

Lisa Schwarz, Assistant Director  
Town of Andover  
36 Bartlett Street  
Andover, MA 01810

June 3, 2024

Ref. T1265.09

Re: Town Yard Redevelopment – Andover, Massachusetts  
Traffic Engineering Peer Review #3

Dear Ms. Schwarz:

On behalf of the Town of Andover, TEC, Inc. (TEC) has reviewed revised documents as part of the traffic engineering peer review for the proposed redevelopment of the former Town Yard property within the Historic Mill Overlay District in Andover, Massachusetts (“the Project”). The following materials were considered as part of our review:

- *Site Development Plans – 2-4 Buxton Court, 7-9 & 11 Lewis Street, 35 Pearson Street & 122 North Main Street - Andover, MA*, prepared by The Morin-Cameron Group, Inc., dated (revised) May 7, 2024.
- *VAI Response to Traffic Engineering Peer Review #2, Town Yard Redevelopment - Andover, MA*, prepared by Vanasse & Associates, Inc., dated May 24, 2024.

For consistency, the original comment numbers have been retained from the original recent TEC Peer Review letter dated January 25, 2024 and supplemented by the second peer review letter on April 18, 2024. TEC’s comments are shown in **bold**, the Applicant’s responses to the comments are shown as *italics*, and TEC’s follow-up responses are shown as standard text. Previously closed comments are not included in this review letter to provide clarity.

### **Traffic Impact Assessment**

**Comment 3:** In conjunction with **Comment #2** above, please provide detailed description of each study area intersection beyond the data / information provided in **Figure 2** such as on-street parking, approach-by-approach control, control signage and pavement markings, directional separation, etc. Please include any other descriptive measures that may be pertinent to the analysis and recommendations further described alter in the TIA.

*Applicant Response:* [Various Intersection Descriptions – See VAI Letter]

**TEC Response:** Comment generally addressed. TEC notes that there are a few minor text discrepancies; including at the intersection of Essex Street / Ridge Street / Brook Street there is notation of The Ridge Street and the Essex Street west approaches are bi-directional, and each street has a double yellow centerline with no pavement markings. If there is a double yellow centerline there actually are pavement markings.

*Applicant Response: The appropriate changes have been made in the description of the intersection of Essex Street / Ridge Street / Brook Street section of the response above.*

TEC Response: Comment addressed. No further response required.

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**Comment 8:** **MassDOT crash records were evaluated for the years 2016-2020, the latest available 5-year period of complete data and have been described in the TIA. Of the eight (8) study area intersections studied, three (3) were shown to have crash rates above 0.57 crashes per million entering vehicles (MEV) for unsignalized intersections (MassDOT District 4 rate). These intersections include Pearson Street / Lewis Street [Site Driveway] / Depot Pizza Parking Driveway (0.86 crashes per MEV), Essex Street / School Street (0.64 crashes per MEV), and Essex Street / Brook Street / Ridge Street (1.25 crashes per MEV). The TIA does not describe direct off-site mitigation by the Applicant to reduce these crash rates or directly address safety at these locations. Although off-site mitigation is further described in subsequent comments, the Applicant should work with the Town to evaluate and implement, at a minimum, short-term / low-cost safety improvement countermeasures at these key locations.**

*Applicant Response: The intersections noted to have crash rates above the MassDOT average crash rates are projected to be improved by the MassWorks grant project.*

TEC Response: It is possible the Town Yard redevelopment could occur with or without the Mass Works project. TEC understands that the Mass Works project is funded and still in the design stage; however, until design is complete, and the construction is commenced, there is no guarantee that the project will be completed. With the understanding that any commitments to mitigation may be moot upon this, the Applicant should work with the Town to evaluate and implement, at a minimum, short-term / low-cost safety improvement countermeasures at these key locations.

*Applicant Response: Due to the Project's minor effects, the Project should not be required to implement improvements at these intersections. At the Essex Street/School Street intersection and the Essex Street/Ridge Street/Brook Street intersection, the Project adds 2 to 3 trips without the closure of Pearson Street and this shows negligible impacts from the Project. In the event of the closure of Pearson Street, the Project sends 18 to 23 trips through these intersections; however, the closure of Pearson Street would likely coincide with the implementation of the MassWorks improvements at these locations. No improvements are necessary at the intersection of Pearson Street / Lewis Street [Site Driveway] / Depot Pizza Parking Driveway, as 2 crashes in 5 years is not significant, regardless of the crash rate.*

TEC Response: TEC understands that the Mass Works Infrastructure Project is funded and still in the design stage; however, until the design is completed, and the construction is commenced there is no guarantee that the project will be

completed. TEC recommends that the Town consider a condition of approval that if, and only if, funding to the Mass Works grant is retracted by the Commonwealth of Massachusetts, the Applicant should provide for the completion of design plans and specifications, and/or the equivalent funding for, matching the existing scope of improvements identified in the Mass Works Infrastructure Project as currently funded and conceptualized. This recommendation does NOT include funding related to construction of improvements related to the Mass Works Infrastructure Project. Further, the Town should consider a condition of approval that if, and only if, funding to the Mass Works grant is retracted by the Commonwealth of Massachusetts, the Applicant should provide funding for the closure of Pearson Street at Lewis Street consistent with the Mass Works Infrastructure Project which is a direct need in relation to the subject development.

