



ENGINEERING SUCCESS TOGETHER

March 30, 2017

Ms. Juliet T. H. Walker, AICP
City of Portsmouth – Planning Department
1 Junkins Avenue
Portsmouth, NH 03801

Re: Borthwick Avenue Office Development
Portsmouth, New Hampshire

Dear Ms. Walker:

BETA Group, Inc. has prepared the accompanying *Traffic Impact Study* to evaluate the traffic impacts associated with a proposed office development to be located off Borthwick Avenue in Portsmouth, New Hampshire. The scope of study in preparing the *Traffic Impact Study* was developed based on discussions with City of Portsmouth staff and in accordance with local, state, and national guidelines. This letter has been prepared to represent an executive summary of the *Traffic Impact Study*.

TRAFFIC VOLUMES

At the request of City of Portsmouth staff, the traffic impacts of the proposed office development were evaluated at the following study area intersections: the NH Route 33 signalized intersection with Borthwick Avenue, the Greenland Road unsignalized intersection with Borthwick Avenue, and the US Route 1 Bypass signalized intersection with Borthwick Avenue. Since a recent traffic study¹ was conducted for the subject site that was reviewed and approved by City of Portsmouth staff, traffic counts, traffic volume projections, and intersection analysis methodologies were obtained from that assessment and used as a basis for the proposed office development.

Future design conditions were projected from existing traffic volumes to the year 2018 to represent opening year conditions of the proposed development (2018). For planning purposes, traffic volumes were projected to represent opening year plus 10 years (2028). These projections were determined from existing travel patterns, historical traffic trends, traffic volumes associated with other planned developments in the area, planned roadway projects, and traffic volumes associated with the proposed development. Based on a review of New Hampshire Department of Transportation (NHDOT) historical traffic volumes in the area, consistent with previous research reviewed by the City of Portsmouth, and as confirmed with City of Portsmouth staff, a 0.5% compounded annual growth rate was used to account for general population growth and traffic generated by smaller developments in the area. In addition, the traffic associated with the recreation field to be constructed at the Stump Dump located on NH Route 33 across from the Cavalry Cemetery was included.

NHDOT conducts an annual monitoring program as part of regular maintenance for traffic signals under state jurisdiction. With the NHDOT Bridge Projects recently completed in the area, NHDOT plans to evaluate the operations of the state-maintained traffic signals as traffic patterns normalize and optimize the traffic signal parameters as necessary. Within the study area for the proposed office development, these intersections include NH Route 33 at Borthwick Avenue, and US Route 1 Bypass at Borthwick Avenue.

¹ Tighe & Bond, Inc.. *Transportation Planning Assessment, Borthwick Avenue-Islington Street Subdivision Road*, Oct. 2015.

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PROPOSED DEVELOPMENT

As proposed, a ±50,000 square foot office development would be constructed off Borthwick Avenue. A driveway would be constructed to intersect Borthwick Avenue just north of Jackson Gray Medical Building and provide access to the proposed office development. The driveway approach would be designed to consist of separate left- and right-turn lanes.

Based on trip-generation data published by the Institute of Transportation Engineers (ITE), the proposed development is calculated to generate 110 vehicle trips (97 entering and 13 exiting) during the Weekday AM peak hour, and 134 vehicle trips (23 entering and 111 exiting) during the Weekday PM peak hour. The proposed development could have less impact on the adjacent roadway system than as evaluated because a trip-credit was not applied for the available public transportation option (Cooperative Alliance for Seacoast Transportation [COAST] Bus Route 40).

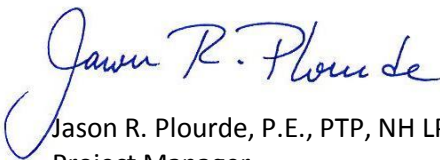
In accordance with ITE methodologies, an increase of 100 vehicles per hour or more could impact the vehicular operations on an intersection approach.² Based on the trip-generation and trip-distribution estimates for the proposed development, the proposed development would not be expected to increase traffic volumes by 100 vehicles per hour through any intersection beyond the site driveway. Therefore, the proposed development is not anticipated to have a significant impact on the adjacent roadway system.

PROPOSED IMPROVEMENTS

The Greenland Road and Borthwick Avenue unsignalized currently operates with long delays and vehicular queues that will be exacerbated with future traffic growth independent of the proposed office development. The Borthwick Avenue northbound approach consists of an exclusive left-turn lane under STOP-sign control and an exclusive right-turn lane under YIELD-sign control. The Borthwick Avenue south-westbound approach consists of a single general-purpose travel lane under STOP-sign control. The Greenland Road eastbound approach consists of a single general-purpose travel lane under free flow control. To improve deficiencies resulting from the combination of existing, background, and project-generated traffic, an All-Way Stop-Control design is proposed to be implemented.

Should you have any questions or require additional information, please feel free contact me.

Very truly yours,
BETA Group, Inc.



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

Enclosure: Traffic Impact Study

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² *Transportation Impact Analyses for Site Development: An ITE Proposed Recommended Practice*. Washington, DC: Institute of Transportation Engineers, 2010.