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November 20, 2023

Freetown Planning Board
Attn: Mr. Robert Jose, Chairman Freetown Planning Board
3 North Main Street
Assonet, MA 02702

Re: Response to 31 Innovation Way (Map 236 - Lot 6) Peer Review

Dear Mr. Jose and Freetown Planning Board Members:

On behalf of our client VMD Companies LLC, MBL Land Development & Permitting Corp. is submitting this response letter to the peer review letter prepared by Environmental Partners on February 23, 2023.

Site/Civil Comments

Stormwater Management Standards

1. The proposed project site is located within both Freetown and Fall River. It should be noted that a portion of the stormwater runoff generated by the project within the limits of Freetown is routed across the municipal boundary into Fall River. Stormwater runoff generated by the entirety of the building 3 roof and portions of the impervious surfaces west of Building 3 is routed to stormwater best management practices (BMPs) on the Fall River side of the project site via closed drainage piping. BMPs and stormwater infrastructure located outside of Freetown are not included in this review. Therefore, this review cannot confirm the project's full compliance with the Massachusetts Stormwater Management Standards. Only the stormwater infrastructure and BMPs located within the limits of Freetown (Stormcapture System C, and Focal Point Bioretention System B) are reviewed below for conformance with the Massachusetts Stormwater Management Standards.

MBL Response 11/21/2022: No Comment, No Response Required

EP Response 12/15/2022: Item closed. The Applicant has revised the stormwater design to include two infiltration basins which receive runoff from the Freetown portion of the project. It should be noted, that Infiltration Basin B is located primarily within Fall River. Only the stormwater infrastructure and BMPs located within the limits of Freetown (Stormtrap System C, and Infiltration Basin C) are reviewed below for conformance with the Massachusetts Stormwater Management Standards.

2. Standard 2 – The Applicant indicates that the proposed design will not result in additional off-site flooding and post-construction peak discharge rates will not exceed pre-construction rates. We have the following comments on the calculations that may impact the peak rates of runoff:

- a. The Test Pit 105 log indicates that estimated seasonal high groundwater (ESHW) is at elevation 222.40. However, the proposed finished grade elevation of the vegetative filter strip at this location is approximately 218, well below the ESHGW elevation. Groundwater could break through the vegetative filter strip and enter Focal Point Bioretention System B, significantly impacting the performance of the proposed stormwater management system. The Applicant's stormwater design should address the potential for elevated groundwater conditions in this area.

MBL Response 11/21/2022: MBL updated the drainage design in this area and performed additional Test pit in this area. MBL and the applicant are working with a Geotech to address the groundwater with cut and the removal of ledge. The proposed Focal Point Bioretention System B was removed from the design and is now an infiltration basin design.

***EP Response 12/15/2022: Item open.** The Applicant completed three additional test pits in the vicinity of Infiltration Basin C. The Test Pit logs for TP-105, TP-203, TP-204, and TP-205 indicate that ESHGW ranges from 3'-4" to 4'-8" below existing grade along the slope behind Building 3 to the wetland resource area. The construction of Infiltration Basin C will require cutting into existing grade by approximately 5 to 6 feet along the western edge of the basin; this may result in groundwater breakthrough. The Applicant's stormwater design should address the potential for elevated groundwater conditions in this area.

MBL Response 02/07/2023: Additional design controls will be incorporated into the slope at the time of construction. The Geotechnical Engineer is to design a blanket drain with seepage collars along the uphill slope of Basin C. The Geotechnical Engineer will also perform a slope stability analysis of the slope downhill of Basin C to determine if an impermeable clay core is required. Please refer to sheet C-6.2 of revised plan set.

EP Response 02/23/2023: Item Open. The Applicant has not provided sufficient information to evaluate whether the infiltration basin will function as designed. The Applicant should provide the location, extent, detail(s), and supporting design documentation of the blanket drain with seepage collars to demonstrate the basin will not only remain dry but also provide infiltration capability.

MBL Response 11/20/2023: MBL and the Applicant have worked with GeoEngineers, USA to provide a design with necessary details for controlling groundwater in the location of Basin C. The slope and stabilization will ensure that the basin will function as designed. The Geotechnical Engineer has also performed a slope stability analysis of the slope downhill of Basin C to determine the material of the impermeable clay core required for the basin berm. Please see sheets GT-1.0 and GT-2.0 for the slope and embankment stabilization design, as part of the revised site plan set dated 11/20/2023.

- b. Test Pit 105 is the only test pit near Focal Point Bioretention System B. A test pit should be performed within the footprint of proposed Focal Point Bioretention System B to confirm soil characteristics and ESHGW elevations.

MBL Response 11/21/2022: MBL updated the drainage design in this area and performed additional Test pits in this area. See revised plan set that identifies the new drainage design and the ESHGW are also shown on the plans as requested.

EP Response 12/15/2022: Item closed.

- c. We recommend the Applicant explore adding an emergency overflow outlet from the proposed Stormcapture System C. If subsurface stormwater infiltration chamber systems are not properly maintained, and do not include an emergency outlet pipe, surcharging of upstream structures can result.

MBL Response 11/21/2022: MBL updated the plans to add an overflow outlet from System C. See sheet C-6.3

EP Response 12/15/2022: Item closed.

- d. Based on our calculations, Subcatchment PR-11 appears to occupy a total area of approximately 40,000 square feet, as opposed to the 79,103 square feet listed on Figure 8 in the Drainage Analysis.

MBL Response 11/21/2022: This Subcatchment included an area in front of Building 2 within the Fall River which give it an area of 79,103 sf. MBL updated the Proposed HydroCAD model to divide these areas based on the street layout. See the revised drainage report, which is dated 11/21/2022.

EP Response 12/15/2022: Item closed.

- e. Sub catchment PR-36 shown on Figure 8 in the Drainage Analysis appears to have been omitted from the HydroCAD model. However, the total area for the pre- development limit of analysis and post-development limit of analysis in HydroCAD match. We suspect the areas for some of the subcatchments included in the post- development model are inaccurate.

