

## MEMORANDUM

**TO:** Mr. David S. Hall  
Development Partner  
The Hanover Company  
2 Seaport Lane, 11th Floor  
Boston, MA 02210

**FROM:** Mr. Jeffrey S. Dirk, P.E., PTOE, FITE  
Principal  
Vanasse & Associates, Inc.  
35 New England Business Center Drive  
Suite 140  
Andover, MA 01810-1066  
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**DATE:** November 22, 2016

**RE:** 7459

**SUBJECT:** Traffic Monitoring Program  
Hanover Vinnin Square  
Swampscott, Massachusetts

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Vanasse & Associates, Inc. (VAI) has completed the traffic monitoring program for the Hanover Vinnin Square residential development located at 330 Paradise Road in Swampscott, Massachusetts (hereafter referred to as the "Project"). The monitoring program has been completed in accordance with requirements of Condition F.8 of the December 18, 2013 Special Permit issued by the Town of Swampscott Zoning Board of Appeals for the Project. This condition requires that a traffic monitoring program be completed for the Project upon at least 90 percent occupancy as follows:

*Utilizing the same methodology for data collection as the study referred to by the Applicant's traffic expert for the Ridge at Blue Hills report, the Applicant, upon at least 90% occupancy of the Project, shall provide the Building Inspector with its traffic engineers certified report of the actual (pro rated for occupancy level to provide projection of 100% occupancy) morning peak and evening peak trips at the driveway of the Project. If the actual numbers exceed 110% of the Applicant's projected numbers for either morning or evening peak (i.e., 95 vehicle trips at morning peak and 119 vehicle trips at evening peak), then the Applicant shall return to the Board with its traffic engineer, who shall provide the Board with (i) his or her opinion on the impact of the increased actual traffic over the projection, and (ii) his or her proposed solution, remediation or mitigation to accommodate for the increased traffic. Such measures may be as simple as retiming the traffic signal, encouraging more bus traffic or other solutions to accommodate for the increased traffic in the Board's and its peer review traffic expert's opinion. All of the cost for the traffic at full occupancy report, appearances before the Board (if required by these terms), peer review and remedies shall be borne by the Applicant.*

It is our understanding that the Project achieved 90 percent occupancy on November 7, 2016. In accordance with the requirements Condition F.8, traffic volume data was collected on the driveway serving the Project using an automatic traffic recorder (ATR) over a continuous 7-day, weeklong period commencing on Sunday, November 13, 2016, and concluding on Saturday, November 19, 2016. Table 1 summarizes the traffic volume data collected for the Project at 90 percent occupancy.



**Table 1  
HANOVER VINNIN SQUARE TRAFFIC VOLUME DATA  
90 PERCENT OCCUPANCY**

	Count Date						
	Sunday 11/13	Monday 11/14	Tuesday 11/15	Wednesday 11/16	Thursday 11/17	Friday 11/18	Saturday 11/19
<b>Daily Traffic Volume (vehicles):</b>	705	862	822	855	891	962	882
<b>Morning Peak-Hour (vph):</b>	42	57	70	70	84	70	60
<b>Evening Peak-Hour (vph):</b>	65	69	69	58	65	79	71

vph = vehicles per hour

Condition F.8 of the December 18, 2013 Special Permit requires that: i) the traffic volume data for the Project measured at 90 percent occupancy be increased (pro-rated) to represent conditions at full (100 percent) occupancy; and ii) the resulting pro-rated traffic volumes for the weekday morning and evening peak-hours be compared to the traffic volume projections for the Project at full occupancy that were presented in the June 2013 *Traffic Impact and Access Study* (TIAS) that was prepared by VAI in support of the Project.

