July 26, 2021

Zoning Board
Town of Norwell
345 Main Street
Norwell, MA 02061

RE: Traffic Impact Assessment Review
Proposed Residential Development
15 High Street
Norwell, MA

Dear Members of the Board:

In response to your request, CHA Consulting Inc. has reviewed the submitted traffic engineering information for the above referenced site. The materials reviewed include the following:

- "Traffic Impact Assessment – Proposed Residential Development – 15 High Street - Norwell, Massachusetts" dated April 2021, prepared by Vanasse & Associates, Inc.
- Plans entitled "15 High street Proposed Residential Development" prepared by Merrill Engineers and Land Surveyors, dated April 30, 2021

Comments:

The proposed site is located at 15 High Street in Norwell near the intersection of High Street and Washington Street (Route 53). The proposed development consists of 56 units of multifamily housing. Access to the site is to be provided via two full-access driveways onto High Street. The existing site contains existing single-family homes, which will be razed as part of the project. The traffic assessment analyzed the operational and safety characteristics of the following study area intersections:

- Washington Street (Route 53) @ High Street/Grove Street
- High Street @ Private Driveway (Washington Square condominium)
- High Street @ Oak street
- Washington Street (Route 53) @ Oak Street
- High Street @ Proposed Site Driveways

The following comments on the TIA should be addressed by the Applicant prior to proceeding with the project:

1. The TIA is generally consistent with MassDOT's Transportation Impact Assessment (TIA) Guidelines for the preparations for preparing a Traffic Impact Assessment and standard traffic engineering practice. The study includes an impact analysis of the weekday morning (7am-9am) and weekday evening (4pm- 6pm) peak periods. The time periods chosen for detailed analysis

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are appropriate for the proposed residential use. The TIA utilized a seven-year planning horizon from the baseline year of analysis and the crash analysis was proposed for the study area network based upon a 5-year data period.

2. Project Study Area: The TIA evaluated four existing intersections and the two proposed site driveway intersections. The study area is appropriate for a project of this size and land use.

3. Roadway Discussion: The discussion of Washington Street states that within the study area, sidewalk is provided along the northbound sides of the roadway and partially provided along the southbound side, with painted crosswalks provided across the corridor at the signalized intersection of High Street and Grove Street.

4. Traffic Volumes: The turning movement counts (TMCs) and automatic traffic recorder (ATR) counts were conducted on Thursday, October 8, 2020 and Thursday, April 1, 2021 at the study intersections. Regional traffic volumes were generally reduced due to the ongoing COVID-19 pandemic. The traffic volumes were adjusted by 9 and 6 percent to adjust for the reduced traffic volumes resulting from the phased "Reopening Massachusetts Plan". In addition, the April 2021 volumes were adjusted upward by 1% to account for seasonality (April was determined to be a below-average traffic month) while there was no seasonality adjustment for the October counts since this was determined to be a 1% higher average month. Therefore, the October counts reflect a slightly more conservative assessment. We generally concur with this methodology.

5. Future No-Build Volumes: A one percent annual growth rate was applied for seven years from the 2021 Baseline peak hour traffic volumes to estimate peak hour traffic volumes in the planning year 2028. This growth rate was based on the same MassDOT continuous count station data used to calculate the seasonal adjustment factors which is appropriate.

6. Trip Generation: We concur with the use of the ITE Trip Generation Manual, 10th Edition, Land Use Code 220 for the proposed use and the resulting daily, AM peak hour and PM peak hour volumes.

7. Level of Service: The Level of Service Methodology used the 2000 Highway Capacity Manual for signalized intersections and 2010 Highway Capacity Manual for unsignalized intersections. The Highway Capacity Manual, 6th Edition, is the latest version of the HCM.

8. Crash Analysis: The Crash Rate Worksheet for Washington Street at High Street & Grove Street shows the eastbound volumes as 583 but a review of the Existing PM peak hour volumes shown on Figure 3 show that the eastbound approach volumes total 385 vehicles. The volumes should be revised, and the analysis updated which may result in the intersection crash rate exceeding the District 5 and the statewide crash rate.

9. Crash Analysis: The Crash Rate Worksheet for High Street & Oak Street does not match the geometry or for the Existing PM peak hour volumes shown on Figure 3. The volumes should be revised, and the analysis and discussion updated.

