

REF.: NEX-2200133.00

April 25, 2022

Ms. Lee Newman
Director of Planning and Community Development
Needham Department of Public Works
500 Dedham Avenue
Needham, MA 02492

**SUBJECT: Highland Science Center, Gould Street, Needham, MA
MEPA ENF – Traffic Peer Review**

Dear Ms. Newman:

On behalf of the Town of Needham, **Greenman-Pedersen Inc.** (GPI) performed a review of the *Environmental Notification Form*¹ (ENF) prepared by Vanasse Hangen Brustlin, Inc. (VHB) for review by the Massachusetts Environmental Policy Act (MEPA) office for the proposed Highland Science Center in Needham, Massachusetts. The site is located on the northeast corner of the intersection of Highland Avenue and Gould Street, and currently contains a Muzi Ford car dealership, Charles River Media Group and WCVB Channel 5. The site was recently part of a rezoning effort by the Town to allow for the development of up to ±880,000 square feet (SF) of office, research and development, and ancillary retail and service space. GPI has reviewed the ENF and supporting traffic analysis for consistency with the goals and studies prepared as part of the Town's rezoning, as well as for compliance with the Massachusetts Department of Transportation (MassDOT) guidelines for traffic impact analysis and general engineering practice. The following summarizes GPI's comments related to the ENF.

Transportation Section (Traffic Generation)

1. In Section 1.B on page 18 of the ENF, the Applicant notes that a MassDOT Vehicular Access Permit will be required for the potential need to modify roadway geometry within the state highway layout (SHLO). It should be noted that MassDOT will require a minimum of two permits for this development. One permit will be for the change-in-use of the property as the property directly abuts land owned by the Commonwealth of Massachusetts (Interstate 95 / Route 128) and the project will generate more than 2,000 daily vehicle trips. A separate MassDOT access permit will be required for the construction of any off-site roadway improvements within the SHLO.
2. The table in Section 11.A on page 19 of the ENF Form notes that the existing site-generated trips were estimated based on empirical traffic counts collected at the site driveways, which show only 887 daily trips are currently generated by the site. It is important to note that these empirical counts were collected in the fall of 2021, during COVID, and as a result, may under estimate the trips generated by the site pre-COVID when it was fully operational. The use of the lower existing site-generated trips will result in a more conservative (higher) estimate of the net increase in trips generated by the proposed redevelopment.
3. In Section III on page 19 of the ENF Form, the Applicant is requested to describe any transportation demand management measures (TDM) to be implemented to reduce single-occupant vehicle trips to the site, including any transit-related measures. The Applicant has not described any TDM measures related to transit services in this section. However, these measures are described in Section 2.7.2 if the *Transportation* chapter, which notes that the Applicant will:

¹ *Environmental Notification Form, Highland Science Center, Needham Heights, Massachusetts*; prepared by Vanasse Hangen Brustlin, Inc. (VHB); March 2022.

- Explore the feasibility of providing shuttle service connectivity to nearby public transportation nodes (commuter rail and Green Line);
- Require tenants to provide a 50 percent transit pass subsidy for their employees;
- Carpool assistance and incentives;
- Emergency ride home;
- Display in the Main Lobby transportation-related information for tenants' employees and visitors; and
- Promotional efforts.

The Applicant should provide additional information on how carpool assistance and emergency ride home services will be provided, as well as what incentive program may be implemented. In addition to providing shuttle service to nearby commuter rail and Green Line services, the Applicant should explore the possibility of extending bus service to the site.

Transportation Section (Roadways and Other Transportation Facilities)

4. In Section 1.B on page 21 of the ENF Form, the Applicant has stated that no permits will be required related to roadways or other transportation facilities. However, a MassDOT access permit will be required for the construction of off-site roadway improvements within the SHLO. Therefore, the Applicant should complete the *Transportation Facility Impacts* section of the ENF Form.

Air Quality Section

5. In Section 1.A on page 23 of the ENF Form, the Applicant notes that the project does not exceed any of the thresholds related to air quality. However, MEPA requires that an *Air Quality and Greenhouse Gas Emissions* study be conducted for all projects that require a mandatory Environmental Impact Report (EIR). As the project is anticipated to generate more than 3,000 daily vehicle trips and provide more than 300 parking spaces, a mandatory EIR will be required. Therefore, the project will exceed the thresholds for an Air Quality analysis, which will include an evaluation of impacts from both stationary and mobile sources of emissions.

