



## GREEN INTERNATIONAL AFFILIATES, INC.

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**To:** Jennifer Caira and Neil Cronin, Planning and Development Department, City of Newton  
**From:** Green International Affiliates, Inc. (Green)  
**Date:** February 25, 2020  
**Project Name:** Riverside Station  
**Project Number:** Green No. 18078  
**Subject:** Transportation Peer Review Executive Summary

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The purpose of this memorandum is to provide background and a brief overview of the proposed Riverside Station development site, as described by Mark development and their traffic engineer, VHB as it relates to transportation. Specific traffic related comments are outlined in a peer review document that has been submitted to the City. This document will provide a broader overview of the project and highlight our major findings as they relate to the project site location, development type, parking, the efficacy of the proposed mitigation, and areas for improvement.

### Site Location – Transit Oriented Development Goals

The proposed project site location is surrounded by multiple key transportation nodes. The site itself is bound by the Charles River, with close proximity to I-90 to the north, I-95 to the west, Grove Street to the south, and the MBTA Greenline tracks to the east. Access is provided directly from the site to all of these nodes. The close proximity of the MBTA will also encourage people to utilize transit rather than personal vehicles. The entire site is within a ¼ mile of the MBTA Greenline station which is a key criteria for a transit oriented development. The ¼ mile standard means that every building is within walking distance of public transit. The project has estimated transit trips of 15% for Office use and 35% for Residential use and provided analysis of Greenline capacity based on these assumptions. However, the traffic analysis on the surrounding roadway assumed a more conservative mode split of 5% transit for Office use and 25% for Residential use. This provides a conservative understanding of roadway impacts while still providing a more accurate understanding of the impacts to transit. It is our opinion that the proximity of the site to the highway and mass transit will reduce the impact of traffic to local roadways and is an ideal site for larger-scale development.

### Development Mix

The proposed project plans on reducing the number of external trips by providing a mix of uses within the site. This will allow some trips between office, residential, and retail uses to occur without impacting the surrounding neighborhood. These trips will take place primarily on foot. The proposed site plan provides ample accommodations for pedestrian travel within the site, with wide sidewalks on both sides of Main Street, and on-street parking on both sides of the roadway which will help slow the speed of traffic. The multi-use nature of the site is preferred for developments of this size as it encourages non-vehicular means of travel between the uses.

### Parking

The proposed shared parking plan for the site allows different uses to utilize the same parking spaces during different times of the day. This reduces the need for additional parking spaces and limits the number of vehicles that can be present on the site at a single time. As residential vehicles leave the parking lot during the day, those spaces are freed up for office users. The MBTA has requested 1000 parking spaces for access to the T, and those spaces will be separate from the spaces needed for the uses on-site. The current shared parking plan contains all parking within a single location, which will limit the need for users to circulate through the

site for available parking. That allows the developer to increase their utilization goals without creating an inconvenience for drivers looking for available spaces. The total proposed parking has been reduced from the original proposed plan and is now more in line with the transit-oriented development goals of the site. The developer has also demonstrated that MBTA lot is capable of accommodating the additional traffic associated with Red Sox games and other similar special events. In the event that the MBTA lot is filled to capacity, during the evening there will be a substantial number of additional available spaces within the rest of the garage to accommodate overflow. As a result, the parking supply should be sufficient to meet the needs of the site as well as the needs of the MBTA.

### Mitigation

Improved bicycle accommodations to the site are proposed along Grove Street and recreation road. Grove Street will have a 2-way shared use path on the west side that extends from the proposed roundabout at the I-95 off-ramps in the south to the Site Entrance. This shared use path will also extend east along recreation road, providing a cohesive path to nearby trails along the Charles River. In addition, a one-way separated bike path will be included on the east side of Grove Street so that bicycles traveling east along Grove Street that are not accessing the site will be able to maintain their course without crossing Grove Street. These accommodations will greatly improve the existing bicycle environment along Grove Street, which are currently limited to sharing lanes with vehicles.

A new ramp is proposed that will bring traffic directly to and from both I-95 and I-90 without utilizing local roadways, reducing the impact of vehicle traffic on the surrounding areas. A roundabout will also be constructed at the intersection of the I-95 SB ramp and Grove Street. These two improvements will improve the connection between the site and the major highways I-95 and I-90. This will reduce the amount of traffic expected to use local roadways and travel through the neighborhood. It will also improve connections to the highway for existing local traffic. While this mitigation is substantial it is limited to improving access to the highway and does not address local traffic coming to the site.

The Transportation Demand Management plan put forth by the developer includes adaptive signal technology and transit priority, which will provide efficiency within the signalized intersections and allow faster travel for MBTA buses. A key aspect of the Transportation Demand Management Plan will be the traffic monitoring by different modes that requires the developer to meet the projected traffic volumes or increase the number of services provided to shift users to alternative forms of transportation. This monitoring will be key in ensuring that the goals of the project are being met with respect to traffic and that any additional impacts to the neighborhood will be mitigated.

### Areas for Improvement

While it is our understanding that the proposed site and mitigation has been developed in order to minimize the impacts of traffic to the surrounding neighborhood, we do have some areas of concern that we would like to highlight as the developer and the City finalize the site plan and mitigation. Under the existing proposal there are impacts to traffic along Grove Street north of the proposed site. This is due primarily to local traffic from Newton visiting the Riverside site. The existing intersections will experience some increases in delay and LOS under proposed conditions. There are also existing safety concerns regarding site distance that will be exacerbated by the increase in traffic. It is recommended that the developer consider additional mitigative actions for this section of Grove Street. In addition to the Grove Street impacts, there are intersections that have been identified as having high crash rates, which will contain a significant number of trips from the proposed development. The intersections are Washington Street (Route 16) at Beacon Street/I-95 Ramps, Grove Street at I-95 NB Ramps, and I-95 NB at Exit 22/ Exits 23-24-25. The developer has evaluated these

locations through a Road Safety Audit which has determined a number of short-term improvements that could be implemented at relatively low cost. The developer should consider addressing some of these short-term improvements to reduce the impact on safety from the additional trips.

