

## MEMORANDUM

**Date** February 25, 2021

**To** Ms. Kathy Joubert  
Town Planner  
Northborough Town Hall  
63 Main Street  
Northborough, MA 02341

**From** James D. Fitzgerald, P.E., LEED AP  
Jane R. Davis, P.E.

**Subject** 425 Whitney Street Transportation Impact Assessment Peer Review

Environmental Partners (EP) has reviewed the Traffic Impact Assessment (TIA) prepared by Vanasse & Associates, Inc. (VAI) for the proposed laboratory/manufacturing facility to be located at 425 Whitney Street in Northborough, Massachusetts dated January 21, 2020.

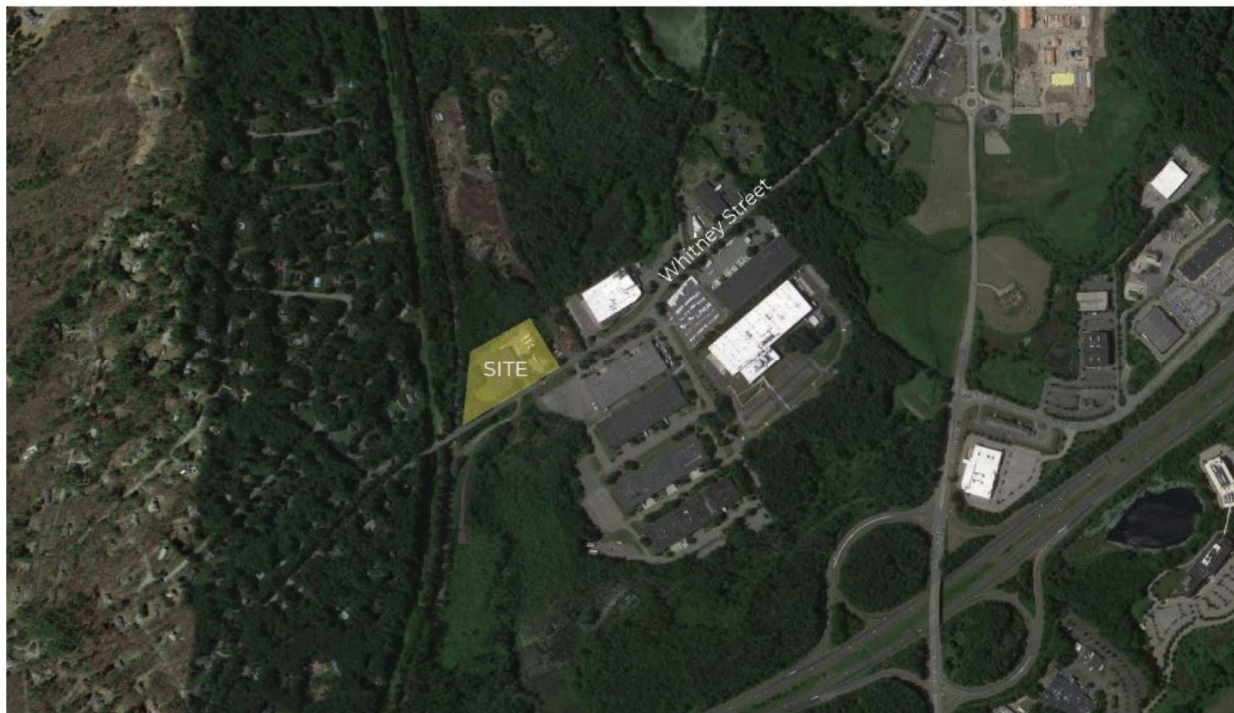
In general, VAI has prepared the TIA in a professional manner, consistent with standard engineering practices. The following is a summary of EP's traffic review.

### Project Description

The TIA outlines the following project description:

"As proposed, the Project will entail the renovation and expansion of the existing commercial building located at 425 Whitney Street in Northborough, Massachusetts, to accommodate a laboratory/manufacturing facility. The Project site encompasses approximately 5.0± acres of land that is bounded by areas of open and wooded space to the north; Whitney Street to the south; a commercial property to the east; and a railroad right-of-way to the west. The Project site currently contains a 45,753± square foot (sf) building that was formerly used by an architectural millwork manufacturer (Metrie). In conjunction with the Project, the existing building will be renovated and expanded by 23,475± sf, resulting in a 69,228± sf building, of which 49,000± sf will encompass office, laboratory and manufacturing space and 20,228± sf will be devoted to associated storage and warehouse space. Access to the Project site will continue to be provided by way of the existing driveway that intersects the north side of Whitney Street approximately 650 feet east of the bridge over the railroad right-of-way.

