



November 9, 2016

Ref: 13554.00

Ms. Emily Wentworth  
Senior Planner : Zoning/Special Projects  
Town of Hingham  
210 Central Street  
Hingham, MA 02043

Attn: Jeffrey Dirk, PE, PTOE, FITE

Re: Response to Comments  
VAI Traffic Engineering Review  
Broadstone Bare Cove - 230 Beal Street  
Hingham, Massachusetts

Dear Emily:

This letter provides additional information and responds to comments raised in a letter dated, November 2, 2016 from Jeffrey S. Dirk, PE, PTOE, FITE of Vanasse & Associates to your office (attached). VAI's letter focuses on traffic engineering and site layout issues, and raises several questions and offers several recommendations. Generally, however, the letter concludes that the traffic study was prepared professionally and followed reasonable standards of care for the Broadstone Bare Cove project at 230 Beal Street.

This letter provides responses and additional information to those comments for your information. The items that are italicized and bolded in the letter were actions that VAI was requesting additional information and/or responses to.

***VAI COMMENT #1 :: The applicant's engineer did not provide a description of the bicycle facilities within the study area. Based on our review, we note that on-road bicycle accommodations along Route 3A with the study area are generally limited; however the signalized intersections with the study area include bicycle detection. Off-road bicycle accommodates are afforded by way of shared use paths located within Bare Cover Park, the Back River Wildlife Sanctuary, the Stodders Neck recreation area and along the waterfront area in the northern portion of the Hingham Shipyard. In addition, Sgt. William B. Terry Drive and Beal Street provide sufficient width to support on-road bicycle travel in a shared travelled-way condition. These accommodations sever to link the Project site to the Lincoln Plaza, The Hingham Shipyard, the shared-use paths with the Bare Cove Park and Back River Wildlife Sanctuary, and also afford bicycle access to the Massachusetts Bay Transportation Authority (MBTA) West Hingham***

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*Commuter Rail Station and MBTA bus and Commuter Boat services that are available in the Hingham Shipyard.*

**RESPONSE:** Comment acknowledged. VHB and the Applicant acknowledge that the integration of bicycle transportation options is an important part of any residential community. The site plan shows bicycle parking spaces located throughout the site for those residents that might seek to use this mode of transportation for recreational purposes and/or for commuting purposes.

Towards that end, the Applicant will work with the Town to provide for shared-use bicycle markings (also known as “sharrows”) to be installed along Beal Street from approximately the site driveway to Fottler Road (final limits to be confirmed with the Town staff).

**VAI COMMENT #2 ::** *We note that the Applicant’s engineer did not include a discussion of the planned roadway, intersection and traffic control improvements that were included in the Comprehensive Permit Decision that was issued for the Avalon Hingham Shipyard II project in this section of the report and, instead, listed the improvements in the “Mitigations & Conclusions” section. It is customary to reflect the mitigation commitments that are associated with a specific development proposal by others in the No-Build condition traffic volumes (to the extent that the mitigation alters traffic patterns) and analyses to correspond to the conditions that include the specific development proposal. This allows for the establishment of baseline traffic volumes and operating conditions on the future transportation infrastructure prior to the introduction of Project-related traffic in order to determine if additional or modified improvements are required to accommodate the Project. That being said, we would expect that the extent of the additional improvements along the Route 3A corridor would be limited to the development of an optimal traffic signal timing, phasing and coordination plan.*

**RESPONSE:** Comment acknowledged. The overall majority of the improvements in the Avalon Hingham Shipyard II Comprehensive Permit were either outside of this Project’s study area, or would not impact the capacity of any intersections in a way that would require consideration of them in the No-Build assessment. The lone exception to that would be, as noted in the comment, the optimization of the traffic signals along Route 3A; which is an undefined improvement at this point in time.

