Associates Traffic, Transportation & Civil Engineering
Ali R. Khorasani, P.E. P.O. Box 804, Spencer, MA 01562, Tel: (508) 560-4041

Mr. George Bahnan, Esq. January 21, 2025
Assistant General Counsel
Ferris Development Group, LLC
118 Turnpike Road, Suite 300
Southborough, MA 01772

RE: Responses to VAI comments
250 Turnpike Road, Southborough

Dear Attorney Bahnan:

In response to your request, I have reviewed VAI's comments on the subject project and offer the following responses.

Comment T1:
Using trip-generation statistics published by the Institute of Transportation Engineers (ITE)1 for Land Use Code 215, Single-Family Attached Housing, applied to 32 dwelling units results in the following traffic characteristics for the Project shown in Table 1:

Response:
Although it is stated that no response is needed, for clarification only, Table 1 was the trip generation information presented in the original Traffic Study dated October 2023, which included 56 apartment units and was based on the 10th Edition of the ITE Trip Generation Manual. It was intended for comparison with the trips associated with the revised site plan that replaces the apartments with 32 townhouses and using the 11th edition of the Trip Generation Manual.

Comment T2:
Table 2 compares the traffic characteristics of the Project and those of the modifications that are proposed by Ferris Development Group for the existing office building to those of the existing office building at full occupancy. These calculations differ from those presented in the December 2024 TIC and should be reviewed by the Applicant's Traffic Engineer.

Response:
Again, although no response is needed for this comment, I offer the following for clarification only. The trip generation rates for all three land uses were based on the latest (11th) edition of the ITE Trip Generation Manual and the relevant pages were attached to my Traffic Impact Comparison memorandum dated December 9, 2024. As stated in the review, the proposed modifications to the existing self-storage building (the "existing office building" referred to by VAI is now a self-storage building) and the construction of the Project will result in a significant reduction in traffic on an average weekday and during the weekday peak hours. During the Saturday midday peak hour, it

is expected that there will be a minor increase in traffic that would not be considered significant.

Comment T3:
Based on the net difference in trips that are shown in Table 2, a formal traffic operations analysis (i.e., review of motorist delays and vehicle queuing) is not warranted for the Project.

Response:
No new analysis/response is required.

Comment T4:
A review of the MassDOT Top Crash Locations database indicates that the intersection of Route 9 at Parkerville Road is a high crash location for the 2019-2021 reporting period and Highway Safety Improvement Program (HSIP) eligible. The Applicant's engineer should review the MassDOT crash data for the 2019-2021 reporting period and identify the predominant crash patterns and potential safety enhancements that could be completed as a part of the Project to the extent that the improvements are limited to signs and pavement markings and subject to receipt of all necessary rights, permits and approvals.

Response:
A review of the massDOT crash data for a four- and half-year period of January1, 2019 to June 30, 2023, for the intersection of Turnpike Road (Route 9) and Parkerville Road revealed that there were 11 accidents reported. Also, there were no accidents reported at the intersections of the site driveways with Turnpike Road. A breakdown summary of these accidents is shown in the table below. As can be seen in the following table, six accidents involved minor (non-fatal) injuries while five accidents only involved property damage. Three accidents were of the angle type involving vehicles leaving Parkerville Road and colliding with vehicles traveling in the easterly direction on Turnpike Road. Also, three accidents were of rear-end type indicating vehicles slowing down to turn right and being rear ended by a second vehicle possibly the result of speeding in the acceleration/deceleration/turn-lane. Three accidents were of side-swipe type involving vehicles traveling in the easterly direction again, potentially due to speeding or last-minute decision making. Finally, two accidents each involved a single vehicle traveling in the easterly direction and colliding with the guardrail due to wet and snowy pavement conditions. It should be noted that since Route 9 is a divided roadway, only the eastbound traffic volumes and the assumed traffic for the northbound approach of Parkerville Road were taken into consideration for analysis purposes.

