



April 16, 2020

Christopher Wider, Chairman  
Town of Norfolk – Zoning Board of Appeals  
One Liberty Lane  
Norfolk, MA 02056

**Re: Norfolk, MA – The Residences at Norfolk Station  
194 Main Street  
Additional Traffic Information Review**

Dear Chairman Wider:

BETA Group, Inc. has reviewed the *Residences at Norfolk Station, Request for Additional Traffic Information* letter dated April 14, 2020 by Green International Affiliates, Inc. (Green), which provides further clarification regarding site driveway sight distance and operations. This letter provides a summary of comments

**Sight Distance**

- The required Stopping Sight Distance approaching the site driveway from the east was calculated based on a downgrade of 6% and vehicle speeds of 30 miles per hour (215 feet) and 35 miles per hour (271 feet).
- Measure sight distance was noted to be between 350 feet and 360 feet, roughly from the proposed (existing) site driveway to the crest of the bridge above the railroad tracks.
- The Applicant provided a site plan that denotes the driveway sight lines and areas of roadside clearing required to maintain said sight lines.

Comment: Roadway speeds, collected in 2017 west of the site driveway, presented in Green's December 23, 2019 *Response to Peer Review Comments* letter show westbound 85<sup>th</sup> percentile speeds of approximately 40 miles per hour. Performing similar calculations with a travel speed of 40 miles per hour finds a required stopping sight distance of approximately 335 feet. Based on the AASHTO calculations, and table presented in Green's letter, the measured 360 feet of available stopping sight distance is adequate for westbound travel speeds of approximately 42 miles per hour. Given the above, it is expected that the measured stopping sight distance from the crest of the bridge to the proposed/existing site driveway is adequate.

Comment: The clearing area presented in the appended site plan figure generally follows the curvature of the roadway. This is acceptable.

Comment: According to AASHTO, Intersection Sight Distance (ISD) should be greater than or equal to the minimum required Stopping Sight Distance for approaching vehicles. The ISD represents the distance that a driver exiting the site driveway can see oncoming vehicles to safely make a maneuver. Based on the clearing shown in the appended plan, it is expected that the available ISD would be equivalent to the available Stopping Sight Distance.

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**Level of Service – Proposed Site Drive**

Traffic analysis was found to be acceptable based on the available data.

- Traffic operations were evaluated using roadway volumes collected in 2017, west of the site driveway, and presented in Green's December 23, 2019 *Response to Peer Review Comments* letter and as appended in the April 14, 2020 letter.
- Peak hour traffic volumes were grown at 1% per year for ten years to estimate 2027 conditions.
- Background traffic from Boyde's Crossing and 18 Union Street were added to the grown volumes.
- Project Site trip generation were applied to the Site Driveway, generally assuming a distribution split of 40% to/from the west and 60% to/from the east, in accordance with the collected roadway volumes.
- Traffic analysis was performed using Highway Capacity Software 7 and found the site driveway to operate at an acceptable Level of Service C with approximately 21-22 seconds of delay per vehicle in both commuting peak hours. Driveway queueing was generally found to be less than one vehicle.

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,  
BETA Group, Inc.



Tyler de Ruiter, PE, PTOE  
Project Engineer