
To: Mr. Richard Gosselin, Chairman
Millbury Planning Board
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File: Rice Pond Village
15-17 Rice Road
Traffic Impact Study
Peer Review

Date: May 4, 2021

Stantec Consulting Services, Inc. ("Stantec") has reviewed the *Traffic Impact Study Prepared For Whitney Street Home Builders, Multifamily Residential Development Located At 15-17 Rice Road Millbury, Massachusetts*. The traffic impact study was dated March 2021 prepared by AK Associates of Spencer, MA. The applicant is proposing a 52 unit (26 duplexes of two- or three-bedrooms) residential development located at 15-17 Rice Road, utilizing a single proposed full-access driveway at the existing unsignalized intersection with Thomas Hill Road. Stantec reviewed the *Traffic Impact Study* by following the Town of Millbury's Zoning Bylaws, dated May 2018, and industry best practices of such an effort.

EXISTING CONDITIONS

Study Area Roadway Network

Stantec concurs with the observations with respect to the existing roadway and intersection geometric attributes identified in the study, including the intersection types, lane widths, and pedestrian facility geometries.

Stantec recommends the study include average and peak speeds along at least Rice Road, per the traffic impact assessment section of the Millbury Bylaws. If this data is unattainable, Stantec recommends clarification as to why this information is unavailable.

Millbury Bylaws require the traffic impact assessment to identify existing traffic conditions likely to be affected by the proposed development adjacent to or within 1000 feet of the project boundaries. Stantec concurs with the identification of these critical intersections for analysis of the proposed development.

Traffic Volumes

Stantec concurs with the traffic volumes counted and the COVID-19 and seasonal adjustment factors applied to the counted volumes.

Stantec recommends the study include average daily volumes along Rice Road, per the traffic impact assessment section of the Millbury Bylaws. If a daily volume was not counted, Stantec recommends clarification as to why this information is unavailable.

Stantec recommends the study be reviewed for inconsistency found between the annual growth rate calculation identified in this section (Traffic Volumes) and the Future Conditions section of Chapter 4 – Traffic Operations. Although the study included the correct annual growth rate for R4-7 roadways from MassDOT's most current growth rate data (0.0034 or 0.34%), the study described multiplying the growth rate by 2 to

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account for COVID-19 and then multiplied the rate further by 5 to extrapolate to future conditions. Within the study, this meant a rate of 0.0068 would mean a 0.0175 rate for future conditions. The correct rate for a seven-year outlook from 2019 to 2026 if utilizing a 0.0034 (0.34%) growth rate would lead to a growth rate factor of 1.024, or an increase of 2.4 % from 2019 conditions, by utilizing the average annual compounding growth rate method. Even if the initial growth rate was doubled to 0.0068 (0.68%) when accounting for additional development in the area, this means the growth factor to 2026 is 1.0485. Within the second paragraph of the Future Conditions section of Chapter 4 – Traffic Operations identify simply using the 0.0034 growth rate over five years from 2019 to 2026, which appears to be different than described in Chapter 2's section on Traffic Volumes. Stantec recommends clarification and further calculation tables or worksheets to represent the annual growth rate used for the study.

SAFETY CONCERNS

Sight Distances

This section begins with a first paragraph appearing to describe the Intersection Sight Distance (ISD) for the proposed development driveway. From the second paragraph on, the section describes calculating the Stopping Sight Distance (SSD). Stantec recommends the study provide clarification of the sight distance measurements performed and present the information in a table or figure of the results for ease of confirmation. The figures presenting Google Earth profiles do not appear to clearly cross-reference data or results within this section of the study.

The traffic impact study identifies "Pole #6" will be removed and relocated upon construction of the proposed site driveway. In reviewing the separately submitted Site Plans for Rice Pond Village, although the existing utility pole is represented in the plans, there were no apparent construction notes associated with the relocation of this utility pole. The applicant is encouraged to identify this relocation within the Site Plans.

The applicant should review the locations of the existing street trees (noted to remain in the landscaping plan within the Site Plans) along the frontage of Rice Road and review if any of these trees will impede proposed sight distances identified within the traffic impact study and the proposed stop sign and stop line location (also to be included in Site Plans). The traffic impact study identified this recommendation as Recommendation #2 within the Recommendations & Conclusion section.

Accidents

The crash data was reviewed for a three-year period from 2018 through 2020 and the review "revealed that no accidents were reported for any of these intersections during this three-year period." Stantec reviewed the MassDOT Impact Tool for Crash Query and Visualization and identified a fatal crash just west of the intersection of Rice Road and South Main Street from August 22, 2020 (reported as not intersection related) and three crashes in the vicinity of the intersection of Rice Road and Providence Street (MA Route 122A).

Stantec recommends the applicant review these crashes and provide further analysis within the study of how the proposed development may affect, or be affected by, these crashes.

Existing Conditions Summary

AK Associates identify in this section that "the current land use designation for the proposed multifamily development site is R-1, and the site is currently undeveloped." The existing condition for the parcel of the proposed residential development appears to include an existing single-family residence.

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Stantec recommends the study include recognition of the existing pavement condition of Rice Road and recommends the applicant and the Town of Millbury discuss approaches to potential improvements of the roadway of Rice Road prior to the construction of the new development.

Stantec recommends additional description of the existing at-grade railroad crossing of Rice Road, just west of the intersection with Providence Street (MA Route 122A). The study should at least provide basic attributes of the crossing and identify the impact this crossing will have to the development or by the development.

