311 Main Street, Suite 201
Worcester, MA 01608
774.701.0550

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Tony M. Sousa
Town of Oxford
Zoning Board of Appeals
325 Main Street
Oxford, MA 01540

December 20, 2023

Ref. T1424

Re: Proposed 40B Residential Development Project – Zain Place
580 Main Street (Route 12)
Traffic Engineering & Parking Peer Review

Dear Mr. Sousa:

On behalf of the Town of Oxford, TEC, Inc. (TEC) has reviewed documents as part of the traffic engineering peer review for a proposed 40B Residential Redevelopment at 580 Main Street (Route 12) in Oxford, Massachusetts ("the Project"). The Project consists of constructing 42 new residential units on an undeveloped parcel with access provided via Main Street.

The following materials were considered as part of our review:

- *Zain Place Multifamily Housing Project Traffic Impact and Access Study*, *Oxford, MA*, prepared by Fort Hill Infrastructure, dated September 27, 2023
- *Proposed Apartments Zain Place*, *580 Main Street, North Oxford, Massachusetts*, prepared by dimensions 2&3 Architecture and Design, Inc, dated April 12, 2023;
- *Site Plans for Zain Place, 580 Main Street, North Oxford, MA,* prepared by Land Design Collaborative (LDC), dated July 26, 2023; and
- *Application to the Zoning Board of Appeals, Town of Oxford,* prepared by LDC on behalf of Ansari Builders, dated October 12, 2023

TEC completed a review of these documents for the Town of Oxford and provides the following transportation-related comments that we compiled during our review.

Traffic Impact and Access Study

1. The Project will require the issuance of a State Highway Access Permit from the Massachusetts Department of Transportation (MassDOT) due to the subject property's frontage along Main Street (Route 12), which is owned and controlled by the State in this area. The Applicant should obtain the State Highway Access Permit prior to the issuance of a Building Permit as formal approval of access will be required for construction and ultimately the occupancy of the proposed buildings.
2. The TIAS included the following intersection within the study area:
    - Main Street at Depot Road

TEC believes that the study area is insufficient, and should also include the following locations:

- Main Street at Proposed Site Access
- Main Street at Old Worcester Road

3. Turning Movement Counts (TMCs) were conducted at the study area intersection on August 23, 2023. They were conducted between the hours of 7:00 AM and 9:00 AM, and between the hours of 4:00 PM and 6:00 PM. Peak hours were determined to be 7:30 AM to 8:30 AM for the morning peak and 4:30 PM to 5:30 PM for the evening peak. Although the volumes are shown in Figure 2 of the TIAS, no raw data was included for review. The recorded volumes were not conducted while Oxford Public Schools were in session, nor were they seasonally adjusted based on historical traffic-volume data from Massachusetts Department of Transportation (MassDOT) records.

4. MassDOT Crash Records were evaluated for the years 2018-2022, the latest available 5-year period. However, the records consist of data only from the intersection of Main Street and Depot Road. The average unsignalized intersection crash rate for MassDOT District 3 is 0.61. With the two crashes noted at the intersection, the crash rate was calculated to be 0.06. However, no raw crash data or Crash Data Worksheet have been provided for review.

5. In a cursory review of crash data for the area between the proposed development and the Main Street/Depot Road intersection, there were 18 total crashes in the same time period. Complete crash data including dates, times, types of crashes, etc. should be provided for review.

6. To obtain future year volumes (2030), the August counts were adjusted at a rate of 1% per year, based on growth over the previous 5-year period (2108-2022). As noted in Comment 2 above, the counts were not seasonally adjusted. However, this background growth is reasonable, assuming there are no other large-scale planned developments in this area. This was not directly assessed in the TIAS. The proponent should confirm this to be true and document it in the TIAS.

7. To properly assess roadway operations and safety, sight distance calculations should be included in the TIAS. The 85th percentile travel speeds along Main Street need to be used in these calculations and should be based on supplemental Main Street speed data to be provided by the Applicant.

8. The Project trip generation calculations for 42 residential dwelling units were generated based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual,* Land Use Code LUC 221 – Multifamily Housing (Mid-Rise). TEC believes that LUC 220 – Multifamily Housing (Low-Rise) is more appropriate considering the proposed development currently includes a single building with three floors with fourteen apartments on each floor.

9. In Figure 4 of the TIAS, the traffic generated by the proposed project was distributed only at the intersection of Main Street and Depot Road. The distribution should include the proposed site driveway and the intersection of Main Street and Old Worcester Road. TEC generally believes that much of the site traffic will utilize the Old Worcester Road intersection for access to and from I-395 rather than the Depot Road intersection.

