



Ref.: 22035

May 20, 2022

Ms. Jennifer Hager, Planning Director  
Town of Sutton  
4 Uxbridge Road  
Sutton, MA 01590

Reg.: Traffic Peer Review  
Unified Global Packaging Group  
Boston Road, Sutton, MA

Dear Jennifer:

***Ron Müller & Associates*** (RMA) has initiated an independent peer review of the traffic impact and access study and site plan prepared for a proposed industrial development to be constructed between Boston Road and Providence Road (Route 122A) in Sutton, Massachusetts. As proposed, the project consists of constructing a new roadway between Boston Road and Providence Road, referred to as Unified Parkway, that the proposed industrial uses will access from. Two buildings are to be constructed on site which are referred to as Buildings 2 and 3. Both buildings will total approximately 995,000 square feet and provide warehouse and distribution space for Unified Global Packaging Group, whose headquarters are located at 223 Worcester Providence Turnpike in Sutton. A third building, Building 1, is part of the overall development plan, however it is not included in the current filing or traffic analysis.

The submitted traffic impact study, roadway improvement plans 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:

- *Traffic Impact Evaluation for Buildings 2 and 3; Proposed Warehouse and Distribution Facilities, 105 Providence Road, Sutton, MA; prepared by VHB; March 30, 2022.*

- *Transportation Improvement, Boston Road, Sutton, MA*; prepared by VHB; March 28, 2022.
- *Proposed Site Plan Documents for Unified Global Packaging Group Industrial Development, Sutton, MA*; prepared by Bohler Engineering; March 28, 2021.
- *Definitive Subdivision Plans for Unified Global Packaging Group, Unified Parkway, Sutton, MA*; prepared by Bohler Engineering; January 10, 2022.
- *Response to Comments*, prepared by VHB; submitted via email on May 9, 2022.

The comments below follow the same outline as the submitted traffic study for ease of reading.

## TRAFFIC STUDY REVIEW

### Existing Conditions

1. The traffic study focused on the following intersections:

- Providence Road (Route 146) at Boston Road
- Boston Road at Dudley Road/Pleasant Valley Road
- Boston Road at Galaxy Pass
- Providence Road (Route 122A) at Boston Road
- Boston Road at Site Driveway

**Please see Comment 29 regarding the inclusion of the proposed intersection of Unified Parkway and Providence Road in the study area.**

2. The study provided a description of the area roadway network. Manual tuning movement counts were performed in October 2021 between 6:00 AM and 7:00 PM to collect the weekday AM and PM peak period volumes for the study intersections. In the Response to Comments supplement submitted on May 9, 2022, Automatic Traffic Recorder (ATR) counts collected in June 2021 along Providence Road were also submitted. Given the current traffic conditions associated with the coronavirus pandemic, the study reviewed historic traffic data to determine if the counts needed to be adjusted to represent normal, pre-COVID traffic conditions. The 2021 traffic data at the study area intersections were compared to traffic data collected in August of 2014 on Route 146 near the site. Based on this comparison, it was determined that the weekday AM peak hour counts need to be upwardly adjusted by 11 percent while the weekday PM peak hour counts were higher than the historic traffic volume

data and therefore no adjustment needed to be made. RMA concurs with these COVID adjustments.

3. Seasonal adjustments were made to the data based on MassDOT 2019 Weekday Seasonal Adjustment Factors. It was noted that June and October traffic volumes along Urban Principal Arterials are approximately 7 to 9 percent higher than average annual conditions. Additionally, June and October traffic volumes along Urban Minor Arterials are approximately 6 to 14 percent higher than average annual conditions. Based on this information, the counts were not adjusted. **It is recommended that the applicant review MassDOT permanent count station data near the site to confirm the lack of seasonal adjustments.**
4. Figure 3 shows the Existing adjusted traffic volumes at the study area intersections. The intersections of Boston Road with Route 146, Dudley Road and Galaxy Pass are all within 1,000 feet of each other. There are very few curb cuts between Boston Road and Galaxy Pass and therefore volumes between the three intersections should balance. **It is recommended that the applicant balance the traffic volumes between the three intersections. The same comment therefore applies to the No-Build and Build volume networks.**
5. Accident data were reviewed and summarized within the traffic study. Calculated crash rates were found not to be significant at the intersections of Boston Road with Dudley Road/Pleasant Road, Galaxy Pass and Providence Road. The intersection of Boston Road at Route 146 has a crash rate much higher than the statewide and district wide averages. Furthermore, this intersection is listed as a Top 200 Crash Cluster for the years 2017 to 2019. It was not specified if a Road Safety Audit (RSA) has been conducted for this intersection. **The applicant should confirm if an RSA has been conducted or is currently underway. If not, it is recommended that the applicant perform an RSA at the intersection of Route 146 and Boston Road to determine any measures that may be implemented to improve safety.**

