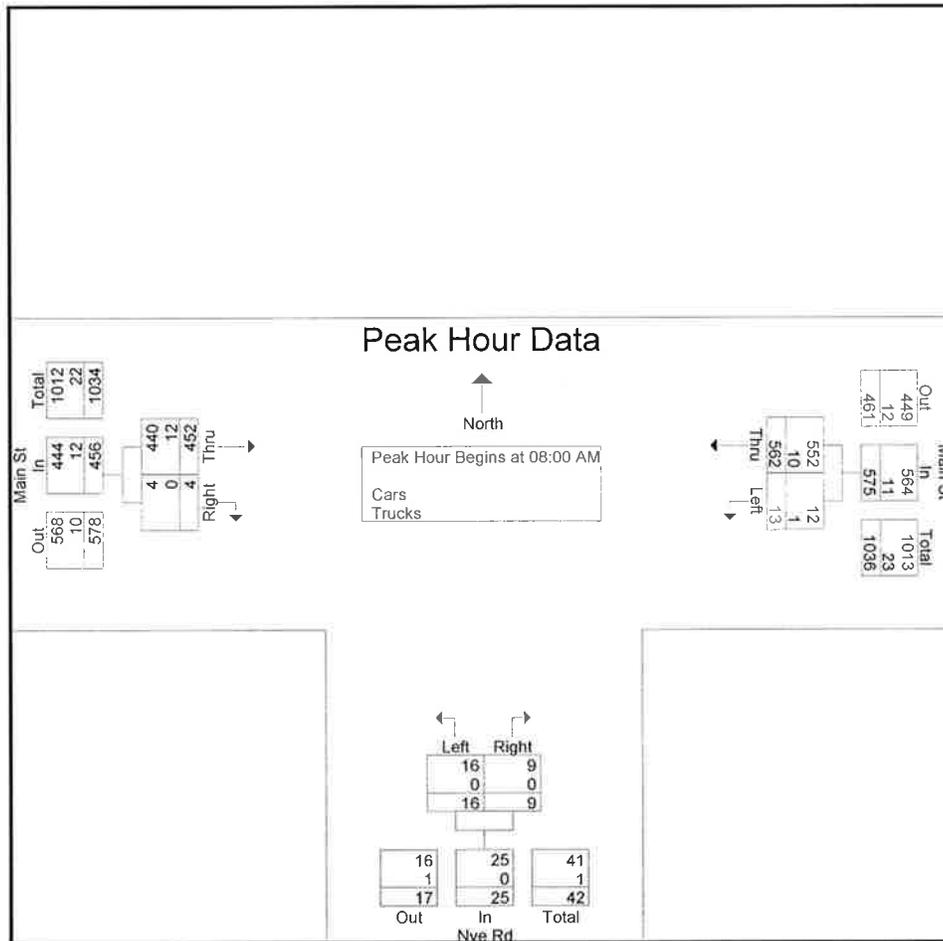
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 2

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	4	153	157	2	2	4	102	2	104	265
08:15 AM	6	128	134	3	5	8	117	0	117	259
08:30 AM	0	128	128	5	1	6	127	1	128	262
08:45 AM	3	153	156	6	1	7	106	1	107	270
<b>Total Volume</b>	13	562	575	16	9	25	452	4	456	1056
<b>% App. Total</b>	2.3	97.7		64	36		99.1	0.9		
PHF	.542	.918	.916	.667	.450	.781	.890	.500	.891	.978
Cars	12	552	564	16	9	25	440	4	444	1033
<b>% Cars</b>	92.3	98.2	98.1	100	100	100	97.3	100	97.4	97.8
Trucks	1	10	11	0	0	0	12	0	12	23
<b>% Trucks</b>	7.7	1.8	1.9	0	0	0	2.7	0	2.6	2.2



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

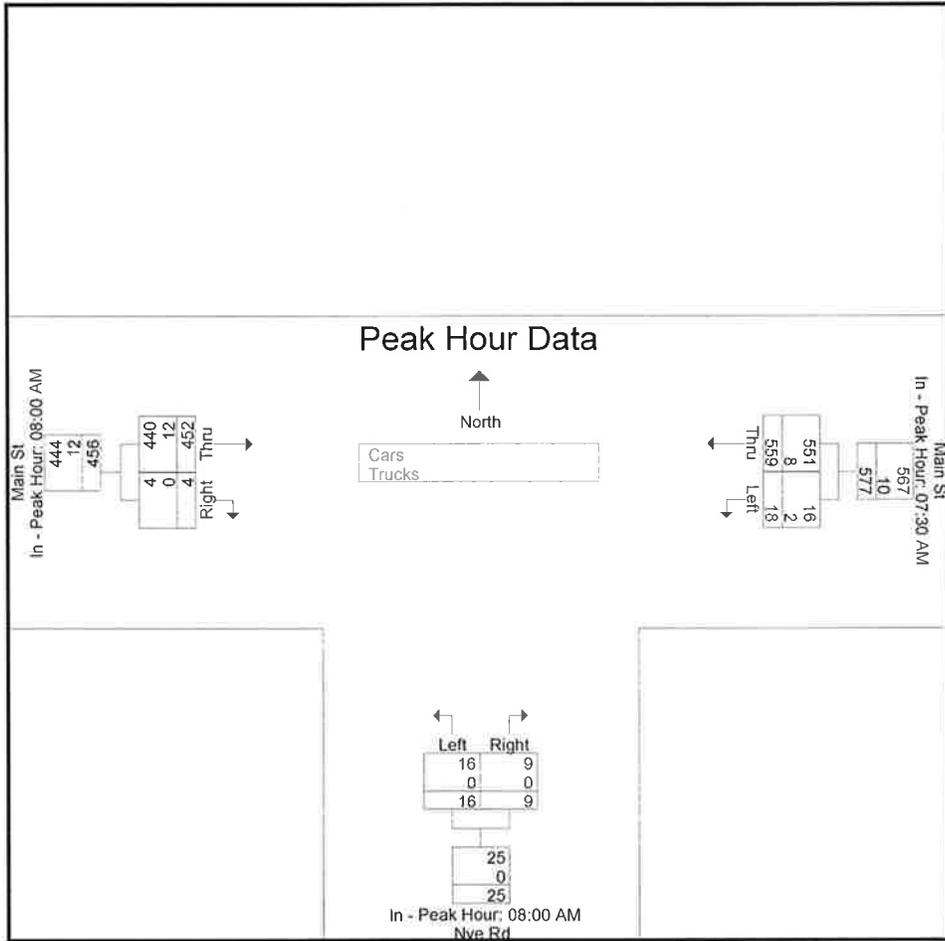
File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 3

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			08:00 AM		
+0 mins.	2	138	140	2	2	4	102	2	104
+15 mins.	6	140	146	3	5	8	117	0	117
+30 mins.	4	153	157	5	1	6	127	1	128
+45 mins.	6	128	134	6	1	7	106	1	107
Total Volume	18	559	577	16	9	25	452	4	456
% App. Total	3.1	96.9		64	36		99.1	0.9	
PHF	.750	.913	.919	.667	.450	.781	.890	.500	.891
Cars	16	551	567	16	9	25	440	4	444
% Cars	88.9	98.6	98.3	100	100	100	97.3	100	97.4
Trucks	2	8	10	0	0	0	12	0	12
% Trucks	11.1	1.4	1.7	0	0	0	2.7	0	2.6



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 4

Groups Printed- Cars

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	1	89	2	1	64	1	158
07:15 AM	4	94	3	2	87	2	192
07:30 AM	2	136	3	4	79	2	226
07:45 AM	5	139	2	0	91	0	237
Total	12	458	10	7	321	5	813
08:00 AM	4	150	2	2	101	2	261
08:15 AM	5	126	3	5	114	0	253
08:30 AM	0	127	5	1	122	1	256
08:45 AM	3	149	6	1	103	1	263
Total	12	552	16	9	440	4	1033
Grand Total	24	1010	26	16	761	9	1846
Apprch %	2.3	97.7	61.9	38.1	98.8	1.2	
Total %	1.3	54.7	1.4	0.9	41.2	0.5	

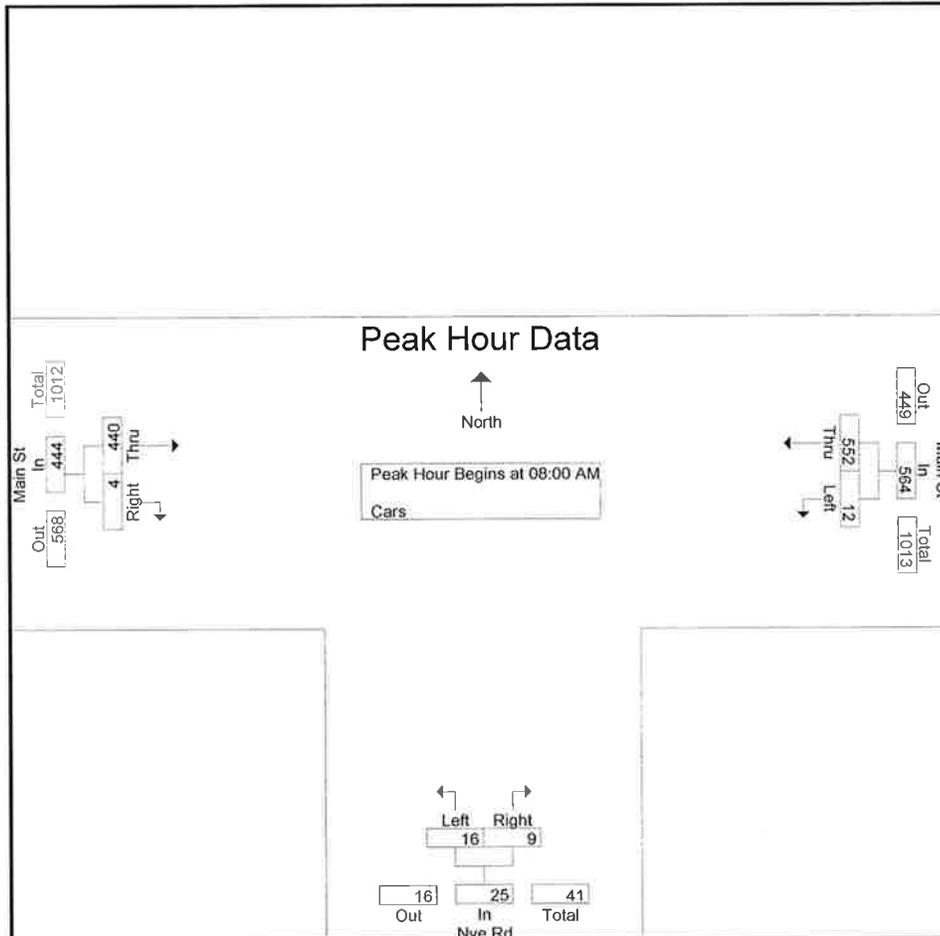
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 5

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	4	150	154	2	2	4	101	2	103	261
08:15 AM	5	126	131	3	5	8	114	0	114	253
08:30 AM	0	127	127	5	1	6	122	1	123	256
08:45 AM	3	149	152	6	1	7	103	1	104	263
Total Volume	12	552	564	16	9	25	440	4	444	1033
% App. Total	2.1	97.9		64	36		99.1	0.9		
PHF	.600	.920	.916	.667	.450	.781	.902	.500	.902	.982



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

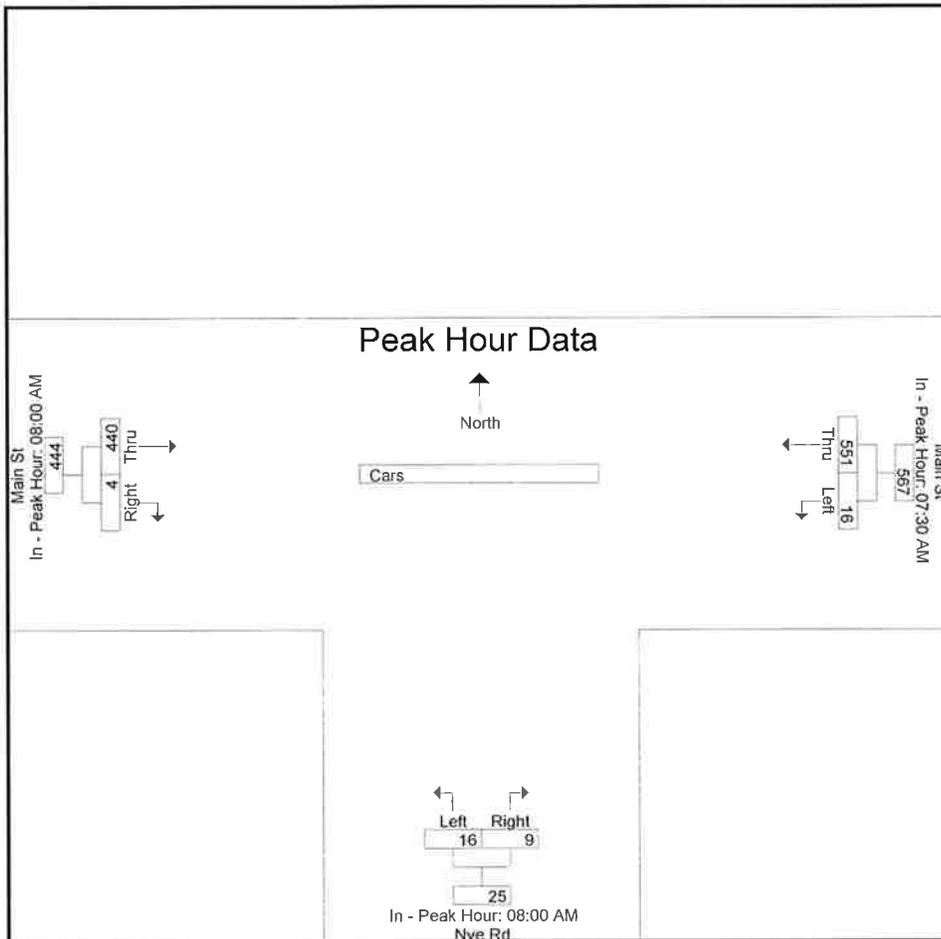
File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 6

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			08:00 AM		
+0 mins.	2	136	138	2	2	4	101	2	103
+15 mins.	5	139	144	3	5	8	114	0	114
+30 mins.	4	150	154	5	1	6	122	1	123
+45 mins.	5	126	131	6	1	7	103	1	104
Total Volume	16	551	567	16	9	25	440	4	444
% App. Total	2.8	97.2		64	36		99.1	0.9	
PHF	.800	.918	.920	.667	.450	.781	.902	.500	.902



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 7

Groups Printed- Trucks

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	0	1	0	0	2	0	3
07:15 AM	0	2	0	0	4	0	6
07:30 AM	0	2	0	1	3	0	6
07:45 AM	1	1	0	0	3	0	5
Total	1	6	0	1	12	0	20
08:00 AM	0	3	0	0	1	0	4
08:15 AM	1	2	0	0	3	0	6
08:30 AM	0	1	0	0	5	0	6
08:45 AM	0	4	0	0	3	0	7
Total	1	10	0	0	12	0	23
Grand Total	2	16	0	1	24	0	43
Apprch %	11.1	88.9	0	100	100	0	
Total %	4.7	37.2	0	2.3	55.8	0	

