

Ref: 8839

April 28, 2021

Ms. Lisa Pearson
Planning Director
Town of Salisbury
5 Beach Road
Salisbury, MA 01952

Re: Supplemental Traffic Engineering Peer Review
Meadowview Condominiums – 6 Forest Road
Salisbury, Massachusetts

Dear Lisa:

Vanasse & Associates, Inc. (VAI) has completed a review of the revised Site Plans prepared by Millennium Engineering, Inc.¹ and submitted on behalf of 6 Forest Road, LLC (the “Applicant”) in support of the proposed Meadowview Condominiums to be located at 6 Forest Road in Salisbury, Massachusetts (hereafter referred to as the “Project”). Based on our review of supplemental information, we are satisfied that the Applicant has addressed the majority of the comments that were raised in our January 27, 2021 letter pertaining to the October 26, 2020 *Site Plans*. The remaining outstanding item entails the addition of the sight triangles for the Meadowview Lane approach to Forest Road to the Site Plans.

For reference, listed below are the comments that were raised in our January 27, 2021 letter pertaining to the Site Plans followed by a description of the revisions that were made, with additional comments indicated in **bolded** text for identification.

Site Plans

Responses to our comments pertaining to the October 26, 2020 *Site Plans* have not been provided; however, it is our understanding that the Applicant is working to address the comments. For completeness, our initial review comments are provided below.

Comment S1. *A truck turning analysis should be provided for the following design vehicles: SU-30 and Salisbury Fire Department design vehicle. The turning analysis should demonstrate that the subject vehicles are able to access the Project site from Forest Road and circulate within the development in an unimpeded manner.*

Response: A turning analysis was provided for a fire truck design vehicle which demonstrated that the design vehicle is able to access and circulate within the Project site in an unimpeded manner (Sheets F-1 and F-2).

¹*Site Plans*, Meadowview at Salisbury Condominium at 6 Forest Road & Meadowview Lane in Salisbury, MA; Millennium Engineering, Inc.; October 26, 2020, last revised April 12, 2021.

No further response required pending concurrence from the Salisbury Fire Department.

Comment S2. *The Fire Department should determine if a secondary means of access should be provided for emergency vehicles given the number of units that are proposed and the length of the access road.*

Response: **The Fire Department should render an opinion as to the need for a secondary means of access.**

Comment S3. *A STOP-sign and marked STOP-line should be provided on the Project site roadway approach to Forest Road.*

Response: This information has been added to the Site Plans (Sheet C-8).

No further response required.

Comment S4. *Vertical curbing should be used where the proposed sidewalk will be adjacent to the traveled-way or a 2-foot (minimum) grass or landscape area should be provided between the sidewalk and the edge of the traveled-way.*

Response: Vertical curbing has been added where sidewalk is proposed adjacent to the traveled-way (Roadway Cross-Section on Sheet C-4).

No further response required.

Comment S5. *Driveways to the residential units should be a minimum of 21-feet long measured between the garage door and the far edge of the sidewalk (edge closest to the residence) where a sidewalk is provided, and 23-feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.*

Response: The driveways to the individual units meet the recommended dimensions.

No further response required.

Comment S6. *The access drives to multiple units that connect to Meadowview Lane should be a minimum of 20-feet wide unless a reduced width is approved by the Fire Department.*

Response: The subject access drives to multiple units have been eliminated.

No further response required.

Comment S7. *The sight triangle areas for the Project site roadway intersection should be shown along with a note to indicate: "Signs, landscaping and other features located within sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."*

Response: **The requested information was not added to the Site Plans.**



Ms. Lisa Pearson
April 28, 2021
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Comment S8. *A note should be added stating: "All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the Manual on Uniform Traffic Control Devices (MUTCD).²"*

Response: The requested note has been added to the Site Plans (Note 14 on Sheet C-4).

No further response required.

This concludes our review of the materials that have been submitted to date in support of the Project. If you should have any questions regarding our review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.



Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

Professional Engineer in CT, MA, ME, NH, RI and VA

JSD/jsd

²Manual on Uniform Traffic Control Devices (MUTCD); Federal Highway Administration; Washington, DC; 2009.



Ref: 8839

March 31, 2021

Ms. Lisa Pearson
Planning Director
Town of Salisbury
5 Beach Road
Salisbury, MA 01952

Re: Supplemental Traffic Engineering Peer Review
Meadowview Condominiums – 6 Forest Road
Salisbury, Massachusetts

Dear Lisa:

Vanasse & Associates, Inc. (VAI) has completed a review of the supplemental materials submitted on behalf of 6 Forest Road, LLC (the “Applicant”) in support of the proposed Meadowview Condominiums to be located at 6 Forest Road in Salisbury, Massachusetts (hereafter referred to as the “Project”). This information was prepared in response to the comments that were raised in our January 27, 2021 review letter and consisted of a *Traffic Impact and Access Study* prepared by Bayside Engineering and dated March 17, [2021] (the “March 2021 TIAS”).

