



# Memorandum

To: Bernard Cahill, Town Planner  
Town of Shrewsbury  
100 Maple Avenue  
Shrewsbury, MA 01545

Date: September 20, 2019

Project #: 13775.00

From: Kathleen Keen, PE  
Robert Nagi, PE  
Roy Smith, PE (R.J. O'Connell)

Re: Response to Comments  
MDM Transportation Consultants, Inc.

This memorandum responds to comments raised in the letter dated August 15, 2019 from Robert Michaud, PE, of MDM Transportation Consultants, Inc. regarding the Transportation Peer Review of the Edgemere Crossing at Flint Pond development located along Route 20 in Shrewsbury, Massachusetts. The following outlines the MDM comments (in italics) and offers the Applicant's response.

## Existing Conditions

Comment 1: *MDM Concurs that these study locations are appropriate and in context with the likely traffic impacts for the Project and are consistent with recommended study area identified by MassDOT; noting that Applicant should expand the study locations to include Route 20/Purinton Street as per MassDOT comments.*

Response 1: VHB is conducting traffic counts at this location and will provide the associated analysis under separate cover. Ultimately, VHB and the Town will work with MassDOT to develop a neighborhood-supported approach to addressing the cut-through and speeding issues along this roadway as part of the 25 percent design being prepared for the MassWorks project.

Comment 2: *MDM recommends that the Applicant develop a detailed interim operations plan that identifies traffic controls, traffic management measures and potential Site occupancy limitations as necessary to ensure Project-generated traffic is fully supported along Route 20, pedestrian accessibility is provided to/from the Site at initial occupancy and that appropriate safety measures are in place until such time as corridor improvements are completed. Refer to detailed comments under Transportation Monitoring Program below.*

Response 2: VHB and the Proponent are committed to facilitating and supporting the Route 20 "MassWorks" improvements in conjunction with the opening of the proposed development. These improvements will include connections to the shared use path being designed into the Route 20 corridor as requested by MassDOT, as well as internal connections that support the link between the residential and the retail/supermarket uses.

To be clear, based upon the current schedule for the MassWorks Project, the applicant expects the off-site improvements to be substantially complete and in place prior to occupancy. However, if it becomes apparent that critical elements of the off-site roadway improvements are not going to be in place prior to the scheduled occupancy of the site, the Applicant will either delay occupancy of the project, limit the GLA to be occupied based on the capacity of those improvements expected to be in place at the time, or return to the Planning Board and MassDOT to outline an interim operations plan to assure safe and efficient access within the site and connecting to the local roadway network.

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See responses to Comment 6 with respect to the on-going monitoring and re-evaluation of area traffic operations as the project is built out and activity at the site "normalizes".

Comment 3: *Accordingly, MDM recommends that a speed study be conducted by Applicant to determine average and 85<sup>th</sup> percentile travel speeds for purposes of validating design assumptions and possible consideration of traffic control/signs that encourage motorist compliance with regulatory speed limits.*

Response 3: VHB reviewed the count/speed data that was conducted on January 26<sup>th</sup> and 29<sup>th</sup> in front of the proposed project site along Route 20 east of Lake Street. The 85<sup>th</sup> percentile speeds for Route 20 were shown to be 48 mph in the westbound direction and 54 mph in the eastbound direction. The count data is provided in the Attachments. VHB is working with MassDOT to develop and design as part of the 25 percent plans appropriately-scaled treatments for the corridor that will meet or exceed highway design parameters. This information will be included as part of the Functional Design Report submitted to MassDOT and the Town as part of the 25% design design-review process.

Comment 4: *Evaluation of sight line requirements for Site driveways should be provided based on measured/ambient 85<sup>th</sup> percentile travel speeds along with a statement confirming compliance with applicable sight line criteria. The Site Layout Plan should clearly indicate intersection sight triangles and include a note citing that "Signs, landscaping and other features located within sight triangle area shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow windows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."*

Response 4: A sight distance analysis, in conformance with guidelines of the American Association of State Highway and Transportation Officials (AASHTO) was performed at the proposed unsignalized Site driveways. Sight distance considerations are generally divided into two categories: Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD). Stopping Sight Distance (SSD) is the distance required for a vehicle approaching an intersection from either direction to perceive, react and come to a complete stop before colliding with an object in the road, in this case the exiting vehicle from a driveway. In this respect, SSD can be considered as the minimum visibility criterion for the safe operation of an unsignalized intersection.

