



July 21, 2017

Michael Kulesza, Chairman
Town of Norfolk – Zoning Board of Appeals
One Liberty Lane
Norfolk, MA 02056

Re: Norfolk, MA – The Preserve at Abbyville
Traffic Peer Review

Dear Mr. Kulesza:

BETA Group, Inc. (BETA) has conducted a review of the April 2017 Traffic Impact and Access Study prepared for 148 proposed single family homes with access on Lawrence Street in Norfolk, Massachusetts. As part of a separate project (Abbyville Commons), 48 apartment units would be constructed as part of a full build-out of the site. As proposed, access to the site would be provided by way of a full access driveway on Lawrence Street across from Cranberry Meadow Road (east site driveway) and a full access driveway on Lawrence Street between Eagle Drive and Bretts Farm Road (west site driveway). The west site driveway would be used primarily for the 148 single family homes. The east site driveway would be primarily used for the proposed 48 unit apartment development under full build-out.

In general, the traffic study prepared by Green International Affiliates, Inc. for the proposed single family home project was developed in accordance with industry standards. Since the proposed 148 single family homes (The Preserve at Abbyville) and the 48 apartment units (Abbyville Commons) have been evaluated under separate traffic studies, this peer review letter has been prepared with a focus primarily on the proposed single family home component of the overall development. Although a peer review has been conducted on the proposed apartment units in a separate letter, many of the comments and recommendations are similar as the same methodologies and assumptions were used in both traffic studies. As a result, this peer review letter has been prepared to only outline additional findings, comments, and recommendations associated with the traffic study prepared for the single family home development.

BASIS OF REVIEW

BETA received the following items:

- Traffic Impact and Access Study – The Preserve at Abbyville: Proposed 40B Residential Development, Norfolk, Massachusetts, dated April 2017, prepared by Green International Affiliates, Inc.

Review by BETA will include the above items for consistency with the following:

- Town of Norfolk Zoning By-Laws, amended through May 2016

- Town of Norfolk Rules and Regulations for Subdivision of Land and Site Plan Approval, amended September 16, 2010
- Site visit on June 22, 2017
- Applicable federal and state regulations

INTRODUCTION

The project site is located on the north side of Lawrence Street, approximately 1,200 feet west of Park Street. The proposed project is an affordable housing development under the Chapter 40B state statute that allows local Zoning Board of Appeals approval with flexible rules if at least 20-25% of the units have long-term affordability restrictions.

Lawrence Street adjacent to the site is under Town of Norfolk jurisdiction and is functionally classified as Local Road. The roadway provides eastbound and westbound travel, but with no pavement markings to separate directional flow. The speed limit along Lawrence Street is posted at 30 miles per hour (mph) adjacent to the site.

FINDINGS, COMMENTS AND RECOMMENDATIONS

STUDY AREA

Please refer to BETA's peer review letter on the Traffic Impact and Access Study prepared for Abbyville Commons (48 apartment units).

EXISTING TRAFFIC VOLUME CONDITIONS

Please refer to BETA's peer review letter on the Traffic Impact and Access Study prepared for Abbyville Commons (48 apartment units).

VEHICLE SPEED DATA

Please refer to BETA's peer review letter on the Traffic Impact and Access Study prepared for Abbyville Commons (48 apartment units).

FUTURE NO-BUILD TRAFFIC VOLUMES

Please refer to BETA's peer review letter on the Traffic Impact and Access Study prepared for Abbyville Commons (48 apartment units).

FUTURE BUILD TRAFFIC VOLUMES

Project-generated traffic volumes were determined by utilizing trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation manual for 48 residential units. The proposed development is estimated to generate 1,506 vehicle trips on a typical weekday (753 entering and 753 exiting), 113 vehicle trips during the Weekday AM peak hour (28 entering and 85 exiting), and 150 vehicle trips during the Weekday PM peak hour (95 entering and 56 exiting).

- T1. There appears to be a typo in Table 3.2 for the single family housing component estimates during the Weekday PM peak hour as the summation of the entering and exiting trips do not coincide with the total trips. This difference is not significant, but it is recommended that the trip-generation estimates be modified accordingly.
- T2. Projected site trips were not provided for a Saturday or during the Saturday Midday peak hour. Consistent with Institute of Transportation Engineers (ITE) methodologies¹ and Massachusetts Department of Transportation's (MassDOT's) *Transportation Impact Assessment Guidelines*,² it is recommended that traffic generation estimates be provided for these conditions to help determine whether the Saturday Midday peak hour is a critical time period for the proposed development based on the combination of site trips and adjacent street traffic volumes.

