

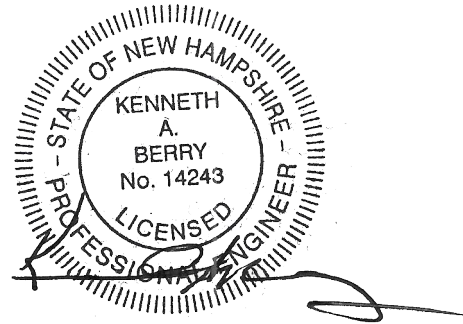
## BERRY SURVEYING & ENGINEERING

335 Second Crown Point Road  
Barrington, NH 03825  
Phone: (603) 332-2863  
Fax: (603) 335-4623  
www.BerrySurveying.Com

Town of Nottingham Planning Office  
Attention: Mr. Eduard Viel, Chair  
139 Stage Road  
P.O. Box 114  
Nottingham, NH 03290

February 15, 2023

RE: Traffic Impact Analysis & Distribution  
Frederick Fernald  
Smoke Street & Fort Hill Road  
Tax Map 23, Lot 11  
Nottingham, NH 03290



Mr. Chairman & Members of the Board,

Pursuant to the Town of Nottingham Subdivision Regulations, Berry Surveying & Engineering (BS&E), on behalf of Frederick Fernald, has prepared a Standard Traffic Impact Analysis for the development of twenty-five single family units on Tax Map 23, Lot 11. The three points of analysis are the intersections of Peekaboo Drive with Smoke Street, Frederick Lane with Smoke Street, and a shared driveway with Fort Hill Road.

The following conclusions were reached as a result Traffic Impact Analysis:

- A total of 15 vehicle trips (4 enter/11 exit) are predicted to occur at the AM peak hour and 19 vehicle trips (12 enter/7 exit) at the PM peak hour for Peekaboo Drive.
- A total of 6 vehicle trips (1 enter/5 exit) are predicted to occur at the AM peak hour and 7 vehicle trips (4 enter/3 exit) at the PM peak hour for Frederick Lane.
- A total of 2 vehicle trips (1 enter/1 exit) are predicted to occur at the AM peak hour and 3 vehicle trips (2 enter/1 exit) at the PM peak hour for the shared driveway off Fort Hill Road.
- A total of 23 vehicle trips (6 enter/17 exit) are predicted to occur at the AM peak hour and 29 vehicle trips (18 enter/11 exit) at the PM peak hour for the entire subdivision.
- It is recommended that the cross section of Smoke Street will be able to handle the minimal projected increase in vehicle trips and peak hour and all other hours.

## ***Table of Contents***

<i>Table of Contents</i> .....	2
<i>List of Tables</i> .....	3
<i>List of Figures</i> .....	4
<i>Proposed Development &amp; Introduction</i> .....	5
<i>Existing Conditions</i> .....	5
Existing Site Description .....	5
Smoke St, Fort Hill Rd, and Surrounding Roadway Descriptions.....	5
Existing Traffic Volumes .....	7
Existing Vehicle Speeds .....	8
<i>Proposed Trip Generation</i> .....	8
<i>Turning Analysis</i> .....	9
<i>Sight Distance and Safety Analysis</i> .....	12
<i>Conclusions and Recommendations</i> .....	14
<i>Appendix A</i> .....	15
Traffic Data.....	15
<i>Appendix B</i> .....	18
Trip Generation Derivation.....	18
<i>Appendix C</i> .....	21
Miscellaneous .....	21



### ***List of Tables***

Table 1: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, weekday total ..... 8

Table 2: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, weekday total ..... 8

Table 3: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, weekday total ..... 9

Table 4: Total Subdivision Trip Generation ..... 9

Table 5: NH Route 125 & US Route 4 AADT Values ..... 9

Table 6: Summary of AM build turning movements to and from Peekaboo Drive..... 10

Table 7: Summary of PM build turning movements to and from Peekaboo Drive..... 10

Table 8: Summary of AM build turning movements to and from Frederick Lane ..... 11

Table 9: Summary of PM build turning movements to and from Frederick Lane ..... 11

Table 10: Summary of AM build turning movements to and from shared driveway ..... 11

Table 11: Summary of PM build turning movements to and from shared driveway ..... 11

Table 12: Summary of total AM build turning movements..... 12

Table 13: Summary of total PM build turning movements ..... 12



### ***List of Figures***

Figure 1: Smoke Street with surrounding roadways (NHDOT) ..... 7  
Figure 2: Weekday AM & PM build projected traffic volumes and movements..... 10  
Figure 3: Smoke Street Historical AADT ..... 15  
Figure 4: NH Route 125 Historical AADT ..... 16  
Figure 5: US Route 4 Historical AADT ..... 17  
Figure 6: ITE Trip Generation, 11<sup>th</sup> Edition ..... 18  
Figure 7: ITE Trip Generation, 11<sup>th</sup> Edition ..... 19  
Figure 8: ITE Trip Generation, 11<sup>th</sup> Edition ..... 20  
Figure 9: Derivation of stopping sight distance requirements ..... 21



## ***Proposed Development & Introduction***

The proposal is to subdivide Tax Map 23, Lot 11 into twenty-five single family lots. Tax Map 23, Lot 11 is proposed to contain the following: Peekaboo Drive, a 1,564 LF cul-de-sac road accessed from Smoke Street for access to seventeen single family lots, Frederick Lane, a 1,177 LF cul-de-sac road accessed from Smoke Street providing access to six single family lots, and a shared driveway on Fort Hill Road, providing access to two single family lots. Peekaboo Drive and Frederick Lane are proposed to have 25-foot pavement entrance radii for emergency vehicle turning, 10-foot paved travel lanes (20 foot total paved width), and 2 foot gravel shoulders on both sides of the roadway. Off-street parking will consist of individual driveways, providing adequate parking for house lots. On street parking will be permitted in all locations on Peekaboo Drive and Frederick Lane. The intersections of Peekaboo Drive and Smoke Street, Frederick Lane and Smoke Street, and the shared driveway with Fort Hill Road are the points of analysis. Peekaboo Drive and Frederick Lane are located 2,000 feet apart. The purpose of this analysis is to determine the maximum number of trips coming to and leaving Peekaboo Drive, Frederick Lane, and the shared driveway on Fort Hill Road during certain peak periods of the day. This information is then used in determining the impact on safety as it relates to the existing roadway infrastructure. The following components of the analysis are typical for a project of this size pursuant to the Institute of Traffic Engineers (ITE) manual.