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**Comment 9:** To obtain future year volumes (2030), the September counts were adjusted at a rate of 1% per year compounded, based on area growth between 2009 and 2019. This growth rate accounts for background traffic as well as for a specific development by others (#305 North Main Redevelopment). TEC finds this acceptable. Another project described is located at the Draper Block – #27 Main Street. The TIA states that based on a special permit for this project site-generated trips were included in the Town Yard Redevelopment; however, the trip generation for Draper Block, which would be applied to the 2030 No-Build volumes, has not been provided in the TIA, and therefore, cannot be confirmed.

*Applicant Response:* The 27 Main Street Project (Draper Block project) site-generated trips are shown in the Appendix to this letter as Figure A1 and Figure A2.

TEC Response: The Applicant has provided a marked-up version of the trip generation. Is there a clean version directly from the project's TIA?

*Applicant Response:* The Town did not have a traffic study for the Draper Block project, and the only documentation available was a copy of the Special Permit. Trip generation was therefore estimated using ITE data and the information in the Special Permit, and trips were assigned using engineering judgment. The trip generation and figures are included in the Appendix to this letter.

TEC Response: Response acknowledged. No further response required.

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**Comment 11:** The project's trip generation calculations were generated based on the industry standard Institute of Transportation Engineers (ITE) publication, *Trip Generation, 11<sup>th</sup> Edition* for Land Use Code (LUC) 221 *Multifamily Housing (Mid-Rise)*, LUC 492 *Health/Fitness Club*, LUC 712 *Small Office Building*, LUC 495 *Recreation Community Center*, and LUC 937 *Coffee/Donut Shop with Drive-Through Window*. TEC notes the following concurrence and notations:

- **As the gym, office, and coffee shop uses on the site would almost exclusively be utilized by the residents of the development, separate trip generation calculations for these uses would generally be seen as conservative in nature. TEC would concur that the overall reporting of total trip generation to/from the site is likely higher than the real-life scenario expected following occupancy.**
- **Since the site will have multiple land uses, not all trips will originate from external traffic. An internal trip capture of 10 percent was assumed for all site land uses except the recreational community center. The Applicant should provide a more detailed breakdown of the results and the specific justification of the 10 percent internal capture rate. Note that from a macroscopic review level, TEC does agree that a 10 percent internal capture for these uses; considering the trip generation calculations were not necessarily required (see above bullet), is generally conservative in nature.**
- **In Table 4 of the TIA, the mode split by land use has been provided. The Appendix includes a table showing the derivation of these mode splits based on area census percentages; however, no details of the derivation of the results have been provided for review. TEC is unable to determine their validity.**

**The Applicant should provide a more detailed step-by-step breakdown of both internal capture, person trips, and mode share credits, as well as documentation to the justification of each credit value. This includes looking into the trip generation calculation results shown in Table 5, which effectively shows that the coffee shop, almost exclusively used by the residents, as the primary use in the AM and an extensive use throughout the day. For instance, the ‘walk’ and ‘other’ mode share for coffee shop are 30% while they are only 13% and 21%, respectively for residential land use. If the credits applied forces the resulting ‘residential’ trip levels down in favor of coffee shop, the higher mode split credits for coffee shop as compared to residential result in less overall trips projected; even when the residential units are the primary use.**

*Applicant Response: The Project is intended as a mixed-use development with convenient access to multiple public transit services. Unfortunately, there is no one ITE land use code that represents a mixed-use development with the uses proposed that is adjacent to multiple transit services. While ITE has a Mixed-Use Development methodology for developing the exact rate of internal capture between several land uses at a site, this detailed methodology is intended for sites ranging between 100,000 square feet (sf) and 2,000,000 sf which would have peak-hour trip generation in the hundreds or potentially thousands of trips. By comparison, this site has 163 residential units with 5,000 sf of mixed commercial space. Not including the residential units, the commercial space is expected to generate 48 to 79*

*peak-hour trips with 63 to 89 percent of that from the café space. While the overall methodology may not be strictly applicable to this project due to its smaller size and trip generation, some data that could be used is for internal capture rates. Rates of internal capture between residential and restaurant uses in the ITE methodology range between 12 and 20 percent during peak hours; accordingly, VAI used a base internal capture rate of 10 percent.*

*In addition to the 10 percent internal capture rate, other adjustments were considered for the project trip generation. The initial base step was to calculate vehicle trips using ITE discrete (stand-alone) land uses. This is a conservative assumption as the commercial land uses are generally considered as accessory to the residential uses, both on-site and in the neighborhood. It was estimated that there are nearly 400 housing units within ¼ mile (a 5-minute walk) of the Project, in addition to the proposed 163 units for the Project. For many of these residents, walking or biking through the site to the cafe or the gym on their way to another destination or back home for remote work is a probability. In this case, assumptions for 30 percent walking/biking and 30 percent working from home with only 40 percent driving for these commercial uses is expected to be a conservative assumption.*

