



**GREEN INTERNATIONAL AFFILIATES, INC.**

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March 25, 2020

Mr. Michael Kulesza  
Vice Chairman, Zoning Board of Appeals  
Norfolk Town Hall  
One Liberty Lane  
Norfolk, MA 02056

**Subject: Revised Residences at Norfolk Station,  
Updated Site Traffic Estimate**

Dear Mr. Kulesza

On behalf of the applicant, Green International Affiliates, Inc. (Green) has prepared an updated estimate of anticipated site traffic generated by the revised building program for the proposed *The Residences at Norfolk Station* residential development located on the north side of Main Street in Norfolk, Massachusetts at #194 Main Street. The revised project includes a reduction in housing units from 60 to 36 and also modified from a rental to ownership project. Sixteen (16) or 44% of the units will be one bedroom while only 4 units will be three bedroom units. The access will still be provided via Main Street with one driveway as the proposed project will retain the existing western drive with some minor modifications. The internal design will include sidewalks throughout the site with multiple connections to Main Street.

**Project Related Trip Generation**

An estimate of expected trip generation related to the project was completed using the models and statistics published by the Institute of Transportation Engineers (ITE) in Trip Generation Manual<sup>1</sup> for similar land uses were examined. It also provides guidance as to the application of the various models. Based on the guidance, Land Use Codes (LUC) 210 and 220 were selected for the reconfigured project to prepare the updated trip estimates. The total estimated new vehicle trips generated by the project without adjusting for potential walk or bicycle trips is presented in Table 1.

**Table 1 – Summary of Site Trip Generation  
Proposed 36 Unit Townhome Condominium Project**

	ENTER	EXIT	TOTAL
Weekday 24 Hour	165	165	330
Weekday AM Peak Hour	6	22	28
Weekday PM Peak Hour	22	13	35

ITE LUC 210 Single Family Home; LUC 220 Multi Unit Land Use

As shown in the table, the proposed development project is expected to generate a relatively small number of vehicle trips particularly during the peak hours with 28 vehicle trips projected for the AM peak hour and 35 vehicle trips during the PM peak hour. The majority of trips in the morning would be exiting the site while in the evening peak hour, the majority of project trips would be entering the site. As shown below, this results indicate lower trip generation characteristics when compared to the previously proposed 60-unit apartment complex.

<sup>1</sup> Institute of Transportation Engineers, Trip Generation Manual, 10<sup>th</sup> Edition, Washington, D.C., 2017.

Similar to the discussion contained in an earlier letter, due to the project’s location in the town center as well as adjacent to the train station, it is likely that there would be a number of walk trips to the train station during the commuter times. Historical census work trip data indicates that approximately 8% of Norfolk residents commute by public transportation (i.e. commuter rail).

In addition to the work trip, it is also likely that what would typically be a vehicle trip over the course of the day, could become a walking or biking trip given the project’s proximity to town hall, the library, banks and other commercial establishments located in Norfolk center. Consequently, the estimated volumes shown in the above table will represent a somewhat conservatively high forecast as the likelihood of non-vehicular trips during the day including the commuter times would reduce the number of vehicle trips to and from the site as shown in Table 1.

**Comparison to Previous Apartment Proposal**

The current project trip estimate was compared to estimated trip characteristics of the previous proposal. Table 2 summarizes the estimated total site trip activity under current conditions and compares the weekday, AM peak hour and PM peak hour with the trip estimate for the proposed use.

**Table 2 – Comparison of Site Trip Generation  
36-unit townhome vs. 60-unit apartment**

	APT.		TOWNHOME
	TOTAL*		TOTAL*
Weekday 24 Hour	414		330
Weekday AM Peak Hour	29		28
Weekday PM Peak Hour	37		35

\* unadjusted for new use pedestrian related trips

As can be seen by the information contained in Table 2, the trip generation estimate for the currently proposed use over the course of the day will be lower than the previous apartment proposal. Peak hour vehicle trips are also estimated to be slightly lower with the townhome project.

The review of the previous apartment proposal concluded that with minimal differences in traffic generation of that project compared to the current/past uses (i.e. restaurant, bank, etc.) on the site, one would expect minimal or no changes to operating conditions at the nearby intersections with the project. With the current proposal resulting in lower expected vehicle trips than the apartment proposal, that conclusion remains valid.

Based on this update associated with the revised development proposal at 194 Main Street, it is our opinion that the proposed *The Residences at Norfolk Station* development will not significantly alter current traffic operations along Main Street in the project area and that site traffic would be expected to be able to enter and exit the site in a safe manner. Again, the location of this residential project in Norfolk center is likely to result in a significant number of walk and bicycle trips over the course of a typical day thereby further reducing the number of estimated vehicle trips resulting from the project.

