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September 3, 2021

Township of Mahwah
475 Corporate Drive
Mahwah, NJ 07430
Attn: Ms. Geraldine Entrup
Administrative Officer, Planning Board

**RE: Proposed Industrial Warehouse
Russo Acquisitions, LLC
1000 MacArthur Boulevard
Block 135.01, Lot 65
Mahwah Township
Bergen County, New Jersey
ATDE Project No. ANJ21026**

Dear Ms. Entrup:

Atlantic Traffic & Design Engineering, LLC (ATDE) is in receipt of the August 10, 2021 **Boswell Engineering traffic review** letter prepared by Frank Dobiszewski regarding the above-referenced project. ATDE discussed the comments with Mr. Dobiszewski on an August 25, 2021 telephone call. In response, we are providing 18 copies of the following:

1. Traffic Impact Analysis prepared by ATDE, dated May 27, 2021 and revised September 3, 2021.

Comments:

- The report includes narrative and results of the roadway network in and around the proposed site. The network was created using the Synchro/SimTraffic software package. As part of the review, the files created and used by Atlantic were requested to assist in the review. These files were received and were able to be read. When imported into Synchro, the files were checked using the program's error routine. As you can see in the attached screenshot, a number of errors were flagged by the program. These should be reviewed and addressed by Atlantic, since it is not known if said errors do/will have an impact on an individual node and/or the overall network results.

ATDE has revised the Synchro model to allow the minimum gap to equal the vehicle extension at all study signalized intersections. However, the warnings that the all red time is less than 0.5 seconds is due to the

existing signal timing operations for permitted/protected left-turn movements. Additionally, the warning that volume exceeds capacity at the intersection of MacArthur Boulevard and Island Road (CR 85)/NJ Route 17 northbound ramps cannot be satisfied due to the existing congestion at the intersection.

- According to the NJDOT's Safety Voyager website, a number of crashes in and around the site have occurred. A crash summary is attached. The report should be revised to determine if any safety measures are needed to reduce and/or mitigate these crashes.

The overall accident summary results were briefly discussed at the August 18, 2021 meeting held with the Township Police and Boswell Engineering. The Police Department did not raise any specific concerns with historic vehicle accidents in the site vicinity, and there was no mention of accident records in their July 19, 2021 memo for this Application.

Mr. Dobiszewski subsequently provided 43 accident records which were summarized by ATDE in the attached Table 1. The results show that a total of 12 accidents occurred at the MacArthur Boulevard/Ridge Road intersection over a 3-year span. The factors associated with these accidents do not suggest that there are specific design flaws associated with the intersection. Note that 30 of the accidents were found to along NJ Route 17 or the NJ Route 17 entrance ramp.

- The report should include an evaluation on whether or not acceleration and deceleration lanes for the site's access point are required, as stipulated under §22-6.2e. These may be required since the number of heavy vehicles projected to use the site will be prevalent.

Acceleration/deceleration lanes are not proposed. Following the August 18, 2021 meeting with the Township Police and Boswell Engineering, Bohler has further revised the new site driveway design on MacArthur Boulevard to better accommodate WB-67 tractor trailers. Trucks will only be permitted to exit as a right turn with sufficient geometry to turn into the eastbound curb lane. Sight triangles will be provided in accordance with AASHTO guidelines.

- › The trip generation methodology employed for the study follows standard and accepted industry practice and no exceptions are taken.

Acknowledged.

- › The parking generation methodology employed for the study follows standard and accepted practice and no exceptions are taken.

Acknowledged.

- › Split optimizations were selected as part of the analyses for all intersections. Optimization should only be selected at locations where changes are proposed. A table should be included for existing splits and proposed splits for the intersections analyzed.

As discussed with Mr. Dobiszewski on August 25, 2021, in the revised Traffic Impact Analysis ATDE has used the split optimization feature within Synchro followed by manual adjustments for the intersections of MacArthur Boulevard with Ridge Road and with Island Road (CR 85)/NJ Route 17 NB Ramps. The intersection with Ridge Road was mitigated from Level of Service F movements to D or better during the AM peak hour and E or better during the PM peak hour. The signal timing changes recommended by ATDE include a reallocation of green time from the Ridge Road right-of-way to the MacArthur Boulevard lead-left signal phase. This was found to reduce the 95th percentile vehicle queue for the westbound left-turn movements such that it can be accommodated within the existing storage area.

The intersection with Island Road (CR 85)/NJ Route 17 NB Ramps was found to be significantly congested under future No-Build conditions. ATDE had proposed split optimizations at the intersection which provided an overall delay decrease of 12.9 seconds during the AM peak hour and 0.2 seconds during the PM peak hour. However, as ATDE testified at the initial Planning Board hearing, this intersection has substantial, existing capacity constraints which are a regional matter beyond the scope of this Application.