*Trips associated with the café have the added component of pass-by traffic to consider. Studies have indicated the amount of trips to a coffee-shop originating from existing traffic passing by the use can be as high as 90 percent. No formal pass-by traffic was assumed for this analysis, but the café should have a similar experience with customers able to walk to the café from the neighborhood or the residences onsite or picking up an order before departing the site in their personal vehicle or utilizing public transit.*

*With regard to the mode split for the residences, the existing census data for the census tract the site is located in likely does not reflect the same proximity of the residences to the commuter rail station as is the case with this Project. Accordingly, this data was revised and adjusted to account for an increased public transit usage, and reduced auto usage. Additional justification for this change is shown in data from ITE related to Transit-Friendly Site Mode Share data, which indicated percentage of transit for motorized trips could be between 62 and 78 percent for work/school-based trips and between 56 and 68 percent for all trips for sites within 600 feet of a heavy (commuter) rail facility. This is shown in the Appendix to this letter, Figure D.4 from the ITE Trip Generation Handbook.*

TEC Response:

The information provided in the updated TIA is still similar to the original study. The Applicant should provide a more detailed step-by-step breakdown of calculation of both internal capture, person trips, and mode share credits, as well as documentation to the justification of each credit value. Please separate out each step of the calculation and provide source references for credits. Please also note the following:

- Although not included in the analysis, pass-by trips to/from the coffee shop would be expected to be limited with the closure of Pearson Street as part of the Mass Works project.

- TEC understands the use of the Figure D.4 from the ITE Trip Generation Handbook; however, this data is taken from the WMATA which pertains to the Washington DC rail system which, in comparison, is more like the MBTA's Red Line and Orange Line, not commuter rail including small headways and destination stops in close proximity. TEC agrees that the percentage of potential use is high; however, would generally only pertain to key destinations along that rail line; particularly Boston, Malden Center, Wakefield, etc.

*Applicant Response: A detailed step-by-step breakdown of the trip calculations for internal capture and mode split is included in the Appendix of this letter. With regard to references and justification for credits, the previously provided information sources are what is available.*

*The WMATA data is noted in the ITE reference as proximity to "Heavy Rail"; however, a review of the study indicates this refers to sites with the presence of both commuter rail (similar to the MBTA commuter rail system) as well as rapid rail transit (similar to the MBTA Orange/Red/Blue line subway system). A more detailed review of the data indicates there were 12 sites that were studied for this analysis and of the 3 sites near stations where the Metrorail, Metrobus, and other transit services were available, the residential auto mode split was lower than that used in the TIA. A summary of this data is provided in the Appendix to this letter.*

*While the MBTA Andover Station adjacent to the site provides commuter rail service which can be used for travel to the hub of North Station and other connections along the way, the MVRTA bus line 2 and us line 21 both stop at the Andover Station as well, and these stop at local destinations including Shawsheen Plaza, the North Andover Mall, and The Robb Center Senior Center. These transit services, located a 2-3 minute walk from the site, would appear to increase the likelihood of transit use by Project residents, although there is no hard data or references to confirm this.*

*In an effort to move beyond this issue, an alternative analysis was conducted based on unadjusted vehicle trip-generation estimates from ITE without any trip adjustments based on internal capture, mode split, or pass-by traffic. This analysis was conducted at the four intersections closest to the Project as these would be the locations most affected by what would be an effective increase in the Project trip generation. The results of this alternative analysis were compared to the analysis provided in the March 2024 Updated Transportation Impact Assessment. The comparison is shown in Tables 12R and 13R.*

TEC Response: Although additional response related to the trip generation methodology is explored through other comments related to mitigation, TEC does acknowledge that the above referenced comment is satisfactory. Additionally, please reference Comment #48 related to traffic monitoring.

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**Comment 12: The trip distribution provided in the TIA appears to match the Journey to Work US Census data provided in the Appendix. TEC would note**

that the overall percentage to/from the west on Essex Street appears high and may be skewed by the Boston-metro portion of the distribution. TEC suggests that the Applicant reevaluate the trip distribution in conjunction with the public transportation credit taken as much of the site trips utilizing the MBTA Commuter Rail next door will be travelling to/from Boston (2<sup>nd</sup> highest worker destination) and Cambridge (5<sup>th</sup> highest worker destination) representing 17% of the overall workforce breakdown. Some communities will not utilize public transportation at all based on the ability to provide continuous service to/from the origin / destination of the trip.

*Applicant Response:* The census data was reevaluated based on the comment above. In addition to Boston and Cambridge, a number of Andover residents work in other locations accessible by the Haverhill commuter rail line which raises the potential for use of the commuter rail to 20 percent. The updated trip distribution is included in the updated TIA.

