Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

Ref: 9874

June 3, 2024

Ms. Lara Davis
ZBA Principal Assistant
Southborough Zoning Board of Appeals & Conservation Department
9 Cordaville Road
Southborough, MA 01772

Re: Traffic Engineering Peer Review
Proposed Multifamily Residential Development – 120 Turnpike Road (Route 9)
Southborough, Massachusetts

Dear Lara:

Vanasse & Associates, Inc. (VAI) has completed a review of the materials that have been submitted on behalf of FD 120 Turnpike, LLC (the "Applicant") in support of the proposed multifamily residential development to be known as The Alexandra and located at 120 Turnpike Road (Route 9) in Southborough, Massachusetts (hereafter referred to as the "Project"). The Applicant is requesting the issuance of a Comprehensive Permit for the Project pursuant to M.G.L. c.40B, §§ 20 through 23. 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 materials which are the subject of this review:

1. *Comprehensive Permit Application to Town of Southborough Zoning Board of Appeals,* 120 Turnpike Road, Southborough, submitted by Ferris Development Group on behalf of FD 120 Turnpike, LLC and dated October 31, 2023;

2. *Site Plan of Land at 120 Turnpike Road in Southborough, Massachusetts*; Azimuth Land Design, LLC; October 25, 2023, last revised January 24, 2024 (the "Site Plans");

3. *Site Section,* 120 Turnpike Rd; Monte French Design Studio; November 1, 2023 (no revisions); and

4. *Traffic Impact Study,* 120 Turnpike Road, Southborough, MA; AK Associates; September 2023 (the "September 2023 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 detailed summary of which is attached:

September 2023 TIA

Comment T1: The data collection effort was completed following accepted standards; however, the adjustments to the raw traffic count data do not follow current guidelines. First, the September traffic counts should not be adjusted downward. It is customary to retain traffic count data that is above-average without reduction and to adjust the data only in the case where the data was collected during a "below-average" month or when evaluating the warrants for the installation of a traffic control signal. Second, MassDOT has provided updated guidance that no longer requires pandemic-related adjustment of traffic counts performed after March 2022 except in locations where the predominant land use consists of offices or similar uses.[1] Given that the predominant land use that is accessed by way of the study area intersection is office uses, that traffic volumes entering and exiting the driveway that serves 118/120 Turnpike Road should be adjusted (increased) to account for the vacancy of the existing office buildings at the time that the traffic counts were performed.

Comment T2: A review of the MassDOT statewide High Crash Location List indicated that the Route 9 intersection with the driveway that serves 118/120 Turnpike Road is not identified as a Highway Safety Improvement Program (HSIP) eligible high crash location. Outside of the immediate intersection, the following intersections that will be impacted by the Project are identified as high crash cluster locations for the 2018-2020 reporting period and HSIP eligible:

- Route 9/Breakneck Hill Road/White Bagley Road
- Route 9/Woodland Road
- Route 9/Oak Hill Road/Central Street

Given that the Route 9/Breakneck Hill Road/White Bagley Road and Route 9/ Oak Hill Road/Central Street intersections are critical to facilitating access to the Project due to the median barrier along Route 9, a review of the motor vehicle crashes that are occurring at these intersections should be undertaken and potential remedial measures identified that are commensurate with the identified impact of the Project at these intersections.

Comment T3: MassDOT's *Transportation Impact Assessment (TIA) Guidelines* require that the future conditions analysis horizon be established as a 7-year projection from the date of publication of the assessment. As such, the future condition horizon year should be adjusted to 2030. We agree with the 1.0 percent per year compounded annual background traffic growth rate, but note that Route 9 in Southborough is considered an urban (U) roadway and the urban roadway adjustment factors and growth rates should be used.

Comment T4: The Town of Southborough and MassDOT should be consulted concerning potential future development projects by others that may impact future condition traffic volumes and traffic patterns beyond those accounted for by the general background traffic growth rate and to identify planned roadway improvement projects in the area.

[1] *25% Design Submission Guidelines*; MassDOT Highway Division, Traffic and Safety Engineering; Revised May 31, 2022.

Comment T5: The Build condition traffic volumes should be updated to reflect the changes to the No-Build condition traffic volumes and the 2030 horizon year.

Comment T6: The traffic operations analysis should be revised to reflect the comments provided as a part of this assessment pertaining to the Existing, No-Build and Build condition traffic volumes.