In addition to off-site impacts, there are still some concerns that relate to the site plan. The site plan is currently still under development and it is anticipated that these issues will be resolved going forward. The first concern is that the MBTA bus route and stop locations has yet to be finalized. The final locations and amenities for bus stops are not shown on the site at this time. Without knowing the final layout we can not make a determination at this time that it is sufficient to accommodate that use. However, the developer has committed to using transit priority at the traffic signals in order to reduce delay to buses and it is our understanding that the developer and the MBTA are meeting at a regular basis to refine the site layout and transit needs. Finally, the directional signage package has not yet been finalized for wayfinding purposes. These will be important as they should direct vehicles away from areas with heavy pedestrian use such as the transit plaza from within the parking garage.

#### Conclusion

After reviewing the materials submitted by the developer and traffic engineer, we have determined that the traffic impacts were evaluated according to industry standards and that the developer is responsive to addressing concerns and mitigating impacts to traffic as they arise. While there are some outstanding items, they are issues are expected to be resolved as the development continues through the permitting and final design process.



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**To:** Jennifer Caira and Neil Cronin, Planning and Development Department, City of Newton  
**From:** Green International Affiliates, Inc. (Green)  
**Date:** February 21, 2020  
**Project Name:** Riverside Station  
**Project Number:** Green No. 18078  
**Subject:** Transportation Peer Review

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On behalf of the City of Newton (the City), Green International Affiliates, Inc. (Green) is submitting this memorandum of the findings from our engineering peer review of the application package for the proposed "The Station at Riverside Redevelopment" adjacent to Riverside Station, in Newton, MA. The scope of our review included a review of the following documents submitted in support of the proposed project, as it related to traffic and transportation impacts:

- Report titled "Transportation Impact and Access Study - The Station at Riverside Development", prepared by VHB, dated March 2019.
- Report titled "Transportation Impact and Access Study - The Station at Riverside Development", prepared by VHB, dated December 2019.
- Plans and documents included in "Request for Zone Change/Special permit Supporting Documents", submitted by Mark Development, dated March, 2019.
- Plans and documents included in "Zoning Change/Special Permit/Site Plan Approval", submitted by Mark Development, dated December 2019.
- Report titled "Riverside Project – Draft TDM Plan", prepared by 128 Business Council, dated September 03, 2019.
- Memorandum titled "Riverside Redevelopment Program Modification Traffic Generation", prepared by VHB, dated September 03, 2019.
- Report titled "Riverside Masterplan Parking Program", prepared for Mark Development, dated September 06, 2019.
- Report titled "Riverside Masterplan Parking Program", prepared for Mark Development, dated December 12, 2019.
- Plans titled "Revised Architectural Floor Plans", prepared by VHB, dated September 06, 2019.
- Plans titled "Site Plans – Riverside Mixed-Use Development", prepared by VHB, dated September 06, 2019 (revised).
- Plans titled "Riverside Civil Plans" and "Riverside Architectural Plans", prepared by VHB, dated December, 2019.
- Report titled "Riverside Station Redevelopment Design Guidelines and Architectural Controls", prepared by Speck & Associates, dated September 06, 2019.
- Report Titled "Road Safety Audit", prepared by VHB, dated August, 2019.
- Memorandum titled "Response to Transportation Peer Review Comments", prepared by VHB, dated February 06, 2020.

In addition to the above documents, Green visited the project site and the surrounding roadways on to gain a better understanding of the existing conditions and the context of the proposed project. We also met with the City and other peer review consultants to discuss the project. Our review evaluated the documents for consistency with MassDOT's "Transportation Impact Assessment (TIA) Guidelines" (March 13, 2014), typical industry practice for traffic studies, the City of Newton's Zoning Bylaw and General Bylaw, the Riverside Vision Plan, the City of Newton's Complete Streets Policy, the City of Newton Street Design Guide, the City of Newton

Comprehensive Plan, Newton 2040: A Transportation Strategy for Newton, the City of Newton Climate Action Plan, the Americans with Disabilities Act (ADA), and Massachusetts Architectural Access Board (AAB) design standards.

**Outstanding Comments:**

The following comments are regarded as outstanding as they have not been formally resolved at this time. It is anticipated that they will be resolved through the development of the site plan and through negotiations with the City of Newton.

1. Signal warrant analysis was conducted at the Grove St / Woodland Rd intersection. It is noted that the 4-hours of traffic count data collected at this intersection exceed the volume thresholds defined in Warrant 1 – Eight Hour Vehicular Volume when using the projected traffic volumes for the 2029 Build Conditions. In addition, the Grove St NB approach is still expected to operate at LOS F under the Build Conditions during the AM and PM peak hours (worsening from LOS E under No-Build Conditions during both peak hours.) Mitigation measures should be evaluated to mitigate impacts to traffic operations resulting from the proposed project.

*Response: The proponent will work with the City of Newton to determine if there are any additional mitigation measures that can be implemented at this location, such as new pavement markings or updated signage. It should be noted that the intersection does not meet a signal and already has an overhead all-way stop flashing beacon and two stop signs on each approach, one on each side of the roadway. In addition, the sidewalks are in good shape with ADA – accessible ramps on each sidewalk.*

**Follow-Up Comment: This should be resolved during the mitigation discussion with the City of Newton.**

2. The TDM includes directional signage for locating transportation services (transit stop/shuttle stop) and amenities (bicycle parking, regional bicycle routes, and pedestrian walkways). The site plan only shows proposed regulatory and warning signage. All proposed wayfinding and directional signage (including locations and sign details) should be shown on the Layout and Materials Plan included in the Civil Plans for the Project.