**TEC Response:** TEC has no further comment on the above referenced comment; however, TEC does note that the distribution at the site driveway may be different based on the Town's Mass Works Grant project where the connection of Pearson Street over the tracks is expected to be eliminated.

*Applicant Response:* We concur, no response required.

**TEC Response:** Response acknowledged. No further response required.

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**Comment 13:** The Applicant has provided stopping sight distance (SSD) and intersection sight distance (ISD) measurements for the Site Driveway along Pearson Street. The results are shown in Table 8 of the TIA and have been compared to recommended values obtained from *A Policy on Geometric Design of Highways and Streets*, 7<sup>th</sup> Edition, American Association of State Highway and Transportation Officials (AASHTO), 2018. The measured distances have been shown in the TIA to exceed these values, except for the ISD for vehicles looking west while exiting the site (111 feet). However, Table 8 contains notes stating that three of the four measured distances have been determined if parked cars to the east were removed and if a hedge to the west were cut. The fourth measured distance of 241 feet (SSD approaching from the west) is questionable since Pearson Street is roughly 100 feet from its intersection with Essex Street to the site driveway. A distance of 241 feet could only be attained by measuring further west along Essex Street, which places the limit about 150 feet from the railroad tracks. At this point, the sight distance is further affected by a concrete retaining wall in the parking area of Ann's Cleaners at #2 Railroad Street, as well as a railroad signal gate and utility poles on Pearson Street near the proposed site driveway. The Applicant should provide a graphical depiction, preferably in the form of a sight triangle sheet in the site plans, of the sight lines for this driveway. Sight lines to the east along Pearson Street should not cross over the head-in parking stalls proposed along the northerly side of the roadway.

*Applicant Response: The sight distance graphic for this intersection (SD-1) is included in the Appendix to this letter and in the updated TIA.*

TEC Response: TEC acknowledges the sight line graphic SD-1 provided; however, the Applicant has not addressed sight line related items towards the west or the tracks in the above comment. TEC acknowledges that these sight lines may be moot based on the Mass Works project; however, there is no guarantee that the project will be completed even if funded.

*Applicant Response: See updated Figures SD-1A and SD-1B in the Appendix to this letter depicting sight distances east and west of the driveway assuming Pearson Street remains continuous to Essex Street.*

TEC Response: TEC acknowledges the revised sight line graphic depicting the 165-foot sight line looking west and has no further comment whereas the minimum sight distance in this direction in on the order of 155-feet by AASHTO standards that will be further assisted by the uphill nature of movements for this direction and the slower turning speeds to this section of Pearson Street. To the east, the sightline shows 150 feet on the downhill section of Pearson Street which is less than AASHTO minimum recommendations for safe operations. TEC notes that the sight line in this direction will be limited by the angled parking proposed as part of the development and the relocated utility pole along the exact sightline. Further, the 14.5-foot back form the edge of travel way shown on the graphic should be transposed closer to the new curb line in the absence of a marked shoulder; however, this is only slightly impactful to the overall position of the sightline.

TEC would recommend the following modification(s) that could be considered:

- a) Assuming this is the relocated position of the utility pole defined in the site plans (relocated needed as existing pole is behind the proposed angled parking spaces), change the relocated position of the utility pole out of the sight triangle. Typically, a single utility pole is not an 'obstruction' for sightline; however, the pole is directly on the sightline itself located back on a presumed back corner of a parked vehicle.
- b) Consider signing the first parking space adjacent to the driveway as a compact space typically resulting in a shorter vehicle length allowing the sightline to push more towards the site and extend past 155-feet.
- c) Consider the removal of the first parking space adjacent to the driveway, under the agreement of the Board, length allowing the sightline to push more towards the site and extend past 155-feet.

TEC assumes the numerical notation of the measurements are accurate; however, the call-out is pointing to the sightline itself as opposed to the vehicle path distance along Pearson Street. There is no need to revise the graphics as part of the TIA; however, this should be corrected if sight triangles are provided or further requested in the site plan set. Other than the recommendations above, no further response required.

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**Comment 16:** Narratives on the traffic operational analysis results for all study locations have been provided in the TIA as well as summary tables for 2023 Existing, 2030 No-Build, and 2030 Build conditions. Overall, the signalized results show levels of service (LOS) C or better for the subject signalized intersections; however, there are individual movements (Railroad Street eastbound) at the intersection of North Main Street / Railroad Street / Private Driveway / Retail Plaza that are shown to operate at LOS E for 2030 No-Build and Build conditions. The Applicant should coordinate with the Town on opportunities at 75% occupancy to reevaluate the operations at this location in the field to adjust traffic signal timings as necessary.

*Applicant Response:* The locations noted are expected to be improved through the MassWorks project which is expected to begin construction in fall 2024 or spring 2025 and should be complete prior to 2030; therefore, there is no need for additional evaluation.

**TEC Response:** Note that the location in question is the intersection of North Main Street / Railroad Street / Private Driveway / Retail Plaza which is not part of the Mass Works project. Comment not addressed.

