



October 25, 2021

Ms. Marzie Galazka, Director  
Community and Economic Development  
Town of Swampscott  
27 Monument Avenue  
Swampscott, MA 01907

Re: Proposed Residential Development – Elm Place  
Peer Review of Traffic Impact Assessment and Supplementary Materials

Dear Ms. Galazka:

WorldTech Engineering (WTE) has performed a technical ‘peer’ review of the Traffic Impact Assessment and associated site plans for the proposed residential development to be known as Elm Place located off Pitman Road and Elm Place in Swampscott, Massachusetts. The project, known as the “Proposed Residential Development at 21 Elm Place Swampscott, Massachusetts”, as proposed is a development consisting of 120-multi-family residential units being serviced by 124 parking spaces according to a project update presented to the Town of Swampscott on July 13, 2021. The site currently contains two residential houses; one that fronts Essex Street and the other that fronts Pitman Street, a tumbling academy which will remain and a commercial warehouse that will be razed. Site access will be gained via a shared driveway on Elm Place. As part of this review effort, WTE reviewed the following documents:

- *Transportation Impact Assessment, Elm Place Multifamily Residential Development, by VAI dated January 2021.*
- *Elm Place application for Comprehensive Permit under MGL Chapter 40B.*
- *Project Update Presentation, Winn Properties, July 13, 2021.*
- *Parking Demand Study, VAI, September 28, 2021.*

Review by WTE included the above Items for conformance with the following, as applicable:

- Town of Swampscott Zoning Bylaws
- Transportation Impact Assessment Guidelines, by MassDOT dated March 14, 2014
- Manual on Uniform Traffic Control Devices (MUTCD) 2008 and Revisions, Federal Highway Administration
- Trip Generation manual, 10<sup>th</sup> Edition (and Supplement), Institute of Transportation Engineers, (ITE)
- Parking Generation Manual, 5<sup>th</sup> Edition, ITE
- Perfect Fit Parking Initiative, Phase 3 Update, January 21, 2020, MAPC.

In general, the traffic impact report has been prepared in a professional manner and our review focused on the adequacy of the study with regard to industry best practices for analyzing traffic operations, estimating project generated trips and related traffic impacts including TDM treatments and recommendations. It is our professional opinion that the information contained in this report is both technically accurate and portrays the likely impacts of the project on the surrounding roadway network.

### **TRANSPORTATION IMPACT ACCESS STUDY REVIEW**

The TIA for the proposed development consists of the construction of 128 multi-family residential units with off-street parking for 109 vehicles or a parking ratio of 0.85 spaces per unit, which is below the parking requirements required under current zoning. Parking will be provided on-site in a surface lot and access to the Project site will be provided by way of a new driveway that will intersect the west side of Elm Place approximately 190 feet south of Essex Street. According to the parking plan provided with the TIA, 109 new parking spaces will be provided in a new surface lot and an additional 17 spaces are designated for use by the existing tumbling academy. The parking for the new residential development and the existing tumbling academy are proposed to be accessed via a single driveway off of Elm Place. It is not clear how parking for the new residential complex will be managed in relation to the parking provided for tumbling academy. The proponent has proposed a revised parking plan which will increase the parking supply from 109 spaces to 124 for residences with additional parking for visitors and employees.

The project is reported to generate 578 net new vehicle trips on an average weekday, 36 net new automobile trips during the morning peak hour and 36 net new automobile trips in the afternoon peak hour. Estimates for transit and bicycle/pedestrian trips are provided as well. The proponent has proposed a reduction in the number of residential units from 128 to 120. This reduction in the size of the project will result in approximately 4 peak hour trips in the morning and 5 in the afternoon on an average weekday. The traffic operations analyses contained in the TIA used the higher traffic volumes to produce a slightly conservative analysis. A reduction in single occupancy vehicle (SOV) use is assumed based on data derived obtained from the 2013-2017 American Community Survey in the TIA. The 5% peak hour transit reduction value seems reasonable given the proximity to the commuter rail service and the project's commitment to provide a pedestrian connection to the Swampscott Commuter Rail Station.

