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Memorandum

To: Town of Orangetown Planning Board
From: Marissa Tarallo, PE, PTOE and Elaine Du; AKRF
Date: September 10, 2020
Re: 125 and 155 Greenbush Road – Traffic Impact Study Review
cc: Anthony Russo; AKRF

This technical memorandum summarizes AKRF's review of the following documents in connection with the proposed redevelopment of the 125 Greenbush Road and the proposed development of 155 Greenbush Road:

- Traffic Impact Study and associated materials prepared by Maser Consulting (the Consultant) dated July 24, 2019
- Study of Passenger Vehicles & Trucks prepared by Maser Consulting dated February 5, 2020
- Warehouse trip generation letter prepared by Maser Consulting dated March 9, 2020
- 125 Greenbush Avenue site plan prepared by Sparaco & Youngblood dated July 30, 2019
- 155 Greenbush Avenue site plan prepared by Sparaco & Youngblood dated July 30, 2019

In addition, AKRF reviewed the Hudson Crossing Industrial Park Traffic Study dated December 5, 2019 to determine if traffic generated by the facility was properly included in the 125 and 155 Greenbush Road Traffic Study.

PROJECT DESCRIPTION AND LOCATION

The Traffic Impact Study (TIS) dated July 24, 2019 describes the existing 125 Greenbush Avenue site having a 268,000 square foot (sf) warehouse with a 50,725 sf partially-occupied (approximately 30,725 sf occupied) office space.

The proposed redevelopment of 125 Greenbush Road would replace the existing office space with a 147,000 sf warehouse, for a total of 415,000 sf of warehouse space on the site. In addition, the proposed development of the 155 Greenbush Road site would include a 128,000 sf warehouse.

Although the Build program is clearly defined, there are inconsistencies in the occupancy of the existing 125 Greenbush site. The February 5, 2020 describes the existing site as having “some 270,000 square feet of occupied warehouse space and 51,000 square feet of unoccupied office space.” The Consultant should clarify the existing occupancy of the site.

EXISTING CONDITIONS

The TIS analyzed intersection operations at the following study intersections:

- NYS Route 303 and Mountain View Avenue
- Greenbush Road and 125 Greenbush Site Driveway (N)
- Mountain View Avenue/Site Driveway (S) and Greenbush Road (C.R. 11)

Based on the proposed use and the estimated trip generation, the number of and the locations of the study intersections is sufficient.

Traffic data was collected in March of 2019 when school was in session and found the peak hours of the study area intersections to be 7:45AM to 8:45AM and 4:45PM to 5:45PM for the weekday AM and weekday PM peak hours, respectively. Based on the hours of operation of the proposed facility, the March 2019 traffic data collected and the peak hours analyzed represent the peak periods of traffic generation to and from the facility.

The Study of Passenger Vehicles & Trucks prepared by Maser Consulting dated February 5, 2020 also included traffic data which was collected in for two days in October 2019 when school was in session. The study determined that the peak hours of the existing driveways were from 7AM to 8AM and 4PM to 5PM for the weekday AM and PM peak hours, respectively. This is to be expected with the exclusion of the Route 303 and Mountain View Avenue intersection which accounts for greater commuting activity.

The traffic data collection conducted in March and October of 2019 appropriately represents typical operating conditions for the site and study area intersections. However, the occupancy of the site at the time of both data collection efforts is necessary to use the data for trip generation purposes.

TRIP GENERATION AND DISTRIBUTION

NO BUILD TRIP GENERATION

The No Build traffic volumes were developed using a background growth rate for the study area to the Build year 2023 and adding estimates for the amount of traffic to be generated by the fully occupied existing 125 Greenbush site using the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition*.

A two percent background growth rate (0.5 percent per year) was utilized to grow traffic volumes to year 2023. In comparison, the Hudson Crossing Traffic Study assumed a one percent per year growth rate.

The Consultant should provide additional information to support the growth rate used. In addition, the Consultant should also include traffic volumes generated by the Hudson Crossing Industrial Park project at 200-400 Oritani Drive.

