

September 10, 2024

NEX-2400158.00

Ms. Jacki Byerley, AICP, Town Planner  
Town of Andover  
Planning & Economic Development  
36 Bartlet Street  
Andover, MA 01810

SUBJECT: Special Permit Application – P&G Andover Manufacturing Center Enhancement Project  
30 Burt Road, Andover, MA  
Traffic Peer Review Letter #2

Dear Ms. Byerley and Members of the Planning Board:

Greenman-Pedersen, Inc. (GPI) previously performed a peer review of the transportation impacts associated with the Gillette Company, LLC P&G Andover Manufacturing Center Enhancement Project to be located at 30 Burt Road in Andover, Massachusetts in a letter dated June 25, 2024<sup>1</sup>. The review focused on the following documents:

- *Application for Special Permit*, prepared by The Gillette Company, LLC; dated April 16, 2024.
- *P&G Andover Manufacturing Center Enhancement Project – Zoning Compliance*; prepared by Greenberg Traurig; dated April 16, 2024.
- *Alta/NSPS Land Title Survey*; prepared by Green International Affiliates, Inc.; dated March 27, 2024.
- *P&G Andover Manufacturing Center Enhancement Project, Andover, MA, Planning Board Submission & Notice of Intent Filing – Site Plans*; prepared by Nitsch Engineering; dated April 16, 2024.
- *Architectural Plans & Elevations*; prepared by Fennick McCredie Architecture; dated April 16, 2024.
- *Traffic Impact Assessment, Proposed Manufacturing Center Enhancement Project, P&G Gillette Facility, 30 Burt Road, Andover, Massachusetts*; prepared by Vanasse & Associates, Inc. (VAI); dated April 2024.
- *VAI Response to Traffic Engineering Peer Review #2, Town Yard Redevelopment, Andover, MA*; prepared by VAI; dated May 24, 2024.

Subsequent to this review, the Applicant has prepared the following additional documents to respond to GPI's review comments:

- *Response to Traffic Peer Review Letter #1, Proposed P&G Andover Manufacturing Center Enhancement Project, Andover, Massachusetts*; prepared by Vanasse & Associates, Inc. (VAI); July 31, 2024.
- *P&G Andover Manufacturing Center Enhancement Project – Permitting Set*; prepared by Nitsch Engineering; Revised July 30, 2024.

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<sup>1</sup> *Special Permit Application – P&G Andover Manufacturing Center Enhancement Project, 30 Burt Road, Andover, MA, Traffic Peer Review Letter #1*; Greenman-Pedersen, Inc.; June 25, 2024.

- *Application for Special Permit; The Gillette Company LLC; P&G Andover Manufacturing Center Enhancement project; 30 Burt Road, Andover, MA; prepared by Greenburg Traurig; dated September 3, 2024.*

GPI has reviewed the additional documents provided by the Applicant and found that the documents generally address the comments contained in GPI's initial review letter with the exception of the items described in this letter. The original comment numbers have been retained for consistency.

### **Study Area**

2. The Applicant has provided the requested analysis of the project's impacts on the operations of the Route 125 / Ballardvale Street intersection. The results of the analysis indicate that several movements at the intersection are anticipated to operate at level-of-service (LOS) E or F with long delays and queues during the weekday morning and evening peak hours under both 2032 No-Build and Build conditions. The proposed development is anticipated to increase delay on the Route 125 eastbound left-turn by 15 seconds per vehicle in the weekday morning peak period and will increase delay on the Ballardvale Street southbound movements by 10 to 23 seconds per vehicle during the weekday evening peak period as a result of employees traveling to and from the site. **GPI recommends the Applicant evaluate whether signal timing modifications at this location can improve the operations of these movements during these time periods. This intersection is under the jurisdiction of the Massachusetts Department of Transportation (MassDOT). Therefore, any improvements at this location will require review and approval by MassDOT, as well as subject the project to the MassDOT Access Permit Application process.**
3. The Applicant has provided an analysis of the project's impacts to the operations of the intersections of Route 125 with the I-93 NB and SB Ramps; however, **the Applicant has not provided the signal timing input data in the Synchro worksheets to verify the inputs of the analysis.** The results of the analysis indicate that the additional traffic generated by the proposed expansion will have minimal impact on the operations of the intersections. All movements at the intersections will operate at LOS D or better during all analysis time periods with the exception of the I-93 NB Off-Ramp right-turn movement onto Route 125. This movement is anticipated to operate at LOS E and slightly over capacity (volume-to-capacity ratio exceeds 1.00) during the weekday morning peak hour under 2031 No-Build and Build conditions. Much of the delay on this movement is the result of the conservative background growth rate of 1.5 percent per year combined with the traffic generated by five other development projects in the area.