Given the high volume of traffic on Turnpike Road, an average of 2.5 accidents per year is not considered significant and should result in an accident rate lower than the average rate for unsignalized intersections. Short of collecting new turning movement traffic counts, using existing massDOT data (eastbound) and assuming 50 vehicles per hour for the Parkerville Road approach (a very low volume which would result in a conservatively higher accident rate), an accident rate of 0.31 was calculated. This rate is significantly

lower than that for an unsignalized intersection in District 3 of the massDOT in which the Town of Southborough is located. A copy of the massDOT crash report is presented below. Also presented below is a copy of the accident rate calculations sheet.

Vehicle Crash Summary for 4 ½ Years (Jan 1, 2019-June 30, 2023

	Turnpike Road 250 Hartford Turnpike	Turnpike Road Parkerville Road
Intersection	Unsignalized	Unsignalized
Calculated Crash Rate	0.31	0
massDOT Av Rate	0.61	0.61
Year		
2019	0	4
2020	0	2
2021	0	4
2022	0	1
2023	0	0
Total	**0**	**11**
Collision Type		
Angle	0	3
Head-On	0	0
Rear-end	0	3
Sideswipe	0	3
Single Vehicle	0	2
Unknown	0	0
Total	**0**	**11**
Severity		
Fatal Injury	0	0
Non-Fatal Injury	0	6
Property Damage	0	5
Total	**0**	**11**
Time of Day		
7:00 AM to 9:00 AM	0	0
4:00 PM to 6:00 PM	0	2
Other Times	0	9
Total	**0**	**11**
Pavement Conditions		
Dry	0	7
Wet	0	2
Snow/Ice	0	2
Total	**0**	**11**

Source: massDOT Crash Portal Jan 1, 2023-June 30, 2023

MassDOT Crash Report for SOUTHBOROUGH 2019 - 2023, report created: 8/30/2023 created:

4692290	SOUTHBO ROUGH	05-Apr-2019	9:03 PM	Property damage only (none injured)	No injury	1	0	0 Single vehicle crash	V1: Turning right	V1: E	V1:(Collision with guardrail)	V1:(Passenger car)	Wet	Dark - lighted roadway	Rain/Sleet, hail (freezing rain or drizzle)	TURNPIKE RD / PARKER VILLE RD	TURNPIKE RD / PARKER VILLE RD	197026.2 6551847	893382.8 1239297
4720925	SOUTHBO ROUGH	16-Jun-2019	10:34 AM	Non-fatal Injury	Non-fatal Injury - Possible	2	1	0 Angle	V1: Travelling straight ahead / V2: Turning right	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Wet	Daylight	Cloudy/Rain	TURNPIKE ROAD Rte SR9 E / PARKER VILLE ROAD	TURNPIKE ROAD Rte SR9 E / PARKER VILLE ROAD	197026.5 0151227	893372.3 9759365
4738689	SOUTHBO ROUGH	03-Aug-2019	4:27 PM	Property damage only (none injured)	No injury	2	0	0 Sideswipe, same direction	V1: Travelling straight ahead / V2: Turning right	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Clear	TURNPIKE RD / PARKER VILLE RD	TURNPIKE RD / PARKER VILLE RD	197026.5 624	893371.4 373
4849363	SOUTHBO ROUGH	25-Oct-2019	1:14 AM	Non-fatal Injury	Suspected Minor Injury (B)	1	1	0 Single vehicle crash	V1: Travelling straight ahead	V1: N	V1:(Collision with median barrier)	V1:(Passenger car)	Dry	Dark - lighted roadway	Clear	TURNPIKE RD / PARKER VILLE RD	TURNPIKE RD / PARKER VILLE RD	197026.5 624	893371.4 373
4894841	SOUTHBO ROUGH	11-Oct-2020	1:37 PM	Non-fatal Injury	Possible Injury (C)	2	1	0 Sideswipe, same direction	V1: Entering traffic lane / V2: Travelling straight ahead	V1: E / V2: E	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Clear	TURNPIKE RD Rte 9 E / PARKER VILLE RD	TURNPIKE RD Rte 9 E / PARKER VILLE RD	197026.5 624	893371.4 373
4911366	SOUTHBO ROUGH	17-Dec-2020	11:04 AM	Non-fatal Injury	Possible Injury (C)	2	1	0 Rear-end	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: E / V2: E	V1:(Collision with motor vehicle in traffic) / V2:(Collision with	V1:(Passenger car) / V2:(Passenger car)	Snow	Daylight	Snow		TURNPIKE RD / PARKER VILLE RD	197026.5 624	893371.4 373