The applicant has stated that they will conduct a post-occupancy traffic monitoring effort that would focus on identifying the Project’s impacts on area roadways and intersections. While the relatively limited peak hour impacts along Route 3A resulting from this project would not be expected to require any wholesale changes to traffic signal timings, the monitoring effort will provide capacity analysis at three locations along the corridor and will make recommendations to better optimize the timing as well.

**VAI COMMENT #3 ::** *As stated previously, it is surmised that inclusion of the committed transportation infrastructure improvements that are associated with the Avalon Hingham Shipyard II project in the traffic operations analyses would have indicated slightly improved operating conditions at the study*



**area intersections from those that are reflected in the October 2016 TIAs, particularly along the Route 3A corridor.**

**RESPONSE ::** As noted in the response to comment #2, we concur that there would be subtly improved operations at each of the intersections where signal optimization along Route 3A would take place. Given the limited impacts along this corridor resulting from the Project, the as-of-yet defined optimization plans would not likely be impacted by the presence of these trips.

**VAI COMMENT #4 ::** *An evaluation of sight distances at the Project site driveway intersection with Beal Street was not provided by the Applicant's engineer and is necessary in order to demonstrate that safe access can be provided to the Project site. The measurements should be completed in accordance with American Association of State Highway and Transportation Officials (AASHTO) standards and based on the measured 85<sup>th</sup> percentile vehicle travel speed along Beal Street (approximately 35 mph). In addition, the Applicant's engineer should add the sight triangles for the Project site driveway to the Site Plans (discussion follows).*

**RESPONSE:** On Saturday November 5, 2016, VHB measured the sight distances at the project driveways along Beal Street.

Once the observed vehicle speeds along Beal Street in front of the site, the next step in this process is to determine both the required and available sight distance at the intersection. Sight distance considerations are divided into two categories:

- Stopping Sight Distance; and
- Intersection Sight Distance

*Stopping sight distance (SSD)* – SSD is the distance required for an approaching driver to perceive and react accordingly to avoid an object within the roadway and/or an exiting vehicle from a side street or driveway.

*Intersection sight distance (ISD)* – ISD is the distance a driver exiting a driveway can see so that they can perceive that no on-coming vehicles are approaching, accelerate from a stopped position, and complete a desired exiting maneuver from the driveway. This is just as important a value as stopping sight distance because drivers who cannot see oncoming vehicles may pull out into the street suddenly only to be confronted with a driver traveling at a high rate of speed with little or no warning.

Based on the speed and approach grade information, the minimum required ISD and SSD distances based on AASHTO criteria are presented in Table 1 below.



**Table 1**  
**Required Sight Distance at Proposed Driveway\***

| Road/Direction     | Observed 85 <sup>th</sup><br>Percentile Speed** | Stopping SD<br>Required | Intersection SD<br>Required*** |
|--------------------|---|-------------------------|--------------------------------|
| <i>Beal Street</i> |   |                         |                                |
| Eastbound          | 34 mph  | 236 ft                  | 386 ft                         |
| Westbound          | 37 mph  | 289 ft                  | 408 ft                         |

\* Based on standards established in A Policy on the Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 2011

\*\* Speeds measured in miles per hour (mph)

\*\*\* Assumes passenger car design vehicle e and a 7.5 second time gap at the major roadway.

**Sight Distance Measurements**

Using the information noted above, VHB measured the available SSD and ISD at the project’s site driveway. Given the nature of Beal Street (level and straight sight lines) and the proposed right-turn exit only driveway, more than adequate sight lines are available in both directions for ISD and SSD measurements.

In the case where drivers are looking to the left as they exit the site driveway, the sight line allows for clear views to the point where Beal Street and Route 3A meet. In the case of stopping sight distance, there are clear sight lines in both directions approaching the site driveway.

In both cases, the available distances exceed the calculated required distances. Table 2 provides the measured / observed distances.

