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Mr. Paul Ricci, PP, AICP
Principal
Ricci Planning
177 Monmouth Avenue
Atlantic Highlands, NJ 07716

VIA EMAIL: paul@ricciplanning.com

**Re: First Traffic Engineering Review
Proposed Convenience Store with Fuel Pumps
Block 436, Lot 11.01
1951 East Edgar Road, City of Linden, Union County, NJ**

Dear Mr. Ricci:

Site Circulation/Parking

We have reviewed the Preliminary and Final Major Site Plan for Wawa Linden, dated 3/20/2020, prepared by Maser Consulting, P.A. We offer the following comments and reserve the right to provide additional comments at the public hearing:

1. The Applicant provides a vehicle turning template that shows a garbage truck. The garbage truck template appears to enter, circulate and exit the site with no apparent problems.
2. The Applicant provides a vehicle turning template that shows a WB-50. However, the WB-50 tractor trailer is shown straddling the circulation aisle in the rear of the convenience store. The Applicant shall rectify this situation and show the WB-50 entering, circulating and positioning the WB-50 within the striped "Loading Zone".
3. The Applicant shall provide vehicle turning templates for a fuel tanker truck entering, circulating to the underground storage tanks and exiting the site.
4. The Applicant shall indicate where oversized vehicles such as landscaping vehicles with trailers would park on site to access the convenience store and retail store.
5. The Applicant shall provide a vehicle turning template for a landscape vehicle with trailer entering at the proposed driveways, circulating to the fueling pumps, and exiting the site.

6. The Applicant shall provide testimony regarding coordination of deliveries of fuel, convenience store items and retail items.
7. The Applicant shall provide testimony regarding delivery of convenience store items, retail store items and fuel regarding time of day, day of week, duration, size of vehicles, position of the fuel delivery vehicle.
8. The Applicant should request the specifications for the appropriate City of Linden fire truck and prepare a vehicle turning template. We defer to the Fire Department for their review and comment on the fire truck circulation on the site plan.
9. The construction details, sheet 20 of 20 shows that diesel fuel would be sold. The Applicant shall indicate if these would be high volume dispensers, capable of serving tractor trailers. The Applicant should indicate which fueling positions will dispense "diesel" fuel. The Applicant shall provide vehicle turning templates for a tractor trailer entering, circulating to the fueling position and exiting the site.
10. The Applicant shall provide sight triangle at the Route 1&9 driveway and the Park Avenue driveway. The choice of landscaping plant materials should be such that they do not grow to block the sight distance at any driveway or any intersection within the property.
11. The site plan does not label the dimensional width between the fueling pump islands. The Applicant shall provide testimony as to the adequacy of the width between fueling positions to accommodate a vehicle passing between those two vehicles being fueled. The Applicant shall provide turning templates of vehicles at the fueling positions and vehicles maneuvering through the fueling aisles.
12. The City of Linden Ordinance requires 1 parking space per 200 SF of gross floor area for retail and gasoline service station uses. The Applicant has calculated the square footage of retail store at 7,200 SF, requiring 36 parking spaces and the gasoline service station space at 5,585 SF (or 5,051 SF?), requiring 28 parking spaces (25 parking spaces). Based on these calculations, the Ordinance requirement would be 64 parking spaces (61 parking spaces).
13. The proposed 90 parking spaces in the Zone Data table (91 parking spaces shown on the plan) require four (4) ADA parking spaces. The Applicant provides two (2) ADA parking spaces at the front of the convenience store and two (2) at the front for the retail store. The Applicant shall provide testimony as to the need for any van accessible parking spaces.
14. The Parking Generation, 5th Edition, published by the Institute of Transportation Engineers (ITE) provides data for a Super Convenience Market/Gasoline Station (which have a convenience market of at least 3,000 square feet of gross floor area and at least 10 fueling positions) supporting an average peak period parking demand of 8.11 parked vehicles per 1,000 SF for a weekday (Monday through Friday), 7 AM to 8 AM and 11 AM to 12 Noon for a Convenience Market/Gas Station. A 5,585 SF convenience market calculates to an average peak period parking demand of 45 parked vehicles. The range of average peak parking demand is 5.18 to 11.67 parked cars per 1,000 SF, or 29 to 65 parked cars. The 85th percentile peak parking demand is 11.15 parked vehicles per 1,000 SF or

62 parked vehicles. The Applicant shall provide testimony regarding their experience with the adequacy of a proposed parking supply of 50 parking spaces.