The existing 125 Greenbush Avenue site includes 268,000 sf of warehouse use and 50,725 sf of office use, of which approximately 20,000 sf is currently vacant according the TIS. The Consultant used ITE Trip Generation Rates to determine the estimated trips for the full occupancy of the existing land uses which were added to the future volumes.

While the methodology is generally acceptable, the Consultant should confirm the discrepancies regarding the occupancy of the existing site before determining the appropriate trip generation. A comparison of the projected trip generation to the existing trips being generated by the site should be provided to validate the trip generation assumptions.

BUILD TRIP GENERATION

The ITE *Trip Generation Manual, 10th Edition* Land Use Code 150 – Warehousing was used to develop trip generation estimates for the proposed warehousing at the 125 and 155 Greenbush Road sites. A comment from the Rockland County Department of Planning stated that Land Use Code 152 – High Cube

Warehouse may be more appropriate for the proposed use. **Table 1** presents the estimated trip generation using Land Use Code 152 from the *ITE Trip Generation Manual, 9th Edition* (as the 10th Edition no longer contains Land Use Code 152) compared to Land Use Code 150. For both peak hours, Land Use Code 152 – High Cube Warehouse would result in lower vehicle trips compared to Land Use Code 150 – Warehousing.

Table 1
Vehicle Trip Generation Estimates – General Warehousing vs High-Cube Warehouse

Peak Hour	Land Use 150 – Warehousing ¹	Land Use 152 – High-Cube Warehouse ²
<i>125 Greenbush Road – 415,000 sf</i>		
AM	91	58
PM	100	66
<i>155 Greenbush Road – 128,000 sf</i>		
AM	28	18
PM	31	20
Notes:		
All units represent total vehicles (including both passenger cars and trucks).		
1. Trip generation conducted by Maser Consulting, Traffic Impact Study dated July 24, 2019 using <i>ITE Trip Generation Manual, 10th Edition</i> generator peak hour rates.		
2. Vehicle trips calculated using <i>ITE Trip Generation Manual, 9th Edition</i> generator peak hour rates.		

In addition, changes from the 9th to 10th Edition of the *ITE Trip Generation Manual* further subdivided high-cube warehousing to include four distinct high-cube warehousing land uses:

- Land Use Code 154 – High-Cube Transload and Short-Term Storage Warehouse
- Land Use Code 155 – High-Cube Fulfillment Center Warehouse
- Land Use Code 156 – High-Cube Parcel Hub Warehouse
- Land Use Code 157 – High-Cube Cold Storage Warehouse

Of the four high-cube warehousing types included in the 10th Edition, Land Use Code 155 – High-Cube Fulfillment Center Warehouse would result in a similar trip generation rate as Land Use Code 150 – Warehousing and utilizing Land Use Code 156 – High-Cube Parcel Hub would result in a trip generation significantly higher than that of Land Use 150 – Warehousing.

The Consultant should provide additional details of the existing and intended warehouse use – whether it will be used as a parcel hub, fulfillment center, or other operations. In addition, the Consultant should provide a comparison of trips generated by the existing occupancy of the site to the ITE trip generation rates to validate the trip generation assumptions. Although the February 5, 2020 memo concludes that the trip generation is less than the ITE trip generation, the data presented is inconsistent with the counts provided in the Appendix.

BUS PARKING

The TIS does not discuss whether the existing bus parking on the 125 Greenbush Road site will remain with the proposed redevelopment. The TIS analysis includes the existing bus trips which are carried through the No Build and Build condition traffic volumes which would generally indicate the bus parking is to remain; however, the February 5, 2020 memo indicates that bus traffic will be eliminated.

The Consultant should confirm whether bus parking will be provided in the future. If bus parking is to be removed then the bus trips to and from the site should be removed in the No Build and Build Conditions.