FUTURE CONDITIONS

Site-Generated Traffic and Trip Distribution and Assignment

Stantec concurs with the trip generation and trip distribution as calculated from the ITE Trip Generation Manual and applied proportionally to the traffic volume network within the study area. However, Stantec noted errors in the following sections and figures:

- Trip Distribution Assignment – Second Paragraph – Final Sentence – Identify 91 vehicles departing during a typical day, however, is 191 according to the ITE Trip Generational results.
- Figure 4 – The AM entering volumes from South Main Street / Rice Road are imbalanced with the AM entering (7 to 4).
- Figure 4 – The PM entering volumes from Rice Road into the Site Driveway add up to 22, not 21 as presented in the ITE Trip Generation results.

Site Access and Circulation

After a review of Section 33.2 of the Millbury Bylaws, Stantec noted that the Town requires three parking spaces per two-bedroom, multi family dwelling unit, with one additional space per additional bedroom. The study identifies each unit will have off-street parking for four vehicles, which meets the requirements in the Bylaws.

The study identifies Land Use 230 – Residential Condominiums / Townhouses were used to reference parking demand for the development's dwellings. This land use differs from the Trip Generation analysis (LUC 220 – Multifamily Housing (Low-Rise) and LUC 230 – Residential Condominiums / Townhouses is not a code in the most current edition of the Parking Generation Manual (5th Edition). Stantec recommends AK Associates clarify why this land use code was used and from which edition of the ITE's Parking Generation Manual. Also, AK Associates should further clarify where the peak parking demand rate in suburban areas originates from and why it is 1.68 parking spaces per unit. The Parking Generation analysis was not included in the Appendix for confirmation.

TRAFFIC OPERATIONS

Traffic Operations Measures

Stantec recommends the traffic impact study include the following information for the Synchro reporting:

- The version of Synchro used for the analysis.

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- The traffic impact study also identified truck percentages within the study area, however the Synchro outputs cannot be used to verify that these truck percentages were applied.

Existing Conditions and Future Conditions

Stantec recommends rerunning the analysis based on the revisions or clarifications required for the annual growth rates as commented in the Traffic Volumes section.

FINDINGS

Conclusion & Recommendations

Recommendations #1 and #2 identify controlling landscaping along the site frontage to improve and maintain sight distances at the proposed site driveway. This recommendation is not reflected in the separately submitted Site Plans, as the Plans identify retaining the street trees adjacent to the frontage along the north side of Rice Road. The applicant should confirm the treatment of the existing trees along the frontage of Rice Road.

Recommendation #3 identifies the installation of stop signs to be installed for the Thomas Hill Road and site driveway approaches to the proposed four-leg intersection with Rice Road. This is not reflected in the separately submitted Site Plans. Stantec concurs with this recommendation and would also recommend the inclusion of stop lines that meet the most current Manual of Uniform Traffic Control Devices (MUTCD) standards.

Recommendation #4 identifies the installation of a stop sign for the Rice Road approach to the intersection with Providence Street (MA Route 122A). Stantec concurs with this recommendation and would also recommend the inclusion of stop lines that meet the most current MUTCD standards and reviewing the available intersection sight distance from the proposed stop location, specifically to the north (left from the Rice Road approach).

Stantec would further recommend the applicant review signing and pavement marking improvements to the intersection of Rice Road and South Main Street as the recommendations already included such improvements for the Rice Road and Providence Street intersection.

STANTEC SUMMARY

Overall, Stantec concurs with the general findings of the applicant's existing evaluation of the Town's infrastructure along Rice Road and for the of Rice Road at Thomas Hill Road, and Providence Street (MA Route 122A). Stantec did find some information missing and some inconsistencies between information presented between sections of this report and when compared with the separately submitted Site Plan:

- Stantec recommends the average daily volumes be included in the study.
- Stantec recommends the average annual growth rate calculations be clarified and applied consistently between different sections in the report. This will likely affect the future no-build and build conditions of the traffic volume networks and Synchro analyses.
- Stantec recommends that AK Associates clarify using SSD or ISD criteria for determining the sight distance for the proposed development driveway approach. The traffic impact study identified

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vegetation should be controlled along the frontage to maintain acceptable sight distances and that Utility Pole #6 is to be relocated, however these recommendations do not appear on the separately submitted Site Plans.

- Stantec recommends that AK Associates review the four additional crashes available on MassDOT's Impact Crash Data Portal that are in the vicinity of the intersections of South Main Street at Rice Road and Providence Street at Rice Road.
- Stantec recommends that AK Associates correct the errors noted in Figure 4 Trip Generation and Distribution. These errors carried through to Figure 5 (Future No-Build) and Figure 6 (Future Build) for the and conditions. AK Associates should also produce Synchro reports that include the geometries of the approaches and the truck percentage input for Synchro to be verifiable in a review.
- Stantec concurs with the traffic impact study's recommendation of the installation of stop signs for the stop-controlled approaches of the proposed site driveway, Thomas Hill Road, and of Rice Road at Providence Street. Although this recommendation is included in the study, the separate Site Plans do not appear to include these items.
- Stantec would further recommend the applicant install stop lines at all the stop-controlled approaches identified in this study.
- Stantec would further recommend the applicant coordinate with the Town of Millbury to improve the pavement markings and signing at the intersection of Rice Road and South Main Street, All the proposed signing and pavement markings should follow the most current edition of the Manual of Uniform Traffic Control Devices (MUTCD).
- Stantec would recommend that the applicant work with the Town of Millbury regarding the pavement conditions of Rice Road. The additional traffic may increase the rate of pavement degradation and lead to further issues that may impact drivers' expectations, roadway safety, and the existing abutting roadway users.

Stantec Consulting Services Inc.



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