Comment T7: We would suggest consideration of advancement of the following improvements as a part of the Project, which are commensurate with the predicted impact of the Project on the transportation infrastructure and are focused on safety and encouraging the use of alternative modes of transportation to single-occupancy vehicles:

1. Define and implement safety-related improvements at the Route 9/Breakneck Hill Road/White Bagley Road and Route 9/Oak Hill Road/Central Street intersections that should be informed by a review of the MassDOT crash data for the intersections and limited to traffic signal timing adjustments and the installation of signs and pavement markings subject to receipt of all necessary rights, permits and approvals; and

2. Implement a Transportation Demand Management (TDM) program that is inclusive of the following elements:

   - Assign a transportation coordinator for the Project who may also have other responsibilities to coordinate the TDM program;
   - Information regarding public transportation services should be made available to residents and include maps, schedules and fare information;
   - A "welcome packet" should be provided to new residents providing the name and contact information for the transportation coordinator and detailing available public transportation services, bicycle and walking alternatives, and other commuting options;
   - Work-at-home accommodations should be included within Project, and may take the form of meeting space and a business office in the common area;
   - Secure bicycle parking should be provided consisting of both weather protected bicycle parking and exterior bicycle racks; and
   - Consult with the MWRTA to discuss options to establish transit service to the Project.

Site Plans

Comment S1: A vehicle turning analysis should be provided using the AutoTurn© software for a service/delivery vehicle and a moving van (SU-30 design vehicle) and for the Southborough Fire Department design vehicle. The turning analysis should depict all maneuvers required to enter and exit the Project site from Route 9 and include access to the loading areas and trash/recycling pick-up location.

Comment S2: The sight triangle areas for the driveway that serves 118/120 Turnpike Road should be shown on the Site Plans 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 accumulation (windrows) located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."

Comment S3: A narrative should be provided describing how tenant moves will be accommodated and trash/recycling managed, including the scheduling of such activities and where they will occur within the Project site.

Comment S4: 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]"

Comment S5: Interior, weather protected bicycle parking should be provided within the building that is convenient to a pedestrian or vehicle entrance to the building. In addition, exterior bicycle racks should be located proximate to the building entrance.

Comment S6: A leveling area that should not exceed 2 percent for a minimum distance of 25 feet should be provided approaching the connection to the existing driveway that serves 118/120 Turnpike Road.

Comment S7: Verify that the timber guardrail system along the retaining wall complies with current MassDOT/FHWA standards for crash worthiness.

Comment S8: The grade of the proposed access to the Project appears to range from 4 percent to 8 percent along its alignment, which is less than the 10 percent maximum grade specified in 527 CMR 1.00 c. 18 §18.2.3.5.6.1. We defer to the Fire Chief as to the adequacy of this access for use by emergency vehicles.

Comment S9: Consideration should be given to developing a sidewalk or pedestrian path to connect the proposed building to the new sidewalk and associated crossings that are proposed along the east side of the existing driveway that serves 118/120 Turnpike Road and that will be extended to the existing sidewalk along Route 9.

Comment S10: The proposed sidewalk should include Americans with Disabilities Act (ADA) compliant wheelchair ramps and marked crosswalks. The proposed crosswalk to the north of the connection between the existing driveway and the driveway extension to the Project site should be shifted to the north and cross the drive perpendicular to the traveled-way. The crossing should include pedestrian crossing warning signs at and in advance of the crosswalk.

Parking

Comment P1: Based on a review of parking demand data available from the Institute of Transportation Engineers (ITE)[3] for multifamily residential communities in a similar setting, it is our opinion that the proposed parking supply of 114 parking spaces is sufficient to meet the parking demands of residents, guests and service providers, and we support the Applicant's request for a waiver from Section 174-12 of the Zoning Bylaws.

[2]*Manual on Uniform Traffic Control Devices* (MUTCD), 11th Edition; Federal Highway Administration; Washington, DC; December 2023.
[3]*Parking Generation Manual*, 6th Edition; Institute of Transportation Engineers; Washington D.C.; October 2023.

Comment P2: Consideration should be given to designating two (2) parking spaces proximate to the building entrance as short-term (10-minute) parking for rideshare providers and deliveries.

