MEMORANDUM

DATE: September 29, 2014

TO: Mr. Nat Strosberg, Town Planner

FROM: Douglas C. Prentiss, P.E., PTOE DcP

SUBJECT: Traffic/Transportation Impact Peer Review
133 West Union Street (Route 135) – Proposed Residential Development
Ashland, Massachusetts

INTRODUCTION

Fay Spofford & Thorndike (FST) has been retained by the Town of Ashland to conduct a peer review of the traffic/transportation, pedestrian, and circulation impacts related to the proposed residential development to be located at 133 West Union Street. On the front portion or east side of the site, an historic house and barn exist and will be converted to a club house, while the back or westerly portion of the site will be developed. The site is presently located on the north side of West Union Street, between Ashland State Park Road and James Jackson Way (Middle School Drive). As currently proposed, the apartment complex is to be comprised of 140 units consisting of 74 one-bedroom units and 66 two-bedroom units. A total of 200 parking spaces would be provided on-site with a single access/egress leading to the project adjacent to the proposed club house.

To date, FST has received the following documents and plans:

- *Traffic Impact and Access Study – Proposed 40B Residential Development-133 West Union Street;* Green International Affiliates, Inc. dated June 2014
- *Traffic Impact and Access Study – Proposed 40B Residential Development-133 West Union Street;* Green International Affiliates, Inc.; Revised August 2014

In addition to the above studies, we are also in receipt of site plans for the project produced by Guerriere & Halon, Inc., dated 5/23/14, Sheets C 1-9.

This Traffic Impact and Access Study (TIAS) generally follows the format for the traffic impact and assessments, published by MassDOT. FST has the following comments on the traffic materials and site plan noted:

Traffic Study Area

The study area encompassed a total of seven (7) intersections, including four (4) signalized locations on both West Union and Union Street. For a project of this size, the study area is adequate.

Field Reconnaissance

FST conducted a site visit on September 18, 2014 and September 23, 2014 to observe traffic operations, traffic control conditions, general roadway circulation, signing, speed limits, pavement markings and pedestrian and bicycle activity.

Stopping Sight Distance

FST conducted an independent assessment of stopping sight distance at the proposed site driveway intersection with West Union Street. Stopping sight distance is critical to be satisfied in that it is significant safety issue. There are two segments of SSD, perception and reaction distance and braking distance. These requirements are set by American Association of State Highway and Transportation Officials[1] and adopted by MassDOT and are based on the travel speed of the roadway. With a speed limit of 35 mph on West Union Street in both directions, a stopping sight distance of 250 feet is required. During the field reconnaissance we found the sight distance exceeds the minimum requirements in both directions and it is documented in the TIAS.

Adequacy of Traffic Assessment Information Provided

FST has determined that in general, the traffic assessment follows standard traffic engineering guidelines for traffic impact assessments. A conclusions and recommendations section was included, broken down into project-related and non-project related.

Traffic Volume Data and Adjustments

Because of the type of land use, a residential development is typically busy weekday AM and PM periods. Raw data was included in the Appendix for these time periods and traffic networks using turning movement counts were included for the two analysis periods for study area intersections. Since traffic data was counted in February, we researched the MassDOT data base for seasonal adjustments and concur with the adjustment rate of 3% for February data to represent average month conditions. Automatic traffic recorder data was also included and the 24-hour volume along West Union Street and was recorded to be 14,300-15,600 vehicles per day. We concur with the seasonal adjustments. We reviewed the raw data and found pedestrian and bicycle data were also collected.

Accident Data

Accident data was also provided in the TIAS. FST reviewed the database (Table 2.4) and the crash analysis. It was reported that all study area intersections are below the MassDOT District 3 average crash rate. However it should be pointed out that the Union Street (Route 135)/Chestnut Street/Homer Street intersection, it is just 6% below the MassDOT District 3 average, potentially raising a concern for future monitoring.

Future No-Build Condition

Annual Traffic Growth

The TIAS noted the projection of traffic volumes for a future 7-year horizon period (2 year permitting-

[1] *A Policy on Geometric Design of Highway and Streets*; American Association of State Highway and Transportation Officials ;2011

construction period plus a 5-year build-out) to year 2021 using an annual rate of 0.5% per year, which is consistent with other studies being conducted in Town. Given that vehicle miles travelled nationally has decreased for a number of years, the 0.5% rate is very conservative and we concur with this methodology.

Background Development Traffic Growth

A second component of future traffic growth is traffic generated from other projects in the area. The TIAS cites seven (7) other development projects to be included a site-specific development project. We concur with the addition of traffic from these projects.

Adequacy of Vehicle Trip Generation/Distribution Assumptions

Site Generation

The traffic assessment included a vehicle trip summary of the project proposal using the Institute of Transportation Engineers (ITE) *Trip Generation*[2] publication. For informational purposes, this vehicle trip summary is included in Table 1 below. We concur with these ITE estimates.

