



Memorandum

To: Peter Garceau
Cross Consulting Engineer, P.C.

Date: July 19, 2021

Project #: 58587.00

From: Jennifer Conley, PE, PTOE
Elizabeth Chambers

Re: Hillview Heights Development

VHB has reviewed the traffic impacts expected as a result of the proposed development of a nine-lot subdivision on Hillview Road in Richmond, Vermont. Currently, the site is 85.5 acres and hosts a single-family dwelling. Proposed lots 1 through 8 range between two to 5.5 acres and will accommodate single-family dwellings. Proposed lot 9 would remain open space.

This Traffic Impact Memorandum includes the following elements:

- A description of the existing roadway network in the vicinity of the site;
- A description of the proposed development program;
- A trip generation estimate for the proposed development program;
- An evaluation of traffic operations during weekday morning and evening peak hours for 2021 at the Hillview and Huntington Road intersection; and
- Conclusions and recommendations to support the project.

EXISTING CONDITIONS

The proposed project site is located on Hillview Road in Richmond, Vermont approximately 2,000 feet to the west of its southern terminus at Huntington Road. Access to the residential units will be via Hillview Road, and then onto Huntington Road.

Roadway and Intersection Characteristics

Huntington Road is classified as a major collector and carries approximately 2,400 vehicles per day between the intersection of Huntington Road and Hinesburg Road in Richmond and Bridge Street into Huntington. Huntington Road has a posted speed limit of 45 mph in either direction. Hillview Road is classified as a local road and the posted speed limit for Hillview Road is 35 mph in either direction.

The intersection of Hillview Road at Huntington Road is an unsignalized intersection with Hillview Road operating under Stop control. Each approach to the intersection consists of a single lane. Neither road has any bicycle or pedestrian facilities.

Turning Movement Counts

The available traffic count data was conducted by a traffic count on May 2021 at the southern intersection of Hillview Road and Huntington Road. The evening traffic was counted between 4 PM and 6 PM and the peak occurred from 5 PM to 6 PM on Thursday, May 7th. The morning traffic was counted between 7 AM and 9 AM on Friday, May 8th with the peak occurring from 7 AM to 8 AM. The resulting traffic volumes at the intersection of Hillview Road and Huntington Road are provided in **Table 1** below.

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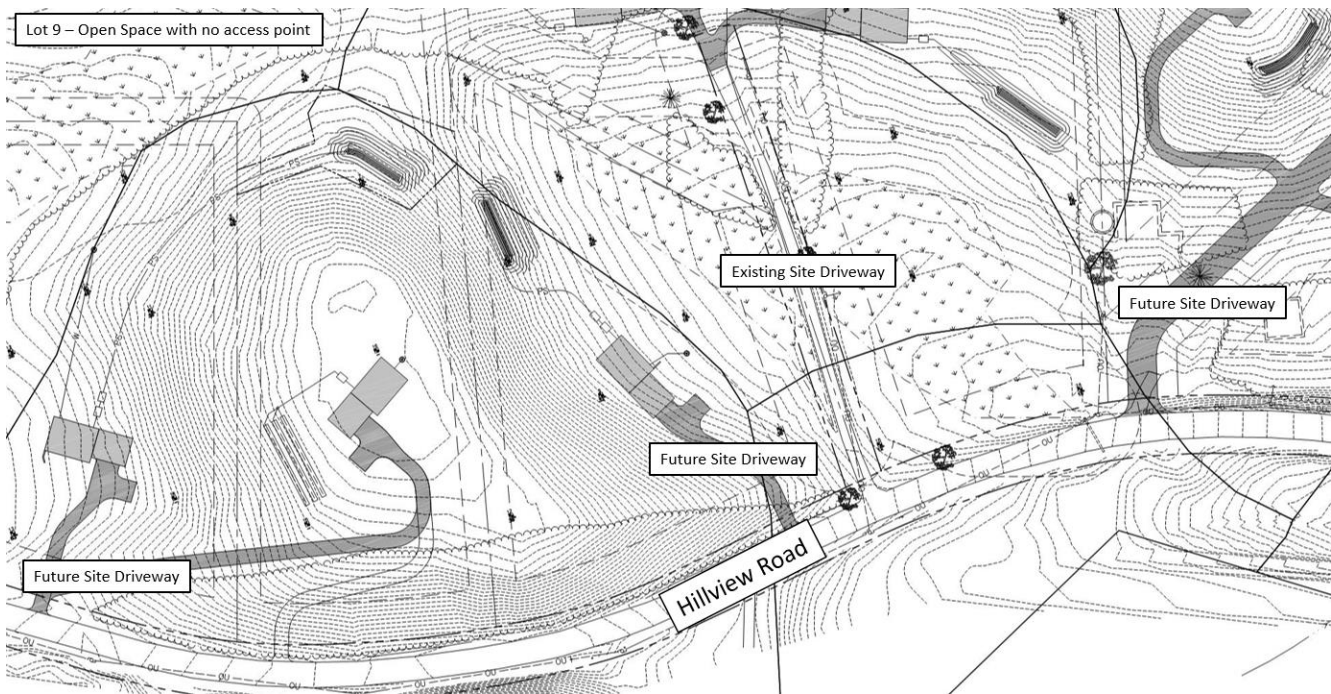
Table 1: Traffic Volumes at Huntington and Hillview