## **EXISTING CONDITIONS**

### **Study Area**

The study area in the TIA includes the following intersections:

1. Essex Street at Burrill Street (Signalized)
2. Essex Street at Pitman Road (Stop Control)
3. Essex Street at Elm Place (2 locations-Stop Control)
4. Essex Street at Burpee Road (Signalized)

**The study area used in the Elm Place Residential Development TIA should be expanded to discuss the impacts at the intersection of Essex Street at Hillcrest Circle and Essex Street at Essex Terrace.**

### **Trip Distribution**

The trip distribution pattern developed for the site predicts approximately 2/3 of the trips are expected to access the site from the west and the remainder to the east along Essex Street. **This trip distribution pattern was developed primarily on Journey to Work census data, reviewed in the TIA and found acceptable.**

### **Traffic Volumes, Data Collection and Seasonal Adjustment**

Traffic volume data was collected at the study area intersections by means of manual turning movement counts in December 2020. The study reviewed December versus average monthly volume at a nearby permanent count location (# 8087) and adjusted the study traffic counts up by 3% to represent average annual traffic in further evaluations. Based on the pre and post-COVID-19 traffic conditions, the traffic count data was increased by an additional 18.4% to account for reduced traffic volumes in 2020 due to the pandemic.

**We are in general agreement that the use of the seasonal adjustment and growth factors for the project provides a reasonable basis from which to assess the potential impacts of the Project.**

### **Crash Data**

Motor vehicle crash data was obtained for the study area intersections from MassDOT for the 5-year period of 2013-2017. The safety analysis at the study area intersections showed an average of 1 or fewer crashes per year and crash rates well below the MassDOT Statewide and District average for similar type intersections.

***The motor vehicle crash analysis was completed in accordance with MassDOT standards, and we agree with the findings of the analysis.***

## **FUTURE TRAFFIC CONDITIONS**

### **General Background Growth**

A background growth rate of 1.25% per year was assumed based on a review of historic counts in the area and reported discussions with the Town of Swampscott, Community and Economic Development Department.

**The use of the 1.25% compounded growth rate is found to be reasonable for a background traffic growth rate.**

### **Specific Development by Others**

Two other minor development projects were identified in the TIA and trips associated with the project were estimated based on proposed land uses and additional traffic applied to the No Build study area traffic volumes.

### **Project-Generated Traffic**

The assumptions used to estimate weekday daily and peak hour traffic volumes were based on a combination of standard ITE<sup>1</sup> trip generation factors, Institute of Transportation Engineers Land Use Code (LUC) 221, Multifamily Housing (Mid-Rise), and adjustments for transit ridership based on pre-COVID census data. The estimates for transit ridership were based on information provided in the 2019 American Community Survey (ACS) for the Town of Swampscott. The data utilized in the trip generation adjustments were assumed to be more conservative than published census data to account for the unknowns in travel behavior during the current pandemic. It has been acknowledged that these trip generation rates used in the TIA are based on 120 units of residential development. The reduction in the size of the project, after the completion of the TIA, would result in a minor reduction in the number of new trips assigned to the study area intersections.

***The TIA utilizes a reasonable approach to establishing trip generation rate for the proposed project.***

### **Trip Distribution and Assignment**

Traffic volumes associated with the project were assigned to the study area roadways based on a review of the Journey-to-Work data.

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<sup>1</sup> Trip Generation, 10<sup>th</sup> Edition; Institute of Transportation Engineers; Washington, DC; 2017

***We find the Trip Distribution reasonable based on our familiarity with the local roadway network.***

### **Sight Distance**

Table 11 from the TIA presents the sight distance information for the intersection of Essex Street at Elm Place and the Project Site Driveway at Elm Place. Stopping Sight Distance (SSD) calculations were provided for a vehicle traveling on Essex Place to see a vehicle exiting the site driveway, to perceive a problem and react accordingly. Intersection sight distance (ISD) calculations were also provided which represents drivers looking for available gaps to safely exit the intersection or driveway.

