

March 6, 2024

NEX-2400048.00

Mr. Jonathan Bransfield
Money Brook Farm, LLC
65 White Pond Road
Stow, Massachusetts 01775

SUBJECT: Contractor Yard
63-65 White Pond Road
Stow, Massachusetts

Dear Mr. Bransfield:

Greenman-Pedersen, Inc. (GPI) has prepared this letter to evaluate the expected vehicle trips associated with the contractor yard located at 63-65 White Pond Road in Stow, Massachusetts. Access and egress to the site is currently provided via one driveway on White Pond Road. Access and egress to the site will remain the same. White Pond Road and Great Road (Routes 62 & 117) are under the jurisdiction of the Town of Stow.

The site is proposed to include one 4,000 square foot (SF) building with 24 associated parking spaces and six (6) car ports of varying sizes. Traffic to be generated by the proposed site was forecast using the trip rates contained in the latest edition of the ITE *Trip Generation Manual*¹ for Specialty Trade Contractor (LUC 180) based on a total of 14,800 SF (4,000 SF building plus car ports). LUC 180 only provides weekday data, accordingly LUC 110 (General Light Industrial) was used to forecast Saturday traffic. A comparison was also provided using LUC 150 (Warehousing) based on a total of 14,800 SF. Table 1 on the following page summarizes the results of the trip generation estimates. All trip generation data are attached to this letter.

To supplement the ITE data, GPI also estimated the weekday daily characteristics for the proposed site based on client provided information. This information included the number of passenger vehicles, heavy vehicles, deliveries, and stored vehicles on site for each individual tenant during each season (spring, summer, fall, winter). As a result of the data, spring and fall are expected to yield the most traffic at 100 vehicle trips per day (50 entering and 50 exiting) with an additional 25 vehicles stored on site. It should be noted that two tenants (Commonwealth Scaffold and DiClemente) produce traffic on a weekly or monthly basis. These vehicle trips were included in the daily trip estimate, and therefore, the 100 vehicle-trips per day represent the highest daily count expected on any given day. The results are summarized in Table 1 on the following page and indicate that LUC 180 (Specialty Trade Contractor) and LUC 150 (Warehousing) are appropriate land uses in terms of vehicle trip estimates. A detailed derivation of the trip generation characteristics of the site is included as an attachment to this letter.

It is expected that all of the traffic to and from the site will utilize Great Road (Routes 62 & 117). Historical traffic-volume data were reviewed from the Massachusetts Department of Transportation (MassDOT) records.² Based on available weekday counts in August 2023, this information revealed that Great Road (Routes 62 & 117) carries approximately 12,000 vehicles per day (vpd) and peaks from 6:00 to 7:00 AM during the weekday AM peak commuting period and 4:00 to 5:00 PM during the weekday PM peak commuting period.

¹ ITE *Trip Generation Manual*, 11th Edition. Institute of Transportation Engineers; Washington, DC; 2021.

² MassDOT *Transportation Data Management System*; Station 4008 – Great Road at Stow Town Line (Maynard).

Traffic volume increases associated with the proposed site, even using the highest trip-generation volumes, are estimated to be approximately 1 percent during the entirety of the weekday, and between 2 and 3 percent during the commuting peak hours. These increases are of a magnitude that typically has a negligible impact on prevailing traffic operations at nearby locations, and would not warrant further analysis.

TABLE 1
Trip-Generation Summary

Peak Hour/Direction	ITE Trip Estimates (Contractor Building) ^a	ITE Trip Estimates (Warehousing) ^b	Client Trip Estimates ^c
Weekday Daily:	146	62	100
Weekday AM Peak Hour:			
<i>Enter</i>	18	19	--
<i>Exit</i>	<u>7</u>	<u>6</u>	--
<i>Total</i>	25	25	--
Weekday PM Peak Hour:			
<i>Enter</i>	9	8	--
<i>Exit</i>	<u>20</u>	<u>20</u>	--
<i>Total</i>	29	28	--
Saturday Daily:	10	2	--
Saturday Midday Peak Hour:			
<i>Enter</i>	1	1	--
<i>Exit</i>	<u>0</u>	<u>0</u>	--
<i>Total</i>	1	1	--

^a ITE LUC 180 (Specialty Trade Contractor) for weekday estimates and LUC 110 (General Light Industrial) for Saturday estimates based on 14,800 SF.