## ***Existing Conditions***

### ***Existing Site Description***

The existing site consists of Tax Map 23, Lot 11 containing 4,477,048 Sq. Ft. (102.77 Ac.) of land. Tax Map 23, Lot 11 is a vacant lot that is primarily wooded. Tax Map 23, Lot 11 is in the Residential - Agricultural district. Little River Road is located approximately 400 feet from the northern edge of the subject parcel on Smoke Street. Cedar Way is located approximately 0.2 miles to the south of Little River Road. Located approximately 0.2 miles to the south of the subject parcel is the intersection of Smoke Street/Kelsey Road/Mill Pond Road/McCrillis Road.

### ***Smoke St, Fort Hill Rd, and Surrounding Roadway Descriptions***

Smoke Street is a two-lane paved local road. This road provides access to U.S. Route 4/Nottingham to the north and N.H. 125/Lee to the south. It has an Average Annual Daily Traffic (AADT) of approximately 845 (2021) divided between north and south, as shown in the traffic counts performed by the NHDOT. Smoke Street in the area of the project is composed of a paved twenty-two foot surface. There is no centerline delineation or fog/edge lines provided. The posted speed limit of the roadway is 25



miles per hour (MPH). The geometry of Smoke Street in the area of Peekaboo Drive is relatively flat (1% or less) to the north or south and the proposed roadway will be located near the point of tangency of a roadway curve. The geometry of Smoke Street in the area of Frederick Lane is relatively flat (1% or less) to the north and steeper to the south (3%) and is located on the apex of a curve. There are no existing sidewalks, crosswalks, or other pedestrian amenities in the area of the project.

Fort Hill Road is a two-lane paved local road. This road provides access to a series of single family homes along Nottingham Lake. Fort Hill Road in the area of the project is composed of a paved eighteen-foot surface that changes to gravel and changes to Swan Drive at the proposed shared driveway location. There is no centerline delineation or fog/edge lines provided. The posted speed limit of the roadway is 25 miles per hour (MPH). The geometry of Fort Hill Road in the area of the shared driveway is relatively flat (1% or less) to the north and south, also is located on the apex of a curve. There are no existing sidewalks, crosswalks, or other pedestrian amenities in the area of the project.

#### **NH Route 125 and US Route 4**

NH Route 125/Calef Highway is classified as an "Other Principal Arterial" by the NHDOT at the location of the traffic count (ID #62266054). NH Route 125 provides access to Barrington/Rochester/NH Route 16 to the north and Lee/Epping/NH Route 152/NH Route 101 to the south. The 2021 AADT of NH Route 125 was found to be 18,604 vehicles. The subject parcel is accessed from NH Route 125 via West Mill Pond Road & Mill Pond Road (1.8 miles +/-) or Kelsey Road (1.7 miles +/-).

US Route 4/Old Concord Turnpike is classified as an "Other Principal Arterial" by the NHDOT at the location of the traffic count (ID #82351054). US Route 4 provides access to Nottingham/Northwood to the west and Madbury/ Durham/NH 16 to the south. The 2021 AADT of US Route was found to be 10,631 vehicles. The subject parcel is accessed from NH Route 125. The subject parcel is accessed from US Route 4 via Smoke Street (2.1 miles +/-). The following figure shows the proposed roadway/driveway locations in relation to the surrounding road network.