**Table 2**  
**Measured Sight Distance at Proposed Driveway**

| Road/Direction     | Stopping SD<br>Required* | Stopping SD<br>Measured** | Intersection SD<br>Required* | Intersection SD<br>Measured** |
|--------------------|--------------------------|---------------------------|------------------------------|-------------------------------|
| <i>Beal Street</i> |                          |                           |                              |                               |
| Eastbound          | 236 ft                   | 500+ feet***              | 386 ft                       | 500+ feet***                  |
| Westbound          | 289 ft                   | 450+ feet***              | 408 ft                       | 430+ feet***                  |

\* Based on standards established in A Policy on the Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, 2011

\*\* based on observations made at the site on November 5, 2016

\*\*\* sight lines are limited by the adjacent intersection/major roadway.

Given these observations, there is adequate sight lines for both ISD and SSD at the site driveway.

**VAI Comment #5 :: We are in agreement with the recommendations that have been provided by the Applicant’s engineer and offer the following additional recommendations for consideration by the Applicant, some of which have been incorporated into the Site Plans for the Project:**



**1. Internal to the Project site, roadways and circulating aisles should be a minimum of 22-feet in width for two-way travel and a minimum of 20-feet in width for one-way travel, or as required to accommodate fire truck turning maneuvers pursuant to the requirements of NFPA® 1.**

**RESPONSE:** The final plans will reflect this recommendation.

**2. Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.**

**RESPONSE:** The final plans will reflect this recommendation.

**3. Where perpendicular parking is proposed, the travel aisle adjacent to the parking shall be a minimum of 23-feet in width in order to accommodate parking maneuvers.**

**RESPONSE:** The final plans will reflect this recommendation.

**4. Fire lanes and/or emergency vehicle access roads should be a minimum of 20-feet in width as required pursuant to NFPA® 1.**

**RESPONSE:** The final plans will reflect this recommendation.

**5. 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).<sup>7</sup> This note should be added to the Site Plans.**

**RESPONSE:** The final plans will reflect this recommendation.

**6. Snow windrows within the sight triangle areas of the Project site driveway shall be promptly removed where such accumulations would exceed 2.5-feet in height.**

**RESPONSE:** The final plans will reflect this recommendation.

**7. Weather protected bicycle storage should be provided in secure areas within the parking garage of each building.**

**RESPONSE:** The final plans will note how many spaces and their location within the parking areas of each building.



**8. Beal Street/Fottler Road/Tuckers Lane – The Applicant should commit to evaluating alternative improvement plans for the intersection. It is envisioned that this evaluation would include an assessment at a conceptual level of reconfiguring the intersection as a modern roundabout or the implementation of other traffic control measures that are appropriate for the context of the intersection. The results of this evaluation would be summarized in a technical memorandum that would be provided to the Town and include conceptual plans illustrating the alternatives that were evaluated, the resulting traffic operations and the associated cost (preliminary) to implement the improvement measure.**

**RESPONSE:** The applicant will work with the appropriate Town staff representative/ department to study alternative plans for this location prior to the issuance of building permits for the project. The plans will include evaluations of various different traffic control options, including a traffic signal, a modern roundabout, and other actions as deemed reasonable and feasible. The applicant will document the various pros and cons of each option in a technical memo that will summarize conceptual plans, operations, and rough cost estimates.

**9. Route 3A/Beal Street – The Applicant should evaluate alternatives to reduce the width of the right-turn slip-ramp from Route 3A eastbound to Beal Street in order to reduce the speed of vehicles transitioning from Route 3A to Beal Street. Alternatively, this evaluation could include the introduction of a raised median along Beal Street between Route 3A and Sgt. William B. Terry Drive that would be similar to the landscaped median that has been constructed south of Sgt. William B. Terry Drive.**

**RESPONSE:** The applicant will work with the appropriate Town staff representative/ department and MassDOT (if needed) to evaluate the transition from Route 3A to Beal Street and the introduction of a median along Beal Street and Sgt. William B. Terry Drive. While the suggestion is that the observed speeds along these corridors are higher than the prima facie speeds, the difference is marginal (ranging from 2 to 5 mph in excess). Additionally, the introduction of the proposed parallel parking and sidewalks along Beal Street near the football/baseball fields will reduce the width of the travel lanes, and serve as a natural friction point for drivers to slow down as they transition through these areas. For example, it may be more feasible for the applicant to restripe the corridor to provide a shoulder and parking aisle through this area. This will reduce the pavement width to a more reasonable cross-section and will, with the introduction of the previously mentioned shared-bicycle markings, have the same effect of reducing speeds in this area.

