STONEFIELD

December 3, 2024

City of Worcester
Zoning Board of Appeals
455 Main Street
City Hall Room 404
Worcester, MA 01608

RE: Traffic & Parking Assessment Report
Proposed Multifamily Residential Development
342 West Boylston Street
Parcel ID 12-007-00009
City of Worcester, Worcester County, Massachusetts
SE&D Job No. BOS-240110

Dear Board Members:

Stonefield Engineering and Design, LLC ("Stonefield") has prepared this analysis to examine the potential traffic and parking impacts of the proposed multifamily residential development on the adjacent roadway network. The subject property is located at the northeasterly quadrant of the intersection of West Boylston Street and Andover Street in the City of Worcester, Worcester County, Massachusetts. The subject property is designated as Parcel ID 12-007-00009 as depicted on the City of Worcester Tax Map. The site has approximately 168 feet of frontage along West Boylston Street and approximately 105 feet of frontage along Andover Street. The existing site is occupied by a vacant one (1)-story building which historically operated with a "D'Angelo Grilled Sandwiches" fast-casual restaurant tenant. The existing access is provided via two (2) driveways along West Boylston Street.

Under the proposed development program, the existing building would be razed and a five (5)-story residential building comprising of 24 studio units would be constructed. Vehicular access would be consolidated to one (1) full-movement driveway along West Boylston Street in the approximate location of the existing northerly curb cut.

Existing Conditions

The subject property is located at the northeasterly quadrant of the intersection of West Boylston Street and Andover Street in the City of Worcester, Worcester County, Massachusetts. The subject property is designated as Parcel ID 12-007-00009 as depicted on the City of Worcester Tax Map. The site has approximately 168 feet of frontage along West Boylston Street and approximately 105 feet of frontage along Andover Street. Land uses in the area are predominantly residential, commercial, and institutional.

West Boylston Street (MA Route 12) is classified as an urban minor arterial roadway with a general north-south orientation and is under the jurisdiction of the City of Worcester. Along the site frontage, the roadway provides two (2) travel lanes in each direction, carries approximately 12,302 vehicles daily, and has a speed limit of 30 mph in accordance with the City of Worcester Department of Transportation and Mobility's (DTM) updated regulatory speed limits, dated September 25, 2024. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided along either side of the roadway, and on-street parking is generally permitted along the easterly side of the roadway in accordance with posted curbside regulations. West Boylston Street provides north-south mobility throughout the City of Worcester for primarily residential, commercial, and institutional uses along its length.

Andover Street is classified as an urban collector roadway with a general east-west orientation and is under the jurisdiction of the City of Worcester. Along the site frontage, the roadway provides one (1) travel lane in each direction and has a speed limit of 25 mph in accordance with the aforementioned City of Worcester's updated regulatory speed limits. Curb and sidewalk are provided along both sides of the roadway, shoulders are not provided along either side of the roadway, and on-street parking is permitted along both sides of the roadway. Andover Street connects West Boylston Street and Fraternal Avenue for primarily residential and institutional uses along its length.

West Boylston Street and Andover Street intersect to form an unsignalized T-intersection with the westbound approach of Andover Street operating under stop control. The westbound approach of Andover Street provides one (1) exclusive right-turn lane. The northbound approach of West Boylston Street provides one (1) exclusive through lane and one (1) shared through/right-turn lane. The southbound approach of West Boylston Street provides two (2) exclusive through lanes. A crosswalk and pedestrian ramps are provided across the easterly leg of the intersection.

The subject site is located within 700 feet (3-minute walk) of five (5) bus stops serving the Worcester Regional Transit Authority's (WRTA) Bus Routes 30 and 31. These nearby bus stops are illustrated on appended **Figure 1**. WRTA Bus Routes 30 and 31 provide direct service to the West Boylston Wal-Mart, Lincoln Plaza, Quinsigamond Community College, and the WRTA Union Station Hub, where transfer service is available to the Framingham/Worcester Line of the Massachusetts Bay Transportation Authority (MBTA) Commuter Rail, Amtrak's Lake Shore Limited Line, and several additional WRTA bus routes. The MBTA Framingham/Worcester Line provides connection between Worcester and Boston, and the Amtrak Lake Shore Limited Line provides connection between Boston, New York City, Buffalo, and Chicago.