On-site parking will be provided for 38 vehicles, which complies with the parking requirements for the specific functional areas that will be contained within the building (office and warehouse) as specified in Section 7-09-030, Off-street parking and loading, of the Town of Northborough Municipal Code.”



Site Location Map (Source: VAI TIA)

## Existing Conditions

The TIA included one study roadway, Whitney Street, adjacent to the project site. VAI conducted a field inventory along Whitney Street, which included traffic volume data and travel speeds, existing pedestrian and bicycle accommodations, public transportation, and crash data.

The TIA indicates the project is expected to generate fewer vehicles than the existing/former usage. As such, VAI only included one study roadway and no study intersections as part of the study area, and therefore did not perform traffic analysis as part of this assessment. It is unclear based on the information provided whether or not the previous occupant still occupied the site as an existing usage at the time the traffic counts were completed in November 2019 and whether or not the occupancy was recent enough to be considered an existing condition. **EP requests clarification on the status of the previous occupant.**

EP notes that the project site is located within a short section of Whitney Street under MassDOT jurisdiction. The study roadway descriptions appear to be accurate and we request no further information.

### Existing Traffic Data

VAI conducted Automatic Traffic Recorder (ATR) counts on Whitney Street near the project site. The traffic data was collected for a 72-hour period from Thursday, November 14<sup>th</sup> through Saturday, November 16<sup>th</sup>, 2019 and included vehicle volumes and speeds. VAI summarized the weekday and Saturday average daily traffic (ADT) and peak hour volumes, and the summary appears to be correct based on the traffic count data provided in the appendix.

To determine if the traffic data needed to be seasonally adjusted, VAI reviewed data from a continuous count station located on the Massachusetts Turnpike (Interstate 90 (I-90)) in Hopkinton, which indicated that traffic volumes for the month of November are higher than the average month. To provide a conservative approach, VAI made no adjustments to the collected traffic data. Though the continuous count station is located relatively far from the project, EP agrees that traffic counts in the month of November are typically higher than the average month, as confirmed by the 2019 MassDOT Weekday Seasonal Factors Report, and we therefore request no further information related to seasonal adjustment.

VAI did not collect Turning Movement Count (TMC) data since there are no study intersections included in the provided study area.

### Pedestrian and Bicycle Accommodations

VAI's field inventory indicated there are no sidewalks or formal bicycle facilities along Whitney Street.

### Public Transportation

VAI indicated that there are no regularly scheduled public transportation services provided in the vicinity of the project, but noted that the Town of Northborough is serviced by the Worcester Regional Transit Authority (WRTA) for eligible persons.

### Crash History

VAI reviewed crash data along Whitney Street near the project site, and indicated there are no crashes at or in the vicinity of the site, nor are there any locations along Whitney Street included in MassDOT's Highway Safety Improvement Program (HSIP) listing. Though VAI did not indicate the years of study, EP reviewed MassDOT's crash data for the period between 2014 and 2018, and we confirm there are no recorded crashes at or near the project site. Based on available MassDOT crash data, there are several crashes along Whitney Street outside of the immediate vicinity of the project site; however, as there is no single location with more than two crashes during the five-year period, a specific crash trend is not anticipated. We do note, however, that the traffic circle at Whitney Road/River Road West/South Street in the Town of Berlin, approximately three-quarters of a mile east of the project site, experienced ten crashes between 2014 and 2018. Unless expansion of the study limits are justified, evaluation of the traffic circle is not included within study limits and therefore not required at this time.

EP typically recommends reviewing crash reports provided by the local police department for a more accurate crash history; however, since there are no study intersections included in the study area, nor would we expect a substantial difference from the zero crashes indicated from the MassDOT data to trigger a safety concern, we do not request further safety analysis.

## Roadway Improvement Projects

VAI contacted the Town of Northborough and MassDOT and indicated that there are no planned roadway improvement projects within the study area. While EP would typically recommend researching planned developments in the area to determine if additional vehicle trips should be reflected in the traffic analysis, no study intersections (or traffic analysis) is included and therefore we do not request this information at this time.

## Project-Generated Traffic

VAI applied the latest edition (Tenth Edition) of the Institute of Transportation Engineers (ITE) Trip Generation Manual to estimate the proposed project-generated vehicle trips using Land Use Code (LUC) 110 – “General Light Industrial” for 49,000 square feet (sf) of occupied space.