This concludes our review of the materials that have been submitted to date in support of the Project. Written responses to our comments should be provided so that we may continue our review on behalf of the Town. If you should have any questions regarding our review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

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

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

JSD/jsd

TRAFFIC ENGINEERING PEER REVIEW
PROPOSED MULTIFAMILY RESIDENTIAL DEVELOPMENT
120 TURNPIKE ROAD (ROUTE 9)
SOUTHBOROUGH, MASSACHUSETTS
JUNE 3, 2024

The following details Vanasse & Associates, Inc.'s (VAI's) review of the September 2023 *Traffic Impact Study* (the "September 2023 TIS") prepared by AK Associates and the Site Plans as revised through January 24, 2024 prepared by Azimuth Land Design, LLC (the "Site Plans") in support of the proposed multifamily residential development to be known as The Alexandra and located at 120 Turnpike Road (Route 9) in Southborough, 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 60-unit, multifamily residential building with supporting parking and amenities to be located at 120 Turnpike Road (Route 9) in Southborough, Massachusetts. The Project will be developed by on an 8.02± acre lot defined as "New Parcel A" on the Site Plans (the "Project site") that will be created by subdividing the undeveloped area in the southern portion of the 20.48± acre lot that includes the existing office buildings and supporting parking and appurtenances located at 118 and 120 Turnpike Road. The Project site is currently undeveloped and includes areas of open and wooded space that is bounded by the office buildings and supporting infrastructure for the office park located at 118 and 120 Turnpike Road to the north; areas of open and wooded space owned by the Town of Southborough to the south and east; and a commercial property (134 Turnpike Road) and areas of open and wooded space owned by the Town of Southborough to the west.

Access to the Project will be provided by way of an extension of the driveway that serves 118 and 120 Turnpike Road and intersects the south side of Route 9. The driveway is limited to right-turn only operation (i.e., right-in/right-out only) due to the raised median barrier that separates the directions of travel along Route 9 at this location. Secondary access is provided to 118/120 Turnpike Road by way of a gated connection to the parking lot for the adjacent office park at 132 Turnpike Road.

On-site parking will be provided for 114 vehicles, or a parking ratio of 1.9 parking spaces per unit, consisting of 94 surface parking spaces and 20 garage parking spaces.

SEPTEMBER 2023 TIS

General

The September 2023 TIS was prepared in a professional manner and following the applicable standards of care, and was prepared under the responsible charge of Ali R. Khorasani, P.E. (MA P.E. No. 39925, Civil).

Existing Conditions

Study Area

The study area that was assessed in the September 2023 TIS consisted of Turnpike Road (Route 9) and its intersection with the driveway to 118/120 Turnpike Road.

Comment: *This study area 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. For context, we note that the Project is expected to generate between 22 and 26 vehicle trips during the peak traffic volume hours (discussion follows).*

Traffic Volumes and Data Collection

Traffic volume data was collected by means of turning movement counts (TMCs) and vehicle classification counts that were conducted in September 2023. The TMCs were conducted at the intersection of Route 9 at the 120/118 Turnpike Road driveway on Thursday, September 7, 2023, during the weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods, and on Saturday, September 9, 2023, during the midday peak period (11:00 AM to 1:00 PM). These time periods were selected for analysis as they were determined to be representative of the peak traffic volume periods for both the Project and the adjacent roadway network.

In order to determine daily traffic volumes along Route 9, traffic volume data was obtained from a MassDOT permanent count station located along Route 9 (Station No. 3082) that were conducted in 2022.

A review of seasonal adjustment data available from MassDOT indicated that traffic volumes within the study area during the month of September are approximately 5.3 percent higher than those that occur under "average-month" conditions. Accordingly, the September traffic volumes were adjusted downward to "average-month" conditions by multiplying the raw traffic counts by 0.95.

In addition to the seasonal adjustment, the traffic counts were increase by 4.0 percent in order to account for the reduction in traffic volumes that was reported to have occurred as a result of the COVID-19 pandemic following MassDOT guidance.

Comment T1: ***The data collection effort was completed following accepted standards; however, the adjustments to the raw traffic count data do not follow current guidelines. First, the September traffic counts should not be adjusted downward. It is customary to retain traffic count data that is above-average without reduction and to adjust the data only in the case where the data was collected during a "below-average" month or when evaluating the warrants for the installation of a traffic control signal. Second, MassDOT has provided updated guidance that no longer requires pandemic-related adjustment of traffic counts performed after March 2022 except in locations where the predominant land use consists of offices or similar uses.[4] Given that the predominant land use that is accessed by way of the study area intersection is office uses, that traffic volumes entering and exiting the driveway that serves 118/120 Turnpike Road should be adjusted (increased) to account for the vacancy of the existing office buildings at the time that the traffic counts were performed.***

[4] *25% Design Submission Guidelines*; MassDOT Highway Division, Traffic and Safety Engineering; Revised May 31, 2022.