### **Future Conditions**

6. 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. The study used a recent traffic study prepared for another project in town that went through MassDOT review to determine the annual growth rate. This traffic study was performed in 2021 for the Blackstone Logistics Center. **It is recommended that the applicant provide the data that was used to develop the annual average growth rate in the Blackstone Logistics Center traffic study to confirm the use of this growth rate.**

7. The traffic study included traffic associated with the Blackstone Logistics Center at 40 and 100 Lackey Dam Road which is proposed to contain a 640,000 square foot warehouse. In addition, the study describes smaller residential developments at 19 Canal Street and 15-17 Rice Road in Millbury as well as some additional development potential at the Pleasant Valley Crossing Phase III project. These developments were assumed to be included in the annual average growth rate. **While we concur that the traffic from smaller development projects can be accounted for the annual growth assumption, it is recommended that the applicant provide more information regarding the sizes of these smaller developments. Furthermore, given the proximity of the site to other towns, it is recommended that the applicant reach out to local officials in Millbury and Grafton to determine if there are any planned or approved developments that would have an impact on the study area.**
8. **It is recommended that the applicant confirm that there are no planned or approved roadway improvements within the study area.**
9. Based on the site plan, Building 2 is proposed to be 652,530 square feet and Building 3 is proposed to be 343,206 square feet, totaling 995,736 square feet. The trip generation of the site was based on a larger warehouse size of 1,005,000 square feet. It was noted that both buildings will not house e-commerce last-mile home delivery operations.

The study notes that operations at other similar sites in Sutton and Lancaster were reviewed to determine the appropriate land use to use and empirical traffic data were also collected at these sites. Based on this information, the trip generation of the development was estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual* for High-Cube Transload and Short-Term Storage Warehouse (Land Use Code 154). Although the study references the 10<sup>th</sup> Edition of the ITE manual, the trip calculations provided in the Appendix correctly use the 11<sup>th</sup> Edition of the manual.

It was found that the ITE data resulted in higher trip generation than the empirical data collected at the similar Sutton and Lancaster sites. To provide a conservative analysis, the ITE trip generation data were used and it was assumed that the peak of traffic operations for the two buildings occurs at the same time as the peak of the roadway traffic, therefore the weekday AM and PM peak hour of generator data were used to provide a conservative analysis. **RMA concurs with these assumptions; however, it is recommended that the volume of truck traffic be broken out separately from the total trip generation. It is further recommended that the Applicant submit the empirical data for the two existing sites referenced to verify the trip generation assumptions.**

10. The traffic study describes that the trip distribution methodology was based on Journey-to-Work data obtained from the U.S. Census Bureau for persons employed in the Town of Sutton. Based on these data, the study assumes 32 percent of the new site traffic will be on Route 146 to/from the north and 31 percent of the new site traffic will be on Route 146

to/from the south. In addition, seven percent of the new trips were assigned on Boston Road to/from the west, 18 percent to/from the south/east on Providence Road and the remaining 12 percent to/from the north/west on Providence Road. The distribution of new site trips for employees appears reasonable. **It is recommended that a separate distribution pattern be developed for truck traffic to and from the site as this may differ substantially from the employee distribution. The applicant should submit updated trip distribution and Build volume networks and also include the Unified Parkway and Providence Road intersection as discussed in Comment 29.**

### **Traffic Operations Analysis**

11. Capacity analyses were performed at the study area intersections under Existing, No-Build and Build conditions. The intersection of Route 146 and Boston Road currently experiences severe capacity constraints with most movements operating at level E or F that will be exacerbated by additional traffic from the development. While additional capacity improvements may be difficult at this location, **the Town of Sutton should consider requiring the applicant to prepare a Road Safety Audit at this intersection to determine if safety improvements can be implemented by the applicant to at least lower the accident experience, as described in Comment 5.**
12. **Existing, No-Build, and Build analyses may need to be re-run based on our prior comments regarding network balancing, traffic adjustments, and trip generation and distribution assumptions.**
13. **Given that a significant portion of the site trips will be tractor trailer trucks, the capacity analyses should also be updated to reflect an increase in the percentage of heavy vehicles on the movements affected by development truck traffic.**
14. The signalized intersection analyses were performed using the Highway Capacity Manual (HCM) 2000 methodology. **It is recommended that the results be updated to reflect the newest HCM 6th methodology, or a reason be provided why this older version of the methodology was used.**
15. The No-Build and Build weekday AM and PM traffic volumes at the intersection of Boston Road and Providence Road in the Synchro reports do not all match the traffic volumes within the No-Build and Build traffic volume networks. **It is recommended that these traffic volumes be updated to match the networks.**

### **Sight Distance Evaluation**

16. Available sight distances from the proposed Unified Parkway intersections with Boston Road and Providence Road were not measured or compared with minimum requirements. **It is recommended that the applicant measure sight distances at the proposed site driveway locations and compare the findings with the minimum requirements based on observed 85<sup>th</sup> percentile speeds on the adjacent streets as established by the American Association of State Highway and Transportation Officials (AASHTO).**

