

February 9, 2024

NEX-2300312.00

Ms. Elizabeth Hughes, AICP, Town Planner
Town of Concord
Planning Division
141 Keyes Road
Concord, MA 01742

SUBJECT: NOVO Riverside Commons Comprehensive Permit Application
292-294 Baker Avenue
Peer Review Letter #2 – Traffic Review

Dear Ms. Hughes and Members of the Zoning Board of Appeals:

Greenman-Pedersen, Inc. (GPI) previously performed an initial traffic peer review of the of the following materials submitted to the Concord Zoning Board of Appeals for the Proposed NOVO Riverside Commons Comprehensive Permit Application at 292-294 Baker Avenue:

- *Comprehensive Permit Application*, prepared by NOVO Riverside Commons, LLC; dated August 21, 2023.
- *PEL Submission Set*, prepared by Beals and Thomas; revised July 31, 2023.
- *Traffic Impact Assessment*, prepared by VHB; dated August 7, 2023.
- *Traffic Memorandum, Proposed Commercial Development, Elm Street, Concord, MA*; prepared by Bayside Engineering; dated September 27, 2023.

Our traffic related comments were summarized in a comment letter dated November 6, 2023¹. Subsequently, the Applicant's consultant team has prepared the following additional documents to address GPI's comments contained in our *Peer Review Letter #1*:

- *NOVO Riverside Commons, Revised Civil, Landscape and Architectural Plans and Specifications*; dated December 18, 2023.
- *NOVO Riverside Commons, 292 & 294 Baker Avenue in Concord, Massachusetts, PEL Submission Set, Revised July 31, 2023, Notice of Intent – December 18, 2023; prepared by Beals & Thomas, Inc.*
- *NOVO Riverside Commons, Design Progress Plans*; prepared by Cube 3 Architects; Revised December 18, 2023.
- *292 & 294 Baker Avenue, Concord, Massachusetts, Zoning Board Submission Plan Set*; prepared by Hawk Design, Inc; dated December 15, 2023.
- *Response to Peer Review Letter #1 – Traffic Review – NOVO Riverside Commons, Ref: 15630.00*; prepared by Vanasse Hangen Brustlin, Inc. (VHB); dated January 2, 2024.
- *Traffic Impact Assessment - Revised*, prepared by VHB; dated January 2, 2024.

As requested, GPI has reviewed the above materials for compliance with the applicable sections of the Town of Concord Zoning Bylaws, Massachusetts Department of Transportation (MassDOT) guidelines for traffic

¹ *NOVO Riverside Comprehensive Permit Application, 292-294 Baker Avenue, Peer Review Letter #1 – Traffic Review*; prepared by Greenman-Pedersen, Inc.; dated November 6, 2023.

analysis, and general engineering practice. This review focuses on only the *Traffic Impact Assessment* at this time. Additional comments on the site plans and stormwater analysis will be provided at a future date under separate cover.

GPI generally finds that the Applicant's responses to GPI's comments on site circulation, access/egress, and the *Traffic Impact Assessment* adequately address our comments, with the exception of the items discussed below. The original comment numbers have been retained for ease in reviewing the comments.

Site Circulation, Access, and Egress

3. The Applicant has appropriately added a STOP sign and STOP line on the #300 Baker Avenue driveway approach to the internal intersection with the main drive aisle. **The Applicant should, similarly, add a STOP sign and STOP line on the parking garage ramp exits to the main drive aisle.**
4. The multi-use path is proposed to cross the driveway to the building at #294 Baker Avenue at a location set back from the intersection with the main drive aisle. As a result, a vehicle stopped at the STOP line waiting to exit #294 Baker Avenue will be blocking the crosswalk for the multi-use path. **The Applicant should consider relocation of the crosswalk and/or STOP line to eliminate this conflict and ensure that drivers stop in advance of the multi-use path crossing.**
5. The Applicant has added a sidewalk along the 10 parking spaces on the main drive aisle closest to Baker Avenue, as well as a crosswalk on the main drive aisle connecting these spaces to the front door of the building at #292 Baker Avenue. However, there are 10 additional parking spaces beyond this crosswalk where no pedestrian walkway is proposed to be provided. **GPI recommends the Applicant extend the sidewalk along all 20 of the parking spaces on the northerly side of the main driveway aisle opposite #292 Baker Avenue to reduce conflicts between heavy traffic on the driveway, vehicles entering and exiting the parking spaces, and pedestrians.**