10. Sight Distance: The sight distance evaluation should identify the object height, driver's eye height and the decision point on the minor road (vehicle exiting the site driveway).

11. Sight Distance: The sight distance table does not include the sight distance for a vehicle exiting the site driveway (minor road) making a right turn looking to the left (AASHTO Table 9-9) nor does it include the sight distance for a vehicle on High Street (major road) making a left turn on to the minor road (site driveway) (AASHTO Table 9-17). These Intersection Sight Distances should be included in the table – showing both the AASHTO Required Design Values and the measured distances and the sight distance discussion updated.

12. Capacity Analysis: The Washington Street & High Street/ Grove Street intersection's peak hour factor (PHF) and percent heavy vehicle (% HV) should be reviewed and updated accordingly for the AM peak hour. The Washington Street & High Street/ Grove Street intersection's PHF's should be reviewed and updated accordingly for the PM peak hour. Some of these factors shown on the capacity analyses sheets that don't match what is showing on the count data sheets. Review the other intersections and revise as necessary. Update the LOS tables and discussions accordingly.

13. Capacity Analysis: Table 11 summarizes the signalized intersection LOS and vehicle queue summary for the Washington Street & High Street/ Grove Street intersection. A review of the results indicates that the eastbound approach currently queues to the proposed driveway and will continue to queue beyond the proposed northerly site driveway during both peak hours. Therefore, vehicles exiting the site's northerly site driveway will be impeded by the signalized intersection. Consider eliminating this northern driveway or making it a right turn in/ right turn out only driveway.

Comments on the Site Plans:

1. Parking Spaces Size: The site plan proposes 9' x 18' parking spaces and a 20' wide two-way access aisle. However, according to the Town of Norwell Zoning Code Section 201-12.4, a parking space shall not be less than nine feet in width by 20 feet in length together with an aisle of at least 24 feet. The site plan should be modified to conform to the Town of Norwell Zoning Code.

2. Driveway Width: The site plan shows two 20' wide two-way driveways at the street line. According to the Town of Norwell Zoning Code, Section 201-12.7, the minimum width of a driveway used for two-way traffic shall be 24 feet and no driveway opening shall exceed 24 feet in width at the street line. The site plan should be modified to meet these minimum standards.

3. Residential Driveway Length: We recommend that a minimum distance of 25 feet be provided between the face of the garage and edge of the sidewalk to accommodate sufficient space for a vehicle to park in the driveway without obstructing pedestrian movements in the sidewalk.

4. Parking Space Number: Based upon the proposed number and type of residential units, the total number of parking spaces required is 84 as shown on the site plan. However, 122 parking spaces are proposed, including the garage and driveway spaces. The ITE Parking Generation, 5th Edition shows that the calculated parking demand for 56 dwelling units based upon Land Use Code 220-Multifamily Housing (Low Rise) is 68. Providing additional parking spaces can sufficiently accommodate the proposed development but increases impervious area, reduces greenspace and affects the layout and conformance to the Town Standards.

5. Sight Lines: The site plan should include a delineation of the clear sight triangle at the intersection of the proposed driveways. Vision obstructing objects or landscaping within the clear sight triangle should be removed to allow for a clear sight line.

6. Emergency Access: A site plan showing an Autoturn analysis of the turning movements at the site driveways and on-site circulation of the Town's Fire Trucks should be provided. The Applicant should confirm that the fire truck used for analysis is the largest anticipated emergency apparatus used by the Town of Norwell Fire Department. It is also recommended that the Applicant review the site access and circulation with the Fire Department.

7. Site Access Loading: A site plan showing an Autoturn analysis of the turning movements at the site driveways and on-site circulation of the trash vehicle to access the recycling areas should be provided. The size of the vehicle used should also be identified.

8. Southern site access crosswalk: The plan appears to show two crosswalks at this site access which should be revised.

9. Stop Sign: The Stop Sign Detail shows a 24" x 24" R1-1 sign. In accordance with the FHWA MUTCD, the R1-1 Stop Sign for a signal lane conventional road is 30" x 30". The detail should be modified.

10. Crosswalk: Details of the proposed crosswalks should be provided.

If there are any questions regarding our comments, please let me know.

Sincerely,

John G. Morgan Jr., PE, PTOE
Section Manager

CHA