Environmental Partners GROUP
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Memorandum

To: Alison C. Steinfeld, Planning Director
Department of Planning and Community Development
333 Washington Street
Brookline, MA 02445

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

Date: August 22, 2017

Subject: Babcock Place, Brookline (40B)
Traffic Peer Review

In general, the Traffic Impact Assessment (TIA) dated February 2017 by Vanasse & Associates, Inc. (VAI) for the proposed development located at 134 and 138 Babcock Street in Brookline, Massachusetts has been prepared in a professional manner, consistent with standard engineering practices with the exception of the issues identified below.

The following is a summary of Environmental Partners Groupôs (EPGôs) traffic review of available documents. A review of proposed parking has been provided under separate cover by Walker Parking Consultants.

Existing Conditions

Babcock Street travels in a general north-south direction and is classified as an urban collector. In the vicinity of the project, the roadway consists of one travel lane in each direction, separated by a double yellow centerline. Cement concrete sidewalks and grass strips align each side of the roadway. The posted speed limit is 25 mph in each direction. On-street parking is provided along the eastern side of Babcock Street for a maximum of two (2) hours. ñNo Parking Any Timeò signs are posted on the western side of Babcock Street. Land use along Babcock Street consists primarily of residential properties.

The project site is located along the western side of Babcock Street at #134 and 138. The Private Albert Edward Scott Memorial Square park is located across from the project site, on the eastern side of Babcock Street in between the Freeman Street approach and departure lanes. The Freeman Street approach to Babcock Street is STOP-sign controlled. Cement concrete sidewalks run along either side of Babcock Street and Freeman Street but crosswalks are not provided at the intersection.

Approximately 1,600 feet south of the site, Babcock Street intersects Harvard Street forming a signalized T intersection. The Babcock Street southbound approach consists of an exclusive left turn lane and an exclusive right turn lane. The Harvard Street eastbound approach consists of an exclusive left turn lane and a through lane. The Harvard Street westbound approach consists of an exclusive right turn lane and a through lane. Cement concrete sidewalks are provided along all three legs to the intersection; on-street metered parking is provided along the legs to the

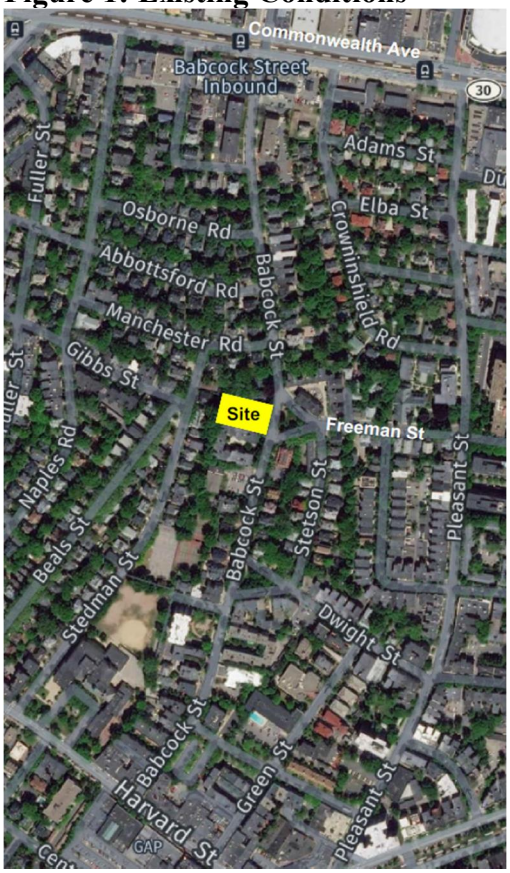
intersection except along the western side of Babcock Street. Bicycle lanes are provided along eastbound Harvard Street in the vicinity of this intersection, and along westbound Harvard Street west of the intersection. Pedestrian signals are provided for the three crossings. Land use in the vicinity of the intersection consists primarily of commercial properties.