Trip Generation

Trip generation projections for the proposed development were prepared utilizing the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition. Trip generation rates associated with Land Use 221 "Multifamily Housing (Mid-Rise)" were cited for the proposed five (5)-story residential building with 24 dwelling units. **Table 1** provides the weekday morning peak hour, weekday evening peak hour, and weekday trip generation volumes associated with the proposed development.

TABLE 1 – PROJECTED TRIP GENERATION

	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Weekday		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
24-Unit Multifamily Housing (Mid-Rise) *ITE Land Use 221*	2	7	9	6	4	10	54	55	109

As shown in **Table 1**, the proposed development is expected to generate approximately nine (9) and 10 total trips during the weekday morning and weekday evening peak hours, respectively, and a total of 109 total trips daily. Based on the City of Worcester's Guidelines for Performing Traffic Impact Studies, an application is considered to result in an insignificant traffic impact to the local roadway network if the development is projected to generate less than 20 vehicle trip ends during the peak hour period or less than 200 vehicle trip ends per day. Additionally, based on Multimodal Transportation Impact Analysis for Site Development published by ITE, a trip increase of less than 50 vehicle trips during a single peak hour would likely not change the level of service of the roadway system or appreciably increase the volume-to-capacity ratio of an intersection approach. As such, the development is not anticipated to have a significant adverse impact on the adjacent roadway network operations based on the City of Worcester and industry standards.

It is important to note that the subject site was previously developed as a fast-casual restaurant which historically generated traffic to and from the site. Further, fast-food restaurants without a drive-through window are permitted as-of-right uses within the Business Limited (BL-1) District, where the subject site is located; therefore, it is reasonable to consider the traffic impacts associated with the existing building were it to be re-tenanted in the future and the proposed development not constructed. As such, trip generation rates associated with Land Use 933 "Fast-Food Restaurant without Drive-Through Window" were cited for the approximately 1,750-square-foot existing building. **Table 2** shows the net trip generation projection associated with the existing and proposed uses on site.

TABLE 2 – NET TRIP GENERATION – PERMITTED AS-OF-RIGHT USE

	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Weekday		
Land Use	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**	**Enter**	**Exit**	**Total**
Existing 1,750 SF Fast-Food Restaurant without Drive-Through Window *ITE Land Use 933*	44	32	76	29	29	58	394	394	788
Proposed 24-Unit Multifamily Housing (Mid-Rise) *ITE Land Use 221*	2	7	9	6	4	10	54	55	109
NET	**-42**	**-25**	**-67**	**-23**	**-25**	**-48**	**-340**	**-339**	**-679**

As shown in **Table 2**, the proposed redevelopment program results in a significant decrease in site-generated trips during the weekday morning peak hour, weekday evening peak hour, and typical weekday compared to a more intensive permitted use which could reasonably occupy the site in the future.

Site Circulation/Parking Supply

A review was conducted of the proposed residential development using the Land Development Concept Plan prepared by Hancock Associates, dated December 3, 2024. In completing this review, particular attention was focused on site access, circulation, and parking supply.

Vehicular access is proposed via one (1) full-movement driveway along West Boylston Street in the approximate location of the existing northerly curb cut. It should be noted that the subject site historically operated with two (2) driveways along West Boylston Street, and therefore the proposed consolidation to one (1) driveway is an improvement in terms of safety. Additionally, the proposed driveway will be positioned at the northernmost property extents to ensure the maximum achievable separation from the adjacent intersection in accordance with industry standards. The proposed residential building will be constructed on the southwestern portion of the site. A trash enclosure will be located at the northeast corner of the property. Two (2)-way vehicular circulation will be facilitated on site via 22-foot-wide drive aisles. Off-street parking will be provided along the northerly and easterly perimeters of the property. A pedestrian pathway will be provided along the easterly and southerly building frontages to facilitate pedestrian mobility between the public right-of-way and the proposed off-street parking lot.

The sight lines for the proposed site driveway were evaluated in accordance with the American Association of State Highway and Transportation Officials (AASHTO) standards for a conservative design speed of 37 mph based on historical speed data published by MassDOT along West Boylston Street to the north of the subject site. The sight distance calculations are based on information published in AASHTO's A Policy on Geometric Design of Highways and Streets, 2018, 7th Edition. Based on the AASHTO standards as defined under

Case B1 "Left-Turn from Stop," a minimum intersection sight distance of 440 feet and a minimum stopping sight distance of 270 feet are required for the proposed driveway. Upon evaluation of the proposed layout plan, the sight lines at the proposed site driveway would be sufficient to support full-movement access based on AASHTO requirements for the conservative 37-mph design speed. It is important to note that the proposed layout plan would provide for improved sight line conditions compared to the existing site layout. It should also be noted that West Boylston Street is a signalized corridor, and therefore a platooning effect would be anticipated which would create natural gaps in travel along the corridor for vehicles to exit the site. The proposed development is a low traffic generator with up to seven (7) vehicles projected to exit during the critical weekday morning peak hour, which equates to approximately one (1) vehicle every 8.5 minutes. As such, it is anticipated that sufficient gaps will be available along the corridor for a vehicle to safely exit the driveway.