*Response: The proposed directional/wayfinding signage program is included in the design guidelines document. The ultimate/final directional signage package will be part of a comprehensive signage package that is subject to review and approval by the MBTA.*

**Follow-Up Comment: The proponent should submit this to the City of Newton for review when the documents are available.**

3. The revised TIAS discusses the August 2019 RSA and provides a link to the report; however, the TIAS does not include any discussion of the short, medium, and long-term recommendations for the proposed improvements. The Applicant should clarify which, if any, of these recommendations they will commit to implementing.

*Response: As part of this project, the Proponent will implement substantial infrastructure improvements around the site and at the Grove Street interchange with Route 128/I-95. The infrastructure*

*improvements will offset existing safety and operational issues and provide much improved access to the Riverside Station MBTA facility. In addition, the Proponent will be constructing a parking garage to accommodate the existing MBTA parking and traffic associated with the project. The infrastructure mitigation package is substantial and unprecedented for a project like this. Traffic/transportation mitigation is expected to be discussed with the City Council at the February 25<sup>th</sup> Land Use Hearing.*

**Follow-Up Comment: This should be resolved during the mitigation discussion with the City of Newton.**

4. The only turning movement provided within the site is for a City Transit Bus turning left from Main St into the Building 9 garage and then onto Road C from the Building 9 garage. Revised TIAS states “Due to the smaller sizes of the retail uses, most deliveries likely will be made by smaller, single-unit trucks.” It also states that “Smaller single-unit trucks can easily be accommodated and would typically be on Site for a short period of time.” Figures showing the turning movements of single-unit trucks (SU-40) within the site for truck deliveries and MBTA buses should be provided for all locations that allow heavy vehicle access. In addition, figures showing the turning movements for larger vehicles (WB-67) accessing and egressing the loading docks for Building 1 and emergency vehicle access for a City of Newton ladder fire truck should be provided.

*Response: The Project has been designed to accommodate the truck turning movements of the SU-40 delivery truck. Figures showing these truck turns are included in the Attachments to this response comments document. The loading at Building 2 was designed for larger vehicles including WB-40 and WB-50, but not a truck as large as the WB-67. Figures showing the turning movements of the WB-40 to the Building 1 loading and the City of Newton ladder fire truck can be found in the Attachments as well.*

**Follow-Up Comment: The final site plan should provide truck turning movement diagrams that do not show overlap between truck routes and adjacent curb.**

5. The pick-up/drop-off area outside Riverside station have been rearranged to allow for a larger designated area for shuttle and rideshare activities adjacent to Building 7/Riverside Station entrance. However, the only designation for the spaces for buses and shuttle service is signage and a solid white edge line. Bus shelters, dedicated bus lanes, and clearly delineated spaces should be considered. Bus stop amenities such as shelters, benches, and waiting areas should be clearly outlined on the plans and a queue plan should be provided to show that the available space is sufficient to accommodate the various user groups.

*Response: Because the Proponent is continuing to coordinate with the MBTA to determine the best bus and shuttle routes, locations for bus shelters and benches have yet to be shown on the plans. Once the final locations of the bus stops are selected by Buildings 7, 8 and 9, bus shelters and benches will be added to the Site Plans. In addition, a queue plan will be provided to show that the available space is sufficient to accommodate the various user groups once a final configuration has been confirmed with the MBTA.*

**Follow-Up Comment: The final site plan should provide bus amenities and be submitted to the City of Newton for formal review when it is available.**

6. The proponent should submit civil plans for the proposed ramps, and include truck turning diagrams and initial cost estimate.

*Response: The engineered design plans for the MassDOT/FHWA on/off ramps will not be prepared until after the Special Permit is approved for the project. These documents are subject to extensive technical review by these agencies. To date, the proponent has prepared a detailed conceptual plan which has been conceptually approved by MassDOT and FHWA to go forward to design.*

**Follow-Up Comment:** The engineered design plans should be submitted to the City of Newton for review upon completion.

7. No mitigation has been proposed for Grove Street (north of site), despite existing safety concerns, poor sight distance, impacts to traffic operations as a result of the project, and the close proximity to the site.

*Response: As part of this project, the Proponent will implement substantial infrastructure improvements around the site and at the Grove Street interchange with Route 128/I-95. The infrastructure improvements will offset existing safety and operational issues and provide much improved access to the Riverside Station MBTA facility. In addition, the Proponent will be constructing a parking garage to accommodate the existing MBTA parking and traffic associated with the project. The infrastructure mitigation package is substantial and unprecedented for a project like this. Traffic/transportation mitigation is expected to be discussed with the City Council at the February 25<sup>th</sup> Land Use Hearing.*

**Follow-Up Comment:** This should be resolved during the mitigation discussion with the City of Newton.

8. Beacon St and Commonwealth Ave both have existing bike lanes for the majority of the roadway segments within Newton. However, there will be a gap in the bicycle network traveling to the project site along Washington Street (Route 16) and Grove St prior to the beginning of the proposed shared-use path at Asheville Rd / Quinobequin Rd. Bicycle accommodation improvements should be considered along Washington St (Rt 16) between Commonwealth Ave and Grove St as well as along Grove St between Washington St and Asheville Rd / Quinobequin Rd to fill the gaps in the bicycle network and improve bicycle connectivity to/from the project site.