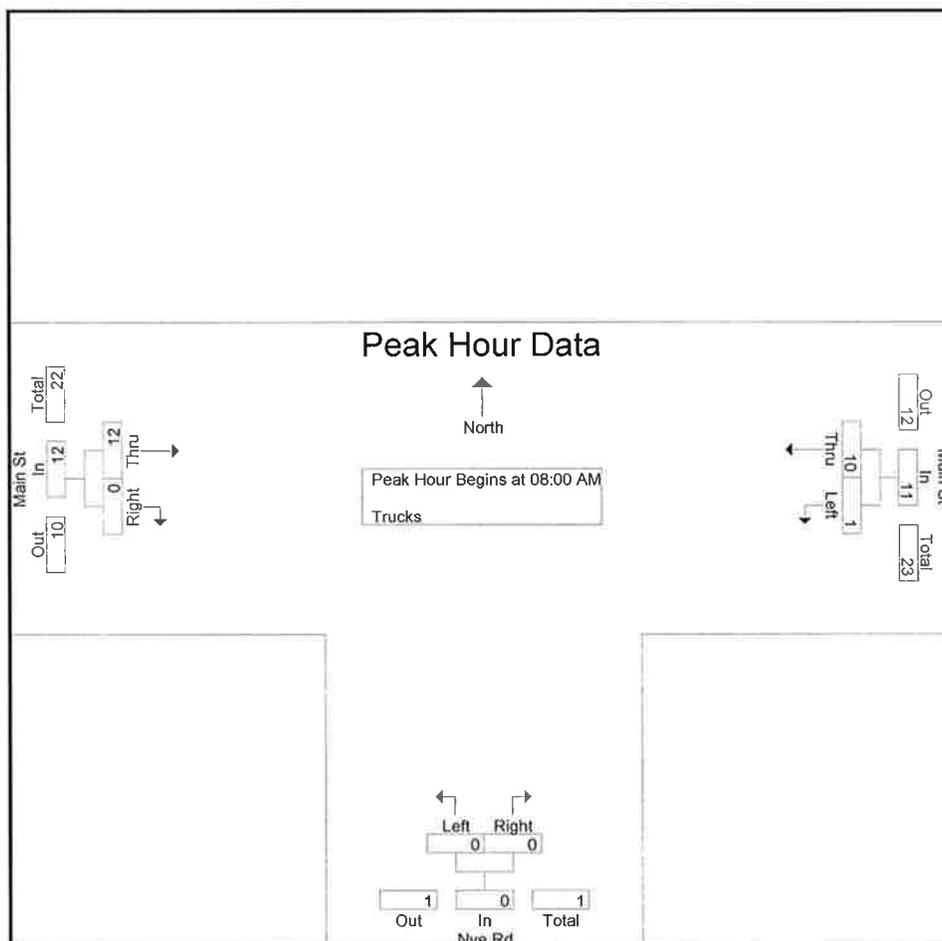
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 8

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	3	3	0	0	0	1	0	1	4
08:15 AM	1	2	3	0	0	0	3	0	3	6
08:30 AM	0	1	1	0	0	0	5	0	5	6
08:45 AM	0	4	4	0	0	0	3	0	3	7
<b>Total Volume</b>	<b>1</b>	<b>10</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>23</b>
% App. Total	9.1	90.9		0	0		100	0		
PHF	.250	.625	.688	.000	.000	.000	.600	.000	.600	.821



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

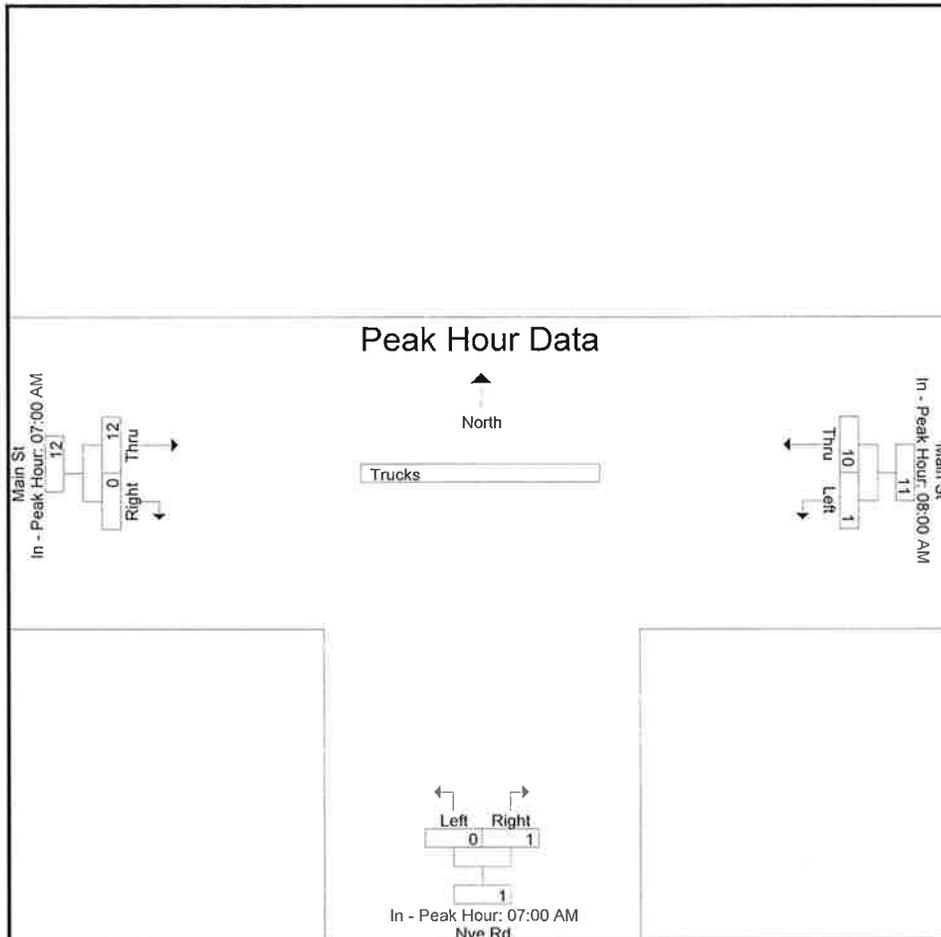
File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 9

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	3	3	0	0	0	2	0	2
+15 mins.	1	2	3	0	0	0	4	0	4
+30 mins.	0	1	1	0	1	1	3	0	3
+45 mins.	0	4	4	0	0	0	3	0	3
Total Volume	1	10	11	0	1	1	12	0	12
% App. Total	9.1	90.9		0	100		100	0	
PHF	.250	.625	.688	.000	.250	.250	.750	.000	.750



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Main St From East			Nye Rd From South			Main St From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
07:00 AM	0	0	0	0	0	5	0	0	0	5	0	5
07:15 AM	0	0	2	0	0	2	0	0	0	4	0	4
07:30 AM	0	0	0	0	0	2	0	0	0	2	0	2
07:45 AM	0	0	0	0	0	3	0	0	0	3	0	3
Total	0	0	2	0	0	12	0	0	0	14	0	14
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	1	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	5	0	0	3	8	0	8
08:45 AM	0	0	0	0	0	3	0	0	0	3	0	3
Total	0	0	0	0	0	9	0	0	3	12	0	12
Grand Total	0	0	2	0	0	21	0	0	3	26	0	26
Apprch %	0	0		0	0		0	0				
Total %										100	0	

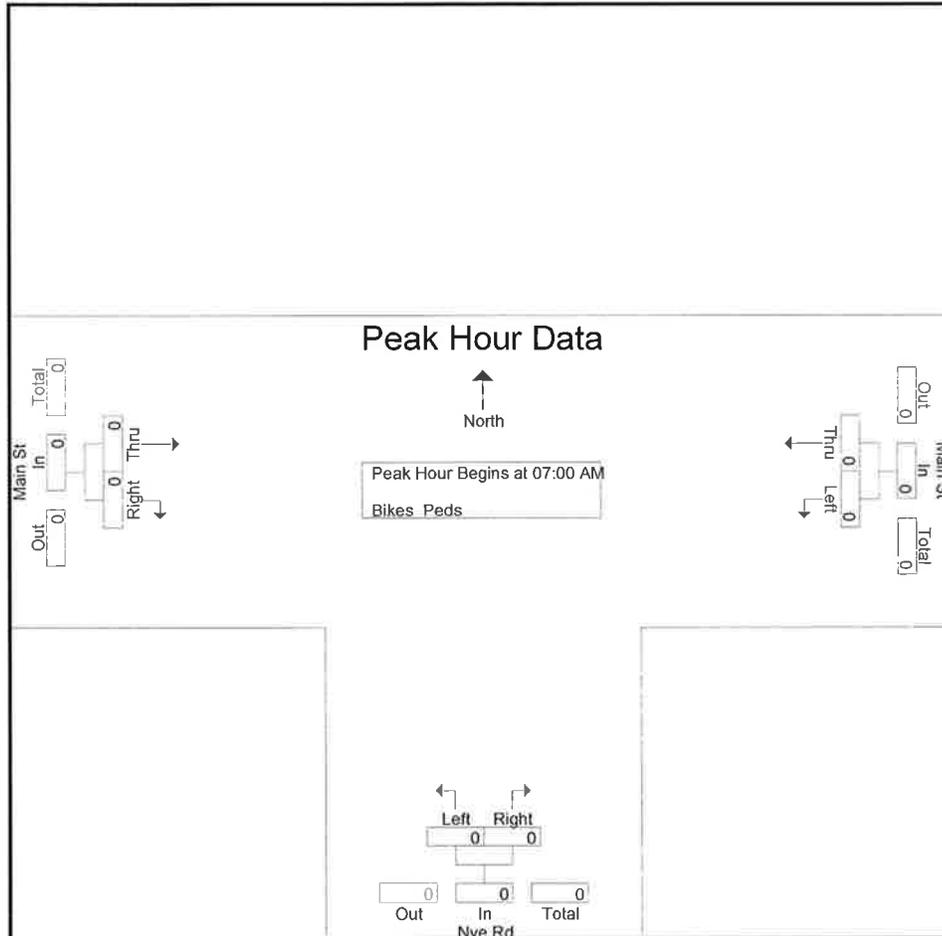
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 11

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
<b>Total Volume</b>	0	0	0	0	0	0	0	0	0	0
<b>% App. Total</b>	0	0		0	0		0	0		
<b>PHF</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

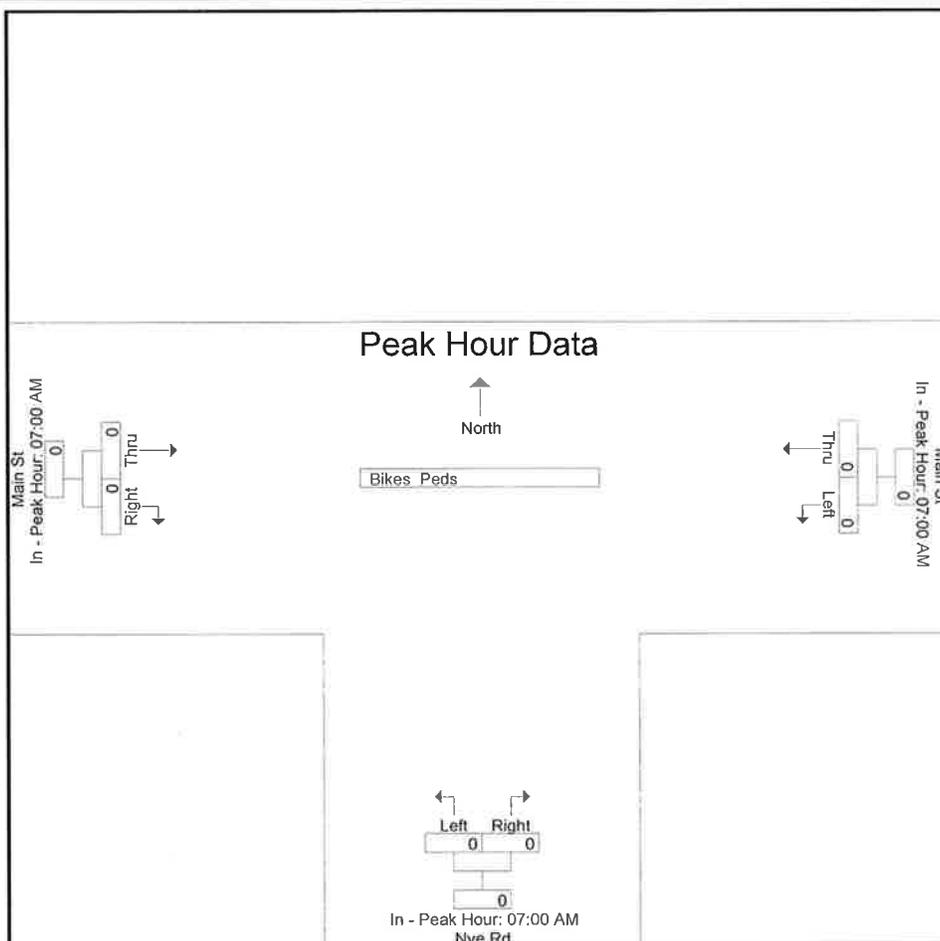
File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 12

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 1

### Groups Printed- Cars - Trucks

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	3	131	1	3	174	2	314
04:15 PM	4	132	6	1	149	1	293
04:30 PM	4	102	1	0	152	3	262
04:45 PM	5	127	4	4	175	2	317
Total	16	492	12	8	650	8	1186
05:00 PM	3	113	1	1	179	6	303
05:15 PM	4	132	3	0	191	3	333
05:30 PM	0	112	2	1	135	2	252
05:45 PM	3	88	2	0	129	0	222
Total	10	445	8	2	634	11	1110
Grand Total	26	937	20	10	1284	19	2296
Apprch %	2.7	97.3	66.7	33.3	98.5	1.5	
Total %	1.1	40.8	0.9	0.4	55.9	0.8	
Cars	26	929	20	10	1278	19	2282
% Cars	100	99.1	100	100	99.5	100	99.4
Trucks	0	8	0	0	6	0	14
% Trucks	0	0.9	0	0	0.5	0	0.6