Table 1 summarizes the ITE trip generation, which indicates the project is expected to generate 244 vehicle trips on an average weekday and 98 vehicle trips on a Saturday, and 26 vehicle trips during the weekday morning peak hour, 23 vehicle trips during the weekday evening peak hour, and 20 vehicle trips during the Saturday midday peak hour.

VAI also applied the ITE Trip Generation Manual to estimate the project-generated vehicle trips for the former architectural millwork company using LUC 140 – “Manufacturing” for 45,753 sf.

Table 2 summarizes the comparison of vehicle trips generated by the former architectural millwork company and the proposed laboratory/manufacturing facility, which indicates a reduction of 60 vehicle trips on an average weekday and a reduction of 196 vehicle trips on a Saturday, and minor reductions in vehicle trips during the peak hours.

Based on proposed trip generation and the comparison to the former use, VAI concluded that the project-generated trips are relatively minor and will not result in a significant increase in motorist delays when dispersed over the respective peak hours, and that the proposed trip generation will result in comparable impacts to those of the former use.

EP offers the following comments regarding the trip generation:

- In general, the land use codes used appear to be the most appropriate for the former and proposed uses.
- VAI used 49,000 sf of *occupied* space to calculate the trip generation and did not account for the 20,228 sf of storage/warehouse space. **EP requests clarification on what justification and standard was used as the basis for using the partial square-footage.**
- VAI used ITE’s fitted curve methodology in establishing proposed trips; however, given the available sample points, one could argue using average rate methodology. With the evaluated 49,000 sf of occupied space, the morning peak hour would increase from the projected 26 trips to 34 trips and the evening peak hour would increase from 23 trips to 31 trips, which is either at or slightly above the existing trips. If the higher square footage is used, the difference in trips would almost double. **EP requests clarification on the selected trip-generation methodology.**

- We note that the available sample sizes provided by ITE for the Saturday trip generation for both previous and proposed land use codes are very small (1-2 studies) and may likely not produce accurate results.
- As discussed under the Existing Conditions section above, VAI did not include study intersections or traffic analysis given their anticipated reduction in vehicle trips for the proposed facility compared to the former use. Based solely on the TIA's findings, it appears that the proposed site generated volumes equate to one vehicle every two or three minutes which will likely result in negligible or minor delays and would be anticipated to be less than the former use. However, **EP requests clarification regarding the above-discussed trip generation methodology, proposed development size, and the status of the former use before commenting on the accuracy of trip generation and the potential need for further evaluation.**

## Sight Distance

VAI used the American Association of State Highway and Transportation Officials (AASHTO) guidelines to determine if the sight distance at the proposed driveway location along Whitney Street meets requirements. The AASHTO guidelines provide two criteria for determining adequate sight distance at an intersection:

Stopping Sight Distance (SSD) – the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path

Intersection Sight Distance (ISD) – the sight distance required by a driver entering or crossing an intersecting roadway to perceive an oncoming vehicle and safely execute a turning or crossing maneuver

The AASHTO guidelines indicate that if the sight distance at an intersection is at a minimum equal to the SSD, drivers have sufficient distance to avoid a collision in most cases; however, it is desirable to exceed this distance where possible, and therefore ISD is preferred.

VAI calculated the sight distance along Whitney Street using a speed of 35 miles per hour (mph), which is consistent with the both the posted speed limit along the roadway and the 85<sup>th</sup> percentile speeds measured along Whitney Street (32 mph eastbound and 35 mph westbound). According to AASHTO guidelines, a 35 mph speed limit requires a minimum SSD of 250 feet, and an ISD of 390 feet for left-turning vehicles and 335 feet for right-turning vehicles from the proposed site driveway. VAI increased the ISD to reflect gap times required for trucks to exit the driveway; EP takes no exception to this adjustment.

During our site visit, EP measured the sight distance from the location of the proposed site driveway along Whitney Street. We agree that with selective vegetation clearing, the required minimum sight distance should be met. **We request that the Applicant provide sight triangles for the proposed driveway on the site plans to indicate areas where all objects and vegetation should be removed and/or maintained below a height of 2.5 feet.**

## VAI Recommendations

VAI indicated that access to the site will continue to be provided by the existing driveway. They listed several recommendations related to driveway width, signage and pavement markings, and sight lines from the site driveway. EP agrees with the recommendations outlined in the TIA.

## Conclusions

In general, EP agrees with VAI's assessment pending the clarifications outlined above. EP will provide further commentary on VAI's conclusions regarding the project's impacts based on the clarification regarding the above-discussed trip generation methodology, the proposed development size, and the status of the former use.