MBL Response 11/21/2022: MBL revised the Figure 8 based on some drainage redesign. This subcatchment was added to offsite east area in HydroCAD, see revised drainage report, which is dated 11/21/2022.

EP Response 12/15/2022: Item closed.

- f. Pond 57P in the HydroCAD model has one 12" culvert as an outlet device; however, Sheet C-6.2 shows two 12" culverts discharging from the detention system. The Applicant should address this discrepancy.

MBL Response 11/21/2022: MBL revised the drainage design in this area and eliminated this detention system. See the revised plan set for updated drainage design. Also, see the revised drainage report, which is dated 11/21/2022.

EP Response 12/15/2022: Item closed.

- 3. Standard 3 – The Applicant indicates that the proposed design will collect stormwater runoff and recharge it back into the ground on-site. We have the following comments on the calculations that may impact groundwater recharge:

- a. The infiltration rate used in the HydroCAD model for the Stormcapture System C was 2.41 in/hr, which is the infiltration rate associated with Loamy Sand. However, the test pit log for test pit 115 indicates that the soil texture at the elevation where infiltration will occur (bottom of stone elevation 219.25) is Sandy Loam. The infiltration rate associated with Sandy Loam per the Massachusetts Stormwater Management Standards is 1.02 in/hr.

MBL Response 11/21/2022: MBL added a note to grading and drainage plans, as well as details that the A and B soil layers will be removed prior to installation, resulting in the sandy loam is the proper rate. See revised plan set.

EP Response 12/15/2022: Item closed.

4. Standard 4 – The Applicant indicates that the proposed design will remove 90% TSS prior to discharge. We have the following comments on the calculations that may impact TSS removal and provided water quality volume:

- a. The Massachusetts Stormwater Management Standards state that the required water quality volume is the runoff volume that requires TSS treatment. For Subcatchment PR-30 containing the vegetated filter strip, the required water quality volume is 11,041 cubic feet as noted in Appendix D of the Drainage Analysis. The summary for the vegetated filter strip in the HydroCAD analysis (Pond 56P) indicates that the provided water quality volume of the vegetated filter strip is 4,482 cubic feet. The water quality volume of 11,041 cubic feet must be met by the vegetated filter strip to qualify for TSS removal credit.

MBL Response 11/21/2022: MBL revised the drainage design in this area and eliminated the filter strip. See the revised plan set for the updated drainage design that now provides an infiltration basin.

EP Response 12/15/2022: Item closed.

- b. Per Volume 2 Chapter 2 of the Massachusetts Stormwater Handbook, the flow length of impervious surfaces upstream of the vegetated filter strips must be limited to 75 feet long to receive TSS removal credit. The proposed flow length upstream of the vegetated filter strip is approximately 180 feet long.

MBL Response 11/21/2022: MBL revised the drainage design in this area and eliminated the filter strip. See the revised plan set for the updated drainage design that now provides an infiltration basin.

EP Response 12/15/2022: Item closed.

- c. Per Volume 2 Chapter 2 of the Massachusetts Stormwater Handbook, vegetated filter strips must be constructed at least 2 feet above the ESHGW elevation. The test pit log for test pit 105 observed mottling at 222.40, and the proposed finished grade of the filter strip at this location is approximately 218.

MBL Response 11/21/2022: MBL revised the drainage design in this area and eliminated the filter strip. See the revised plan set for the updated drainage design that is now an infiltration basin.

EP Response 12/15/2022: Item closed.

5. Standard 8 – We have the following comments regarding construction period pollution prevention and erosion and sedimentation control:

- a. Projects that disturb one acre of land or more are required to obtain coverage under the NPDES Construction General Permit issued by EPA and prepare a Stormwater Pollution Prevention Plan (SWPPP). It is recommended the Planning Board require the submittal and approval of the final SWPPP as a condition of approval. We recommend the final SWPPP be submitted to the Planning Board one month prior to the beginning of construction to allow the Board to review and comment on the SWPPP. We also recommend the Board require, as a condition of any approval, that SWPPP inspections be performed consistent with the requirements of the NPDES Construction General Permit and that copies of all SWPPP reports be submitted to the Town of Freetown.

MBL Response 11/21/2022: MBL and Applicant have already submitted a draft copy of SWPPP report for the entire project to the Freetown Planning Board, as part of conditional approval.

EP Response 12/15/2022: Item closed.

- b. The existing site is currently wooded. Construction will require significant clearing, resulting in significant construction period erosion and sedimentation. Sheet C-8.2 should include construction period BMPs, such

as temporary diversion swales and sediment traps, properly designed and sized per the Massachusetts Stormwater Handbook and the Erosion and Sedimentation Control Guidelines: A Guide for Planner, Designers, and Municipal Officials. If necessary, future construction period observations for the development could be coordinated with the City of Fall River.

MBL Response 11/21/2022: MBL prepared a detailed erosion control plan that outlines the temporary diversion of waste, sediment traps, and check dams.

EP Response 12/15/2022: Item closed.

6. Standard 9 – We recommend that yearly Operation and Maintenance reports be provided to the Town. The EPA, through the Small Municipal Separate Storm Sewer System (MS4) permit, is requiring that ongoing maintenance of private stormwater management systems be performed regularly and documented.

MBL Response 11/21/2022: The Applicant agreed to provide the town with yearly maintenance reports for Proposed Building 3 stormwater system.

EP Response 12/15/2022: Item closed.

Additional Stormwater Management Standard Comments 12/15/2022

7. Per Volume 2, Chapter 2 of the Massachusetts Stormwater Handbook, infiltration basins should be provided with a minimum of 1 foot of freeboard over the 100-year design storm peak water surface elevation as the basin provides peak rate attenuation in addition to exfiltration. The HydroCAD calculations indicate the 100-year design storm peak water surface elevation for Infiltration Basin C is 216.43 and the top of the basin is 216.80.