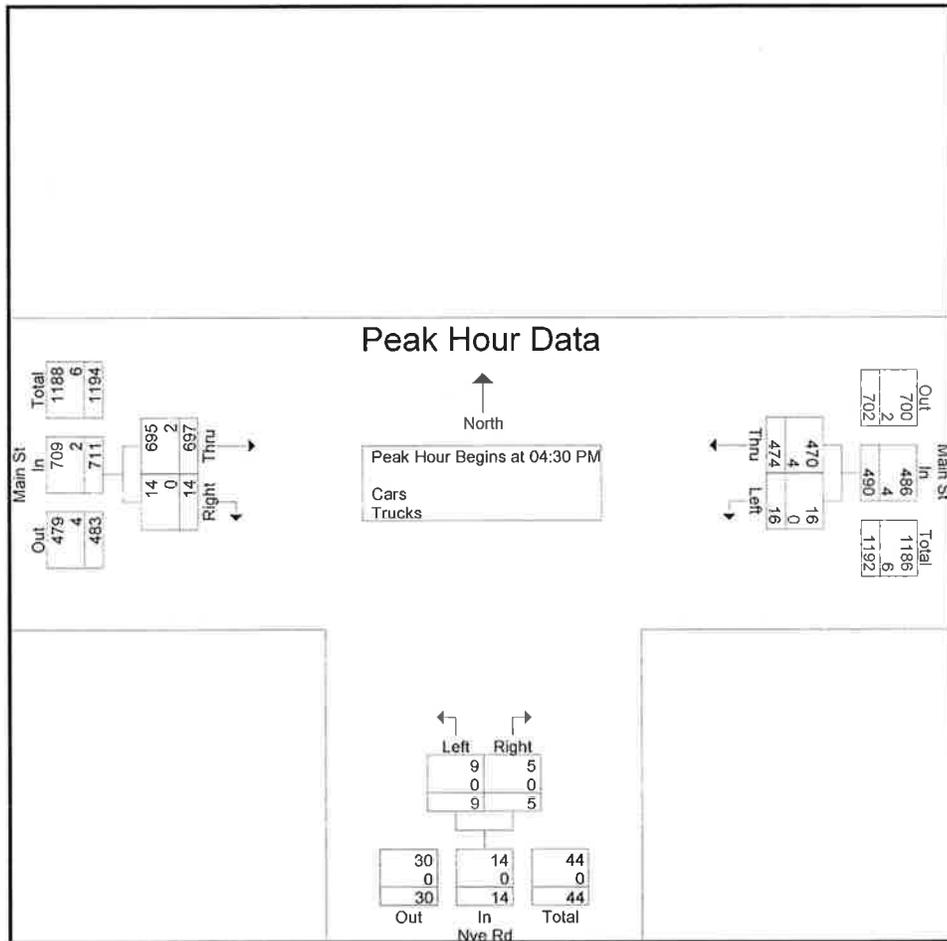
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 2

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	4	102	106	1	0	1	152	3	155	262
04:45 PM	5	127	132	4	4	8	175	2	177	317
05:00 PM	3	113	116	1	1	2	179	6	185	303
05:15 PM	4	132	136	3	0	3	191	3	194	333
<b>Total Volume</b>	16	474	490	9	5	14	697	14	711	1215
% App. Total	3.3	96.7		64.3	35.7		98	2		
PHF	.800	.898	.901	.563	.313	.438	.912	.583	.916	.912
Cars	16	470	486	9	5	14	695	14	709	1209
% Cars	100	99.2	99.2	100	100	100	99.7	100	99.7	99.5
Trucks	0	4	4	0	0	0	2	0	2	6
% Trucks	0	0.8	0.8	0	0	0	0.3	0	0.3	0.5



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

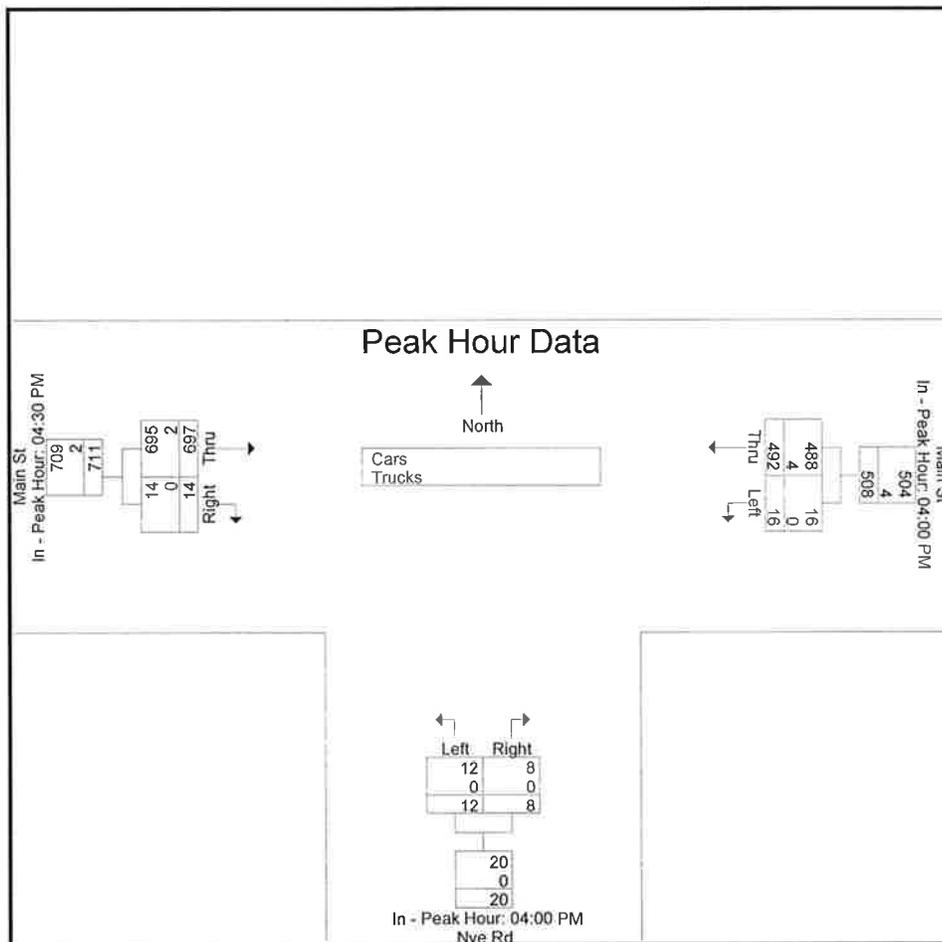
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 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 3

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:30 PM		
+0 mins.	3	131	134	1	3	4	152	3	155
+15 mins.	4	132	136	6	1	7	175	2	177
+30 mins.	4	102	106	1	0	1	179	6	185
+45 mins.	5	127	132	4	4	8	191	3	194
Total Volume	16	492	508	12	8	20	697	14	711
% App. Total	3.1	96.9		60	40		98	2	
PHF	.800	.932	.934	.500	.500	.625	.912	.583	.916
Cars	16	488	504	12	8	20	695	14	709
% Cars	100	99.2	99.2	100	100	100	99.7	100	99.7
Trucks	0	4	4	0	0	0	2	0	2
% Trucks	0	0.8	0.8	0	0	0	0.3	0	0.3



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 4

Groups Printed- Cars

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	3	129	1	3	174	2	312
04:15 PM	4	132	6	1	148	1	292
04:30 PM	4	101	1	0	151	3	260
04:45 PM	5	126	4	4	174	2	315
Total	16	488	12	8	647	8	1179
05:00 PM	3	111	1	1	179	6	301
05:15 PM	4	132	3	0	191	3	333
05:30 PM	0	111	2	1	134	2	250
05:45 PM	3	87	2	0	127	0	219
Total	10	441	8	2	631	11	1103
Grand Total	26	929	20	10	1278	19	2282
Apprch %	2.7	97.3	66.7	33.3	98.5	1.5	
Total %	1.1	40.7	0.9	0.4	56	0.8	

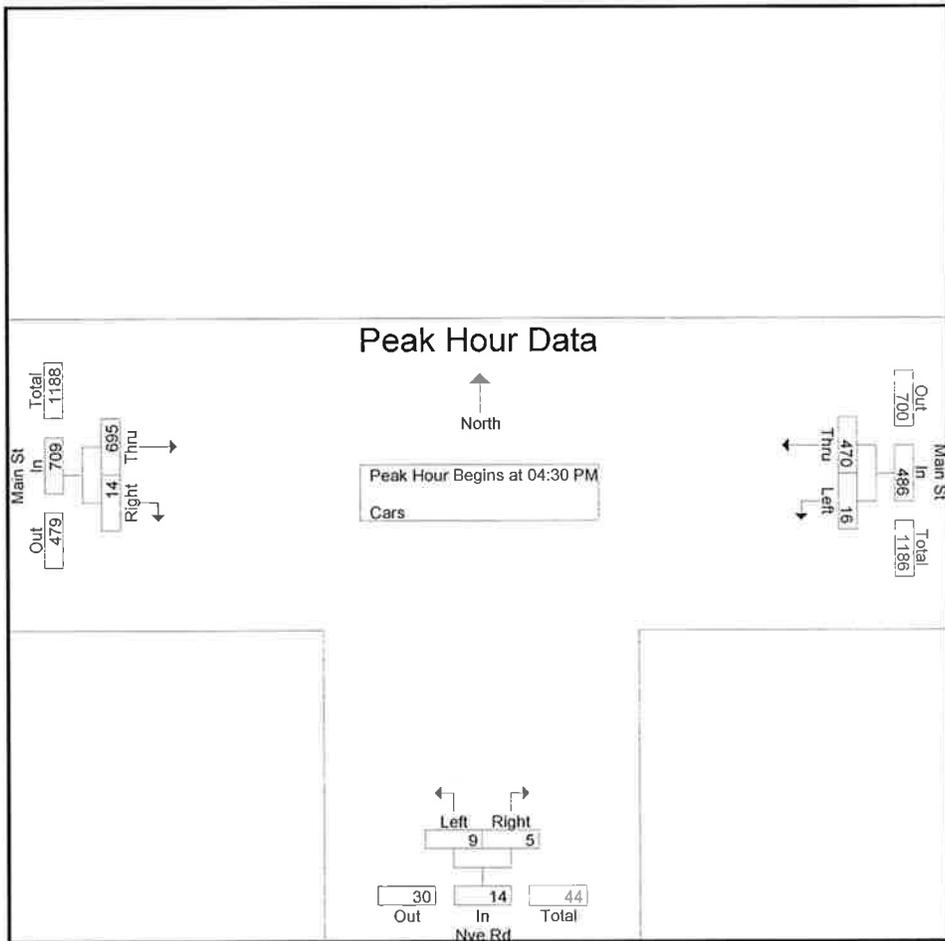
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 5

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	4	101	105	1	0	1	151	3	154	260
04:45 PM	5	126	131	4	4	8	174	2	176	315
05:00 PM	3	111	114	1	1	2	179	6	185	301
05:15 PM	4	132	136	3	0	3	191	3	194	333
<b>Total Volume</b>	16	470	486	9	5	14	695	14	709	1209
% App. Total	3.3	96.7		64.3	35.7		98	2		
PHF	.800	.890	.893	.563	.313	.438	.910	.583	.914	.908



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

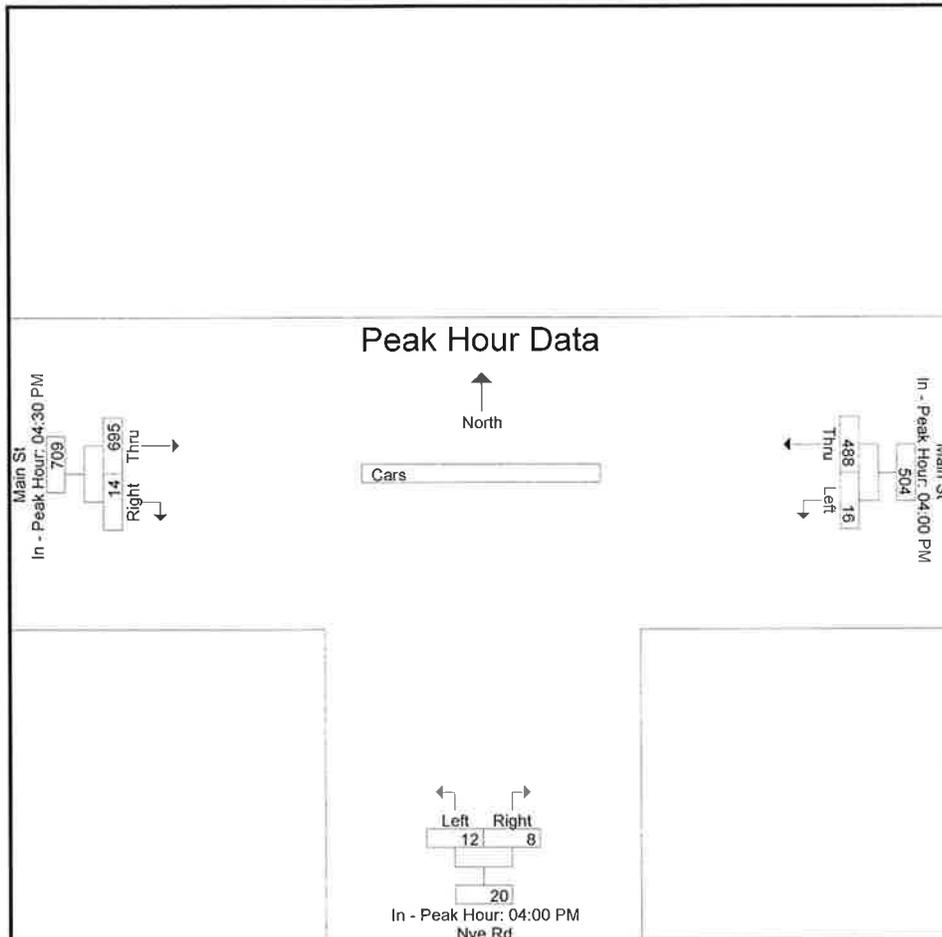
File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 6

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM			04:30 PM			04:00 PM			04:30 PM		
+0 mins.	3	129	132	1	3	4	151	3	154	2	176	
+15 mins.	4	132	136	6	1	7	174	2	176	6	185	
+30 mins.	4	101	105	1	0	1	179	6	185	3	194	
+45 mins.	5	126	131	4	4	8	191	3	194	14	709	
Total Volume	16	488	504	12	8	20	695	14	709	98	709	
% App. Total	3.2	96.8		60	40		98	2				
PHF	.800	.924	.926	.500	.500	.625	.910	.583	.914			



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 7

### Groups Printed- Trucks

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
04:00 PM	0	2	0	0	0	0	2
04:15 PM	0	0	0	0	1	0	1
04:30 PM	0	1	0	0	1	0	2
04:45 PM	0	1	0	0	1	0	2
<b>Total</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>7</b>
05:00 PM	0	2	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	1	0	0	1	0	2
05:45 PM	0	1	0	0	2	0	3
<b>Total</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>7</b>
<b>Grand Total</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>14</b>
Apprch %	0	100	0	0	100	0	
Total %	0	57.1	0	0	42.9	0	

