

**MEMORANDUM**

Ref: 1508A

To: Michael Behrendt, AICP  
Director of Planning and Community Development  
Town of Durham  
15 Newmarket Road  
Durham, New Hampshire 03824-2898

From: Stephen G. Pernaw, P.E., PTOE

Subject: Orion Student Housing

Date: December 31, 2013

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We are in receipt of the following documents relative to the proposed student housing project on Main Street and have reviewed the same on behalf of the Durham Planning Board:

- Vanasse & Associates, Inc. (VAI) "Access and Circulation Assessment" dated 10/31/2013.
- Allen & Majors Associates, Inc. plan entitled "Layout & Materials Plan" Sheet C-1 dated 9/4/13, (revised 10/25/13).

The purpose of this peer review is to point out salient information from these documents, along with our findings, so that the Planning Board, town staff and applicant can make an informed decision regarding several traffic aspects of the development proposal. The Assessment also includes several conclusions and recommendations, upon which we opine.

Traffic Memorandum: The traffic memorandum is not a typical "traffic study" in that it does not include future traffic projections and the various technical analyses that evaluate opening year and horizon year conditions, with and without the proposed development. Rather, the consultant has prepared a report that it describes as an "Access and Circulation Assessment" with the stated purpose being "*to provide and existing conditions context with respect to vehicle, pedestrian, and bicycle accommodations in the vicinity of the Project site, and to assess these conditions as they relate to the Project.*"

It is our understanding that the scope of the study was based on input from the Town. The rationale for this approach appears to be based on the fact that the project proposes a significant reduction in on-site parking from 50 spaces to 4 spaces for this 171-bed student housing facility (with 9,094 sf of commercial space). Essentially, this means that no vehicles will be traveling to the site, except for occasional drop-offs, pick-ups, deliveries, service vehicles, and emergency

vehicles. The Assessment states that most trips will be made by walking, bicycling or using public transportation.

The assessment provides an inventory of existing roadway geometrics, pedestrian and bicycle facilities, traffic volumes, operating characteristics, posted speed limits and land use information in the area. The existing conditions information found on Page 2 through Page 6 concerning roadways and intersections, traffic volumes, pedestrian and bicycle facilities is mostly statistical findings of fact that are incontrovertible.

It should be noted that the vehicular volume information is of limited use as it reflects off-peak conditions. Traffic counts conducted by our office in 2004 at the Main Street/Newmarket Road/Dover Road intersection indicate that considerably higher traffic volumes occurred during the weekday AM and PM peak hour periods than was observed by VAI from 9:00 to 10:00 PM on a Thursday night, and from 9:15 to 10:15 PM on a Saturday night. Recent NHDOT count data for Main Street confirmed that peak traffic flows occur from 5:00 to 6:00 or 6:00 to 7:00 PM. While the vehicular, pedestrian and bicycle data that is provided appears to be reasonable, we only question its utility.

The Assessment concludes that *“the Project is appropriately designed and located so as to be consistent with the exiting uses along Main Street and to be integrated into the available transportation resources, conditions which serve to minimize the potential impacts of the Project on the transportation system serving the study area. Further, the removal of the existing 50 parking spaces from the Project site will have a net positive impact on the flow of traffic along Main Street by physically removing an attraction of automobile trips along the corridor.”*

While this may be true with respect to the subject site, the Board should scrutinize how many students will likely have vehicles and where they will be parked. If off-site parking is not dispersed throughout the town, then there is the potential for traffic impacts to occur where off-site parking may be concentrated at one or two locations.

The Assessment includes several study recommendations that are offered independent of the proposed development:

- *Install No Parking signs along north side of Main Street between Newmarket Street and Madbury Road, and along the south side between Newmarket Street and Mill Road.*

SGP Comment: The recommended sign is attached (see R7-1) and is typically 12”X18” in size. The Board should discuss whether on-street parking has been a historical problem in this area. The question becomes does the town really want to proliferate their downtown sidewalks with a multitude of regulatory signs? If on-street parking in the travel lane has not been a recurring issue, then we advise not implementing this recommendation.

- *Install bike lane signs along Main Street where marked bicycle lanes are provided.*

SGP Comment: The recommended sign is attached (see R3-17) and is typically 30”X24” in size. While this type of sign is appropriate, the Board should discuss if it is truly needed for the reasons stated above.

- *Install pedestrian crossing warning signs at the marked crosswalks.*

SGP Comment: The recommended sign is attached (see W11-2) and is typically 30”X30” in size. While this type of sign is appropriate, given the multitude of marked crosswalks in the downtown area, the Board should discuss if it is truly needed for the reasons stated above. As an alternative, additional in-street pedestrian crossing signs could be utilized at certain crosswalks.

- *Install a lane diverge warning sign on the nose of the island channelizing Main Street eastbound traffic approaching Madbury Road.*

SGP Comment: The recommended sign is attached (see W12-1) and is typically 36”X36” in size. The study recommendation is to install one sign on the nose of the channelization island on the Main Street approach to Madbury Road. We concur with this recommendation.

Layout & Materials Plan: Although not clearly indicated on this plan, the “Access & Circulation Assessment” indicates that a one-way counter-clockwise circulation plan is proposed for this site. Therefore, the westerly driveway will accommodate all arrivals and the easterly driveway will accommodate all site departures. Our comments are as follows:

SGP Comment 1: The entrance driveway (westerly) is only 12-feet in width and 4-foot corner radii are proposed. This geometry is considered to be “tight” for a passenger car Design Vehicle, and would require drivers to either swing wide on Main Street or to track over the ADA ramp when entering the site from Main Street eastbound. Consideration should be given to widening the driveway or increasing the corner radius (closest to Existing Building #35), or both. While it is recognized that this will result in a somewhat longer crosswalk, it is important to safely and efficiently accommodate right-turn vehicle arrivals.

