

Ref: 8678

September 29, 2020

Ms. Karen Sherman
Town Planner
Town of Holliston
703 Washington Street
Holliston, MA 01746

Re: Supplemental Traffic Engineering Peer Review
Proposed Geoffrey Park Residential Community – Indian Ridge Road South
Holliston, Massachusetts

Dear Karen:

Vanasse & Associates, Inc. (VAI) has completed a review of the supplemental materials submitted on behalf of Indian Ridge Realty Trust (the “Applicant”) in support of the proposed Geoffrey Park residential community that is to be located off Indian Ridge Road South in Holliston, Massachusetts (hereafter referred to as the “Project”). This information was prepared in response to the comments that were raised in our August 24, 2020 review letter and consisted of a memorandum dated September 16, 2020 prepared by Green International Affiliates, Inc. (Green). Responses to our comments pertaining to the *Site Development Plan of Land* (the “Site Plans”) prepared by GLM Engineering Consultants, Inc. (GLM) were not included as a part of Green’s response.

Based on our review of supplemental information, we are generally satisfied that the Applicant has addressed the comments that were raised in our August 24, 2020 letter pertaining to the July 2020 *Traffic Impact and Access Study* (the “July 2020 TIAS”) with recognition of the scope of the follow-up analysis that was requested by the Zoning Board of Appeals (ZBA). As stated above, our comments regarding the Site Plans remain outstanding at this time and are included as a part of this letter for completeness.

For reference, listed below are the comments that were raised in our August 24, 2020 letter followed by a summary of the response submitted on behalf of the Applicant, with additional comments indicated in **bolded** text for identification.

July 2020 TIAS

Comment T1: A letter should be provided by the Professional Engineer attesting to their oversight in preparing the document and providing their Massachusetts Professional Engineer Registration number and discipline.

Response: The July 2020 TIAS was prepared under the direction of Corinne Tobias, MA P.E. No. 53048, Civil.

No further response required.

Comment T2: The study area should be expanded to include the intersections of Cedar Street at Turner Road and Ashland Street at Turner Road as all Project-related traffic will travel through one of these intersections to access the Project site. We note that traffic volumes are provided for both of these intersections on the figures in the July 2020 TIAS.

Response: The Applicant's engineer provided a motor vehicle crash analysis for the requested intersections. We note the July 2020 TIAS included an analysis of operating conditions at the Ashland Street/Turner Road intersection.

As requested by the ZBA, the Applicant's engineer has focused the updated analysis on the access to the Project and the intersection of Turner Road and Indian Ridge Road South. The requested limited scope of the analysis is appropriate given the relatively small increase in traffic that the Project represents (between 20 and 30 vehicle trips during the peak hours, or less than one (1) additional vehicle every 2 to 3 minutes).

No further response required.

Comment T3: The data collection effort and establishment of the seasonal adjustment were completed in accordance with standard Traffic Engineering and Transportation Planning practices; however, the traffic count data needs to be adjusted following the guidance issued by MassDOT for Transportation Impact Assessments (TIAs) conducted during the COVID-19 pandemic and the Governor's phased "Reopening Massachusetts" strategy.¹ We would suggest that the Applicant's engineer obtain historic traffic count data for a location proximate to the study area and compare July 2020 traffic count data to historic traffic counts for July in order to develop an appropriate adjustment factor.

Response: The Applicant's engineer reviewed historic traffic count data available from MassDOT for two (2) permanent traffic count stations in the area and determined that July 2020 traffic volumes are between 21 percent and 31 percent lower than traffic volumes measured in July 2019. As such, the July 2020 traffic count data was adjusted upward by 31 percent in order to account for the impact on traffic volumes and trip patterns resulting from the "safer-at-home" order and the phased "Reopening Massachusetts" plan that was issued by the Governor on May 18, 2020, in response to the COVID-19 pandemic.

No further response required.

Comment T4: The traffic count data was performed during the July 4th week, with the turning movement counts (TMCs) performed on July 1st (not July 8th as referenced in the July 2020 TIAS). Traffic data is not usually collected during holiday periods as traffic volumes and trip patterns are not typical of conditions that exist during the majority of the year. Updated traffic volume and travel speed data should be collected or adjustments made to the data that was collected with back-up calculations provided to substantiate the adjustments.

Response: The Applicant's engineer noted that July 4th was on a Saturday during the week that the traffic counts were performed and that public schools were not in session so the traffic counts were not impacted by the holiday.

¹Guidance on Traffic Count Data; MassDOT; revised April 2020.



The 31 percent adjustment that was applied to the raw traffic count data would account for variations that may have been related to the holiday. No further response required.