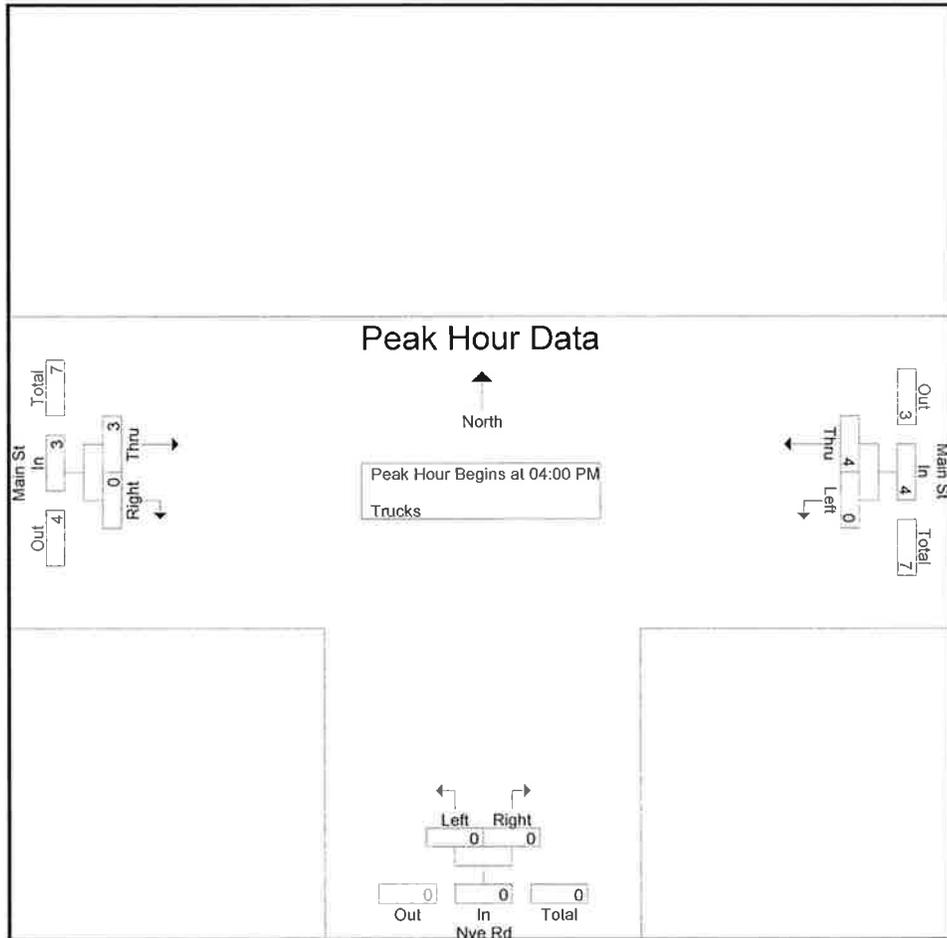
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 8

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	2	2	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	1	1	0	0	0	1	0	1	2
04:45 PM	0	1	1	0	0	0	1	0	1	2
<b>Total Volume</b>	0	4	4	0	0	0	3	0	3	7
<b>% App. Total</b>	0	100		0	0		100	0		
<b>PHF</b>	.000	.500	.500	.000	.000	.000	.750	.000	.750	.875



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

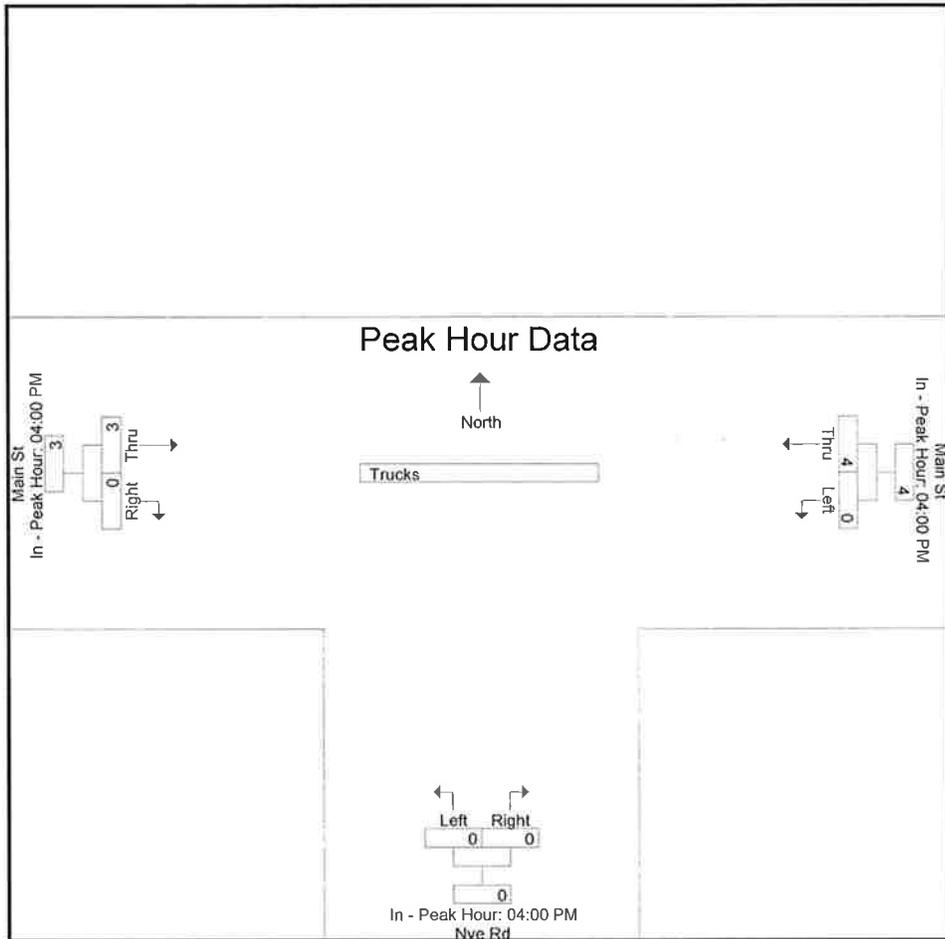
File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 9

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	2	2	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	1	0	1
+30 mins.	0	1	1	0	0	0	1	0	1
+45 mins.	0	1	1	0	0	0	1	0	1
Total Volume	0	4	4	0	0	0	3	0	3
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.750	.000	.750



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Main St From East			Nye Rd From South			Main St From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
04:00 PM	0	0	0	0	0	2	0	0	0	2	0	2
04:15 PM	0	0	1	0	0	4	0	0	0	5	0	5
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	0	0	1	0	0	6	0	0	0	7	0	7
05:00 PM	0	0	0	0	0	0	0	0	1	1	0	1
05:15 PM	0	0	0	0	0	5	0	0	0	5	0	5
05:30 PM	0	0	0	0	0	1	0	0	0	1	0	1
05:45 PM	0	0	0	0	0	7	0	0	0	7	0	7
<b>Total</b>	0	0	0	0	0	13	0	0	1	14	0	14
<b>Grand Total</b>	0	0	1	0	0	19	0	0	1	21	0	21
<b>Apprch %</b>	0	0		0	0		0	0				
<b>Total %</b>										100	0	

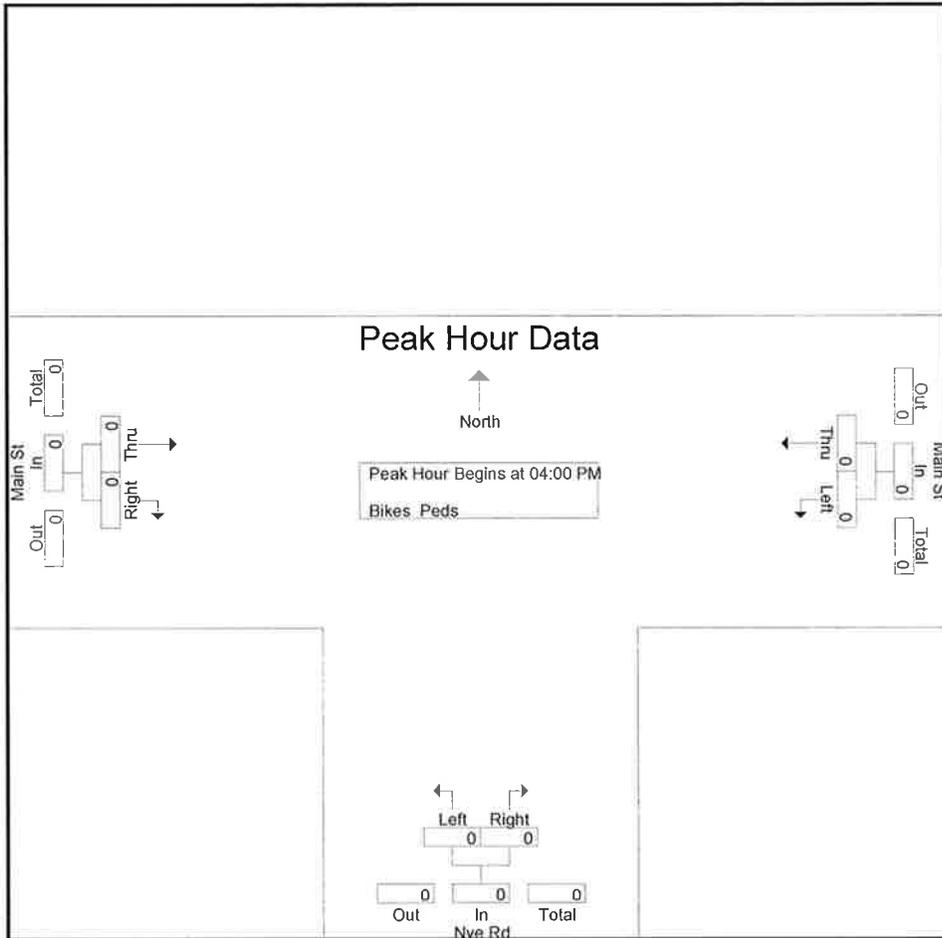
# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 11

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
<b>Total Volume</b>	0	0	0	0	0	0	0	0	0	0
<b>% App. Total</b>	0	0		0	0		0	0		
<b>PHF</b>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



# Accurate Counts

978-664-2565

N/S Street : Nye Road  
 E/W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Clear

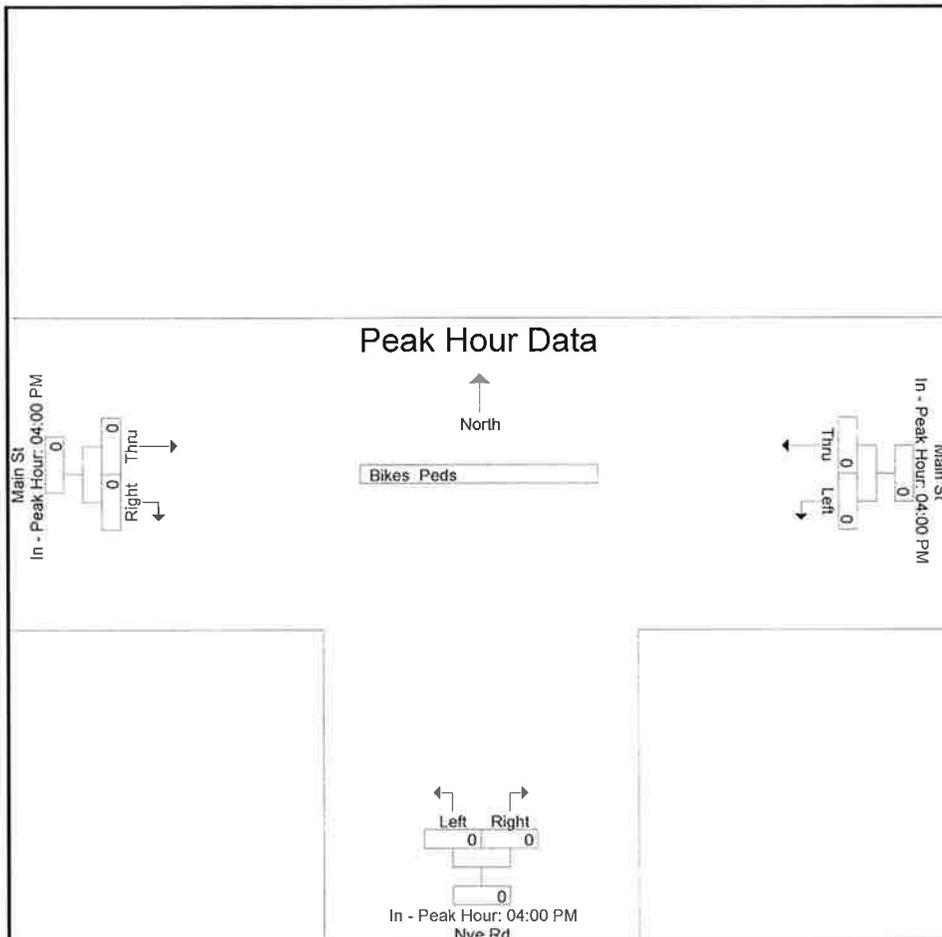
File Name : 666800W2  
 Site Code : 66680002  
 Start Date : 5/20/2014  
 Page No : 12

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



# Accurate Counts

978-664-2565

/S Street : Nye Road  
 /W Street : Main Street  
 ity/State : Falmouth, MA  
 /eather : Cloudy

File Name : 666800  
 Site Code : 666800  
 Start Date : 5/17/20  
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Tot
	Left	Thru	Left	Right	Thru	Right	
11:00 AM	3	146	2	7	166	0	32
11:15 AM	2	144	1	7	135	0	28
11:30 AM	1	126	3	2	141	1	27
11:45 AM	7	147	1	3	202	1	36
Total	13	563	7	19	644	2	124
12:00 PM	3	139	0	7	164	3	31
12:15 PM	2	127	4	0	144	1	27
12:30 PM	5	158	2	4	115	0	28
12:45 PM	4	132	1	3	148	4	29
Total	14	556	7	14	571	8	117
01:00 PM	4	134	3	8	157	3	30
01:15 PM	1	141	2	0	143	2	28
01:30 PM	3	121	4	0	117	2	24
01:45 PM	4	120	1	1	147	1	27
Total	12	516	10	9	564	8	111
Grand Total	39	1635	24	42	1779	18	353
Aprch %	2.3	97.7	36.4	63.6	99	1	
Total %	1.1	46.2	0.7	1.2	50.3	0.5	
Cars	39	1623	24	42	1770	18	351
% Cars	100	99.3	100	100	99.5	100	99.5
Trucks	0	12	0	0	9	0	2
% Trucks	0	0.7	0	0	0.5	0	0.5