*Response: As part of this project, the Proponent will implement substantial infrastructure improvements around the site and at the Grove Street interchange with Route 128/I-95. The infrastructure improvements will offset existing safety and operational issues and provide much improved access to the Riverside Station MBTA facility. In addition, the Proponent will be constructing a parking garage to accommodate the existing MBTA parking and traffic associated with the project. The infrastructure mitigation package is substantial and unprecedented for a project like this. Traffic/transportation mitigation is expected to be discussed with the City Council at the February 25<sup>th</sup> Land Use Hearing.*

**Follow-Up Comment:** This should be resolved during the mitigation discussion with the City of Newton.

9. The Beacon St approach to its signalized intersection with Washington St still operates at LOS F under Existing, No- Build, and Build Conditions during the AM and PM peak hours. The revised TIAS acknowledges the poor operations at the intersection but states that the intersection is expected to operate with failing LOS with and without the Project, and the Project is not expected to noticeably worsen operations beyond the current failing conditions. Agree, impacts are negligible, and the Project

is not expected to generate significant amounts of traffic to the intersection during the peak analysis periods. Increases in delay and queue lengths resulting from the Project are negligible from the 2029 No- Build to 2029 Build Conditions.

*Response: As part of this project, the Proponent will implement substantial infrastructure improvements around the site and at the Grove Street interchange with Route 128/I-95. The infrastructure improvements will offset existing safety and operational issues and provide much improved access to the Riverside Station MBTA facility. In addition, the Proponent will be constructing a parking garage to accommodate the existing MBTA parking and traffic associated with the project. The infrastructure mitigation package is substantial and unprecedented for a project like this. Traffic/transportation mitigation is expected to be discussed with the City Council at the February 25<sup>th</sup> Land Use Hearing.*

**Follow-Up Comment: This should be resolved during the mitigation discussion with the City of Newton.**

10. Signal warrant analysis was completed at the intersection of Washington St at I-95 NB Ramps. In addition, this intersection was included in the August 2019 Road Safety Audit (RSA). However, the TIAS does not indicate any proposed mitigation at this intersection. The intersection is currently unsignalized and operates over capacity with long vehicle delays and queues during both the weekday AM and PM peak hours. Using the 4 hours of available traffic count data, the intersection met the volume thresholds defined by the MUTCD for Warrants 1-3 for all 4 hours. The Applicant should clarify which, if any, of the recommendations at this intersection stated in the August 2019 RSA they will commit to implementing.

*Response: As part of this project, the Proponent will implement substantial infrastructure improvements around the site and at the Grove Street interchange with Route 128/I-95. The infrastructure improvements will offset existing safety and operational issues and provide much improved access to the Riverside Station MBTA facility. In addition, the Proponent will be constructing a parking garage to accommodate the existing MBTA parking and traffic associated with the project. The infrastructure mitigation package is substantial and unprecedented for a project like this. Traffic/transportation mitigation is expected to be discussed with the City Council at the February 25<sup>th</sup> Land Use Hearing.*

**Follow-Up Comment: This should be resolved during the mitigation discussion with the City of Newton.**

11. The proponent should provide VISSIM files for review.

*Response: The proponent will provide both as they become available.*

**Follow-Up Comment: These will be reviewed once they are submitted.**

### **Resolved Comments:**

The following comments have been resolved through the submission of new materials, comment responses, and discussions during meetings with the City of Newton Staff. For record keeping purposes, here are the resolved comments. They have been arranged by subject for ease of understanding.



**Transportation Impact and Access Study:**

12. The Transportation Impact and Access study was generally prepared in a professional manner, consistent with industry standards for Transportation Impact Studies.

*Response: No response necessary.*

13. The study area includes 33 intersections in the City of Newton, as defined by the MassDOT scoping study and the 2015 FEIR. Green agrees with the parameters of the study area.

*Response: No response necessary.*

14. The most desirable option for transit-oriented development is to integrate transit service into the heart of the community or development. The quarter-mile walking standard should be incorporated wherever possible and reflected in the TDM plan.

*Response: No response necessary.*

15. The seasonal adjustment factors and event traffic appear reasonable and consistent with industry standards.

*Response: No response necessary.*

16. The traffic study lists intersections that are HSIP cluster locations and suggests that the proponent may fund Road Safety Audits for some of the intersections that are impacted, but only if these occur prior to the project receiving state review. The proponent should advance the Road Safety audits for the intersections prior to the project receiving local approval. While a Road Safety audit was conducted for some of the intersections, there are still outstanding locations such as:

- Washington Street at Perkins Street
- Washington Street at the Mass Pike WB Off-Ramp
- South Avenue at River Road/Route 128/I-95 SB Ramps
- South Avenue/Commonwealth Avenue at Route 128/I-95 NB Ramps

*Response: These locations are no longer on the MassDOT HSIP list and as a result no longer require Road Safety Audits.*

17. It is unclear how the signal timings used for the capacity analysis were determined. (i.e. Record Plans vs. field timing measurements vs. traffic signal controller values). The majority of the signal timings used for the capacity analysis were found to be inconsistent with the controller timings and latest record plans. The signal timing in the analysis should be updated to reflect field conditions.

*Response: Revised analysis has been provided with the correct signal timing.*

18. The Commonwealth Ave exclusive left-turn phases were observed to operate as lead phases during field reconnaissance; however, the Synchro Analysis analyzed these exclusive left-turn phases as lag phases. In addition, phasing sequence in controller showed concurrent pedestrian phasing. Synchro analysis

analyzed the intersection with an exclusive pedestrian phase. The analysis should be revised to reflect field conditions.