Comment T5: The traffic count data and speed measurements should be provided for all locations. The automatic traffic recorder (ATR) counts were not provided in the Appendix of the July 2020 TIAS.

Response: The requested data was provided. **No further response required.**

Comment T6: A 48-hour ATR should be performed on Turner Road in the vicinity of Indian Ridge Road South on two consecutive weekdays that should include the collection of vehicle travel speed data to be used in evaluating sight distances at the Turner Road/Indian Ridge Road South intersection.

Response: The Applicant's engineer did not perform additional traffic volume or vehicle travel speed measurements along Turner Road and chose to assess sight lines at the Turner Road/Indian Ridge Road South intersection assuming an approach speed of 35 mph for Turner Road, which is 10 mph above the posted speed limit (25 mph).

No further response required.

Comment T7: The motor vehicle crash analysis should be updated to use reconciled crash data for the most recent 5-year period as available from MassDOT (2013 through 2017) and expanded to include the additional study area intersections.

Response: The motor vehicle crash analysis was updated as requested and continues to indicate that the calculated motor vehicle crash rates are below the MassDOT average crash rates for similar intersections.

No further response required.

Comment T8: The Applicant's engineer should confirm that there are no roadway improvements by others that are planned to occur within or proximate to the study area that would impact traffic volumes or travel patterns within the study area.

Response: The Applicant's engineer indicated that the Town was contacted and confirmed that there were no new developments in the area.

While our comment was specifically requesting confirmation regarding roadway improvements, we are satisfied that to the extent that there are roadway improvements planned, the Project would not impact these improvements to the extent that changes to any planned improvements would be required.

No further response required.

Comment T9: The trip-distribution pattern for the Project should be reviewed and revised. The existing traffic pattern indicates that approximately 60 percent of the trips associated with the Project will be oriented to/from Route 126, with 45 percent of these trips using Elliot Street to/from the east and the remaining 15 percent (of the 60 percent) using Ashland Street.



Response: The Applicant's engineer indicated that they balanced the trip-distribution patterns that were derived from a review of existing traffic volumes within the study area and the U.S. Census Journey-to-Work data.

Given that the subject of the revised analysis is focused on impacts at the Turner Road/Indian Ridge Road South intersection, refining the trip distribution pattern would not materially impact the traffic operations analysis to the extent that we would request further revision of the trip assignments.

No further response required.

Comment T10: The traffic operations analysis should be revised to address the comments provided as a part of this review concerning the COVID-19 traffic volume adjustment, expansion of the study area and refinement of the trip distribution pattern. In addition, the peak-hour factors that are used in the analysis should be based on the measured values and not the default value of 0.92.

Response: The traffic operations analysis was revised to incorporate the updated traffic volumes applying the 31 percent COVID-19 traffic volume adjustment and using the measured peak-hour factors. As requested by the ZBA, the analysis was limited to the Turner Road/Indian Ridge Road South intersection. Based on the revised analysis it was concluded that all movements at the intersection would continue to operate with minimal delay and vehicle queuing with the addition of Project-related traffic, with Project-related impacts defined as an increase in average motorist delay of approximately 7-seconds that resulted in no (0) increase in vehicle queuing.

No further response required.

Comment T11: The location of the sight distance measurements that are presented in Table 7 should be clarified as the access to the Project is proposed to be an extension of Indian Ridge Road South and will not create an "intersection" for the purpose of sight distance measurements. Also, the paragraph preceding the sight distance table mentions speed measurements and posted speed limits along Cedar Street. Sight distance measurements should be provided for the following intersections based on the measured 85th percentile vehicle travel speed on the major roadway or the posted speed limit, whichever is higher:

- Turner Road/Indian Ridge Road South
- Cedar Street/Turner Road
- Ashland Street/Turner Road

Response: Sight distance measurements were provided for the Turner Road/Indian Ridge Road South intersection using an approach speed of 35 mph for Turner Road as described previously. Based on this analysis, the Applicant's engineer identified that the lines of sight that are available at the intersection meet the requirements for the posed speed limit (25 mph), but do not meet the recommended minimum distance for a 35 mph approach speed. The available sight lines are appropriate for an approach speed of up to 30 mph, or 5 mph above the posted speed limit. The identified limiting features were defined as a combination of vegetation and the curvature of the Turner Road as it approaches the intersection. It was noted that the vegetation is situated on a private property.



Given the identified sight distance limitation, the Applicant's engineer has proposed improvements to inform motorists of the potential for conflicts and to reinforce the 25 mph posted speed limit (discussion follows).

No further response required.