The traffic count data and analyses that were presented in the June 2013 TIAS represent conditions on an average weekday (i.e., Tuesday, Wednesday or Thursday). Averaging the measured daily and peak-hour traffic volumes presented in Table 1 for Tuesday, Wednesday and Thursday results in the following traffic volumes for the Project at 90 percent occupancy:

- **Average Weekday:** 856 vehicles per day
- **Morning Peak-Hour:** 75 vph
- **Evening Peak-Hour:** 64 vph

Following the requirements of Condition F.8, the average weekday traffic volumes were then expanded (increased) by 10 percent (multiplied by 1.10) in order to provide a prediction of traffic volumes for the Project at full (100 percent) occupancy and were then compared to the traffic volume projections for the Project that were presented in the June 2013 TIAS. The resulting traffic volumes and the comparative analysis are presented in Table 2.

**Table 2**  
**HANOVER VINNIN SQUARE**  
**TRIP GENERATION SUMMARY AND COMPARISON**

Time Period/Direction	Vehicle Trips		
	(A) November 2016 Average Weekday Traffic Volumes Expanded to Full Occupancy <sup>a</sup>	(B) Full Occupancy As Presented in the June 2013 TIAS	(A – B) Difference
<i>Average Weekday Daily:</i>	942	1,246	-304
<i>Weekday Morning Peak Hour:</i>	82	94	-12
<i>Weekday Evening Peak Hour:</i>	70	119	-49

<sup>a</sup>Obtained by multiplying the November 2016 measured average weekday traffic volumes by 1.10.

As can be seen in Table 2, based on an expansion of the measured traffic volumes for the Project at 90 percent occupancy to reflect full (100 percent) occupancy (Column A), the Project is predicted to generate approximately 942 vehicle trips on an average weekday (two-way, 24-hour volume) at full occupancy, with approximately 82 vehicle trips expected during the weekday morning peak-hour and 70 vehicle trips expected during the weekday evening peak-hour.

In comparison to the traffic volume projections for the Project at full occupancy that were presented in the June 2013 TIAS (Column B), the Project is expected to generate 304 fewer vehicle trips (a 24 percent reduction) on an average weekday, with 12 fewer vehicle trips (a 13 percent reduction) expected during the weekday morning peak-hour and 49 fewer vehicle trips (a 41 percent reduction) during the weekday evening peak-hour. Accordingly, **it has been concluded that the fully occupied Project will generate less traffic on a daily and peak-hour basis than was predicted in the June 2013 TIAS and, as such, no further remediation or mitigation is required to accommodate the Project.**

Attachments: Traffic Count Data  
June 2013 Traffic Impact and Access Study Trip-Generation Calculations



## ATTACHMENTS

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### TRAFFIC COUNTS

### JUNE 2013 TRAFFIC IMPACT AND ACCESS STUDY TRIP-GENERATION CALCULATIONS



## TRAFFIC COUNTS

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# Accurate Counts

978-664-2565

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State : Swampscott, MA

7459NOV1

Start Time	11/7/2016		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
12:00 AM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	5	10
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1	2
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0	2
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	1	4
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	3	1
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6	0
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	4	3
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	13	7
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18	11
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	16	18
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	29	13
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	34	31
12:00 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	22	24
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	34	22
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	34	35
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	20	21
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	17	28
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	27	38
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	18	30
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30	30
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	16	22
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	12	10
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	10	9
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	12	15
Lane	0	0	0	0	0	0	0	0	0	0	0	0	0	339	366	
Day	0	0	0	0	0	0	0	0	0	0	0	0	0	705	705	
AM Peak Vol.	-	-	-	-	-	-	-	-	-	-	-	-	-	11:00	11:00	11:00
PM Peak Vol.	-	-	-	-	-	-	-	-	-	-	-	-	-	13:00	13:00	16:00
	-	-	-	-	-	-	-	-	-	-	-	-	-	34	34	38