Based on our review of supplemental information, we are satisfied that the Applicant has addressed the comments that were raised in our January 27, 2021 letter pertaining to the September 30, 2020 *Traffic Impact Assessment*. Our comments relative to the October 26, 2020 *Site Plans* remain outstanding and are repeated as a part of this supplemental review for completeness.

For reference, listed below are the comments that were raised in our January 27, 2021 letter that required a response followed by a summary of the information submitted on behalf of the Applicant, with additional comments indicated in **bolded** text for identification.

September 2020 TIA

Comment T1: *The study area for the Project should be expanded to include the intersections of Lafayette Road (Route 1) at School House Lane and Forest Road at School House Lane given the proximity of School House Lane to the Project site roadway and the expectation that Project-related traffic will use School House Lane to travel to/from the north on Route 1.*

Response: The study area that was assessed in the March 2021 TIAS included the requested intersections. In addition, the Applicant’s engineer indicated that the Project could be expected to add between 10 and 13 additional peak-hour trips to the north along Forest Road and through the Forest Road/Gerrish Road intersection, or an approximate 1.0 percent increase in peak-hour traffic.

This study area is sufficient to evaluate the potential impact of the Project on the transportation infrastructure and includes all intersections where the Project is predicted to result in an increase in peak hour traffic volumes by: a) five (5) percent or more or b) by more than 100 vehicles per hour. No further response required.

Comment T2: *Manual turning movement counts and vehicle classification counts (TMCs) should be conducted at the study area intersections during the weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods, and automatic traffic recorder (ATR) counts should be conducted over a continuous 48-hour period (two consecutive weekdays) on Route 1 north of Gardner Street and on Forest Street in the vicinity of the Project site. The ATR's should include vehicle travel speed measurements. The traffic volume data should be seasonally adjusted to average-month conditions and then further adjusted following MassDOT's guidance for adjusting traffic volume data that is collected for Transportation Impact Assessments (TIAs) conducted during the COVID-19 pandemic.¹ The basis of the COVID-19 adjustment should be a comparison of the MassDOT 2019 ATR data for Route 1 north of Gardner Street to the 2020 ATR data that is to be collected.*

Response: In conjunction with the March 2021 TIAs, traffic volume data was collected by means of: i) automatic traffic recorder counts (ATRs) conducted over a continuous 48-hour period (Wednesday, February 24, 2021 through Thursday, February 25, 2021, inclusive) along Route 1 south of Forest Road, and along Forest Road south of School House Lane; and ii) manual turning movement counts (TMCs) and vehicle classification counts conducted on Wednesday, February 24, 2021. The ATRs included the collection of vehicle travel speed data. A review of seasonal adjustment data available from MassDOT indicated that traffic volume conditions within the study area during the month of February are representative of below average conditions and, as such, the raw traffic count data was adjusted upward (by approximately 23 percent) to average-month conditions.

In order to account for the impact on traffic volumes and trip patterns resulting from the COVID-19 pandemic, traffic volume data collected at a MassDOT continuous count station on Route 1 north of Gardner Street in 2019 were compared to the 2021 traffic volumes that were collected on Route 1 as a part of the March 2021 TIAs. The 2019 traffic volumes were expanded to 2021 by applying a background traffic growth rate of 1.0 percent per year (discussion follows) in order to allow for a comparison of the data. Based on this pre and post COVID-19 traffic data comparison, the traffic volume data that was collected as a part of the March 2021 TIAs were adjusted upward by an additional 2.6 percent in order to account for the reduced traffic volumes resulting from the COVID-19 pandemic.

The data collection effort and adjustments were undertaken using appropriate methodologies, and we are in agreement that the resulting data provides a reasonable basis from which to assess the potential impact of the Project on the transportation infrastructure. No further response required.

¹Guidance on Traffic Count Data; MassDOT; revised April 2020.



Comment T3: *A description of bicycle accommodations within the study area should be provided.*

Response: There are currently no formal bicycle facilities within the study area. Forest Road was identified as by the Coastal Trails Coalition as a bicycle route to connect existing bicycle routes to Salisbury Beach. In addition, planned improvements that are being designed by MassDOT for Route 1 within the study area and extending the New Hampshire border include a 12 foot wide shared-use path along the east side of the roadway to facilitate bicycle travel.

No further response required.