***EP Response 02/23/2023:** Item open. The Applicant did not respond to this comment in their February 7, 2023 letter.

MBL Response 11/20/2023: MBL updated Basin design to have 1 foot of freeboard over the 100-year peak storm elevation in the basin. Please see revised plan set and drainage report dated 11/20/2023.

Rules and Regulations of the Planning Board as Site Plan Review Authority (Section II, parts B & C)

1. Section II. B. 3. n. – The Applicant has requested a waiver from providing estimated water and sewer usage calculations. Because the Applicant states that Building 3 will be served directly by City of Fall River water and sewer, the Town of Freetown may not need this information.

MBL Response 11/21/2022: A Waiver was granted by Freetown Planning Board. See the attached Planning Board Decision, dated 10/27/2022.

EP Response 12/15/2022: Item closed.

2. Section II. B. 3. n. – The Applicant has requested a waiver from providing plans and profiles for all proposed drainage and sewer systems. At a minimum, we recommend the Applicant provide a profile of the proposed sewer from SMH-5 to the connection to the existing sewer main in Innovation Way. We defer to the Planning Board whether profiles are required for other utilities (such as drainage), which do not connect to infrastructure in the Town's right-of-way.

MBL Response 11/21/2022: A Waiver was granted by Freetown Planning Board. See the attached Planning Board Decision, which is dated 10/27/2022.

EP Response 12/15/2022: Item closed.

3. Section II. B. 3. r. – Parking lots should be 1-1/2" Type I-1 top bituminous concrete over 2-1/2" Type I-1 binder bituminous concrete over 12" of bank run gravel conforming to Massachusetts Highway Spec. M1.03.0 Type b. The Applicant should revise the construction detail on Sheet C-9.0 to comply with this regulation.

MBL Response 11/21/2022: MBL updated the pavement detail to conform with MassDOT Specifications within the SHLO. MBL also updated the pavement structure based on Geotech report recommendation of the site. MBL also provided an updated detail of pavement section on page C-9.0.

***EP Response 12/15/2022: Item open.** The Applicant proposes the use of "Standard" pavement consisting of 1 1/2" surface course over 2" binder course and 12" gravel base course for parking areas and "Heavy Duty" pavement consisting of 1 1/2" surface course over 2 1/2" binder course and 18" gravel base course for area accessible to trailer trucks. We recommend requiring a minimum binder course thickness of 2 1/2" for a total pavement thickness of 4" for all paved areas, in accordance with the regulation.

MBL Response 02/07/2023: MBL updated the pavement design for standard within the Town of Freetown to follow the MassDOT standard detail found on sheet C-9.14, please see revised plan set.

EP Response 02/23/2023: Item closed.

4. Section II. B. 3. t. – The Applicant should add the note "The Contractor shall give seven (7) days' notice to pertinent Town Departments before commencing work in the field" to Sheet C-2.0.

MBL Response 11/21/2022: MBL added notes, as requested. See sheet C-2.0.

EP Response 12/15/2022: Item closed.

5. Section II. B. 4. – The Applicant has requested a waiver from providing impact statements. The only impact statement we received as part of the application materials was the "Traffic Impact Statement" memorandum by TEC. See "Traffic Comments" section below. We suggest the Applicant provide a brief description of impacts to Freetown under each category.

MBL Response 11/21/2022: A Waiver was granted by Freetown Planning Board. See the attached Planning Board Decision, dated 10/27/2022.

EP Response 12/15/2022: Item closed.

6. Section II. C. 2. – Sidewalks should be separated from the roadway edge by a vegetated border area of at least 5 feet to increase pedestrian safety. The current proposed sidewalk along Innovation Way is directly adjacent to the roadway, without a vegetated border area. See Capacity and Queue Analysis Comment 19 below under "Traffic Comments" for a recommendation to replace the proposed sidewalk with a shared-use path to accommodate both pedestrians and bicycles.

TEC Response 10/13/2022: *Within the Town of Freetown, Innovation Way lies under the exclusive jurisdiction of the Massachusetts Department of Transportation (MassDOT). The Applicant has already received comments back from MassDOT's District 5 office on the Applicant's detailed plan submittal. The Applicant has introduced a 5-foot vegetated buffer between the curb line and the sidewalk as recommended. MassDOT did not request a shared use path layout. The scope of the planned sidewalk improvements are consistent with what MassDOT and the Town of Freetown recently approved for the Neon Marketplace project across Innovation Way.*

EP Response 11/09/2022: EP acknowledges that Innovation Way is under MassDOT jurisdiction within the Town of Freetown, and that the 5-foot vegetated border has already been sent to MassDOT for review and has received no additional comments. No further action; **Comment 6 closed.**

7. Section II. C. 3. – The design should demonstrate that the project will not result in significant increase in the rate and volume of stormwater runoff over natural or existing conditions. The Drainage Analysis does not analyze pre-development and post-development changes in volumes of stormwater leaving the site, and the Applicant has requested a waiver from this Section. Given the proposed routing of stormwater into Fall River, a detailed analysis of volumes may not be necessary for this Freetown Planning Board application. Comments on rate of runoff are provided in a previous section.

MBL Response 11/21/2022: A Waiver was granted by Freetown Planning Board. See the attached Planning Board Decision, dated 10/27/2022.

EP Response 12/15/2022: Item closed.

Town of Freetown General and Zoning By-Laws (Article 11)

1. The project's Form SPR – Application for Site Plan Review indicates the project is within the General Use District. Among other restrictions, the By-Laws limit building heights in the General Use District to 3 floors or 40 feet in height (Article 11.17), which is less than the proposed 48-foot Building 3. However, based on a review of the latest Freetown zoning map and based on the zone reference in the Freetown Zoning Table on Sheet C-4, the property may also be in the Science and Technology Overlay District (STOD), which provides more flexibility. The Applicant should clarify whether this project is filed under the STOD regulations (Article 11.30).

MBL Response 11/21/2022: Property is located with science and technology zoning overlay district, STOD. The Planning Board determined that the proposed project is allowable within the STOD.

EP Response 12/15/2022: Item closed.

