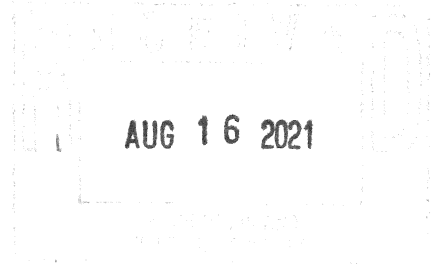


STONEFIELD

August 13, 2021

Neptune Township
Planning Board
PO Box 1125
Neptune, NJ 07754-1125



**RE: Proposed Mixed-Use Development
Block 701, Lot 1
NJ Route 35 & Asbury Avenue
Township of Neptune, Monmouth County, New Jersey
SE&D Job No. PRI-200142**

Board Members:

Stonefield Engineering & Design, LLC is pleased to submit documents to address the comments contained in the Sam Schwartz review letter dated July 19, 2021. Please find the following items enclosed for review:

<i>ITEM DESCRIPTION</i>	<i>DATED</i>	<i>COPIES</i>	<i>PREPARED BY</i>
Weave Analysis Report	08-11-2021	15	Stonefield Engineering & Design
Asbury Avenue Driveway Exhibit	07-26-2021	15	Stonefield Engineering & Design

The following is an itemized response to the comments contained within the above-mentioned review letter.

I. Sight Distance

- a. The northwest site driveway on Asbury Avenue is proposed as a full movement driveway. Therefore, vehicles exiting the site at this driveway must have a sufficient line of sight (sight distance) to approaching traffic in order to complete either a left or right-turn safely and without hindrance to through traffic on Asbury Avenue. The American Association of State Highway Transportation Officials (AASHTO) provides design guidance for intersection sight distance (ISO) in the "AASHTO Green Book" (A Policy on Geometric Design of Highways and Streets, 7th Edition, 2018). It is standard engineering practice to select a design speed equal to the posted speed limit plus five miles per hour unless specific conditions provide engineering rationale to the contrary or if empirical spot vehicle speed data corroborates the use of a different design speed. The Applicant used a design speed of 30 MPH in ISO calculations, which is five miles per hour less than the posted speed limit along Asbury Avenue, therefore, the design speed used is less than standard engineering practice. The Applicant should provide testimony supporting the selection of a 30 MPH design speed for this ISO calculation and/or empirical evidence (speed data) justifying the deviation from standard engineering practice.

Moreover, the vehicular circulation plans (reference made to the Applicant's Site Plan Sheet C-24) depict a WB-50 truck making a left-turn from this driveway. Even when using a design speed of 30 MPH, AASHTO (Section 9.5.3 equation 9-1) requires 540 feet of ISO for combination truck to complete a left-turn from a minor street (driveway) onto a three-lane roadway (two-way center turn lane median is counted as a lane per AASHTO Table 9-6) with a stop condition (AASHTO Case B1). The calculations for the required ISO for Case B1 are shown below:

$$\text{ISD combination truck} = 1.47 \times 30 \text{ MPH} \times (1.1 \text{ s} + 0.7 \text{ s}) = 540 \text{ feet}$$
$$\text{ISD passenger car} = 1.47 \times 30 \text{ MPH} \times (7.5 \text{ s} + 0.5 \text{ s}) = 355 \text{ feet}$$

Furthermore, a sight triangle (that is, a triangle showing the outer limits of the area in which a line of sight must be maintained for vehicles entering the roadway from a stop controlled minor approach) is depicted on the Site Plan for this location. The sight triangle includes other portions of the site that would be prone to frequent sight obstructions, such as the two-lane drive-thru for the proposed retail store. It can therefore be concluded that the proposed northwest driveway does not provide sufficient sight distance and must be redesigned or converted to a one-way ingress.

Response: The Monmouth County Planning Board checklist requires sight distance be provided seven (7) seconds from the proposed intersection. Asbury Avenue has a posted speed limit of 35 mph (40 mph design speed). It is noted that the design speed for eastbound traffic was based on design speed for the inside radii of the curve for vehicles traveling from the circle to Asbury Avenue (30 mph design speed). See below the sight distance calculations based on Monmouth County standards:

Design Speed 40mph (looking right at both Asbury Avenue driveways and looking left at Asbury Avenue easterly driveway)

40 mph = 59 ft/s = sight distance / 7 seconds of visibility → sight distance = 59ft/s * 7seconds = 413 ft → 415ft

Design Speed 30mph (looking left at westerly driveway)

