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July 15, 2025

Takashi Tada
Land Use Director/Town Planner
Town of Groton Planning Board
173 Main Street
Groton, MA 01450

RE: Nitsch Project #13346.36
UMHS Emergency Facility
Traffic Engineering Services
Groton, MA

Dear Takashi Tada:

Nitsch Engineering (Nitsch) has reviewed the Traffic Impact Assessment (TIA) by Vanasse Hangen Brustlin, Inc. (VHB), dated June 20, 2025, and Nashoba Satellite Emergency Facility Site Plans (Site Plans) by VHB on June 23, 2025, as part of the Definitive Plan Submission package for the proposed Nashoba Satellite Emergency Facility (the Project) at 490 Main Street in Groton, Massachusetts (the Town). The Definitive Plan Submission Package was submitted by the Applicant and received by Nitsch on June 23, 2025. The Applicant has received a Massachusetts Department of Environmental Protection (MassDEP) File Number related to the Notice of Intent (NOI) filing, and has disclosed that the final Project will meet criteria to be classified as a Land Use with a High Potential Pollutant Load (LUHPPL) and has provided information to demonstrate compliance with Standard 5 of the MA Stormwater Standards. Prior to submitting this review, Nitsch participated in an introductory meeting with the Town and Applicant on June 23, 2025, to discuss initial feedback on the TIA, Site Plans, and Definitive Plan Submission package.

The TIA reflects the Definitive Plan Submission, which per the Current Project proposes a total building size of 18,500 square feet (SF) for the Emergency Medical office building. To account for full build-out of the site, the TIA also includes a Potential Future Project build-out with 15,700 SF of additional Medical office space with associated MedFlight helipad. The Site comprises approximately 7 acres.

Nitsch's review references previous site observations and conclusions that we outlined for the peer review associated with the Application Package for 63 Gratuity Road submitted by Vanasse & Associates Inc (VAI). The VHB TIA identifies 63 Gratuity Road as a Site-Specific Growth project on page 22, and is referenced within this letter.

Nitsch conducted a site visit on July 2, 2025, to assess the existing conditions of the study area and to verify consistency between our observations and the report. This letter summarizes our review of the memorandum and the plans for conformance with the Massachusetts Department of Transportation (MassDOT)'s TIA Guidelines and current transportation and traffic engineering standards.

Based on Nitsch's review, we have established that the Definitive Plan Submission complies with MassDOT's *TIA Guidelines* and current transportation and traffic engineering standards and industry practices; however, we offer the following comments for consideration:

1. During the introductory meeting, Nitsch indicated and confirmed through our review of the TIA there are no trip generation calculations associated with the proposed helipad. VHB confirmed during the introductory meeting that the helipad use would function concurrently with the site, and that the helipad would not be used independently of the medical facility uses. As a result, we recommend the Applicant confirm there would be no additional trips associated specifically with the helipad, and all calculated vehicle trips to the site would include trips associated with the helipad.
2. During the introductory meeting, the Applicant discussed how the existing land use for the study area comprises two residences, one of which is vacant. The Applicant indicated that no credit for vehicle trips associated with the two residences was subtracted for the existing trips when establishing the

future Trip Generation. Nitsch concurs with this methodology; however, the Applicant should confirm in their response this is the intended methodology, and confirm it remains appropriate.

3. The TIA interchangeably applies the following terms throughout:
    a. The street name as “Taylor Road” or “Taylor Street;”
    b. The street name as “Mill Street” or “Mill Road;”
    c. The street name as “Fitchs Bridge Road” or “Fitchs Bridge Street;”
    d. The PM peak hour as “Afternoon” or “Evening;”
    e. Main Street as “Route 119” or “Route 119/Route 111;” and
    f. The site-specific project as “500 Mill Street” and “500 Main Street.”

    The interchangeable terms do not cause significant confusion or impact the overall results of the TIA; however, the Applicant should be mindful in future submissions that consistent terminology should be used to avoid future confusion.

4. In the existing Conditions on page 12, the TIA states that the posted speed limit on Main Street (Route 111/119) is 40 miles per hour (MPH). From our assessment, the posted speed limit decreases to 35 MPH in both travel directions between the location of 391/386 Main Street and the southern limits of the study area. There is also a school zone for the Groton-Dunstable Middle School within the 35 MPH zone that would decrease the posted speed limit to 20 MPH when school is in session. Nitsch recommends the Applicant provide further clarity on the posted speed limits throughout the study area and the impact on safety and operations.