Intersection Sight Distance (ISD) is based on the time required for perception, reaction and completion of the desired critical exiting maneuver once the driver on a minor street or driveway approach decided to execute the maneuver. Calculation for the critical ISD includes the time to (1) turn left, and to clear the half of the intersection without conflicting with the vehicles approaching from the left; and (2) accelerate to the operating speed of the roadway without causing approaching vehicles to unduly reduce their speed. In this context, ISD can be considered as a desirable visibility criterion for the safe operation of an unsignalized intersection. Essentially, while SSD is the minimum distance needed to avoid collisions, ISD is the minimum distance needed so that mainline motorists will not have to substantially reduce their speed due to turning vehicles. To maintain the safe

operation of an unsignalized intersection, ISD only needs to be equal to the stopping sight distance, though it is desirable to meet ISD requirements by themselves.

To calculate the required SSD and ISD the 85th percentile speeds measured by the ATR counts along Route 20 were utilized. The 85th percentile speeds for Route 20 were observed to be 48 mph in the westbound direction and 54 mph in the eastbound direction. Table 1 below summarizes the sight distance analysis and the sight distance worksheets are included in the Attachments.

**Table 1 Sight Distance Analysis Summary**

Location	Stopping Sight Distance (feet) <sup>a</sup>			Intersection Sight Distance (feet) <sup>a</sup>		
	Traveling	Required	Measured <sup>c</sup>	Looking	Desired	Measured <sup>c</sup>
Route 20 at Site	Eastbound	480	~750 <sup>b</sup>	Left	605	~750 <sup>b</sup>
Driveway east	Westbound	n/a	n/a	Right	n/a	n/a

n/a Site Driveway west only allows right-turning vehicles to exit the driveway from this location.

a Based on guidelines established in A Policy on the Geometric Design of Highways and Streets, Sixth Edition, American Association of State Highway and Transportation Officials (AASHTO) 2011 for an 85th percentile speed of 48 mph westbound and 54 mph eastbound on Route 20.

B Distance to adjacent signalized intersection.

c Assumes normal vegetation clearing would be conducted along site frontage.

As shown in Table 1, the SSD required distances and ISD desired distances are met in all cases, therefore the provided sight distances are adequate. The updated Site Layout Plan and Sight Distance analysis are included in the attachments and the site engineer has added onto the Site, Parking and Traffic Control Exhibit Plans (EXH-1A and EXH-1-B) the actual intersection sight triangles and a note regarding the planting and placement of signs, landscaping and snow within the sight triangle areas.

Comment 5: *MDM acknowledges the Applicant's commitment as part of its Transportation Demand Management programming to engage in discussions with the Town and the WRTA to consider the Site as a potential service stop, including a commitment to provide appropriate accommodations within the Site such as a bus shelter. Applicant should document its coordination efforts and outcomes with specific locations for potential bus accommodations/shelter locations on the Site Plans. MDM also recommends that Applicant engage in discussions with the Shrewsbury Council on Aging to incorporate the Site as a destination as part of its available van service for eligible Town residents.*

Response 5: The Applicant has a long-standing history of working with the local Council on Aging and public transportation providers to integrate transit services into their overall design and marketing of the facility. As noted, VHB has met with members of the WRTA who have confirmed that there currently is not any WRTA bus service that travels past the project site (the nearest is about 1.5 miles away along Route 9). However, the WRTA has noted that there is interest in exploring service options to this section of Route 20 in Shrewsbury and Worcester as this corridor continues to be built out.

With that in mind, the applicant will work with the Town of Shrewsbury to locate a future bus stop internal to the site near the leasing/amenities building which might serve as both the drop-off/pick-up point for future public transportation as well as any para-transit or local transit options (such as the Council on Aging). Similarly, drop-off/pick-up areas near the supermarket use will also be designated for any potential Council on Aging shuttle service.

