

Ref.: 22120

December 7, 2022

Ms. Lynn Dahlin  
Town of Sutton Zoning Board of Appeals  
4 Uxbridge Road  
Sutton, MA 01590

Reg.: Traffic Peer Review  
Medical Office Building  
15 Pleasant Valley Road, Sutton, MA

Dear Lynn:

***Chappell Engineering Associates, LLC*** (CEA) has initiated an independent peer review of the traffic impact and access study and site plan prepared for a proposed medical office building to be constructed at 15 Pleasant Valley Road in Sutton, Massachusetts. As shown on the site plan, the project consists of constructing a 5,253 square foot building with access on Pleasant Valley Road. The existing driveway on Route 146 will be closed as part of the project.

The submitted traffic impact study and site plan were reviewed with respect to traffic impacts and site access and compared with state guidelines and standard traffic engineering practice. Based on a review of the submitted materials, we have some comments and recommendations that require further action from the applicant. Once these items are addressed, we will be able to finalize the traffic review of the project. The following lists the documents reviewed as part of the independent peer review:

- *Transportation Impact Assessment; Proposed Medical Office Building, 15 Pleasant Valley Road, Sutton, MA; prepared by Vanasse & Associates, Inc.; October, 2022.*
- *Sight Distance Study, 2 Plan Sheets, Proposed Medical Office, Sutton, MA; prepared by Vanasse & Associates, Inc.; October 11, 2022*

- *Site Layout Plan, Sheet C-301, Proposed Medical Office, 15 Pleasant Valley Road, Sutton, MA; prepared by Bohler Engineering; August 5, 2022.*

The comments below follow the same outline as the submitted traffic study for ease of reading. Comments in bold indicate where additional information is requested from the applicant.

## TRAFFIC STUDY REVIEW

1. The traffic study describes the proposed medical office building to be 5,150 square feet, yet the site plan shows a 5,253 square foot building. **The applicant should clarify the proposed building size.** As described later in this review, the slightly smaller building size assumed in the traffic study will not materially affect the conclusions of the traffic study.
2. The traffic study focused on the following intersections:
  - Route 146 at Pleasant Valley Road
  - Route 146 at Boston Road
  - Pleasant Valley Road at Boston Road and Dudley Road

The traffic study area is appropriate for the proposed project and its expected traffic generation.

3. The study provided a description of the area roadway network. Traffic volume and vehicle speed data were conducted in April and September 2022. Turning movement counts were conducted at the study intersections during the weekday AM peak period (7:00 to 9:00 AM) and the weekday PM peak period (4:00 to 6:00 PM). The counts showed that the weekday AM peak hour generally occurred from 7:00 to 8:00 AM and the weekday PM peak hour generally occurred from 4:30 to 5:30 PM. CEA concurs with the selected time periods used for analysis. **A comparison of the actual count data to the volumes shown on the traffic flow networks shows that the left- and right-turn volumes on the Pleasant Street northbound approach to Boston Road appear to have been flipped during the weekday AM peak hour. This error was then carried through to the future No-Build and Build traffic flow networks as well as the capacity analyses. The traffic flow networks and the affected intersection capacity analyses should be updated to reflect the correct volumes.**
4. The study did not make any adjustments to the collected data to represent pre-COVID traffic conditions. However, the new *MassDOT Traffic and Safety Engineering 25% Design Submission Guidelines* note that traffic volume data collected after March 1, 2022 are no longer subject to any adjustments to represent pre-pandemic traffic volume conditions, except in areas where land use is predominantly office. Therefore, since the traffic volume

data were collected in April 2022 and land use in the area is predominantly industrial and commercial, COVID adjustments do not need to be applied to the data.

5. Seasonal adjustments were reviewed using MassDOT data. The data indicated that April counts were higher than annual average month conditions and no seasonal adjustments were therefore made to the collected counts. CEA concurs with these findings.
6. Accident data were reviewed and summarized within the traffic study. The data include the year 2020, which has not been authorized for use yet by MassDOT. However, the four years prior provide sufficient information and exceed the three-year minimum required by MassDOT. The intersection of Route 146 and Boston Road is shown to have a crash rate well above the statewide average and is listed as a Highway Safety Improvement Program (HSIP) eligible location. A Road Safety Audit (RSA) was required of this intersection as part of the condition for approval of the Unified warehouse development on Boston Road. The intent of the RSA is to identify any measures to improve safety at the intersection. All other study intersections experienced crash rates below the statewide average.
7. A sight distance analysis was performed at the proposed driveway location based on observed 85<sup>th</sup> percentile speeds. This analysis shows that a minimum of 261 feet of clear sight distance is required to the south of the driveway to see traffic turning from Route 146 in time to avoid a collision. The applicant submitted a sight line plan and profiles showing that this distance can be achieved after removal of existing vegetation. **It is recommended that the existing grades within the sight triangle (identified on the sight line plan prepared by Vanasse & Associates) be maintained, or if altered through site construction work, assure that the sight lines shown in the profiles are not impacted. It is further recommended that the sight triangle area be kept clear of any obstructions such as landscaping, signs, or fences and be regularly maintained to assure adequate sight distance. The applicant should also ensure that existing vegetation within the Pleasant Valley Road right-of-way to the north of the driveway be trimmed or removed to assure adequate sight distance to the north.**
8. A 7-year design horizon was used for the No-Build and Build condition analyses consistent with MassDOT's *Transportation Impact Assessment Guidelines*. An annual growth rate of 1.0 percent per year was used to project the future No-Build volumes consistent with other recent traffic studies in the area. CEA concurs with this growth rate.
9. The traffic study included the following planned developments within the town of Sutton:
  - Unified warehouse— approximately 995,000 square foot warehouse distribution center on Boston Road.
  - Blackstone Logistics Center (Sutton, Douglas and Uxbridge) – approximately 650,000 square feet of warehouse distribution space.