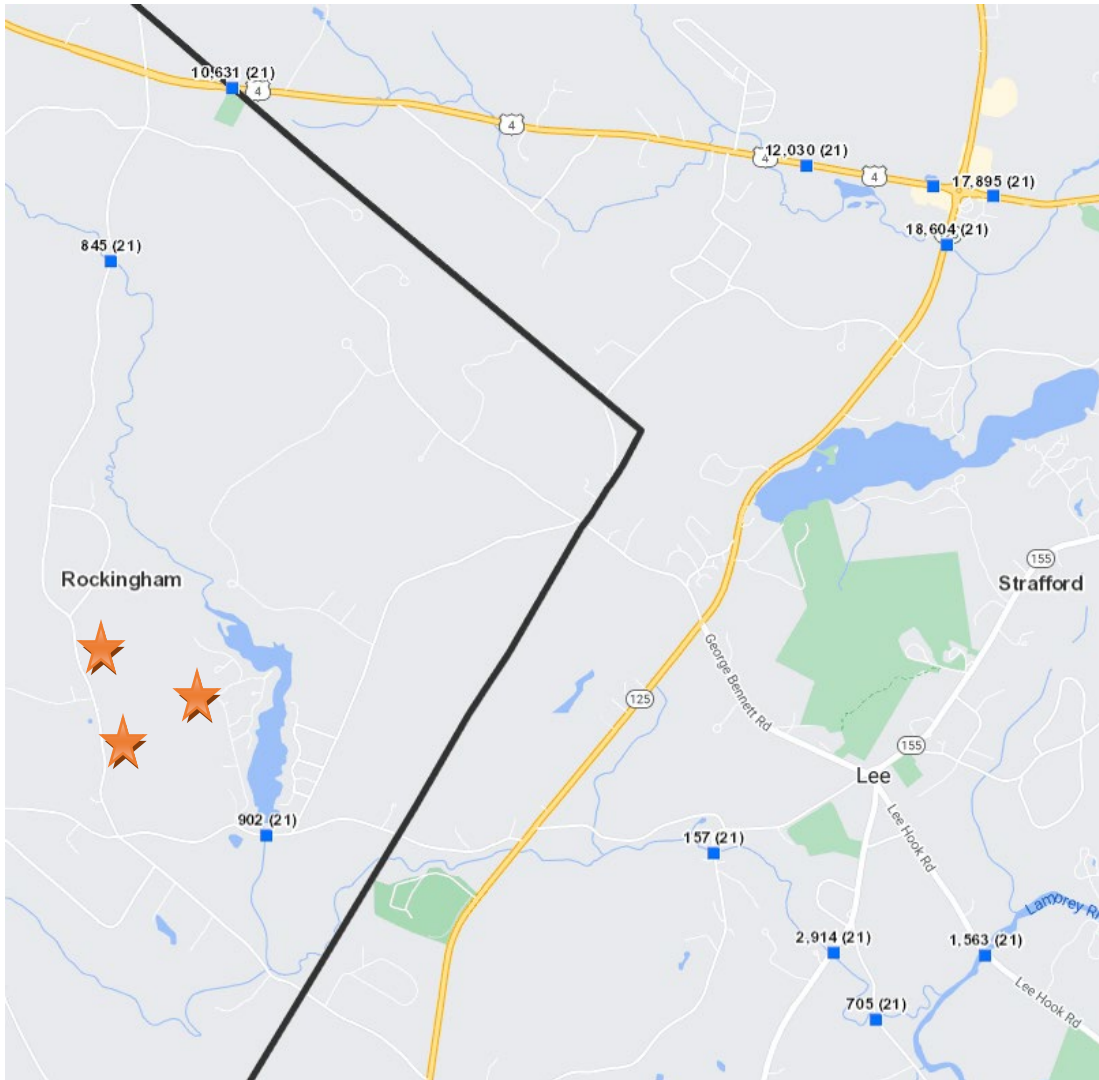


Figure 1: Smoke Street with surrounding roadways (NHDOT)

### Existing Traffic Volumes

Traffic counts of Smoke Street have not been performed by BS&E. From the NHDOT MS2 Transportation Data Management System (NHDOT), the Average Annual Daily Traffic (AADT) of Smoke Street was found to be 845 vehicles. The 2021 observed AADT is similar to prior years of 2017 (830), 2018 (847), and 2019 (857). It is assumed that the reduction in AADT in 2020 (762), is due to the COVID-19 pandemic.



## Existing Vehicle Speeds

As previously mentioned, the posted speed limit of Smoke Street is 25 MPH. For the purposes of the safety analysis, the 85<sup>th</sup> percentile of speed is required. This section of Smoke Street was observed by BS&E to analyze the pass by traffic, reviewing pass-by speed. Excessive speeds were observed on occasion, and most operators obeyed the posted speed limits within a deviation of 10 MPH. The 85<sup>th</sup> percentile derived by observation was estimated to be 35 MPH.

## Proposed Trip Generation

The 11<sup>th</sup> Edition ITE Trip Generation Manual was used to determine the proposed volume of trips, as well as the percentage of entrance-to-exit traffic experienced at the AM & PM peak hours between 7 and 9 AM and 4 and 6 PM, and the weekday total volume. Single Family Detached Housing (210) was used in deriving the proposed trip generation for the Peekaboo Drive, Frederick Lane, and the shared driveway. Tables 2-3 provide average trip rate, total trips generated, enter to exit ratio, and the enter to exit distribution for Peekaboo Drive, Frederick Lane, and the shared driveway. Table 4 shows the combined proposed trip generation. As the use of the site will be single family residences, the primary vehicle trips generated will be two axel cars and trucks.

### Single Family Detached Housing Trip Generation Peekaboo Drive:

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
# Units	17			# Units	17			# Units	17		
Fitted Curve Eq.	Ln(T)=0.92Ln(X)+2.68			Fitted Curve Eq.	Ln(T)=0.91Ln(X)+0.12			Fitted Curve Eq.	Ln(T)=0.94Ln(X)+0.27		
Total Trips	198			Total Trips	15			Total Trips	19		
% Enter	50	Total Enter	99	% Enter	25	Total Enter	4	% Enter	63	Total Enter	12
% Exit	50	Total Exit	99	% Exit	75	Total Exit	11	% Exit	37	Total Exit	7

**Table 1: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, weekday total**

### Single Family Detached Housing Trip Generation Frederick Lane:

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
# Units	6			# Units	6			# Units	6		
Fitted Curve Eq.	Ln(T)=0.92Ln(X)+2.68			Fitted Curve Eq.	Ln(T)=0.91Ln(X)+0.12			Fitted Curve Eq.	Ln(T)=0.94Ln(X)+0.27		
Total Trips	76			Total Trips	6			Total Trips	7		
% Enter	50	Total Enter	38	% Enter	25	Total Enter	1	% Enter	63	Total Enter	4
% Exit	50	Total Exit	38	% Exit	75	Total Exit	5	% Exit	37	Total Exit	3

**Table 2: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, weekday total**





**Single Family Detached Housing Trip Generation Shared Driveway:**

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
# Units	2			# Units	2			# Units	2		
Fitted Curve Eq.	Ln(T)=0.92Ln(X)+2.68			Fitted Curve Eq.	Ln(T)=0.91Ln(X)+0.12			Fitted Curve Eq.	Ln(T)=0.94Ln(X)+0.27		
Total Trips	28			Total Trips	2			Total Trips	3		
% Enter	50	Total Enter	14	% Enter	25	Total Enter	1	% Enter	63	Total Enter	2
% Exit	50	Total Exit	14	% Exit	75	Total Exit	1	% Exit	37	Total Exit	1