### **Traffic Volumes**

6. The Applicant contacted the Town of Wilmington for information on other development projects that may increase traffic within the study area. The Applicant's response notes that five developments were identified and the traffic generated by these developments has been included in the 2031 No-Build analysis conditions. Although the 2031 No-Build traffic-volume networks appear to indicate that traffic has been added for these developments, no information was provided in the *Response to Traffic Peer Review Letter #1* (RTC) to indicate the traffic attributable to each of the other developments. **The Applicant should provide this information for review and verification.**

### **Collision History**

8. The Applicant has provided the requested collision history analysis for the additional study area intersections, which indicates that none of the study area intersections experienced crash rates higher than the state or district-wide averages.

### **Sight Distances**

10. The Applicant has provided the requested sight line assessment at the site driveway intersections, as well as at the River Street intersections with Connector Road and Lowell Junction Road. GPI has the following comments relative to the analysis:
- a. Table A-1 in the RTC lists the desirable intersection sight distance (ISD) at the River Street intersections with Connector Road and Lowell Junction Road as being 375 feet to the north and 420 feet to the south. The ISD to the south appears to have been calculated based on the 85<sup>th</sup> percentile speed of 38 miles per hour (MPH) traveling northbound on River Street. However, the ISD to the north of 375 feet appears to be a typographical error as this is the distance that would be required for a southbound travel speed of 39 MPH. However, the 85<sup>th</sup> percentile speed on River Street southbound was 34 MPH, which would result in an ISD of 325 feet being required to the north of the Connector Road and Lowell Junction Road.
  - b. The minimum ISD must be as long as the minimum SSD based on the 85<sup>th</sup> percentile speed to ensure that vehicles traveling along River Street have adequate time to stop for a vehicle exiting Connector Road or Lowell Junction Road. However, the desirable ISD is typically based on the posted speed of the roadway to ensure that drivers traveling at or below the posted speed limit do not need to slow to less than 70 percent of their original travel speed for a vehicle exiting a side street. Drivers traveling at speeds over the posted speed may need to slow more significantly for a vehicle to exit the side streets. Based on the posted speed of 35 MPH on River Street, a desirable ISD of 335 feet to the north and 390 feet to the south would be required at the River Street intersections with Connector Road and Lowell Junction Road.
  - c. All of the available sight lines will meet or exceed AASHTO recommendations for safe SSD and ISD with the exception of looking north exiting the Connector Road onto River Street. The ISD in this direction is restricted by a utility pole, trees, and boulders placed along the westerly edge of River Street north of Connector Road. The majority of the vegetation and boulders appear to be located on private property. Therefore, a sight line easement may be required from the property at 10 Connector Road to clear or trim vegetation and remove or relocate these boulders.

### **Trip Generation**

- 11 – 15. The Applicant has provided updated trip generation calculations based on anticipated employee shift changes, which indicate that the proposed development is anticipated to generate an increase in 826 passenger vehicle trips due to employees and 32 truck trips on a daily basis. In addition, the proposed development is anticipated to generate 113 passenger vehicle trips (107 entering and 6 exiting) and 2 truck trips (one entering and one exiting) during the weekday AM peak hour, and will generate 150 passenger vehicle trips (43 entering and 107 exiting) and 3 truck trips (1 entering and 2 exiting) during the weekday PM peak hour. While GPI appreciates the data provided by the Applicant as a means of verifying the validity of the trip generation estimate, it is general engineering practice to at least provide a comparison to Institute of Transportation Engineers (ITE) trip rates if a comparable use exists, and utilize the more conservative (worst case) approach to estimate site-generated vehicle trips. While the proposed tenant may have specific needs related to employee shifts and deliveries, another manufacturing/office tenant could occupy the space without any additional permitting and may experience different employee and delivery needs. In addition, the proposed tenant's needs may shift over time as technologies and products change. Empirical data is typically used as the only source for trip generation data in the absence of another comparable use with sufficient data points.