Comment T4: *A description of public transportation services that are available within the Town and the study area should be provided, and should include transportation services that may be offered by the Council on Aging (COA).*

Response: Public transportation services are provided within the Town of Salisbury by the Merrimack Valley Transportation Authority (MVRTA), but are not directly accessible to the Project site. MVRTA bus Route 54 provides service along Route 110 and Route 1A to the south of the Project site, with service between the Nicholas Costello Transportation Center in Amesbury and Salisbury Beach. In addition, seasonal bus service is provided from the Buckley Transportation Center in Lawrence to Hampton Beach in Salisbury by way of MVRTA bus Route 83.

The Salisbury COA provides appointment based transportation services for seniors for medical appointments and shopping.

No further response required.

Comment T5: *A motor vehicle crash analysis should be performed for the study area intersections to include motor vehicle crash rate calculations performed following MassDOT standards and the resulting crash rates should be compared to the MassDOT average crash rates for similar intersections. The basis of the crash analysis should be either MassDOT crash data or crash data provided by the Salisbury Police Department for the most recent five-year period available.*

Response: Motor vehicle crash data was obtained for the study area intersections from the Salisbury Police Department for the five-year period 2015 through 2019, inclusive. Based on a review of this data, one crash was reported to have occurred at the Route 1/Forrest Road intersection, with no (0) crashes reported to have occurred at the remaining study intersections. The calculated motor vehicle crash rate at the Route 1/Forrest Road intersection (i.e., number of motor vehicle crashes per million vehicles traveling through the intersection) was found to be below the MassDOT average crash rates for similar intersections.

No further response required.



Comment T6: *A review of the MassDOT high crash location database should be undertaken to determine if there are any listed high crash locations within or proximate to the study area.*

Response: A review of the MassDOT high crash location database indicated that there are no (0) high crash locations within the study area.

No further response required.

Comment T7: *Future 2028 No-Build (without the Project) traffic volumes should be developed for the weekday morning and evening peak hours incorporating historic background traffic growth (not less than 1.0 percent per year) and traffic volumes associated with development projects by others as identified in consultation with the Town of Salisbury Planning and Development Department.*

Response: Traffic volumes within the study area were projected to 2028, which represents a 7-year planning horizon from the existing conditions base year (2021). The future condition traffic volume projections were developed by: i) applying a background traffic growth rate to the 2021 Existing traffic volumes; and ii) adding traffic associated with specific development projects by others that may increase traffic volumes within the study area beyond that accounted for by the background traffic growth rate.

The Merrimack Valley Planning Commission (MVPC) was consulted in order to determine the appropriate traffic growth rate to be used in developing the future condition traffic volume projections. Based on this consultation, a 1.0 percent per year compounded annual background traffic growth rate was established to reflect the expected growth in traffic that will occur within the 7-year time horizon of the March 2021 TIAS.

The Applicant's engineer consulted with the Town in order to ascertain if there were any specific development projects by others that would result in an increase in traffic volumes within the study area that would exceed the background traffic growth rate. Based on this consultation, several projects were identified for inclusion in the future traffic volume projections, including residential developments along Gerrish Road (10 single-family homes) and Forest Road (4 single-family homes), a marijuana cultivation facility (187 Lafayette Road) and a marijuana dispensary (232 Lafayette Road).

We are in agreement with the methodology that was used to develop the future No-Build condition traffic volume projections, including the background traffic growth rate (1.0 percent per year) and inclusion of the identified specific development projects by others.

No further response required.

Comment T8: *MassDOT and the Town of Salisbury should be contacted in order to determine if there are any planned roadway improvement projects that are expected to be complete within the 2028 horizon year.*

Response: MassDOT and the Town of Salisbury were contacted to identify planned roadway improvement projects that are expected to occur within the study area. Based on this research, the Applicant's engineer identified the improvements that are associated with MassDOT's Route 1 improvement project, that will entail the reconstruction of Route 1



from a point just south of Warren Street to the New Hampshire border. The planned improvements will include the reconfiguring Route 1 to provide 11 foot wide travel lanes, a 12 wide share-use path along the east side and a 5 foot wide sidewalk along the west side. In addition, Forest Road will be realigned to form a “T” intersection with Route 1 and will operate under STOP-sign control. Construction of the improvements is expected to commence in 2023 and to be complete in 2026.

No further response required.

Comment T9: *The trip-distribution pattern should be re-evaluated using Journey-to-Work data from the U.S. Census for residents of the Town of Salisbury and refined based on the traffic volume data collected at the study area intersections and along Route 1.*

Response: The trip-distribution pattern for the Project was reassessed using a model based on Journey-to-Work data from the U.S. Census for residents of the Town of Salisbury and existing traffic patterns during the commuter peak hours. Based on this methodology, Project-related traffic was assigned as follows:

- Route 1 to/from the north: 27%
- Route 1 to/from the south: 73%
- Forest Road to/from the east: 0%

We are in general agreement with the methodology that was used to develop the anticipated traffic characteristics of the Project and the trip distribution patterns and note that minor variations in the trip assignments would not change the overall findings of the March 2021 TIAS. No further response required.