*Response: Revised analysis has been provided with the correct signal timing.*

19. Pedestrian volumes were entered into the Synchro analysis as the number of conflicting pedestrians per hour instead of number of pedestrian calls per hour. This depicts accurate operating conditions for unsignalized intersections and signalized intersections with concurrent pedestrian phasing; however, at intersections with exclusive pedestrian phases having zero (0) pedestrian calls per hour for the pedestrian phase analyzes the intersection as if the exclusive pedestrian phase is never activated. As a result, the analysis at these signalized intersection does not analyze the accurate traffic signal control operations. All intersections with exclusive pedestrian phases should have the appropriate number of pedestrian calls provided based on the pedestrian volumes.

*Response: Analysis has been provided with the appropriate pedestrian volumes.*

20. There is only a single peak hour for the entire large study area despite multiple regions with different behavior patterns and peak periods. At a minimum, cluster peak hours should be used.

*Response: A single peak hour was initially used to provide a consistent analysis throughout the study area. However, cluster peak hours have been identified by VHB to determine the impact they would have on the existing conditions traffic volume networks. The study area intersections were broken into six clusters based on different areas within the study area and the peak hours for each cluster have been identified as well as the difference between each cluster peak hour and the network peak hours. A summary table of the cluster peak hours is included in the Attachments to this response to comments document. During the most critical analysis periods during the weekday morning and weekend evening peak periods, each cluster peak hour is either the same as the network peak hour or within one-percent or within two-percent of the network peak hour based on the total approach volumes, respectively. While using the cluster peak hours would result in slightly higher existing volumes at some study area intersections, since the difference in volumes at all clusters is less than one-percent during the weekday morning and less than two-percent during the weekday evening, the effect in using an overall network peak hour instead of cluster peak hours is very minimal. It is expected that the conservative nature of the analyses more than compensates for the minimal effect of using a network peak hour instead of cluster peak hours.*

21. At study intersections where there are driveways to commercial properties and office buildings, the annual background growth rate was not applied to the traffic volumes entering/exiting the commercial properties or office buildings. There was no occupancy data provided for the office buildings that would suggest traffic volume increases would not be expected for the entering and exiting traffic. For retail commercial properties, if the annual background growth rate is applied to the main roadway providing access to these properties, the entering and exiting traffic volumes would be expected to increase as well due to the high rates for pass-by traffic. Occupancy data should be provided showing full occupancy of the commercial properties, or the volumes should be increased in accordance with the background growth rate.

*Response: Analysis has been provided with the appropriate background growth rate.*

22. No background growth rate was applied to traffic entering the Grove St north leg or traffic entering/exiting the Starbucks Driveway at their intersection with Washington St; however, the background growth rate was applied to the Washington Street "thru" traffic volumes. If traffic volumes along Washington Street are expected to increase, traffic volumes entering Grove Street and entering and exiting Starbucks to/from Washington St should be expected to increase at the same rate. The No-Build traffic volumes should be revised to reflect the future growth at these driveways.

*Response: Analysis has been provided with the appropriate background growth rate.*

23. It is noted that for future conditions analysis, MassDOT guidelines recommend using 0.92 for the PHF when traffic volumes are projected to a future design horizon year by growing the existing traffic volumes. This was applied to all locations in the traffic study. However, if the existing traffic volumes are not grown from the existing conditions to the future no-build and build conditions, the PHFs should be consistent between the existing and future conditions.

*Response: Analysis has been provided with the appropriate background growth rate.*

24. Four (4) specific development projects were identified as projects that are expected to add site generated vehicle trips to the study area roadway network. The TIAS states that ITE trip generation calcs were used as well as existing traffic patterns to add the site generated vehicle trips to the study area intersections. However, no ITE trip generation calcs were provided in the Appendix. ITE Trip Generation Calcs should be provided for these developments. It is preferred that site generated trips from these developments be taken directly from the traffic studies that were completed (if a traffic study was completed for the project).

*Response: Analysis has been provided with the appropriate site generated trips.*

25. Signal warrant analyses were not provided for any unsignalized study intersections nor for the proposed signalized intersections as part of the proposed mitigation. These should be provided for all locations where a signal is being proposed.

*Response: Signal warrant analysis has been provided for the appropriate locations.*

26. The overall Site Plan shows that the total square feet of retail/commercial space included in the development is 64,176 SF; however, the Program Modification Trip Generation Memorandum states that the currently proposed retail space is 71,070 SF (increased from the previously proposed 64,609 SF). If the total square feet of retail space shown in the revised Site Plan is accurate, the proposed retail space has decreased from what was previously proposed. The Applicant should confirm that the correct square footage for the proposed retail space is being used for the Trip Generation Calculations and that the square footage used in the Trip Generation Calculation is consistent with what is shown in the overall Site Plan.

*Response: The Trip Generation has since been revised for a modified development plan.*

27. No mode split for pedestrian and bicycle trips to/from the site was applied for any of the project land uses. It is noted that 2012-2016 US Census data showed that approximately 30% of all Newton residents also work in Newton and of those 30%, approximately 15% either walk or bike to work. This results in approximately 5% of all Newton residents walking or biking to work. These volumes should be reflected in updated pedestrian/bicycle volume figures and incorporated into the traffic analysis.

*Response: For informational purposes, VHB has estimated the number of pedestrian and bicycle trips that are expected to be generated by the Site based on the existing City of Newton mode share. The bicycle/pedestrian site-generated trips have been estimated using the same trip generation methodology in the TIAS, but assuming a 5% walk/bike mode share for the residential, office, and retail uses (it is still assumed that no one will walk or bike to/from the hotel). Based on that revised mode share, the Project is expected to generate approximately 40 new walk/bike trips (24 entering/16 exiting) during the weekday morning peak hour, 42 walk bike trips (17 entering/25 exiting) during the weekday evening peak hour, and 39 walk/bike trips (21 entering/18 exiting) during the Saturday midday peak hour. Calculations behind these values and a graphic showing the movements of pedestrians and bicyclists to and from the Site are included in the Attachments to this response to comments document. Based on these values, less than one new walk/bike trip per minute is expected to be generated by the Site and these Site-generated walk/bike trips will be accommodated by the proposed pedestrian and bicycle accommodations along Grove Street, along Recreation Road Extension, and at the entrances to the Site at the driveway along Grove Street and at the Transit Green on Grove Street. It should be noted that these Site-generated volumes are based on the revised building program of 243,387 sf office, 617 residential units, 43,241 sf retail, and a 150-room hotel.*

28. The number of exiting vehicle trips during the weekday morning peak hour generated by the retail land use is 71 exiting trips; not the 17 exiting trips shown in Table 4. Table 4 should be revised to reflect the accurate number of retail trips.