2. Article 11.23 H. Circulation – Site plans should provide clearly marked, safe circulation patterns for both vehicles and pedestrians. Sheet C-11.2 shows the WB-67 semi-truck extending into the opposite side of the double yellow line in the right-of-way to turn left into the site. The Applicant should consider increasing the curb radii such that the truck is not required to cross the double yellow line on Innovation Way to enter the site properly.

TEC Response 10/13/2022: *The site designer, MBL, has adjusted the corner curb radii and the truck turning exhibits to meet MassDOT's design criteria as found in their Project Development and Design Guide, Exhibit 6-15. These will be provided within MBL's next site plan submission.*

EP Response 11/09/2022: EP will review the truck-turning movements on the updated site plan once available.

MBL Response 11/21/2022: MBL updated truck turning plan as requested, please see revised plan set.

EP Response 12/15/2022: Item closed.

3. Article 11.23 H. Parking – Parking areas should be located to the rear or side of buildings. Parking is proposed in front of Building 3.

MBL Response 11/21/2022: A Waiver was granted by Freetown Planning Board. See the attached Planning Board Decision, dated 10/27/2022.

***EP Response 12/15/2022: Item open.** The waiver request was not included in the Applicant's "Waiver Request Letter, Innovation Way" dated July 25, 2022 to the Planning Board and therefore was not included as an approved waiver on the Planning Board's Site Plan Review Decision dated October 27, 2022. We defer to the Planning Board as to how they would like to handle this parking area requirement.

MBL Response 02/07/2023: The Applicant will be attending the Planning Board meeting on 02/08/2023 to resolve this comment.

EP Response 02/23/2022: Item closed.

4. Article 11.31 F. – The "Parking Calculation Table – Building 3" provided on Sheet C-5.2 appears to calculate parking based on Fall River requirements, rather than Freetown requirements, and the Applicant has requested a waiver to provide only 170 spaces. Please refer to Site Plan Comment 21 below under "Traffic Comments" for additional information on required parking.

MBL Response 11/21/2022: MBL updated required calculations for parking to confer with the Town of Freetown Zoning Bylaws. A Waiver was granted by Freetown Planning Board to allow a reduced number of parking spaces. See the attached Planning Board Decision, dated 10/27/2022.

EP Response 12/15/2022: Item closed.

General Comments

1. The existing topography information does not extend to the limits of the property boundary on Sheet C-6.2. Existing contours should be shown to the property lines on Sheet C-6.2, as they are on Sheet C-3.3, so that the viability of the proposed grading design can be reviewed.

MBL Response 11/21/2022: MBL updated plans to show contours past the property line on sheet C-6.2. Please see the revised plan set for updated information.

EP Response 12/15/2022: Item closed.

2. Sheet C-8.2 should include existing and proposed contours so that locations of proposed erosion controls can be reviewed.

MBL Response 11/21/2022: MBL added the requested information to the proposed sheets. Please see revised plan set of plans.

EP Response 12/15/2022: Item closed.

3. We recommend that all slopes 2:1 or steeper be stabilized. There are 2:1 slopes along the northern portion of the site without stabilizing rip rap.

MBL Response 11/21/2022: MBL updated all 2:1 slopes with rip rap. Please see the revised plan set of plans.

***EP Response 12/15/2022: Item open.** The Applicant should provide standard details for site stabilization including areas to be restored with loam and seed, slope stabilization blankets, and riprap slopes.

MBL Response 02/07/2023: MBL updated the revised site plans to include the recommended details. Please see revised plan set.

EP Response 02/23/2022: Item closed.

4. Water main – The Applicant proposes a new 12" water main to provide water and fire protection service to the proposed building. Unless otherwise dictated by fire department requirements, we recommend the hydrant tee be placed as close to the end of the 12" main as possible (i.e., near the proposed 4" and 10" connections) to facilitate future flushing of the 12" water main. In addition, a proposed water gate valve located near SMH-5 should be located on the water main. Lastly, the proposed water and sewer utilities should ideally have sufficient separation; otherwise, concrete encasement may be required.

MBL Response 11/21/2022: MBL updated the plans moving Fire Hydrant closer to the end of the line. MBL also provided a 10-ft separation minimum of the water and sewer except at crossings where concrete encasement will be required.

EP Response 12/15/2022: Item closed.

Traffic Comments

While EP reviewed the methodologies outlined in the TIA for the entire development, as per request by the Town of Freetown, we only reviewed the impacts on the intersections located within Freetown. The following is a summary of the more significant comments; minor comments that are not anticipated to affect the impact on the project, the conclusions, or the recommendations are not included for brevity.

Traffic Impact Assessment (TIA)

Existing Conditions

1. The TIA indicated the posted speed limit along Innovation Way is 30-miles per hour (mph). The closest posted speed limit to the Site that EP verified is 35-mph, which is indicated by a pair of speed limit signs on both northbound and southbound directions approximately 2,200-feet north of Airport Road within Fall River.

TEC Response 10/13/2022: *There is currently no Special Speed Regulation on file with MassDOT for Innovation Way. TEC's data collection vendor documented the 85th percentile speeds along Innovation Way as 40 mph (southbound) and 44 mph (northbound) in the vicinity of the project site. TEC does not propose any changes in the speed limit and will work with MBL to verify the placement of on-site infrastructure outside the minimum safe sight line triangle of 360 feet (minimum based on stopping sight distance) exiting the proposed driveway, which is based on the AASHTO criteria for 45 mph and up to (or beyond) the optimal intersection sight distance criteria of 500 feet.*

EP Response 11/09/2022: No further action; **Comment 1 closed.**

2. The TIA described the Innovation Way westbound approach to South Main Street as having two left-turn lanes and one right-turn lane. We note that the lane configuration on this approach includes one left-turn lane and two right-turn lanes.

TEC Response 10/13/2022: *TEC acknowledges the discrepancy in the text for the approach geometry of Innovation Way at South Main Street. However, the capacity analyses provided in the TIA and associated comment responses did note and utilize the correct geometry.*

EP Response 11/09/2022: No further action; **Comment 2 closed.**

3. In Table 1 of the TIA (Existing Weekday Traffic Volume Summary), traffic volumes for the weekday daily, weekday morning peak hour, and weekday evening peak hour appear to be inconsistent with the collected counts and the methodology described for volume adjustments. Backups should be provided verification.

