22-1529-002
April 19, 2021

Rick Taintor, AICP
Community Planning Consultant
Town of Durham
Durham, New Hampshire 03824

Re: **Mill Plaza Redevelopment**
Response to Traffic Impact Study Peer Review Comments

Dear Rick:

Tighe & Bond is in receipt of Peer Review Comments from RSG, Inc. (RSG), dated March 19, 2021. The peer review comments apply to the Traffic Impact and Access Study (TIAS), dated August 14, 2020 for the Mill Plaza Redevelopment located at 5 Mill Road in Durham, New Hampshire. The following presents our response to the peer review conducted by RSG. A revised Traffic Impact Study is also being provided to the Town concurrently with this response to comments under separate cover.

Peer Review Response

Tighe & Bond has conducted the Traffic Impact Analysis in accordance with industry standard practices and The Town of Durham Site Plan Regulations, "Article 5. Independent Studies and Investigations" and Articles 5.1.1 and 5.1.2, as follows:

> *5.1.1 Traffic Impact Analysis. All Traffic Impact Analyses shall be presented in accordance with best practices. The Planning Board reserves the right to retain the services of an outside agency for the purpose of reviewing any traffic impact analysis submitted.*
>
> *5.1.2 The intent of Traffic Impact Analyses is to address peak hour traffic and safety impacts of the proposed project on intersections, site driveways, road corridors, and residential areas. The analysis shall identify mitigation measures to address any adverse impacts of the proposal. The Planning Board may require that alternative transportation modes such as pedestrian, bicycle, or transit be addressed as part of a traffic study, that a travel speed study be conducted, and that the impact of increased traffic on the quality of life in residential areas be addressed. The Board, after review and comment by the Town Engineer, may specify required improvements to mitigate the traffic, quality of life impacts, and safety impacts of the proposed project.*

The Traffic Impact Analysis, as presented in the Traffic Impact Study, dated August 14, 2020, finds that the project will generate a small amount of new traffic and will not have a significant impact to the adjacent transportation system. Tighe & Bond has presented recommendations for consideration by the Town and the Planning Board that are focused on addressing the anticipated increase of pedestrian traffic associated with the redeveloped portion of the site and improving safety for alternative travel modes.

Response to Memorandum

In the summary of the memorandum, RSG notes the following:

> *The following additional mitigation measures may be appropriate:*
>
> - *providing funds to update and optimize the signal timings at the Main Street/Newmarket Road/Dover Road intersection.*
> - *providing additional bicycle racks.*
> - *relocating the Mill Road/Plaza Drive crosswalk to the south of the drive entrance, in line with south side pedestrian desire line.*
> - *implement the suggested shift of the crosswalk at Main Street/Madbury Road.*

In response to these suggested mitigation measures we provide the following:

- The operational concerns noted by RSG at the Main Street and Dover Road at Newmarket Road intersection are existing issues. The Town/State should address these operational issues as a matter of normal maintenance and operation of their traffic signals regardless of whether this project moves forward. This development's negligible amount of traffic does not impact this location nor warrant signal timing adjustments.
- The site plan currently proposes a bicycle rack at the west of the existing building as well as an indoor bicycle storage room as part of the proposed "Building C". Locations for additional outdoor bicycle storage will be considered and added where feasible.
- The Developer is willing to fund the modifications to the existing crosswalk at the site driveway if this change is required by the Planning Board and endorsed by the Traffic Safety Committee.
- The Developer is willing to fund the modifications to the existing crosswalk at the intersection of Main Street and Madbury Road if this change is required by the Planning Board and endorsed by the Traffic Safety Committee.

Response to Comments

The following are responses to specific comments provided by RSG:

1. **Volumes Documentation**

   The reported peak hour for each study intersection was determined based on normalizing all the individual intersections on a uniform peak hour. For the Saturday midday peak hour, 11:45 am – 12:45 pm was used. Tighe & Bond recognizes this approach may result in minor variations between the localized peak at an intersection versus the study area peak, however the changes in the total volume is negligible in the context of reported intersection operations.

   For the RSG provided example, the study reported that the Saturday midday peak hour at the intersection of Dover Road and Main Street at Newmarket Road occurred between 11:45am and 12:45pm. The total intersection turning movements recorded between 11:45-12:45 were 1,755 vehicles. The volumes referenced by RSG were collected between 12:00pm and 1:00pm and 1,761 vehicles were recorded. The variation in the normalized peak hour resulted in a 6-trip difference (0.34%) between the reported number and the RSG referenced number.

The method of selecting a study wide peak hour explains the discrepancy in peak hour traffic volumes RSG calculated. Note that seasonal and annual adjustments were applied to the intersection peak hour traffic volumes to determine the existing 2019 traffic volumes per NHDOT guidelines.

2. Trip Distribution

Tighe & Bond prepared a series of Trip Distribution figures (Figures 9-12) to exhibit the existing and proposed trip distribution. Based on the distribution of existing traffic on the roadway network we determined that minor adjustments to the trip distribution of the new site generated trips was justified to provide a more uniform entry/exit distribution of new trips across the roadway system. Furthermore, the adjustments that we made were conservative as we distributed more trips to the north on Mill Road and through downtown under the proposed scenario. The sentence in the traffic study text will be revised to reflect the proposed trip distribution shown in the analysis.