### Accurate Counts

978-664-2565

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State : Swampscott, MA

7459NOV1

Start Time	11/14/2016		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
12:00 AM	2	5	4	3	1	5	1	2	2	4	2	2	4	3	4	
01:00	3	4	1	3	4	3	0	1	2	3	2	2	3	2	2	
02:00	1	0	1	0	3	3	0	6	2	2	0	0	2	1	2	
03:00	1	1	2	0	0	1	3	4	3	4	0	0	1	1	1	
04:00	5	0	0	6	6	2	7	0	7	0	3	3	7	6	2	
05:00	11	3	12	9	15	2	8	2	8	2	4	4	4	10	2	
06:00	30	7	31	10	26	3	25	4	25	4	9	9	2	26	5	
07:00	43	8	49	11	45	14	52	9	52	9	13	13	5	42	10	
08:00	33	20	36	22	51	28	34	20	34	20	40	40	17	39	21	
09:00	27	14	32	18	29	17	29	17	32	15	34	34	22	30	17	
10:00	24	21	30	19	27	20	26	23	26	23	37	37	15	29	20	
11:00	26	21	18	24	25	13	24	22	24	22	42	42	31	26	21	
12:00 PM	17	23	18	13	19	17	21	28	21	28	32	32	21	21	22	
01:00	29	23	16	15	17	19	35	36	35	36	22	22	35	25	24	
02:00	26	27	19	30	26	41	26	21	26	21	24	24	24	24	24	
03:00	24	27	20	30	32	34	25	34	25	34	33	33	24	26	24	
04:00	25	39	23	31	31	31	33	46	33	46	19	19	37	25	37	
05:00	25	41	22	36	21	39	30	44	30	44	26	27	27	24	38	
06:00	15	51	18	54	23	48	39	51	39	51	32	32	39	26	48	
07:00	27	32	21	36	15	35	17	36	17	36	19	19	32	20	33	
08:00	11	19	6	31	10	22	12	23	12	23	14	14	21	12	23	
09:00	11	26	6	24	9	23	12	29	12	29	17	17	22	11	23	
10:00	5	15	5	9	8	16	6	16	6	16	7	7	20	6	15	
11:00	5	9	5	5	5	7	9	11	9	11	13	13	11	6	9	
Lane	426	436	411	427	448	443	479	483	479	483	444	438	0	441	438	
Day	862		822	855	891	891	962	962	882	882	879	879	0	879	879	
AM Peak	07:00	10:00	07:00	11:00	08:00	08:00	07:00	10:00	11:00	11:00	11:00	11:00	-	07:00	08:00	
Vol.	43	21	49	50	51	28	52	23	42	31	42	42	-	42	21	
PM Peak	13:00	18:00	13:00	18:00	15:00	18:00	18:00	18:00	15:00	18:00	15:00	18:00	-	15:00	18:00	
Vol.	29	51	23	54	32	48	39	51	33	39	33	39	-	26	48	
Comb. Total	862		822	855	891	891	962	962	882	882	879	879	0	879	879	
ADT	ADT 854		ADT 854		ADT 854	ADT 854										

1584

705

882

962

891

855

822

ADT 854

ADT 854

# Accurate Counts

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State: Swampscott, MA

978-664-2565

7459NOV1

Start Time	11/13/2016 Sun	Out		Hour Totals		In		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		3	7			2	7				
12:15		1	6			3	3				
12:30		1	2			3	7				
12:45		0	7	5	22	2	7	10	24	15	46
01:00		1	6			1	6				
01:15		0	12			0	13				
01:30		0	10			1	7				
01:45		0	6	1	34	0	9	2	35	3	69
02:00		0	6			1	8				
02:15		0	4			1	3				
02:30		0	6			0	7				
02:45		0	4	0	20	0	3	2	21	2	41
03:00		0	4			1	4				
03:15		1	6			1	10				
03:30		0	3			1	10				
03:45		0	4	1	17	1	4	4	28	5	45
04:00		1	5			1	4				
04:15		0	10			0	12				
04:30		1	2			0	6				
04:45		1	10	3	27	0	16	1	38	4	65
05:00		2	6			0	5				
05:15		1	4			0	6				
05:30		3	4			0	13				
05:45		0	4	6	18	0	6	0	30	6	48
06:00		2	6			1	10				
06:15		0	6			0	6				
06:30		1	3			1	6				
06:45		1	4	4	19	1	8	3	30	7	49
07:00		6	4			2	7				
07:15		2	4			2	6				
07:30		2	2			1	4				
07:45		3	6	13	16	2	5	7	22	20	38
08:00		5	4			1	4				
08:15		3	2			4	1				
08:30		4	2			4	3				
08:45		6	4	18	12	2	2	11	10	29	22
09:00		2	5			3	5				
09:15		2	2			2	2				
09:30		5	0			4	0				
09:45		9	3	18	10	7	2	16	9	34	19
10:00		6	1			6	4				
10:15		8	4			1	4				
10:30		5	3			4	4				
10:45		10	4	29	12	2	3	13	15	42	27
11:00		8	0			5	0				
11:15		4	0			7	3				
11:30		14	0			9	1				
11:45		8	0	34	0	10	0	31	4	65	4
Total		132	207			100	266			232	473
Percent		38.9%	61.1%			27.3%	72.7%			32.9%	67.1%