10. TEC is unable to assess the results of the capacity analysis provided as part of the TIAS. No capacity reports were provided for review. In addition, summary tables were provided for Existing 2023, No-Build 2030 and Build 2030 conditions at the intersection of Main Street and Depot Road only. The summaries included LOS, Delay and v/c ratios, but did not include 50th percentile or 95th percentile queue lengths. Also, the methodology utilized was not discussed in the TIAS. TEC typically references the Highway Capacity Manual (HCM) 2000 delay method as it provides compatibility with the MassDOT Transportation Impact Assessment (TIA) Guidelines. The Applicant should provide capacity analyses for the other locations mentioned in Comment 1 above and provide reports for all scenarios.

11. Considering TEC's comment above, the TIAS currently documents levels of service (LOS) D or better for all the movements at the study area intersections. A LOS of "D" or better is generally defined as "acceptable" operating conditions. *No response required.*

Initial Site Plan Comments

12. A STOP sign (MUTCD R1-1) and marked STOP line should be added to the site driveway approach to Main Street.

13. Parking prohibition signs should be provided along all curb lines that do not have designated parking, Including both sides of the main aisle near Main Street.

14. The Project has limited usable open space on the site. However, the site lies approximately 500 feet south of the Greenbriar Recreation Area. As part of the Applicant's consultation with MassDOT during the pending permit process, TEC recommends that the Applicant design and install a rectangular rapid flash beacon (RRFB) at the Main Street crossing (just north of Old Worcester Road) to enhance the current crosswalk attributes given the Project's likely increase in pedestrian activity.

15. The site circulating roadway width varies between 20 feet (1-way) and 24 feet (2-way). TEC recommends a minimum width of 22 feet given the heavy vehicle comments noted below and to provide better access to the 90-degree parking stalls.

16. The Applicant proposes modifications to their site drive access to Main Street consisting of minor sidewalk reconstruction and pedestrian ramps. The project team should provide roadway/driveway profiles and confirm ADA/AAB compliance for these elements and internal sidewalks around the building or seek a variance for the project, if necessary. The plans and the construction details should specify that all new sidewalks should be a minimum of 5 feet wide, excluding the width of any curbing. TEC recommends a minimum 7-foot sidewalk width on the west side of the building in order to account for vehicle overhang.

17. One of the outside parking areas has 90-degree parking stalls with a 20-foot aisle. These parking stalls may be very difficult to access for larger sedans and SUVs. The Applicant should consider a 22-foot wide aisle in that area or converting the parking to an angled layout.

18. The proposed parallel parking stalls on the east side of the building are 8 feet by 19 feet. TEC recommends a stall length of 22 feet to make the stalls accessible by most vehicle types.

19. There are no crosswalks shown on the site plans. TEC recommends the Applicant provides an 8-foot minimum crosswalk across the driveway opening at Main Street and the on-site crossing location near the southwest corner of the building.

20. It appears that guardrail (type unspecified) is proposed on the site entrance drive and around most of the site itself. AASHTO-rated guardrail should be provided for roadway segments that may be publicly owned in the future.

21. Vehicle Turning Exhibit plans (EX-101 through 103) were provided to show the turning templates of a fire truck, trash truck and WB-40 Semi-Trailer, respectively. EX-101 shows that a fire truck with overall dimensions of 46.333 feet long, 8.333 feet wide, 11.833 feet body height, and 8.333 track width cannot access and circulate the internal roadway. The vehicle cannot navigate the turn at the southeast and northeast corners of the building without the overhand of the emergency vehicle traversing the curb line. TEC defers to the Town of Oxford Fire Department to verify whether the dimensions of their Tower 1 and Ladder 2 trucks match the dimensions used in the turning analysis.

22. The Applicant should provide a dedicated area for package deliveries to the mail room or individual units (U.S. Mail, Amazon, FedEx, etc) and confirm there is sufficient room for bypassing resident traffic given the one-way flow pattern.

23. The sight triangle areas for the site driveway intersection with Main Street should be shown on the Site Plans along with a note to indicate: “Signs, landscaping and other features located within sight triangle areas shall be designed, installed, and maintained so as not to exceed 2.5 feet in height. Snow windrows located within sight triangle areas that exceed 3.5 feet in height or that would otherwise inhibit sight lines shall be promptly removed.” All permanent and temporary (such as unit/tenant advertisements) signs should be located outside the sight line triangles. The bottom of all traffic signs should be a minimum of 7 feet above the ground surface per the Manual on Uniform Traffic Control Devices (MUTCD).

24. The Site Layout and Materials Plan (C-101 in the Plan Set) indicates that a total of 70 parking spaces will be provided within the site. The Applicant should reconfirm the final number of available parking stalls. However, TEC confirmed that the proposed parking supply satisfies the Town of Oxford Zoning by-law, Section 3.0 - Required Off-Street Parking Spaces, Structures with four or more dwelling units. The Project has a parking ratio of 1.66 stalls per unit where 1.50 is required. *No response required.*

25. The Applicant should provide a snow removal and parking management plan for Town staff review.

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.
*“**T**he **E**ngineering **C**orporation”*

Kevin R. Dandrade, P.E., PTOE
Principal