Comment T12: The recommendations presented in the July 2020 TIAS should be reviewed, revised and expanded as necessary based on the additional analyses and refinements that have been suggested as a part of this review. The recommendations that were provided should reflect the Site Plans and the context of the Project as it relates to Indian Ridge Road South with regard to pedestrian safety and opportunities to implement traffic calming measures to reduce travel speeds.

Response: The Applicant's engineer provided the following recommendations to be advanced as a part of the Project:

- Install W-2-2 advance warning signs on Turner Road in advance of the intersection with Indian Ridge Road South/James Road to inform motorists of the potential for conflicts.
- Create “No Parking” areas between 85 Turner Road and 171 Turner Road on the west side of Turner Road to match the existing “No Parking” area on the east side to improve sight distance and to allow two-way traffic to travel through the narrow curves without impediment.
- 25 mph speed limit signs should be installed on Turner Road in advance of the horizontal curves on Turner Road to encourage reduced speeds through the intersection.
- The proposed sidewalk on Indian Ridge Road South should be extended to the intersection of Turner Road and Indian Ridge Road South/James Road and terminated with an accessible crossing across James Road. This will allow safe pedestrian movement throughout the Indian Ridge Road South neighborhood and provide a continuous path for pedestrians utilizing the sidewalk. Installation of a crosswalk across Turner Road at this location is not recommended due to the limited sight distance along Turner Road.
- A Stop bar should be installed on the Indian Ridge Road South/James Road southbound approach to Turner Road.

We are in agreement with the recommendations that were provided by the Applicant's engineer and would suggest that these be included as a part of any conditions of approval that may be granted for the Project. In addition, we would suggest the Applicant commit to selectively trim/remove vegetation located within the sight triangle areas of the Turner Road/Indian Ridge Road South intersection situated within the public right-of-way.

No further response required.



Site Plans

The following comments were offered with respect to our review of the Site Plans prepared by GLM as revised through July 10, 2020, and remain outstanding:

- S1: A truck turning analysis should be performed using the AutoTurn® software package for the Holliston Fire Department design vehicle and a single-unit truck (SU-30 design vehicle). The turning analysis should demonstrate that the design vehicles can access and circulate within the Project site in an unimpeded manner. The fire truck turning analysis should confirm that all elements of the design vehicle are retained within the traveled-way and do not overhang the curbline.
- S2: Internal to the Project site, circulating roads should be a minimum of 24-feet in width for two-way travel or as required to accommodate fire truck turning maneuvers. The Site Plans currently reflect a 20-foot wide roadway with 1-foot wide Cape Cod berm or 6-inch wide vertical curb, which does not comply with MassDOT standards for residential access to aggregations of residential units of 10 or more dwelling units.² We also note that the existing portion of Indian Ridge Road South to which the Project site roadway will connect provides a 24-foot wide traveled-way. The proposed roadway width can be reduced to 20-feet where wetland impacts need to be minimized.
- S3: A leveling area should be provided approaching the STOP-sign at Sta. 16+25 RT within the Project site. The Site Plans indicate a downgrade of 9.35 percent which decreases to 4.00 percent approaching the subject STOP-sign. These grades should be reviewed as it may be difficult for vehicles to stop on this downgrade with snow or ice on the roadway. We also note that a house is proposed to be located directly opposite the intersection.
- S4: A note should be added stating: “All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the *Manual on Uniform Traffic Control Devices* (MUTCD).³”
- S5: The sight triangle should be shown for the internal roadway intersection within the Project site and a note should be added stating: “Signs, landscaping and other features located within sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed.”
- S6: Driveways to individual residential units should be a minimum of 21-feet long measured between the garage door and the far edge of the sidewalk (edge closest to the residence) where a sidewalk is provided, and 23-feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.⁴

²The 2006 *Massachusetts Highway Department Project Development & Design Guide* recommends that a two-lane driveway (24-feet in width) be provided for aggregations of residential use of around ten dwelling units or greater.

³*Manual on Uniform Traffic Control Devices* (MUTCD); Federal Highway Administration; Washington, DC; 2009.

⁴NCHRP Report 659, *Guide for the Geometric Design of Driveways*; Transportation Research Board of the National Academies; Washington, D.C.; 2010.



Ms. Karen Sherman
September 29, 2020
Page 7 of 7

This concludes our review of the supplemental materials that have been submitted to date in support of the Project. If you should have any questions regarding our review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

A handwritten signature in black ink that reads "Jeffrey S. Dirk". The signature is written in a cursive, flowing style.

Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

Professional Engineer in CT, MA, ME, NH, RI and VA

JSD/jsd