Pedestrian and Bicycle Facilities

A description of pedestrian facilities within the study area was included as a part of the roadway and intersection descriptions in the September 2023 TIS. As described therein, a sidewalk is provided continuously along the south side of Route 9 east of Breakneck Hill Road; a sidewalk is not provided along the driveway that serves 118/120 Turnpike Road.

Comment: *We note that formal bicycle accommodations are not provided; however, Route 9 generally provides sufficient width to accommodate bicycle travel in a shared traveled-way configuration (i.e., motor vehicles and bicyclists sharing the traveled-way). That being said, traffic volumes and vehicle travel speeds along Route 9 are not conducive to bicycle travel within the traveled-way.*

Public Transportation

A description of public transportation services that are available within the study area was not provided as a part of the September 2023 TIS.

Comment: *Public transportation services are not currently provided at the Project site. The MetroWest Regional Transit Authority (MWRTA) provides fixed-route bus services along Route 9 to the east of the Project site by way of bus Route 7, which provides service between the Blandin Hub in Framingham and Marlborough center by way of Route 9, Route 30 and Route 85.*

Motor Vehicle Crash Summary

Motor vehicle crash information for the Route 9 intersection with the driveway that serves 118/120 Turnpike Road was researched through MassDOT for the most recent five year period available (2019 through 2023, inclusive). Based on this research, it was reported that no (0) motor vehicle crashes were reported to have occurred at or near the subject intersection.

Comment T2: ***A review of the MassDOT statewide High Crash Location List indicated that the Route 9 intersection with the driveway that serves 118/120 Turnpike Road is not identified as a Highway Safety Improvement Program (HSIP) eligible high crash location. Outside of the immediate intersection, the following intersections that will be impacted by the Project are identified as high crash cluster locations for the 2018-2020 reporting period and HSIP eligible:***

- ***Route 9/Breakneck Hill Road/White Bagley Road***
- ***Route 9/Woodland Road***
- ***Route 9/Oak Hill Road/Central Street***

Given that the Route 9/Breakneck Hill Road/White Bagley Road and Route 9/ Oak Hill Road/Central Street intersections are critical to facilitating access to the Project due to the median barrier along Route 9, a review of the motor vehicle crashes that are

occurring at these intersections should be undertaken and potential remedial measures identified that are commensurate with the identified impact of the Project at these intersections.

Future Conditions

No-Build Conditions

Traffic volumes within the study area were projected to 2028, which represents a 5-year planning horizon from the existing conditions base year (2023). The future condition traffic volume projections were developed by applying a background traffic growth rate to the 2023 Existing traffic volumes. A 1.0 percent per year compounded annual background traffic growth rate was identified for use to reflect anticipated future traffic growth independent of specific development projects based on a review of historic traffic growth data provided by MassDOT for R3 roadways (other principal arterial roadways in rural areas).

Comment T3: ***MassDOT's Transportation Impact Assessment (TIA) Guidelines require that the future conditions analysis horizon be established as a 7-year projection from the date of publication of the assessment. As such, the future condition horizon year should be adjusted to 2030. We agree with the 1.0 percent per year compounded annual background traffic growth rate, but note that Route 9 in Southborough is considered an urban (U) roadway and the urban roadway adjustment factors and growth rates should be used.***

Comment T4: ***The Town of Southborough and MassDOT should be consulted concerning potential future development projects by others that may impact future condition traffic volumes and traffic patterns beyond those accounted for by the general background traffic growth rate and to identify planned roadway improvement projects in the area.***

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)[5] for a similar land use as that proposed. ITE Land Use Code (LUC) 221, *Multifamily Housing (Mid-Rise)*, was used to develop the base trip characteristics for the Project. The table below summarizes the peak-hour traffic characteristics of the Project based on 60 residential units using the aforementioned methodology.

[5] *Trip Generation*, 10th Edition; Institute of Transportation Engineers; Washington, DC; September 2017.