*Applicant Response:* As noted in the initial comment, the Project does not change the LOS of this individual movement since the Project is not expected to add traffic to this movement. Accordingly, there is no need for additional evaluation.

**TEC Response:** TEC recommends that the Town consider a condition of approval that requires the Applicant to reevaluate the operations at this location in the field to optimize traffic signal timings as necessary in consultation with the Town.

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**Comment 17:** Most of the individual movements at unsignalized intersections are at LOS D or better; however, some of the approaches at the Essex Street / Pearson Street / Railroad Street / Dundee Park Drive intersection are shown to operate at LOS D, E, or F, depending on the condition analyzed. A LOS of “D” or better is generally defined as “acceptable” operating conditions. Additional off-site mitigation should be explored and considered to improve the LOS E and F conditions noted. At a minimum, the Applicant should evaluate opportunities to modify the traffic control at this location. These enhancements may be an expansion of Mass Works improvements proposed at the location.

A Traffic Signal Warrant Analysis (TSWA) was conducted for the Essex Street / Pearson Street / Railroad Street / Dundee Park Drive intersection. A design speed of 25 MPH was used, and traffic volumes were adjusted downward to average month conditions for 2023 Existing and 2030 Build. The TIA indicates that a traffic signal is not warranted under 2023 Existing or 2030 Build conditions. TEC generally concurs with the analysis parameters and results. The

**Applicant should provide supporting documentation showing the traffic volume adjustments in the Appendix.**

*Applicant Response:* As noted above, the Essex Street/Railroad Street/Dundee Park Drive intersection is expected to be improved through the MassWorks project which includes cutting off Pearson Street prior to this intersection. The traffic signal warrant analysis of the reconfigured intersection that was provided in the TIA indicated a signal was not warranted. Therefore, options to improve operations at this location are limited to changes in unsignalized control. Currently the intersection operates with Essex Street under free flow conditions. Implementing all-way stop control will deteriorate operations on Essex Street and may not improve operations for Railroad Street or Pearson Street. Due to the location of this intersection a roundabout is not feasible. Supporting documentation for the traffic volume adjustments is in the Appendix to the updated TIA.

TEC Response: TEC understands that the Mass Works project is funded and still in the design stage; however, until design is complete, and the construction is commenced, there is no guarantee that the project will be completed. With the understanding that any commitments to mitigation may be moot upon this, the Applicant should work with the Town to evaluate opportunities to modify the traffic control at this location. These enhancements may be an expansion of Mass Works improvements proposed at the location.

*Applicant Response:* See response to Comment 8. The Project should not be required to provide mitigation where impacts are negligible.

TEC Response: See TEC's response to Comment #8 and Comment #16.

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**Comment 20:** In a field review conducted with the Town on January 18, 2024, TEC noted that the railroad gates at the Essex Street / Pearson Street track crossing are in the down position when a commuter rail train is present at the MBTA station located further to the north on Railroad Street. Queueing and delays occur, not only on Essex Street and Pearson Street, but also on Railroad Street, Dundee Park Drive, and School Street, as a result. A separate sensitivity analysis should be provided for this location based on the gate closure timeframe and frequency during the peak hour periods for this location.

*Applicant Response:* The Project does not change the gate closure time at the railroad crossing. A sensitivity analysis that reviews the frequency of the closure, which will not change with or without the Project, is not relevant to the discussion of the Project impacts.

TEC Response: TEC disagrees with the Applicant's response. The several gate closures during the peak periods as analyzed will affect the operations at this location and are not accounted for in the TIA's operational analysis. TEC acknowledged that the Project does not change the gate closure time at the railroad crossing; however, the operational analysis evaluated in the TIA is currently not showing the correct operations if the railroad closures

are not part of the evaluation. This is even more crucial as an inbound train keeps the gates down even with the train stopped at the station.

*Applicant Response: VAI disagrees with TEC. This Project will not affect the railroad closures, nor will this Project propose or incorporate any modifications to change gate closure duration or frequency. The same relative effects of the Project will occur whether the intersection is treated as an isolated unsignalized intersection, or one influenced by a railroad crossing. The effects on Pearson Street due to the Project are 0.2 seconds delay during the morning peak hour and 0.2 seconds delay during the evening peak hour. If these increase by 10 times due to the overall delay added by the railroad closures, the Project increase would be 2 seconds, which is still not significant.*

*It should also be noted that the effects of the railroad closure were not considered by the Town's consultant DCI in the traffic analysis for the Historic Mill District Circulation and Street Design Study. This analysis was instrumental (along with the support of the Minco project) in the Town being awarded the MassWorks grant for design and construction of the Essex Street Corridor Improvements.*