The 10 parking spaces closest to Baker Avenue are still located very close to the intersection, resulting in the potential for some of these spaces to be blocked by queues exiting the site onto Baker Avenue. In addition, driver visibility / sight lines for drivers exiting these parking spaces may be impeded by queued vehicles on the main drive aisle, as well as by the proximity to and geometry of the intersection with Baker Avenue. **GPI continues to recommend the Applicant consider eliminating some or all of these ten parking spaces to reduce such conflicts. In the event that these parking spaces remain on the site, the Town should consider a condition of approval requiring the Applicant to conduct a post-occupancy review of these spaces and remove the spaces if a safety issue is determined to exist, including regular queuing extending beyond the spaces or a high occurrence of collisions in this area.**

7. The Applicant has provided vehicle turning path diagrams for smaller delivery vehicles (FedEx, Amazon, etc.), however, the Applicant has not provided figures depicting the vehicle paths and loading areas for larger trucks, such as moving trucks to the site. The Applicant has provided vehicle path diagrams for a ladder truck and a trash removal truck driving along the main access aisle. However, the Applicant has not shown diagrams of how a fire apparatus will access the buildings or how a trash removal vehicle will access trash receptacles. In addition, it appears that the fire apparatus and trash truck will be required to travel onto the rear access for the property at #300 Baker Avenue to turn around and exit the site. The Applicant should provide evidence of easement rights to utilize this area for access.

Traffic Impact Assessment

10. The Applicant has correctly and appropriately added the intersection of Baker Avenue Extension / Concord Commons Driveway (#300 Baker Avenue) to the study area for the TIAS and projected traffic volumes at this location to future year conditions. The collision history assessment indicates no significant collision pattern has occurred at this location, and the results of the capacity and queue

analysis indicate that all movements at this intersection are anticipated to operate at level-of-service (LOS) B or better under 2030 Build conditions. Therefore, no additional analysis is required at this intersection. GPI notes that the existing pavement markings on the Concord Commons Driveway are extremely faded. **GPI recommends that the Applicant consider restriping the STOP line and centerline on the Concord Commons Driveway within 100 feet of Baker Avenue Extension as this will be the primary access and egress for site-generated traffic to/from the north.**

11. The Applicant has included traffic counts at the Main Street (Route 62) intersections with Crest Street and Old Bridge Road within the revised TIAS, as requested. However, the Applicant has evaluated the intersection as a single four-way intersection, which does not properly model the impacts queued vehicles on Old Bridge Road blocking access for a vehicle crossing the intersection from Crest Street to Old Bridge Road. The description of the intersection geometry provided on page #3 of the revised TIAS also describes the intersection as being a four-legged intersection with all approaches having a single general-purpose lane. It should be noted that Crest Street and Old Bridge Road both intersect Main Street (Route 62) from the south at this intersection. Old Bridge Road and Crest Street also intersect at a four-legged intersection just twenty (20) feet south of the STOP line on the Old Bridge Road approach to Main Street (Route 62). The intersection of Crest Street and Old Bridge Road was not included in the analysis.

In addition, the Old Bridge Road northbound approach is signed and striped for egress-only. There is a STOP line running across the width of the Old Bridge Road northbound approach. The width of the STOP line does not comply with *Manual on Uniform Traffic Control Devices (MUTCD)* design guidelines and the STOP line becomes lost in the non-compliant crosswalk striping. A NO LEFT TURN (R3-1) and DO NOT ENTER (R5-1) sign are posted on a single post within the landscaped channelization island and face westbound traffic on Main Street (Route 62). Although most drivers traveling westbound on Main Street (Route 62) use the Crest Street slip-lane to access Crest Road and Old Bridge Road to the south, there is no signage facing eastbound traffic to indicate that right-turns onto Old Bridge Road are prohibited. In addition, the STOP line on Old Bridge Road is not visible to eastbound vehicles due to the vegetation in the median island, which also blocks visibility of pedestrians in the roadway and within the island. The traffic count data indicates that two vehicles were observed making an illegal left-turn movement from Main Street (Route 62) westbound onto Old Bridge Street during the weekday morning peak period. The count data was not collected in such a way to ascertain whether any illegal movements were made from any of the other intersection approaches. Further, a KEEP RIGHT sign is posted in the channelization island to indicate that northbound traffic on Crest Street and Old Bridge Road should keep to the right of the island to egress the neighborhood. However, no signage is provided to indicate that the slip-lane portion of Crest Street is one-way southbound. The angle of the KEEP RIGHT sign does not make it easily visible to drivers approaching on either Crest Street or Old Bridge Road. Although a STOP line is present on the Old Bridge Road northbound approach to Main Street (Route 62) it is obscured by vegetation on the southeast corner of the intersection for drivers coming from Old Bridge Road until immediately upon the intersection. While there is a STOP AHEAD warning sign on Old Bridge Road in advance of Crest Street, this sign is similarly heavily obscured by vegetation and faded, providing little to no warning of the STOP condition ahead. The Crest Street northbound approach to Old Bridge Road is under STOP control, while the Crest Street slip-lane and Old Bridge Road approaches are free-flowing. However, the sight lines exiting Crest Street are obscured by a large bush looking to the east and by a fence and vegetation on private property to the west. As a result, drivers exiting Crest Street are not able to see vehicles making the right-turn from Main Street (Route 62) eastbound onto the slip-lane until after the vehicle has begun the turn, giving only 75 feet of intersection sight distance (ISD) from this approach. Due to the geometry of the intersection and the wide radius, vehicles make the right-turn from Main Street (Route 62) onto the Crest Street slip-lane at a high rate of speed, creating a potentially dangerous collision potential. The pavement on Old Bridge Road near this intersection is in poor condition, with many cracks and patching. The existing crosswalk ramps are not ADA-compliant and water ponds in the ramps, creating slippery conditions in winter months. Although the intersection is not a high-crash location based on the collision history, it is unclear whether the collision data includes collisions that occurred at the Crest Street / Old Bridge Road intersection or on

