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# Memorandum

***To:*** Alison C. Steinfeld, Planning Director
Town of Brookline Planning Department

***From:*** James. D. Fitzgerald, P.E., LEED AP

***Date:*** October 24, 2016

***Subject:*** 1180 Boylston Street - Traffic Peer Review Response

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In general, Vanasse & Associatesô responses and subsequent evaluations adequately address Environmental Partnersô comments with a few exceptions. The following outlines items that require further clarification and relevant items that have been addressed. (Skipped comments are those that are not anticipated to require further discussion.) A separate peer review of the parking configuration and access is being provided by Walker Parking Consultants.

**Comment 4**

**EPG's Original Comment:** As reported by the Town, accident data from MassDOT for the Town is known to be lacking ñdue to (an) IT failure between the BPD and Mass RMV computer systemsò. Therefore reports from the Brookline Police Department would provide likely more accurate and reliable results.

**VAI's Response:** *Crash data has been requested from the Brookline Police Department for the study area intersections. A copy of the request for the crash data can be found in the appendix.*

**EPG's Response:** VAI requested the most recent two years of crash data from the Police Department. Almost three years of data was provided, 2014 through 2016, after VAI submitted comment responses. In a subsequent document, VAI summarized the crashes and calculated crash rates. 18 crashes occurred during the three year period of 2014 through 2016 at the Boylston Street at Hammond Street intersection. Most of these accidents (67%) involved rear-end collisions, similar to what was seen in the crash data from MassDOT. The crash rate for the intersection equates to 0.35 crashes per million entering vehicles which is approximately half the MassDOT district and statewide averages for signalized intersections (0.70 and 0.77 respectively). As documented in our previous comments, CTPS identified a substantial number of crashes (36) at this intersection during the three year period of 2004 through 2006; it is anticipated that changes have since taken place at the intersection to account for the recent reduction in crashes.

Only 3 crashes were reported during the same three year period at the Hammond Street at Heath Street intersection. The crash rate was calculated at only 0.15, substantially lower than the MassDOT district and statewide averages for signalized intersections.

Therefore, safety deficiencies at both intersections are not apparent in the crash data provided by the Police Department.

**Comment 5**

**EPG's Original Comment:** Trip generation evaluated anticipated 7,000 square feet of retail proposed on the ground floor yet the plans call for approximately 7,900 square feet.

**VAI's Response:** *The latest plans call for 6,855 square feet of retail on the ground floor but 7,000 square feet was still used to be conservative as the plans are likely to change.*

**EPG's Response:** Updated plans are requested to verify the evaluated 7,000 square feet of retail (reduced from the originally proposed approximate 7,900 square feet).

**Comment 6**

**EPG's Original Comment:** LUC 826 Specialty Retail Center was used to calculate trips generated by 7,000 square feet of retail proposed on the ground floor. According to ITE, ñspecialty retail centers are generally small strip shopping centers that contain a variety of retail shops and specialize in quality apparel, hard goods and services, such as real estate offices, dance studios, florists and small restaurants.ò Available data points in ITE for this LUC is very limited, significantly impacting the accurately of predicted trip generation. For instance, in the case of the evening peak hour, three data points are provided for approximately 15,000 square foot retail ranging from 45 to almost 100 trips yet only 19 retail trips were included for this 7,900 square foot retail development. (Only two other data points are provided, both for substantially larger developments.) In most cases, the size of this retail component is not shown or within the limits of the data points. Therefore, local data or a different LUC would be required in order to accurately estimate the retail trips.

**VAI's Response:** *LUC 826 Specialty Retail Center is commonly used by traffic engineers for small retail developments such as this one. However LUC 820 Shopping Center was used to update the trip generation which is the only other appropriate LUC available. The tables below show the updated trip generation analysis. New trip generation worksheets and new and updated peak hour volume*

*networks are in the appendix. This does not change the morning traffic generation and only adds 5 trips during the evening peak hour. In addition, Saturday trip generation has been presented as requested.*

**EPG's Response:** A trip generation comparison of a ñShopping Centerò use was provided given the additional data points available in ITE. A minor difference in trip generation was identified for the weekday evening peak hour trips. After accounting for reductions for walking, transit and pass-by traffic, a slight increase in retail trips from 8 trips to 13 trips was identified during the weekday evening peak hour.

Saturday retail trip generation was also calculated resulting in 17 trips during the Saturday mid-day peak hour and 171 daily Saturday trips.

As a result, apartment trip generation during a Saturday was also included in the Trip Generation summary chart. The (unadjusted) Saturday mid-day volumes entering and exiting were accidentally reversed (8 are entering and 6 exiting); however after accounting for reductions due to transit, walking and pass-by trips, the error has no impact on the traffic network (4 are entering and 4 are exiting).