# Accurate Counts

978-664-2565

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State: Swampscott, MA

7459NOV1

Start Time	11/14/2016		Out		Hour Totals		In		Hour Totals		Combined Totals	
	Mon		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00			2	2			2	5				
12:15			0	8			3	7				
12:30			0	3			0	5				
12:45			0	4	2	17	0	6	5	23	7	40
01:00			1	6			0	8				
01:15			1	7			2	4				
01:30			1	10			2	6				
01:45			0	6	3	29	0	5	4	23	7	52
02:00			0	10			0	2				
02:15			0	2			0	7				
02:30			1	6			0	7				
02:45			0	8	1	26	0	11	0	27	1	53
03:00			1	7			0	12				
03:15			0	5			0	2				
03:30			0	4			1	7				
03:45			0	8	1	24	0	6	1	27	2	51
04:00			0	6			0	10				
04:15			1	4			0	9				
04:30			1	6			0	14				
04:45			3	9	5	25	0	6	0	39	5	64
05:00			2	6			0	10				
05:15			1	4			0	14				
05:30			2	8			2	11				
05:45			6	7	11	25	1	6	3	41	14	66
06:00			8	3			2	16				
06:15			6	3			1	12				
06:30			8	4			3	14				
06:45			8	5	30	15	1	9	7	51	37	66
07:00			9	6			2	10				
07:15			12	9			0	6				
07:30			10	6			3	8				
07:45			12	6	43	27	3	8	8	32	51	59
08:00			9	3			8	1				
08:15			9	2			6	6				
08:30			7	4			2	6				
08:45			8	2	33	11	4	6	20	19	53	30
09:00			8	3			0	7				
09:15			6	4			4	6				
09:30			9	0			8	2				
09:45			4	4	27	11	2	11	14	26	41	37
10:00			4	2			4	4				
10:15			6	2			4	3				
10:30			6	1			9	2				
10:45			8	0	24	5	4	6	21	15	45	20
11:00			2	0			3	2				
11:15			6	1			8	2				
11:30			10	1			4	3				
11:45			8	3	26	5	6	2	21	9	47	14
Total			206	220			104	332			310	552
Percent			48.4%	51.6%			23.9%	76.1%			36.0%	64.0%