Regarding the parking requirements for the proposed development, City of Worcester Zoning Ordinance requires one (1) resident parking space per dwelling unit and one (1) guest/unreserved parking space per 10 units within the Commercial Corridor Overlay District (CCOD), where the subject site is located. For the proposed 24-unit residential development, this equates to 26 required spaces. The site would provide 16 total parking spaces, inclusive of one (1) ADA-accessible parking space. Therefore, this application will seek parking relief. The parking spaces would be nine (9) feet wide by 18 feet deep in accordance with City of Worcester Zoning Ordinance and industry standards.

It is important to consider the urban/suburban setting of the proposed development, the availability of nearby transit options, and the characteristics of the proposed use when assessing the adequacy of parking supply. Based on the ITE Journal article, "Do Land Use, Transit, and Walk Access Affect Residential Parking Demand," there is a direct correlation between land use (i.e. rural/suburban/urban) and parking utilization, which "suggests that low auto ownership households often self-select locations than can support their transportation needs without a private vehicle."

The proposed residential development is designed with a focus on affordable housing, catering to residents who fall within the 80-100% Area Median Income (AMI) bracket, a demographic less likely to own vehicles and rather commute via public transportation based on industry data. It is also important to consider the nature of the proposed development and the relationship between household size and vehicle ownership. As the proposed development will be comprised entirely of studio units, each unit would likely be occupied by a one (1) to two (2)-person household. Therefore, it is anticipated that vehicle ownership will generally be lower for future residents compared to multi-bedroom unit offerings which would typically attract families and/or larger parties that may be dependent on one (1) or more vehicles per unit.

The parking supply was evaluated with respect to data published within ITE's Parking Generation, 6th Edition. Given limited sample sizes, data published for both Land Use 218 "Multifamily Housing – 1 BR (Mid-Rise)," and for Land Use 223 "Affordable Housing" were evaluated. The average parking demand rate during the peak weekday period for Land Use 218 "Multifamily Housing – 1 BR (Mid-Rise)" is 0.68 vehicles per unit, and for Land Use 223 "Affordable Housing" is 0.55 vehicles per bedroom. For the proposed residential development with 24 studio units, this equates to a projected peak parking demand of 13 to 16 vehicles. As such, the proposed parking supply of 16 spaces would be sufficient to support the demand of the proposed development.

It is important to note that as part of the proposed development program, the applicant will prepare a Transportation Demand Management Plan under separate cover which will inform residents of the available public transit opportunities and encourage multimodal transportation, thereby reducing vehicle dependency for future residents.

Based on nearby transit options for the site's residents, ITE Journal article research, published ITE parking demand rates, and the characteristics of the proposed development, the proposed parking supply of 16 spaces would be sufficient to support the expected parking demand of the proposed development.

Conclusions

This report was prepared to examine the potential traffic impact of the proposed multifamily residential development. The analysis findings, which have been based on industry standard guidelines, indicate that the proposed development would not have a significant impact on the traffic operations of the adjacent roadway network. The site driveway and on-site layout have been designed to provide effective access to and from the subject property. The site's proximity to WRTA bus stops would contribute to a reduction in automobile use and the proposed development program would cater to a reduced vehicle dependency for future residents. Based on published ITE parking demand rates and local characteristics of the site and surrounding area, the parking supply would be sufficient to support this project.

Please do not hesitate to contact our office if there are any questions.

Best regards,

Joshua H. Kline, PE
Stonefield Engineering and Design, LLC

Victoria E. Epstein
Stonefield Engineering and Design, LLC

LEGEND

- WRTA Routes 30 & 31 Outbound Bus Stops
- WRTA Routes 30 & 31 Inbound Bus Stops

STONEFIELD	**Proposed Residential Development** **342 West Boylston Street** **City of Worcester, Worcester County, Massachusetts** **Traffic Assessment Report**	**FIGURE 1** **WRTA Bus Stop Location Map**