5. In the existing conditions section, the study intersection of Fitchs Bridge Road and Main Street provides access to Nod Road, which is a local road that continues farther into the Town of Groton. The junction of Nod Road and Main Street is located just south of the Fitchs Bridge Road intersection and has the potential to accommodate a notable volume of bear-right turning northbound vehicles with its skewed angle. Nitsch requests the Applicant clarify why the study area did not account for the junction of Nod Road and Main Street, which is adjacent to the intersection at Fitchs Bridge Road.

6. Consistent with the site visit observations from the VAI TIA, Nitsch observed the following at the intersection of Main Street at Mill Street:
    a. There are no Americans with Disabilities Act (ADA)- or Massachusetts Architectural Access Board (MAAB)-compliant pedestrian ramps or crosswalk present across Mill Street, despite a sidewalk present on the west side of Main Street.
    b. The available sight distance looking left (to the north) and looking right (to the south) from the Mill Street eastbound approach is impeded by a berm to the south and vegetation to the north. As a result, we observed vehicles inching from the stop line closer to Main Street and into the pedestrian desire line to obtain better visibility of approaching vehicles along Main Street.
    c. The existing curb radii on both corners of Mill Street are large, particularly because heavy vehicles are restricted along Mill Street. This promotes high turning speeds for the free southbound right turn and lengthens the crossing distance for pedestrians traveling on the west side of Main Street.

    From coordination with the Town, the Applicant for 63 Gratuity Road developed conceptual design plans to address sight distance constraints and pedestrian safety issues at the intersections of Main Street at Mill Street. Because the applicant will be doing major construction at the Main Street / Mill Street intersection (to construct their north site driveway), we recommend the Applicant coordinate with the Town and MassDOT to implement the safety improvements previously identified at this location.

7. Based on our site visit, there are heavy vehicle restrictions signs present on Mill Street and on Champney Street. We recommend the Applicant confirm that the truck restrictions are present, clarify whether there are additional heavy vehicle restrictions within the study area, and determine how the restrictions may impact safety and operations within the study area as a result of the Project.
8. The report calls out the Groton-Dunstable Middle School in Figure 1 but does not detail its land use in the report text. We recommend the Applicant outline the following:
    a. Clarify the exclusion of the school driveway intersection as a study intersection.
    b. In the sub-section describing the Main Street at Champney Street intersection, revise the language on land use to account for institutional land use with the Middle School nearby.
    c. Confirm if any site observations and research were conducted for the school to document pedestrian activity and traffic patterns in the study area during the school peak hours for arrival and dismissal periods. If so, describe how the Middle School would impact the traffic operations in the study area.
9. In the Traffic Volumes Section on page 14, the text does not state how the peak hours were identified for the turning movement counts (TMCs). Nitsch recommends the Applicant to confirm if they applied a network-wide peak hour or individual peak hours for the eight intersections, provide justification for that selection, and describe how it may impact the results presented in the TIA.
10. Nitsch identified a few inconsistences between the summarized crash data in Table 2 and the crash attribute tables in the Appendix, which includes the following:
    a. Main Street at Mill Run Plaza North Driveway: Table 2 indicates a total of four crashes, but only two crashes are identified by year. Please clarify when the additional two crashes occurred.
    b. Main Street at Arlington Street and Taylor Road: The three rear-to-rear crashes in the summary table are not consistent with the three rear-end crashes presented in the raw attribute tables in the Appendix, while the three unknown crashes in the summary table are not consistent with the three single vehicle crashes shown in the raw attribute tables.
    c. Main Street at Champney Street: The three rear-to-rear crashes in the summary table are not consistent with the three rear-end crashes shown in the raw attribute tables.