Comment T10: *Project-related traffic should be added to the 2028 No-Build weekday morning and evening peak hours to develop the corresponding 2028 Build (with the Project) condition traffic volumes.*

Response: The 2028 Build condition traffic volumes were developed as requested.

No further response required.

Comment T11: *A traffic operations analysis (motorist delays, vehicle queuing and level-of-service) should be performed for the study area intersections under 2021 Existing, 2028 No-Build and 2028 Build traffic volume conditions for the weekday morning and evening peak hours. The results of the analysis should be summarized in a table.*

Response: A traffic operations analysis was performed for the study area intersections under 2021 Existing, 2028 No-Build and 2028 Build traffic volume conditions for the weekday morning and evening peak hours as requested. Based on this analysis, it was determined that the Project would not have a significant impact (increase) on motorist delays or vehicle queuing over anticipated future conditions without the Project. Project-related impacts were generally defined as a predicted increase in motorist delay of up to 5.6 seconds and in vehicle queuing of up to one vehicle.



All movements exiting from Forest Road to Route 1 were identified to be operating at capacity (defined as a level-of-service (LOS) “E”) during the weekday evening peak-hour independent of the Project based on the reported motorist delay. All movements at the Project site driveway intersection with Forest Road were shown to operate with minimal delay and limited vehicle queuing.

The Applicant’s engineer also provided an analysis of operating conditions with the reconfiguration of School House Lane to serve as a one-way eastbound roadway in order to address sight line limitations for vehicles exiting School House Lane to Route 1. This analysis concluded that the resulting redistribution of traffic would not create significant increases in motorist delay or vehicle queuing given the relatively small increase in traffic that would occur.

The traffic operations analysis was completed using the appropriate methodologies and we are in agreement with the analysis results and the findings relative to the impact of the Project. In addition, we support the findings relative to converting School House Lane to a one-way eastbound roadway in order to address the existing sight distance limitation and the narrow width of the roadway. We would suggest that the Town consider this modification, which would also serve to reduce the impact of the Project on School House Road.

No further response required.

Comment T12: *The Applicant’s engineer should reassess the available sight distances at the Project site roadway intersection using the higher of the measured 85th percentile vehicle travel speed along Forest Road or the posted speed limit. This review should consider existing and proposed, signs, landscaping and other features that may limit sight lines. To the extent necessary, recommendations should be provided to ensure that unimpeded sight lines are afforded to/from the Project site roadway and should be reflected on the Site Plans.*

Response: The sight distances at the Project site roadway intersection with Forest Road were reassessed using the measured 85th percentile vehicle travel speed that was recorded in conjunction with the ATR measurements (35 mph). Based on this follow-up assessment, the available lines of sight were found to exceed the minimum recommended sight distance for safe operation (250 feet for an approach speed of 35 mph). Recommendations were provided with regard to the design and maintenance of landscaping adjacent to the Project site roadway to ensure that sight lines remain unobstructed.

No further response required.

Comment T13: *The recommendations should be revisited pending the completion of the supplemental information and analyses that have been requested as a part of this review.*

Response: The Applicant’s engineer provided recommendations for traffic control and sight line maintenance at the Project site roadway intersection with Forest Road.

Given the relatively minor impact of the Project, we concur with the recommendations that were identified in the March 2021 TIAS. Additional recommendations have been provided as a part of our review of the Site Plans (discussion follows). In addition and as stated previously, consideration should be



given to reconfiguring School House Lane such that the direction of travel at Route 1 is limited to one-way eastbound. No further response required.

Site Plans

Responses to our comments pertaining to the October 26, 2020 *Site Plans* have not been provided; however, it is our understanding that the Applicant is working to address the comments. For completeness, our initial review comments are provided below.

- S1. A truck turning analysis should be provided for the following design vehicles: SU-30 and Salisbury Fire Department design vehicle. The turning analysis should demonstrate that the subject vehicles are able to access the Project site from Forest Road and circulate within the development in an unimpeded manner.
- S2. The Fire Department should determine if a secondary means of access should be provided for emergency vehicles given the number of units that are proposed and the length of the access road.
- S3. A STOP-sign and marked STOP-line should be provided on the Project site roadway approach to Forest Road.
- S4. Vertical curbing should be used where the proposed sidewalk will be adjacent to the traveled-way or a 2-foot (minimum) grass or landscape area should be provided between the sidewalk and the edge of the traveled-way.
- S5. Driveways to the residential units should be a minimum of 21-feet long measured between the garage door and the far edge of the sidewalk (edge closest to the residence) where a sidewalk is provided, and 23-feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.
- S6. The access drives to multiple units that connect to Meadowview Lane should be a minimum of 20-feet wide unless a reduced width is approved by the Fire Department.
- S7. The sight triangle areas for the Project site roadway intersection should be shown along with a note to indicate: "Signs, landscaping and other features located within sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."
- S8. A note should be added stating: "All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the *Manual on Uniform Traffic Control Devices* (MUTCD)."²

²*Manual on Uniform Traffic Control Devices* (MUTCD); Federal Highway Administration; Washington, DC; 2009.