TRIP GENERATION SUMMARY

Time Period	Vehicle Trips		
	Entering	Exiting	Total
Average Weekday:	163	163	326
Weekday Morning Peak-Hour:	6	16	22
Weekday Evening Peak-Hour:	16	10	26
Saturday Midday Peak-Hour:	13	13	26

Given the raised median barrier along Route 9, all traffic entering and exiting the Project site is restricted to right turns entering and exiting the driveway that serves 118/120 Turnpike Road. Motorists entering the Project site from the east will use the traffic signal at the Route 9/Breakneck Hill Road/White Bagley Road to reverse direction along Route 9 and motorists exiting the Project site destined to the west will use the traffic signal at the Route 9/Oak Hill Road/Central Street to reverse direction.

Comment: *We agree with the methodology that was used to develop the traffic characteristics of the Project, but note that the 11th Edition of Trip Generation[6] published in 2021 should have been used. The use of the current edition of Trip Generation to establish the trip characteristics of the Project results in comparable or lower traffic volumes on a daily and peak-hour basis.*

Comment T5: ***The Build condition traffic volumes should be updated to reflect the changes to the No-Build condition traffic volumes and the 2030 horizon year.***

Traffic Operations Analysis

In order to assess the potential impact of the Project on the transportation infrastructure, a detailed traffic operations analysis was performed for the study intersections under 2023 Existing, 2028 No-Build (without the Project) and 2028 Build conditions (with the Project). In brief, traffic operations are described by six "levels of service" which are defined by letter grades from "A" through "F", with a level-of-service (LOS) "A" representing the best operating conditions (average motorist delays of less than 10 seconds and little or no apparent vehicle queuing) and a LOS "F" representing constrained operating conditions (average motorist delays of 50 to 80 seconds or more and often with apparent vehicle queuing). A LOS of "E" is representative of an intersection or traffic movement that is operating at its design capacity, with a LOS of "D" typically representing the limit of acceptable traffic operations.

A review of the traffic operations analysis indicates that the intersection of Route 9 with the driveway that serves 118/119 Turnpike Road will operate at a LOS B or better during the peak-hours with the addition of Project-related traffic with vehicle queues of approximately one (1) vehicle.

[6] *Trip Generation*, 11th Edition; Institute of Transportation Engineers; Washington, DC; 2021.

Comment T6: ***The traffic operations analysis should be revised to reflect the comments provided as a part of this assessment pertaining to the Existing, No-Build and Build condition traffic volumes.***

Sight Distance

An evaluation of sight lines at the intersection of Route 9 with the driveway that serves 118/120 Turnpike Road was completed following American Association of State Highway and Transportation Officials (AASHTO)[7] standards and using a 50 mile per hour (mph) approach speed, which is consistent with the posted speed limit along this section of Route 9. Based on this evaluation, it was determined that the available sight lines exceed the recommended minimum sight distance for safe operation (a minimum sight distance of 425 feet is required for an approach speed of 50 mph).

Comment: *We agree with the sight distance evaluation and the conclusion that the available sight lines exceed the recommended minimum sight distance for safe operation of the intersection.*

Recommendations

Given the limited impact of the Project on the transportation infrastructure, the recommendations that were provided in the September 2023 TIS entailed ensuring that any proposed landscaping or signs be designed and located so as to not impede sight lines to or from the driveway that serves 118/120 Turnpike Road.

Comment T7: ***We would suggest consideration of advancement of the following improvements as a part of the Project, which are commensurate with the predicted impact of the Project on the transportation infrastructure and are focused on safety and encouraging the use of alternative modes of transportation to single-occupancy vehicles:***

1. ***Define and implement safety-related improvements at the Route 9/ Breakneck Hill Road/White Bagley Road and Route 9/Oak Hill Road/Central Street intersections that should be informed by a review of the MassDOT crash data for the intersections and limited to traffic signal timing adjustments and the installation of signs and pavement markings subject to receipt of all necessary rights, permits and approvals; and***

2. ***Implement a Transportation Demand Management (TDM) program that is inclusive of the following elements:***

   - ***Assign a transportation coordinator for the Project who may also have other responsibilities to coordinate the TDM program;***
   - ***Information regarding public transportation services should be made available to residents and include maps, schedules and fare information;***

[7] *A Policy on Geometric Design of Highway and Streets*, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

- ***A "welcome packet" should be provided to new residents providing the name and contact information for the transportation coordinator and detailing available public transportation services, bicycle and walking alternatives, and other commuting options;***
- ***Work-at-home accommodations should be included within Project, and may take the form of meeting space and a business office in the common area;***
- ***Secure bicycle parking should be provided consisting of both weather protected bicycle parking and exterior bicycle racks; and***
- ***Consult with the MWRTA to discuss options to establish transit service to the Project.***