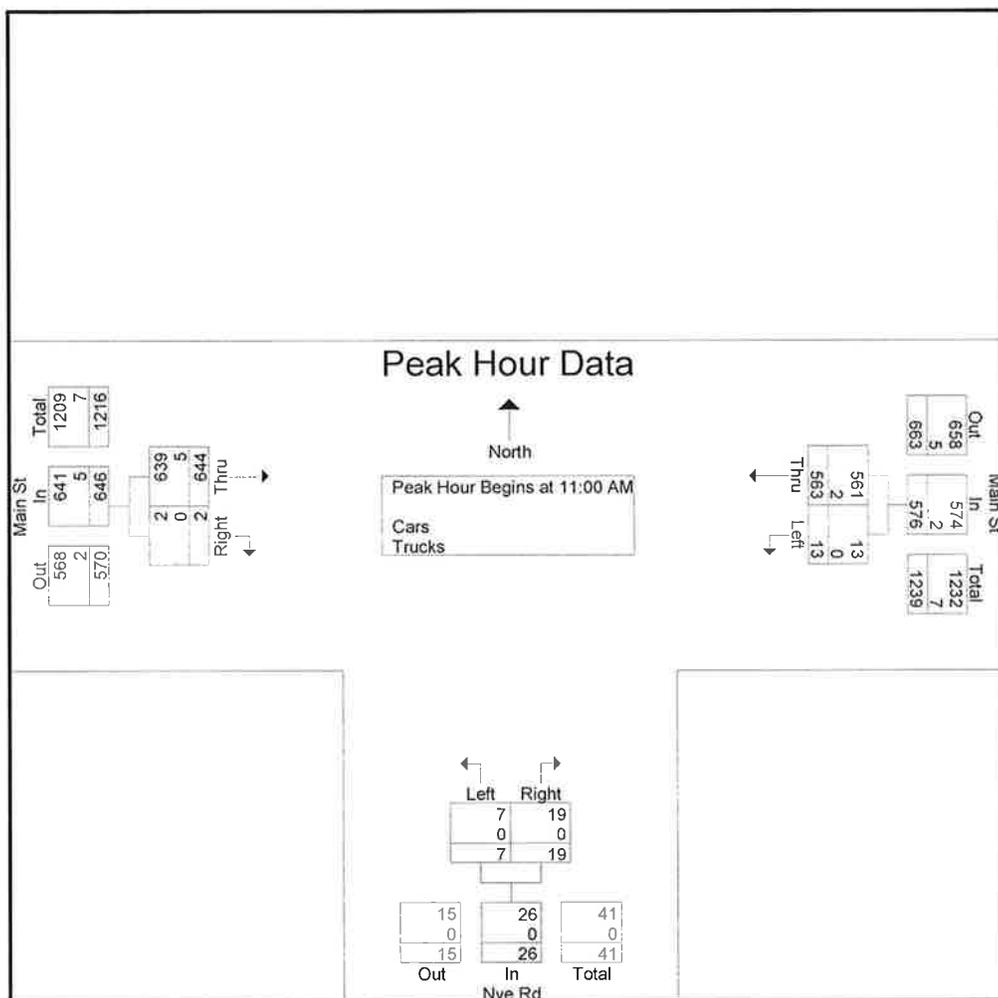
# Accurate Counts

978-664-2565

/S Street : Nye Road  
 /W Street : Main Street  
 ity/State : Falmouth, MA  
 /eather : Cloudy

File Name : 666800  
 Site Code : 666800  
 Start Date : 5/17/20  
 Page No : 2

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	3	146	149	2	7	9	166	0	166	324
11:15 AM	2	144	146	1	7	8	135	0	135	289
11:30 AM	1	126	127	3	2	5	141	1	142	274
11:45 AM	7	147	154	1	3	4	202	1	203	361
Total Volume	13	563	576	7	19	26	644	2	646	1248
% App. Total	2.3	97.7		26.9	73.1		99.7	0.3		
PHF	.464	.957	.935	.583	.679	.722	.797	.500	.796	.864
Cars	13	561	574	7	19	26	639	2	641	1247
% Cars	100	99.6	99.7	100	100	100	99.2	100	99.2	99.4
Trucks	0	2	2	0	0	0	5	0	5	7
% Trucks	0	0.4	0.3	0	0	0	0.8	0	0.8	0.6



# Accurate Counts

978-664-2565

/S Street : Nye Road  
 /W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Cloudy

File Name : 666800  
 Site Code : 666800  
 Start Date : 5/17/20  
 Page No : 4

Groups Printed- Cars

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Tot
	Left	Thru	Left	Right	Thru	Right	
11:00 AM	3	144	2	7	165	0	32
11:15 AM	2	144	1	7	134	0	28
11:30 AM	1	126	3	2	139	1	27
11:45 AM	7	147	1	3	201	1	36
Total	13	561	7	19	639	2	124
12:00 PM	3	137	0	7	164	3	31
12:15 PM	2	126	4	0	144	1	27
12:30 PM	5	157	2	4	115	0	28
12:45 PM	4	130	1	3	148	4	29
Total	14	550	7	14	571	8	116
01:00 PM	4	134	3	8	156	3	30
01:15 PM	1	141	2	0	141	2	28
01:30 PM	3	120	4	0	117	2	24
01:45 PM	4	117	1	1	146	1	27
Total	12	512	10	9	560	8	111
Grand Total	39	1623	24	42	1770	18	351
Apprch %	2.3	97.7	36.4	63.6	99	1	
Total %	1.1	46.2	0.7	1.2	50.3	0.5	

# Accurate Counts

978-664-2565

/S Street : Nye Road  
 /W Street : Main Street  
 ity/State : Falmouth, MA  
 /eather : Cloudy

File Name : 666800  
 Site Code : 666800  
 Start Date : 5/17/20  
 Page No : 7

## Groups Printed- Trucks

Start Time	Main St From East		Nye Rd From South		Main St From West		Int. Tot
	Left	Thru	Left	Right	Thru	Right	
11:00 AM	0	2	0	0	1	0	
11:15 AM	0	0	0	0	1	0	
11:30 AM	0	0	0	0	2	0	
11:45 AM	0	0	0	0	1	0	
Total	0	2	0	0	5	0	
12:00 PM	0	2	0	0	0	0	
12:15 PM	0	1	0	0	0	0	
12:30 PM	0	1	0	0	0	0	
12:45 PM	0	2	0	0	0	0	
Total	0	6	0	0	0	0	
01:00 PM	0	0	0	0	1	0	
01:15 PM	0	0	0	0	2	0	
01:30 PM	0	1	0	0	0	0	
01:45 PM	0	3	0	0	1	0	
Total	0	4	0	0	4	0	
Grand Total	0	12	0	0	9	0	2
Apprch %	0	100	0	0	100	0	
Total %	0	57.1	0	0	42.9	0	

# Accurate Counts

978-664-2565

/S Street : Nye Road  
 /W Street : Main Street  
 City/State : Falmouth, MA  
 Weather : Cloudy

File Name : 666800  
 Site Code : 666800  
 Start Date : 5/17/20  
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Main St From East			Nye Rd From South			Main St From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
11:00 AM	0	0	0	0	0	6	0	0	0	6	0	6
11:15 AM	0	0	1	0	0	6	0	0	1	8	0	8
11:30 AM	0	0	0	0	0	9	0	0	1	10	0	10
11:45 AM	0	0	0	0	0	7	0	0	3	10	0	10
<b>Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>34</b>	<b>0</b>	<b>34</b>
12:00 PM	1	0	0	0	0	4	0	0	0	4	1	5
12:15 PM	0	0	0	0	0	13	0	0	3	16	0	16
12:30 PM	0	0	0	0	0	6	0	0	2	8	0	8
12:45 PM	0	0	0	0	0	6	0	1	0	6	1	7
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>34</b>	<b>2</b>	<b>36</b>
01:00 PM	0	0	0	1	1	5	0	0	0	5	2	7
01:15 PM	0	0	0	0	0	12	0	0	0	12	0	12
01:30 PM	0	0	0	0	0	7	0	0	0	7	0	7
01:45 PM	0	0	0	0	0	7	0	0	1	8	0	8
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>32</b>	<b>2</b>	<b>34</b>
<b>Grand Total</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>88</b>	<b>0</b>	<b>1</b>	<b>11</b>	<b>100</b>	<b>4</b>	<b>104</b>
Apprch %	100	0		50	50		0	100				
Total %	25	0		25	25		0	25		96.2	3.8	

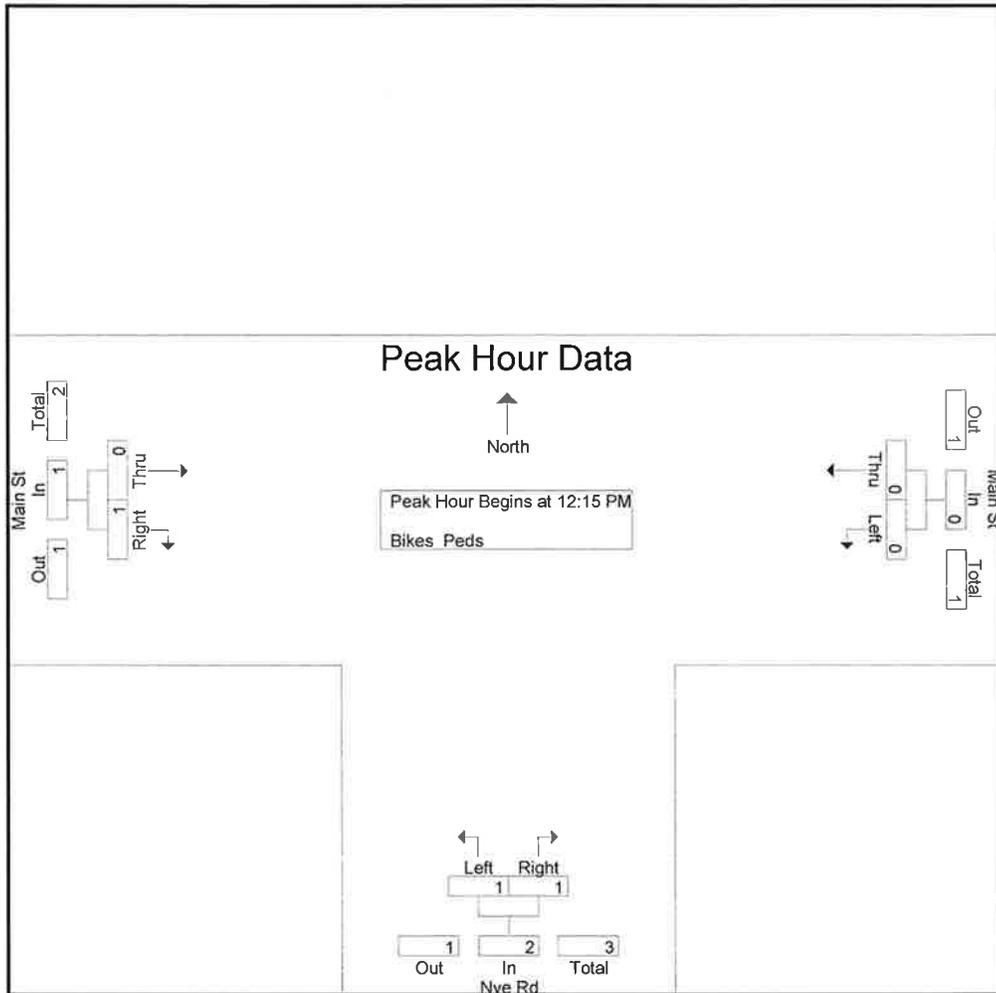
# Accurate Counts

978-664-2565

/S Street : Nye Road  
 /W Street : Main Street  
 ity/State : Falmouth, MA  
 /eather : Cloudy

File Name : 666800  
 Site Code : 666800  
 Start Date : 5/17/20  
 Page No : 11

Start Time	Main St From East			Nye Rd From South			Main St From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:15 PM										
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	1	1	1
01:00 PM	0	0	0	1	1	2	0	0	0	0
Total Volume	0	0	0	1	1	2	0	1	1	1
% App. Total	0	0	0	50	50	250	0	100	250	375
PHF	.000	.000	.000	.250	.250	.250	.000	.250	.250	.375



## **VEHICLE TRAVEL SPEED MEASUREMENTS**

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Accurate Counts  
978-664-2565

Location : Main Street (Route 28)  
 Location : East of Lantern Lane  
 City/State: Falmouth, MA

Site Code: 66680001  
 6668SPD1

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
05/31/14	15	20	25	30	35	40	45	50	55	60	65	70	75	999	42	37	40
01:00	0	0	3	15	14	8	2	0	0	0	0	0	0	0	0	0	0
02:00	0	2	4	8	17	2	0	0	0	0	0	0	0	0	33	34	36
03:00	0	0	1	9	3	3	0	0	0	0	0	0	0	0	16	36	38
04:00	0	0	1	6	4	0	1	0	0	0	0	0	0	0	12	34	41
05:00	0	3	6	14	11	1	0	0	0	0	0	0	0	0	35	32	35
06:00	1	7	17	26	17	7	0	0	0	0	0	0	0	0	75	33	37
07:00	0	3	40	63	39	6	1	0	0	0	0	0	0	0	152	32	35
08:00	3	25	92	138	56	4	0	0	0	0	0	0	0	0	318	31	34
09:00	15	39	129	160	41	5	0	0	0	0	0	0	0	0	389	29	33
10:00	36	68	226	175	20	1	0	0	0	0	0	0	0	0	501	28	30
11:00	69	139	213	107	15	2	0	0	0	0	0	0	0	0	558	26	29
12 PM	87	156	235	71	7	3	0	0	0	0	0	0	0	0	551	26	29
13:00	23	113	232	131	22	0	0	0	0	0	0	0	0	0	559	24	28
14:00	47	143	232	130	15	1	0	0	0	0	0	0	0	0	521	27	30
15:00	10	108	204	153	34	1	0	0	0	0	0	0	0	0	568	26	29
16:00	7	56	196	188	40	4	0	0	0	0	0	0	0	0	510	28	31
17:00	9	37	157	200	55	4	0	0	0	0	0	0	0	0	491	29	32
18:00	6	41	181	172	41	5	0	0	0	0	0	0	0	0	462	30	33
19:00	6	25	109	186	44	4	0	0	0	0	0	0	0	0	446	29	32
20:00	0	16	127	156	36	1	0	0	0	0	0	0	0	0	374	30	33
21:00	1	13	52	140	39	3	0	0	0	0	0	0	0	0	336	29	32
22:00	2	4	34	105	52	6	0	0	0	0	0	0	0	0	248	30	33
23:00	0	3	19	44	21	6	1	0	0	0	0	0	0	0	203	32	35
Total	333	1139	2754	2522	664	77	5	0	0	0	0	0	0	0	7494		
Percent	4.4%	15.2%	36.7%	33.7%	8.9%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	10:00	09:00	07:00	00:00	00:00								10:00		
Vol.	69	139	244	175	56	8	2								558		
PM Peak	12:00	12:00	12:00	17:00	17:00	22:00	23:00								14:00		
Vol.	87	156	235	200	55	6	1								568		
Grand Total	987	3527	8756	7679	2045	220	18	2	0	0	0	0	0	0	23234		
Percent	4.2%	15.2%	37.7%	33.1%	8.8%	0.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

Statistic	10 MPH Pace Speed	20-29 MPH
Number in Pace	13668	
Percent in Pace	58.8%	
Number of Vehicles > 25 MPH	9964	
Percent of Vehicles > 25 MPH	42.9%	
Mean Speed(Average)	23 MPH	





Accurate Counts  
978-664-2565

Location : Main Street (Route 28)  
 Location : East of Lantern Lane  
 City/State: Falmouth, MA  
 Eastbound