Ms. Lisa Pearson
March 31, 2021
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This concludes our review of the materials that have been submitted to date in support of the Project. If you should have any questions regarding our review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

A handwritten signature in black ink that reads "Jeffrey S. Dirk". The signature is written in a cursive, flowing style.

Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

Professional Engineer in CT, MA, ME, NH, RI and VA

JSD/jsd



Ref: 8839

January 27, 2021

Ms. Lisa Pearson
Planning Director
Town of Salisbury
5 Beach Road
Salisbury, MA 01952

Re: Traffic Engineering Peer Review
Meadowview Condominiums – 6 Forest Road
Salisbury, Massachusetts

Dear Lisa:

Vanasse & Associates, Inc. (VAI) has completed a review of the materials submitted on behalf of 6 Forest Road, LLC (the “Applicant”) in support of the proposed Meadowview Condominiums to be located at 6 Forest Road in Salisbury, Massachusetts (hereafter referred to as the “Project”). Our review focused on the following specific areas as they relate to the Project: i) vehicle and pedestrian access and circulation; ii) Massachusetts Department of Transportation (MassDOT) design standards; iii) Town Zoning requirements as they relate to access, parking and circulation; and iv) accepted Traffic Engineering and Transportation Planning practices. The Applicant has submitted the following supporting materials which are the subject of this review:

1. *Comprehensive Permit Application*, Meadowview Condominiums, 6 Forest Road, Salisbury, MA 01952; 6 Forest Road, LLC and Attorney Melissa E. Robbins; November 20, 2020;
2. *Site Plans*, Meadowview at Salisbury Condominium at 6 Forest Road & Meadowview Lane in Salisbury, MA; Millennium Engineering, Inc.; October 26, 2020, no revisions; and
3. *Traffic Impact Assessment*, Proposed Residential Development, Forest Road, Salisbury, MA; Bayside Engineering; September 30, 2020 (the “September 2020 TIA”).

In addition, VAI reviewed the site locus in order to validate the existing conditions context of the Project and to observe factors related to the design and location of the access to the Project site, internal circulation and potential off-site improvements.

Based on our review of the aforementioned materials that have been submitted in support of the Project, we have determined that the materials were prepared in a professional manner and following the applicable standards of care. That being said, the Applicant should address the following comments that were identified as a part of our review, a summary of which follows:

September 2020 TIA

- T1: The study area for the Project should be expanded to include the intersections of Lafayette Road (Route 1) at School House Lane and Forest Road at School House Lane given the proximity of School House Lane to the Project site roadway and the expectation that Project-related traffic will use School House Lane to travel to/from the north on Route 1.
- T2: Manual turning movement counts and vehicle classification counts (TMCs) should be conducted at the study area intersections during the weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods, and automatic traffic recorder (ATR) counts should be conducted over a continuous 48-hour period (two consecutive weekdays) on Route 1 north of Gardner Street and on Forest Street in the vicinity of the Project site. The ATR's should include vehicle travel speed measurements. The traffic volume data should be seasonally adjusted to average-month conditions and then further adjusted following MassDOT's guidance for adjusting traffic volume data that is collected for Transportation Impact Assessments (TIAs) conducted during the COVID-19 pandemic.¹ The basis of the COVID-19 adjustment should be a comparison of the MassDOT 2019 ATR data for Route 1 north of Gardner Street to the 2020 ATR data that is to be collected.
- T3: A description of bicycle accommodations within the study area should be provided.
- T4: A description of public transportation services that are available within the Town and the study area should be provided, and should include transportation services that may be offered by the Council on Aging (COA).
- T5: A motor vehicle crash analysis should be performed for the study area intersections to include motor vehicle crash rate calculations performed following MassDOT standards and the resulting crash rates should be compared to the MassDOT average crash rates for similar intersections. The basis of the crash analysis should be either MassDOT crash data or crash data provided by the Salisbury Police Department for the most recent five-year period available.
- T6: A review of the MassDOT high crash location database should be undertaken to determine if there are any listed high crash locations within or proximate to the study area.
- T7: Future 2028 No-Build (without the Project) traffic volumes should be developed for the weekday morning and evening peak hours incorporating historic background traffic growth (not less than 1.0 percent per year) and traffic volumes associated with development projects by others as identified in consultation with the Town of Salisbury Planning and Development Department.
- T8: MassDOT and the Town of Salisbury should be contacted in order to determine if there are any planned roadway improvement projects that are expected to be complete within the 2028 horizon year.
- T9: The trip-distribution pattern should be re-evaluated using Journey-to-Work data from the U.S. Census for residents of the Town of Salisbury and refined based on the traffic volume data collected at the study area intersections and along Route 1.