3. Trip Generation: Internal Capture

The Internal Capture Calculation spreadsheet located in Appendix E will be revised to show the correct number of existing exiting retail trips and proposed residential trips to match the trips shown in the Trip Generation Table found in Appendix F. The error on the Internal Capture spreadsheet does not affect the calculated trip generation numbers used in the analyses.

4. Saturday Pedestrian Generation

The traffic impact study assumes the critical pedestrian period occurs during the weekday evening peak hour due to overlap of pedestrian activity, when students are walking to and from classes, meals, or other locations, and peak hour vehicular traffic. However, in response to the comments, we will include additional pedestrian traffic figures to the TIS in response to the request for the information. We do note that pedestrian data was included in the raw data in the appendix of the report.

With respect to the request for projected pedestrian trips, we will utilize the same methodology that was followed for the weekday pedestrian traffic generation from the revised development to provide that information during the Saturday midday period. Revised figures will be included in the revised TIS.

5. Operational Impact of Pedestrians at Intersections

The northbound travel lanes on Mill Road will be revised under the 'No Build' condition to reflect the existing lane widths and match the build condition lane widths. There are no modifications to the lane widths proposed.

6. On-Site Pedestrian Features

The Developer is willing to fund the modifications to the existing crosswalk at the site driveway (relocate to the south side of the intersection) if this change is required by the Planning Board and endorsed by the Traffic Safety Committee.

7. Off-Site Pedestrian Features

The Developer is willing to fund the modifications to the existing crosswalk across Main Street at Madbury Road if this change is required by the Planning Board and endorsed by the Traffic Safety Committee.

8. Sight Distance Documentation

- The Main Street driveway referenced in Table 4-4 and 4-5 of the TIS is a remnant discussion from the original Traffic Impact Study. This driveway is not part of the current proposed design/application and will be removed from the traffic study.

- The Table 4-4 header will be revised to read "ISD" instead of "SSD" to indicate Intersection Site Distance.

- The term "Calculated" has been revised to "Design" to reference the calculated sight distance based on the AASHTO published "A Policy on Geometric Design of Highways and Streets". "Available" refers to the minimum available sight distance as recorded in the field. The tables in the TIS provide additional information related to sight distances.

- "Left" and "Right" notations are used as an alternative to cardinal directions to improve clarity when describing intersection sight distances. Left and Right refer to the direction a driver is looking. The stopping sight distances have been revised to reflect the direction of travel on the major street.

9. Sight Line Exiting Garage

A stop sign and stop bar will be added to the site plan at the parking garage exit to address sight line concerns.

10. Signal Timing at Main Street/ Newmarket Road/ Dover Road Intersection

The cycle length was revised for both the weekday evening and Saturday midday peak hours to include the pedestrian phase. Field observations by Tighe & Bond in April 2021 indicate the pedestrian phase split is 28 seconds, not 22 seconds as indicated on the RSG signal timing plan. This revision is reflected in the updated analyses.

11. Queuing at Main Street/ Newmarket Road/ Dover Road Intersection

The queuing issues described at the intersection of Main Street and Dover Road at Newmarket Road are present during existing conditions. This intersection was added to the TIS at the request of the Town of Durham, though the proposed development is anticipated to only add a total of 21 afternoon peak hour trips and 22 Saturday midday peak hour trips, representing approximately 1% of the total trips in the intersection during the peak hours. This negligible increase in traffic at this location does not warrant further study given that the development is not impacting traffic operations at this intersection.

12. Mitigation Recommendation: Signal Timing Review

The TIS includes the study of one signalized intersection, Main Street and Dover Road at Newmarket Road. Given the negligible amount of traffic that will be added to this signalized intersection, because of the proposed development, timing changes are not required to mitigate the effects of the proposed development and were not contemplated in the TIS.

13. Lane Utilization

The Synchro traffic operations models have been adjusted to reflect the downstream split in traffic at Madbury Road as noted in the comments. We also note that the northbound approach to Main Street on Mill Road provides 2-115' parallel storage lanes at the intersection to accommodate the traffic flow turning onto Main Street. Also, there is approximately 75 feet between the crosswalk to the south on Mill Road and the 2-lane section, providing a total storage of approximately 300 feet of queuing from the intersection to the crosswalk. Finally, the additional development proposed under this project is contributing an estimated 34 afternoon peak trips which represents roughly a car every two minutes, which equates to approximately a 2.5% increase in total traffic at this intersection, which will not have a significant impact on the location.

14. On-Site Bicycle Features

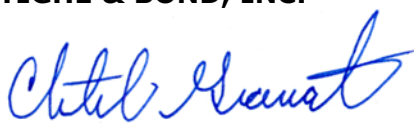
The site plan currently proposes a bicycle rack at the west of the existing building as well as an indoor bicycle storage room as part of the proposed "Building C", for a minimum of 40 bicycles. Locations for additional outdoor bicycle storage will be considered and added where feasible. Other bicycle accommodations (e.g., bicycle washing station, etc.) will be considered as part of the final building design.

15. Incomplete Raw Traffic Count Data

The raw traffic counts for the PM peak hour at the Main Street/ Newmarket Road/ Dover Road intersection were inadvertently left out of the appendix of the TIS. The data is included in the revised traffic study.

We look forward to discussing our responses to these comments with the Town of Durham Planning Board at the April meeting. Please contact us if you have any questions.

Sincerely,
TIGHE & BOND, INC.



Christopher O. Granatini, PE
Vice President

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