**10. TDM Program – consider adding the following:**

- **Residents will be encourage to participate in MassRIDES' NuRide program, which rewards individuals that choose to walk, bicycle, carpool, vanpool or that use public transportation to travel to and from work.**



- **Residents will be made aware of the Emergency Ride Home (ERH) program available through MassRIDES, which reimburses employees of a participating MassRIDES employer partner worksite that is registered for ERH and that carpool, take transit, bicycle, walk or vanpool to work.**
- **A mail drop should be provided at a central location.**

**RESPONSE:** The applicant agrees to make these elements a part of the final TDM plan. The applicant will work with MassRIDES to implement these options for their tenants.

**VAI Comment #6** [note that there are a series of individual comments made in this section, each is responded to on a case-by-case basis] ::

1. **The Applicant's engineer provided a truck turning analysis for the Town of Hingham Fire Department design vehicle (tower truck). The turning analysis demonstrated that the subject vehicle can access and circulate within the Project site in an unimpeded manner; however, we note that the fire truck would need to back-up to exit the drive aisle along the east side of Building 1. A review of this maneuver indicates that the distance exceeds 150-feet and would require that an approved turnaround area be provided in accordance with NFPA® 1. This area should be added to the Site Plans and a revised turning analysis provided.**

**Response:** Acknowledged. The drive aisle along the east side of Building 1 will be reviewed with the Fire Department for acceptance or redesign.

2. **The Applicant's engineer should provide a turning analysis for an SU-30/40 (small delivery/moving vehicle and trash/recycling vehicle) that demonstrates that the subject vehicle can access and stage in the loading areas without blocking internal circulation. In addition, the analysis should also demonstrate the location and maneuvering required to serve the trash/recycling area.**

**Response:** A truck turning plan for a SU-30/40 will be provided as well as a plan illustrating the maneuvering required to serve the trash/recycle area.

3. **It is not clear from the Site Plans if a crosswalk is proposed for crossing Beal Street at the Project site driveway; a wheelchair ramp is shown on the southeast corner. If a crossing is to be provided, the Applicant's engineer should verify that the necessary lines of sight are provided and the design should include curblin extensions (bump-outs) or a raised median (discussion follows), ADA compliant wheelchair ramps on both sides of the crossing and pedestrian crossing warning signs at and in advance of the crossing.**

**Response:** There is no cross-walk proposed at Project site driveway.

4. **Consideration should be given to providing a sidewalk along the south side of Beal Street between the Project site driveway and the driveway to the Back River Wildlife Sanctuary.**



**Response:** The applicant will not be providing a sidewalk along this stretch of Beal Street. Connections to the wildlife sanctuary will be provided from internal areas within the site plan.

5. ***The corner radius for vehicles exiting the Project site should be redesigned as a compound curve and the raised channelizing island extended parallel to and off-set from the edge of the travelled-way on Beal Street in order to reinforce the left-turn restriction while continuing to accommodate fire truck egress. Further, a raised median should be installed along Beal Street extending from the Project site driveway southerly to Sgt. William B. Terry Drive in order to eliminate the potential for U-turn maneuvers along this segment of Beal Street and to reduce travel speeds approaching the Project site driveway. The raised median should be designed and constructed so as to be consistent with the raised median that exists to the south of Sgt. William B. Terry Drive (width and plantings).***

**Response:** The site driveway will be modified as noted in the first part of the comment and will incorporate an appropriately designed compound curved exit lane. VHB agrees that reinforcing the right-turn movement out of the site with physical changes to the exit lane is the best way to reduce the likelihood of motorist ignoring this restriction.

