
To:	Mr. Richard Gosselin, Chairman Millbury Planning Board Municipal Office Building 127 Elm Street Millbury, Massachusetts 01527	From:	Evan G. Drew, P.E.* *NH, ME Stantec 5 Dartmouth Drive Suite 200 Auburn, NH 03032-3984
File:	19 Canal Street Residential Development Traffic Impact Study Peer Review	Date:	August 5, 2021

Stantec Consulting Services, Inc. (“Stantec”) has reviewed the *Traffic Impact Study prepared for Canal Street Residential Development Located on Millbury, MA* prepared by AK Associates of Spencer, MA dated July 2021. This traffic study is a revision based on the original Canal Street Residential Development traffic study dated April 2021, prepared by WSP USA on behalf of Elite Home Builders of Westborough, MA. The applicant is proposing a 59 unit (45 one-bedroom and 14 two-bedroom) residential development located at 19 Canal Street (MA Route 122A), utilizing a single proposed full-access driveway at the existing unsignalized intersection with Church Street.

Stantec review the *Traffic Impact Study* by following the Town of Millbury’s Zoning Bylaws, dated May 2018, and industry best practices of such an effort. This study was reviewed by Stantec as a standalone traffic study, with considerations to the comments previously submitted by Stantec for the WSP traffic study in a memorandum dated May 4, 2021.

EXISTING CONDITIONS

Study Area Roadway Network

Stantec concurs with the observations with respect to the existing roadway and intersection attributes identified in the study, including the vehicles speeds, intersection types, lane widths, and pedestrian facility geometries. The Millbury Bylaws require the traffic impact assessment to identify existing traffic conditions likely to be affected by the proposed development adjacent to or within 1,000 feet of the project boundaries. The Traffic Impact Study provided by AK Associates identified five existing roadways and four existing signalized intersections critical to the project: Elm Street, Main Street, Howe Avenue, Church Street and Canal Street. Stantec concurs with the identification of these critical roadways and intersections for analysis of the proposed development.

AK Associates identified that speed limit signs were not present along Canal Street and Elm Street within the study area and applied a prima fascia speed limit of 30 miles per hour. AK Associates identified the speed limits of Main Street, Howe Avenue, and Church Street based on existing posted speed limit signs. Stantec concurs with the speeds presented.

The Millbury Bylaws for Traffic Impact Assessments call for the inclusion of average and peak speeds for the study area within the study area. AK Associates identifies a “historic speed survey data” was used to derive the 85th percentile speed of 32 miles per hour and pace speed of 20 to 30 miles per hour along Canal Street. AK Associates did not include a reference or copy of this survey data with the study.

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Traffic Volumes

AK Associates provided historic average daily traffic (ADT) volumes available from MassDOT along the roadways in the study area within Table 1 of the study report. As identified in the original Canal Street Residential Development study by WSP, new peak hour turning movement counts (TMCs) were collected by a vendor in February 2021 for morning, evening, and Saturday midday peak traffic periods. In recognition of the effect the COVID pandemic has on traffic volumes and patterns (per MassDOT's *Guidance on Traffic Count Data*, dated April 2020, as part of Engineering Directive E-20-005), AK Associates compared the historical MassDOT traffic data with the 2021 counts to determine whether or not to proceed with the most current traffic data or provide an adjustment factor to better reflect typical traffic movements in the study area.

The background growth factor, which Stantec's provided comment upon review of WSP's first submittal of this traffic study, had been corrected to 2% per year based on the MassDOT U4-U7 roadway group. The 2021 TMCs were higher than the historical MassDOT volumes grown to 2021, so the most recent counts were used without an applied COVID factor and with a seasonal adjustment factor of 1.00, per MassDOT's seasonal adjustment factors. Stantec concurs with the traffic volume assessments and the comparison provided in Table 2 of the Study.

AK Associates presented existing baseline turning movement counts in a diagram provided in Figure 2 of the Study.

Sight Distance and Crashes

Stopping Sight Distance

AK Associates referenced MassDOT's *Project Development & Design Guide (2006)* Exhibit 3-8 for identification of stopping sight distance requirements along the frontage (Canal Street) of the proposed development's access driveway. Based on the gradient of the roadway (3%), AK Associates presented the calculated stopping sight distance at the site driveway as 205 feet from the right (downgrade) and 184 feet from the left (upgrade). However, it would appear this table was misread, as a 3% upgrade requires a 200-foot stopping sight distance from the left according to this table.

AK Associates referenced the *Project Development & Design Guide* Exhibit 3-11 to provide intersection sight distance requirements for the proposed development's access driveway: 335 feet for vehicles turning left and 290 feet for vehicles turning right. Stantec concurs with the intersection sight distance identified in AK Associates' study.

Although AK Associates states "...available sight distances are greater than the desired values for intersection sight distances", no identification of field measured sight distances for either direction is provided, either within a description or table, to confirm this. Photos are provided for both directions from the proposed site driveway and a Google Earth profile of Canal Street centered at the proposed development driveway shows the gradient of the roadway AK Associates does not present measurements providing the expected sight distances that may be derived from these photos or Google Earth profile. Stantec cannot verify the sight distances exceed the minimum requirements from the photos and the statement of compliance. Stantec recommends a description or table that provides a comparison of the identified minimum stopping and intersection sight distances (for each driveway movement) and the field measured sight distances. Stantec would also accept a CAD-based diagram and profile representing the minimum and maximum sight distances achievable from the development driveway for which the photos and calculated and field-measured sight distances support.