Site Code: 66680001  
 6668SPD1

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	76	85th	95th
	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	Percent	Percent
05/31/14	1	2	5	16	39	14	2	3	0	0	0	0	0	0	82	37	42
01:00	0	1	3	17	21	8	3	1	0	0	0	0	0	0	53	36	40
02:00	0	1	1	5	6	2	3	1	0	0	0	0	0	0	19	41	45
03:00	0	0	2	2	7	1	2	0	0	0	0	0	0	0	14	39	43
04:00	0	0	0	3	7	4	1	0	0	0	0	0	0	0	15	38	41
05:00	1	5	10	25	15	12	1	0	0	0	0	0	0	0	69	35	39
06:00	0	2	30	60	46	15	2	0	0	0	0	0	0	0	155	34	38
07:00	4	5	51	134	66	14	1	0	0	0	0	0	0	0	275	32	36
08:00	17	43	114	214	95	6	0	0	0	0	0	0	0	0	489	31	34
09:00	40	92	236	211	44	1	0	0	0	0	0	0	0	0	624	28	31
10:00	53	134	296	179	17	1	0	0	0	0	0	0	0	0	680	27	29
11:00	54	166	344	161	25	0	0	0	0	0	0	0	0	0	750	26	29
12 PM	67	172	346	123	18	2	0	0	0	0	0	0	0	0	728	25	29
13:00	23	103	278	214	52	4	2	0	0	0	0	0	0	0	676	28	31
14:00	32	115	326	182	25	0	1	0	0	0	0	0	0	0	681	27	30
15:00	19	86	312	235	35	3	0	0	0	0	0	0	0	0	690	28	31
16:00	17	33	277	240	72	10	0	0	0	0	0	0	0	0	649	30	33
17:00	18	23	183	257	95	6	2	0	0	0	0	0	0	0	584	30	34
18:00	8	21	153	264	64	8	1	0	0	0	0	0	0	0	519	30	33
19:00	1	21	122	248	96	12	0	0	0	0	0	0	0	0	500	31	34
20:00	4	19	144	215	59	2	0	0	0	0	0	0	0	0	443	30	33
21:00	0	13	59	158	68	13	0	0	0	0	0	0	0	0	311	32	35
22:00	1	1	27	122	84	17	3	0	0	0	0	0	0	0	255	34	37
23:00	0	1	8	58	77	16	3	0	0	0	0	0	0	0	163	35	38
Total	360	1059	3327	3343	1133	171	27	4	0	0	0	0	0	0	9424		
Percent	3.8%	11.2%	35.3%	35.5%	12.0%	1.8%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM	11:00	11:00	11:00	08:00	08:00	06:00	01:00	00:00							11:00		
Peak																	
Vol.	54	166	344	214	95	15	3	3							750		
PM	12:00	12:00	12:00	18:00	19:00	22:00	22:00								12:00		
Peak																	
Vol.	67	172	346	264	96	17	3								728		
Grand Total	1452	3396	9497	10171	3511	533	69	8	0	1	0	0	0	0	28638		
Percent	5.1%	11.9%	33.2%	35.5%	12.3%	1.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

Statistic	10 MPH Pace Speed	21-30 MPH
Number in Pace	16490	
Percent in Pace	57.6%	
Number of Vehicles > 25 MPH	14293	
Percent of Vehicles > 25 MPH	49.9%	
Mean Speed(Average)	24 MPH	
15th Percentile	15 MPH	
50th Percentile	24 MPH	
85th Percentile	30 MPH	
95th Percentile	33 MPH	





Accurate Counts  
978-664-2565

Location : Main Street (Route 28)  
 Location : East of Lantern Lane  
 City/State: Falmouth, MA  
 Westbound, Eastbound

Site Code: 66680001  
 6668SPD1

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	85th Percent	95th Percent
	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Percent	Percent
05/31/14	1	2	8	31	53	22	4	3	0	0	0	0	0	0	124	37
01:00	0	3	7	25	38	10	3	0	0	0	0	0	0	0	86	35
02:00	0	1	2	14	9	5	3	1	0	0	0	0	0	0	35	38
03:00	0	0	3	8	11	1	3	0	0	0	0	0	0	0	26	36
04:00	0	3	6	17	18	5	1	0	0	0	0	0	0	0	50	34
05:00	2	12	27	51	32	19	1	0	0	0	0	0	0	0	144	34
06:00	0	5	70	123	85	21	3	0	0	0	0	0	0	0	307	33
07:00	7	30	143	272	122	18	1	0	0	0	0	0	0	0	593	32
08:00	32	82	243	374	136	11	0	0	0	0	0	0	0	0	878	30
09:00	51	160	462	386	64	2	0	0	0	0	0	0	0	0	1125	28
10:00	89	272	540	304	32	1	0	0	0	0	0	0	0	0	1238	26
11:00	123	305	557	268	46	2	0	0	0	0	0	0	0	0	1301	26
12 PM	154	328	581	194	25	5	0	0	0	0	0	0	0	0	1287	25
13:00	46	216	510	345	74	4	2	0	0	0	0	0	0	0	1197	28
14:00	79	258	558	312	40	1	1	0	0	0	0	0	0	0	1249	27
15:00	29	194	516	388	69	4	0	0	0	0	0	0	0	0	1200	28
16:00	24	89	473	428	112	14	0	0	0	0	0	0	0	0	1140	29
17:00	27	60	340	457	150	10	2	0	0	0	0	0	0	0	1046	30
18:00	14	62	334	436	105	13	1	0	0	0	0	0	0	0	965	30
19:00	7	46	231	434	140	16	0	0	0	0	0	0	0	0	874	31
20:00	4	35	271	371	95	3	0	0	0	0	0	0	0	0	779	30
21:00	1	26	111	298	107	16	0	0	0	0	0	0	0	0	559	31
22:00	3	5	61	227	136	23	3	0	0	0	0	0	0	0	458	33
23:00	0	4	27	102	98	22	4	0	0	0	0	0	0	0	257	34
Total	693	2198	6081	5865	1797	248	32	4	0	0	0	0	0	0	16918	
Percent	4.1%	13.0%	35.9%	34.7%	10.6%	1.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
AM Peak	11:00	11:00	11:00	09:00	08:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	11:00	
Vol.	123	305	557	386	136	22	4	3							1301	
PM Peak	12:00	12:00	12:00	17:00	17:00	22:00	23:00								12:00	
Vol.	154	328	581	457	150	23	4								1287	
Grand Total	2439	6923	18253	17850	5556	753	87	10	0	1	0	0	0	0	51872	
Percent	4.7%	13.3%	35.2%	34.4%	10.7%	1.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		

15th Percentile : 15 MPH  
 50th Percentile : 23 MPH  
 85th Percentile : 29 MPH  
 95th Percentile : 33 MPH

10 MPH Pace Speed : 21-30 MPH  
 Number in Pace : 30125  
 Percent in Pace : 58.1%  
 Number of Vehicles > 25 MPH : 24257  
 Percent of Vehicles > 25 MPH : 46.8%  
 Mean Speed(Average) : 23 MPH

Statistic s

## **TRIP-GENERATION CALCULATIONS**

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CAPE COD  
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May 20, 2014

Jeffrey S. Dirk, P.E., PTOE, FITE  
Principal  
Vanasse & Associates, Inc.  
10 New England Business Center Drive  
Suite 314  
Andover, MA 01810-1066

Re: Traffic Impact Assessment – Proposed Scope of Work – Proposed Extended Stay  
Hotel – 566 Main Street (Route 28), Falmouth

Dear Mr. Dirk,

Thank you for submitting the letter dated April 30, 2014 regarding traffic study requirements for the proposed extended stay hotel to be located at 556 Main Street (Route 28) in Falmouth. Cape Cod Commission Transportation staff has reviewed the document and offer the following comments.

#### PROJECT DESCRIPTION

As outlined in the letter, the Applicant is proposing to redevelop the existing commercial property at 556 Main Street (Route 28) in Falmouth that currently contains 16,272 square feet (sf) of commercial/retail space. The Applicant is proposing to construct a 108-room extended stay hotel.

#### TRIP GENERATION

Commission Transportation staff has reviewed the trip generation calculations as outlined in the letter. The letter states that the trip generation estimates are based on trip generation data in *Institute of Transportation Engineers' (ITE) Trip Generation*, 9<sup>th</sup> Edition, for Land Use Code (LUC) 826, Specialty Retail, for the existing use, and LUC 310, Hotel, for the proposed use. Commission Transportation staff agrees with the characterization of the existing and proposed uses, but suggests that some of the calculations do not follow guidance provided in the Cape Cod Commission Technical 96-003. Specifically, the "Peak Hour of Generator" should be used for the Weekday AM and



Extended Stay Hotel – Falmouth  
May 20, 2014

PM Peak Hour analysis as opposed to the Peak of Hour of Adjacent Street Traffic. Additionally, the regression equation should only be used “when statistically appropriate and used according to the methods outlined” in the *ITE Trip Generation Manual*.

Commission Transportation staff suggests that the expected increase in traffic from the project during different time periods is as presented in Table 1. Trip generation calculations are attached and Commission Transportation staff is available for any questions.

**Table 1: Estimated Project Trip Generation**

Time Period	Trip Generation (trips)		
	Proposed Use Hotel (108 rooms) <sup>1</sup>	Existing Use <sup>2</sup>	Net New Trips <sup>3</sup>
Weekday Daily Trips	882	721	+161
Weekday AM Peak Hour	60	111	-51
Weekday PM Peak Hour	66	82	-16
Saturday Daily	885	684	+201
Saturday Midday Peak Hour	79	66	+13

Note:

<sup>1</sup> Based on ITE LUC 310, Hotel, 108 rooms

<sup>2</sup> Based on ITE LUC 826, Specialty Retail, 16,272 sf

<sup>3</sup> Trip from proposed use minus credit for trips from existing use

Based on these estimates, the project would add 161 new Weekday Daily trips and 13 new trips during the project's Peak Hour (Saturday Midday Peak Hour). Based on the fact that the project is anticipated to generate less the 250 daily and 25 peak hour trips, the Applicant could consider pursuing Limited Development of Regional Impact (DRI) Review. In addition to the trip generation related questions, the Limited DRI Review scoping checklists asks whether the project is on or abuts a regional roadway. If the Applicant considers Limited DRI Review, discussions with Commission staff about site drive design may be able to address potential impacts on this regional roadway without the need for full DRI review.

If the Applicant pays careful attention to site drive design and provided analysis of safety and other safety characteristics of the driveway, Commission Transportation staff may

Commission Transportation staff notes that while staff suggests that the existing use credits shown in Table 1 are appropriately calculated and applied, it is at the Cape Cod Commission's discretion, per Minimum Performance Standard TRo.2, whether or not to allow such credits.

Extended Stay Hotel – Falmouth  
May 20, 2014

#### STUDY AREA

Based on the current estimates of project trip generation, Commission Transportation staff suggests that the proposed study area, as presented in the letter and shown below, is appropriate for the traffic impact assessment for the proposed development.

1. Main Street, east and west of the project site (roadway links)
2. Main Street at Lantern Lane/Proposed Site Drive (intersection)
3. Main Street at Nye Road (intersection)

#### TRIP DISTRIBUTION

To be provided following further analysis by the Applicant.

#### OTHER STUDY PARAMETERS

Commission Transportation staff suggests that the study time periods, analysis conditions, background traffic growth rate, background develop project, and roadway improvement projects, as presented in the letter, are appropriate for the traffic impact assessment for the proposed development.

Please feel free to contact me with any questions regarding these comments or anything else.

Sincerely,



Glenn Cannon, P.E.  
CCC Director of Technical Services

Cc: Steven Tupper, CCC Technical Services Planner  
Jonathan Idman, CCC Chief Regulatory Officer

Attachments (1)

**Trip Generation Calculation Sheet**  
**Institute of Transportation Engineers (ITE)**  
**Land Use Code (LUC) 826 - Specialty Retail**

Average Vehicle Trip Ends per: 1000 Sq. Feet Gross Leasable Area  
 Independent Variable (X): **16.272**

**Average Weekday Daily**

**Available Data**

Number of Studies:	4
Directional Distribution:	50 % Entering 50 % Exiting
Average Rate:	44.32
Standard Deviation:	15.52
R <sup>2</sup>	0.69
Regression Equation:	T = 42.78(X) + 37.66

**Regression Equation Check**

Regression Equation?	Yes
Indep. Var. within Data Range?	<b>Yes</b>
20 points or R <sup>2</sup> ≥ 0.75	No
Equation within data cluster?	Yes
Std. Dev. > 110% of Ave. Rate?	No
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

T = 42.78(X) + 37.66  
 T = 42.78(16.272) + 37.66  
 T = 733.78  
 T = 734 vehicle trips with 50% (367) entering and 50% (367) exiting.

**Estimate Based on Weighted Average Rate**

T = 44.32 (X)  
 T = 44.32 (16.272)  
 T = 721.18  
 T = 721 vehicle trips with 50% (361) entering and 50% (360) exiting.

**Weekday AM Peak Hour of Generator**

**Available Data**

Number of Studies:	4
Directional Distribution:	48 % Entering 52 % Exiting
Average Rate:	6.84
Standard Deviation:	3.55
R <sup>2</sup>	0.9
Regression Equation:	T = 4.91(X)+115.59

**Regression Equation Check**

Regression Equation?	Yes
Indep. Var. within Data Range?	<b>Yes</b>
20 points or R <sup>2</sup> ≥ 0.75	Yes
Equation within data cluster?	Yes
Std. Dev. > 110% of Ave. Rate?	No
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

T = 4.91(X)+115.59  
 T = 4.91(16.272)+115.59  
 T = 195.49  
 T = 195 vehicle trips with 48% (94) entering and 52% (101) exiting.

**Estimate Based on Weighted Average Rate**

T = 6.84 (X)  
 T = 6.84 (16.272)  
 T = 111.3  
 T = 111 vehicle trips with 48% (53) entering and 52% (58) exiting.

**Weekday PM Peak Hour of Generator**

**Available Data**

Number of Studies:	3
Directional Distribution:	56 % Entering 44 % Exiting
Average Rate:	5.02
Standard Deviation:	2.31
R <sup>2</sup>	-
Regression Equation:	Not Given

**Regression Equation Check**

Regression Equation?	No
Indep. Var. within Data Range?	-
20 points or R <sup>2</sup> ≥ 0.75	-
Equation within data cluster?	-
Std. Dev. > 110% of Ave. Rate?	-
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

-  
 -  
 -  
 -

**Estimate Based on Weighted Average Rate**

T = 5.02 (X)  
 T = 5.02 (16.272)  
 T = 81.69  
 T = 82 vehicle trips with 56% (46) entering and 44% (36) exiting.

**Trip Generation Calculation Sheet**  
**Institute of Transportation Engineers (ITE)**  
**Land Use Code (LUC) 826 - Specialty Retail**

Average Vehicle Trip Ends per: 1000 Sq. Feet Gross Leasable Area  
 Independent Variable (X): **16.272**

**Saturday Daily**

**Available Data**

Number of Studies:	3
Directional Distribution:	50 % Entering 50 % Exiting
Average Rate:	42.04
Standard Deviation:	13.97
R <sup>2</sup>	-
Regression Equation:	Not Given

**Regression Equation Check**

Regression Equation?	No
Indep. Var. within Data Range?	-
20 points or R <sup>2</sup> ≥ 0.75	-
Equation within data cluster?	-
Std. Dev. > 110% of Ave. Rate?	-
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

-
-
-
-

**Estimate Based on Weighted Average Rate**

T = 42.04 (X)
T = 42.04 (16.272)
T = 684.07
T = 684 vehicle trips with 50% (342) entering and 50% (342) exiting.