15. The "Proposed One-Story Retail 7,200 SF" shows "44 Parking Stalls", where 41 are proposed and 36 parking spaces are required. The Applicant shall provide testimony regarding their experience with the adequacy of a proposed parking supply of 41 parking spaces.
16. The proposed parking stalls are 9-foot wide by 18-foot long for the retail space. The convenience store parking spaces are proposed at 10-feet wide by 20-feet long. The Applicant shall provide testimony regarding the industry standards for the 9-foot by 18-foot parking space dimensions for the potentially high-turnover parking demand for the retail space.
17. The two-way drive aisles are at least 24-feet wide. This is acceptable.
18. The Applicant shall indicate the number of employees on site at the maximum shift of the gasoline station, convenience store, and retail store(s). The Applicant shall explain if certain parking spaces will be designated for employees.
19. The bollards proposed in those parking spaces around the perimeter of the convenience store do not encroach on the 20-foot long parking stalls around the convenience store. However, the proposed "Wawa Parking Only" signs in bollards along the side of the retail store would encroach on the 18-foot long parking stall length. The Applicant shall rectify this situation. The Applicant shall provide details on the position of the bollards in those parking spaces to show the effective length of those parking spaces. Or the Applicant shall install the parking restriction signs on the wall of the retail store.
20. The Applicant shall provide testimony regarding traffic control for vehicles circulating around the site and the building. The Applicant shall indicate if there are need for STOP signs at any of the internal intersections.
21. The Applicant shall indicate if NJDOT requires "NO LEFT TURN" signs and/or a "ONE-WAY" sign to be mounted on the Jersey barrier opposite the Route 1&9 driveway.
22. The Applicant proposes sidewalk to provide pedestrian connections between the site and Route 1&9 as well as Park Avenue.

We have reviewed the Traffic Impact Study, dated January 23, 2018, revised March 18, 2020. prepared by Maser Consulting, P.A. We offer the following comments and reserve the right to provide additional comments at the public hearing:

23. The Applicant has studied the traffic conditions at the intersection of Route 1&9 with Park Avenue, Route 1&9 with the site driveways and Park Avenue with the site driveways. The scope of study was determined by NJDOT and is acceptable.
24. Traffic counts were taken on Thursday, March 23, 2017 during the AM peak period of 7:00 AM to 9:00 AM, during the PM peak period from 4:00 PM to 7:00 PM and Saturday, March 25, 2017 during the midday peak period of 11:00 AM to 2:00 PM. These traffic data collection time periods are acceptable; however, the traffic counts are three years old. The Applicant shall address the age of the traffic counts.