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Crashes

Stantec concurs with AK Associates' evaluation of crash data as provided and crash rates for the study area as calculated using the MassDOT Intersection Crash Rate Worksheets provided in the Appendix. Crash rates were compared to MassDOT District 3 crash rates and Stantec concurs with the conclusion that the intersection crash rates in the study area do not exceed regional average crash rates.

Stantec recommends AK Associates review and revise the Vehicle Crash Summary Table (Table 3) as the crash totals for each compared description (Collision Type, Severity, Time of Day, and Pavement Conditions) do not appear to be consistent with the total crash counts of each intersection. If some crashes were omitted from the table that may contribute to the mismatched crash count totals, please provide additional supporting information.

FUTURE CONDITIONS

Site Generated Traffic, Trip Distribution and Assignment

Stantec reviewed and verified AK Associates' procedure and presentation of expected trip generation for daily, morning peak period, evening peak period, and Saturday peak periods for 59 dwelling unit for proposed mid-rise housing developments (ITE Land Use 221 – Mid-Rise Multifamily). Stantec reviewed and concurs with the diagram of trip generation and distribution through the study area as presented in Figure 4.

Site Access, Circulation and Parking

Section 33.2 of Millbury Bylaws specifies that one-bedroom multifamily dwellings require two spaces per one-bedroom dwelling unit and three spaces per two-bedroom dwelling unit. Based on the current proposed development, 132 parking spaces are required based on the Bylaws (90 spaces for one-bedroom, 42 spaces for two-bedroom). This translates to a parking rate of 2.24 spaces per unit. The current parking space count for the proposed development is 110.

AK Associates correctly identified that the 10th Edition of the ITE Trip Generation Manual identifies the 85th percentile parking rate for mid-rise multifamily housing developments (ITE Land Use 221) is 1.46 spaces per dwelling unit. AK Associates asserts that sufficient parking spaces are proposed, and it is our understanding the applicant has requested a waiver from the Planning Board.

TRAFFIC OPERATIONS

Existing Conditions

AK Associates, with the assistance of the Town of Millbury's traffic signal maintenance contractor, Central Mass Signal LLC, analyzed the intersections within the study area that included four signalized intersections. The Town's signal maintenance contractor was able to obtain the existing traffic signal phasing and timings to identify existing and future traffic operations more accurately in the project area. Stantec reviewed the Synchro reports with the tabled results within the report and found no issues.

Future Conditions

AK Associates applied the 2% annual growth rate to the existing traffic volumes at a five-year outlook to provide a 2026 build year. This growth rate is predicted to encompass other developments in the vicinity of this project

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in the future. Stantec concurs with this approach. Stantec reviewed the Synchro reports with the tabled results within the report and found no issues.

CONCLUSION & RECOMMENDATIONS

Stantec concurs with much of the conclusions and recommendations stated in the AK Associates study. Stantec concurs with AK Associates' recommended improvements regarding maintaining frontage landscaping to minimize impacts to the proposed site driveway's sightlines.

One aspect which Stantec is requesting further evaluation is regarding the sightline impact for the existing utility pole just west of the proposed development driveway, identified in the study as "a small blind spot". If possible, the applicant should coordinate with the utility pole owner if relocation of the pole may be possible to improve sightlines. Stantec understands there are other factors to consider for utility relocations but would like additional evaluation on whether or not the pole can be relocated to improve proposed sight distance.

STANTEC SUMMARY

Overall, Stantec concurs with the findings of AK Associates' evaluation of the existing conditions along Canal Street and for the signalized and unsignalized intersections within 1000 feet from the proposed development. The trip generation analysis show that 21 additional vehicles should be expected on the Town's roadway network in the morning peak due to the proposed development, and 27 vehicles and 32 vehicles in the evening and Saturday midday peak periods, respectively. The operations analysis results show that the additional traffic produces minor operational impacts to the existing intersections within the study area. Stantec did find some information missing and some inconsistencies between some of the information provided between sections of this report and when compared with the separately submitted site plan:

- Stantec recommends AK Associates include supporting data for the referenced historical MassDOT speed study for Canal Street.
- Stantec recommends AK Associates include a table or description comparing the measured sight distances for the proposed site driveway as they compare to the minimum stopping sight distances and recommended intersection sight distance requirements.
- Stantec recommends AK Associates review their Vehicle Crash Summary Table as the crash totals encompassed within each description do not consistently add up to the total crashes reported at each intersection. If some crashes were omitted and result in the mismatched crash count totals, please include a justification.
- Stantec recommends the applicant review the possibility of relocation for the existing utility pole located west of the proposed site driveway due to its impacts, although limited, to the driveway's sightlines. It was identified as an item of note within the traffic study and may need review.

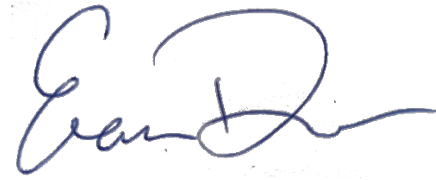
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