**Saturday Midday Peak Hour**

**Available Data**

Number of Studies:	3
Directional Distribution:	50 % Entering 50 % Exiting
Average Rate:	4.06
Standard Deviation:	-
R <sup>2</sup>	-
Regression Equation:	Not Given

**Regression Equation Check**

Regression Equation?	No
Indep. Var. within Data Range?	-
20 points or R <sup>2</sup> ≥ 0.75	-
Equation within data cluster?	-
Std. Dev. > 110% of Ave. Rate?	-
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

-
-
-
-

**Estimate Based on Weighted Average Rate**

T = 4.06 (X)
T = 4.06 (16.272)
T = 66.06
T = 66 vehicle trips with 50% (33) entering and 50% (33) exiting.

Note: Assumes same Directional Distribution as Saturday Daily, Average Rate based on Daily Rate factored to Peak Hour using Saturday Midday Peak Hour rate/Saturday Daily Rate (4.82/49.97) for ITE LUC 820

**Trip Generation Calculation Sheet**  
**Institute of Transportation Engineers (ITE)**  
**Land Use Code (LUC) 310 - Hotel**

Average Vehicle Trip Ends per: Rooms  
 Independent Variable (X): **108**

**Average Weekday Daily**

**Available Data**

Number of Studies:	10
Directional Distribution:	50 % Entering 50 % Exiting
Average Rate:	8.17
Standard Deviation:	3.38
R <sup>2</sup>	0.98
Regression Equation:	T = 8.95(X)-373.16

**Regression Equation Check**

Regression Equation?	Yes
Indep. Var. within Data Range?	Yes
20 points or R <sup>2</sup> ≥ 0.75	Yes
Equation within data cluster?	Yes
Std. Dev. > 110% of Ave. Rate?	No
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

T = 8.95(X)-373.16  
 T = 8.95(108)-373.16  
 T = 593.44  
 T = 593 vehicle trips with 50% (297) entering and 50% (296) exiting.

**Estimate Based on Weighted Average Rate**

T = 8.17 (X)  
 T = 8.17 (108)  
 T = 882.36  
 T = 882 vehicle trips with 50% (441) entering and 50% (441) exiting.

**Weekday AM Peak Hour of Generator**

**Available Data**

Number of Studies:	34
Directional Distribution:	54 % Entering 46 % Exiting
Average Rate:	0.52
Standard Deviation:	0.75
R <sup>2</sup>	0.56
Regression Equation:	Ln(T) = 0.85*Ln(X)+0.12

**Regression Equation Check**

Regression Equation?	Yes
Indep. Var. within Data Range?	Yes
20 points or R <sup>2</sup> ≥ 0.75	Yes
Equation within data cluster?	Yes
Std. Dev. > 110% of Ave. Rate?	Yes
<b>Use Regression Equation?</b>	<b>Yes</b>

**Estimate Based on Regression Equation**

Ln(T) = 0.85\*Ln(X)+0.12  
 Ln(T) = 0.85\*Ln(108)+0.12  
 T = 60.33  
 T = 60 vehicle trips with 54% (32) entering and 46% (28) exiting.

**Estimate Based on Weighted Average Rate**

T = 0.52 (X)  
 T = 0.52 (108)  
 T = 56.16  
 T = 56 vehicle trips with 54% (30) entering and 46% (26) exiting.

**Weekday PM Peak Hour of Generator**

**Available Data**

Number of Studies:	35
Directional Distribution:	58 % Entering 42 % Exiting
Average Rate:	0.61
Standard Deviation:	0.81
R <sup>2</sup>	-
Regression Equation:	Not Given

**Regression Equation Check**

Regression Equation?	No
Indep. Var. within Data Range?	-
20 points or R <sup>2</sup> ≥ 0.75	-
Equation within data cluster?	-
Std. Dev. > 110% of Ave. Rate?	-
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

-  
 -  
 -  
 -

**Estimate Based on Weighted Average Rate**

T = 0.61 (X)  
 T = 0.61 (108)  
 T = 65.88  
 T = 66 vehicle trips with 58% (38) entering and 42% (28) exiting.

**Trip Generation Calculation Sheet**  
**Institute of Transportation Engineers (ITE)**  
**Land Use Code (LUC) 310 - Hotel**

Average Vehicle Trip Ends per: Rooms  
 Independent Variable (X): **108**

**Saturday Daily**

**Available Data**

Number of Studies:	8
Directional Distribution:	50 % Entering 50 % Exiting
Average Rate:	8.19
Standard Deviation:	3.13
R <sup>2</sup>	0.93
Regression Equation:	T = 9.62(X)-294.56

**Regression Equation Check**

Regression Equation?	Yes
Indep. Var. within Data Range?	<b>Yes</b>
20 points or R <sup>2</sup> ≥ 0.75	Yes
Equation within data cluster?	Yes
Std. Dev. > 110% of Ave. Rate?	No
<b>Use Regression Equation?</b>	<b>No</b>

**Estimate Based on Regression Equation**

T = 9.62(X)-294.56
T = 9.62(108)-294.56
T = 744.4
T = 744 vehicle trips with 50% (372) entering and 50% (372) exiting.

**Estimate Based on Weighted Average Rate**

T = 8.19 (X)
T = 8.19 (108)
T = 884.52
T = 885 vehicle trips with 50% (443) entering and 50% (442) exiting.

**Saturday Midday Peak Hour**

**Available Data**

Number of Studies:	9
Directional Distribution:	56 % Entering 44 % Exiting
Average Rate:	0.72
Standard Deviation:	0.87
R <sup>2</sup>	0.8
Regression Equation:	T = 0.69(X)+4.32

**Regression Equation Check**

Regression Equation?	Yes
Indep. Var. within Data Range?	<b>Yes</b>
20 points or R <sup>2</sup> ≥ 0.75	Yes
Equation within data cluster?	Yes
Std. Dev. > 110% of Ave. Rate?	Yes
<b>Use Regression Equation?</b>	<b>Yes</b>

**Estimate Based on Regression Equation**

T = 0.69(X)+4.32
T = 0.69(108)+4.32
T = 78.84
T = 79 vehicle trips with 56% (44) entering and 44% (35) exiting.

**Estimate Based on Weighted Average Rate**

T = 0.72 (X)
T = 0.72 (108)
T = 77.76
T = 78 vehicle trips with 56% (44) entering and 44% (34) exiting.

**Institute of Transportation Engineers (ITE)**  
**Trip Generation, 9th Edition**  
**Land Use Code (LUC) 310 - Hotel**

Average Vehicle Trips Ends vs: Rooms  
 Independent Variable (X): 110

**Average Weekday Daily**

$T = 8.17 * (X)$   
 $T = 8.17 * 110$   
 $T = 898.70$   
 $T = 900$  vehicle trips  
 with 50% ( 450 vpd) entering and 50% ( 450 vpd) exiting.

**Weekday Morning Peak Hour of Generator**

$\ln T = 0.85 \ln (X) + 0.12$   
 $\ln T = 0.85 \ln 110 + (0.12)$   
 $\ln T = 4.12$   
 $T = 61.28$   
 $T = 61$  vehicle trips  
 with 54% ( 33 vpd) entering and 46% ( 28 vpd) exiting.

**Weekday Evening Peak Hour of Generator**

$T = 0.61 * (X)$   
 $T = 0.60 * 110$   
 $T = 67.10$   
 $T = 67$  vehicle trips  
 with 58% ( 39 vpd) entering and 42% ( 28 vpd) exiting.

**SATURDAY DAILY**

$T = 8.19 * (X)$   
 $T = 8.19 * 110$   
 $T = 900.90$   
 $T = 902$  vehicle trips  
 with 50% ( 451 vpd) entering and 50% ( 451 vpd) exiting.

**Saturday Midday Peak Hour of Generator**

$T = 0.69 * (X) + 4.32$   
 $T = 0.69 * 110 + 4.32$   
 $T = 80.22$   
 $T = 80$  vehicle trips  
 with 56% ( 45 vph) entering and 44% ( 35 vph) exiting.

**CCRTA BUS ROUTE, SCHEDULE AND FARE INFORMATION**

---

# CCRTA Fares and Information

# CCRTA Special Services and Connections

**Sealine** Hyannis to Falmouth/Woods Hole  
 June 21 through September 1, 2014  
 RUNS 7 DAYS A WEEK

The CCRTA Fixed Route buses use an Electronic Farebox System. Visit [www.capecodrta.org](http://www.capecodrta.org) for more information.

	Adults and Youth	60+ and People with disabilities**
One-way ride	\$2	\$1
One-way ride plus off-route trip (FLEX bus only)	\$4	\$2
Day Pass	\$6	\$3
Monthly Pass (unlimited rides)	\$60	\$30
Transfers to other CCRTA buses	\$2	\$1

Exact fare only. Drivers will not make change. Children age five and younger ride free. \*\*Persons holding Medicare and/or Transit Access Passes.

- CCRTA buses have bike racks. Space is limited.
- Pets: Service animals and pets in secured carriers are allowed to board.
- CCRTA buses are accessible to people with disabilities.



215 Iyannough Road  
 P.O. Box 1988  
 Hyannis, MA 02601  
 800.352.7155 Information  
 508.385.1430 Local Number  
 800.439.0183 TTY Number  
[www.capecodrta.org](http://www.capecodrta.org)

Plan your Cape Cod travel on [www.google.com/transit](http://www.google.com/transit)

The Sealine services Route 28 from the Hyannis Transportation Center to Woods Hole.

**Use the Sealine Hyannis-Falmouth/Woods Hole for:**

- Barnstable Municipal Airport (on request)
- Barnstable Senior Center (on request)
- Boys & Girls Club, Mashpee (on request)
- Mashpee Health Center (on request)

**DEMAND RESPONSE SERVICE:** The CCRTA provides a public demand service that is door-to-door, ride by appointment transportation. This service is available to all Cape Cod residents and visitors for any purpose.

**ADA Paratransit Service:** Door-to-door shared-ride service for qualified individuals unable to use the CCRTA fixed route buses.

Please call 800.352.7155 to schedule your service.

⊙ The Sealine connects with the Bourne Route in Mashpee, Barnstable Villager, Hyannis Trolley, H2O and the Sandwich Line at the Hyannis Transportation Center.

⊙ The run on the timetable marked Friday Only connects with the CapeFLYER train.



# Sealine Hyannis to Falmouth/Woods Hole

## Hyannis to Falmouth/Woods Hole

NextBus Stop #	AM	PM
1 Hyannis Transportation Center	5:50*	6:30*
17 Cape Cod Mail Entrance - Route 28 ( )	7:30*	8:30*
18 West Main Street & Route 28	6:35*	7:35*
19 Centerville	7:38*	8:38*
20 Osterville	7:44*	8:44*
21 Marshpee Commons Stop & Shop	7:52*	8:52*
22 Marshpee Commons Stop & Shop	8:03*	9:03*
23 South Cape Village - Marshalls	8:12*	9:12*
24 Community Health Center of Cape Cod ( )	8:19*	9:19*
25 East Falmouth - Dunkin Donuts ( )	8:23*	9:23*
29 Falmouth Mail	8:31*	9:31*
30 Falmouth Bus Depot	8:34*	9:34*
31 Woods Hole	6:02*	7:02*

## Falmouth/Woods Hole to Hyannis

NextBus Stop #	AM	PM
31 Woods Hole	6:45*	8:30*
30 Falmouth Bus Depot	6:56*	8:40*
29 Falmouth Mail	7:02*	8:49*
25 East Falmouth - Dunkin Donuts ( )	7:07*	8:54*
140 Seacoast Shores Boulevard ( )	7:10*	8:57*
24 Community Health Center of Cape Cod ( )	7:20*	9:06*
23 South Cape Village - Marshalls	7:26*	9:15*
22 Marshpee Commons Stop & Shop	7:34*	9:24*
21 Marshpee Commons Stop & Shop	7:34*	9:24*
20 Osterville	7:41*	9:27*
18 West Main Street & Route 28	7:44*	9:31*
17 Cape Cod Mail Entrance - Route 28 ( )	7:47*	9:34*
1 Hyannis Transportation Center	7:47*	9:34*

Friday Only	AM	PM
8:15	10:30	11:30
8:20	10:35	11:35
8:23	10:38	11:38
8:29	10:44	11:44
8:37	10:52	11:52
8:48	10:63	12:03
8:57	10:72	12:12
9:09	10:81	12:21
9:19	10:91	12:31
9:23	10:95	12:35
9:31	10:93	12:33
9:34	10:96	12:36
9:40	10:92	12:32
9:48	10:98	12:38
9:54	10:104	12:44
9:59	10:109	12:49
10:04	10:114	12:54
10:11	10:121	12:51
10:19	10:129	12:59
10:23	10:133	13:03
10:31	10:141	13:11
10:34	10:144	13:14
10:40	10:150	13:20
10:48	10:158	13:28
10:54	10:164	13:34
11:00	10:170	13:40
11:06	10:176	13:46
11:16	10:186	13:56
11:26	10:196	14:06
11:36	10:206	14:16
11:46	10:216	14:26
11:56	10:226	14:36
12:06	10:236	14:46
12:16	10:246	14:56
12:26	10:256	15:06
12:36	10:266	15:16
12:46	10:276	15:26
12:56	10:286	15:36
1:06	10:296	15:46
1:16	10:306	15:56
1:26	10:316	16:06
1:36	10:326	16:16
1:46	10:336	16:26
1:56	10:346	16:36
2:06	10:356	16:46
2:16	10:366	16:56
2:26	10:376	17:06
2:36	10:386	17:16
2:46	10:396	17:26
2:56	10:406	17:36
3:06	10:416	17:46
3:16	10:426	17:56
3:26	10:436	18:06
3:36	10:446	18:16
3:46	10:456	18:26
3:56	10:466	18:36
4:06	10:476	18:46
4:16	10:486	18:56
4:26	10:496	19:06
4:36	10:506	19:16
4:46	10:516	19:26
4:56	10:526	19:36
5:06	10:536	19:46
5:16	10:546	19:56
5:26	10:556	20:06
5:36	10:566	20:16
5:46	10:576	20:26
5:56	10:586	20:36
6:06	10:596	20:46
6:16	11:006	20:56
6:26	11:016	21:06
6:36	11:026	21:16
6:46	11:036	21:26
6:56	11:046	21:36
7:06	11:056	21:46
7:16	11:066	21:56
7:26	11:076	22:06
7:36	11:086	22:16
7:46	11:096	22:26
7:56	11:106	22:36
8:06	11:116	22:46
8:16	11:126	22:56
8:26	11:136	23:06
8:36	11:146	23:16
8:46	11:156	23:26
8:56	11:166	23:36
9:06	11:176	23:46
9:16	11:186	23:56
9:26	11:196	24:06
9:36	11:206	24:16
9:46	11:216	24:26
9:56	11:226	24:36
10:06	11:236	24:46
10:16	11:246	24:56
10:26	11:256	25:06
10:36	11:266	25:16
10:46	11:276	25:26
10:56	11:286	25:36
11:06	11:296	25:46
11:16	11:306	25:56
11:26	11:316	26:06
11:36	11:326	26:16
11:46	11:336	26:26
11:56	11:346	26:36
12:06	11:356	26:46
12:16	11:366	26:56
12:26	11:376	27:06
12:36	11:386	27:16
12:46	11:396	27:26
12:56	11:406	27:36
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1:16	11:426	27:56
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2:16	11:486	28:56
2:26	11:496	29:06
2:36	11:506	29:16
2:46	11:516	29:26
2:56	11:526	29:36
3:06	11:536	29:46
3:16	11:546	29:56
3:26	11:556	30:06
3:36	11:566	30:16
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4:16	12:006	30:56
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1:56	12:586	40:36
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2:16	13:006	40:56
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2:36	13:026	41:16
2:46	13:036	41:26
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3:36	13:086	42:16
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4:06	13:116	42:46
4:16	13:126	42:56
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4:36	13:146	43:16
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4:56	13:166	43:36
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6:56	13:286	45:36
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7:16	13:306	45:56
7:26	13:316	46:06
7:36	13:326	46:16
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9:36	14:566	60:16
9:46	14:576	60:26
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10:36	15:026	61:16
10:46	15:036	61:26
10:56	15	