As part of a separate project, 48 apartment units would be constructed as part of a full build-out of the site. The trips for the full build-out program (148 single family homes and 48 apartment units) were projected by utilizing trip-generation data published in the ITE Trip Generation manual. Full build-out of the site is shown to generate 1,920 vehicle trips on a typical weekday (960 entering and 960 exiting), 140 vehicle trips during the Weekday AM peak hour (34 entering and 106 exiting), and 194 vehicle trips during the Weekday PM peak hour (123 entering and 71 exiting).

- T3. Although the traffic study describes that Lane Use Code 221 (Low-Rise Apartment) was used to estimate site trips for the proposed apartment development, the trips tabulated within Table 3.2 and provided in the Appendix were calculated using Land Use Code 220 (Apartment). Therefore, it is recommended that the methodology used in determining the projected site trips be clarified.
- T4. There appears to be a difference in the trip-generation estimates associated with the proposed apartment development component of the full build-out program as presented in the two traffic studies. Although this difference is not significant, it is recommended that the trip-generation estimates be modified accordingly.

INTERSECTION ANALYSES

Capacity analyses were performed for the study area intersections with the 2017 Existing, 2024 No-Build, and 2024 Build traffic volumes based on the methodology and procedures set forth in the *Highway Capacity Manual* (HCM). A traffic engineering measure is the volume-to-capacity ratio (v/c), which compares roadway demand (traffic volumes) with roadway supply (carrying capacity) and identifies when a lane or movement operates over capacity (v/c >1.00).

The Park Street northbound approach to the Main Street intersection currently experiences long delays (LOS E) during the Weekday AM and Weekday PM peak hours. With the addition of future traffic-volume growth without the apartment development (2024 No-Build), these delays are anticipated to be exacerbated to a point of operating over capacity during the Weekday AM peak hour (v/c = 1.13, LOS F, and 130 seconds of delay) and the Weekday PM peak hour (v/c = 1.14, LOS F, and 161.5 seconds of delay).

¹ *Transportation Impact Analyses for Site Development: An ITE Proposed Recommended Practice*. Washington, DC: Institute of Transportation Engineers, 2010.

² Massachusetts Department of Transportation. "Transportation Impact Assessment (TIA) Guidelines." *MassDOT Development Review – Planning Process*. Commonwealth of Massachusetts, 13 Mar. 2014.

Under 2024 Build traffic-volume conditions, the delays along the Park Street northbound approach increase during the Weekday AM peak hour (v/c = 1.39, LOS F, and 230.8 seconds of delay) and the Weekday PM peak hour (v/c = 1.52, LOS F, and 316.1 seconds of delay).

- T5. Based on MassDOT guidelines, the proponent may need to commit to a mitigation program if the development is anticipated to add vehicle trips to an intersection that is already performing with poor operations (e.g., LOS D or below in rural areas and LOS E or below in urban areas).³ In addition, state guidelines suggest that a development might have a significant impact at an intersection that should be mitigated if the addition of site trips results in an increase of 10 seconds of delay (Weekday AM = +17.5 seconds, Weekday PM = +38.2 seconds). Since the traffic study states that MassDOT guidelines were used in preparing the assessment, it is recommended that the Applicant coordinate with the Norfolk Planner and Director of Public Works to develop and implement mitigation measures to improve operations and offset the project's impacts at this intersection.

SIGHT DISTANCES

Please refer to BETA's peer review letter on the Traffic Impact and Access Study prepared for Abbyville Commons (48 apartment units).

IMPROVEMENT MEASURES

As recommended in the Traffic Impact and Access Study, any proposed landscaping and signage would be low and/or set back from the proposed site driveways to allow for adequate sight lines. To further improve sight lines, vegetation along the site frontage would be trimmed and selectively cleared, and land would be regraded as needed. After the proposed water main is installed, Lawrence Street would be repaved to provide a consistent roadway width. Advance intersection warning signs (W2-2) would be posted at the Lawrence Street and Park Street intersection.

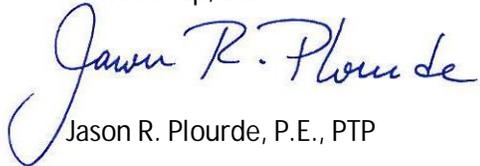
- T6. In addition, the Applicant should develop and propose measures to alleviate safety issues and improve vehicular operations at the Park Street and Main Street intersection; reduce vehicle speeds along the Lawrence Street and Park Street corridors; and ensure available sight lines would be provided at the site driveways in accordance with American Association of State Highway and Transportation Officials (AASHTO) requirements.

³ Ibid. 2.

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

Very truly yours,
BETA Group, Inc.



Jason R. Plourde, P.E., PTP
Project Manager

cc: **Ray Goff – Norfolk Town Planner**
Amy Brady – Norfolk Zoning Clerk

Job No: 4980

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