**Table 3: (Single Family Detached) Peak hour of adjacent street traffic weekdays AM, PM, weekday total**

**Total Proposed Trip Generation Total Subdivision**

Time Method	Weekday Total (Page 2) Dwelling Units			Time Method	AM Peak Adj. Street (Page 3) Dwelling Units			Time Method	PM Peak Adj. Street (Page 4) Dwelling Units		
Total Trips	302			Total Trips	23			Total Trips	29		
% Enter	50	Total Enter	151	% Enter	25	Total Enter	6	% Enter	63	Total Enter	18
% Exit	50	Total Exit	151	% Exit	75	Total Exit	17	% Exit	37	Total Exit	11

**Table 4: Total Subdivision Trip Generation**

**Turning Analysis**

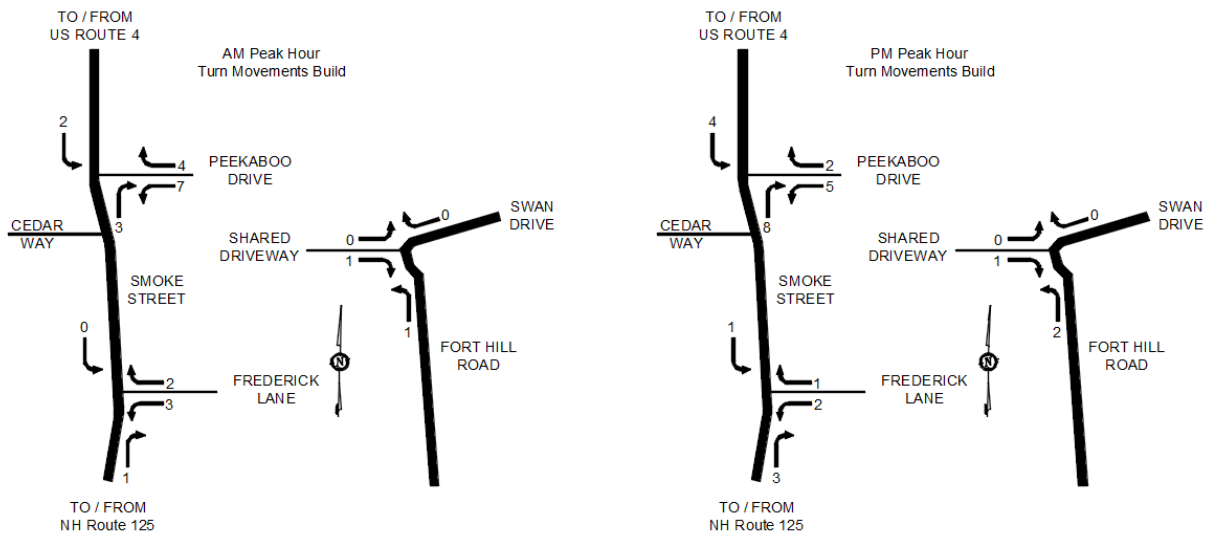
To determine the directional distribution of proposed generated trips, a ratio of the Average Annual Daily Traffic (AADT) is taken between the two receiving principal arterial roadways (NH Route 125 & US Route 4). As previously mentioned in data obtained from the NHDOT, the 2021 NH Route 125 AADT at location ID 62266054 was found to be 18,604. The 2021 US Route 4 AADT at location ID 82351054 was found to be 10,631. Using this ratio of AADT's results in the following percentage.

<b>N.H. Route 125 AADT (2021)</b>	<b>NHDOT Location ID</b>
18,604	62266054
<b>US Route 4 AADT (2021)</b>	<b>NHDOT Location ID</b>
10,631	82351054
<b>Trip Generation % to and From NH Route 125</b>	<b>63.6</b>
<b>Trip Generation % to and From US Route 4</b>	<b>36.4</b>

**Table 5: NH Route 125 & US Route 4 AADT Values**

The ratio of AADTs results in a trip distribution of 63.6% of generated trips (to the south or from the north) for NH Route 125 and 36.4% of generated trips (to the north or from the south) from US Route 4. Figure 2 shows the build turning movements to and from Peekaboo Drive, Frederick Lane, and a shared driveway off Fort Hill Road during AM and PM peak hours. This data is used to provide a visualization of trips project to occur to and from the project site.





**Figure 2: Weekday AM & PM build projected traffic volumes and movements**

Tables 6-11 show in a tabular format the total trips that are calculated to occur to and from Peekaboo Drive, Frederick Lane, and the shared driveway are shown at AM and PM weekday peak hours in a build situation. These trips are further broken down into enter and exit to and from the site as well as percentage of left and right turns. Tables 12 and 13 show total directional breakdown of trips generated by the subdivision.

Time	AM Peak Hour Peakaboo Drive	# Trips	Turn Type	% Distribution
<b>Total Trips</b>	<b>15</b>			
Trips Enter from Smoke Street Northbound		2.5	Right	17.0
Trips Enter from Smoke Street Southbound		1.5	Left	9.7
Trips Exit to Smoke Street Northbound		4.0	Right	26.7
Trips Exit to Smoke Street Southbound		7.0	Left	46.7

**Table 6: Summary of AM build turning movements to and from Peekaboo Drive**

Time	PM Peak Hour Peakaboo Drive	# Trips	Turn Type	% Distribution
<b>Total Trips</b>	<b>19</b>			
Trips Enter from Smoke Street Northbound		7.6	Right	40.2
Trips Enter from Smoke Street Southbound		4.4	Left	23.0
Trips Exit to Smoke Street Northbound		2.5	Right	13.4
Trips Exit to Smoke Street Southbound		4.5	Left	23.4