**MASSDOT CRASH RATE WORKSHEET**

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## INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN: FALMOUTH COUNT DATE: 5/20/14

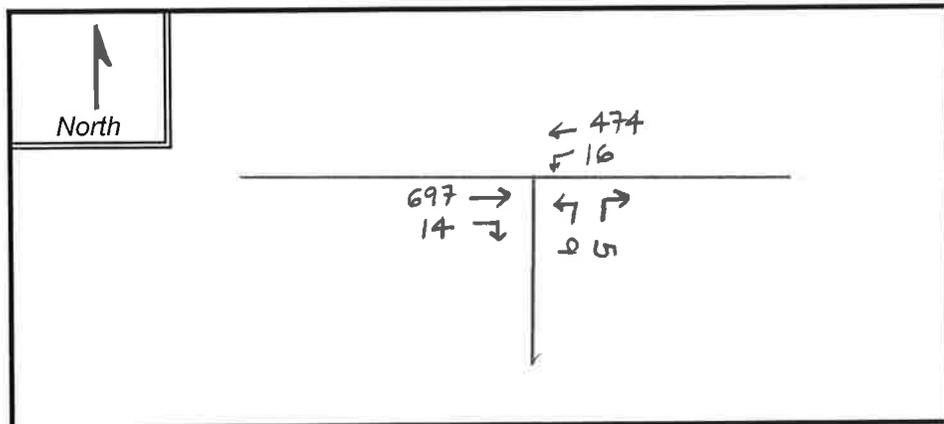
DISTRICT: 5 UNSIGNALIZED:  SIGNALIZED:

~ INTERSECTION DATA ~

MAJOR STREET: MAIN STREET (ROUTE 28)

MINOR STREET(S): NYE ROAD

**INTERSECTION  
DIAGRAM**  
(Label Approaches)



**PEAK HOUR VOLUMES**

APPROACH:	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION:	MAIN ST. EB	MAIN ST. WB	NYE ROAD NB			
PEAK HOURLY VOLUMES (AM/PM):	711	490	14			1,215

"K" FACTOR:  INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME:

TOTAL # OF CRASHES:  # OF YEARS:  AVERAGE # OF CRASHES PER YEAR (A):

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

Comments: THE CALCULATED CRASH RATE IS BELOW BOTH THE STATEWIDE (0.60) AND DISTRICT 5 (0.58) AVE. CRASH RATE  
 Project Title & Date: EXTENDED STAY HOTEL - 556 MAIN STREET - FALMOUTH, MA



10 New England Business Center Drive  
Suite 314  
Andover, MA 01810-1066  
Office 978-474-8800  
Fax 978-688-6508  
Web: [www.rdva.com](http://www.rdva.com)

Ref: 6668

November 20, 2014

Mr. Glenn Cannon, P.E.  
Director of Technical Services  
Cape Cod Commission  
3225 Main Street, P.O. Box 226  
Barnstable, MA 02630

Re: Limited Development of Regional Impact Application  
Springhill Suites by Marriot - 556 Main Street  
Falmouth, Massachusetts

Dear Glenn:

Vanasse & Associates, Inc. (VAI) is providing supplemental information in support of the *Limited Development of Regional Impact Application* dated July 11, 2014 and revised November 6, 2014 (the "Application") for the proposed Springhill Suites by Marriot Hotel to be located at 556 Main Street in Falmouth, Massachusetts (hereafter referred to as the "Project"). Specifically, VAI is providing updated trip-generation calculations for the existing buildings that currently occupy the Project site.

As presented in the Application, the Project site is currently occupied by 19,000± square feet (sf) of commercial buildings that include an antique store and ancillary storage and warehouse space; however, the trip-generation calculations that were presented in the Application reflected 16,272 sf of existing commercial space. In order to correct this discrepancy, the traffic characteristics of the existing uses that were presented in Table 1 of the Transportation component of the Application were revised to reflect 19,000 sf of commercial space using Institute of Transportation Engineers (ITE)<sup>1</sup> Land Use Code (LUC) 826, *Specialty Retail Center*,<sup>2</sup> consistent with the methodology presented therein. The traffic characteristics of the Project (extended stay hotel) did not change from the values that were presented in the Application. Table 1R provides an updated summary and comparison of the traffic characteristics of the Project to those of the existing uses that occupy the Project site (19,000± sf of commercial space consisting of an antique store and ancillary storage and warehouse space)

---

<sup>1</sup>*Trip Generation*, 9<sup>th</sup> Edition; Institute of Transportation Engineers; Washington, DC; 2012.

<sup>2</sup>ITE LUC 820, *Shopping Center*, was also reviewed for use in developing the traffic characteristics of the existing uses and was determined to result in similar or higher trip estimates.

**Table 1R**  
**566 MAIN STREET REDEVELOPMENT PROJECT**  
**EXISTING AND PROPOSED TRAFFIC VOLUME COMPARISON**

Time Period/Direction	Vehicle Trips		
	(A) Proposed Extended Stay Hotel (110 Rooms) <sup>a</sup>	(B) Existing Uses <sup>b</sup>	(C = A - B) Difference
<i>Average Weekday Daily:</i>			
Entering	445	421	
<u>Exiting</u>	<u>445</u>	<u>421</u>	
Total	900	842	+58
<i>Weekday Morning Peak-Hour of Generator:</i>			
Entering	33	62	
<u>Exiting</u>	<u>28</u>	<u>68</u>	
Total	61	130	-69
<i>Weekday Evening Peak-Hour of Generator:</i>			
Entering	39	53	
<u>Exiting</u>	<u>28</u>	<u>42</u>	
Total	67	95	-28
<i>Saturday Daily:</i>			
Entering	451	400	
<u>Exiting</u>	<u>451</u>	<u>400</u>	
Total	902	800	+102
<i>Saturday Midday Peak-Hour:</i>			
Entering	45	39	
<u>Exiting</u>	<u>35</u>	<u>38</u>	
Total	80	77	+3

<sup>a</sup>Based on ITE LUC 310, *Hotel*; 110 rooms.

<sup>b</sup>Based on ITE LUC 826, *Specialty Retail*; 19,000 sf.

As can be seen in Table 1R, the redevelopment of the Project site as an extended stay hotel (Springhill Suites by Marriot) is expected to result in 58 additional vehicle trips on an average weekday (two-way, 24-hour volume) when compared to the projected traffic characteristics of the existing uses that occupy the Project site, with 69 fewer vehicle trips predicted during the weekday morning peak-hour and 28 fewer vehicle trips predicted during the weekday evening peak-hour. On a Saturday, the redevelopment of the Project site is expected to result in 102 additional vehicle trips, with 3 additional vehicle trips predicted during the Saturday midday peak-hour. The detailed trip-generation calculations are attached.

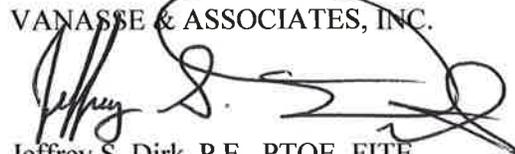


Mr. Glenn Cannon, P.E.  
November 20, 2014  
Page 3 of 3

If you should have any questions regarding this supplemental information, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "Jeffrey S. Dirk", is written over the company name.

Jeffrey S. Dirk, P.E., PTOE, FITE  
Principal

JSD/jsd

Attachments

cc: R. Walker – Falmouth Hospitality, LLC (via email)  
J. Peznola, P.E.-Hancock Associates (via email)  
BG, File

ATTACHMENT  
TRIP-GENERATION CALCULATIONS

---



## TRIP-GENERATION CALCULATIONS

---



**Institute of Transportation Engineers (ITE)**  
**Trip Generation, 9th Edition**  
**Land Use Code (LUC) 826 - Specialty Retail Center**

Average Vehicle Trips Ends vs: 1,000 Sq. Feet Gross Floor Area  
 Independent Variable (X): 19.000

**AVERAGE WEEKDAY DAILY**

$T = 44.32 * (X)$   
 $T = 44.32 * 19.000$   
 $T = 842.08$   
 $T = 842$  vehicle trips  
 with 50% ( 421 vpd) entering and 50% ( 421 vpd) exiting.

**WEEKDAY MORNING PEAK HOUR OF GENERATOR**

$T = 6.84 * (X)$   
 $T = 6.84 * 19.000$   
 $T = 129.96$   
 $T = 130$  vehicle trips  
 with 48% ( 62 vph) entering and 52% ( 68 vph) exiting.

**WEEKDAY EVENING PEAK HOUR OF GENERATOR**

$T = 5.02 * (X)$   
 $T = 5.02 * 19.000$   
 $T = 95.38$   
 $T = 95$  vehicle trips  
 with 56% ( 53 vph) entering and 44% ( 42 vph) exiting.

**SATURDAY DAILY**

$T = 42.04 * (X)$   
 $T = 42.04 * 19.000$   
 $T = 798.76$   
 $T = 800$  vehicle trips  
 with 50% ( 400 vpd) entering and 50% ( 400 vpd) exiting.

**SATURDAY MIDDAY PEAK HOUR**

$$\frac{\text{ITE LUC 820 Saturday Midday Trip Rate}}{\text{ITE LUC 820 Saturday Daily Trip Rate}} = \frac{\text{ITE LUC 826 Saturday Midday Trip Rate}}{\text{ITE LUC 826 Saturday Daily Trip Rate}}$$

$$\frac{4.82}{49.97} = \frac{(Y)}{42.04} \quad Y = 4.0550891$$

$T = Y * 19.000$   
 $T = 77$   
 $T = 77$  vehicle trips  
 with 5% ( 39 vph) entering and 50% ( 38 vph) exiting.

*(same distribution split as ITE LUC 820 during the Saturday midday peak hour of generator)*

**Institute of Transportation Engineers (ITE)  
 Trip Generation, 9th Edition  
 Land Use Code (LUC) 310 - Hotel**

Average Vehicle Trips Ends vs: Rooms  
 Independent Variable (X): 110

**Average Weekday Daily**

$T = 8.17 * (X)$   
 $T = 8.17 * 110$   
 $T = 898.70$   
 $T = 900$  vehicle trips  
 with 50% ( 450 vpd) entering and 50% ( 450 vpd) exiting.

**Weekday Morning Peak Hour of Generator**

$\ln T = 0.85 \ln (X) + 0.12$   
 $\ln T = 0.85 \ln 110 + (0.12)$   
 $\ln T = 4.12$   
 $T = 61.28$   
 $T = 61$  vehicle trips  
 with 54% ( 33 vpd) entering and 46% ( 28 vpd) exiting.

**Weekday Evening Peak Hour of Generator**

$T = 0.61 * (X)$   
 $T = 0.60 * 110$   
 $T = 67.10$   
 $T = 67$  vehicle trips  
 with 58% ( 39 vpd) entering and 42% ( 28 vpd) exiting.

**SATURDAY DAILY**

$T = 8.19 * (X)$   
 $T = 8.19 * 110$   
 $T = 900.90$   
 $T = 902$  vehicle trips  
 with 50% ( 451 vpd) entering and 50% ( 451 vpd) exiting.

**Saturday Midday Peak Hour of Generator**

$T = 0.69 * (X) + 4.32$   
 $T = 0.69 * 110 + 4.32$   
 $T = 80.22$   
 $T = 80$  vehicle trips  
 with 56% ( 45 vph) entering and 44% ( 35 vph) exiting.



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November 21, 2014

Mr. Glenn Cannon, P.E.  
Director of Technical Services  
Cape Cod Commission  
3225 Main Street, P.O. Box 226  
Barnstable, MA 02630

Re: Limited Development of Regional Impact Application  
Springhill Suites by Marriot - 556 Main Street  
Falmouth, Massachusetts

Dear Glenn:

Vanasse & Associates, Inc. (VAI) is providing supplemental information concerning the elements of the planned pedestrian access improvements that are to be completed in conjunction with the proposed Springhill Suites by Marriot Hotel to be located at 556 Main Street in Falmouth, Massachusetts (hereafter referred to as the "Project"). This information is being provided as a supplement to the Transportation component of the Limited Development of Regional Impact Application dated July 11, 2014 and revised November 6, 2014 (the "Application") submitted in support of the Project.

As detailed in the Application, the Project proponent has committed to the implementation of specific pedestrian safety improvements along Main Street and Nye Road in order to facilitate the safe and efficient conveyance of pedestrians to the Project site from these roadways and the proposed overflow parking lot that is to be constructed off Nye Road. By way of specificity, these improvements will include the following measures subject to receipt of all necessary rights, permits and approvals:

- Reconstruct sidewalks along the Project site frontage on Main Street and along the west side of Nye Road between Main Street and the overflow parking lot as necessary to ensure that these facilities are compliant with the applicable standards of the Americans with Disabilities Act (ADA) and those of the Massachusetts Architectural Access Board (MAAB).
- Reconstruct the wheelchair ramps serving the crosswalks at the Main Street/Nye Road intersection as necessary to meet ADA and MAAB standards.
- Reapply the crosswalk markings at the Main Street/Nye Road intersection to improve visibility and the retroreflective properties of the crossings.
- Replace the pedestrian crossing warning signs on Main Street at and in advance of the crossings at the Main Street/Nye Road intersection, and install high visibility reflective tape on the sign posts for the pedestrian crossing warning signs at the crossing.
- Install a STOP-sign and marked STOP-line on the Nye Road approach to Main Street in order to define the stopping point for vehicles in advance of the crosswalk.

Mr. Glenn Cannon, P.E.

November 21, 2014

Page 2 of 2

If you should have any questions regarding this supplemental information, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "Jeffrey S. Dirk", is written over the company name.

Jeffrey S. Dirk, P.E., PTOE, FITE  
Principal

JSD/jsd

cc: R. Walker – Falmouth Hospitality, LLC (via email)  
J. Peznola, P.E.-Hancock Associates (via email)  
BG, File