TRUCK TRIPS

The TIS estimates five percent of entering trips and 20 percent of exiting trips would be truck trips during the weekday AM peak hour. For the weekday PM peak hour, 20 percent of entering trips and 10 percent of exiting trips were assumed to be truck trips. Based on the TIS Build trip generation estimates, this would result in approximately 21 trucks for the AM peak hour and 16 trucks for the PM peak hour. The traffic data collected in October 2019 for the existing site at 125 Greenbush Road generated a similar number of trucks (approximately nine to 13 trucks in the AM peak hour and 12 to 22 trucks in the PM peak hour) compared to the TIS estimate for the proposed Build condition with nearly double the amount of warehouse space. Using the *ITE Trip Generation Manual, 10th Edition* truck trip generation rates for the generator peak hour, the site should generate approximately 33 trucks in each of the AM and PM peak hours.

The consultant should update the truck trip generation to reflect truck trip generation rates and directional distribution from the *ITE Trip Generation Manual, 10th Edition* for the generator peak hours.

TRIP DISTRIBUTION

Project generated trips were assigned to the study area based on current traffic patterns estimating 90 percent of site passenger cars and 100 percent of trucks arriving/departing from the Route 203 intersection with Mountain View Avenue and the remaining 10 percent of passenger cars arriving/departing from north on Greenbush Road. Given the location of major corridors, commuter travel patterns and proposed truck restrictions the trip distribution assumptions are reasonable.

The applicant should consider additional measures to reduce truck traffic, such as signage at the Route 303 and Greenbush Road intersection to redirect truck traffic to Mountain View Avenue.

CAPACITY ANALYSIS

The Consultant conducted a capacity analysis for the weekday AM and PM peak hours using Synchro 10 and the *Highway Capacity Manual, 6th Edition* for the intersections of NYS Route 303 and Mountain View Avenue, Greenbush Road and 125 Greenbush Site Driveway (N), and Mountain View Avenue/Site Driveway (S) and Greenbush Road (C.R. 11). The Consultant concluded that similar Levels of Service and delays will be experienced at the study area intersections under the future No Build and Build conditions.

The methodology is acceptable; however the above comments on trip generation may alter the findings of the capacity analysis. In addition, the following should be included in the revised capacity analysis:

- The heavy vehicle percentages should be revised in the Build Synchro models to reflect the future truck trip generation;
- Include pedestrian calls (if pedestrian data was not collected, approximately five calls should be included) at the Route 303 & Mountain View Avenue intersection for all Synchro models; and
- The HCM 6th Edition reports for the unsignalized intersections in addition to the Synchro reports should be included in the Appendix.

CRASH ANALYSIS

A crash assessment, including the most recent four year period from January 1, 2015 to December 31, 2018 for the NYS Route 303/Mountain View Road intersection was provided by the Consultant dated August 1, 2020. The crash assessment concluded that based on the expected trip generation for the Proposed Project, it is not anticipated to have a significant impact on the accident rates on the area roadways.

The data provided indicates that the intersection has a crash rate of 1.05 crashes/Million Entering Vehicles (MEV) for the most recent three-year period from 2016-2018. In comparison, the statewide average crash rate for similar intersection facilities is 0.52 crashes/MEV.

Based on these findings it is recommended that the Consultant investigate the existing crash patterns to determine if additional measures could be provided to improve safety.

PARKING

The parking calculations presented on the site plans indicate that at the 125 Greenbush Road site 1,384 parking spaces are required and 455 parking spaces are provided, and at the 155 Greenbush Road site 421 parking spaces are required and 148 parking spaces are provided. This results in a total shortfall of 1,202 parking spaces, for which a variance is required.

In addition, as noted by the Rockland County Department of Planning, all of the proposed parking is currently delineated for passenger cars with no parking spaces dedicated to truck or trailer storage.

The Consultant should provide an evaluation of existing parking demand and projected parking demand with the Proposed Project, including passenger cars, trucks and buses if applicable.

SITE PLAN COMMENTS

AKRF has reviewed the 125 and 155 Greenbush Avenue site plans prepared by Sparaco & Youngblood dated July 30, 2019 and have the following comments:

- Please provide sight distance diagrams for the proposed 155 Greenbush Avenue driveway in addition to any proposed traffic control signage and striping (i.e., stop bar and stop sign) if applicable.
- Please provide details on proposed signage (if any) at the site driveways to restrict truck movements.