

July 19, 2019

MAX-2018162.00

Jacki Byerley, AICP  
Town of Andover – Town Planner  
36 Bartlett Street  
Andover, MA 018110

SUBJECT: The Dascomb Road Project – Transportation Peer Review  
Review of TECs Response to Comments

Dear Ms. Byerley:

**Greenman-Pedersen Inc.** (GPI) previously performed a review of the transportation impacts associated with The Dascomb Road Project (herein referred to as the “Project”) to be located at #146 Dascomb Road in Andover, Massachusetts. The review focused specifically on the *Traffic Impact, Access, and Parking Study (TIAPS)* and the site plans prepared by The Engineering Corp, Inc. (TEC). The following documents were submitted for our review:

- *Traffic Impact, Access, and Parking Study, The Dascomb Road Project, Andover, Massachusetts;* prepared by TEC; October 16, 2018.
- *Site Plans: The Dascomb Road Project, Andover, Massachusetts (Assessors Map 203, Lot 2A-1);* prepared by TEC; October 31, 2018.
- *Planning Board Special Permit Application;* prepared by TEC; October 31, 2018.

GPI submitted a letter dated November 29, 2018 to the Andover Planning Department summarizing the findings of this review. On January 4, 2019, GPI met with representatives of TEC and the Andover Planning Department to review GPI’s comments and discuss an approach to address these comments. On January 29, 2019, GPI met again with TEC and representatives of the Andover Planning Department and Department of Public Works to discuss potential off-site roadway improvements at the intersections of Dascomb Road with Andover Street, Lovejoy Road, and Clark Road. Subsequent to this meeting, the Applicant’s design team has prepared additional documents and analysis to respond to GPI’s review comments. These documents include:

- *Response to Greenman-Pedersen, Inc. (GPI) Comments – The Dascomb Road Project – Transportation Peer Review;* June 25, 2019; Prepared by The Engineering Corp, Inc. (TEC).
- *Dascomb Road Project – Andover, Massachusetts, Dascomb Road Traffic Calming Concept Plan;* July 17, 2019; Prepared by The Engineering Corp, Inc. (TEC).

GPI has conducted a review of these documents and overall GPI finds the material submitted within these supplemental documents adequately addresses the comments contained within our November 29, 2018 peer review comment letter, with the exception of the following items. The original comment numbers have been retained for ease in reviewing the documents.

### **Traffic Impact Parking and Access Study (TIPAS)**

3. GPI concurs with the placement of a short left-turn pocket at the northerly site driveway along Smith Way. GPI remains concerned regarding the operations of the four-way STOP controlled intersection internal to the site due to its short separation from the signalized intersection of Dascomb Road / Frontage Road. The analysis completed by TEC was based on HCM 2010 methodology, which does not take into account the platooning effect of vehicles entering the intersection from the signal at Dascomb Road. Based on estimated queues at the Dascomb Road / Frontage Road intersection, it appears there is adequate storage between

Dascomb Road and the internal 4-way intersection to accommodate the vehicles entering upon each signal cycle (six vehicles). However, GPI recommends that the queues entering the site be observed as part of the post-occupancy monitoring program to assess whether the STOP control on the southbound (entering) approach to the internal four-way STOP controlled intersection should be eliminated and this movement allowed to operate free-flowing.

11. The Dascomb Road / Andover Street Conceptual Geometric Improvements plan included in the *Dascomb Road Traffic Calming Concept Plan* indicates that the Applicant will reconstruct the intersection by closing one of the channelization islands on Dascomb Road and realigning the Dascomb Road approach to provide more of a 90-degree, T-type intersection. Short dedicated left- and right-turn lanes will be provided on the Dascomb Road approach. The channelization island for the right-turn from Andover Street onto Dascomb Road will also be reconstructed and reduced in size to improve the turning path for trucks making a left-turn from Andover Street northbound onto Dascomb Road. GPI recommends installing a YIELD sign and YIELD line pavement markings on the channelized right-turn movement to reduce the risk of a collision with an opposing left-turn. The double-yellow centerline on Andover Street should be removed at the intersection with Dascomb Road to indicate the presence of the intersection and ability to cross the centerline.
18. GPI concurs with the findings of TECs left-turn warrant analysis at the Dascomb Road / Lovejoy Road / Acorn Drive intersection and agrees that a left-turn treatment is warranted on the Dascomb Road eastbound approach given the heavy left-turn volume, particularly during the weekday PM peak period. TEC has proposed widening the approach within the existing right-of-way to provide adequate width for through vehicles to bypass left-turning vehicles. This approach will remain striped as a single general-purpose travel lane, but will be approximately 20 feet wide, allowing a through vehicle to bypass a vehicle waiting to turn left, provided that the left-turning vehicle is stopped in close proximity to the centerline. GPI concurs with these improvements, as well as the crosswalk, sidewalk, and accessible ramp enhancements depicted on the Conceptual Geometric Improvements graphic included as Figure 2 in the *Dascomb Road Traffic Calming Concept Plan*. GPI recommends depicting the dimensions of the proposed travel lane in terms of lane width, lane length, and taper length on the Conceptual Geometric Improvements graphic. As part of these improvements, the Applicant has also agreed to modify the signal timings to optimize the operations of the intersection. GPI recommends verifying that the clearance intervals are appropriate for the geometric layout of speeds through the intersection, and adjusting these as necessary at the time that the timings are optimized.
19. TEC has prepared a very preliminary sketch of some proposed safety enhancements at the Dascomb Road / Clark Road / Bannister Road intersection, which include constructing a flush scored concrete truck apron to separate Clark Road and Bannister Road traffic. This will allow the STOP line on Clark Road to be shifted closer to the intersection, improving sight lines and decreasing the gap required in Dascomb Road traffic to allow a vehicle to exit Clark Road. The intent of the truck apron is to allow fire trucks traveling northbound on Clark Road to make a right-turn onto Bannister Road. Due to the residential character of Bannister Road, very few other trucks beyond occasional delivery trucks are anticipated to make this right-turn movement. Therefore, GPI recommends consideration of a mountable curb on this truck apron to further discourage vehicles from traveling in this area. A truck turning diagram should be prepared depicting the path of the Andover Fire Department's largest fire apparatus turning right from Clark Road to Bannister Road to access whether any of the existing paved area can be removed and landscaped. With the proposed improvements, the STOP sign on Clark Road will need to be located far in advance of the STOP line to avoid being placed in the truck apron. Therefore, GPI recommends striping STOP text pavement markings at the STOP line to reinforce the STOP condition. GPI will continue to work with the Town, TEC, and the developer to review the design of these improvements.