Table 1 - Total Vehicle Trip Summary*			
Time Period	In	Out	Total
AM Peak Hour	14	58	72
PM Peak Hour	62	33	95
Weekday Daily	486	486	972
*From Table 3.1 of the TIAS			

Site Distribution

The TIAS notes that the site vehicle trip distribution patterns are expected to follow existing traffic patterns. That is, 64% of the site traffic will emanate from the north while the remaining 36% will come from the south. We concur with these calculated patterns.

Traffic Operational Analysis

- Signalized

Intersection capacity analysis was presented for the existing, 2021 No Build and 2021 Build condition using standard analysis techniques. Level of service results indicate for existing conditions that, all but one signalized location (Union/Chestnut/Homer) operate at acceptable levels of service during the AM peak period. At the latter location, the Union Street eastbound shared through/right approach operates at LOS F condition. The same holds true for the PM peak period, but only the intersection of Union Street/Main Street operates at unacceptable level of service, with two approaches (Main Street northbound left and Main Street southbound shared through/right) operating at LOS F condition. In the future conditions, there are anticipated to be failure approaches (LOS F) of the signalized intersections, with the Union/Chestnut/Homer intersection operating at LOS F with the project (No Build to Build) during the AM peak period.

- Unsignalized

The left turn from the Middle School Drive onto West Union Street operates at LOS F today and is expected to operate poorly in the future as well. We concur with the proponent's suggestion to provide police officer control at this location to provide safe access/egress. Operations at the site drive

[2] *Trip Generation;* Institute of Transportation Engineers; 2012; 9th Edition.

intersection are expected to be LOS F for both peak periods in the future.

SITE PLAN REVIEW

The traffic assessment does not provide any critique or comment on the site plan. FST has reviewed the site plan and we offer the following comments:

- Discussion and/or meetings should occur with the Town emergency services department regarding local safety concerns of the project, access/egress, etc.;
- There are no snow storage areas shown on-site. Snow removal areas or the process should be identified;
- Dumpsters are shown on the site plan. If trash trucks are to travel on-site, they should be limited to single-units trucks for ease of circulation. The Auto-turn program® should be run to verify safe on-site circulation and also assure safe emergency services vehicle circulation as well;
- A proposed bus stop is shown at the southwest quadrant of the site drive intersection with West Union Street. Is there a bus shelter there as well, or is a bus entering on-site? Is there a waiting area on the opposite side of the street? This needs clarification;
- A detail sheet of the handicap ramp is shown in the set of plans but ramps are not identified on the site plan. This should be clarified. It appears a sidewalk is shown from the site drive intersection to the north along West Union Street, but not labeled, nor is there a handicap ramp shown at the site drive intersection. This should be clarified;
- The geometry of the site drive intersection shows two 10-foot lanes exiting, a 6 foot-wide median island and a single lane entering with 20-foot corner radii. This is appropriate. We checked warrants for an exclusive left-turn lane on West Union Street and criterion is not satisfied;
- The site plan shows on-site parking for 200 vehicles, including handicap spaces. There are no sidewalks or crosswalks or pedestrian accommodations shown on the site plan. This needs to be addressed as it is a safety concern. Likewise, accommodations for bicycles are not identified. This needs to be addressed

MITIGATION

Reference is made to project-related and non-project related recommendations in the Conclusion and Recommendations section of the TIAS.

- For project-related recommendations, we concur with providing low-growth vegetation at the site drive intersection and installing a Stop line and Stop sign. These measures would enhance safety in the site area. We also concur with trimming the vegetation on the site frontage west on the north side of West Union Street and providing intersection advance warning signs on West Union Street as show below:

W2-2

- Reference is made to 'considering' installing a sidewalk connection on the north side of West Union Street from the site drive to the Middle School. We recommend this become a mitigation commitment by providing up to 100% design plans, including construction funding to realize this improvement measure;
- Provide sidewalks, crosswalks and general pedestrian accommodations on-site. Also provide for bicycle accommodations;
- Since the project traffic drops the overall level of service at the Union/Chestnut/Homer intersection from a LOS E to LOS F during the AM peak period, we would recommend the project proponent provide the funding mechanism to re-time and possible re-phase the signal to offset project impacts. In addition, the Union./Main intersection should be evaluated;
- Since the site drive intersection is expected to operate at LOS F (unacceptable conditions) during both peak periods in the future, there may be a safety concern. The proponent should conduct a traffic monitoring program at the site drive intersection with West Union Street and also conduct a signal warrant analysis to determine if a future signal system is appropriate to mitigation the project poor operations.

CONCLUSION

Based on our review of the TIAS and the site plans for traffic/transportation impacts, it appears no major additional traffic materials are required. The proponent should be commended for providing a comprehensive TIAS. All intersections have additional capacity to absorb traffic from the proposed project and one location - Union Street (Route 135)/Chestnut Street/Homer Street intersection, it is just 6% below the MassDOT District 3 average - and should be monitored in the future. We do however recommend some modifications of the site circulation and site plan. There are some supplemental efforts and materials noted above that would be required to fully document the project impacts for vehicles, pedestrian and bicycles.

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