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4720925	SOUTHBOROUGH	16-Jun-2019	10:34 AM	Non-fatal Injury	Non-fatal Injury - Possible	2	1	0 Angle	V1: Travelling straight ahead / V2: Turning right	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Wet	Daylight	Cloudy/Rain	TURNPIKE ROAD Rte SR9 E / PARKER VILLE ROAD	TURNPIKE ROAD Rte SR9 E / PARKER VILLE ROAD	197026.50151527	893372.39755065
4738689	SOUTHBOROUGH	03-Aug-2019	4:27 PM	Property damage only (none injured)	No Injury	2	0	0 Sideswipe, same direction	V1: Travelling straight ahead / V2: Turning right	V1: E / V2: N	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	V1:(Passenger car) / V2:(Passenger car)	Dry	Daylight	Clear	TURNPIKE RD / PARKER VILLE RD	TURNPIKE RD / PARKER VILLE RD	197026.5624	893371.4373
4849363	SOUTHBOROUGH	25-Oct-2019	1:14 AM	Non-fatal Injury	Suspected Minor Injury (B)	1	1	0 Single vehicle crash	V1: Travelling straight ahead	V1: N	V1:(Collision with median barrier)	V1:(Passenger car)	Dry	Dark - lighted roadway	Clear	TURNPIKE RD / PARKER VILLE RD	TURNPIKE RD / PARKER VILLE RD	197026.5624	893371.4373
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4911366	SOUTHBOROUGH	17-Dec-2020	11:04 AM	Non-fatal Injury	Possible Injury (C)	2	1	0 Rear-end	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: E / V2: E	V1:(Collision with motor vehicle in traffic) / V2:(Collision with	V1:(Passenger car) / V2:(Passenger car)	Snow	Daylight	Snow		TURNPIKE RD / PARKER VILLE RD	197026.5624	893371.4373

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Southborough COUNT DATE : May-22

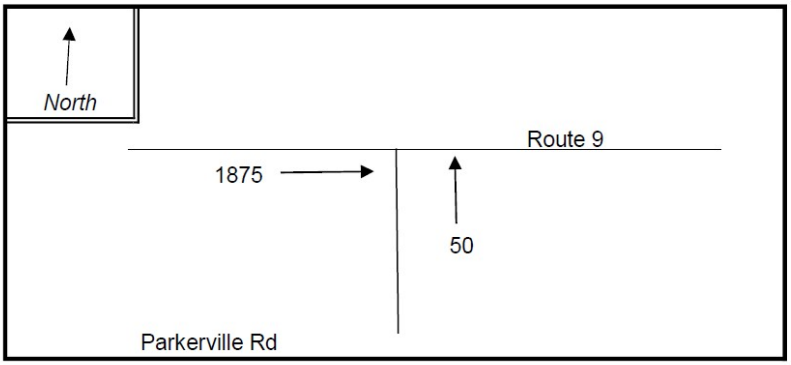
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 9

MINOR STREET(S) : Parkerville Road

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	NB				
PEAK HOURLY VOLUMES (AM/PM) :	1,875	50				1,925

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **21,389**

TOTAL # OF CRASHES : 11 # OF YEARS : 4.5 AVERAGE # OF CRASHES PER YEAR (**A**) : **2.44**

CRASH RATE CALCULATION : **0.31** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Assuming minimal traffic on Parkerville Rd to get more conservatively higher rate

Project Title & Date: 250 Turnpike Road, Southborough, MA

Comment T5:
In addition to the recommendations that were provided as a part of the October 2023 TIS, we would suggest that the Applicant 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 available 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; and*
- *Consult with the MWRTA to discuss options to potentially establish transit service to the Project.*

Response:
TDM Program
The proposed development at 250 Turnpike Road in Southborough, which includes a total of 32 condominium units, may benefit from some of the following Transportation Demand Management (TDM) measures.