Based on ITE trips rates for LUC 140 – Manufacturing for a 201,460 SF expansion, the proposed development would be anticipated to generate 957 vehicle trips (478 entering and 479 exiting) on a weekday, 137 vehicle trips (104 entering and 33 exiting) during the weekday AM peak hour, and 149 vehicle trips (46 entering and 103 exiting) during the weekday PM peak hour. The trip generation estimate based on ITE is comparable to the Applicant-provided data during the weekday PM peak hour, but is 19-

percent higher than the Applicant-provided data during the weekday AM peak hour. **GPI recommends the Applicant update the analysis of the weekday AM peak hour based on ITE trip rates to account for potential future changes in employment numbers, employee shift changes, technological advances, delivery truck schedules, and/or tenant changes.**

### **Capacity and Queue Analysis**

19. While the Applicant has provided updated Synchro analysis worksheets indicating the percent heavy vehicles on each movement, the updated worksheets do not provide the signal timing data for the signalized intersections. **The Applicant should provide updated worksheets with this input information.**
20. GPI has the following comments related to the capacity and queue analysis prepared by the Applicant as part of the RTC:
- a. Traffic exiting River Street onto Andover Street experiences long delays and queues during the weekday PM peak hour under all analysis conditions. The additional traffic generated by the proposed development is anticipated to exacerbate these delays and queues. At the request of GPI, the Applicant considered the feasibility and impacts associated with implementing the following three alternatives at this intersection:
    - i. Option 1 – Installation of All-Way Stop Control (AWSC)
    - ii. Option 2 – Channelizing the approaches and shifting the alignment of the intersection so that the Andover Street east leg is under STOP-control and the Andover Street west leg and the River Street south leg are free-flow movements, and
    - iii. Option 3 – Installing traffic signal control.

The Applicant notes that Option 3 – installing a traffic signal was dismissed as the traffic volumes through the intersection meet only the peak hour signal warrant and that typically traffic volumes must meet a 4-hour or 8-hour warrant for a signal to be installed. While MassDOT, prefers that a 4-hour or 8-hour warrant be met, only one warrant needs to be met to justify installation of a traffic signal. In addition, the Applicant has not provided the supporting signal warrant analysis to demonstrate that neither the 4-hour or 8-hour warrants are met. Given the geometry of the intersection and the limited sight lines approaching the intersection, installation of a traffic signal may be a safer approach over the recommended Option 2. Installation of a traffic signal also offers the ability to set different timing parameters by time of day to accommodate the heavy River Street northbound volume in the evening and heavy Andover Street eastbound volume in the morning. With proper queue detection, the signal can also be utilized to control queues to prevent blocking of the railroad crossing near the Ballardvale MBTA station. **GPI recommends the Applicant perform a signal warrant analysis to assess whether any of the warranting conditions will be met at this intersection under Build conditions.**

The Applicant has also dismissed Option 1 – AWSC at this option would result in long delays and queues on Andover Street eastbound in the morning and River Street northbound in the evening. The queues on Andover Street are anticipated to extend for 725 feet, which will extend through the railroad crossing near the Ballardvale Station and beyond Church Street in the morning with implementation of the AWSC. GPI concurs with the Applicant's assessment that this option will not provide the best solution from a traffic operations perspective, although it may provide some safety benefits due to limited sight lines at the intersection.

As Option 2 significantly improves the traffic operations during the weekday evening peak hour, and eliminates the risk of queues extending over the railroad tracks, the Applicant has recommend Option 2 for implementation at this intersection. Option 2 involves installing stop control on the Andover Street westbound approach and allowing the Andover Street eastbound and River Street northbound approaches to operate free-flowing. With this option, traffic continuing straight along Andover Street

eastbound will now become a left-turn movement and will need to yield to River Street northbound traffic. The building at #205-209 Andover Street is located immediately adjacent to the roadway on the southwest corner of the intersection and may block visibility of oncoming traffic on River Street for drivers turning left onto Andover Street. In addition, drivers exiting the driveway of #205-209 Andover Street will not have the ability to see vehicles approaching from River Street. **GPI recommends the Applicant perform an evaluation of the sight lines at this intersection with the proposed Option 2 in place to assess whether adequate sight lines will be provided for all movements through the intersection prior to providing a recommendation for the preferred alternative.**