The TIA concludes that if the measured ISD is at least equal to the required SSD values, then the intersection can operate in a safe manner. However, this may require a vehicle traveling on Essex Street to slow or stop to accommodate the vehicle pulling out of Elm Place. The site drive is shown to meet SSD and ISD for vehicles turning left onto Elm Place. The location of the parked cars and the snow storage areas just north of the site drive have the potential to block the sight distance for drivers exiting the site to turn left onto Elm Place.

**Recommendations should be provided to improve the sight distance for drivers on Elm Place to enter Essex Street to meet ISD requirements or provide additional warning measures to warn drivers on Essex Street. At the Site Drive intersection with Elm Place, review the parking layout along Elm Place to make sure that ISD sight triangles can be maintained, and snow storage and landscaping will not impede sight distances for exiting vehicles.**

### **Parking**

According to the TIA, there are 109 parking spaces proposed, for 128 multifamily housing units, which is calculated to be 0.85 parking spaces per unit. A strict interpretation of the zoning requirements would require 192 spaces based on current zoning requirements. The parking layout provided with the TIA did not show handicapped spaces, visitor spaces or car sharing spaces. The size of the proposed parking spaces was shown to be 9 feet by 18 feet with drive aisles of 24 feet in order to facilitate parking maneuvers. The parking spaces proposed along Elm Place requires drivers to either back into or out of the parking spaces fronting Elm Place. This is common to the interior of parking lots, but not expected on a public street. It also requires a setback variance from the zoning regulations and prevents a sidewalk being extended from Essex Street toward the site.

In order to provide additional information on the parking demand, a supplementary parking study was performed by VAI based on data obtained for three sites that were deemed to have similar travel characteristics to the residential development proposed in Swampscott. The following results were reported from that study” *On Average, the three sites were observed to have a peak-parking demand ratio of 1.11 spaces per dwelling unit on a weekday and 1.08 spaces per dwelling unit on a Saturday.*”

Several new publications indicate that a smaller number of parking spaces, below 1.5 spaces/residential unit is desirable. ITE recently published data<sup>2</sup> on parking that recommended 1.19 parking space per multifamily housing units or 0.61 parking spaces per bedroom, if within ½ mile of transit service. The 2019 MAPC parking study<sup>3</sup> surveyed sites with a parking ratio of 0.25 to 2.0 spaces per unit with an average of 1.0 space per unit. A recent update to the 2019 MAPC study was performed in four Northshore communities including in close proximity to Swampscott. A 0.95 parking demand ratio was surveyed, and the average parking supply was found to be 1.25 spaces per unit.

The trend toward providing less parking than traditional zoning requirements is well documented, but not widely adopted by local communities. Most of the recent research has been done under pre COVID-19 conditions. The VAI report did give some insight on the state of parking at residential developments under current travel conditions and corresponds fairly well to data in the new Parking Generation Manual published by ITE.

Recent presentations made to the Town of Swampscott in June and July of this year indicate a willingness of the Projects' proponents to downsize the project slightly from (128 to 120 units). At the same time the number of parking spaces would be increased from 109 to 124 spaces. While the number of parking spaces and the ratio would be increased (1.03 spaces/unit), it would still fall short of recommendations from ITE, zoning requirements, and local data surveyed this summer.

**We recommend a final review of the parking layout be provided, including how the management of the spaces will be performed. The parking management plan should include a description of the shared parking provided on the site with the tumbling academy.**

**Because of the residential neighborhood abutting the proposed development, if sufficient parking cannot be demonstrated on-site, residents and/or visitors will park on residential streets near the site. Recommendations for on-street parking regulations should be included as well. Other parking recommendations to be considered are the addition of reserved car share spaces and electric charging stations. Designate areas for both short and long term bicycle parking, as well as handicapped spaces.**

#### Site Access

In reviewing the site plan from a transportation and circulation perspective, WTE offers the following comments:

The applicant provided a Fire Department Access Plan, dated 1/11/21. The plan did not include fire truck vehicle tracking information.