^b ITE LUC 150 (Warehousing) based on 14,800 SF.

^c Client provided data.

The Notice of Decision and Decision from the Town of Stow Planning Board for this project issued on September 13, 2016, indicate a total of 84 average daily trips to be generated by the site. As shown in the Trip-Generation Summary table, the site is expected to generate anywhere between 62 and 146 average daily trips. This is at most 62 additional trips than previously approved, however, most-likely only 16 additional trips as indicated by the Client estimates. During peak hours when traffic is highest on the adjacent roadways, the ITE trip generation volumes indicate 25 weekday AM peak hour trips, between 28 and 29 weekday PM peak hour trips, and 1 Saturday midday peak hour trip. These increases will all be realized on White Pond Road and represent, on average, approximately one additional vehicle trip every 2 to 60 minutes during the peak hours. Please note that this assumes all of the traffic to and from the site goes the same way on White Pond Road. It is expected that traffic will enter and exit the site from both the north and south on White Pond Road which would further reduce these increases.

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We hope this letter satisfactorily addresses the basic operational characteristics of the proposed site. However, should you have any questions, or require additional information, please feel free to contact me at 978-570-2968 or hmonticup@gpinet.com.

Sincerely,

GREENMAN-PEDERSEN, INC.

A handwritten signature in black ink that reads "Heather Monticup". The signature is written in a cursive, flowing style.

Heather L. Monticup, P.E.
Vice President / Director of Land Development
44 Stiles Road, Suite One
Salem, New Hampshire 03079

enclosure(s)

Trip Generation Calculations
Traffic-Volume Data

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 180 - Specialty Trade Contractor

General Urban/Suburban

Average Vehicle Trips Ends vs: 1,000 Sq. Feet Gross Floor Area
Independent Variable (X): 14.800

AVERAGE WEEKDAY DAILY

$$T = 9.82 * (X)$$

$$T = 9.82 * 14.800$$

$$T = 145.34$$

$$T = 146 \text{ vehicle trips}$$

with 50% (73 vpd) entering and 50% (73 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 1.66 * (X)$$

$$T = 1.66 * 14.800$$

$$T = 24.57$$

$$T = 25 \text{ vehicle trips}$$

with 74% (18 vph) entering and 26% (7 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 1.93 * (X)$$

$$T = 1.93 * 14.800$$

$$T = 28.56$$

$$T = 29 \text{ vehicle trips}$$

with 32% (9 vph) entering and 68% (20 vph) exiting.

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 110 - General Light Industrial

General Urban/Suburban

Average Vehicle Trips Ends vs: 1000 Sq. Feet Gross Floor Area
Independent Variable (X): 14.800

SATURDAY DAILY

$$T = 0.69 * (X)$$

$$T = 0.69 * 14.800$$

$$T = 10.21$$

T = 10 vehicle trips
with 50% (5 vpd) entering and 50% (5 vpd) exiting.

SATURDAY PEAK HOUR OF GENERATOR

$$\frac{\text{ITE LUC 110 Sunday Midday Trip Rate}}{\text{ITE LUC 110 Sunday Daily Trip Rate}} = \frac{\text{ITE LUC 110 Saturday Midday Trip Rate}}{\text{ITE LUC 110 Saturday Daily Trip Rate}}$$

$$\frac{0.69}{5.00} = \frac{(Y)}{0.69} \quad Y = 0.10$$

$$T = Y * 14.800$$

$$T = 1.41$$

T = 1 vehicle trips
with 48% (1 vpd) entering and 52% (0 vpd) exiting.
(same distribution split as ITE LUC 110 during the Sunday midday traffic)

Institute of Transportation Engineers (ITE)

Land Use Code (LUC) 150 - Warehousing

General Urban/Suburban

Average Vehicle Trips Ends vs: 1000 Sq. Feet Gross Floor Area
Independent Variable (X): 14.800

AVERAGE WEEKDAY DAILY

$$T = 1.58 * (X) + 38.29$$

$$T = 1.58 * 14.800 + 38.29$$

$$T = 61.67$$

T = 62 vehicle trips
with 50% (31 vpd) entering and 50% (31 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.12 * (X) + 23.62$$

$$T = 0.12 * 14.800 + 23.62$$

$$T = 25.40$$

T = 25 vehicle trips
with 77% (19 vph) entering and 23% (6 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.12 * (X) + 26.48$$

$$T = 0.12 * 14.800 + 26.48$$

$$T = 28.26$$

T = 28 vehicle trips
with 28% (8 vph) entering and 72% (20 vph) exiting.