**Table 7: Summary of PM build turning movements to and from Peekaboo Drive**



Time	AM Peak Hour Frederick Lane	# Trips	Turn Type	% Distribution
Total Trips	6			
Trips Enter from Smoke Street Northbound		0.6	Right	10.6
Trips Enter from Smoke Street Southbound		0.4	Left	6.1
Trips Exit to Smoke Street Northbound		1.8	Right	30.3
Trips Exit to Smoke Street Southbound		3.2	Left	53.0

**Table 8: Summary of AM build turning movements to and from Frederick Lane**

Time	PM Peak Hour Frederick Lane	# Trips	Turn Type	% Distribution
Total Trips	7			
Trips Enter from Smoke Street Northbound		2.5	Right	36.4
Trips Enter from Smoke Street Southbound		1.5	Left	20.8
Trips Exit to Smoke Street Northbound		1.1	Right	15.6
Trips Exit to Smoke Street Southbound		1.9	Left	27.3

**Table 9: Summary of PM build turning movements to and from Frederick Lane**

Time	AM Peak Hour Shared DW Fort Hill RD	# Trips	Turn Type	% Distribution
Total Trips	2			
Trips Enter from Fort Hill Road Northbound		1.0	Left	50.0
Trips Enter from Fort Hill Road Southbound		0.0	Right	0.0
Trips Exit to Fort Hill Road Northbound		0.0	Left	0.0
Trips Exit to Fort Hill Road Southbound		1.0	Right	50.0

**Table 10: Summary of AM build turning movements to and from shared driveway**

Time	PM Peak Hour Shared DW Fort Hill RD	# Trips	Turn Type	% Distribution
Total Trips	3			
Trips Enter from Fort Hill Road Northbound		2.0	Left	66.7
Trips Enter from Fort Hill Road Southbound		0.0	Right	0.0
Trips Exit to Fort Hill Road Northbound		0.0	Left	0.0
Trips Exit to Fort Hill Road Southbound		1.0	Right	33.3

**Table 11: Summary of PM build turning movements to and from shared driveway**



Time	AM Peak Hour Total Project Generation	# Trips
Total Trips	23	
	Trips Enter from NH Route 125	3.8
	Trips Enter from US Route 4	2.2
	Trips Exit to NH Route 125	10.8
	Trips Exit to US Route 4	6.2

**Table 12: Summary of total AM build turning movements**

Time	PM Peak Hour Total Project Generation	# Trips
Total Trips	29	
	Trips Enter from NH Route 125	11.5
	Trips Enter from US Route 4	6.5
	Trips Exit to NH Route 125	4.0
	Trips Exit to US Route 4	7.0

**Table 13: Summary of total PM build turning movements**

### *Sight Distance and Safety Analysis*

Sight distance on Peekaboo Drive and Frederick Lane to the north and south, as well as roadway alignment are the two determining factors of safety. For a conservative measurement of sight distance, an 85<sup>th</sup> percentile speed of 35 MPH will be used. For Peekaboo Drive, sight distance to the north un-obstructed for well over 250 feet (measured), while sight distance to the south is un-obstructed for well over 250 feet (measured). Using Exhibit 3-1 (Stopping Sight Distance) (Figure 9) in the Geometric Design Manual and the Nottingham Subdivision Regulations, and a 35 mph 85<sup>th</sup> percentile speed, requires a stopping sight distance of 250 feet for northbound and southbound traffic. Vegetation along Smoke Street in the vicinity of Peekaboo will need to be cleared to allow for adequate sight distance.

For Frederick Lane, sight distance to the north un-obstructed for well over 250 feet (measured), while sight distance to the south is un-obstructed for well over 250 feet (measured). Using Exhibit 3-1 (Stopping Sight Distance) (Figure 9) in the Geometric Design Manual, and a 35 mph 85<sup>th</sup> percentile speed, requires a stopping sight distance of 250 feet for northbound and southbound traffic. There are no improvements required to obtain this sight distance.

With respect to general safety of Smoke Street in relation to the peak hour trip generation and AADT, it is our assessment that the cross section of Smoke Street is



adequate for the proposed increase in vehicle trips during the weekday AM/PM peak hour and all other time frames.

\*AASHTO Geometric Design of Highways and Streets 7<sup>th</sup> Edition (2018)



**BERRY SURVEYING & ENGINEERING**

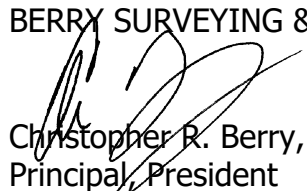
335 Second Crown Pt. Rd., Barrington, NH 03825  
(603) 332-2863 / (603) 335-4623 FAX  
[www.BerrySurveying.Com](http://www.BerrySurveying.Com)


## ***Conclusions and Recommendations***

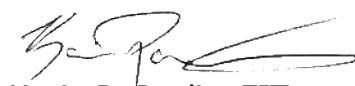
- 1.) A total of 15 vehicle trips (4 enter/11 exit) are predicted to occur at the AM peak hour and 19 vehicle trips (12 enter/7 exit) at the PM peak hour for Peekaboo Drive.
- 2.) A total of 6 vehicle trips (1 enter/5 exit) are predicted to occur at the AM peak hour and 7 vehicle trips (4 enter/3 exit) at the PM peak hour for Frederick Lane.
- 3.) A total of 2 vehicle trips (1 enter/1 exit) are predicted to occur at the AM peak hour and 3 vehicle trips (2 enter/1 exit) at the PM peak hour for the shared driveway off Fort Hill Road.
- 4.) A total of 23 vehicle trips (6 enter/17 exit) are predicted to occur at the AM peak hour and 29 vehicle trips (18 enter/11 exit) at the PM peak hour for the entire subdivision.
- 5.) It is recommended that the cross section of Smoke Street will be able to handle the minimal projected increase in vehicle trips and peak hour and all other hours.