¹Guidance on Traffic Count Data; MassDOT; revised April 2020.



- T10: Project-related traffic should be added to the 2028 No-Build weekday morning and evening peak hours to develop the corresponding 2028 Build (with the Project) condition traffic volumes.
- T11: A traffic operations analysis (motorist delays, vehicle queuing and level-of-service) should be performed for the study area intersections under 2021 Existing, 2028 No-Build and 2028 Build traffic volume conditions for the weekday morning and evening peak hours. The results of the analysis should be summarized in a table.
- T12: The Applicant's engineer should reassess the available sight distances at the Project site roadway intersection using the higher of the measured 85th percentile vehicle travel speed along Forest Road or the posted speed limit. This review should consider existing and proposed, signs, landscaping and other features that may limit sight lines. To the extent necessary, recommendations should be provided to ensure that unimpeded sight lines are afforded to/from the Project site roadway and should be reflected on the Site Plans.
- T13: The recommendations should be revisited pending the completion of the supplemental information and analyses that have been requested as a part of this review.

Site Plans

- S1. A truck turning analysis should be provided for the following design vehicles: SU-30 and Salisbury Fire Department design vehicle. The turning analysis should demonstrate that the subject vehicles are able to access the Project site from Forest Road and circulate within the development in an unimpeded manner.
- S2. The Fire Department should determine if a secondary means of access should be provided for emergency vehicles given the number of units that are proposed and the length of the access road.
- S3. A STOP-sign and marked STOP-line should be provided on the Project site roadway approach to Forest Road.
- S4. Vertical curbing should be used where the proposed sidewalk will be adjacent to the traveled-way or a 2-foot (minimum) grass or landscape area should be provided between the sidewalk and the edge of the traveled-way.
- S5. Driveways to the residential units should be a minimum of 21-feet long measured between the garage door and the far edge of the sidewalk (edge closest to the residence) where a sidewalk is provided, and 23-feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.
- S6. The access drives to multiple units that connect to Meadowview Lane should be a minimum of 20-feet wide unless a reduced width is approved by the Fire Department.
- S7. The sight triangle areas for the Project site roadway intersection should be shown along with a note to indicate: "Signs, landscaping and other features located within sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."



- S8. A note should be added stating: “All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the *Manual on Uniform Traffic Control Devices* (MUTCD).²”

Written responses to our comments should be provided so that we may continue our review of the Project on behalf of the Town.

This concludes our review of the materials that have been submitted to date in support of the Project. If you should have any questions regarding our review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.



Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

Professional Engineer in CT, MA, ME, NH, RI and VA

JSD/jsd

Attachment

²*Manual on Uniform Traffic Control Devices* (MUTCD); Federal Highway Administration; Washington, DC; 2009.



**TRAFFIC ENGINEERING PEER REVIEW
MEADOWVIEW CONDOMINIUMS
6 FOREST ROAD
JANUARY 27, 2021**

The following details Vanasse & Associates, Inc.'s (VAI's) review of the September 30, 2020 Traffic Impact Assessment (the "September 2020 TIA") prepared by Bayside Engineering and the October 26, 2020 Site Plans prepared by Millennium Engineering in support of the Meadowview Condominiums to be located at 6 Forest Road in Salisbury, Massachusetts (hereafter referred to as the "Project"). Our comments are indicated in *italicized* text, with those requiring responses or additional information **bolded**.

PROJECT DESCRIPTION

The Project will entail the construction of a 76-unit multifamily residential development to be located at 6 Forest Road in Salisbury, Massachusetts. The residential units will consist of 34 duplex buildings (two (2) units each) and two (2) four-plex building (four (4) units each). The Project site consists of approximately 26.94 acres of land that is bounded by residential properties and areas of open wooded space to the north and south; areas of open and wooded space to the east; and Forest Road, residential properties and areas of open and wooded space to the west. At present the Project site contains areas of open and wooded space and a single-family home with associated appurtenances (6 Forest Road) that will be retained on a separate parcel of land that will be subdivided from the larger overall parcel.

Access to the Project site will be provided by way of a new roadway to be known as Meadowview Lane that will intersect the east side of Forest Road approximately 50 feet south of School House Lane. Off-street parking will be provided for a minimum of two (2) vehicles per unit in attached garages and individual driveways for each unit, with an additional 31 parking spaces provided in separate parking areas along Meadowview Lane that are dispersed throughout the Project site.

SEPTEMBER 2020 TIA

General

Comment: The September 2020 TIA was prepared in a professional manner and was completed under the responsible charge of Kenneth P. Cram, P.E. (MA P.E. No. 36663, Traffic).