    Nitsch requests the Applicant clarify for consistency between the TIA summary table and Appendix, and to provide reasonings to the causality of the rear-end crashes and if there are any patterns that would be susceptible to mitigation.
11. In the Crash History Section on page 17, the report states the following: “A summary of the MassDOT vehicle crash history is presented in Table 4 and the detailed crash data is provided in the Appendix.” Nitsch notes that Table 2 provides the detailed crash data in contrast to the trip generation summary presented in Table 4. We suggest the Applicant clarify this wording to reference the correct table.
12. In Figures 4 and 5, the left and right turn volumes at the intersection of Main Street and Arlington Street indicate no increase in volumes between Existing and No-Build conditions. Nitsch confirms from the Application for the residential development at 63 Gratuity Road that such development would generate additional trips at this intersection of seven vehicles in the AM peak hour and 10 vehicles in the PM peak hour at these two locations. Nitsch notes that 63 Gratuity Road was identified as a Site-Specific Growth project on page 22 along with two additional projects: 500 Main Street, and Village at Shepley Hill. Nitsch recommends the Applicant clarify if Site-Specific volumes were added between Existing and No-Build conditions for the three (3) Site-Specific projects identified on page 22, and if additional site-specific traffic volumes should be added within the study area.
13. Nitsch coordinated with the Town to confirm the Site-Specific Growth presented on pages 22 and 23. Based on coordination with the Town, construction is underway for the Proposed Residential

Development, Hayes Woods Road; however, the Town does not anticipate any occupancy permits being issued in 2025. The Proposed Age-Restricted Multifamily Residential Development at 797 Boston Road was permitted by the Planning Board. Based on the memorandum, the traffic volumes associated with this development within the study area are expected to be relatively minor and would be included in the general background traffic growth rate, especially with its location approximately four miles south of the Project site. We recommend the Applicant confirm with the Town that these additional Site-Specific Projects are still valid for inclusion in the future projections.

14. The Site Access and Parking sub-section on page 20 mentions a proposed total of 16 parking spaces equipped with electric vehicle (EV) charging capabilities, which is not consistent with the 30 EV charging spaces shown in the latest site plan. Nitsch requests the applicant to clarify the number of EV parking spaces proposed for the project site and whether it affects the minimum parking requirements for capacity.

15. As a supplement to proposed parking statistics, Nitsch also recommends the Applicant provide information regarding the quantity of proposed accessible spaces on the Site Plans for compliance with the minimum parking requirements from ADA standards.

16. In Table 3, the measured sight distances are listed as “1000+” feet looking in both directions from the northern site driveway and looking north from the south site driveway, while the measured sight distance looking south from the south site driveway was measured as 595 feet. Based on our site visit, the observed stopping and intersection sight distances adequately reflect the measured values in Table 3. Moreover, the selection of minimum and desirable values for the sight distances are appropriate based on VHB’s methodology in accordance with the latest standards from American Association of State Highway and Transportation Officials (AASHTO). No further action is required.

17. On Page 20, the Site Access and Parking sub-section describes the proposed driveway curb cuts, parking statistics and wayfinding signage. We recommend the Applicant verify that the proposed “identity signage” at the site driveways would not inhibit intersection sight lines for exiting vehicles.

18. In the Executive Summary on Page VI and the Project-Generated Traffic Volumes on page 26, the report states the entering trips for the weekday evening peak hour is “356” trips, which is not consistent with how it is presented as “35” trips in Table 4. Nitsch requests the Applicant clarify the discrepancy between these two numbers for maintaining consistency and accuracy of the TIA.

19. Based on the final Project meeting criteria to be classified as a LUHPPL, Nitsch acknowledges that the criteria to be classified as a LUHPPL include parking lots with over 1000 vehicle trips per day. Based on the information contained in Table 4 from the TIA, the total vehicle trips per day for the site is projected at 1,030 vehicles per day; therefore, we agree that the classification as a LUHPPL is appropriate. No response required.

20. Figure 7 shows the exact values of the site-generated trips in the morning and afternoon peak hours, which is not consistent with the rounded volumes shown in Tables 4 and 6, as well as Figures 4,5 and 8. Nitsch recommends the Applicant clarify and confirm if the traffic volumes should be rounded for the figures and capacity analysis, and if using the rounded values impacts the overall results, findings, and recommendations of the TIA. Nitsch also requests the Applicant provide reasoning to justify their methodology of rounding traffic volumes to the nearest five for the figures and analysis, instead of applying the exact values.

21. Table 8 indicates that the Mill Street Eastbound approach to Main Street operates at Level of Service (LOS) F with a 95th percentile vehicle queue of 10 vehicles during the Existing Conditions, which is consistent with the analysis conducted by VAI for the same location in the VAI TIA. During Nitsch’s site visit, we observed traffic operations at this intersection from 4:00 PM to 5:00 PM, which is the evening peak hour identified in the TIA report. The maximum queue observed during this time period was seven vehicles, which is fewer than the 10 vehicles indicated in Table 8 of the TIA. Therefore, the capacity

analysis in the TIA represents a conservative baseline condition for Existing traffic conditions. No further action is required.