TEC Response 10/13/2022: *The traffic volumes data for Innovation Way has been updated utilizing the revised COVID-19 factor as noted below in Comment #4. The information provided in the table is based on the Average Daily Traffic (ADT) for the Wednesday Automatic Traffic Recorder (ATR). Note that the COVID factor is different for the typical day versus the peak hours (6.9% Daily, 12.2% AM Peak, and 14.1% PM Peak). [See RTC memorandum for Table 1 Revised.]*

EP Response 11/09/2022: EP noted discrepancies in Table 1 Revised for the weekday evening peak hour traffic volume. However, the discrepancy is not expected to impact the findings of the study; **Comment 3 closed.**

4. The methodology described in the TIA for obtaining COVID-19 traffic volume adjustments is inconsistent with the backups in the attachments, in that the TIA indicated that the traffic volume from 2019 used for comparison was grown by 0.5 percent per year from 2019 to 2022, whereas the backups use the 2019 volume with no annual growth to 2022. However, since the backups use the typical methodology recommended by MassDOT, EP takes no exception to the methodology used to calculate the COVID-19 adjustment factor. We note, however, the adjustment factor is an average for the daily volume, and the peak hour adjustment factors can vary drastically. EP recommends verifying that the 8.7 percent COVID adjustment is adequate for each of the weekday morning and evening peak hours.

TEC Response 10/13/2022: *The COVID traffic adjustment factor was updated to reflect the peak hour influence. Although the peakhour factors are slightly higher, there were no measurable changes in the overall traffic volumes as a result of the COVID adjustment factor. The updated COVID adjustment factors are provided within Attachment A.*

EP Response 11/09/2022: Information provided; **Comment 4 closed.**

Safety Analysis

5. TEC reviewed crash data provided by MassDOT at the study intersections between January 1, 2017, and May 31, 2022. EP notes that crash data from the MassDOT database is closed only through year 2019 and any crash data provided after is subject to change. As such, evaluating full datasets up to and including 2019 is the recommended methodology. Our independent research for the five-year period of 2015 through 2019 found different results than is reported in the TIA through 2022, which in part may be associated with the changes in traffic volumes in the area due to new developments in the recent years, with the construction of Amazon Fulfillment Center. For an accurate safety analysis, we recommend reviewing local police data for the most recent closed years, if available.

TEC Response 10/13/2022: *TEC reviewed the 2015-2019 crash data from MassDOT's crash portal. Of the 11 reported crashes, there were no identifiable trends that would warrant a detailed assessment. MassDOT, who owns the roadway, has not requested any supplemental analysis. The MassDOT crash data is provided within Attachment B.*

EP Response 11/09/2022: Information provided; **Comment 5 closed.**

6. The crash information listed in Table 2 of the TIA (Intersection Crash History Summary) is inconsistent with backups provided in the attachments.

TEC Response 10/13/2022: *See response above.*

EP Response 11/09/2022: Information provided; **Comment 6 closed.**

7. TEC did not calculate crash rates at the study intersections, which are typically used to measure the safety of an intersection based on crash frequency and vehicle exposure, and to compare to MassDOT Statewide

and District averages. We recommend calculating crash rates to determine if any safety mitigation needs to be considered at any of the study intersections.

TEC Response 10/13/2022: *TEC calculated the crash rate for the unsignalized intersection of Innovation Way at Amazon's northerly driveway in the Town of Freetown. There are only three documented crashes at this unsignalized intersection between 2017 (opening year for the facility) and 2019. The other crashes are distributed throughout the remainder of the 0.6-mile section of Innovation Way within the Town and some appear related to the Rt. 24/79 ramp junction with the on-ramp from Innovation Way eastbound. There are no identifiable crash trends that appear to warrant a more extensive review of police department records as the crash rate is slightly higher, but similar to other unsignalized intersections in the region and there is such a limited number of crashes. See Attachment B for the MassDOT crash rate form.*

EP Response 11/09/2022: EP notes that the calculated crash rate at the unsignalized intersection of Innovation Way and Northern Amazon Driveway is above the Statewide and District 5 averages. However, given the low total number of crashes at this location and the likelihood that they are attributed to the vehicle operations to/from Amazon, we understand the crash history may not be indicative of a particular safety deficiency at this location. EP also independently calculated the crash rate at the signalized intersection of Innovation Way and South Main Street and found the crash rate at this location to be below the Statewide and District 5 averages.
Comment 7 closed.

8. The TIA stated the Applicant is committed to provide adequate sight distances to satisfy the American Association of State Highway and Transportation Officials (AASHTO) requirements for a speed of 40-mph. Consistent with standard methodology, EP recommends using the 85th percentile speed to calculate the required sight distance. Based on the collected speed data, the 85th percentile speed along Innovation Way was approximately 40 mph and 45 mph on the southbound and northbound directions, respectively.

TEC Response 10/13/2022: *TEC's data collection vendor documented the speeds along Innovation Way as 40 mph southbound and 44 mph northbound in the vicinity of the project site. The site designer, MBL, will be including the sight lines on the site plan in the next submittal. TEC verified that the Freetown driveway can accommodate sight line triangles of 500 feet in each direction exiting the proposed driveway, which is based on the AASHTO intersection sight distance criteria for 45 mph. The vantage point for the driveway movement is within the State's right-of-way. The Applicant does not propose plantings or other sight distance obstructions in this area.*

EP Response 11/09/2022: EP will review the sight lines on the updated site plan once available.

EP Response 12/15/2022: Item closed.

9. We request that the Applicant provide sight triangles for the proposed driveways on the Site plans to indicate areas where all objects and vegetation should be removed and/or maintained below a height of 2.5 feet.