**A revised plan should be prepared which includes swept path analysis on the site plans to**

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<sup>2</sup> ITE, Parking Generation, 5<sup>th</sup> Edition, 2019

<sup>3</sup> MAPC, Metro Boston, Perfect Fit Parking Initiative, July,2019

**ensure municipal fire vehicles can adequately maneuver the site. The applicant should coordinate with the Town's Fire Department and present their confirmation that the access needs for the site from a fire apparatus standpoint can effectively handle a response to the facility from a turning radius and building access perspective.**

**The applicant should provide information on how and where refuse/garbage pickup for the apartments units will take place. A vehicle turning radius assessment for refuse/garage trucks should be identified on the plan.**

**The requirements for STOP-sign control at the driveway locations and for other signs and pavement markings to be installed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) should be added to the site plans.**

#### Traffic Operations Analysis

Utilizing the observed roadway geometry, traffic volumes-both existing and projected- and the appropriate traffic control at each location; the TIA analyzed the impacts of the project at each of the study area intersections. The TIA utilizes the most appropriate version of the highway capacity software and presents an accurate description of the Level of Service terms.

In reviewing the analysis, we agree with the statement that the project related impacts have minor impacts to the study area intersections and all intersections are operating in an acceptable manner from a traffic operations and safety perspective. After reviewing the capacity analyses reports, Build conditions did not change any of the timings used in the analysis. Also, the queues formed on Essex Street in the southbound direction at Burpee Road and northbound at Burrill Street will continue to block two of the minor side streets in close proximity to the traffic signals.

**We request additional signage and pavement markings be installed at the Essex Street/Hillcrest Circle and Essex Street /Essex Terrace intersections to prevent queues from blocking those intersections**

**Please evaluate if signal timing changes at the two signalized intersections should be proposed under build conditions? This would include green times, vehicle clearance intervals and pedestrian crossing times.**

#### RECOMMENDATIONS & CONCLUSIONS

WTE has reviewed the TIA's conclusions and generally agree with the conclusion statement contained in the TIA. The conclusion states *"that The Project will not result in a significant impact (Increase) on motorist delay or vehicle queuing over existing or anticipated future conditions without the project."*

**We have requested optimized timings for the two signalized intersections.**

The TIA also makes a number of recommendations with respect to Project access and Transportation Demand Management (TDM) measures. In addition to those recommendations

provided in TIA, we would add the following additions or clarifications.

- At the site driveway onto Elm Place confirm that adequate sight distance can be provided, in consideration of the parking and snow storage issues described in this memo and adequate access can be provided for emergency vehicles and trash pickup.
- Provide a parking management plan that describes how shared parking with the tumbling academy will work and additional information on the location and number of handicapped spaces, ride sharing spaces, bicycle parking, electric charging stations and handicapped parking.
- Provide ADA-compliant wheelchair ramps at all pedestrian crossings internal to the project and for crossing the project site driveway.
- Provide a fire truck and trash truck access plan including vehicle tracking information.
- Provide a revised site access plan which shows proposed signs and pavement markings as well as the revised parking layout.
- Recommendations should be provided to improve the sight distance for drivers on Elm Place to enter Essex Street to meet ISD requirements or provide additional warning measures to warn drivers on Essex Street.
- Provide additional signage and pavement markings at the Essex Street/Hillcrest Circle and Essex Street at Essex Terrace intersections to prevent queues from the adjacent traffic signals from blocking traffic trying to gain access to/from Essex Street.

If you have any questions or require additional information, please feel free to contact me directly at any time.

Sincerely,

WORLDTECH ENGINEERING, LLC



Rodney C. Emery, P.E.