*In an attempt to resolve this issue, VAI observed the gate closures at Essex Street and identified the average closure time during the morning and evening peak hours for the purposes of modeling the effect of the gate closures on the intersection. It was noted that during the weekday morning peak hour, there were two gate closures inbound, no closures outbound, and during the weekday evening peak hour, there was one gate closure inbound and two gate closures outbound. One of the gate closures outbound was the Downeaster Amtrak train, with a gate closure of approximately 35 seconds, the shortest observed. The longest closures were for the morning inbound trains and varied between 3 minutes and 20 seconds (3:20) and 2:40. In general, the observations indicated that after the gates were reopened queues dissipated within 3 minutes. When the 2 outbound trains caused gate closures to occur within 5 minutes of each other, the queues required closer to 5 minutes to dissipate.*

*The initial analysis of this intersection was conducted using SIDRA due to the five legged approach. However, SIDRA was not able to model the gate closure; therefore, the gate closure effects were modeled using Synchro and SimTraffic. A description of the methodology used, and the results of the analysis are provided in the Appendix to this letter; however, a summary is that using two separate methods, the delay increase due to the Project was under 3.5 seconds regardless of the gate closure status. During the longest gate closure, the intersection would have operated at LOS D using Method 1 with or without the Project and at LOS E using Method 2 with or without the Project.*

*As has been stated previously, the Project has a minimal effect on operations at this intersection with the railroad gates opened or closed, and this has been verified with the latest analysis.*

TEC Response: Analysis acknowledged. No further response required.

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**Comment 21:** TEC suggests the following additional off-site mitigation that the Applicant should evaluate in conjunction with the Town of Andover:

- Several unsignalized intersections have crash rates higher than the MassDOT District 4 average (0.57 per MEV). The Applicant has not offered any mitigation to address to address short-term / low-cost safety issues at these locations. The Applicant should work with the Town to evaluate and implement, at a minimum, short-term / low-cost safety improvement countermeasures at these key locations.
- The Applicant should coordinate with the Town on opportunities at 75% occupancy to reevaluate the operations at this location in the field to adjust traffic signal timings as necessary.
- Additional off-site mitigation should be explored and considered to improve the LOS E and F conditions noted at the several intersection locations within the study area. At a minimum, the Applicant should evaluate opportunities to modify the traffic control at this location. These enhancements may be an expansion of Mass Works improvements proposed at the location.
- The Applicant should explore opportunities to extend sight lines as necessary from each key driveway location, including the intersection of Lewis Street / Buxton Court, based on the resulting sight triangle described in Comments #13 and #14.
- The analysis indicates that the Project will result in minimal impacts to traffic at the study intersection. Is the Applicant referring only to the site driveway or to all the intersections in the TIA? As noted in Comment #17 above, there are individual movements that will experience LOS “E” and “F”. The Applicant has not offered any mitigation to address these issues.

*Applicant Response:* Many of the comments made here have been responded to previously. The MassWorks project is expected to address operations and safety at the intersections noted. Based on discussions with Town Staff, the town and their MassWorks consultant are working on the design and construction was indicated by Town Staff to start as early as fall 2024 or spring 2025. It should be noted that the Project was instrumental to the Town receiving the MassWorks grant that provided funds for the proposed improvements in the area.

**TEC Response:** Comment not addressed. TEC understands that the Mass Works project is funded and still in the design stage; however, until design is complete, and the construction is commenced, there is no guarantee that the project will be completed. With the understanding that any commitments to mitigation may be moot upon this, the Applicant should work with the Town to evaluate opportunities for off-site mitigation as noted above.

*Applicant Response:* See responses to Comment 8 and Comment 16.

TEC Response: See TEC's response to Comment #8 and Comment #16.

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**Comment 22:** The Applicant should define Transportation Demand Management (TDM) to be utilized on the site. At a minimum, the Applicant should provide the following TDM considerations:

- Seek to provide MBTA and MVRTA maps and schedules to all tenants as part of welcome packets and to locate such documents in all lobbies and entryways.
- Provide electric vehicle and EV-ready parking spaces within the site.
- Consider providing transit subsidies to tenants to encourage use of the neighboring public transportation uses.
- Provide weather-protected and secure bicycle parking on-site.
- Provide on-site laundry services if not internal to each residential unit.
- Provide parking for ride-hailing services on-site.

*Applicant Response:* The Applicant expects to provide TDM measures for the Project. These are expected to include the following:

1. A "Welcome Packet" will be provided to all residents and employees detailing available transportation services and facilities.
2. EV parking spaces will be provided at locations approved by the Andover Fire Department.
3. Public transportation schedules will be posted in a centralized location for residents and employees.
4. A pick-up/drop-off area for rideshare services is provided near the lobby area.

TEC Response: TEC will note that the Applicant should provide reconsideration to provide weather-protected and secure bicycle parking on-site, provide on-site laundry services if not internal to each residential unit, and providing transit subsidies to tenants to encourage use of the neighboring public transportation uses.

*Applicant Response:* The Applicant is an experienced multi-family residential developer. Secure bicycle storage is provided in the parking garage and each residential unit has its own washer and dryer.

TEC Response: Response acknowledged. No further response required.