Approximately 1,400 feet north of the site, Babcock Street intersects Commonwealth Avenue (Route 20) forming a four legged signalized intersection. Both the Babcock Street northbound and southbound approaches consist of one general purpose lane. The Commonwealth Avenue eastbound approach consists of two general purpose lanes (with a left turn restriction) and the Commonwealth Avenue westbound approach consists of three general purpose lanes. Cement concrete sidewalks and on-street metered parking exist along all legs of the intersection, and bicycle lanes are provided along both directions of Commonwealth Avenue. Directional traffic on Commonwealth Avenue is separated by the MBTA Green Line (B Branch). Pedestrian crosswalks exist at each leg of the intersection; however pedestrian signals are only provided for the Commonwealth Avenue crossings, not the Babcock Street crossings. Land use in the vicinity of the intersection consists primarily of commercial properties.

The following study intersections were included in the study:

- Harvard Street at Babcock Street
- Babcock Street at Freeman Street
- Commonwealth Avenue at Babcock Street

Figure 1: Existing Conditions



Transit

The MBTA Green Line and fixed-route bus service is available in the vicinity of the project. South of the project site, the MBTA Green Line (C Branch) runs along Beacon Street with a local stop at Coolidge Corner, approximately 2,500 feet walking distance from the project site. Bus stops for Route 66 are also available at the intersection of Harvard Street at Shailer Street, a walking distance of approximately 2,100 feet from the site.

North of the site, the MBTA Green Line (B Branch) runs along Commonwealth Avenue and has a local stop at the Babcock Street / Commonwealth Avenue intersection, a walking distance of approximately 1,500 feet from the site. Bus stops for Route 57/57A are also available at the intersection.

Proposed Project

The proposed project entails the removal of the existing multi-family residential properties located at 134 and 138 Babcock Street and the proposed construction of a 62 unit apartment development. The development will provide on-site parking for 31 vehicles in a ground level garage. Access to 134 and 138 Babcock Street will be provided by way of a single driveway on the west side of Babcock Street.

Intersection Safety

The report included a review of crash data provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit from 2010 through 2014, the most recent five years of data available. None of the crash rates were higher than the state or district averages; no fatalities were recorded.

In a supplemental letter from VAI dated July 7, 2017, crash data for the years of 2010 to 2016 from the Brookline Police Department was presented for the Harvard Street at Babcock Street intersection and the Babcock Street at Freeman Street intersection. The police data shows 5 more crashes than the MassDOT data at the Babcock/Harvard intersection during the common study years (9 crashes instead of 4). Regardless, the crash rate for the intersection remains lower than the State and District averages. No crashes were reported at the Babcock/Freeman intersection in the police data during the five year period, consistent with the MassDOT data.

Existing Traffic Volumes

The existing traffic volumes (collected in January) were increased by 12 percent to reflect an average month. While we concur that an adjustment in traffic volumes is necessary, it appears that the increase should have been 13.5% to adjust volumes to the average month. The adjustment would have only a minor impact on traffic volumes throughout the report.

Projected Traffic Volumes

Existing traffic volumes were projected the required 7 years to 2024 using an assumed background growth rate of 1% per year. Although backup data was not provided, it is anticipated that 1% per year is conservative.

Additional traffic volumes were also included in establishing the 2024 No-Build traffic volumes to reflect individual substantial developments anticipated in the area. Developments taken into consideration include: 420 Harvard Street (42 apartments); 384 Harvard Street (62 apartments); 455 Harvard Street (17 apartments and 1,735 sf of retail); 21 Crowninshield Road (8 apartments); 1299 Beacon Street (74 apartments); and 8-10 Waldo Street (320 apartments). The methodology used appears to be appropriate, however backup data was not provided for the above projects to verify the volumes. Also, the proposed apartment development at 420 Harvard Street should include the proposed retail space component.

Anticipated site generated trips were projected using the Institute of Transportation Engineerôs (ITE) Trip Generation Manual in order to generate the 2024 Build traffic volumes. Land Use Code (LUC) 220 ñApartmentò was used to generate trips for the proposed development. According to ITE, ñapartments are rental dwelling units located within the same building with at least three other dwelling units.ò The fitted curve equation was used for calculating apartment trips for the weekday morning peak hour and weekday evening peak hour; this method of calculation is suitable and the numbers appear to be accurate.

Despite transit accommodations available in the area, and the potential for other alternative modes of transportation such as bicycling or walking, site generated trips were not reduced to account for such volumes resulting in a conservative evaluation. Also, trips generated by the current residential usage (being removed) were not deducted from the projected trips, making the trip generation methodology more conservative.