*Response: The Trip Generation has since been revised for a modified development plan.*

29. Regression equations were used to calculate the site generated vehicle trips for the residential land use even though all  $R^2$  values are below 0.75. The average rates for this land use provide a more conservative analysis. It is recommended that the proponent use average rates rather than the regression equation for the residential land use.

*Response: While the  $R^2$  values are below 0.75 for the residential land use, the regression equations were used to calculate the site generated vehicle trips because there are more than 20 data point provided for the mid-rise residential land use code in the ITE Trip Generation Manual. As illustrated in Figure 4.2 of the ITE Trip Generation Handbook, it is applicable to use the fitted curve equation when there are more than 20 data points for a land use, regardless of the  $R^2$  value.*

30. The number of site generated trips shown for each land use in the shared trips calculation sheet in the "Riverside Redevelopment Program Modification Traffic Generation" memorandum are incorrect. The number of generated trips shown for each land use in the shared trips calculation sheet should be revised to be consistent with the generated trips shown in the Trip Generation Calculations and in Table 4 of the memorandum.

*Response: The Trip Generation has since been revised for a modified development plan.*

31. The Future Build w/ Mitigation Site Generated Trip Figures do not show the trips and/or traffic volumes at the internal intersection of Main Street at Road A. (Road A provides access to Building 1 (445.7 kSF of Office) and Building 2 (194 Unit Hotel & 57 Unit Residential). Both Road A approaches are proposed to operate under STOP control while Main St is proposed to operate freely. The office space will generate a relatively large amount of traffic that will result in 383 entering vehicles during the AM peak hour (mostly left-turns from Main St) and 396 exiting vehicles during the PM peak hour. The hotel and apartment land uses will also generate moderate traffic volumes during the AM and PM peak hours. In addition, average and 95th percentile queues along Main St at its intersection with Grove St can be expected to spill back well into the Road A intersection, blocking vehicles from entering the Office Building Road A and also blocking the Road A approaches from exiting onto Main St. This will likely result in substantial queuing along Main St as well as both Road A approaches to Main St during the peak hours. Traffic Signal Warrants should be conducted at this intersection and potential coordination with the Grove St Extension / Main St signalized intersection should be considered.

*Response: The site plan has been revised and the trip generation and trip distribution have been revised so that this condition no longer exists as described above.*

32. 2012-2016 US Census data indicates that approximately 30% of all Newton residents work in Newton. In addition, approximately 25% of all people who work in Newton also live in Newton. It is also noted that very few Newton residents who also work in Newton use public transit as a means of transportation to travel to/from work. However, the Trip Distribution Maps for the Residential and Office/Retail Land Uses only assume approximately 5% and 2% of the total project-generated vehicle trips as being generated to/from local Newton roads. Beacon St and Commonwealth Ave (Route 30) are the two main roadways that the majority of Newton residents would likely use to travel to/from the project site. In addition, these roadways could also potentially be used by people traveling to the project site from Brookline, Allston, and Boston. However, only approximately 2% of residential traffic is expected to use Beacon St and only 3% is expected to use Commonwealth Ave. In addition, only 1% of office/retail traffic is expected to use Beacon St and 1% is expected to use Commonwealth Ave. These percentages do not accurately reflect the most recent US Census data and appear to underestimate the amount of traffic being added to Beacon St and Commonwealth Ave as a result of this project. The trip distribution should be revised to more accurately reflect the amount of traffic which will be utilizing local roadways to access the proposed development.

*Response: The trip distribution has been revised to accurately reflect local traffic.*

33. The Route 128 SB Off Ramp approach to the proposed roundabout at its intersection with Grove St and Asheville Rd operates at LOS F during the weekday AM peak hour under the 2029 Build w/ Mitigation Condition. This worsens from operating at LOS C under the 2029 No-Build Condition. Although traffic operations along this approach to the proposed roundabout do improve relative to the 2029 Build w/out Mitigation Condition, the impacts should be assessed relative to the 2029 No-Build Condition. The project generates a high volume of right-turns due to traffic traveling to the project site from the Route 128 SB Off-Ramp onto Grove Street during the AM peak hour. These additional right-turns result in significant impacts to vehicle delays and queues along the Route 128 SB Off-Ramp. Currently, the Route 128 SB Off-Ramp approach to the proposed roundabout is a single lane approach. A right-turn bypass

lane should be evaluated along this approach to accommodate the high volume of right-turns and further mitigate the traffic impacts associated with the project at this intersection.

*Response: The trip generation has been revised and this condition no longer exists.*

34. During the weekday AM peak hour, the 95th percentile queue along the Route 128 SB Off-Ramp (Exit 22) approach to the proposed roundabout could potentially back-up to the sharp corner along the off-ramp where it splits to separate traffic going to either Grove St or Quinobequin Rd. This could potentially cause safety concerns if traffic exiting Route 128 South does not see the queue around the corner until they are traveling along the corner and thus would likely not have enough time to react and stop in time to avoid a rear-end collision with a vehicle stopped in the queue. In addition, the queues could potentially block traffic along the off-ramp traveling to Quinobequin Road if there is a large vehicle/truck present in the queue and there is not enough room along the existing pavement surface for a vehicle to go around the stopped vehicle/truck waiting in the queue. Additional mitigative measures should be considered along the Route 128 SB Off-Ramp approach to the proposed roundabout to reduce the vehicle queue lengths, particularly during the weekday AM peak hour.