### **Future Conditions**

Comment 6: *While the ITE-based trip generation approach as presented in the TIAS is suitable for permitting purposes and mitigation programming and follows industry standards, post-occupancy monitoring is recommended to measure actual Project performance against projected Site trip levels and distribution. Refer to comments under Transportation Monitoring for suggested requirements.*

Response 6: As noted in the traffic study submitted to the Town of Shrewsbury, and will be further documented through the MEPA process and with MassDOT through the issuance of their Section 61 Finding, the Applicant is committed to performing post-occupancy counts following initial development at the site and extending for a period of 5 years annually. The monitoring program will be conducted over the course of typical weekdays and on Saturday's and will focus on the commuter peak hours and on Saturday's midday peak periods. The results will be provided to the Town of Shrewsbury's Planning Department for their review and circulation to the appropriate Town Staff.

The traffic monitoring is envisioned to take place six, 12, and 24 months after initial occupancy of the site and continue for a period of up to five years. The monitoring efforts will focus on local intersections as well as the operations along Route 20 at the site driveways and at other key intersections.

As it relates to the traffic impact study, the monitoring effort will focus on identifying if the traffic generation projections for the development are 110% more than estimated or if the distribution of trips is significantly different than estimated (by more than 10 percent). If the results of the monitoring and subsequent analysis identify either of these two cases, the Applicant will work with MassDOT and the Town of Shrewsbury to implement appropriate corrective measures. These may include retiming signalized intersections, expanding elements of the TDM program, and implementation of traditional traffic calming elements on affected roadways.

This information will be summarized and reported to the Town, MassDOT, and the appropriate reporting agency for TDM purposes.

Comment 7: *The presence of competing supermarket uses in particular should be considered by the Applicant as part of a gravity model to validate distribution patterns, noting that a substantial proportion of the Town's population (and those located to the east of the Project) are perhaps more directly served by numerous competing stores along Route 9 corridor. Revised trip distribution may require adjustment to the*

*subsequent analysis, or at least a sensitivity analysis to determine whether deviation from the assumed retail trips distribution would result in any material differences in TIAS findings.*

Response 7: VHB developed a sensitively assessment that adjusted the directional distribution of Site-generated traffic utilizing a gravity model in order to validate the patterns provided in the original TIAS. The gravity model takes into consideration populations within a 5-mile radius of the Site, driver's distance to the Site, and existing supermarket locations (which may serve as competition to the Applicant's proposed supermarket). The distribution has been developed to consider that it would be unlikely for customers of competing supermarket uses to bypass a similar store to visit the proposed supermarket. Table 2 shows the original trip distribution for Retail/Supermarket used in the TIAS and the distribution for Retail/Supermarket based on the gravity model.

**Table 2 Trip Distribution**

<b>Major Roadway</b>	<b>Direction (From/To)</b>	<b>Percent Site Traffic</b>	
		<b>Original TIAS Retail/Supermarket</b>	<b>Gravity Model Retail/Supermarket</b>
Route 20	West	14%	16%
Massasoit Road	South	3%	3%
Route 122	South	15%	13%
Route 122	North	10%	15%
Lake Avenue	North	8%	8%
Lake Street	North	5%	10%
Route 140	North	10%	10%
Route 140	South	10%	10%
Route 20	East	21%	15%
<b>Total</b>		<b>100%</b>	<b>100%</b>

As shown in Table 2, the directional distribution based on the gravity model shows minor differences between what was originally presented in the TIAS. VHB re-ran the analysis at the Project's Site driveway, which yielded no major change in impacts to what was previously presented in the TIAS. The gravity model as well as the capacity analysis is provided in the attachments.

Comment 8: *MDM recommends that the Applicant develop a detailed interim operations plan that identifies traffic controls, traffic management measures and potential Site occupancy limitations as necessary to ensure project-generated traffic is fully supported along Route 20, pedestrian accessibility is provided to/from the Site at initial occupancy and that appropriate safety measures are in place until such time as corridor improvements are completed. Refer to detailed comments under Transportation Monitoring*

*Program below.*

Response 8: See response to Comment 2 regarding the interim plan and response to Comment 6 regarding the Monitoring Program.

**Parking Supply**

Comment 9: MDM notes that more current ITE parking rates are available (ITE Parking Generation 5<sup>th</sup> Edition) That should be considered by the Applicant to estimate both average and 85<sup>th</sup> percentile (peak) parking Demands for the Project to determine appropriate supply ratios-particularly for the retail/supermarket Components.