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**Comment 23:** Note that the Mass Works Infrastructure Project is in a conceptual stage and has been programmed in direct support of the subject redevelopment project. Whereas the funding and construction of the project is not guaranteed at this time, The Applicant should discuss

**with the Town and commit to other off-site mitigation within the limits of the Mass Works project should the infrastructure not be completed.**

*Applicant Response:* Based on comments from Town Staff, the town has received the MassWorks grant and their consultant has begun working on the preferred design with the start of construction identified as fall 2024 or spring 2025. The MassWorks project includes improvements to many of the intersections in the study area including the closure of Pearson Street.

**TEC Response:** Comment not addressed. TEC understands that the Mass Works project is funded and still in the design stage; however, until design is complete, and the construction is commenced, there is no guarantee that the project will be completed. With the understanding that any commitments to mitigation may be moot upon this, the Applicant should work with the Town to evaluate opportunities for off-site mitigation as noted above.

*Applicant Response:* See responses to Comment 8 and Comment 16.

**TEC Response:** See TEC's response to Comment #8 and Comment #16.

### **Initial Site Plan Comments**

**Comment 27:** **The garage parking layout sheet of the plans should be enhanced with the location of columns and other internal obstructions which may impact parking space locations and the ability for vehicles to access/egress individual parking spaces.**

*Applicant Response:* The structural drawing showing the location of the columns and other internal obstruction will be provided once completed.

**TEC Response:** The Town should consider as a condition of approval that review of the garage parking plan be completed to access the location of columns and other internal obstructions which may impact parking space locations and the ability for vehicles to access/egress individual parking spaces.

*Applicant Response:* A building permit application including plans prepared by a Registered Architect will be submitted to the building inspector for review.

**TEC Response:** Applicant's response appears to be in support of this condition of approval whereas the Building Inspector will review necessary plans prepared by a Registered Architect. TEC has not further response other than the notation for a condition of approval as originally noted.

\* \* \*

**Comment 28:** **The garage layout sheet of the plan should be enhanced to show the location of internal access points such as elevators and stairwells to determine proximity to/from accessible parking spaces and preferential parking spaces.**

*Applicant Response:* The Site Plan has been updated to depict the elevator and stairs on the garage level. All aisles are 24 feet width.

**TEC Response:** The garage layout, shown in Sheet C4.0, depicts only one (1) elevator and one (1) stair location within the garage. Please note whether this in the

intent. It may be appropriate to provide additional access points considering the layout of the building above and the ease of access across the garage and across above-ground floors.

*Applicant Response: The Site Plan has been updated to depict the location of the second elevator and stairs in the building lobby.*

TEC Response: Comment closed. No further response required.

\* \* \*

**Comment 29:** **The overall parking layout internal and external to the building should define the locations of preferential parking spaces and other parking amenities, such as electric vehicle charging stations and spaces that will be designated as EV-ready.**

*Applicant Response: Sheet C-4.0 of the Site Plan depicts the compact cars spaces and handicap spaces. The individual garages on the building frontage have EV chargers, the plan has been updated to depict that.*

TEC Response: Acknowledged. It appears the four (4) designated accessible parking spaces within the garage are set far from both the internal elevator and stairwell requiring a person with accessible needs to travel far across and through other parking stalls to get to these locations. This should be corrected.

*Applicant Response: The garage parking layout has been updated to depict handicap spaces next to the garage elevator and by the elevator at the lobby entrance, both of which provide accessible access to the residential floors above.*

TEC Response: Comment closed. No further response required.

\* \* \*

**Comment 43:** **There are discrepancies between the TIA and Plan Sheet C4.2 for the sight distance measurements shown at the Pearson Street access driveway.**

*Applicant Response: The TIA reflected existing conditions sight distances while Sheet C4.2 reflected proposed conditions. However, due to changes noted previously, Plan Sheet C4.2 was updated.*

TEC Response: Note that the same discrepancy exists where the TIA responses to comment Figure SD-1 denotes 150-feet and the plan sheet C4.2 denotes 140-feet.

*Applicant Response: The Site Plan has been updated to depict the 150 feet sight distance.*

TEC Response: See response to Comment #13.

\* \* \*

**Comment 47:** **Although snow storage areas are shown on the plan, the Applicant should provide a snow removal and parking management plan for Town staff review.**

*Applicant Response:* We suggest that as a condition of approval to be attained prior to the issuance of a Building Occupancy Permit.

**TEC Response:** TEC agrees that a snow removal and parking management plan should be, at a minimum, provided as a condition of approval to be attained prior to the issuance of a Building Occupancy Permit.

*Applicant Response:* No further response required.

*TEC Response:* Acknowledge. See condition of approval request noted in comment.