TEC Response 10/13/2022: *The site designer, MBL, will provide the corresponding sight lines on the updated site plan drawings as requested. The Building 3 employee driveway location, which is on the outside of a horizontal curve will have sight lines in excess of 500 feet in both directions.*

EP Response 11/09/2022: EP will review the sight lines on the updated site plan once available.

EP Response 12/15/2022: Item closed.

Future Conditions

10. The TIA states that TEC coordinated with the City of Fall River and the Town of Freetown and incorporated other planned developments into the no-build conditions. While we agree with this methodology, we identified several inconsistencies and request further clarification or revision as follows:

- The TIA indicated there were several private and public development projects anticipated in the area, however only one nearby development was included.
- The TIA described a development at 30-36 Innovation Way. Based on the description and the information provided in the attachments, it appears this is the Neon Marketplace development at 38 Innovation Way.
- The TIA stated that TEC estimated the trips associated with the Neon Marketplace development using Institute of Transportation Engineers (ITE) Trip Generation 11th Edition, and distributed the trips along the roadway network based on existing traffic patterns; however, no backups have been provided for review. Regardless, it appears BETA provided a traffic study for the Neon Marketplace development. EP typically recommends using the trip generation and distribution from provided traffic studies for consistency.
- It is our understanding that there have been modifications (May 2021) to the Neon Marketplace development that have changed the trip generation since the iteration of the traffic study that was included in the attachments (October 2020). We recommend that TEC coordinate with the Town to verify the most recent iteration is included.

TEC Response 10/13/2022: TEC has revised the traffic volumes for both the No-Build and Build conditions to reflect the above comment. Note that only one (1) specific development by others was noted to be in the general vicinity of the project that was expected to contribute noticeable traffic volume to the study area intersections. The development is the Neon Marketplace directly opposing the subject project. TEC had previously utilized the BETA traffic study as noted to project area traffic volumes; however, TEC has corrected discrepancies between the BETA study and TIA. TEC also notes that BETA Group has confirmed that the October 2020 TIA for the Neon Marketplace is the active version of the TIA and that no changes were made to the project regarding traffic for submittals completed in May 2021.

EP Response 11/09/2022: Clarification provided; **Comment 10 closed.**

11. From Figure 4 of the TIA, we noted several inconsistencies in the trip generation and distribution. When comparing the volumes at the four intersections through which all vehicles entering and exiting the project area must travel (Innovation Way at: (1) South Main Street, (2) Route 24 Southbound Ramps, (3) Route 24 Northbound Ramps, and (4) the southernmost intersection in Fall River at the Building 1 truck driveway) to the volumes established by using the percentages outlined in the trip distribution table and the entering and exiting volumes from the trip generation table, we note differences ranging from 6 to 13 vehicles. Further, by comparing the volumes established by using the percentages outlined in the trip distribution table and the entering and exiting volumes from the trip generation table, with the volumes established by summing the total number of entering and exiting trips from each driveway, we found discrepancies for all volumes, the greatest for the exiting volumes for the evening peak period, which shows a difference of 81 vehicle trips. These discrepancies using the different methodologies should be rectified and the volumes traveling through all intersections should be updated accordingly.

TEC Response 10/13/2022: *TEC has reviewed the trip generation and distribution characteristics at each of the study area intersections and revised based on the comment above. A copy of the traffic volume progression worksheet, which includes the trip generation and distribution, has been attached to simplify the review. For the simplification of the peer review, only locations in Freetown are included. Note that only passenger vehicle trips for Building 4 access/egress from the site driveway within Freetown, all other site trip, whether truck or passenger vehicles, travel through NB / SB crossing the Town Line into Fall River. A copy of the modified trip generation table utilized for these projections is provided within Attachment C.*

EP Response 11/09/2022: No further action; **Comments 11.**

12. The traffic volumes in Figures 3 and 4 of the TIA (2029 No-Build and Build Conditions Peak Hour Traffic Volumes, respectively) at the intersection of Innovation Way and Amazon North Driveway on the southbound approach appear to be inconsistent with the collected counts and methodology set forth in the TIA.

TEC Response 10/13/2022: *The volume discrepancy appears to have been related to the specific development by other trips. The volumes have been corrected in the attached analysis and do not result in any measurable changes in intersection capacity or delays. TEC's updated and detailed traffic data worksheet, which includes the detailed distribution percentages for the morning and evening peak hours, is provided within Attachment D.*

EP Response 11/09/2022: No further action; **Comment 12 closed.**

Capacity and Queue Analysis

13. Peak hour factors (PHFs) appear to remain unchanged from the default value of 0.92 in the Synchro analysis. We recommend updating PHFs based on the collected counts for each approach for a more accurate analysis.

TEC Response 10/13/2022: *The peak hour factors have been updated in the attached analysis for the existing conditions and do not result in any measurable changes in intersection capacity or delays. Based on the additional trips from other developments and background growth, as well as the site's trip generation additions, the PHF has been updated to 0.92 for all non-driveway in/out movements in both the No-Build and Build to provide a comparative analysis as is typical for locations that are expected to experience a noticeable increase in traffic in the future year condition. The updated capacity analyses are provided within Attachment E.*

EP Response 11/09/2022: No further action; **Comment 13 closed.**

14. Heavy vehicle percentages should be updated on the Synchro analysis based on the collected counts and be provided in the reports for verification.

TEC Response 10/13/2022: *The heavy vehicle percentages have been updated in the attached analysis for the existing conditions and do not result in any measurable changes in intersection capacity or delays. Based on the additional trips from other developments and background growth, as well as the site's trip generation additions, the HV% has been updated to account for truck growth and truck trip generation; therefore, the HV% for the existing, no-build, and build conditions for each movement may be different. The updated capacity analyses are provided within Attachment E.*

EP Response 11/09/2022: No further action; **Comment 14 closed.**

15. The Synchro reports show inconsistent signal timings between Existing, No-Build, and Build conditions. For a fair comparison of the three analyses in evaluating the impacts of the proposed Site, signal timings should be maintained for consistency throughout the three scenarios. If any mitigation is warranted based on impacts of the proposed Site, the mitigated scenario should be provided separately.