	NBT	NBL	SBT	SBR	EBL	EBR	TOTAL
AM PEAK HOUR	176	1	39	1	3	6	226
PM PEAK HOUR	96	3	147	1	4	8	259

PROPOSED DEVELOPMENT

The proposed development program includes the division of one lot into 9 lots: 8 residential lots, which range in size from two to 5.5 acres and a ninth lot that will remain open space. Access and egress to the future lots is provided via three proposed driveways onto Hillview Road, as seen in **Figure 1**.

Figure 1: Proposed Driveways onto Hillview Road



Stopping Sight Distance

Stopping sight distance is the distance along a roadway that a driveway can see and react to an object in the roadway. The American Association of State Highway and Transportation Officials (AASHTO) defines stopping sight distance as the sum of the reaction distance and the braking distance. For a posted speed limit of 35 mph the stopping sight distance required per AASHTO is 250 feet. VHB measured stopping sight distance along Hillview Road approaching the proposed site driveway. A vehicle traveling along Hillview Road approaching each of the proposed site driveways from the north or south could see a vehicle at each of the proposed site driveways from over 250 feet away. The western most driveway’s westbound direction and middle driveway’s eastbound direction had the most limitations at just under a stopping sight distance under 300 feet which could be increased by removing some vegetation along the road. The stopping sight distance is met in either direction for each driveway.

Trip Generation

Trip generation estimates for the proposed development were calculated based primarily on rates published by the Institute of Transportation Engineers (ITE) Trip Generation Manual for the weekday AM and PM peak hours and are summarized in **Table 2** below. ITE land use code (LUC) 210 (Single Family Detached Housing) was used to estimate the trips generated by the 8 new single-family detached houses. Even if that volume all were oriented to and from the east to access Huntington Road, it would only increase the volume by less than 10 vehicles during either of the peak hour.

Table 2: Trip Generation Summary

SINGLE FAMILY DETACHED HOUSE (LUC 210)	
WEEKDAY AM PEAK HOUR	Enter 1
	Exit 5
	Total 6
WEEKDAY PM PEAK HOUR	Enter 5
	Exit 3
	Total 8

Anticipated Traffic Increase

Even with all traffic oriented to and from the east to access Huntington Road, the addition of project traffic would result in a maximum of 24 vehicle trips on Hillview Road during either peak hour. That level of traffic on Hillview Road corresponds to one vehicle every 2.5 minutes. It would remain unlikely that vehicles would encounter each other during the stretch between the proposed driveways and Huntington Road. This level of volume corresponds to excellent operation and minimal delays. At the intersection of Hillview Road and Huntington Road, this corresponds to only a three percent increase in traffic.