- The assignment of a transportation coordinator or superintendent for the condominium association should be considered. Such a coordinator could provide information relative to all forms of public transportation available, and information about biking and walking opportunities, as well as availability and assignment of parking spaces.

- Although there are no MWRTA bus routes serving the area near the proposed project, information regarding MWRTA routes and MBTA service should be made available for residents who may want to make use of mass transit instead of driving their own cars to their final destinations.

- Although there are no bike lanes or bicycling facilities on Route 9 in the vicinity of the proposed site, and since it is highly unlikely for bicyclists to ride on Route 9, it is recommended that secure indoor and outdoor bicycle parking facilities be provided on site for the recreational cyclists.

- Although the COVID-19 pandemic is over, a measurable segment of the workforce and employers have become accustomed to the work-at-home concept and continue to take advantage of this measure. Therefore, it is agreed that some accommodation should be made in a common area for those who may want to conduct business from their place of residence.

- As recommended by VAI, it would be advisable to consult with MWRTA to discuss the potential for providing a transit service to the site. However, since presently MWRTA does not have a service route in the vicinity of the proposed site, and since the residential portion of the proposed development generates little traffic, it is unlikely MWRTA would consider such a service to be feasible unless other nearby sites are amiable to explore such service and make it operationally feasible for MWRTA.

- Ride-Sharing Mode is a valuable form of transportation that could further reduce dependence on personal vehicle use. Consequently, a special parking area that is centrally located could be assigned for commuters to meet.

Site Plans

Comment S1:

A vehicle turning analysis should be provided using the AutoTurn© software for a service/delivery vehicle (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 circulation within the cul-de-sac area.

Response:

The Applicant will provide a Swept Path Analysis for a 30-foot Single Unit delivery truck and a 45-foot fire engine.

Comment S2:

Given the depth of the Project site, consideration should be given to establishing a secondary access for emergency vehicles from Parkerville Road. This could take the form of a gated access over the waterline easement.

Response:

The latest plans show the length of the driveway will be 982 feet long, adhering to the regulation of staying under 1000 ft. Also, we are talking about a small residential site that consists of 32 townhouses and that will only generate 12 trips during morning and Saturday peak periods and only 9 trips during evening peak hour. Therefore, secondary access seems overkill.

Comment S3:

The 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 a minimum of 23 feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.

Response:

The length of the driveways will adhere to the regulation's dimensions requiring 21 and 23 foot long driveways, however, each unit will also include a 1 car garage.

Comment S4:
Verify that the centerline of the proposed roadway does not exceed 8 percent and that a leveling area that does not exceed 2 percent is provided approaching the existing parking lot that serves 250 Turnpike Road.

Response:
As stated in the traffic study, each of the existing driveways has a slope of nearly 8%, and they taper down to nearly flat at their intersections with Route 9 to no more than 2%. Therefore, the centerline of the proposed driveway will not exceed 8% and the leveling areas will not exceed 2%.