SATURDAY DAILY

$$T = 0.15 * (X)$$

$$T = 0.150 * 14.800$$

$$T = 2.22$$

T = 2 vehicle trips
with 50% (1 vpd) entering and 50% (1 vpd) exiting.

SATURDAY PEAK HOUR OF GENERATOR

$$T = 0.05 * (X)$$

$$T = 0.05 * 14.800$$

$$T = 0.74$$

T = 1 vehicle trips
with 64% (1 vph) entering and 36% (0 vph) exiting.

VEHICLES PER DAY																				
Company	Spring					Summer					Fall					Winter				
	Passenger Vehicles	Heavy Vehicles	Deliveries	Vehicles Stored	Total	Passenger Vehicles	Heavy Vehicles	Deliveries	Vehicles Stored	Total	Passenger Vehicles	Heavy Vehicles	Deliveries	Vehicles Stored	Total	Passenger Vehicles	Heavy Vehicles	Deliveries	Vehicles Stored	Total
Ferreiras Construction	2	2	0	1	5	2	2	0	1	5	2	2	0	1	5	0	0	0	1	1
Commonwealth Scaffold	2	2	0	0	4	2	2	0	0	4	2	2	0	0	4	1	1	0	0	2
Plus Landscape	6	3	0	2	11	6	3	0	2	11	6	3	0	2	11	2	2	0	2	6
DiClemente	1	1	0	1	3	1	1	0	1	3	1	1	0	1	3	1	1	0	1	3
Laliberte Landscaping	2	1	0	4	7	3	1	0	4	8	2	1	0	4	7	1	1	0	4	6
Butler Tree	2	1	0	2	5	2	1	0	2	5	2	1	0	2	5	0	0	0	2	2
Masonworks	4	2	1	4	11	4	2	1	4	11	4	2	1	4	11	1	1	0	4	6
Artemisia	2	2	2	3	9	2	1	1	3	7	2	2	2	3	9	5	0	0	3	8
Bransfield Tree Co	6	4	2	8	20	6	4	2	8	20	6	4	2	8	20	6	4	2	8	20
	27	18	5	25	75	28	17	4	25	74	27	18	5	25	75	17	10	2	25	54
	50 vehicles entering and exiting					49 vehicles entering and exiting					50 vehicles entering and exiting					29 vehicles entering and exiting				

Ferreiras Construction

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 1-2
Summer: 1-2
Fall: 1-2
Winter: 0

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 2
Summer: 2
Fall: 2
Winter: 0

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 1
Summer: 1
Fall: 1
Winter: 1

On average, how many deliveries do you receive at 65 WPR per day:

Spring: none
Summer: none
Fall: none
Winter: none

Commonwealth Scaffold

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 2 / week
Summer: 2 / week
Fall: 2 / week
Winter: 1 / week

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 2 / week
Summer: 2 / week
Fall: 2 / week
Winter: 1 / week

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 0
Summer: 0
Fall: 0
Winter: 0

On average, how many deliveries do you receive at 65 WPR per day:

Spring: none
Summer: none
Fall: none
Winter: none

Plus Landscape

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 5 to 6
Summer: 5 to 6
Fall: 5 to 6
Winter: 1 or 2

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 2 to 3
Summer: 2 to 3
Fall: 2 to 3
Winter: 1 or 2

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 2
Summer: 2
Fall: 2
Winter: 2

On average, how many deliveries do you receive at 65 WPR per day:

Spring: none
Summer: none
Fall: none
Winter: none

DiClemente

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 1/ month
Summer: 1/ month
Fall: 1/ month
Winter: 1/ month

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 1/ month
Summer: 1/ month
Fall: 1/ month
Winter: 1/ month

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 1 defunct
Summer: 1 defunct
Fall: 1 defunct
Winter: 1 defunct