SITE PLANS

The following comments are offered with regard to our review of the Site Plans prepared by Azimuth Land Design, LLC as revised through January 24, 2024:

Comment S1: ***A vehicle turning analysis should be provided using the AutoTurn© software for a service/delivery vehicle and a moving van (SU-30 design vehicle) and for the Town of Southborough Fire Department design vehicle. The turning analysis should depict all maneuvers required to enter and exit the Project site from Route 9 and include access to the loading areas and trash/recycling pick-up location.***

Comment S2: ***The sight triangle areas for the driveway that serves 118/120 Turnpike Road should be shown on the Site Plans 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 accumulation (windrows) located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."***

Comment S3: ***A narrative should be provided describing how tenant moves will be accommodated and trash/recycling managed, including the scheduling of such activities and where they will occur within the Project site.***

Comment S4: ***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).[8]"***

Comment S5: ***Interior, weather protected bicycle parking should be provided within the building that is convenient to a pedestrian or vehicle entrance to the building. In addition, exterior bicycle racks should be located proximate to the building entrance.***

[8] *Manual on Uniform Traffic Control Devices* (MUTCD), 11th Edition; Federal Highway Administration; Washington, DC; December 2023.

Comment S6: ***A leveling area that should not exceed 2 percent for a minimum distance of 25 feet should be provided approaching the connection to the existing driveway that serves 118/120 Turnpike Road.***

Comment S7: ***Verify that the timber guardrail system along the retaining wall complies with current MassDOT/FHWA standards for crash worthiness.***

Comment S8: ***The grade of the proposed access to the Project appears to range from 4 percent to 8 percent along its alignment, which is less than the 10 percent maximum grade specified in 527 CMR 1.00 c. 18 §18.2.3.5.6.1. We defer to the Fire Chief as to the adequacy of this access for use by emergency vehicles.***

Comment S9: ***Consideration should be given to developing a sidewalk or pedestrian path to connect the proposed building to the new sidewalk and associated crossings that are proposed along the east side of the existing driveway that serves 118/120 Turnpike Road and that will be extended to the existing sidewalk along Route 9.***

Comment S10: ***The proposed sidewalk should include Americans with Disabilities Act (ADA) compliant wheelchair ramps and marked crosswalks. The proposed crosswalk to the north of the connection between the existing driveway and the driveway extension to the Project site should be shifted to the north and cross the drive perpendicular to the traveled-way. The crossing should include pedestrian crossing warning signs at and in advance of the crosswalk.***

PARKING

On-site parking will be provided for 114 vehicles, or a parking ratio of 1.9 parking spaces per unit, consisting of 94 surface parking spaces and 20 garage parking spaces.

Section 174-12, *Parking and Loading Regulations*, of Chapter 174, *Zoning*, of the Town Bylaws requires that 2.0 parking spaces be provided for each dwelling unit containing one or two bedrooms, that 3.0 parking spaces be provided for each dwelling unit containing three or more bedrooms, plus one space for each 80 square feet of floor area devoted to a customary home occupation or a professional use. The Project will include 37 one-bedroom units, 17 two-bedroom units and six (6) three-bedroom units, which requires 126 parking spaces to meet the requirements of the Bylaws, or 12 more parking spaces than are provided.

Comment: *A review of parking demand data documented by the ITE[9] for similar multifamily residential communities indicates that observed peak parking demand ratios for a midrise multifamily residential community range from 0.39 to 1.75 spaces per dwelling unit, with an average peak parking demand of 1.23 spaces per dwelling unit and an 85th percentile peak parking demand of 1.45 spaces per dwelling unit. Applying the 85th percentile peak parking demand (1.45 spaces per dwelling unit) to the Project (60 dwelling units) would result in a peak parking demand of 87 parking spaces for the Project.*

[9]*Parking Generation Manual*, 6th Edition; Institute of Transportation Engineers; Washington D.C.; October 2023.

Comment P1: ***Based on a review of parking demand data available from the ITE for multifamily residential communities in a similar setting, it is our opinion that the proposed parking supply of 114 parking spaces is sufficient to meet the parking demands of residents, guests and service providers, and we support the Applicant's request for a waiver from Section 174-12 of the Zoning Bylaws.***

Comment P2: ***Consideration should be given to designating two (2) parking spaces proximate to the building entrance as short-term (10-minute) parking for rideshare providers and deliveries.***