- › Proposed changes to the splits at intersections studied will require review, approval, and implementation by the respective agency who owns the signals.

Acknowledged.

- › Lead/lag optimization should not be included in the analyses, since only lead turn phases are being used.

ATDE did not recommend any optimization of the lead/lag phases. The existing signal phase configuration remained the same and only green time shift optimization and modifications were considered under mitigated conditions.

- › The intersection phase recalls should be adjusted to reflect actual operating conditions.

ATDE has modified the phase recalls within the Synchro software based on our phone discussion with Mr. Dobiszewski on August 25, 2021.

- › Results from the analyses indicate a number of locations where the existing and/or future queue lengths may be significant. In these instances, clarification should be provided on the impacts on the roadway network around the site. The clarification should also include if these situations can be mitigated.

As described above, the revised Traffic Impact Analysis includes the recommendation for additional green time modifications for the intersection of MacArthur Boulevard and Ridge Road to reduce westbound queuing for left turns.

- › Intersection phase assignments should be checked to ensure that NEMA phasing is coded, such as dual-ring, quad-left. In reviewing the assignments, it appears that non-NEMA phasing has been coded, which is not supported in Synchro.

Although reconfiguring the study intersections to adhere to NEMA phasing does not affect the Level of Service or queueing results within the Synchro model, ATDE has modified the network to conform to NEMA phasing based on our phone discussion with Mr. Dobiszewski on August 25, 2021.

Plan Set:

- The location of the proposed driveway access off MacArthur Boulevard is on a curve. This is of particular concern given the amount of anticipated truck traffic. If the location remains as proposed, the applicant must demonstrate that adequate sight distances are provided. In addition, warning signs and possibly flashing beacons or similar measures should be added. These would be in addition to the proposed signing.

Bohler has revised the Site Plans to provide additional geometry and other modifications for the new site driveway proposed on MacArthur Boulevard following the August 18, 2021 meeting with the Township Police and Boswell Engineering. Sight triangles are proposed at the access in accordance with AASHTO guidance for tractor trailer left-in/right-out movements. In addition to serving the site driveway, the improved sight lines are expected to significantly benefit existing motorists traveling along the MacArthur Boulevard site frontage.

- Area(s) for snow stockpiling should be depicted.

A note will be added to the Site Plans to include the appropriate area for snow stockpiling.

- It appears that there are separate site access points for trucks and smaller vehicles (cars). Signing should be provided to direct truck traffic to the appropriate driveways.

The Site Plan will be revised to include signing that will direct passenger car traffic and truck traffic to the appropriate driveways.

- The proposed guiderail needs to be designed and placed in accordance with current and accepted design standards, including end treatments, length of need, etc.

The Applicant agrees to provide a guiderail design in accordance with current standards.

Please contact the undersigned with any questions regarding the above.

Very truly yours,

Atlantic Traffic & Design Engineering, LLC
N.J. P.E. Cert. of Authorization No. 24GA27957900



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encl

cc: Michael Kelly, P.E. - Boswell Engineering
Frank Dobiszewski, P.E., PTOE - Boswell Engineering
Mike Pembroke - Russo Development
Doug Bartels, P.E. - Russo Development
Bruce Whitaker, Esq. - McDonnell & Whitaker LLC
Ben Crowder, P.E. - Bohler



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Table 1
Crash Report Summary by Location
January 2016 to December 2018

Location	No.	Date	Time	Severity	Description	Apparent Factor
Ridge Road & MacArthur Boulevard	1	1/10/2016	5:50 PM	PDO	Animal	Animal's Action
	2	4/28/2016	8:26 AM	PDO	Rear End	Following Too Closely
	3	5/7/2016	8:42 PM	PDO	Rear End	Driver Inattention
	4	7/27/2016	9:08 AM	Injury	Right Angle	Traffic Control Devices Disregarded
	5	10/24/2017	12:42 PM	PDO	Rear End	Driver Inattention
	6	12/20/2017	6:53 AM	Injury	Head On	Unknown
	7	6/20/2018	12:53 PM	PDO	Rear End	Following Too Closely
	8	6/26/2018	5:58 PM	PDO	Rear End	Unknown
	9	9/27/2018	12:12 PM	Injury	Animal	Animal's Action
	10	10/19/2018	6:50 PM	PDO	Animal	Animal's Action
	11	10/29/2018	5:43 PM	PDO	Rear End	Driver Inattention
	12	12/27/2018	6:27 PM	PDO	Animal	Animal's Action
NJ Route 17 & MacArthur Boulevard	13	6/1/2016	5:08 PM	PDO	Rear End	Following Too Closely

* PDO = Property Damage

**43 crash records were provided by Frank Dobiszewski, P.E., PTOE, IMSA III of Boswell Engineering. However, 30 of the crashes occurred along NJ Route 17 or along the NJ Route 17 entrance ramp and therefore were not included.