*Response: Additional mitigation will be provided along the I-95 SB Off-Ramp approach to the proposed roundabout by trimming/removing vegetation to improve the sight lines and/or providing advanced warning signage. MassDOT will have the final determination on mitigation improvements along the off-ramp. It should be noted that the longer queues along the ramp are due to the removal of the right-turn slip lane from the I-95 SB Off-Ramp to Grove Street eastbound. The removal of the slip lane was requested by MassDOT to improve operations for bicycles along Grove Street and to reduce the speed of vehicles coming off the ramp.*

35. The intersection of Washington St at the Route 128 NB Ramps is currently unsignalized and as a result, the Route 128 NB Ramps (both left-turns and right-turns) operate over capacity, experiencing long vehicle delays and queues during both the weekday AM and PM peak hours. In looking at the 4 hours of available traffic count data, it appears likely that the intersection will meet signal warrants, even when just comparing the Route 128 NB Off-Ramp right-turns with the conflicting Washington Street EB thru volumes. While it is noted that the project currently does not generate a substantial amount of trips to this intersection, this could potentially change with a revised trip distributions that increases the amount of trips going to/coming from Beacon Street. At a minimum, Signal Warrant analysis should be completed at this intersection to determine if the intersection volumes exceed the thresholds defined in the MUTCD Warrants.

*Response: The signal warrant analysis has been provided is met for existing conditions however is not significantly affected by Site-generated traffic.*

#### **Transit Impacts:**

36. The Auburndale Commuter Rail Station is located less than 1 mile (approx. 0.7 mile) from the project site; however, there is no discussion or mode split for people living in communities not served by MBTA Bus Route 558 or the Green Line who may choose to use the commuter rail as a means of transportation to/from the project site.

*Response: The developer will consider a Shuttle to the Auburndale Commuter Rail Station as a potential response to TDM goals in the event that they are not met after construction.*

37. Transit Mode Splits (5% Office and 25% Residential) are below what are to be expected at a transit-oriented development (TOD) such as this due to the convenience and ease of access of several public transit options located within the project site. The research paper provided in the Appendix included case studies at five (5) TODs around the country and found that the mean and median vehicle trip reductions relative to ITE Trip Generation rates were approximately 53% and 57%, respectively. These reductions in vehicle trips are significantly higher than the 5% used for the office land use and 25% used for the residential land use. While this method may provide a conservative analysis relative to vehicular traffic impacts, it underestimates the number of people who are expected to use public transit service; thus, underestimating the potential impacts to the capacity of these public transit services. The transit mode split should be revised to reflect an accurate number of transit users based on the information provided from US Census data and TOD comparison sites.

*Response: Transit analysis has been provided with the appropriate transit mode split.*

38. The current capacity evaluation for the MBTA Green (D) Line during special events (Red Sox Game) likely underestimates the Green (D) Line demand during the peak demand time. As noted previously, the 3.5% Green (D) Line mode split used for office land use is well below what one would expect for this type of transit-oriented-development (TOD). In addition, the office land use is the highest generator of traffic in this development by a significant margin. As a result, increasing the transit mode split for the office land use will significantly increase the additional demand on the Green (D) Line resulting from this project. There will be overlap between people taking the Green (D) Line home from work and people taking the Green (D) Line to the Red Sox game (both will be going inbound from the site) on nights where there is a Red Sox game. The proponent should provide evidence that the MBTA is aware of the projected increase in transit trips, based on a revised mode split that provides an accurate reflection of the projected transit trips, and finds the proposed increase acceptable.

*Response: The MBTA has been consulted on the increase in Greenline trips and does not have concerns about the projected transit trips during Red Sox Games.*

39. The proponent should identify the current and future maintenance needs of Riverside Station and provide evidence that the proposed site plan does not conflict with any future expansion areas such as the potential Spur Trail.

*Response: The MBTA has confirmed that the proposed site plan is not in conflict with any potential future expansion areas or maintenance needs.*

#### **Parking:**

40. The report doesn't specify the number of handicap parking spaces provided or the number of handicap parking spaces required, or where the handicap parking spaces will be located, and how many will be included in each lot. This information should be provided to ensure that the parking will comply with ADA guidelines and best practices.

*Response: This information has been provided for the on-street parking locations.*

41. There seems to be a surplus of parking for a TOD site. The proponent should clearly define how the garages will be utilized and by whom. The additional parking may encourage more people to utilize private vehicles than would otherwise be experienced at a TOD site. Serious consideration should be made to the number of parking spaces and whether they are appropriate for a project of this type. The shared parking analysis indicates a space surplus of 291 spaces during peak occupancy. The red-sox event parking does not appear to negatively impact the peak parking demand as it will be offset by office users leaving the site. While the shared parking plan indicates that a 10% vacancy is desirable to allow for smooth movement through the development, the proponent should consider dynamic signage to help facilitate this movement rather than additional parking.

*Response: The shared parking has been revised to significantly reduce the number of excess parking spaces.*

42. The Applicant should clarify whether or not they commit to implementing parking prices for parking on-site. More detailed information should be provided as to what options will be available for the on-site parking costs.

*Response: The Applicant has indicated that parking would be paid, more information is not available at this time.*

#### **TDM Measures:**

43. The TDM should include measures to provide education and materials to the project tenant's employees and residents on bicycle commuting and bicycle safety.