Respectfully Submitted,

BERRY SURVEYING & ENGINEERING

  
Christopher R. Berry, SIT  
Principal, President

  
Kenneth A. Berry, PE, LLS,  
CPSWQ, CPESC, CESSWI  
Principal, VP-Technical Operations

  
Kevin R. Poulin, EIT  
Project Engineer



**BERRY SURVEYING & ENGINEERING**  
335 Second Crown Pt. Rd., Barrington, NH 03825  
(603) 332-2863 / (603) 335-4623 FAX  
[www.BerrySurveying.Com](http://www.BerrySurveying.Com)

# Appendix A

## Traffic Data




[Home](#)   [Login](#)   [+ Locate](#)   [+ Locate All](#)   [Email This](#)

[Auto-Locate OFF](#)

[List View](#)   [All DIRs](#)

Record		1 of 1		Goto Record		go	
Location ID	82351059	MPO ID					
Type	SPOT	HPMS ID					
On NHS	No	On HPMS	No				
LRS ID	L3510068__	LRS Loc Pt.					
SF Group	04	Route Type					
AF Group	04	Route					
GF Group	E	Active	Yes				
Class Dist Grp	Default	Category	3				
Seas Clss Grp	Default						
WIM Group	Default						
QC Group	Default						
Funct'l Class	Local	Milepost					
Located On	Smoke St						
Loc On Alias	SMOKE ST OVER LITTLE RIVER						
<a href="#">More Detail</a>							
STATION DATA							

Directions: **2-WAY** ?

AADT ?								
	Year	AADT	DHV-30	K %	D %	PA	BC	Src
	2021	845 <sup>3</sup>		11		767 (91%)	78 (9%)	Grown from 2020
	2020	762	87	11		692 (91%)	70 (9%)	
	2019	857 <sup>3</sup>		13		785 (92%)	72 (8%)	Grown from 2018
	2018	847 <sup>3</sup>		13		780 (92%)	67 (8%)	Grown from 2017
	2017	830	107	13		770 (93%)	60 (7%)	

**Figure 3: Smoke Street Historical AADT**





[Home](#)
[Login](#)
[+ Locate](#)
[+ Locate All](#)
[Email This](#)

[Auto-Locate OFF](#)

[List View](#)
[All DIRs](#)

Record		1		of 1		Goto Record		go	
Location ID	62255054	MPO ID							
Type	SPOT	HPMS ID							
On NHS	Yes	On HPMS	Yes						
LRS ID	S0000125__	LRS Loc Pt.							
SF Group	04	Route Type							
AF Group	04	Route	NH 125						
GF Group	E	Active	Yes						
Class Dist Grp	Default	Category	2						
Seas Class Grp	Default								
WIM Group	Default								
QC Group	Default								
Funct'l Class	Other Principal Arterial	Milepost							
Located On	Calef Hwy								
Loc On Alias	NH 125 (CALEF HWY) SOUTH OF US 4 TRAFFIC CIRCLE (SB-NB) (61255012-61255013)								
More Detail ▶									
STATION DATA									

Directions: **2-WAY** **NB** **SB** ?

AADT ?								
	Year	AADT	DHV-30	K %	D %	PA	BC	Src
	2021	18,604	1,723	9	51	16,912 (91%)	1,692 (9%)	
	2020	17,315 <sup>3</sup>		10	54	15,756 (91%)	1,559 (9%)	Grown from 2019
	2019	20,515 <sup>3</sup>		10	54	18,792 (92%)	1,723 (8%)	Grown from 2018
	2018	20,272	2,031	10	54	18,690 (92%)	1,582 (8%)	
	2017	19,768 <sup>3</sup>				18,345 (93%)	1,423 (7%)	Grown from 2016

**Figure 4: NH Route 125 Historical AADT**







Transportation Data Management System

[Home](#)   [Login](#)   [+ Locate](#)   [+ Locate All](#)   [Email This](#)  
[Auto-Locate OFF](#)

[List View](#)   [All DIRs](#)

Record 1 of 1 Goto Record <input type="text"/> go			
Location ID	82351054	MPO ID	
Type	SPOT	HPMS ID	
On NHS	Yes	On HPMS	No
LRS ID	U0000004__	LRS Loc Pt.	
SF Group	02	Route Type	
AF Group	02	Route	US 4
GF Group	E	Active	Yes
Class Dist Grp	Default	Category	3
Seas Class Grp	Default		
WIM Group	Default		
QC Group	Default		
Funct'l Class	Other Principal Arterial	Milepost	
Located On	Old Turnpike Rd		
Loc On Alias	US 4 (OLD TURNPIKE RD) AT BARRINGTON TL		
More Detail ▶			
STATION DATA			

Directions: **2-WAY**   **EB**   **WB** ?

AADT ?								
	Year	AADT	DHV-30	K %	D %	PA	BC	Src
	2021	10,631 <sup>3</sup>		11	61	9,664 (91%)	967 (9%)	Grown from 2020
	2020	9,586	1,019	11	61	8,723 (91%)	863 (9%)	
	2019	11,689 <sup>3</sup>		10	64	10,708 (92%)	981 (8%)	Grown from 2018
	2018	11,550 <sup>3</sup>		10	64	10,650 (92%)	900 (8%)	Grown from 2017
	2017	11,324	1,166	10	64	10,509 (93%)	815 (7%)	