# Accurate Counts

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State: Swampscott, MA

978-664-2565

7459NOV1

Start Time	11/15/2016 Tue	Out		Hour Totals		In		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	4			1	4				
12:15		4	5			1	8				
12:30		1	5			0	7				
12:45		0	4	5	18	2	9	4	28	9	46
01:00		0	4			1	4				
01:15		2	7			0	2				
01:30		0	4			0	7				
01:45		0	8	2	23	0	3	1	16	3	39
02:00		0	8			0	5				
02:15		0	2			1	8				
02:30		0	1			0	5				
02:45		0	8	0	19	0	10	1	28	1	47
03:00		0	7			0	7				
03:15		0	6			0	4				
03:30		1	3			0	6				
03:45		1	4	2	20	1	6	1	23	3	43
04:00		1	7			0	11				
04:15		1	2			0	6				
04:30		2	9			0	12				
04:45		4	5	8	23	0	11	0	40	8	63
05:00		2	10			0	7				
05:15		2	6			1	9				
05:30		4	3			1	11				
05:45		4	3	12	22	1	14	3	41	15	63
06:00		6	3			1	10				
06:15		6	5			0	15				
06:30		9	3			3	15				
06:45		10	7	31	18	1	8	5	48	36	66
07:00		12	4			0	11				
07:15		14	5			2	8				
07:30		11	6			4	2				
07:45		12	6	49	21	4	8	10	29	59	50
08:00		15	0			8	5			70	
08:15		6	2			6	8				
08:30		8	2			6	6				
08:45		7	2	36	6	1	1	21	20	57	26
09:00		9	1			4	3				
09:15		9	0			6	5				
09:30		10	2			2	5				
09:45		4	3	32	6	4	3	16	16	48	22
10:00		4	1			4	2				
10:15		8	2			6	3				
10:30		8	0			6	3				
10:45		10	2	30	5	4	6	20	14	50	19
11:00		2	3			6	6				
11:15		7	2			3	1				
11:30		3	0			4	2				
11:45		6	0	18	5	3	1	16	10	34	15
Total		225	186			98	313			323	499
Percent		54.7%	45.3%			23.8%	76.2%			39.3%	60.7%

# Accurate Counts

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State: Swampscott, MA

978-664-2565

7459NOV1

Start Time	11/16/2016 Wed	Out		Hour Totals		In		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	3			2	0				
12:15		1	3			0	8				
12:30		2	6			1	1				
12:45		2	6	5	18	0	4	3	13	8	31
01:00		0	3			0	3				
01:15		2	6			3	6				
01:30		0	4			0	4				
01:45		1	9	3	22	0	2	3	15	6	37
02:00		0	7			1	8				
02:15		0	4			0	5				
02:30		0	3			0	8				
02:45		0	11	0	25	1	9	2	30	2	55
03:00		0	6			0	7				
03:15		0	5			0	6				
03:30		0	7			0	8				
03:45		0	1	0	19	0	9	0	30	0	49
04:00		0	3			0	8				
04:15		2	5			0	4				
04:30		1	4			0	11				
04:45		3	5	6	17	0	8	0	31	6	48
05:00		2	6			0	6				
05:15		2	4			0	10				
05:30		2	6			0	10				
05:45		3	6	9	22	1	10	1	36	10	58
06:00		3	9			0	10				
06:15		7	6			4	12				
06:30		13	4			2	18				
06:45		10	8	33	27	4	14	10	54	43	81
07:00		10	4			1	13				
07:15		14	4			4	7				
07:30		12	6			2	8				
07:45		14	5	50	19	4	8	11	36	61	55
08:00		15	5			5	8				
08:15		7	3			6	5				
08:30		8	4			7	8				
08:45		11	5	41	17	4	10	22	31	63	48
09:00		4	5			6	6				
09:15		10	2			3	11				
09:30		12	2			5	2				
09:45		1	0	27	9	4	5	18	24	45	33
10:00		9	1			2	2				
10:15		10	1			10	3				
10:30		8	0			4	2				
10:45		2	2	29	4	3	2	19	9	48	13
11:00		4	1			4	1				
11:15		7	1			6	1				
11:30		8	0			7	3				
11:45		5	0	24	2	7	0	24	5	48	7
Total		227	201			113	314			340	515
Percent		53.0%	47.0%			26.5%	73.5%			39.8%	60.2%