*Response: The TDM has been revised to include these elements.*

44. The TDM should specify that 5-minute vehicle idling limit will be enforced in conformance with State Law.

*Response: The TDM has been revised to include these elements.*

45. The TDM should state that the Proponent will coordinate and work with MassDOT to implement a signage program to direct drivers to regional networks rather than local roadways.

*Response: The TDM has been revised to include these elements.*

46. The TDM should commit to improving transit access to/from the site by integrating Transit Signal Priority (TSP) into the proposed traffic signals to be installed as part of the proposed mitigation.

*Response: The Proponent is committed to integrating Transit Signal Priority into the proposed traffic signals to be installed as part of the proposed mitigation and that will be reflected on all future document and plan submittals.*



47. The TDM should include language stating that adaptive signal control technology will be evaluated and considered for the proposed traffic signals to be installed as part of the proposed mitigation. Adaptive signal control could reduce vehicle congestion at the signalized intersections during the peak periods for traffic entering/exiting the project site.

*Response: The TDM has been revised to include these elements.*

48. The TDM should commit to reaching out to car-share vendors.

*Response: The TDM has been revised to include these elements.*

49. All electric car charging station locations should be identified on a Site Plan once the number of stations are determined.

*Response: EV parking/charging locations are not yet determined but the project is committed to providing 10% of the total non-MBTA parking spaces as EV parking/charging locations.*

50. TDM should commit to providing information (either at bus shelters or at information kiosks placed strategically throughout the site) that displays transit service information and schedules.

*Response: The TDM has been revised to include these elements.*

51. The TDM should commit to reaching out to Transportation Management Associations (TMA) and list specific TMAs that they will reach out to. Consider requiring the project's office tenants to join a TMA.

*Response: The TDM has been revised to include these elements.*

52. The TDM includes development and deployment of promotions to encourage use of sustainable transportation modes. More detail related to these promotions should be provided such as how often and in what format these promotions will be utilized.

*Response: The TDM has been revised to include these elements.*

53. The TDM states that the TDM Coordinator or TMA will encourage tenant companies to provide the option for employees to work from home, making use of the Internet, e-mail, and telephone. The TDM should state how they will plan on encouraging tenant companies to provide these options. Incentives should be specified for tenant companies who provide these services.

*Response: The TDM has been revised to include these elements.*

54. The Ongoing Monitoring and Reporting Plan should include monitoring employee, resident, and consumer travel by mode.

*Response: At the February 6th meeting between the Proponent, City of Newton, and the Peer Consultant, the City suggested that monitoring of employee, resident, and consumer travel by mode may be required for two years. Assuming that the overall traffic monitoring for those two years shows results that the project is at or below the projection, then additional mode monitoring would not be required.*

**Site Plan:**

55. The limits of the proposed sidewalk and bike lanes along Grove Street north of proposed Road C and how the proposed improvements will tie back into the existing sidewalk and Grove Street cross-section are unclear. These should be specified in the proposed site plan.

*Response: The Site Plan has been revised to include these elements.*

56. Consider designating on-street parking areas for curbside pick-up/drop-off, rideshare, handicap parking, and deliveries in front of residential and commercial uses.

*Response: The Site Plan has been revised to include these elements.*

57. Consider separating pedestrians and bicycles within the site, providing protected bicycle lanes rather than a shared-use path. With a blank slate for a roadway cross-section and plenty of space there is no need to combine pedestrians with bicycles down Main Street. This will make both user groups more comfortable traveling through the site.

*Response: Bicycles accommodations will be provided on Grove Street rather than Main Street.*

58. Alternative surface treatment should be considered for Road C along the loop near the MBTA station to create a pedestrian/bicycle friendly environment and to alert drivers to the changing nature of the roadway in this location.

*Response: The Site Plan has been revised to include these elements.*

59. The portion of the proposed Road A providing access to Building 2 (Hotel/Residential) and Building ¾ (Office/Residential/Garage) is currently designed as a one-way 'horseshoe' type roadway with the open space area located in the middle of the two segments of the horseshoe, disconnected from the proposed buildings and their curbside areas. The Applicant should reconsider the layout of this portion of the site and evaluate realigning the proposed Road A such that the open space areas are connected to the buildings. This could potentially be accomplished by proposing a two-way roadway (with on-street parking on both sides) with a circular turnaround area at the end. Under this layout, the proposed Road A should provide a pick-up and drop-off area along the frontage of Building 2 (Hotel/Residential) such that hotel patrons can pull off the roadway to check-in/check-out and load/unload their luggage.

*Response: The Site Plan has been revised to change the horseshoe shape in order to accommodate more open space.*

60. Building 3/4 (Office/Residential/Garage) has an entrance with direct access to the proposed shared use path along Grove St. There is the potential for pick-ups and drop-offs to occur along Grove St at this access point. The current proposed cross-section along this segment of Grove St consists of two travel lanes (one in each direction) and narrow shoulders. This poses potential safety and traffic operation concerns as there is not adequate space for a vehicle to pull over at this entrance without blocking the

travel lane. The proponent should consider signage in this location to indicate that stopping is not allowed.

*Response: Geo-fencing has been identified on Grove Street to prevent this action.*

61. The site plan along Grove Street shows a number of conflicts between the proposed shared use path and the building frontage. These spaces should be clearly defined on the site plans showing that sufficient space is provided for bicycles and pedestrians. Bicycles and pedestrians should be separated from each other as well as vehicles wherever possible.

*Response: The Site Plan has been revised to include these elements.*

62. The site plan should clearly define the dimensions of the proposed shared use path and sidewalk along Grove Street.

*Response: The Site Plan has been revised to include these elements.*

63. An evacuation route should be provided.

*Response: An evacuation route has been identified and provided.*