the Crest Street slip-lane. **The Applicant should clarify this and update the collision history as necessary to include all conflict points within this intersection.**

It is GPI's understanding that improvements at this intersection are planned to be implemented by the Town of Concord and are currently in design with an expected bid date in late 2024. The Town's project will include geometric and safety enhancements at the Main Street (Route 62) intersections with Crest Street, Old Bridge Road, and Baker Avenue / Cottage Street, as well as signal equipment and timing upgrades. In the absence of an already-initiated Town project, GPI would have recommended that the Applicant complete the following safety enhancements at this location:

- Install DO NOT ENTER and ONE-WAY signage on both sides of the Old Bridge Road northbound approach to Main Street (Route 62) facing Main Street (Route 62) to increase driver awareness of the one-way traffic flow;
- Install DO NOT ENTER and ONE-WAY signage on the Crest Street slip-lane to the Old Bridge Road / Crest Street intersection;
- Install MUTCD-compliant STOP AHEAD signage on Old Bridge Road approaching the intersection and post in a location clear of vegetation obstructions;
- Install a second STOP sign on Old Bridge Road on the left side of the roadway at the intersection with Main Street (Route 62) to increase visibility of the stop condition and reinforce the one-way traffic pattern;
- Reduce the curb radius on the Crest Street slip-lane to reduce vehicle speeds and increase sight distances for vehicles exiting Crest Street; and
- Install DO NOT BLOCK INTERSECTION striping within the Crest Street / Old Bridge Road intersection to alert drivers on the slip-lane to the presence of an intersection and to ensure that vehicles exiting Old Bridge Road onto Main Street (Route 62) do not block vehicles entering the neighborhood from the slip-lane.

However, as the Town has already significantly advanced a project at this location, GPI recommends that in lieu of improvements, the Applicant provide a fair-share monetary contribution to the Town of Concord equivalent to the higher of the following:

- **The estimated construction cost to implement the safety measures described above; or**
- **A percentage of the estimated construction cost of the Town's planned improvement project equivalent to the percentage increase in traffic generated by the proposed development through the Main Street (Route 62) / Baker Avenue / Cottage Street intersection during the higher of the weekday AM and weekday PM peak hours.**

12. The Applicant has reviewed the safety and adequacy of the existing railroad crossing to the south of the site driveway and identified several short-term and long-term measures to improve the safety of the crossing and compliance with Manual on Uniform Traffic Control Devices (MUTCD) guidelines. **As a condition of approval, GPI recommends that the Applicant implement the following measures prior to issuance of a Certificate of Occupancy for the proposed residential development:**

- **Clear brush and trees within the public right-of-way and on the site, as necessary, to maximize sight lines to the rail crossing approaching from both directions;**
- **Restripe the pavement markings leading to the crossing from both directions;**
- **Extend the median leading to the crossing from the north on Baker Avenue by approximately 20 feet;**
- **Install appropriate railroad crossing warning signage in advance of the crossing, consistent with MUTCD guidelines; and**
- **Provide updated plans depicting the proposed improvements.**