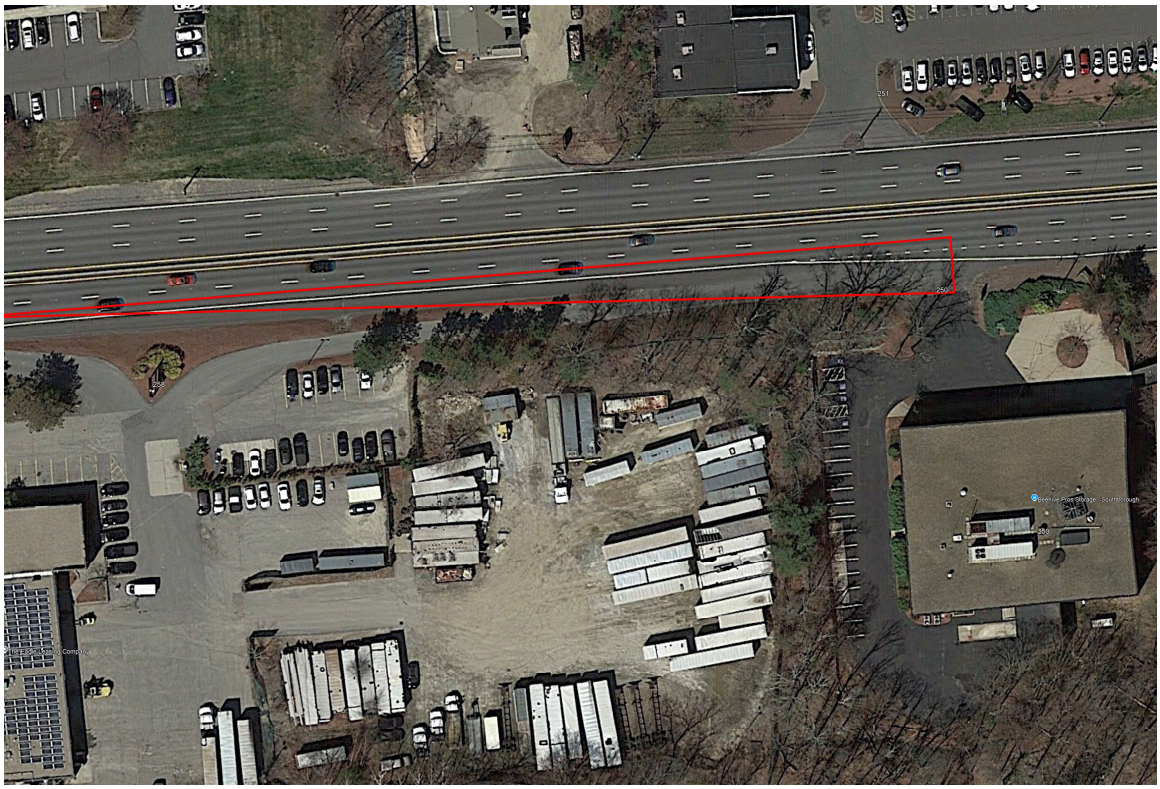
Comment S5:
Circulation within the cul-de-sac area should be in a one-way counterclockwise direction. Signs and pavement markings should be provided to regulate the one-way traffic flow.

Response:
Traffic circulation at the cul-de-sac will be one-way counterclockwise and will be signposted with MUTCD standard signage.

Comment S6:
The sight triangle areas for the driveway that serves 250 Turnpike Road and that will be extended to serve the Project 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."

Response:
Again, both driveways are existing driveways that have been approved by the massDOT. The sight triangles are shown on the site plans that also include notes that say "*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."* The following two Google Earth aerial photos visually depict the available sight distances for each driveway as reflected on the site plans.

Sight Triangle for the easterly driveway – 600+ feet



Sight Triangle for the westerly driveway – 800+ feet

Comment S7:
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"

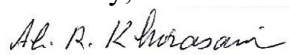
Response:
A note on the site plans indicating *"All signs and pavement marking to be installed within the project site shall conform to the applicable specifications of the latest Manual on Uniform Traffic Control Devices (MUTCD)"* has been included.

Comment S8:
Consideration should be given to developing a sidewalk or pedestrian path to connect the proposed sidewalk that is shown along the west side of the proposed driveway to Route 9. This connection should be coordinated with the school bus stop location for the Project defined by the Southborough School Department.

Response:
The Applicant and its traffic engineer have considered development of an off-site sidewalk extending from where a proposed sidewalk ends on the 40B development site, across the neighboring land to the north known as Lot A, and reaching Route 9. Because the lot to the north is not part of the 40B locus; there are preexisting parking spaces on the northern lot but they must remain in order to serve that lot; and there is no sidewalk on the southern side of Route 9 for an off-site sidewalk to connect to, the applicant has ruled out proposing an off-site sidewalk

I trust the above responses will suffice. Please feel free to contact me with any questions.

Sincerely,



Ali R. Khorasani, PE