Existing Conditions

Study Area

The study area that was assessed in the September 2020 TIA included Forest Road, Lafayette Road (Route 1) and the Route 1/Forest Road intersection.

Comment T1: The study area for the Project should be expanded to include the intersections of Route 1 at School House Lane and Forest Road at School House Lane given the proximity of School House Lane to the Project site roadway and the expectation that Project-related traffic will use School House Lane to travel to/from the north on Route 1.



**TRAFFIC ENGINEERING PEER REVIEW
MEADOWVIEW CONDOMINIUMS
6 FOREST ROAD
JANUARY 27, 2021**

Traffic Volumes and Data Collection

Traffic volume data was not collected as a part of the September 2020 TIA due to the impacts on traffic volumes and trip patterns associated with the restrictions imposed as a result of the COVID-19 pandemic. Instead, historic (2019) traffic volumes were obtained from the Massachusetts Department of Transportation (MassDOT) for Route 1 north of Gardner Street.

Comment T2: Manual turning movement counts and vehicle classification counts (TMCs) should be conducted at the study area intersections during the weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods, and automatic traffic recorder (ATR) counts should be conducted over a continuous 48-hour period (two consecutive weekdays) on Route 1 north of Gardner Street and on Forest Street in the vicinity of the Project site. The ATR's should include vehicle travel speed measurements. The traffic volume data should be seasonally adjusted to average-month conditions and then further adjusted following MassDOT's guidance for adjusting traffic volume data that is collected for Transportation Impact Assessments (TIAs) conducted during the COVID-19 pandemic.³ The basis of the COVID-19 adjustment should be a comparison of the MassDOT 2019 ATR data for Route 1 north of Gardner Street to the 2020 ATR data that is to be collected.

Pedestrian and Bicycle Facilities

A description of pedestrian facilities along the study area roadways was presented in the September 2020 TIA. As described therein, sidewalks are not provided along Forest Road. Sidewalks are provided along the west side of Route 1 between the Salisbury Fire Department and Pleasant Street, and along the east side between Warren Avenue and Pleasant Street.

Comment T3: A description of bicycle accommodations within the study area should be provided.

Public Transportation

Comment T4: A description of public transportation services that are available within the Town and the study area should be provided, and should include transportation services that may be offered by the Council on Aging (COA).

Motor Vehicle Crash Summary

Motor vehicle crash information was obtained from the Salisbury Police Department for the five-year period 2015 through 2019, inclusive, for the following intersections:

- | | |
|-----------------------------------|---|
| – Route 1/Forest Road: 1 crash | – Gerrish Road/Seabrook Road: 2 crashes |
| – Route 1/True Road: 5 crashes | – Forest Road/28 Forest Road: 1 crash |
| – Route 1/Gerrish Road: 9 crashes | – True Road: 1 crash |

³Guidance on Traffic Count Data; MassDOT; revised April 2020.



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Based on this data it was concluded that there was a relatively low incidence of motor vehicle crashes in the vicinity of the Project site.

Comment T5: A motor vehicle crash analysis should be performed for the study area intersections to include motor vehicle crash rate calculations performed following MassDOT standards and the resulting crash rates should be compared to the MassDOT average crash rates for similar intersections. The basis of the crash analysis should be either MassDOT crash data or crash data provided by the Salisbury Police Department for the most recent five-year period available.

Comment T6: A review of the MassDOT high crash location database should be undertaken to determine if there are any listed high crash locations within or proximate to the study area.

Future Conditions

No-Build Conditions

Comment T7: Future 2028 No-Build (without the Project) traffic volumes should be developed for the weekday morning and evening peak hours incorporating historic background traffic growth (not less than 1.0 percent per year) and traffic volumes associated with development projects by others as identified in consultation with the Town of Salisbury Planning and Development Department.

Comment T8: MassDOT and the Town of Salisbury should be contacted in order to determine if there are any planned roadway improvement projects that are expected to be complete within the 2028 horizon year.

Build Conditions

The traffic characteristics of the Project were developed by the Applicant's engineer using trip-generation statistics published by the Institute of Transportation Engineers (ITE)⁴ for a similar land use as that proposed. ITE Land Use Code (LUC) 220, *Multifamily Housing (Low-Rise)*, was used to develop the traffic characteristics of the Project. The following table summarizes the traffic characteristics of the Project.

⁴*Trip Generation*, 10th Edition; Institute of Transportation Engineers; Washington, DC; 2017.



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TRIP GENERATION SUMMARY**

Time Period	Vehicle Trips ^a		
	Entering	Exiting	Total
<i>Average Weekday:</i>	267	267	534
<i>Weekday Morning Peak-Hour:</i>	9	28	37
<i>Weekday Evening Peak-Hour:</i>	29	17	46

^aBased on ITE LUC 220, *Multifamily Housing (Low-Rise)*.