22. In Table 8, Nitsch notes that the delays and queues associated with the minor approaches decrease from Existing Conditions to Future No-Build and Build at the following intersections: Main Street & Fitchs Bridge Road, Main Street & Arlington Street, and Main Street & Champney Street. Nitsch recommends the Applicant justify for the decrease in delay when the annual growth rate and site-specific growth trips applied to the Existing Conditions results in an increase in volumes.

23. Based on the signal warrants analysis on page 36, the TIA concludes that a signal is not recommended on the premise that Warrant 3 is only met under the Future conditions. Nitsch concurs with this methodology but recommends the Applicant to include a statement referencing the signal warrants calculations in the Appendix.

24. On page 37, the Applicant indicates, "It is recommended that the traffic volumes at this intersection be monitored in the future as additional development is constructed and occupied along Main Street to determine future need for traffic signal control." Nitsch recommends the Applicant participate in a traffic monitoring program approximately six months to one year after occupancy to collect traffic data and perform an additional traffic signal warrant analysis to establish if a traffic signal warrant is met at that time. Nitsch also recommends the Applicant to conduct the follow-up signal warrants analysis using the 11th edition of the 2023 *Manual on Uniform Traffic Control Devices* (MUTCD), as we anticipate that version to be approved by MassDOT near the time of traffic monitoring.

25. Nitsch notes that the Synchro analysis includes the Proposed North Driveway as the fourth leg of the intersection of Main Street and Mill Street under Existing and No Build Conditions. Nitsch recommends the applicant to consider the effects of modeling Mill Street and Main Street as a three-way unsignalized intersection under Existing and Future No-Build conditions, and how it impacts conclusions of the TIA in terms of traffic operations.

26. During the site visit, Nitsch observed mobile utility work on Main Street within the study area. We recommend the Applicant coordinate with the Town and MassDOT to confirm if there are any planned roadway projects that may affect future traffic operations and safety affiliated with the Project and confirm with the Town that the utility work is not part of a long-term and/or ongoing utility work that will impact the Project during construction.

27. During site observations, Nitsch identified the following existing advanced warning signage that are subject to improvements:

    a. The W4-1 Sign, located on Main Street approximately 500 feet north of the intersection at Arlington Street, is inconsistent with the W2-3 sign located south of the intersection for northbound traffic. Because the W4-1 sign implies a yield-controlled intersection instead of stop-controlled condition, Nitsch expects through traffic on Main Street may be anticipating a vehicle to enter from Arlington Street without stopping. As a result, the driver may be prompted to apply the brakes and be susceptible to a rear-end collision from a trailing vehicle along Main Street. Nitsch recommends the Applicant to work with the Town and MassDOT to apply the proper advanced intersection warning signage (i.e., W2-3) for southbound traffic approaching Arlington Street.

    b. The existing W2-2 advanced warning sign is located for northbound traffic prior to the three-way unsignalized intersection of Main Street and Mill Street. As part of the recommendations for this project, Nitsch recommends the Applicant to work with the Town and MassDOT to accommodate updated advanced intersection warning signs (i.e., W2-1) for the reconfigured 4-way unsignalized intersection of Main Street at Mill Street and North Site Driveway.

28. Nitsch requests the Applicant confirm the hours and operations of the uses on site as well as the expected turnover of emergency vehicles and helicopters using the site during its operating hours. The

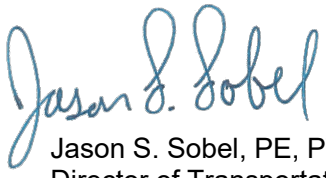
Applicant should outline how emergency vehicles will impact noise, idling, and resultant pollution levels, while operating within the site.

29. Nitsch notes that two additional curb cuts will create vehicle headlight castoff for vehicles entering, exiting, and circulating the site. The Applicant should clarify if any measures are being taken to limit and reduce vehicle headlight castoff.
30. Nitsch recommends the Applicant to work with the Town on identifying appropriate hours and routes for construction vehicles in a way that will not conflict with the regular peak hours for commuter and school traffic.
31. Nitsch concurs with VHB's acknowledgement that a MassDOT access permit is required for the proposed site driveway curb cuts.

We are available to discuss this review as needed and look forward to presenting this information within the public process.

Very truly yours,

Nitsch Engineering, Inc.



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