Mr. Michael Kulesza  
March 25, 2020

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If you have any questions, do not hesitate to contact me at 978-923-0400.

Very truly yours,  
**GREEN INTERNATIONAL AFFILIATES, INC.**

*William J Scully*

William J. Scully, P.E.  
Vice President  
Municipal Transportation &  
Infrastructure Services

WJS/-

Cc M. O'Shaughnessy

**TRIP GENERATION WORKSHEET**

LAND USE: *Multifamily Housing (Low-Rise)*  
 LAND USE CODE: 220 Independent Variable---Dwelling Units  
 SETTING/LOCATION: General Urban / Suburban  
 PROJECT NAME: 194 Main Street, Norfolk, MA  
 PROJECT #: 19101 Number of Units: 12

**WEEKDAY**

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	7.32	4.45	10.97	50%	50%	29
AM PEAK	0.46	0.18	0.74	23%	77%	42
PM PEAK	0.56	0.18	1.25	63%	37%	50
PK GEN AM	0.56	0.34	0.97	28%	72%	36
PK GEN PM	0.67	0.41	1.25	59%	41%	35

	BY AVERAGE			BY REGRESSION			R <sup>2</sup>
	Total	Enter	Exit	Total	Enter	Exit	
DAILY	88	44	44	50	25	25	0.96
AM PEAK	6	1	5	6	1	5	0.90
PM PEAK	7	4	3	9	6	3	0.86
PK GEN AM	7	2	5	8	2	6	0.91
PK GEN PM	8	5	3	9	5	4	0.94

**SATURDAY**

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	8.14	3.36	11.40	50%	50%	5
PEAK HR	0.7	0.41	0.93	-	-	5

	BY AVERAGE			BY REGRESSION			R <sup>2</sup>
	Total	Enter	Exit	Total	Enter	Exit	
DAILY	98	49	49	-354	-177	-177	0.92
PEAK HR	8	-	-	-20	-	-	

**SUNDAY**

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	6.28	2.61	8.22	50%	50%	5
PEAK HR	0.67	0.36	0.93	-	-	5

	BY AVERAGE			BY REGRESSION			R <sup>2</sup>
	Total	Enter	Exit	Total	Enter	Exit	
DAILY	75	38	38	-220	-110	-110	
PEAK HR	8	-	-	-27	-	-	

SOURCE: Trip Generation, 10th Edition, Institute of Transportation Engineers, 2017.

**TRIP GENERATION WORKSHEET**

LAND USE: *Single Family Detached Housing*  
 LAND USE CODE: 210 Independent Variable---Trips per DU  
 SETTING/LOCATION: General Urban / Suburban  
 JOB: 194 Main Street, Norfolk, MA  
 JOB NUMBER: 19101 Number of Units: 24

**WEEKDAY**

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	9.44	4.81	19.39	50%	50%	159
AM PEAK	0.74	0.33	2.27	25%	75%	173
PM PEAK	0.99	0.44	2.98	63%	37%	190
PK GEN AM	0.76	0.36	2.27	26%	74%	157
PK GEN PM	1	0.49	2.98	64%	36%	165

	BY AVERAGE		
	Total	Enter	Exit
DAILY	227	114	114
AM PEAK	18	5	14
PM PEAK	24	15	9
PK GEN AM	18	5	13
PK GEN PM	24	15	9

	BY REGRESSION			R <sup>2</sup>
	Total	Enter	Exit	
DAILY	280	140	140	0.95
AM PEAK	22	6	17	0.89
PM PEAK	26	16	10	0.92
PK GEN AM	22	6	16	0.89
PK GEN PM	28	18	10	0.92

**SATURDAY**

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	9.54	5.32	15.25	50%	50%	52
PEAK HR	0.93	0.64	1.75	54%	46%	31

	BY AVERAGE		
	Total	Enter	Exit
DAILY	229	115	115
PEAK HR	22	12	10

	BY REGRESSION			R <sup>2</sup>
	Total	Enter	Exit	
DAILY	257	129	129	0.91
PEAK HR	38	21	17	0.87

**SUNDAY**

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	8.55	4.74	11.82	50%	50%	51
PEAK HR	0.85	0.6	1.45	53%	47%	31

	BY AVERAGE		
	Total	Enter	Exit
DAILY	205	103	103
PEAK HR	20	11	9

	BY REGRESSION			R <sup>2</sup>
	Total	Enter	Exit	
DAILY	148	74	74	0.94
PEAK HR	30	16	14	0.88

SOURCE: Trip Generation, 10th Edition, Institute of Transportation Engineers, 2017.