Response 9: VHB has updated the parking estimates for the proposed development using ITE Parking Generation 5<sup>th</sup> Edition parking rates as well as Urban Land Institute (ULI) parking rates. Table 3 summarizes the parking requirements based on ITE and ULI.

**Table 3 Parking Summary**

Land Use	ITE <sup>1</sup>		ULI <sup>2</sup>		Proposed Supply <sup>3</sup>
	Weekday	Saturday	Weekday	Saturday	Peak Weekday/ Saturday
Supermarket	225	290			362
Retail	197	220	523	580	374
Residential	326	305	413	413	391 with reserve 444 without reserve
<b>Total</b>	<b>748</b>	<b>815</b>	<b>936</b>	<b>993</b>	<b>1,127 with reserve</b> <b>1,180 without reserve</b>

1 Parking generation estimate based on LUC 850 (Supermarket), LUC 820 (Shopping Center), and LUC 221 (Multifamily Housing Mid-Rise) based on ITE Parking Generation 5th Edition  
 2 Parking generation estimates based on ULI 2nd Edition. Based on Community Shopping Center (<400,000 sq. ft.) and Residential.  
 3 Proposed parking supply to be provided on the whole Project Site

As shown in Table 3, the parking estimate for the development based on ITE is 748 spaces on a weekday and 815 spaces on a Saturday. The parking estimate for the development based on ULI is 936 spaces on a weekday and 993 spaces on a Saturday. The project will be providing a total of 1,127 without reserve spaces which includes an average of 1.6 spaces per residential unit and an average of just over 5.0 spaces per thousand square feet of retail space on the site.

Comment 10: Applicant should clarify effective parking supply rates for each building unit based on relative Proximity of surface spaces to determine the likelihood of curbside parking, noting areas where effective Unit parking ratios are lower than 1.5 and may result in curbside parking activity. Applicant should also consider measures to limit or restrict curbside parking to facilitate passenger, bicycle service and

*emergency response vehicles on Project roadways-particularly near Site driveways including the residential clubhouse vicinity.*

Response 10: Parking supply rates for each building based on proximity have been shown the Site, Parking and Traffic Control Exhibit Plans (EXH-1A and EXH-1B). Unit parking for the residential uses within the site is designed at a 1.8 spaces/unit ratio (0.3 spaces/unit higher than zoning requires) which should reduce the demand for uncontrolled curbside parking. Additionally, "No Parking" signs have been added to the ring road where the effective parking supply ratio is less than 1.5 spaces/unit.

Comment 11: *To validate parking distribution, MDM recommends that a more detailed assessment of hourly peak parking demands be conducted by retail use (supermarket, pharmacy, bank, general retail) based on ITE 5<sup>th</sup> Edition average and 85<sup>th</sup> percentile rates and Urban Land Institute (ULI) time-of day parking factors. Projected peak parking demands by use should be summarized and compared to parking supply proximate to each use to determine areas of parking likely to be over or under-utilized during average and peak conditions. Should analysis indicate high likelihood of excess parking in portions of the Site, this may provide a basis for designating employee parking to those under-utilized areas to better accommodate patron use proximate to each retail building and/or flexibility to reduce parking supply and incorporate enhanced pedestrian connections to the main retail structure from the main parking field.*

Response 11: See response to comment 9. With the layout of the parking fields supporting the individual uses, each area meets and exceeds the Town's zoning requirements. In the case of the supermarket, which will see the widest fluctuation in demands over the course of the year from a seasonal perspective, ITE recommends that 290 spaces be provided to support the proposed SF (336 are provided). Similarly, ULI suggests a comparable amount of combined supermarket/retail spaces be provided to support the supermarket's demands.

## **Pedestrian and Bicycle Transportation Improvements**

Comment 12: *Applicant should elaborate of possible means of pedestrian and bicycle connectivity to the Village at Orchard Meadows residential community located immediately east of the Site via Purinton Street. Pedestrian and bicycle connections (sidewalks, bike sharrows, path connections) that encourage this mode of travel to/from the Site should be considered by the Applicant as a mutual benefit that aligns with the goals of the TDM programming for the project and the MassDOT goal of encouraging multi-modal travel for mixed-use developments.*

Response 12: As the Route 20 design plans are being developed, MassDOT has requested that a 10-foot wide shared-use pathway will be provided along the frontage of the Project Site from Purinton Street to its intersection with Lake Street. This connection is consistent with MassDOT's recent initiatives with respect to multi-modal design and will ultimately provide a convenient connection and opportunity

for those who are willing to walk or ride their bicycle between the Orchard Meadows community and the Project Site, if they so elect. The Route 20 design plans (which are attached) include the shared use pathway and demonstrate how it will be integrated directly into the Project Site.