On average, how many deliveries do you receive at 65 WPR per day:

Spring: none
Summer: none
Fall: none
Winter: none

Laliberte

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 2
Summer: 3
Fall: 2
Winter: 1

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 1
Summer: 1
Fall: 1
Winter: 1

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 4
Summer: 4
Fall: 4
Winter: 4

On average, how many deliveries do you receive at 65 WPR per day:

Spring: none
Summer: none
Fall: none
Winter: none

Butler Tree

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 2
Summer: 2
Fall: 2
Winter: 0

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 1
Summer: 1
Fall: 1
Winter: 0

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 2 (1 working & 1 defunct)
Summer: 2 (1 working & 1 defunct)
Fall: 2 (1 working & 1 defunct)
Winter: 2 (1 working & 1 defunct)

On average, how many deliveries do you receive at 65 WPR per day:

Spring: none
Summer: none
Fall: none
Winter: none

Masonworks

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 4
Summer: 4
Fall: 4
Winter: 1

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 2
Summer: 2
Fall: 2
Winter: 1

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 4
Summer: 4
Fall: 4
Winter: 4

On average, how many deliveries do you receive at 65 WPR per day:

Spring: 1 / week
Summer: 1 / week
Fall: 1 / week
Winter: none

Artemisia

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 2
Summer: 2
Fall: 2
Winter: .5

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 2
Summer: 1
Fall: 2
Winter: 0

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 3
Summer: 3
Fall: 3
Winter: 3

On average, how many deliveries do you receive at 65 WPR per day:

Spring: 2
Summer: 1
Fall: 2
Winter: none

Bransfield Tree Co

On average, How many 4 wheel vehicles visit 65 WPR RD per day:

Spring: 6
Summer: 6
Fall: 6
Winter: 6

On average, How many 6+ wheel vehicles visit 65 WPR RD per day:

Spring: 4
Summer: 4
Fall: 4
Winter: 4

How many 4 or 6+ wheel vehicles do you store at 65 WPR RD:

Spring: 8
Summer: 8
Fall: 8
Winter: 8

On average, how many deliveries do you receive at 65 WPR per day:

Spring: 2 / week
Summer: 2 / week
Fall: 2 / week
Winter: 2 / week

Location Info						Count Data Info	
Location ID	4008					Start Date	8/23/2023
Type	I-SECTION					End Date	8/24/2023
Functional Class	3					Start Time	11:00 AM
Located On	GREAT ROAD					End Time	11:00 AM
AT	STOW TOWN LINE					Direction	
Direction	2-WAY					Notes	
Community	Maynard					Count Source	
MPO_ID						File Name	
HPMS ID	1.74001E+11					Weather	
Agency	Massachusetts Highway Department					Study	
						Owner	tdcms
						QC Status	Accepted
Interval: 15 mins							
Time	15 Min				Hourly Count		
	1st	2nd	3rd	4th			
00:00 - 01:00	4	0	1	3	8		
01:00 - 02:00	1	1	3	2	7		
02:00 - 03:00	1	2	6	2	11		
03:00 - 04:00	5	5	11	11	32		
04:00 - 05:00	25	40	50	68	183		
05:00 - 06:00	85	141	159	167	552		
06:00 - 07:00	202	220	200	213	835		
07:00 - 08:00	218	191	196	220	825		
08:00 - 09:00	188	198	167	168	721		
09:00 - 10:00	178	151	166	163	658		
10:00 - 11:00	172	144	187	190	693		
11:00 - 12:00	156	187	181	186	710		
12:00 - 13:00	185	201	204	180	770		
13:00 - 14:00	185	213	191	215	804		
14:00 - 15:00	205	226	247	268	946		
15:00 - 16:00	279	257	270	313	1119		
16:00 - 17:00	312	290	328	284	1214		
17:00 - 18:00	233	214	183	166	796		
18:00 - 19:00	145	150	163	118	576		
19:00 - 20:00	134	106	100	87	427		
20:00 - 21:00	52	62	61	49	224		
21:00 - 22:00	23	22	25	23	93		
22:00 - 23:00	14	14	15	15	58		
23:00 - 24:00	6	6	7	5	24		
TOTAL					12286		