Traffic volumes associated with the Project were assigned to Route 1 assuming that 50 percent of the trips would oriented to/from the north and 50 percent would be oriented to/from the south, with northbound trips assumed to use School House Lane.

Comment: We are in agreement with the methodology that was used to develop the anticipated traffic characteristics of the Project and the resulting traffic volumes.

Comment T9: The trip-distribution pattern should be re-evaluated using Journey-to-Work data from the U.S. Census for residents of the Town of Salisbury and refined based on the traffic volume data collected at the study area intersections and along Route 1.

Comment T10: Project-related traffic should be added to the 2028 No-Build weekday morning and evening peak hours to develop the corresponding 2028 Build (with the Project) condition traffic volumes.

Traffic Operations Analysis

Comment T11: A traffic operations analysis (motorist delays, vehicle queuing and level-of-service) should be performed for the study area intersections under 2021 Existing, 2028 No-Build and 2028 Build traffic volume conditions for the weekday morning and evening peak hours. The results of the analysis should be summarized in a table.

Sight Distance

Sight distance measurements were provided for the Project site roadway intersection with Forest Road and were evaluated using the posted speed limit along Forest Road (30 miles per hour (mph)). This evaluation concluded that the available lines of sight both approaching the Project site roadway along Forest Road and for motorists exiting the roadway exceed the recommended minimum sight distance for safe operation based on the posted speed limit (a minimum line of sight of 200 feet is required for a 30 mph approach speed).

Comment T12: The Applicant's engineer should reassess the available sight distances at the Project site roadway intersection using the higher of the measured 85th percentile vehicle travel speed along Forest Road or the posted speed limit. This review should consider existing



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and proposed, signs, landscaping and other features that may limit sight lines. To the extent necessary, recommendations should be provided to ensure that unimpeded sight lines are afforded to/from the Project site roadway and should be reflected on the Site Plans.

Recommendations

The following specific recommendations were identified in the September 2020 TIA:

- Any proposed landscaping should be less than three (3) feet in height and maintained for sight lines.
- No plantings should occur within 10 feet of the Forest Road travelled way to maintain sight lines and vegetation within the public right-of-way should be maintained at a height that will not impact sight distances.

Comment: We concur with the recommendations that were provided in the September 2020 TIA and would recommend that these be included as a part of any conditions of approval that may be granted for the Project.

Comment T13: The recommendations should be revisited pending the completion of the supplemental information and analyses that have been requested as a part of this review.

SITE PLANS

The following comments are offered with regard to our review of the *Site Plans* prepared by Millennium Engineering and dated October 26, 2020, no revisions:

- S1. A truck turning analysis should be provided for the following design vehicles: SU-30 and Salisbury Fire Department design vehicle. The turning analysis should demonstrate that the subject vehicles are able to access the Project site from Forest Road and circulate within the development in an unimpeded manner.**
- S2. The Fire Department should determine if a secondary means of access should be provided for emergency vehicles given the number of units that are proposed and the length of the access road.**
- S3. A STOP-sign and marked STOP-line should be provided on the Project site roadway approach to Forest Road.**
- S4. Vertical curbing should be used where the proposed sidewalk will be adjacent to the traveled-way or a 2-foot (minimum) grass or landscape area should be provided between the sidewalk and the edge of the traveled-way.**
- S5. Driveways to the residential units should be a minimum of 21-feet long measured between the garage door and the far edge of the sidewalk (edge closest to the residence) where a**



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sidewalk is provided, and 23-feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.

- S6. The access drives to multiple units that connect to Meadowview Lane should be a minimum of 20-feet wide unless a reduced width is approved by the Fire Department.
- S7. The sight triangle areas for the Project site roadway intersection should be shown along with a note to indicate: “Signs, landscaping and other features located within sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windrows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed.”
- S8. A note should be added stating: “All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the Manual on Uniform Traffic Control Devices (MUTCD).⁵”

PARKING

Off-street parking will be provided for a minimum of two (2) vehicles per unit in attached garages and individual driveways for each unit, with an additional 31 parking spaces provided in separate parking areas along the Project site roadway that are dispersed throughout the Project site.

A review of Table C-4, *Off-Street Parking Standards*, of Chapter 465 of the Town of Salisbury Zoning Bylaw requires that 2.0 parking spaces per unit be provided for a dwelling, which is consistent with the parking supply that will be provided for each dwelling unit, with an additional 31 parking spaces provided for visitors.

Comment: The proposed parking supply will exceed the requirements of the Zoning Bylaw.

⁵Manual on Uniform Traffic Control Devices (MUTCD); Federal Highway Administration; Washington, DC; 2009.