## Overall Site Plans

21. The Applicant has agreed to eliminate a total of 26 parking spaces on the site and reserve them as “banked” parking spaces that could be constructed in the future if a post-occupancy monitoring study indicates that these spaces are needed. GPI concurs with the removal of these parking spaces to improve safety and traffic circulation on the site. The available parking with the removal of these parking spaces is anticipated to be adequate to accommodate peak parking demand generated by the development. Prior to the formalization of any of these parking spaces, GPI recommends that a parking utilization study be conducted to verify that at least 90 percent of the parking spaces on the site are occupied during the peak parking periods under a non-December condition. The reason for recommending a 90 percent occupancy rate is that the Institute of Transportation Engineers (ITE) publication *Parking Generation, 4<sup>th</sup> Edition* notes that drivers typically perceive a parking lot as full when more than 90 percent of the spaces are occupied. Occupancy above this level can result in excessive recirculation of vehicles to locate empty parking spaces.

Should the results of the parking utilization study indicate that additional parking is needed on the site, GPI recommends that the parking be formalized in the following order to maintain the maximum level of safety and efficient circulation on the site:

- 6 banked spaces opposite Building B garage entrance/exit,
- 5 banked spaces labeled as snow storage between Buildings A and B, and
- 15 banked spaces along main drive aisle fronting Building H.

23. The Applicant has agreed to provide twenty (20) preferential parking spaces and twenty (20) electric vehicle (EV) charging stations throughout the site. GPI recommends providing signage on-site to direct drivers to these parking spaces. The Applicant has also agreed to provide an intelligent parking signage system to direct drivers to vacant parking spaces. The Applicant should consider incorporating separate direction to vacant EV charging stations within this intelligent parking system.

30. The Applicant previously agreed to coordinate with MVRTA and LRTA to extend bus service into the site. It has since been determined that the closest existing bus stop is 2 miles from the site and extending bus service into the site is not feasible at this time. However, the Applicant has agreed to reserve space for a future bus stop along the main entrance from Dascomb Road in the event that “future ridership warrants an extension of bus service to the site”, when would require the site to reach a “critical mass of employees onsite”. The Applicant, in coordination with the Town, MVRTA, and LRTA, should identify the “critical mass of employees” that would be required to warrant extending bus service to the area, which should include people parking at the Park & Ride site. Consideration should also be given to the number of patrons who may utilize transit service to travel to/from the site if bus service were to be extended into the site.

34. The proposed truck turning diagrams for Building “A” show that approximately two (2) additional parking spaces will need to be hatched out to avoid conflict with vehicles entering and exiting the loading area. This does not appear to be reflected in the attached site plan and should be updated. In addition, the turning diagrams indicate that the truck will pass over a portion of the sidewalk along Building A. The sidewalk should be modified and reduced in length to avoid this conflict.

A truck turning diagram has not been prepared to depict the path of a truck exiting the loading area for Building B.

## Mitigation Measures

39. TEC notes that the Applicant is “committed to implement signal timing modifications post-occupancy at the intersection of Dascomb Road / Lovejoy Road / Acorn Drive as part of the off-site mitigation, if needed.” In response to Comment 18, the Applicant agreed to implement geometric improvements at this intersection as mitigation for the project, which include widening Dascomb Road eastbound to accommodate a left-turn bypass area for through vehicles desiring to bypass vehicles waiting to turn left onto Lovejoy Road. The Applicant also agreed to provide post-occupancy signal timing optimization. GPI has recommended that the Applicant also evaluate clearance intervals to ensure that proper yellow and red clearance intervals are provided for the geometry and speeds through the intersection. This work should be completed in conjunction with the widening of Dascomb Road eastbound.

GPI is generally satisfied that the responses provided by the Applicant’s project team adequately address GPI’s comments contained within our November 29, 2018 comment letter with the exception to the above items related to:

- o Post-occupancy monitoring of traffic operations and parking utilization,
- o Proposed traffic control at the Dascomb Road / Andover Street intersection,
- o Design of the truck apron at the Dascomb Road / Clark Road / Bannister Road intersection,
- o Signal timing optimization at the Dascomb Road / Lovejoy Road intersection,
- o Removal or banking of parking spaces near Buildings A, B, and H, and
- o Truck turning movements entering and exiting loading areas for Buildings A and B.

Should you have any questions, or require additional information, please contact me directly at (978) 570-2946.

Sincerely,

**GREENMAN-PEDERSEN, INC.**



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

cc: Rick Friberg, P.E., LEED AP – TEC, Inc.