CONCLUSIONS

The proposed development program includes subdivision of one lot into eight residential lots and one lot remaining as open space and egress to the project sites are provided via a proposed driveway onto Hillview Road, which then connects to Huntington Road.

The proposed development program is anticipated to generate 6 new trips during the AM peak hour and 8 new trips during the PM peak hour. With these trips added to Hillview Road, the total traffic on that roadway will be a maximum of only 24 vehicles trips during either peak hour, or one vehicle per each 2.5 minutes traveling on Hillview Road.

In conclusion, based on the results of this traffic analysis, the proposed Hillview Heights Development project is not anticipated to generate unreasonable congestion or unsafe conditions on the adjacent roadway network.

Traffic Count data - Huntington Road and Hillview Road

May 7th and 8th, 2021

AM		NB L	NBT	NBPED	EBL	EBR	EBPED2	SBT2	SBR2	SBPED2	TOTAL	LDV+HDV	hourly
7:00 AM	LIGHT	0	34	0	0	1	0	5	0	0	40		
	HEAVY	0	1	0	0	0	0	0	1	0	2	42	
7:15 AM	LIGHT	0	50	0	0	2	0	7	0	1	60		
	HEAVY	0	0	0	1	0	0	0	0	0	1	61	
7:30 AM	LIGHT	0	45	0	0	1	0	12	0	0	58		
	HEAVY	0	3	0	0	0	0	0	0	0	3	61	
7:45 AM	LIGHT	1	43	0	2	2	0	14	0	0	62		
	HEAVY	0	0	0	0	0	0	1	0	0	1	63	227
8:00 AM	LIGHT	0	27	0	0	0	0	8	0	0	35		
	HEAVY	0	0	0	0	0	0	0	0	0	0	35	220
8:15 AM	LIGHT	0	20	0	1	1	1	12	2	0	37		
	HEAVY	0	0	0	0	0	0	0	0	0	0	37	196
8:30 AM	LIGHT	2	29	0	0	3	0	11	0	0	45		
	HEAVY	0	0	0	0	0	0	1	0	0	1	46	181
8:45 AM	LIGHT	2	15	0	0	2	0	23	1	0	43		
	HEAVY	0	0	0	0	0	0	0	0	0	0	43	161
PM													
4:00 PM	LIGHT	0	24	0	1	3	0	34	0	0	62	1 bike NBR	
	HEAVY	0	2	0	0	0	0	1	0	0	3	65	
4:15 PM	LIGHT	0	24	2	0	1	0	41	0	0	68	1 bike WBL	
	HEAVY	0	1	0	1	0	0	0	0	0	2	70	
4:30 PM	LIGHT	0	29	0	0	1	0	38	0	0	68		
	HEAVY	0	0	0	0	0	0	0	0	0	0	68	
4:45 PM	LIGHT	2	16	0	1	0	0	28	0	0	47	2 bikes NBR	
	HEAVY	0	0	0	0	0	0	0	0	0	0	47	250
5:00 PM	LIGHT	1	19	0	2	1	0	40	0	0	63		
	HEAVY	0	2	0	0	0	0	0	0	0	2	65	250
5:15 PM	LIGHT	0	21	0	1	3	0	42	1	0	68	1 bike EBT	
	HEAVY	0	0	0	0	0	0	0	0	0	0	68	248
5:30 PM	LIGHT	0	24	0	1	3	0	35	0	0	63	1 bike NBR	
	HEAVY	0	0	0	0	0	0	0	0	0	0	63	243
5:45 PM	LIGHT	2	30	0	0	1	0	30	0	0	63		
	HEAVY	0	0	0	0	0	0	0	0	0	0	63	259

peak hours

AM	NB L	NBT	NBPED	EBL	EBR	EBPED2	SBT2	SBR2	SBPED2	TOTAL
7:00 to 8:00 AM	1	176	0	3	6	0	39	1	1	227
5:00 to 6:00 PM	3	96	0	4	8	0	147	1	0	259