15. Within the Applicant's *Response to Peer Review Letter #1 – Traffic Review* the Applicant committed to implementing split phasing of the Baker Avenue Extension and Jug-Handle approaches to the intersection of Concord Turnpike / Baker Avenue Extension "*pending final occupancy permits for this project*". However, the *Traffic Impact Assessment – Revised* (Revised TIA) makes no such reference to this commitment and provides no analysis of the impacts and/or benefits of implementing split phasing. **The Applicant should clarify whether any commitments to mitigation are being made for this intersection as such mitigation would subject the proposed development to review and approval by the Massachusetts Department of Transportation (MassDOT).**

GPI notes that the applicant for the redevelopment of the #768 Elm Street site has already committed to implementing an optimal signal timing plan at this intersection, retiming the yellow and red clearance intervals, and upgrading signal equipment to clarify the phasing on the Route 2 eastbound left-turn movement. With implementation of these improvements, the operations of the intersection will be significantly improved. In addition, the proposed residential development is not anticipated to result in a measurable impact in traffic operations at the Route 2 / Baker Avenue Extension / Jug-Handle Intersection, with delay increases of two seconds or less and queue increases of one vehicle or less on any approach through the intersection. Therefore, the impacts of the proposed development on this intersection do not warrant project-specific mitigation.

17. The Applicant has included traffic generated by the proposed development at #768 Elm Street within the projection of 2030 No-Build and Build traffic volumes in the Revised TIA; however, the site-generated traffic volumes were obtained from the July 2023 traffic study prepared for the development, which assumed an urgent care facility would occupy the site. The urgent care use has since been replaced with a sit-down restaurant use. The supplemental analysis prepared by Bayside Engineering for the #768 Elm Street development indicated that the change in use to a restaurant would not have a significant impact on the traffic operations through the Concord Turnpike (Route 2) / Baker Avenue Extension intersection during the weekday AM peak hour as compared to the urgent care use. Therefore, GPI is satisfied that the updated analysis is sufficient to demonstrate the potential incremental impacts associated with the proposed residential development. The revised capacity and queue analysis included in Table 9 of the Revised TIA indicates that the Route 2 eastbound left-turn onto the Elm Street Ramps / Jug-Handle is anticipated to operate over capacity at level-of-service (LOS) F during the weekday AM peak hour, with queues exceeding the available storage area under 2030 No-Build and Build conditions. The applicant for #768 Elm Street has committed to implementing signal timing changes at this intersection to improve traffic operations, pending approval by MassDOT. As the proposed residential development is not expected to increase traffic on this movement or result in a significant impact to traffic operations at this intersection, no project-specific mitigation is recommended at this location.
24. The Applicant has provided the requested assessment of the adequacy of the proposed parking supply within the Revised TIA. GPI is satisfied that the proposed parking supply will be adequate to accommodate the peak parking demand and notes that the proposed reduction in parking supply below zoning regulations is an effective TDM measure is reducing vehicle trips to/from the site.
26. The Applicant has provided the requested sight line figures to demonstrate the available stopping sight distances (SSD) and intersection sight distances (ISD) at the proposed site driveway. However, it is noted that the Applicant has drawn the line of sight for the ISD looking left in a straight line to a distance of 500 feet from the site driveway. There is a horizontal curve to the east (left) of the site driveway. To ensure that a driver exiting the site has continuous sight of a vehicle approaching from the east, a sight line path must also be drawn to the tangent of the horizontal curve. **While GPI is satisfied that adequate sight lines will be provided, the Applicant should update the sight distance plan accordingly to reflect the clear zone required to maintain continuous sight of a vehicle approaching from the east.**

The Applicant has also provided the requested sight line figures to demonstrate available sight lines at the existing Concord Meadows Driveway. Similar to the driveway at 292 Baker Avenue, there is a horizontal curve to the north of the Concord Meadows Driveway. **The Applicant should update the sight line figure to depict the clear zone required to maintain a continue ISD of vehicles approaching from the north by adding the tangent to the horizontal curve. In addition, the ISD to the north appears to cross over the property line for the property at #150 Baker Avenue Extension. The Applicant should update the sight line figure to ensure that the available ISD and SSD do not cross over private property lines.**

GPI has reviewed the comments and recommendations contained in this letter with the Concord Public Works Department (CPW), who has provided concurrence during a meeting held on February 8, 2024. CPW reserves the right to comment on future submittals related to any new or previously submitted information provided to the Town for review.

Should you have any questions or require additional information, please contact me directly at (603) 766-5223 or by email to rebeccabrown@gpinet.com.

Sincerely,

GREENMAN-PEDERSEN, INC.



Rebecca L. Brown, P.E.
Senior Project Manager

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