### **NEW Comments**

**Comment 48:** As the Applicant is relying heavily on the various trip credits for mode split, public transportation use, and internal capture, the Applicant should commit to a traffic monitoring program to ensure that the Project impacts are consistent with those predicted in the Project's permitting process, evaluate the effectiveness of the TDM measures in meeting the mode share targets, and assess the need for additional off-site improvements or TDM measures. As part of the monitoring program, the Applicant will complete the following tasks following 70% occupancy of the residential building and following full occupancy of the proposed mixed-use tenants:

- **Collect manual Turning Movement Counts (TMCs) during the weekday morning (7:00 AM to 9:00 AM) and weekday evening (4:00 to 6:00 PM) at the following intersections:**
  - Route 28 / Lewis Street
  - Route 28 / Person Street
  - Route 28 / Elm Street [Elm Square]
  - Railroad Street / Essex Street / Dundee Park
- **Collect ATR data for a continuous 7-day week-long period along each Buxton Court and Pearson Street positioned at locations to capture site related trips only.**
- **Collect parking demand counts during the peak parking demand periods for the specific land use areas, including:**
  - Residential - 5:00 AM to 9:00 AM;
  - Other Site Uses - 10:00 AM to 1:00 PM; and
- **Collect motor vehicle crash reports from the Town of Andover Police Department for the most recent one-year period to ascertain changes in crash frequency, crash trends, and severity at the monitored locations.**
- **Compare the TMCs collected above with those projected within the TIA for the Project to determine whether the total**

vehicles entering each intersection exceeds the volumes projected.

- **Perform a capacity and queuing analysis using Synchro analysis software to evaluate the traffic operations at each of the intersections listed above and compare to the operations projected in the TIA prepared for the Project.**
- **Assess whether additional mitigation is necessary at any of the study intersections and identify measures to improve operations and/or reduce vehicular traffic volumes. The need or evaluation for further mitigation will be conditioned upon:**
  - **The measured site generated traffic volumes for the Project exceed the projected site generated traffic volumes established in this TIA, or subsequent revisions as presented to the Town of Andover, by more than 10 percent (i.e., 110 percent of the projected site generated traffic volumes.**
  - **One or more of the movements at the monitored intersections is identified to be operating at or over capacity (defined as a V/C ratio equal to or exceeds 1.00).**
  - **There is a pronounced increase in the frequency of occurrence of motor vehicle crashes at a monitored location and the calculated motor vehicle crash rate exceeds the MassDOT average crash rate for similar locations.**

**Corrective actions to reduce the unmitigated impact of the Project should be proposed and implemented based on the thresholds listed above. The corrective actions should be documented in the TMP, approved and coordinated with the Town if desired; and be undertaken by the Applicant subject to receipt of all necessary rights, permits, and approvals.**

- **Assess whether the constructed parking supply is adequate for the parking demand as observed; and**
- **Prepare a memorandum summarizing the results of the TMCs, ATRs, parking demand counts, traffic impact analysis for submission to the Town of Andover.**

*Applicant Response: As shown in the alternative analysis summarized in this letter, the Project does not require the application of the various trip-generation adjustments to result in minimal impact to the intersections closest to the Project. This conservative analysis was conducted to demonstrate that the Project impact at these locations can be accommodated with minimal increases in delays. This does not change the expectation that the traffic impact of the*

*Project is expected to be even smaller given the proximity to the commuter rail, as discussed in previous submittals.*

*Accordingly, the Applicant has considered the above request for traffic monitoring of the Project but is concerned that there is a potential for additional background development and/or roadway modifications to affect operations at the study area intersections, unrelated to the Project. The only real measure of the Project-related impact on the area would be how the actual vehicle trip generation compares with the estimated values. The Applicant will therefore conduct ATR counts of Buxton Court and the site driveway to Pearson Street to capture Project-related traffic volumes for a seven-day period as well as parking utilization counts of the garage, surface parking, and community building parking on Pearson Street for one weekday and one weekend day during typical overnight (10:00 PM and 4:00 AM) for residential demands and weekday evening (4:00 and 7:00 PM) and Saturday midday (11:00 AM and 3:00 PM). While there will still be non-Project related traffic in this count program, the majority of trips should be related to the Project. This information will be summarized in a memo to the Town planning and engineering staff. As noted previously, since the Project is not relying on trip adjustments and reduction in trip generation to demonstrate a low overall traffic impact, the trip generation and parking information will be provided for informational purposes only.*

*TEC Response:*

TEC is amendable to the reduced scope of traffic monitoring as laid out in the Applicant's response; however, in addition to the tasks as outlined in the response, TEC would recommend as condition of approval that the other noted Traffic Monitoring Program tasks outlined in the original TEC comment be completed if the measured site generated traffic volumes for the Project exceed the projected site generated traffic volumes established in this TIA, or subsequent revisions as presented to the Town of Andover, by more than 10 percent (i.e., 110 percent of the projected site generated traffic volumes. Note that trip generation from the angled parking spaces will need to be collect from the parking related counts as these trips will not access/egress the driveway locations.

Please do not hesitate to contact me or John Gregg if you have any questions concerning this peer review at 978-794-1792. Thank you for your consideration.

Sincerely,  
TEC, Inc.  
"The **Engineering Corporation**"



Samuel W. Gregorio, PE, PTOE, RSP1  
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