The applicant will continue to work with VAI and the Town staff to determine if a raised median along this section of Beal Street is feasible and reasonable. As noted previously, the installation of a sidewalk and parallel parking along the south side of Beal Street will have the potential to reduce the corridor width and will slow drivers appropriately through this section.

6. ***A "No Left-Turn" sign (graphic symbol) should be installed on Beal Street facing motorists exiting the Project site.***

**Response:** A "No Left Turn" sign will be proposed on Beal Street facing motorists exiting the project site.

7. ***A school bus waiting area should be provided within the Project site or at an appropriate location defined in consultation with the Town of Hingham School Department.***

**Response:** the applicant is actively working with the Town of Hingham School Department to identify a reasonable and safe location for student pick-up and drop-off. The final plans will note this on the plans.

8. ***The circular drive along the front of Building 2 should be redesigned to increase the width of the travelled-way to 24-feet or the parking should be changed to angle parking to correspond to the one-way direction of travel in order to provide sufficient maneuvering area for vehicles to access the adjacent parking spaces.***



**Response:** The perpendicular parking will be pushed away from drive aisle by 4 feet. This will in fact increase the parking stalls from 9'x18' to 9'x22' allowing for a 24' vehicle maneuvering area and allowing the drive aisle to remain at 20' wide.

- 9. *The sight triangle areas for the Project site driveway intersection with Beal Street should be added to the Site Plans along with a note to indicate: "Signs, landscaping and other features located within the sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within the sight triangle areas that exceed 2.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."***

**Response:** See response to Comment #4 for additional information on the distances required. Sight triangles for the project will be added to the final plans with a note indicating "Signs, landscaping and other features located within the sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within the sight triangle areas that exceed 2.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."

- 10. *A tenant move in/out management plan (narrative) should be provided and reflected in the truck turning analysis for the Project.***

**Response:** The applicant is will provide such narrative along with the truck turning analysis upon its completion and submission of the final plans. The truck turning analysis will also be updated and provided.

- 11. *A narrative should be provided describing how trash and recycling will be collected and then picked-up by the contracted hauler.***

**Response:** The applicant will provide such a narrative.

- 12. *The Applicant should consider incorporating electric vehicle charging stations into the Project.***

**Response:** The applicant plans to incorporate electric vehicle charging stations and priority parking in each building's garage.

***VAI Comment #7 :: The Applicant's engineer should provide parking demand observations from residential apartment communities in a similar setting with comparable access to public transportation services in order to support the requested waiver from the Zoning By-Law. We note that the parking ratio that is proposed is within the range of values documented by the Institute of Transportation Engineers (ITE) for an apartment community in a suburban setting.***

**Response:** Parking supply is a common concern in many municipalities when it comes to projects of these types. The applicant has been studying a number of similar sites and has a wealth of information on area community's supply and demand. Attached to this letter is a summary of parking ratios at a number of comparable apartment developments in similar areas

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of Boston. Not surprisingly, communities that are served by transit services tend to use less parking than non-transit serviced communities.

The highlighted cells in the attached spreadsheet show the parking demands at a number of modern communities and compares them to the supply being proposed at the Broadstone Bare Cove development. The proposed 1.54 space ratio exceeds all the noted demands at other sites, even those that are not serviced by transit. And, as noted by the commenter, the 1.54 space ratio exceeds the ITE recommendations for apartment communities in suburban communities.

We trust that the above information is helpful to address the open questions. Upon agreement to these changes, the applicant and their design / consultant team will submit a final plan showing the revisions noted. The applicant will also work with Town staff where noted to address outstanding questions and will integrate any findings into the final plan for the project.

If you have any questions on the attached, please feel free to contact me at your convenience.

Sincerely,

Vanasse Hangen Brustlin, Inc.

A handwritten signature in blue ink, appearing to read "Robert L. Nagi", is written over a light blue horizontal line.

Robert L Nagi, PE

Principal

CC: Mr. Michael Boujoulian, Alliance Residential