**Figure 5: US Route 4 Historical AADT**



## Appendix B

### Trip Generation Derivation

#### Single-Family Detached Housing (210)

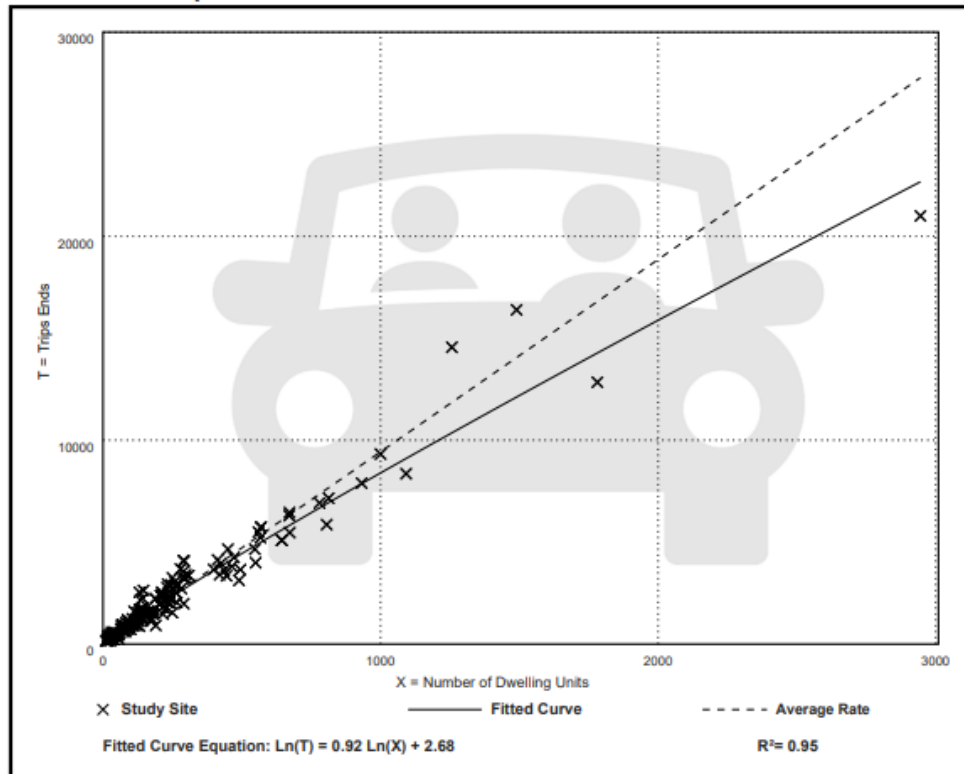
Vehicle Trip Ends vs: Dwelling Units  
 On a: Weekday

Setting/Location: General Urban/Suburban  
 Number of Studies: 174  
 Avg. Num. of Dwelling Units: 246  
 Directional Distribution: 50% entering, 50% exiting

#### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

#### Data Plot and Equation



General Urban/Suburban and Rural (Land Uses 000-399) 219

Figure 6: ITE Trip Generation, 11<sup>th</sup> Edition

**BERRY SURVEYING & ENGINEERING**

335 Second Crown Pt. Rd., Barrington, NH 03825

(603) 332-2863 / (603) 335-4623 FAX

www.BerrySurveying.Com



## Single-Family Detached Housing (210)

### Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 192

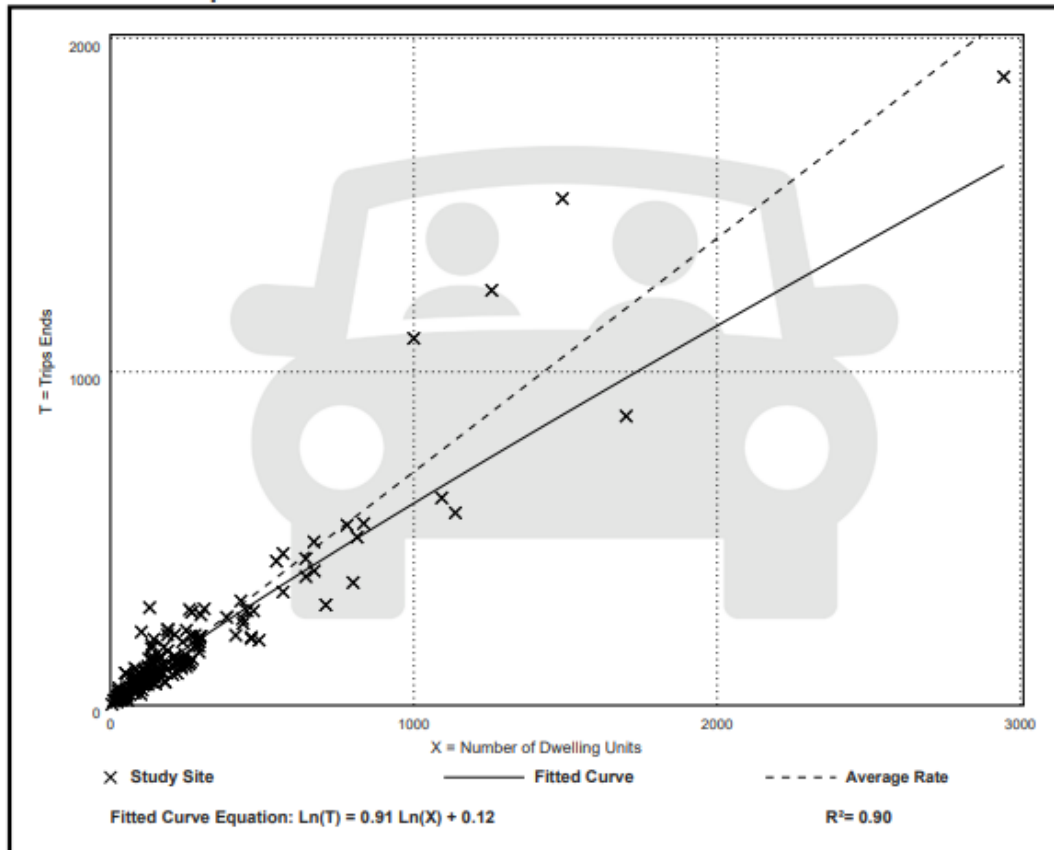
Avg. Num. of Dwelling Units: 226

Directional Distribution: 26% entering, 74% exiting

### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

### Data Plot and Equation



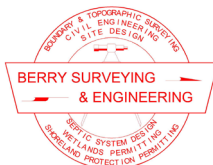
**Figure 7: ITE Trip Generation, 11<sup>th</sup> Edition**