### **SITE PLAN REVIEW**

17. The site plan proposes to construct Unified Parkway connecting Boston Road and Providence Road and providing access to Buildings 2 and 3. Both ends of Unified Parkway will provide dedicated left and right turn lanes exiting the site. Access to both buildings is proposed via driveways intersecting Unified Parkway. **It is recommended that the Unified Parkway exits onto Boston Road and Providence Road as well as the internal driveways operate under stop control with stop lines and STOP signs (R1-1) placed on the driveway exits.**
18. Truck turning movements are shown for right turns into and out of the site at the Providence Road driveway, however no turning movements are shown at the Boston Road driveway. **It is recommended that tractor trailer truck (WB-67) turning movements also be shown at the Boston Road intersection with Unified Parkway.**
19. 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 each building.**
20. Truck circulation should be shown on the site plans showing how trucks will access the parking area or the loading bays. **It is recommended that AutoTurn (or a similar program) be used to show tractor trailer truck (WB-67) circulation through the site. The applicant should also consider including truck wayfinding signage through the site to ensure that the trucks do not access areas designated for passenger vehicles.**
21. **The applicant should investigate the available sight lines at the Building 2 and 3 access driveways onto Unified Parkway. Of particular concern is the driveway to Build 2, where the horizontal and vertical curvature of Unified Parkway may introduce sight line constraints, both for motorists exiting the Building 2 driveway and for motorists making a left turn into the driveway. The site plan should show the sight triangles at**

**these driveways to assure that any proposed landscaping or signs are outside these sight triangles and do not impede driver visibility.**

22. Based on the site plan and definitive subdivision plan, a sidewalk is proposed along the westerly side of Unified Parkway with a crosswalk across Unified Parkway connecting to a sidewalk along the Building 2 driveway. The location of this crosswalk may not allow sufficient sight distance for motorists to see pedestrians in the crosswalk due to the horizontal and vertical alignment of Unified Parkway. **It is recommended that sight distances to the crosswalk be evaluated and corrective actions be taken to ensure a safe crossing at this location is not feasible. All crosswalks should have ADA compliant wheelchair ramps.**
23. The site plan proposes 493 parking spaces. As labeled on the site plan, per zoning requirements, 323 parking spaces are required for Building 2 and 172 parking spaces are required for Building 3 for a total of 495 parking spaces. **The town should determine if the number of parking spaces proposed is adequate for the site.**

## **BOSTON ROAD IMPROVEMENTS PLAN REVIEW**

24. Based on a review of the roadway improvement plans, two lanes westbound will be carried through from Unified Parkway to Galaxy Pass. Eastbound a dedicated left turn lane will be provided into Unified Parkway. The site plan shows dedicated left and right turn lanes on Unified Parkway however the roadway improvement plans do not show that. **It is recommended that the site plan and roadway improvement plans coincide to show the proposed lane arrangements.**
25. The proposed stop line on Unified Parkway at its intersection with Boston Road is set far back from the road. This stop line location will result in sight line restrictions at the driveway given the grades and vegetation on either side of the driveway. **It is recommended that the stop line be moved forward (no further than 10 feet from the new Boston Road curb line). The corner radii may need to be increased, or Unified Parkway widened at this intersection to allow tractor trailer trucks to safely make the turns based on this stop line location. In addition, a sight line plan and profile should be provided showing that minimum required sight lines can be attained at this location.**
26. **As mentioned in Comment 18, it is recommended that truck turning movements at this intersection be shown on the plans.**
27. The plan proposes 12-foot wide through and left-turn lanes with 2-foot wide paved shoulders. **The applicant should consider 11-foot wide through lanes and 10-foot wide left-turn**

**lanes to allow 5-foot wide paved shoulders to be constructed that would accommodate bicycle traffic along Boston Road.**

28. **The plans should show the proposed 5-foot wide sidewalk proposed along the westerly side of Unified Parkway and how this sidewalk will terminate at the intersection.**

## **RESPONSE TO COMMENTS**

29. In response to comments received at a meeting with the applicant on April 20, 2022 VHB provided a supplemental analysis to include the intersection with Unified Parkway and Providence Road. As part of the analysis, traffic to and from the north on Providence Road were now assumed to utilize the intersection of Unified Parkway and Providence Road to access the site. **As discussed previously, it is recommended that separate distribution patterns be developed for truck traffic and employee traffic. Truck routes to/from the site will likely follow a different travel pattern than employees. Furthermore, it appears that ATR data from June 2021 were used for the through volumes on Providence Road. While the projected Build volumes at the intersection are higher than the collected ATR counts, no information is provided on how these volumes were derived and what seasonal, COVID, or historical growth adjustments were made. This information should be provided to verify the future volume projections.**

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

Sincerely,

***Ron Müller & Associates***



Kirsten Braun, P.E.  
Associate