**Based on review of other studies in the area, there are additional developments that could impact traffic within the study area and should be included within the background growth assumptions including:**

- **Lackey Dam Logistics Center, Sutton and Uxbridge – approximately 180,000 square feet of warehouse distribution space with access on Oakhurst Road and Lackey Dam Road.**
- **85 Gilmore Drive, Sutton – approximately 140,000 square feet of industrial manufacturing space and 40,000 square feet of ancillary office space.**
- **Campanelli Business Park Phase 1, Uxbridge – 800,000 square feet of industrial space on Campanelli Drive.**
- **Campanelli Business Park Amazon Facility, Uxbridge – an Amazon sortation facility at 515 Douglas Street.**
- **Gilboa Street, Douglas – 1.1 million square feet of warehouse space on Gilboa Street.**

**The applicant should contact the towns of Sutton, Uxbridge, and Douglas to determine the status of these and other potential development projects and update the future volume conditions as appropriate.**

10. The trip generation of the development was estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*<sup>1</sup> for Land Use Code 720 (Medical-Dental Office Building). While the land use code is correct, the trip generation was based on a slightly smaller building size than shown on the site plan. This difference, however, would only increase trip generation by one vehicle during the weekday AM peak hour and would therefore not alter the conclusions of the traffic study. During the weekday PM peak hour, the report for some reason already assumed a higher number (25 trips) than the correct building size would generate (18 trips). Therefore, the trip generation assumptions are acceptable.
11. The traffic study describes that the trip distribution methodology was based on existing travel patterns with approximately 35 percent to/from each the north and south on Route 140, 20 percent to/from the east on Boston Road, and 10 percent to/from the west on Boston Road. The distribution assumptions appear appropriate for the proposed use.
12. Capacity analyses were performed at the study area intersections under Existing, No-Build and Build conditions. **As described in Comments 3 and 9 above, the analyses should be updated to reflect the correct turning movements and background development projects. The analysis table for the signalized intersection should also be expanded to show the results for each movement (rather than by approach) and should show 95<sup>th</sup> percentile queue calculations.** While the Route 146 and Boston Road intersection shows

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<sup>1</sup> *Trip Generation Manual, 11<sup>th</sup> Edition*; Institute of Transportation Engineers; Washington, DC; 2021.

slightly better results than the recent traffic study prepared by VHB for the Unified warehouse development, the difference lies in the fact that VAI adjusted the lost time (the total of start-up delay plus all of the yellow and red clearance times) down by 2 seconds on each approach. This is reasonable given the very long yellow and all-red intervals and results in more realistic representation of intersection operations. The results of the analyses indicate that the medical office building will not have a significant effect on intersection operations. This should be verified once the capacity analyses have been updated as requested.

## SITE PLAN REVIEW

13. The site plan proposes to construct a new site driveway on Pleasant Valley Road, 24 feet in width with 20-foot corner radii and a stop line and stop sign at its intersection with Pleasant Valley Road. The proposed geometry and traffic control are appropriate for the use.
14. The site plan proposes one-way counterclockwise circulation around the building. We question the need to stripe a stop line across the access way near the four 90-degree parking spaces. The proposed DO NOT ENTER signs should be sufficient to deter any vehicles from exiting the site the wrong way. **The Town should consider requesting the applicant to remove this stop line.**
15. **The freestanding sign proposed just south of the site driveway and the pylon sign proposed at the corner of Route 146 and Pleasant Valley Road are both located within the sight triangle. These signs should be post mounted (not monument signs) and the bottom of the signs should be sufficiently high enough so as not to block sight lines for vehicles exiting the site. Alternatively, the signs could be relocated outside of the sight triangle area.**
16. The fire department's largest vehicle should be able to traverse the site. **It is recommended that AutoTurn (or a similar program) be used to show a swept-path analysis of the largest fire truck to be used around the site. It is also recommended that the proponent coordinate with the Sutton Fire Department regarding accessibility to all sides of the building.**
17. The site plan shows 30 parking spaces to be provided on site. Based on information from the Institute of Transportation Engineers *Parking Generation Manual, 5<sup>th</sup> Edition* dated January 2019, a 5,253 square foot medical office building is expected to have an average peak parking demand of 17 spaces and an 85<sup>th</sup> percentile peak parking demand of 25 spaces. Accordingly, the proposed supply of parking should be more than sufficient to accommodate demand.

Once the above comments have been addressed, we will be able to finalize our independent traffic peer review of the proposed medical office building. Please feel free to contact me if you have any questions regarding this review.

Sincerely,

***Ron Müller & Associates***

A handwritten signature in cursive script, appearing to read "Kirsten Braun".

Kirsten Braun, P.E.  
Associate