Comment 13: *To achieve the stated trip reduction goal, all potential means of encouraging non-auto and reducing single-occupant vehicle use should be seriously considered by the Applicant for inclusion in the TDM program. One concrete way of achieving such a goal as noted above in Comment No. 12 is to consider and propose means of pedestrian and bicycle connectivity to the Village at Orchard Meadows residential community located immediately east of the Site via Purinton Street.*

Response 13: See response to Comment #12 above. Site topography and a desire to keep a natural buffer between the two properties inhibits the creation of a direct connection between the properties.

### **Transportation Monitoring Program**

Comment 14: *(a) Post-occupancy monitoring should present comparison of actual Project performance against projected Site trip levels and patterns (distribution of trips) cited in the TIAS and TDM effectiveness. Such monitoring will provide a basis for adjusting signal timing/phasing, TDM programming or other mitigation actions to reflect actual Project performance. The Town should be a recipient/reviewer of these monitoring reports with commitment by Applicant to specific countermeasures such as signal timing/phasing adjustments to address operational conditions that fall below certain thresholds (for example, LOS D operations or queue extents that exceed lane storage capacity). The monitoring report should also document the effectiveness/participation in TDM measures with comparison to stated goal of 5 percent reduction from ITE-based trip generation estimates, with a commitment to augment or adjust TDM programming as appropriate to achieve this goal.*

Response 14: See response to Comment 6. The applicant will prepare monitoring reports that reflect the analysis noted in the MDM Comment. The Applicant agrees that the proper operation of area intersections only benefits the overall development's marketability and customer experience. To the extent that the traffic signal operations are shown to be operating in a manner that is inconsistent with the analysis, the Applicant will develop recommended adjustments and work with both the Town and MassDOT to address these conditions in a satisfactory manner. Similarly, the monitoring report will provide a summary of TDM actions and their effectiveness.

Comment 15: *(b) MDM recommends that the Applicant develop a detailed interim operations plan that identifies traffic controls, traffic management measures and potential Site occupancy limitations as necessary to ensure Project-generated traffic is fully supported along Route 20, pedestrian accessibility is provided to/from the Site at initial occupancy and that appropriate safety measures are in place until such time as corridor improvements are completed. An occupancy level/limit should be identified by the Applicant based on operational and safety thresholds to ensure adequate capacity is available (LOS D or better*

*operations) and safety trends (crash rates, adjusted to reflect type and severity) remain at or below average levels during the interim period following initial Site occupancy. The interim operating plan should also identify safety and/or operational countermeasures that may be considered and applied to address identified deficiencies including but not limited to police details, supplemental warning signs, operational restrictions, etc. The interim operations plan monitoring, and reporting should take place within the first 60 days of Site occupancy/operation to ensure appropriate operational and safety control are in place and effectively supporting initial Site operations, with recommended adjustments thereto if required to address operational or safety threshold exceedances.*

Response 15: See response to Comment 2. Should it becomes apparent that critical elements of the off-site roadway improvements are not going to be in place prior to the scheduled occupancy of the site, the Applicant will either delay occupancy of the project, limit the GLA to be occupied based on the capacity of those improvements expected to be in place at the time, or return to the Planning Board *and MassDOT* to outline an interim operations plan to assure safe and efficient access within the site and connecting to the local roadway network. These may include temporary traffic control, police officer details, and other elements that satisfy both the Town of Shrewsbury and MassDOT.

Comment 16: *(a) Sight Lines: MDM recommends that the applicable sight line triangles be shown on Site Layout Plan along with measured sight lines to confirm that minimum sight line criteria are met, and if possible, the ideal Intersection Sight Distance (ISD). The sight Line triangles should not encroach onto adjoining (private) property to achieve sight line criteria. The Site Layout Plan should also include a note citing that "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 16: See response to comment 4. These notations and sight triangles will be provided on the plans.