**Comment 8 & 9**

**EPG's Original Comment:** In Table 4 (Trip Generation Summary: Residential), the new person trips for the Average Weekday Daily Traffic is shown as 51 but should be 112 according to the numbers provided, resulting in an increase in new vehicle trips from 46 to 102.

In Table 4 (Trip Generation Summary: Residential), for the weekday evening peak hour, a typo of 16 cars is listed as exiting. It was intended to be 6 cars per the trip generation calculations in the Appendix.

**VAI's Response:** *New trip generation was performed based on the change from LUC 826 to LUC 820 and any typos from the previous trip generation have been corrected. See tables above*

**EPG's Response:** Edits have been made to the ñTrip Generation Summary: Residentialò table, changing the total residential daily trips to 102. The table has also been expanded to show Saturday residential trips (71 daily and 8 mid-day peak hour).

**Comment 10**

**EPG's Original Comment:** Traffic generated by retail is anticipated to peak on Saturdays. However traffic counts and evaluations of site generated traffic were not provided for a Saturday mid-day peak hour.

**VAI's Response:** *Traffic counts were collected on September 24th 2016 for a Saturday midday peak period and subsequently a Saturday midday peak hour analysis was performed. The Saturday traffic counts can be found in the appendix. The tables below summarize the Saturday midday analysis as well as the morning and evening peak hour analysis that have been updated due to the new trip generation. Detailed analysis sheets from Synchro are provided in the appendix.*

**EPG's Response:** The revised retail trips generated by the proposed site were incorporated into the 2023 Build traffic networks and analyzed. A negligible increase in delay was found between the 2023 No-Build and 2023 Build conditions. At the Boylston Street/Hammond Street intersection, the largest increase in delay (2 seconds) will be experienced along the northbound Hammond Street approach during the Saturday mid-day peak hour. The intersection already fails (LOS F) during the weekday morning peak hour and will continue to fail under future 2023 No-Build and 2023 Build conditions. During the weekday evening peak hour, the intersection currently operates at a poor LOS E but will fail in 2023 with or without the proposed development. During the Saturday mid-day peak hour, the intersection currently operates at a LOS D but will operate at a poor LOS E in 2023 with or without the proposed development.

The Hammond Street at Heath Street intersection is not anticipated to change in LOS between existing conditions, future 2023 No-Build conditions and future 2023 Build conditions. The intersection operates at a poor LOS E during the morning peak hour and an acceptable LOS D and C during the weekday evening peak hour and the Saturday mid-day peak hours respectively.

**Comment 11**

**EPG's Original Comment:** This redevelopment project will increase foot traffic in the area. Considerations should be made for pedestrian improvements such as traffic signal upgrades with Accessible Pedestrian Signal and ADA compliant crossings at the Hammond Street at Heath Street intersection.

**VAI's Response:** *As part of the overall project mitigation the project proponent will consider pedestrian signal upgrades.*

**EPG's Response:** VAI indicates that the Applicant will consider the above traffic signal upgrades with Accessible Pedestrian Signals at the Hammond Street at Heath Street intersection.

**Comment 13 & 14**

**EPG's Original Comment:** Sight distance was reviewed for the site driveway. Speed data for Boylston Street was not provided. Although speed limits are posted at 40 m.p.h., 85th percentile speeds of 45 m.p.h. to 50 m.p.h. during off-peak periods are assumed. An independent sight distance calculation was performed using Stopping Sight Distance (SSD) calculations from the American Association of State Highway and Transportation Officials (AASHTO), the minimum sight distance required. Based on this, a sight distance of 360 feet or 425 feet is required for 45 m.p.h. to 50 m.p.h. respectively. The measured sight distance without protruding into the sidewalk is estimated at 390 feet, meeting sight distance requirements for 45 m.p.h. but not 50 m.p.h.

The report indicates ñBoylston Street has unrestricted parking on the south side of the roadway that contains approximately 20 parking spaces.ò However it is our understanding from previous ZBA hearings that the Applicant has indicated that there will be no parking along the site frontage along Boylston Street. (The site driveway is also being coordinated with MassDOT since it is along State Highway.) ñState Highway Parking Prohibitedò signs and ñNo Parking Anytimeò signs exist along some areas of Route 9 but do not exist in front of this site. Regardless of the signage, parking has been observed within the narrow shoulder (approximately 6 foot wide) in several areas of Route 9 including in front of the site. Since parking in front of the proposed site will impact sight distance from the driveway, additional signage is recommended in front of the site as well as increased police enforcement.

