Stantec Consulting Services Inc.
55 Green Mountain Drive
South Burlington, VT 05403

May 29, 2020
File: 179450514

Attention: Alex Weinhagen, Director of Planning & Zoning
Town of Hinesburg
10632 Route 116,
Hinesburg, VT 05461

Dear Alex,

Reference: Haystack Crossing

Per your request, we completed a peer review of updated traffic investigations prepared by RSG Inc. for the above referenced project. Stantec first considered documents prepared by RSG including an August 20, 2018 traffic impact study and an April 22, 2019 addendum that described proposed changes to the development program. Our review comments and recommendations were submitted to the town in a letter to you dated April 3, 2020. RSG has since prepared two memoranda addressed to the developer, Black Rock Construction. The first, dated May 18, 2020, responds to Stantec's written comments and the second, dated May 21, 2020 responds to comments from the Hinesburg Development Review Board (DRB). Our comments relative to these two new submittals are provided below.

Project Description

Black Rock Construction proposes to construct Haystack Crossing, a phased, mixed-use development in Hinesburg's village growth area on the west side of Route 116. The latest Phase I program, described in the May 18, 2020 memorandum, includes 176 residential dwelling units of various types and 20,000 square feet of mixed commercial uses. Vehicular access is proposed by way of a southerly extension of Haystack Road into the site. Haystack Road intersects Shelburne Falls Road from the south approximately 500 feet west of VT 116. Access is also proposed by way of a new right-in/right-out only driveway to be constructed at Route 116 opposite Riggs Road. Under Phase II, a connection to the Hinesburg Center Project, south of the subject site, is also contemplated. A land use program for Phase II has not been defined.

Summary

Based on our review of the prior RSG studies, Stantec recommended preparation of a revised study that considers the current Phase I land use program and the Phase II program. The updated study would better inform decision-making regarding the redesign of the Shelburne Falls Road/VT 116 intersection and the configuration of the proposed site driveway intersection with VT 116, an existing high crash location. The May 18, 2020 submittal updates information pertaining to the Phase I program but does not consider the Phase II program. It provides more information regarding crash conditions at the proposed site drive location on VT 116 opposite Riggs Road but does not explore alternative intersection configurations. Also, the study area has been reduced to

no longer consider intersections along VT 116 south of the proposed site driveway. The prior investigations indicated existing operational issues at these intersections that would be exacerbated by the proposed development.

The new analyses provided, limited to the two site driveway intersections and the Shelburne Falls Road/VT 116 intersection, more accurately reflect anticipated project related traffic impacts. The baseline traffic counts for the Shelburne Falls Road/VT 116 intersection have been updated. (Substantially higher volumes are reported for Shelburne Falls Road in the updated study.) The land use program has been updated again and more clearly defined. Base traffic forecasts have been appropriately prepared applying Institute of Transportation Engineers (ITE) trip rates. Also, calculations have been shared showing how the base volumes were adjusted to account for internal trip making (typically associated with mixed-use projects) and pass-by trips (typically associated with retail and restaurant uses). Capacity analysis worksheets have been submitted as requested reporting peak hour operating conditions by lane group for the intersections studied. The updated study concludes that with improvements proposed by VTrans for the Shelburne Falls Road/VT 116 intersection, this intersection will have adequate overall capacity to accommodate traffic from Phase I of the proposed development. The project will use three percent of the intersection's capacity during the AM peak hour and five percent during the PM peak hour. Turning movements from the two site driveways will be at Level of Service B or better (on a scale of A to F) during peak hours. The study also indicates that the state will assess an estimated impact fee of $82,000 related to the Shelburne Falls Road/VT 116 intersection improvements.

Recommendations

Relative to the new analyses provided we recommend the following:

1. More thoroughly investigate future vehicle queueing conditions and turn lane length adequacy for the Shelburne Falls Road/VT 116 intersection. The analysis results presented are for average queues. Planning and design studies typically examine 95th percentile queues. Also note that access to turn lanes may be blocked by queues in through lanes.
2. Define proposed access conditions (lane geometry) for the Haystack Lane/Shelburne Falls intersection. Conflicting plans were referenced in the prior investigations and no new plans are provided in the new submittal.
3. Identify traffic mitigation measures proposed by the project. These may include changes at the Haystack Lane/Shelburne Falls intersection referenced above. The new memorandum also cites dedication of right-of-way along VT 116 at the proposed site driveway for construction of possible future improvements.

Again, Stantec recommends that the Phase II development program be considered in traffic analyses associated with this project from a planning perspective as this could influence final design of the three study intersections.

Stantec recommends that the Town also consider working with VTrans and the developer to reallocate traffic impact fees to improvements elsewhere in the site vicinity. The estimated cost of improvements proposed for the Charlotte Road/VT 116 intersection in a recent study, $88,000, is close to the estimated impact fee for Haystack Crossing, $79,000.

Review Comments

Major comments from our review of the early memoranda are reprinted below. Text in italics following each comment indicates the extent to which the May 18, 2020 memorandum addresses each comment.

