



MEMO

TO: Ms. Marie Rodgers, Ipswich Zoning Board of Appeals

FROM: Jennifer Conley, PE, PTOE

SUBJECT: Traffic Peer Review Services, Age restricted housing, Town Farm Road

DATE: November 9, 2017

INTRODUCTION

WSP has reviewed the Traffic Study and Access Study (TIAS) completed by MDM Transportation Consultants (May 2017) for a proposed 40 unit age restricted residential development with primary access along Town Farm Road and a secondary access along Locust Street. WSP reviewed each section of the traffic study and finds the following:

EXISTING CONDITIONS

The TIAS analyzed the traffic impact of the proposed 40 units of age restricted housing on the intersection of High Street (Route 133/Route 1A) at Town Farm Road. The TIAS presented a description of the roadways, intersection geometry, existing traffic volume data, seasonality, crash data, speed data, and a sight distance analysis. WSP reviewed the existing conditions analysis in the TIAS and offers the following:

Both Town Farm Road and Locust Street are dead end roadways. Locust Street intersects with Town Farm Road which continues to High Street. Therefore, WSP finds it reasonable that the TIAS concentrated on the intersection of High Street at Town Farm Road. The description of intersection geometry in the TIAS is consistent with existing information available through aerials.

The TIAS presented peak hour traffic volumes during the weekday AM and weekday PM peak hours, which is typical for a residential type land use. The TIAS presented information regarding the impact of seasonal information on peak hour traffic volumes. WSP reviewed available MassDOT traffic volume data and finds that May is in

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fact a higher than average month. WSP finds it appropriate that the existing peak hour traffic volumes were not adjusted seasonally. The TIAS presents daily traffic volumes along Town Farm Road which is reasonable given the likely small amount of traffic currently traveling on Locust Street. The ADT presented in Table 1 is consistent with the daily traffic volume data in the appendix.

The 2017 Existing Conditions weekday AM and weekday PM peak hour traffic volumes presented in Figure 3 are consistent with the TMC data in the appendix.

The TIAS presented crash data at the intersection of High Street at Town Farm Road, along Town Farm Road in the vicinity of the primary access and along Locust Street in the vicinity of the secondary access. WSP verified that no crashes were reported at the intersection of High Street at Town Farm Road. There were however four crashes that occurred along Town Farm Road during the three year period.

WSP finds the speed data presented in Table 2 of the TIAS to be consistent with the speed study along Town Farm Road in the appendix. The TIAS presents the average and 85th percentile speeds along Town Farm Road in Table 2. The TIAS speed data indicated that the average speed along Town Farm Road was 26-27 mph and the 85th percentile speed was 30-31 mph. Based on the data presented in the TIAS, the 85th percentile speeds along Town Farm Road are higher than a 25 mph speed limit.

The TIAS presents a sight distance analysis in Table 3 (stopping sight distance) and Table 4 (intersection sight distance). Table 4 appears to include erroneous data for the required intersection sight lines for the 85th percentile speed, however, the error does not change the findings.

The proposed development has access along both Town Farm Road and Locust Street, however only provides sight distance measurements on Town Farm Road. The data provided indicates that with clearing and grading, the available sight lines on Town Farm Road will exceed the required minimums. The Town should contemplate a condition to that effect for both access points and require the applicant to maintain the landscaping such that it maintains the required sight lines.

NO BUILD CONDITION

WSP reviewed the No Build condition presented in the TIAS including background traffic growth, site specific developments, and the weekday AM and weekday PM No Build traffic volumes. WSP verified that traffic volumes at nearby MassDOT permanent count stations have experience no growth or negative growth. Although a one percent annual growth rate is a conservative assumption, WSP finds it reasonable based on standard methodology.

The TIAS correctly calculates the 2022 No Build Condition traffic volumes presented in Figure 4 based on a one percent annual growth rate and no site specific traffic volumes.



BUILD CONDITION

WSP reviewed the Build condition as presented in the TIAS including trip distribution, trip generation, and Build Condition traffic volumes. The proposed trips were calculated based on the ITE Trip Generation Manual, Land Use Code 252 Senior Housing Attached. Based on the TIAS, the project would generate 8 vehicle trips (3 trips in and 5 trips out) during the weekday AM peak hour and 11 vehicle trips (6 trips in and 5 trips out) during the weekday PM peak hour.

The site plan in the TIAS presents two unit detached housing. WSP reviewed weekday AM and weekday PM peak hour trip rates associated with both land use codes and found the use of attached housing to be appropriate. WSP finds the weekday AM and weekday PM peak hour trip generation presented in Table 5 to be a reasonable representation of project traffic.

WSP reviewed the trip distribution information provided in Table Figure 5, Trip Distribution, using both existing traffic patterns and the journey to work data provided in the appendix. WSP calculated the trip distribution based on existing traffic patterns (volumes split evenly along High Street) and spot checked the journey to work information provided in the appendix (60% to and from the south and 40% to and from the north). Due to the similar traffic splits along High Street, WSP finds the trip distribution to be reasonable. The site trips presented in Figure 6 of the TIAS were calculated correctly.

Both Figure 6, Site Generated Trips and Figure 7, 2022 Build Condition weekday peak hour traffic volumes include a disconnect between the High Street and Town Farm Road and the intersection of Town Farm Road at the site driveway. The weekday peak hour traffic volumes shown at the intersection of Town Farm Road at the site driveway are consistent with peak hour traffic volumes from the ATR along Town Farm Road found in the appendix. WSP verified that the 2022 Build Condition peak hour traffic presented in Figure 7, were correctly calculated based on the 2022 No Build peak hour traffic volumes and the trips associated with the proposed project.

The TIAS trip distribution assumed that all site trips will access the project via Town Farm Road, representing a worst case scenario on that roadway, but projecting no impact on Locust Street. Based on the site plan included in the TIAS, it is quite likely that some of the new units would use the Locust Street access point. The resulting impact at the intersection of High Street and Town Farm Road would be the same.

OPERATIONAL ANALYSIS

The methodology used in the TIAS for operational analysis was based on industry standards. Table 6 of the TIAS presents the LOS and delay values for the intersection of High Street at Town Farm Road as well as Town Farm Road at the site driveway. Based on the information presented in the TIAS, the intersection of High Street at Town Farm Road is currently operating at LOS F and will continue to do so in the No Build



condition. Based on the analysis in the appendix, the proposed age restricted housing would add 20 seconds of delay at the intersection of High Street and Town Farm Road. The analysis in the appendix shows that the queue along Town Farm Road (at High Street) would increase from 6 vehicles to 7 vehicles during the weekday AM peak hour and increase from 7 vehicles to 8 vehicles during the weekday PM peak hour due to the proposed project.

CONCLUSION

WSP finds that the TIAS follows standard methodology and that the increase in vehicle trips is anticipated to be low. The intersection of High Street and Town Farm Road is currently operating at LOS F and is projected to continue to operate at poor levels of service with increasing delays in the future. The TIAS does not identify any improvements required at the deficiently operating intersection, but based on the limited project related impact at this location (well less than one percent of the traffic), with the lack of documented safety concern, it is unlikely that the applicant would contribute to improvements at this location.

The Stopping Sight Distance (SSD) presented in Table 3 and the Intersection Sight Distance (ISD) presented in Table 4 of the TIAS indicate that the available sight lines at the Town Farm Road driveway are more than adequate for the posted speed or the traveling speed. No sight distance data was provided for the access point on Locust Street and no site trips were assigned to that roadway. Unless that access point is gated for emergency vehicles only, it is likely that the nearest units would use Locust Street for access. The applicant should locate that driveway to meet the sight distance requirement.