### **Access and Circulation Comments**

Comment 17: *Easterly Driveway: The easterly (unsignalized) driveway includes a raised delineating island that extends well into the proposed MassDOT layout; Applicant should confirm Whether MassDOT will allow such encroachment or raised island as such features typically raise concern for wintertime plowing operations and maintenance and preclude a "recovery lane" for vehicles that ultimately opt to continue eastbound on Route 20. MDM further recommends that the raised island feature (as may be modified per MassDOT review) incorporate a more restrictive design that physically precludes illegal left-turn movements from the Site onto Route 20 given the high-speed nature of travel and location near the "down-gradient" of westbound travel. As currently designed, there is some likelihood that patrons or residents parked closest to this driveway destined west could easily attempts an illegal left-turn rather than negotiate the Site to the main (signalized) driveway-particularly during "off-peak" hours.*

Response 17: The MassDOT layout will be widened through a permanent easement to incorporate both the site driveway and the shared use pathway along the Project's frontage. Per the MDM Comment, the driveway island will be extended slightly to further dissuade drivers from seeking to illegally turn left from the driveway. See the Route 20 roadway plans for additional information on the roadway layout and how the MDM comments are being incorporated into the design and layout.

Ultimately, the driveway and Route 20 alignment will be reviewed by MassDOT as part of their highway access permit process and their review of the MassWorks 25 Percent highway design. It is worth noting that the Route 20 layout will be expanded to include a portion of the Project Site from what currently exists to incorporate the shared use pathway as well as the driveways. VHB will present this to the Town of Shrewsbury for their review and concurrence as it relates to the site plan review.

Comment 18: *Internal Driveway Turn Restrictions: The proximity of northernmost residential driveway to the Easterly Site driveway raises conflict concerns; MDM concurs with Town comments to extend the raised island into the Site to preclude turning movements that are in close proximity to the easterly driveway at Route 20. The extension of the raised island would also facilitate a pedestrian crossing at this area of the Site to accommodate the desire line between the residential buildings and the proposed pharmacy building.*

Response 18: The raised island has been extended into the site to preclude turning movements to the easterly residential driveway from Route 20. At the request of the Fire department mountable curbs are proposed to allow fire trucks to access the northern driveway to the residential units.

Comment 19: *Internal Easterly Driveway Curblin Alignment: The Site Plan should be adjusted to reflect an appropriate alignment/lane transition from the easterly driveway entrance into the Site and past the first driveway serving the main parking field. As currently designed, the curblin east of the proposed pharmacy building abruptly extends into the alignment of the easterly driveway entry lane raising a safety concern.*

Response 19: The Site, Parking and Traffic Control Exhibit Plans have been adjusted to reflect an appropriate alignment/lane transition from the easterly driveway entrance into the site and past the first driveway serving the main residential parking field.

Comment 20: *Easterly Main Parking Field Entry Drive: The nexus of this internal one-way driveway at the main parking field (immediately adjacent to the pharmacy building north driveway) is confusing and should be reconsidered. MDM concurs with the Town comment that Applicant should consider converting this driveway to a pedestrian connection to the Site from the Route 20 shared-use path to better accommodate pedestrians and reduce vehicular conflicts within the Site.*

Response 20: Market Basket has utilized similar right-turn, one-way accesses into its parking field at numerous store locations with great success. This access allows vehicles to enter the parking field and feed towards

the stores along multiple drive aisles reducing the traffic along the front of the stores and thus reducing vehicle/pedestrian conflicts in the front drive aisles. There are several opportunities for pedestrians to safely access the site via the shared use pathway and utilize sidewalks to reach residential or retail opportunities within the site.

Comment 21: *Applicant should confirm that the Site Layout Plan provides sufficient maneuvering area to accommodate the Town's largest responding fire apparatus (ladder truck) and service vehicles (SU-30 type design vehicles or equivalent by conducting AutoTurn® vehicle turn analysis/exhibits.*

Response 21: Vehicle service and fire apparatus routing plans have been provided and are attached on Drawing C-11. The site engineer has met with the Town's Fire Department and noted that they are comfortable with their ability to maneuver through the site. See response 22 below.