**VAI's Response:** *Sight distance according to AASHTO is measure from 14.5 feet back from the edge of the travel way. From this location the sight distance is greater than 500 feet and is acceptable for speed greater than 50 mph.*

*Based upon discussions with MassDOT no parking will be allowed in front of the site and additional signage restricting parking should be installed.*

**EPG's Response:** Stopping Sight Distance (SSD) is the distance that the Boylston Street vehicle needs to safely stop to avoid colliding with an obstruction in its path such as a vehicle exiting the site driveway. It is the minimum sight distance requirement and is being met for 50

mph. (Speed data for Boylston Street was not provided and therefore a speed of 50 mph is assumed.)

Ideally, however, the driver exiting the site would have additional visibility of oncoming eastbound Boylston Street traffic while stopped *behind the sidewalk* to avoid the need to protrude into the sidewalk for better visibility. The building design calls for retail space abutting the back of sidewalk and occupying the corner with the driveway. If an exiting vehicle were to stop behind the sidewalk, the building corner (with adjacent retail space) would limit visibility to the left especially to vehicles traveling in the right-most Boylston Street travel lane. It is not feasible for a driver stopped behind the sidewalk to see a distance of 500 feet (through the building corner and on-street parking west of Hammond Street) to a vehicle in the right-most travel lane.

It is feasible however for an exiting vehicle to stop *on the sidewalk*, with the driver located at 14.5 feet of the travel way (i.e. shoulder line) and see oncoming traffic for 500 feet. (It is our understanding per VAIôs response that no parking will be allowed in front of the site.) This presumes therefore that vehicles will stop on the sidewalk to get improved line-of-sight, impacting pedestrian access.

Although increased visibility of oncoming traffic would be preferred to avoid impacting pedestrians, the minimum SSD requirements for traffic moving 50 mph along Boylston Street are met regardless. Ultimately, since Boylston Street is State Highway, review by MassDOT will be required.

**Comment 15**

**EPG's Original Comment:** The report recommends providing transit schedules on site, although not seen on the current provided plans.

**VAI's Response:** *The project proponent will post transit schedules on-site.*

**EPG's Response:** VAI has committed to posting transit schedules on-site.

**Comment 16**

**EPG's Original Comment:** The report recommends providing bicycle racks on site, although not seen on the current provided plans.

**VAI's Response:** *Nine bicycle spaces will be provided inside the building.*

**EPG's Response:** VAI has committed to nine bicycle spaces inside the building.

**Comment 17**

**EPG's Original Comment:** Loading times should be restricted to off-peak times to minimize impacts at this congested intersection and allow for easier access to the loading zone.

**VAI's Response:** *Loading will not be allowed during peak travel periods. These are from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM.*

**EPG's Response:** VAI has committed that loading will not be allowed during peak travel times of 7:00 to 9:00 am and from 4:00 to 6:00 pm. Based on the provided Saturday traffic counts, the Saturday volume travelling through the intersection is almost as high as the weekday evening peak hour. Therefore considerations should be made for mid-day Saturday loading restrictions.

**These following comments were not addressed by VAI:**

- A 100,000 sf (800 student) school has been proposed at the Baldwin site. Anticipated volumes were not accounted for in the future traffic networks.

- The driveway entrance should not be depressed but should be at the elevation of the sidewalk to minimize impacts by pedestrians and to highlight the existence of the sidewalk to drivers.

- In order for the valet to allow occupants on the passenger side of the vehicle to enter or exit and access the corridor leading to the back doors of retail spaces and the apartment lobby, the vehicle will be required to stop immediately outside of the car lift. For exiting vehicles, this location could impact other exiting vehicles from using the lift if the car owners arenôt immediately ready to depart. Moving the vehicle into the sidewalk to allow access on the pedestrian side would result in blocking pedestrians along Boylston Street.

- If the proposed complex parking system (mechanical stackers, car elevators and valet service) and the need to relocate several of the 80 vehicles results in delays, the potential exists that vehicles will queue into Route 9 or will instead seek other easier/faster parking opportunities such as on-street Town parking, a concern of the residents.

- A loading zone/trash pickup area is proposed along the eastern Hammond Street sidewalk, adjacent to the site. The latest proposed plans show the loading bay cutting into the existing sidewalk by almost 7 feet, significantly narrowing it and requiring the increased volume of pedestrians resulting from this development to alter their path of travel to walk around it. Based on approximate field measurements, there is only approximately 3 to 4 feet of sidewalk (not including curb) that will remain within the right-of-way, resulting in pedestrians walking on private property where additional sidewalk width is shown on plan. A consistent sidewalk surface treatment is recommended. A permanent easement through MassDOT will be required.

- Improvements in operations between the State's Boylston/Hammond intersection and the Town's Hammond/Heath intersection should be considered with improved coordination between the two signalized intersections.