# Accurate Counts

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State: Swampscott, MA

978-664-2565

7459NOV1

Start Time	11/17/2016 Thu	Out		Hour Totals		In		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1	3			0	6				
12:15		0	4			1	2				
12:30		0	6			2	5				
12:45		0	6	1	19	2	4	5	17	6	36
01:00		2	2			2	3				
01:15		0	6			0	5				
01:30		1	3			1	6				
01:45		1	6	4	17	0	5	3	19	7	36
02:00		2	6			1	4				
02:15		1	8			1	8				
02:30		0	4			0	13				
02:45		0	8	3	26	1	16	3	41	6	67
03:00		0	11			0	8				
03:15		0	6			0	6				
03:30		0	6			0	8				
03:45		0	9	0	32	1	12	1	34	1	66
04:00		0	6			0	10				
04:15		2	3			0	4				
04:30		0	9			0	7				
04:45		4	13	6	31	2	10	2	31	8	62
05:00		4	3			0	7				
05:15		1	6			0	10				
05:30		4	2			0	10				
05:45		6	10	15	21	2	12	2	39	17	60
06:00		3	8			0	15				
06:15		1	7			1	14				
06:30		10	6			2	9				
06:45		12	2	26	23	0	10	3	48	29	71
07:00		7	4			1	7				
07:15		12	3			3	10				
07:30		14	4			4	12				
07:45		12	4	45	15	6	6	14	35	59	50
08:00		20	2			4	5				
08:15		5	4			16	6				
08:30		19	2			2	5				
08:45		7	2	51	10	6	6	28	22	79	32
09:00		7	4			6	8				
09:15		7	2			2	6				
09:30		8	2			5	6				
09:45		7	1	29	9	4	3	17	23	46	32
10:00		6	2			10	5				
10:15		10	3			4	5				
10:30		6	1			2	4				
10:45		5	2	27	8	4	2	20	16	47	24
11:00		9	2			4	0				
11:15		7	1			1	5				
11:30		7	2			0	1				
11:45		2	0	25	5	8	1	13	7	38	12
Total		232	216			111	332			343	548
Percent		51.8%	48.2%			25.1%	74.9%			38.5%	61.5%

# Accurate Counts

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State: Swampscott, MA

978-664-2565

7459NOV1

Start Time	11/18/2016 Fri	Out		Hour Totals		In		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	9			0	8				
12:15		1	4			0	4				
12:30		0	4			2	6				
12:45		0	4	1	21	0	10	2	28	3	49
01:00		0	5			0	6				
01:15		0	8			1	12				
01:30		0	12			0	11				
01:45		0	10	0	35	0	7	1	36	1	71
02:00		1	3			1	4				
02:15		0	9			1	8				
02:30		0	6			0	5				
02:45		1	8	2	26	4	4	6	21	8	47
03:00		0	6			0	13				
03:15		0	7			0	4				
03:30		1	4			1	8				
03:45		2	8	3	25	3	9	4	34	7	59
04:00		0	7			0	18				
04:15		2	8			0	8				
04:30		1	10			0	10				
04:45		4	8	7	33	0	10	0	46	7	79
05:00		1	2			1	6				
05:15		1	12			0	14				
05:30		2	6			0	14				
05:45		4	10	8	30	1	10	2	44	10	74
06:00		1	12			0	19				
06:15		6	9			1	13				
06:30		8	8			2	8				
06:45		10	10	25	39	1	11	4	51	29	90
07:00		15	6			0	12				
07:15		10	4			0	10				
07:30		12	0			1	9				
07:45		15	7	52	17	8	5	9	36	61	53
08:00		20	4			4	8				
08:15		4	6			6	6				
08:30		4	2			5	1				
08:45		6	0	34	12	5	8	20	23	54	35
09:00		6	2			2	12				
09:15		8	2			3	3				
09:30		13	4			6	3				
09:45		5	4	32	12	4	11	15	29	47	41
10:00		5	4			3	12				
10:15		7	2			1	4				
10:30		6	0			9	0				
10:45		8	0	26	6	10	0	23	16	49	22
11:00		8	2			8	3				
11:15		8	2			8	2				
11:30		6	2			4	4				
11:45		2	3	24	9	2	2	22	11	46	20
Total		214	265			108	375			322	640
Percent		44.7%	55.3%			22.4%	77.6%			33.5%	66.5%

# Accurate Counts

Location : 330 Paradise Road  
 Location : West of Paradise Road  
 City/State: Swampscott, MA