Comment 22: *Applicant should consult with the Shrewsbury Fire Department to determine requirements for emergency vehicle circulation around proposed apartment buildings; as currently designed, certain buildings only access along the building frontage. The need for additional structured/reinforced travel ways sufficient to accommodate emergency apparatus along additional building areas should be determined.*

Response 22: The Applicant has consulted with the Shrewsbury Fire Department regarding emergency vehicle circulation around the proposed apartment buildings and they are satisfied that access provided to these buildings is suitable. They have requested that if a raised island is extended into the site from Route 20 at the easterly driveway, provisions be made to allow fire trucks to access the northeastern driveway to the residential buildings. Mountable curbs are proposed along a portion of the extended raised island to allow fire and emergency vehicles to access the residential buildings via the north eastern driveway.

Comment 23: *MDM concurs with Town comment for Applicant to consider roundabout features at major 4-way intersections within the Site; such features would negate the need for raised pedestrian tables and provide integrated pedestrian crossings within the roundabout.*

Response 23: VHB and the Site engineer (RJ O'Connell & Associates) have reviewed the potential for roundabouts to be placed within the Project Site as a site amenity and traffic control feature. Many of the Market Basket sites incorporate these types of designs into their layouts and have been found to operate reasonably well. However, given the challenges associated with the stormwater treatment on site, the footprint required to support a fully functional roundabout, and the fact that the low-volume four-way intersections within the site can support the needs of the motorists in a safe and efficient manner, roundabouts are not practical or a necessary design alternative in this layout.

Comment 24: *School bus waiting areas should be provided at an appropriate location near the Site driveway(s) subject to discussions with the Shrewsbury School Department. These areas may also serve as a waiting area for WRTA bus service along Route 20 subject to Applicant discussions with WRTA.*

Response 24: The Applicant will provide bus shelters within the site at an appropriate location. Should the WRTA eventually seek to provide service to the site, stop locations would ideally be provided in front of the Supermarket use with a secondary location located near the residential uses. If bus stops are ultimately decided that they should be located along the front of the store and the proposed canopies are deemed inadequate to provide protection to the riders, a more robust shelter will be provided.

Comment 25: *Consideration should be given to installing electric vehicle (EV) charging stations within the Project Site at convenient and easily accessible locations to encourage EV use.*

Response 25: "EV Ready" conduit and infrastructure will be provided in both the commercial and residential areas. This will allow for future installation of electric vehicle charging stations in designated parking spaces.

Comment 26: *Americans with Disabilities Act (ADA) compliant wheelchair ramps and crossings appear to be provided at all pedestrian crossings internal to the Project site. To further enhance pedestrian mobility and visibility to motorists, Applicant should also consider continuous sidewalks or raised crosswalks/tables along high volume pedestrian routes including the main supermarket entries, and intersections at either end of the main circulating aisle serving the supermarket/main parking field. An additional protected, centrally located pedestrian walkway in the main parking field connecting to the primary supermarket "desire line" is also suggested to reduce pedestrian/vehicle conflicts.*

Response 26: All wheelchair ramps and crossings will meet the ADA requirements throughout the site.

Due to the anticipated truck traffic to the service areas behind the retail stores, the probability of added noise due to raised speed tables outweighs the benefits of a raised crosswalk. The design engineer has added speed tables for traffic calming south of the retail service area leading into the southern residential areas.

Comment 27: *MDM concurs that Applicant should consider use of roundabout design features at key internal intersections as a means of reducing vehicle conflicts at high volume locations. Such design features may preclude the need for raised crosswalk tables at certain locations noted above.*

Response 27: See response to comment 23.

Comment 28: *Location and number of bike racks serving retail uses should be identified to support and encourage bicycle use to and within the Site, with provisions for clearly marked bicycle lanes and/or "Sharrows"*

*markings on Site circulating aisles that lead to the multi-use path and bicycle accommodations along Route 20.*

Response 28: Bicycle storage locations are indicated on the Site, Parking and Traffic Control Exhibit Plans (EXH-1A and EXH-1B). The site plan illustrates how bicyclists can maneuver through the site and integrate with the proposed shared-use pathway along Route 20.

We trust that this information is helpful and is responsive to the MDM Comment letter. If you have any questions, please feel free to contact us at your convenience.