SGP Comment 2: The driveway arrangement shown on the plan is not capable of accommodating a single-unit Design Vehicle (box truck). The applicant should provide the Board with an “Auto-TURN” exhibit that demonstrates how the trash hauler travels to/from the site and services the dumpster location. The fire department may have similar concerns.

SGP Comment 3: The view looking left and right from the exit only driveway (easterly) is shown on the attached sight distance exhibit. The sight distance looking right is restricted by the vertical curve on Main Street. The applicant should measure the available sight distance and provide the Board with evidence that it is sufficient for 35 mph (posted limit plus 10 mph) or the 85<sup>th</sup> percentile free-flow speed, and the approach grades on Main Street.

Although we do not anticipate a sight distance problem, the view looking left and right from the westerly driveway (see Attachment) does provide considerably more sight distance than exists at the easterly driveway. If necessary, consideration could be given to reversing the one-way pattern and having all site departures exit via the westerly driveway. This pattern may also be advantageous for servicing the dumpster as well. As a general rule, extra driveway width is preferred at entrance driveways over exit driveways.

SGP Comment 4: It is not readily apparent why the easterly driveway is designed to be 18.7 feet in width. If there is flexibility, the Board may prefer to see more separation between the curb line and the northwest corner of Building “A.”

Attachments



**R7-1**

Sign image from the Manual of Traffic Signs <<http://www.trafficsign.us/>>  
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R3-17



R3-17a

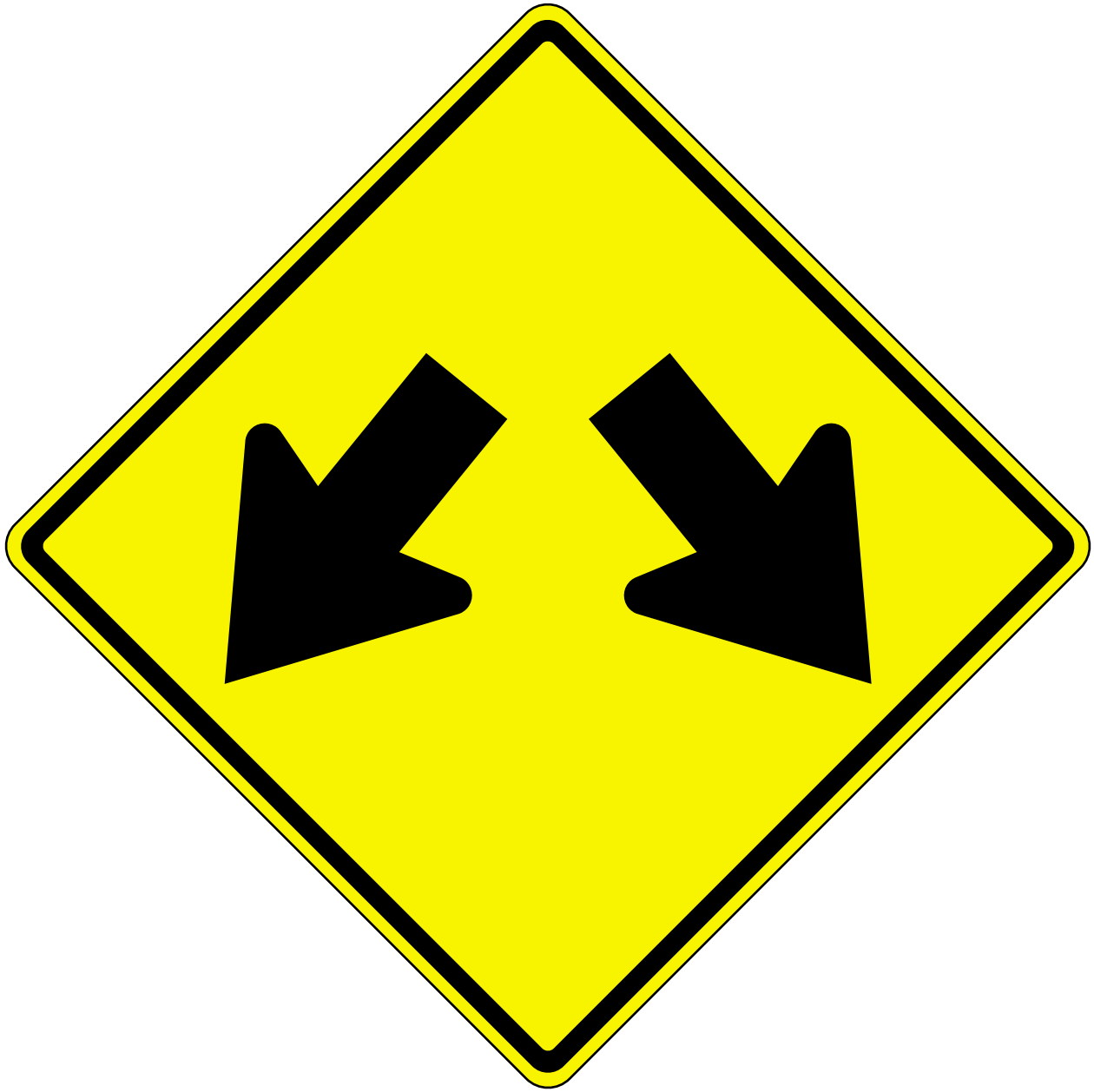


R3-17b



**W11-2**  
**Pedestrian**

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**W12-1**  
**Double Arrow**

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Looking Left



Looking Right



Looking Left



Looking Right