1. Provide Synchro/Highway Capacity Manual reports for intersection operations to define operations by lane group including volume-to-capacity ratios. *Completed albeit for a more limited study area. 95th percentile queue calculations were not provided.*
2. Review crash reports to better understand the cause of crashes occurring at the proposed VT 116 site drive location. Summarize findings and recommend near-term and long-term mitigation strategies as appropriate. (Lowering the VT 116 speed limit in this area has been discussed in the past. Lowering the crest vertical curve on VT 116 may also be a consideration.) *Partially completed. A closer examination of the crash data was provided but it does not appear that individual collision reports were reviewed. There was no new discussion of design alternatives for this location. A single statement was offered that VTrans supported the right-in/right-out only driveway design. It is not clear that any new conversations were held with VTrans regarding existing safety concerns, longer term traffic demands (Phase II traffic), the results of the left-turn lane analysis for this intersection and town concerns for pedestrian accommodations.*
3. Update the No Build conditions to reflect the current status of the Hannaford Bros. project. Omit Hannaford Bros. traffic and Hannaford Bros. mitigation from the No Build and Build conditions. *Completed including new counts for the Shelburne Farms Road/VT 116 intersection.*
4. Include the Lantman's entrance driveway intersection in the traffic networks and analysis results. *Not done. This location was omitted from the revised analyses.*
5. Incorporate the current land use program and appropriate trip estimates into the Build condition. Identify trips associated with the proposed town house units. *Completed.*
6. Review and revise if appropriate trip generation adjustments made to account for accommodations for alternative modes and internal trip making. Provide documentation to support assumptions made in this regard. *Completed however, the internal trip and pass-by trip reductions to the base traffic forecasts for the project are likely aggressive. The net reduction applied for Haystack Crossing is 26 percent in the PM peak hour. The model*

applied to estimate internal trip reductions is based on studies of much larger developments with the critical mass necessary to support substantial internal trip making. The model also references "unconstrained" adjustments. The relative sizes of the different land uses must be considered as an imbalance would constrain the adjustments. In the case of Haystack Crossing, for example, 34 internal trips are associated with the office, retail and restaurant uses yet only 12 internal trips are associated with the residential uses. Since the most common interactions are likely between the residential and commercial uses, the 12 trips associated with the residential use may be the "constrained" value for this project. With respect to pass-by trips, a 39 percent reduction is assumed for the restaurant and retail uses in the PM peak hour. However, based on the site layout, these uses will have limited visibility for motorists passing by on VT 116 and the proposed limited access condition on VT 116 (Right in/Right out only) will discourage pass-by visits from northbound traffic.

7. Define the improvements proposed by VTrans at the Shelburne Falls Road/VT 116 intersection and the schedule for implementing these improvements. Suggest modifications to these improvement plans, if appropriate, to accommodate full-Build (Phase I plus Phase II) condition traffic volumes. *Partially completed. The proposed improvements are described. Design issues relative to turn lane lengths are discussed but only for the average queue conditions and without considering Phase II impacts. Construction is slated to begin this year such that any design changes due to the project should be investigated now.*
8. Expand the study to include the Phase II development program. This should be done as a second Build scenario. An understanding of Phase II impacts can inform decisions regarding proposed site access conditions and area roadway improvements currently under consideration. *Not completed. The Phase II program has not yet been determined. Note however, the acreage associated with Phase II is known. Some assumptions regarding trip generation per acre for Phase I could be applied to Phase II to approximate future Phase II volumes.*
9. Evaluate left-turn lane warrants for both site access points including the left-turn condition for traffic entering Riggs Road from VT 116 southbound. *Completed. Turn lanes are not warranted at the Haystack Lane access point based on this analysis. A turn lane is warranted for access into Riggs Road with the proposed expansion of the NRG development on Riggs Road. It is noted that a widening of VT 116 to provide a left-turn lane into Riggs Road would simultaneously support construction of a northbound left-turn lane into Haystack Crossing should full access be provided at this location. Again, work can be done now to plan for Phase II conditions that might also influence the design of the site access for Phase I.*
10. Evaluate operations for affected intersections assuming full access is provided at the VT 116 access point. (Full access is being considered for the Phase II program.) Explain why

providing full access is not appropriate for Phase I. *Not completed. See Comments 8 and 9 above.*

11. Describe any traffic mitigation measures offered by the proposed development. Consider if mitigation measures associated with the Hannaford Bros. project should still be pursued. *Not completed. Proposed treatments at Haystack Lane and Shelburne Farms Road are not discussed. Mention is made of possibly preserving right-of-way along VT 116 to support a future widening but not limits are defined. No mention is made of mitigation for traffic impacts at other locations in Hinesburg that were quantified and found to be significant in the prior memoranda.*

Additional comments relative to the new analyses are presented below

1. **Study Area Limits (page 9)**

   The project study area is reduced under the premise that the project will result in "relatively modest" traffic increase south of Riggs Road. Peak hour increase of approximately three percent are expected. Modifications proposed to the Charlotte Road/VT 116 intersection described in a separate study will increase the capacity of that intersection by nine percent.

2. **Queue Analysis (page 22)**

   Reported average queue lengths for the Shelburne Falls Road/VT 116 intersection are compared to the turn lane lengths. Queues in adjacent through lanes will exceed the turn lane length in some cases block access to the turn lane during parts of the signal cycle. The project is expected to add approximately 100 feet to the northbound through lane queue on VT 116. Alternative signal timing plans, and their impact on queueing, may want to be considered.

3. **Right-In/Right-Out Driveway Impacts (p. 29)**

   The discussion of crashes on VT 116 Southbound near Riggs Road cites slowly and stopping traffic as a probable cause of rear end collisions. A contradictory statement is then made that the introduction of a new driveway on this segment, providing right-in/right-out access will not impact the crash rate. Southbound traffic may be slowing or stopping as vehicles enter and exit the site.

If you have any questions regarding the above, please do not hesitate to contact us. We are available at your convenience.

Regards,

STANTEC CONSULTING SERVICES INC.

Reference: Haystack Crossing

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