

MEMO

TO: Benjamin Avery, Black Rock Construction, LLC
FROM: Mark Smith, PE
DATE: April 22, 2019
SUBJECT: Haystack Crossing Traffic Impact Study – Update

RSG recently completed a traffic analysis of the proposed Haystack Crossing development – Phase 1, dated 8-20-18.

This memo provides additional information to reflect recent changes to the development program, and addresses comments received from the Town staff and VTrans.

1.0 NEW DEVELOPMENT PROGRAM

The 8-20-18 traffic analysis assumed Phase 1 of the development would create 131 trips in the AM Peak Hour and 153 trips in the PM Peak Hour (plus 16 pass-by trips). As a conservative measure, no accounting for Transportation Demand Management or Internal Trips was made in that analysis.

Transportation Demand Management (TDM) measures include the provision of features that encourage the use of alternate modes of transportation, thus reducing the expected trip generation. These measures include building connections to the network of bicycle and pedestrian facilities or making transit available to the residents/occupants of the development. A typical reduction in trip generation ranges from 4-20%, depending on the degree of accommodations. Guidance from VTrans¹ suggest that the modest measures proposed would be eligible for the minimum 4% reduction. These measures include:

- Designing the site to support walking and transit access
- Sidewalk and shared use path improvements

Internal Trips are trips made between uses in a mixed-use development such as Haystack – Phase 1. For instance, an office employee may choose to live in nearby housing, or a resident patronizes the restaurant. As part of the ITE Trip Generation Manual, a tool is provided to estimate internal trips² (referred to as Internal Capture).

The latest iteration of the development program, and the expected trip generation, including reductions for TDM and Internal Capture are provided in Table 1. These results show a modest

¹ VT Agency of Transportation, TDM Guidance, March 2016

² Based on NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed Use Developments*

reduction in expected trips compared to the 8-20-18 Traffic Impact Analysis. The use of access points and trip distribution onto the adjacent public road network are also expected to be similar to the assumptions in the previous analysis.

FIGURE 1. UPDATED DEVELOPMENT PROGRAM AND ESTIMATED TRIP GENERATION³

	LUC	units	AM Peak Hour		PM Peak Hour	
			enter	exit	enter	exit
RESIDENTIAL						
Single family detached housing	210	47	9	29	29	17
Multi-family (apt) - low-rise	220	54	11	35	36	21
Townhomes (attached)	220	42	<i><= included above =></i>			
Senior housing (attached)	252	50	3	7	8	6
		193	23	71	73	44
COMMERICAL						
light industrial	110	3,274	3	1	0	4
General office	710	8,363	8	2	2	8
Retail	814	5,018	3	2	9	10
Restaurant	932	3,345	18	15	12	7
		16,726	32	20	23	29
		subtotal	55	90	96	73
		less TDM reductions	2	4	4	3
		less Internal Capture	8	8	15	15
		subtotal	45	78	77	55
		Total	124		132	
					plus 14 passby	

³ LUC-ITE Land Use Code



2.0 COMMENTS FROM TOWN STAFF

RSG, Blackrock and CEA met with VTrans staff⁴ in October of 2018 to review the Draft Traffic Impact Study, and then met separately with Town of Hinesburg planning staff in November of 2018. Additional information requested and questions raised include:

1. Address/describe the project's accommodations for bicyclists and pedestrians:

At a minimum, sidewalks are proposed throughout the project adjacent to all roadways. The final cross-section of the roadways are still under development, but the intent is to safely accommodate all modes of transportation. A shared use path is also proposed along VT116 (west side) from the Riggs Road intersection connecting to the existing sidewalk network near Kinney Drug. Please see detailed site plan by TJBoyle Associates.

2. Was the entrance to Lantman's store (just south of Charlotte Road) included in the analysis?

This intersection was part of the microsimulation traffic model used to determine network performance in all scenarios.

3. What are the peak traffic times?

The peak hours of analysis (determined by the actual traffic counts) are 7:30-8:30 AM and 4:45-5:45 PM⁵.

4. Describe the methods used to distribute traffic onto the public road network:

A gravity model was used to determine the origins and destinations of new trips based on existing traffic patterns. New traffic was assumed to gravitate to the following nodes surrounding the project area:

- Charlotte Road
- VT116 (to north)
- CVU Road
- Commerce St
- Charlotte Road (west)
- Silver Street
- VT116 (to south)

New residential traffic followed the proportion of existing traffic flowing in/out of each node for the given time period (AM/PM). Commercial trips (i.e. to/from places of employment) are assumed to flow in the opposite direction of existing traffic.

5. Are any turning lanes warranted at the Shelburne Falls / Haystack Road access?

No additional lanes are warranted in Phase 1 of the development. A westbound left turn lane is anticipated in future phases.

⁴ Utilities / Permitting Services and District 5.

⁵ Some minor variations occurred at some intersection. The actual peak volume at each intersection was used in the analysis.



6. Discuss queues eastbound on Shelburne Falls at VT116:
 - Available queuing distance is ~520 ft.
 - AM peak build maximum queue (95 percentile) is 300 ft. (assuming existing road configuration and signal operation, see TIS Table 7).
 - PM build maximum queue is 432 ft. (existing road configuration and signal operation, see TIS Table 8).
 - Queues are expected to be substantially reduced with the improvements planned by VTrans at this intersection (AM 99 ft., PM 196 ft., see Table 9).

7. Discuss the suitability of the development access points in more detail:

The traffic analysis shows that much of the traffic in the peak hours gravitates to and from the north and northwest. The access at Shelburne Falls Road serves this traffic well. The connection at Riggs Road / VT116 is developed as much as practicable at this time (i.e. right turns only), given safety concerns associated with the high crash location.

If/when the development builds future phases it is expected that more traffic will travel to and from the village area, and the intersection of Riggs Road and VT116 may support full access (i.e. allow all turning movements).

Additional access to the south (connecting to Hinesburg Center Phase 2) has been anticipated and accommodated to the southern property line at Patrick Brook.

END OF MEMO