TEC Response 10/13/2022: *The signal timings were adjusted to be consistent between analysis scenarios. There is significant reserve capacity at the three signalized intersections, which all lie under the jurisdiction of MassDOT or Fall River. Innovation Way and the Route 24 interchange were designed with higher projected future-year traffic volumes when compared to what is constructed or currently proposed. The redevelopment area was originally anticipated to accommodate significant volumes of peak-hour office users, which is no longer proposed. No capacity-related mitigation is necessary or appropriate for these MassDOT-controlled intersections. The updated capacity analyses are provided within Attachment E.*

EP Response 11/09/2022: No further action; **Comment 15 closed.**

16. If the signalized intersections include an exclusive pedestrian phase, this phase should be incorporated in the signal timings and accounted for in the analysis.

TEC Response 10/13/2022: *An exclusive pedestrian phase is only present at the intersection of Innovation Way at South Main Street. TEC has not witnessed any measurable pedestrian traffic at the Route 24 interchange. The use of the pedestrian phase is not expected to result in an accurate model for the intersection capacity and would not noticeably affect the signal operations or the resultant queuing based on any infrequent pedestrian phase activation. This is consistent with Synchro methodology for locations with minimum pedestrian traffic.*

EP Response 11/09/2022: No further action; **Comment 16 closed.**

17. Several inconsistencies were found within Table 8 of the TIA (Capacity and Queue Analysis Summary) in comparison with Synchro reports. These include the following:
- The summary table should compare consistent reporting methodologies for each type of intersection (signalized vs. unsignalized) under all scenarios (i.e., Synchro reporting or HCM reporting, including same version of HCM (6th vs. 2010)). It appears, at a minimum, the intersection of Innovation Way and South Main Street was summarized using different reports.
 - The unsignalized Synchro reports for the Build condition evening peak hours have not been included in the Attachments and therefore have not been verified with the summary table in the TIA.
 - Multiple inconsistencies were noted in the level-of-service (LOS) letter designations and queues in Table 8.

TEC Response 10/13/2022: *The table has been updated to reflect the revised analysis results and is included in Attachment E. Because the intersection of Innovation Way at South Main Street has non-standard NEMA phasing and is constructed with a custom lane configuration (southbound approach) the signal is analyzed using HCM 2000 methodology. For consistency, all signals in the study area have been analyzed under this methodology. All unsignalized intersections in the study area have been evaluated using HCM 6th Edition methodology. Overall, there are no significant changes to the intersection delays.*

EP Response 11/09/2022: No further action; **Comment 17 closed.**

18. As summarized by TEC, based on the provided analysis, it appears the traffic operations are acceptable at the intersections located within Freetown, with the exception of the Gas Station driveway. However, based on the inconsistencies outlined herein, EP cannot corroborate the findings at this time.

TEC Response 10/13/2022: *Upon review of the above comments, all locations within the Town of Freetown are not expected to experience any measurable increase in traffic impact. Innovation Way was constructed by MassDOT with considerably higher traffic volumes projected for formerly proposed office-related uses and addition reserve capacity is available for other future development. The unsignalized driveway operations in the area will remain under capacity despite the introduction of new 'through' traffic from the subject project. MassDOT has not requested any further evaluation of the private driveways are part of the Applicant's application for an access permit.*

EP Response 11/09/2022: The revised analysis shows some degradation in LOS between the 2029 No-Build and 2029 Build conditions, with some movements expected to operate at an unacceptable LOS E with a noteworthy increase in delay. EP notes, however, that the movements with poor operations are located along the Amazon and Gas Station driveways, and the movements along Innovation Way and at the other intersections are expected to operate at an acceptable LOS D or better. While EP concurs that operations are anticipated to remain below capacity, we recommend considering minor improvements, such as signal timing adjustments where applicable, to mitigate the impacts of the proposed site.

MBL Response 11/21/2022: TEC and The Applicant note that signal testing and adjustments at the intersection are under MassDOT jurisdiction and will perform additional testing if only requested by MassDOT but not volunteer anything otherwise.

EP Response 12/15/2022: Item closed. While we recognize changes to the signal timings are ultimately under MassDOT jurisdiction, we maintain that the relatively minor mitigation measure could improve operations and reduce impacts from the site-generated traffic. We continue to recommend coordination with MassDOT; however, no we request no further review, and no additional coordination is needed from the Town.

19. The TIA stated the Applicant commits to providing on-site bicycle racks or storage area for employees. While EP takes no exception to this provision, we note that bicycle use to/from the Site and within the Site can be encouraged with the presence of safe and comfortable bicycle accommodations in the vicinity of the Site. Since the Applicant is providing sidewalk along Innovation Way, EP recommends considering replacing the proposed sidewalk with a shared-use path to accommodate both pedestrians and bicycles, which would be a relatively minimal increase in cost for an improvement with significant benefits.

TEC Response 10/13/2022: *Innovation Way lies under the exclusive jurisdiction of the Massachusetts Department of Transportation (MassDOT) within the Town of Freetown. The Applicant has already received comments back from MassDOT's District 5 office. MassDOT did not request shared use path infrastructure for Innovation Way. Additionally, the scope of the planned sidewalk improvements are consistent with what MassDOT and the Town of Freetown recently approved for the Neon Marketplace project across Innovation Way*

EP Response 11/09/2022: EP acknowledges that Innovation Way is under MassDOT jurisdiction within the Town of Freetown, and that MassDOT did not request additional bicycle infrastructure. No further action;
Comment 19 closed.

Site Plan

20. According to the Town of Freetown zoning by-laws, parking stalls shall be 10-feet wide. Parking dimensions shown on the Site plan are 9-feet wide. The Site plan should be revised to conform to the minimum parking space dimensions required by the zoning by-laws.

MBL Response 11/21/2022: A Waiver was granted by Freetown Planning Board to allow for 9-feet wide parking stalls. See the attached Planning Board Decision, dated 10/27/2022.