Traffic Operations

Traffic analysis was performed to compare operations under the future 2024 No-Build conditions to the 2024 Build conditions. The provided analyses indicate a negligible increase in delay is anticipated with the development of the subject site.

- The Commonwealth/Babcock intersection will continue to operate at a LOS C and LOS D during the morning and evening peak hours respectively.
- The Harvard/Babcock intersection will continue to operate as a LOS C during both morning and evening peak hours.
- Based on the conservative analysis of site generated trips, the unsignalized Freeman Street approach to Babcock Street will see an increase in delay of 6 seconds during the morning peak hour, just enough to degrade LOS along the approach from D to E; a negligible increase in delay is anticipated during the evening peak hour.

In Table 11 (Signalized Intersection Capacity Analysis Summary), existing morning operations at the Commonwealth Avenue at Babcock Street intersection for the eastbound and northbound approaches should indicate LOS D (not C) to be consistent with the capacity analysis in the Appendix.

Sight Distance

Sight distance was reviewed for the intersection of Babcock Street at the project driveway. Sight distance calculations were performed using the American Association of State Highway and Transportation Officials (AASHTO) guidelines. Intersection Sight Distance (ISD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an oncoming vehicle and safely complete a turning or crossing maneuver. Stopping Sight Distance (SSD) is the distance required for a vehicle traveling at the design speed of a roadway to stop prior to striking an object in its travel path. According to AASHTO, ñif the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions.ò

While the posted speed limit along Babcock Street is 25 mph, the 85th percentile speeds of 28 mph and 26 mph were observed along northbound and southbound Babcock Street respectively. Sight distance was analyzed for a design speed of 30 mph indicating a minimum SSD of 200 feet is required. Minimum SSD requirements are met at the site drive approach provided the cluster of trees along the northern side of the parcel (behind the sidewalk) is removed and additional obstructions are not installed.

Zoning bylaw requirements for sight distance from the driveway to pedestrians appear to be met.

Parking

An assessment of parking needs has been included under separate cover by Walker Parking Consultants.

It appears that the development of the project site will impact existing parking spaces along the southern side of the parcel that face and protrude onto the adjacent property. Clarification of parking space usage is requested in order to determine if there are any potential parking impacts to the abutter that could in turn have an impact to on-street or town parking demand.

Site Driveway

The TIA recommends a driveway opening of at least 24 feet which would conform to the zoning requirements of a minimum 20 foot width for two-way access. (Updated) plans provided in VAIôs July 7th letter show passenger vehicle templates are accommodated to enter/exit the driveway, although the driveway opening width is not clearly labelled. Verification of width is requested on the site plan.

The TIA proposes the site driveway be place under STOP-sign control with all signage and pavement markings installed in accordance with the requirements of the Manual on Uniform Traffic Control Device (MUTCD).

Pedestrian Accommodations

Driveway apron details have not been provided. It is recommended that the sidewalk elevation be maintained to prevent inconvenience to pedestrians.

As discussed in the July 7, 2017 letter, raised pedestrian crosswalks are anticipated to be installed at the two Babcock Street/Freeman Street intersections as part of the Babcock Street and Naples Road Bicycle and Pedestrian Improvement Project.

Transit

The TIA proposes that transit schedules and maps be posted in public areas of the development.

Bicycle

Bicycle storage has been shown on the site plan.

Loading Zone/Trash Pick-Up

A loading zone and trash pick-up area is proposed on-site along the north side of the building and off of the roadway.

Summary

- The existing traffic volumes (collected in January) should have been increased by 13.5% to adjust volumes to the average month. The adjustment would only have a minor impact on traffic volumes throughout the report.

- Backup data of other nearby projects was not provided in order to verify 2024 No-Build volumes.

- Minimum SSD requirements are met at the site drive approach provided the cluster of trees along the northern side of the parcel (behind the sidewalk) is removed and additional obstructions are not installed.

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- The TIA proposes the site driveway be place under STOP-sign control with all signage and pavement markings installed in accordance with the requirements of the Manual on Uniform Traffic Control Device (MUTCD).

- Driveway apron details have not been provided. It is recommended that the sidewalk elevation be maintained to prevent inconvenience to pedestrians.

- The TIA proposes that transit schedules and maps be posted in public areas of the development.

- On-site bicycle storage has been shown on the site plan.

- A loading zone and trash pick-up area is proposed on-site along the north side of the building and off of the roadway.