7459NOV1

Start Time	11/19/2016 Sat	Out		Hour Totals		In		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	12			2	6				
12:15		0	4			1	4				
12:30		1	11			0	6				
12:45		1	5	2	32	1	5	4	21	6	53
01:00		0	5			3	12				
01:15		1	6			0	6				
01:30		1	4			0	9				
01:45		0	7	2	22	0	8	3	35	5	57
02:00		0	10			0	7				
02:15		0	6			0	6				
02:30		0	4			1	7				
02:45		0	4	0	24	1	4	2	24	2	48
03:00		0	10			0	9				
03:15		0	8			0	7				
03:30		0	9			0	8				
03:45		0	6	0	33	1	12	1	36	1	69
04:00		0	5			0	9				
04:15		1	8			4	11				
04:30		2	2			2	7				
04:45		0	4	3	19	1	10	7	37	10	56
05:00		2	8			1	4				
05:15		2	4			1	4				
05:30		0	7			2	10				
05:45		0	7	4	26	0	9	4	27	8	53
06:00		2	8			2	10				
06:15		2	10			0	14				
06:30		0	7			0	4				
06:45		5	7	9	32	0	11	2	39	11	71
07:00		3	3			1	6				
07:15		2	6			2	10				
07:30		4	6			0	11				
07:45		4	4	13	19	2	5	5	32	18	51
08:00		8	3			1	7				
08:15		8	2			2	5				
08:30		14	6			8	5				
08:45		10	3	40	14	6	4	17	21	57	35
09:00		6	4			4	3				
09:15		9	6			4	11				
09:30		9	4			4	5				
09:45		10	3	34	17	10	3	22	22	56	39
10:00		10	2			2	7				
10:15		9	3			6	3				
10:30		11	1			2	6				
10:45		7	1	37	7	5	4	15	20	52	27
11:00		8	3			8	4				
11:15		14	2			6	4				
11:30		12	6			9	1				
11:45		8	2	42	13	8	2	31	11	73	24
Total		186	258			113	325			299	583
Percent		41.9%	58.1%			25.8%	74.2%			33.9%	66.1%
Grand Total		1422	1553			747	2257			2169	3810
Percent		47.8%	52.2%			24.9%	75.1%			36.3%	63.7%

ADT

ADT 854

AADT 854

JUNE 2013 TRAFFIC IMPACT AND ACCESS STUDY TRIP-GENERATION CALCULATIONS



## TRAFFIC IMPACT AND ACCESS STUDY

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HANOVER VINNIN SQUARE  
SWAMPSCOTT, MASSACHUSETTS

*Prepared for:*

THE HANOVER COMPANY  
Boston, MA

June 2013

*Prepared by:*

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## PROJECT-GENERATED TRAFFIC

Design year (2018 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study area roadway network. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of a 185-unit residential apartment community. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the ITE<sup>7</sup> for a similar land use as that proposed were used. ITE Land Use Code (LUC) 220, *Apartment*, with the independent variable of number of dwelling units equal to 185, was used to develop the traffic characteristics of the Project. Table 4 summarizes the anticipated traffic characteristics of the Project.

**Table 4**  
**TRIP GENERATION SUMMARY**

Time Period/Direction	Vehicle Trips
	Proposed Residential Community (185 units) <sup>a</sup>
<i>Average Weekday Daily:</i>	
Entering	623
<u>Exiting</u>	<u>623</u>
Total	1,246
<i>Weekday Morning Peak Hour:</i>	
Entering	19
<u>Exiting</u>	<u>75</u>
Total	94
<i>Weekday Evening Peak Hour:</i>	
Entering	77
<u>Exiting</u>	<u>42</u>
Total	119

<sup>a</sup>Based on ITE LUC 220, *Apartment*.

As can be seen in Table 4, the Project is expected to generate approximately 1,246 vehicle trips on an average weekday (two-way, 24-hour volume, or 623 vehicles entering and 623 exiting), with approximately 94 vehicle trips (19 vehicles entering and 75 exiting) expected during the weekday morning peak-hour and 119 vehicle trips (77 vehicles entering and 42 exiting) expected during the weekday evening peak-hour.

<sup>7</sup>Ibid 1.