EP Response 12/15/2022: Item closed.

21. For a wholesale, warehouse, or storage establishment, the Town of Freetown zoning by-laws requires one parking space for every 1,000 sf of gross floor space. For Building 3, with a gross area floor of approximately 203,000 sf and falling within the Town of Freetown in its entirety, a total of approximately 203 parking spaces is required. The total number of employee parking spaces provided for this building is 170. The Applicant has requested a waiver from the Freetown parking requirement, stating that the proposed 170 spaces is similar to the rest of the development which follows the City of Fall River regulations. A review of the City of Fall River parking regulations is beyond the scope of this review.

Based on our calculations using the Institute of Transportation Engineers (ITE) Parking Generation Manual application, approximately 188 spaces are recommended for Building 3 based on an average rate. We recommend increasing the number of parking spaces to satisfy ITE recommendations and to improve conformance with the Town of Freetown requirements. If the Applicant maintains the request for only 170 parking spaces, the Applicant should provide additional justification for this lower number of spaces.

MBL Response 11/21/2022: MBL updated the required calculations for parking to confer with the Town of Freetown Zoning Bylaws. A Waiver was granted by Freetown Planning Board, to allow a reduced number of parking spaces. See the attached Planning Board Decision, dated 10/27/2022.

EP Response 12/15/2022: Item closed.

22. Site plans show a pedestrian curb ramp on the southern side of Building 3 employee driveway, at which location no crosswalk is shown. We recommend adding a crosswalk and receiving ramp on the north side of the driveway for a future sidewalk connection.

MBL Response 11/21/2022: MassDOT has no plans to add a sidewalk to the rest of the SHLO on this side, the curb ramp allows a person to exit the sidewalk. A crosswalk across 4 lanes of traffic with no signal due to low demand would be more dangerous to both the pedestrian and vehicle traffic in the roadway.

***EP Response 12/15/2022: Item open.** To clarify, the recommendation to add a crosswalk and receiving ramp was intended for the opposite (north) side of the driveway (along the east side of Innovation Way), not across Innovation Way (on the west side of the roadway). As currently proposed, the ramp on the south side of the driveway leads pedestrians into an unmarked crossing with no destination. We recommend providing a crosswalk across the driveway along the east side of Innovation way and providing a receiving ramp on the north side of the driveway, which allows for connection to a potential future extension of the sidewalk along Innovation Way. Alternatively, the section of sidewalk north of the sidewalk access to Building 3 as well as the pedestrian ramp at the driveway could be removed.

MBL Response 02/07/2023: Within the Town of Freetown, Innovation Way lies under the exclusive jurisdiction of the Massachusetts Department of Transportation (MassDOT). MassDOT has approved an access permit with single curb ramp at driveway entrance which will allow a person to exit the sidewalk. If a person wishes to continue down innovation way on the east side they can use the breakdown lane at their own risk. There would be no benefit to this as the sidewalk would lead to nowhere and as previously mentioned no sidewalk extension on the east side on Innovation Way as they lead to on and off ramp ramps access to Route 24.

***EP Response 02/23/2023:** Item open. EP acknowledges that the MassDOT has approved an access permit with a single ramp at the driveway as proposed on the site plans. However, we continue to recommend changing the proposed design to include a ramp on the receiving side (northern side of the Building 3 employee driveway), or alternatively end the sidewalk extension north of the sidewalk accessing Building 3 to avoid leaving pedestrians stranded at the driveway.

MBL Response 11/20/2023: MBL has removed the curb ramp from the driveway entrance as recommended. Please see revised plan set dated 11/20/2023.

23. The site plans show pedestrian access to Building 3 by way of the employee driveway only. For pedestrians traveling to/from the south, this route is not direct and would be better served by providing a connection to Building 3 from the truck driveway located just over the Fall River Town Line.

MBL Response 11/21/2022: MBL updated plans to include this recommended walkway. Please see the revised plan set.

EP Response 12/15/2022: Item closed.

Site plans show a crosswalk across Building 3 employee parking lot at a skewed angle. We recommend revising the parking lot layout to align the crosswalk perpendicular to vehicular travel way and minimize the crosswalk distance. Regardless of the crosswalk angle, the crosswalk pavement markings should be revised so the markings align parallel to the vehicular travel way.

MBL Response 11/21/2022: MBL updated the crosswalk based on the recommendation. Please see the revised plan set.

***EP Response 12/15/2022: Item open.** The revised crosswalk is still at an angle that is not perpendicular to the vehicular travel way. We recommend shifting the entire row of parking spaces slightly further north to allow enough width for the crosswalk to be perpendicular. It also appears that by adjusting the parking space layout, the pedestrian ramps near the accessible parking spaces need to be shifted slightly, such that the level landings are centered with the hatching at each location.

MBL Response 02/07/2023: MBL updated the crosswalk to perpendicular to the travel way as recommended please see revised plan set.

EP Response 02/23/2022: Item closed.

24. Fire truck turning templates should be provided for the Building 3 employee driveway to verify emergency access.

MBL Response 11/21/2022: MBL updated the plan set to include firetruck turning in the parking lot and access drives.

***EP Response 12/15/2022: Item open.** The provided fire truck turning templates show the truck path encroaching into the parking spaces, restricting the fire truck movement and access during the times when the 4-5 parking spaces adjacent to the crosswalk are occupied. It appears there are several additional feet within the driveway (north of the truck path as shown), which may allow enough maneuverability to allow a fire truck traveling northbound on Innovation Way to make the turning maneuver without encroaching on the parking spaces. Otherwise, we recommend widening the driveway as necessary to allow for this movement. Additionally, we recommend showing the fire truck turning templates around the northeast corner of the building.

MBL Response: MBL updated the fire truck turning plan based on recommendations please see revised plan set.

EP Response 02/23/2022: Item closed.

MBL believes that upon making the above revisions, Environmental Partners' concerns were addressed satisfactorily. Please do not hesitate to contact us with any questions and concerns or should you need additional information.

Respectfully,
MBL Land Development & Permitting Corp.



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