**BERRY SURVEYING & ENGINEERING**

335 Second Crown Pt. Rd., Barrington, NH 03825

(603) 332-2863 / (603) 335-4623 FAX

www.BerrySurveying.Com



## Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 208

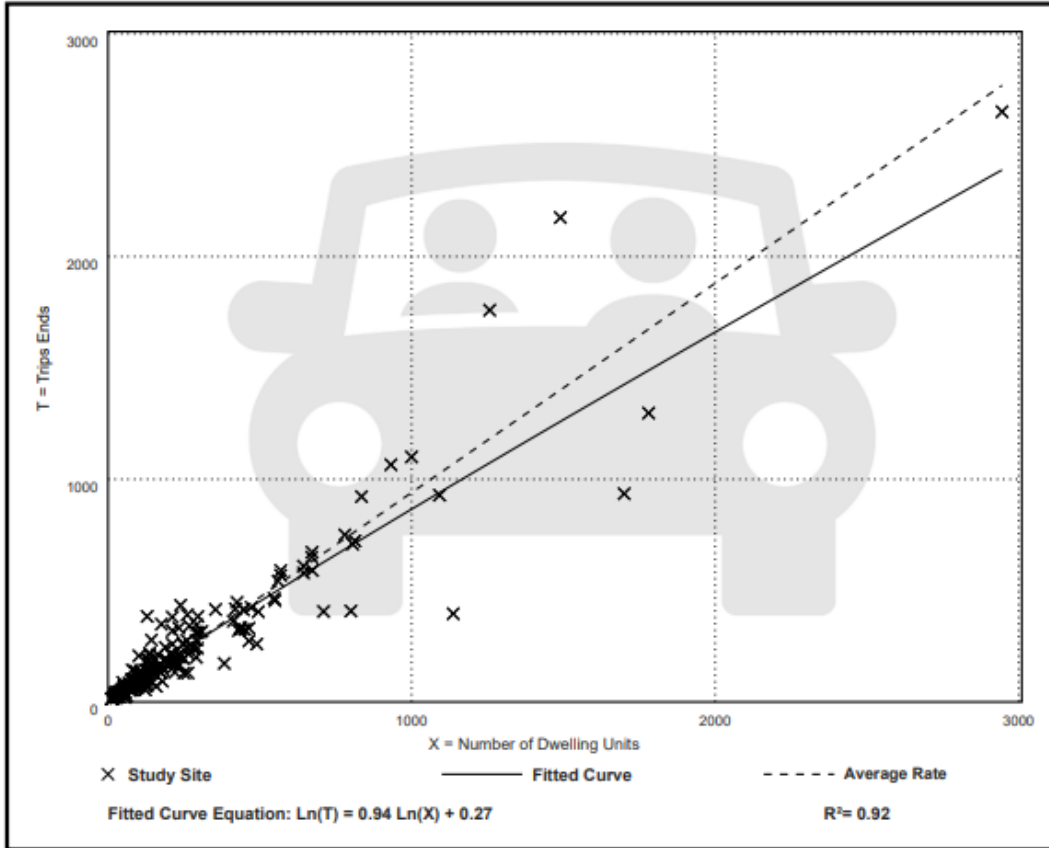
Avg. Num. of Dwelling Units: 248

Directional Distribution: 63% entering, 37% exiting

### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

### Data Plot and Equation



General Urban/Suburban and Rural (Land Uses 000-399) **221**

**Figure 8: ITE Trip Generation, 11<sup>th</sup> Edition**



**BERRY SURVEYING & ENGINEERING**

335 Second Crown Pt. Rd., Barrington, NH 03825

(603) 332-2863 / (603) 335-4623 FAX

www.BerrySurveying.Com

## Appendix C

### Miscellaneous

Table 3-1. Stopping Sight Distance on Level Roadways

U.S. Customary					Metric				
Design Speed (mph)	Brake Reaction Distance (ft)	Braking Distance on Level (ft)	Stopping Sight Distance		Design Speed (km/h)	Brake Reaction Distance (m)	Braking Distance on Level (m)	Stopping Sight Distance	
			Calculated (ft)	Design (ft)				Calculated (m)	Design (m)
15	55.1	21.6	76.7	80	20	13.9	4.6	18.5	20
20	73.5	38.4	111.9	115	30	20.9	10.3	31.2	35
25	91.9	60.0	151.9	155	40	27.8	18.4	46.2	50
30	110.3	86.4	196.7	200	50	34.8	28.7	63.5	65
35	128.6	117.6	246.2	250	60	41.7	41.3	83.0	85
40	147.0	153.6	300.6	305	70	48.7	56.2	104.9	105
45	165.4	194.4	359.8	360	80	55.6	73.4	129.0	130
50	183.8	240.0	423.8	425	90	62.6	92.9	155.5	160
55	202.1	290.3	492.4	495	100	69.5	114.7	184.2	185
60	220.5	345.5	566.0	570	110	76.5	138.8	215.3	220
65	238.9	405.5	644.4	645	120	83.4	165.2	248.6	250
70	257.3	470.3	727.6	730	130	90.4	193.8	284.2	285
75	275.6	539.9	815.5	820	140	97.3	224.8	322.1	325
80	294.0	614.3	908.3	910					
85	313.5	693.5	1007.0	1010					

Note: Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 11.2 ft/s<sup>2</sup> [3.4 m/s<sup>2</sup>] used to determine calculated sight distance.

**Figure 9: Derivation of stopping sight distance requirements**