25. The AM peak hour was determined to be 7:30 AM to 8:30 AM, the PM peak hour was determined to be 4:45 PM to 5:45 PM, and the Saturday peak hour was determined to be 12:45 AM to 1:45 PM.
26. The existing traffic counts were projected to the year 2023 by a 1.00% annual growth factor. However, the 2017 traffic volumes were only grown by a factor of 1.03 or 1.00% for three years to 2020. The Applicant shall revise the year 2023 No-Build traffic volumes with a growth rate of 1.00% compounded for six years.
27. The Applicant contacted the City of Linden and NJDOT to inquire about other developments that could generate traffic in the area that should be added to the studied intersections and were told that there were no other developments to consider. The Applicant shall indicate the date when the City was contacted and determine if other developments have been approved since that date.
28. The Applicant proposes 5,585 (or 5,051) square foot Convenience Market with 16 fueling positions and a 7,200 square foot retail space. The Trip Generation values shown in Table 2 are generally consistent with the trip generation calculations provided in the *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE), as well as the NJDOT HAPS trip generation. However, we defer to NJDOT for comments.
29. The Applicant applied the appropriate “Pass-By” percentages to the AM, PM and Saturday peak hour site generated trips. We defer to NJDOT for comments.
30. As per NJDOT requirements, a Gravity Model was prepared to determine the trip distribution of site-generated trips. We defer to NJDOT for comments.
31. The Applicant used Synchro 9 software based on the current Highway Capacity Manual (HCM) to analyze the operation of the intersections. We defer to NJDOT for comments.
32. The Applicant indicates the length of the 95th percentile vehicle queues on the site driveways would be less than two (2) vehicles, which can be accommodated within the layout of the site. The Applicant shall summarize the change in 95th percentile queue between the future No-Build and the future Build analyses for the intersection of Route 1&9 with Park Avenue.
33. Table 9 shows that the additional site-generated trips would be approximately less than 2.5 percent of the total traffic volumes at the intersection of Route 1&9 with Park Avenue.
34. The Applicant shall provide an exhibit that illustrates the planned improvements to the intersection of Route 1&9 with Park Avenue associated with the Goethals Bridge Interchange Ramps Project.
35. The Applicant references modification to the traffic signal timing at Route 1&9 with Park Avenue. This intersection is under the jurisdiction of NJDOT and permission from NJDOT must be obtained to implement that modification. The Applicant shall provide testimony as to the status of NJDOT permission to optimize the traffic signal timing.
36. Appendix E, Capacity Analysis Summary Table summarize the Levels of Service (LOS) and Average Vehicle Delay for the studied intersections. There would be no violations of the allowable increase in average delay per the NJDOT Access Code. The results of the intersection analyses for the No-Build and the Build conditions include the additional northbound left turn lane and the traffic signal timing optimization.

37. The Goethals Bridge Interchange Ramps Project will add an additional northbound left turn lane on Route 1&9 at Park Avenue. The Applicant shall provide testimony as to the schedule for completion of that additional northbound left turn lane. The Board may want to consider restricting occupancy of the subject site until the improvements are in place.
38. The Applicant shall indicate the number of deliveries per week for each type of vehicle: tractor trailer, fuel tanker truck, box truck, etc.
39. The Applicant shall indicate the number of times per week the garbage and recycling would be collected.
40. In 2018, the Applicant had proposed to sign and stripe "DO NOT BLOCK INTERSECTION" on Park Avenue in front of the Park Avenue site driveway on the Dimension Plan sheet, revised 7/23/2018, prepared by Maser Consulting. The striped box covered an area 32 feet across the three eastbound lanes of Park Avenue, and approximately 75 feet along width of the site's depressed curb driveway. The striped box started approximately 220 feet from the STOP line of the eastbound through and right turn lanes. The plan also showed a sign, R10-7, "DO NOT BLOCK INTERSECTION" located approximately 8 feet west of the Park Avenue site driveway, facing eastbound traffic. The striped box consisted of a cross-hatched grid pattern of 4-inch wide, thermoplastic stripes. In a meeting on October 19, 2018, the Applicant's traffic engineer stated that the single westbound travel lane of Park Avenue is approximately 21 feet wide, wide enough for a vehicle to pass another vehicle waiting to make a left turn into the site. The Applicant's traffic engineer provided a tabulation of calculated vehicle queues on eastbound Park Avenue for the No-Build and Build conditions. These tables, below, show that the 50th percentile and 95th percentile vehicle queues would be greater than 220 feet and would extend past the proposed site driveway. However, the Applicant's traffic engineer stated that the DO NOT BLOCK INTERSECTION signing and striping should prevent the vehicle queues from blocking the site driveway, permitted vehicles to turn into and out of the site driveway. In October 2018, the Applicant had submitted their application to NJDOT for their review and comment. These vehicle queues are based on an adjustment to the signal timing at the intersection of Route 1&9 with Park Avenue. The Applicant shall provide testimony why this "DO NOT BLOCK INTERSECTION" is no longer being proposed.

If you have any questions, please contact me at 973-985-3464.

Very truly yours,



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