- b. Implementation of either Option 2 or 3 will likely require private property easements and significant work beyond the scope of the proposed development to construct. **Therefore, the Town should consider requiring the Applicant to provide a contribution to the Town of Andover to be placed in an escrow account and to be used toward future improvements at this location within a set timeframe. The funds could be utilized for either the design or construction of the improvements, and would be returned to the Applicant if a project has not been significantly advanced at this location within the designated time frame.**
- c. Table A-7 of the RTC provides an analysis of the impact of implementing an AWSC at the Connector Road / Lowell Junction Road intersection, which indicates that all movements would operate at LOS C or better under Build conditions with the AWSC in place. GPI concurs that an AWSC would provide a safety and traffic operations benefit to this intersection. The Applicant has offered to contribute towards the signage need to make this modification. **GPI recommends that the Applicant install the pavement markings and signage required to convert this intersection to AWSC, including any necessary advance warning signage of the STOP condition ahead.**

### **Parking**

- 21-24. The Applicant has provided the requested parking demand assessment based on current employee shifts, which indicates that a peak parking demand of 598 parking spaces is anticipated to be generated by the employees on a typical weekday. This represents 91 percent occupancy of the spaces on site by employees alone, and does not provide account for any visitor parking. The Institute of Transportation Engineers (ITE) *Parking Generation, 5<sup>th</sup> Edition* notes that when parking lots exceed 90 percent occupancy, the lots are perceived as full and illegal parking and excessive recirculation of vehicles to find open spaces can occur. **Therefore, GPI continues to recommend that the Applicant perform a post-occupancy monitoring study to assess the occupancy of the available parking and evaluate whether any of the 1,619 reserve parking spaces need to be constructed.**
24. The Applicant noted that the design of the parking garage has not been advanced enough to determine whether its construction can be phased. **GPI recommends the Applicant consider a design that allows the construction to be phased in order to right-size the parking provided on the site to accommodate actual parking demands and not over-construct parking.**

### **Site Circulation, Access, and Egress**

- 26-32. All comments related to the Site Plans, circulation, access and egress have been sufficiently addressed.

### **Mitigation**

33. The Applicant's September 3, 2024 letter from Greenberg Traurig to the Andover Planning Board describes that the Applicant is committed to providing the following funding to the Town of Andover to offset the project's impacts of the surrounding roadway network:
- i. \$5,000 toward implementation of an All-Way STOP Control at Lowell Junction Road / Connector Road;

- ii. \$20,000 toward installation of one Rectangular Rapid Flash Beacon along River Street at a location of the Town's choosing; and
- iii. \$100,000 toward reconfiguration of the Andover Street / River Street intersection.

GPI concurs with the first two commitments by the Applicant for funding toward an AWSC at Lowell Junction Road / Connector Road and an RRFB on River Street. However, GPI recommends that the contribution for the Andover Street / River Street intersection be at least as much as the higher of:

- a. The cost associated with implementing the Applicant's initially recommended option of Option 2 – Intersection Reconfiguration (including design and construction);
- b. The cost of the design of a traffic control signal at the intersection; OR
- c. 10 percent of the total cost of design and construction of a traffic control signal at the intersection (proportional to the Applicant's percent increase in trips through the intersection during the peak hour).

**GPI recommends that the Applicant perform an estimate of the survey, design, and construction costs associated with implementing each of the alternatives and identify a contribution equivalent to the highest of the three conditions above to be provided to the Town for future improvements at this location. These funds should be placed in an escrow account prior to the issuance of a building permit for the proposed development and should remain within the escrow account until such time as the Town advances a project at the intersection. If design of improvements has not been completed within five years following issuance of a Certificate of Occupancy on the expansion project, the funds will be returned to the Applicant.**

Should you have any questions or require additional information, please contact me directly at (603) 766-5223 or by email to [rebeccabrown@gpinet.com](mailto:rebeccabrown@gpinet.com).

Sincerely,

**GREENMAN-PEDERSEN, INC.**



Rebecca L. Brown, P.E.  
Senior Project Manager