Project Description

6. Section 1.3 of the ENF notes that geometric improvements are proposed at the intersection of Highland Avenue / Gould Street / Hunting Road. The widening of the roadway that will be required to accommodate the additional lanes at this location will also likely require reconstruction of the traffic signal at this intersection to accommodate new signal indications and mast arms, as well as vehicle detection and pedestrian signal equipment. No mention of the signal upgrades were provided in this section.
7. Figure 1.4 provides a graphic depiction of the roadway geometry proposed at the intersection of Highland Avenue / Gould Street / Hunting Road and along Gould Street fronting the site. While the geometry on the majority of the approaches appears consistent with the conceptual improvement sketches prepared as part of the former rezoning effort, the Hunting Road northbound approach to Highland Avenue and the receiving approach on Gould Street are inconsistent with the rezoning plans. The analysis and plans prepared as part of the rezone indicated that two through lanes would be required on Hunting Road with two receiving lanes on Gould Street to accommodate the traffic generated by the project. The capacity and queue analysis summarized in Table 2-15 of the ENF indicates that even with the mitigation measures proposed by the Applicant, the Hunting Road northbound movement will operate over capacity at level-of-service (LOS) F during the weekday AM and PM peak hours under 2029 Build with Mitigation conditions. The Highland Avenue eastbound left-turn movement will also operate at LOS F during the weekday AM peak hour. Therefore, the Applicant should consider the feasibility of providing an additional northbound lane on Hunting Road to improve the capacity and operations of this intersection.

Bicycle Accommodations

8. Section 2.3.4.1 of the ENF notes that a total of 89 bicycle parking spaces will be provided indoors and outdoors, but no description is given on how many spaces will be indoors and how many will be outdoors. The study also does not contain any assessment of the potential bicycle parking demand that could be generated and the adequacy of the number of bicycle parking spaces provided to accommodate this demand.

Collision History

9. Table 2-2 of the ENF does not provide a calculation of the crash rates (in crashes per million entering vehicles) experienced at any of the study area intersections. The crash rate is utilized to assess the significance of the crash occurrence at a study intersection by comparing the crash rate experienced to the statewide and district-wide averages for similar intersections and/or roadway segments. In addition, per MassDOT guidelines, collision diagrams should be prepared for any locations that experience an average of more than 3 crashes per year or a crash rate higher than the state or district-wide average. The Applicant should calculate the crash rates for all study area intersections and prepare collision diagrams, as necessary, to identify collision patterns at the study area intersections. For any location where 5 or more crashes of a similar type occurred over the analysis period, the Applicant should investigate measures to improve safety and mitigate collision occurrence.

Transportation Operations Analysis

10. According to Table 2-9, the Highland Avenue southbound approach to West Street will operate over capacity with long delays during the weekday PM peak hour under 2029 Build conditions, with an increase in delay of 22 seconds per vehicle generated by the project. The Applicant has not proposed any measures to mitigate this impact. The Applicant should investigate measures to mitigate this significant impact to operations.
11. The Highland Avenue eastbound through/right-turn movement at the intersection with Webster Street will operate over capacity during the weekday AM peak hour under 2029 Build conditions, with an increase in delay of 26 seconds per vehicle generated by the project. The Applicant has not proposed any measures to mitigate this impact. The Applicant should investigate measures to mitigate this significant impact to operations.
12. Although not heavily impacted by project-generated traffic, the Highland Avenue westbound left/through movement at the intersection with 1st Avenue will be well over capacity during the weekday PM peak hour under both 2029 No-Build and Build conditions. GPI recommends the Applicant consider measures to reduce delay and improve operations at this location.
13. Similarly, the Hunting Road northbound approach to Kendrick Street will be well over capacity during the weekday AM peak hour under 2029 No-Build and Build conditions. GPI recommends the Applicant consider options for reducing delay and improving operations at this location.
14. The Webster Street and Cedar Street approaches to Central Avenue are expected to operate well over capacity with long delays and queues under 2029 No-Build and Build conditions, particularly during the weekday AM peak hour. The Applicant should investigate options for improving the operations of these intersections, including conducting a signal warrant analysis to assess whether a warrant for installation of traffic signal will be met at either of these locations.
15. As noted in Comment 7, even with the proposed mitigation at the Highland Avenue / Gould Street / Hunting Road intersection, some movements will continue operating at LOS F under 2029 Build with Mitigation conditions. Therefore, the Applicant should investigate the feasibility of providing additional capacity at this location to accommodate 2029 Build traffic volumes.

Traffic Monitoring Program

16. Section 2.7.3 of the ENF describes a transportation monitoring program that will be conducted post-occupancy to monitor parking occupancy and traffic operations at four of the study area intersections, including the site driveway. The Applicant should also provide monitoring of the effectiveness of the proposed TDM program in encouraging walking/biking, carpooling, and public transportation travel to/from the site.
17. The proposed traffic monitoring program will include the collection of vehicle turning movement counts during the weekday AM and PM peak periods at the following study area intersections:
- Central Avenue / Gould Street
 - Gould Street / TV Place
 - Gould Street / Project Site Driveway
 - Highland Avenue / Gould Street / Hunting Road

GPI agrees that these represent the critical locations that would experience the greatest increase in traffic due to the project. However, should the result of the monitoring study indicate that the actual traffic increase generated by the project exceeds the traffic projections contained within the ENF by ten percent or more, the study area for the monitoring program should be expanded to include additional locations to verify that the project's impacts does not create any operation deficiencies at nearby locations. In addition, the monitoring programs should include a capacity and queue analysis to verify the operations of each of the study area intersections under post-occupancy conditions. The monitoring program should also include the collection of daily traffic volumes on TV Place and the Project Site driveway to verify the daily traffic generated by the project.

Should you have any questions regarding these comments, please contact me directly at 603-766-5223.

Sincerely,

GREENMAN-PEDERSEN, INC.



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