30mph = 44 ft/s = sight distance / 7 seconds of visibility → sight distance = 44ft/s * 7seconds = 308 ft → 310ft

2. Access Restrictions

- a. The southwest site driveway on Route 35 is proposed as a right-in / right-out driveway; however, no signage is proposed on the Site Plan that would limit left turns in or out, and the turning restrictions are not enforced through geometric design. The Applicant should consider utilizing a "pork chop" geometric configuration to prohibit left-turns at this location. A sample of this type of geometric design configuration from the Monmouth County Development Regulations Design Standards is included in the Appendix. It should be noted, however, that the southwest site driveway on Route 35 must conform to applicable NJDOT design standards since it is located within the state highway.

Response: A porkchop island will be provided at the northerly Route 35 driveway to restrict left turns into and out of the site.

3. Minimum Required Throat Depth (MRTD) & Ingress Blockage

- a. The right-turn-only southwest site driveway on Route 35 provides approximately 30 feet of driveway throat depth as shown on the Site Plan. According to Figure 8 in the TIS ("2023 Build Traffic Volumes (Peak Summer Period)", 700 vehicles approach the driveway/intersection on Route 35 traveling northbound and 53 vehicles exit this driveway during the weekday morning peak hour. The National Cooperative Highway Research Program (NCHRP) provides guidance on the design of commercial driveways and the minimum required throat depth (MRTD) in NCHRP Report 659 (Guide for Geometric Design of Driveways) in Exhibit 5-58. From this, it is recommended that an MRTD accommodating 3 queued vehicles is provided (equal to approximately 75 feet when queued). While this potential queue would not conflict with vehicles exiting the proposed fast-food restaurant drive-thru, vehicles exiting the fueling position area from the convenience store would be entering the driveway at a point less than the MRTD and could block entering vehicles from Route 35. The Applicant should consider increasing the driveway throat depth or redesigning the site to minimize this type of conflict. Additional traffic control should be considered to discourage drivers from blocking the internal intersection. EXHIBIT I depicts this potential conflict.

Response: Numerous recirculation aisles are provided throughout the site and two (2) driveways are provided along Route 35. These options provide alternatives for motorists and would reduce the occurrence of blockages at the central drive aisle. Additionally with the modification of the driveway to be a right-in/right-out driveway as detailed in comment #2, the traffic volumes utilizing the northerly driveway, as well as queues and delays, would be reduced.

4. Alleviating Cut-Through Traffic

- a. The proposed development would provide two new vehicle pathways between Route 35 and Asbury Avenue. The Applicant should provide traffic calming measures to reduce vehicle speeds on internal roadways and reduce the potential for cut-through traffic.

Response: Stop bars are provided in the northbound and southbound directions along the central drive aisle connecting Route 35 to Asbury Avenue. A speed table is to be provided along the easterly internal drive aisle to the east of the proposed supermarket. Signage prohibiting cut-through traffic has also been shown on the plan.

5. Traffic Control and Alignment of Internal Intersections

- a. The design of internal drive aisles should be designed to minimize or eliminate skewed or offset intersections. EXHIBIT 2 shows an area on one central drive aisle connecting Route 35 to Asbury Avenue where the primary entrance to the fast-food and retail store aligns with the primary storefront aisle for the discount grocery store at an offset of approximately 25 feet. The offset approaches are not stop-controlled, and vehicles may encounter conflicts when proceeding as the "thru" movement at this location. The Applicant should consider redesigning this central intersection to align without offset. Additionally, the Applicant should ensure that stop bars are provided throughout parking lot areas where aisles meet internal drives.

Response: The two (2) internal intersections along the central drive aisle have been designed for the westbound approach of the intersection to be offset to the north of the eastbound approach. This geometry removes the conflict of two (2) vehicles making left-turns into the central drive aisle at the same time. In addition, all-way stop-controlled intersections and offset intersections assist in reducing the speed of vehicles travelling through the site as vehicles have to stop and make proper turn signal indications.

6. Capacity Analyses & Weave Analysis

- a. No off-site intersections were analyzed for potential traffic impacts. The TIS shows future site trips (Figure 6) at the site driveways but does not show the weaving volumes at the interchange between Route 35 and Asbury Avenue. Based on the gravity model in the TIS, some of the site's exiting traffic would travel north to Route 35 or west to SR 66. Some of the inbound site traffic would originate from SR 66 to the north and Route 35 to the west and utilize the site driveways on Asbury Avenue as a means of entering the site. Therefore, an additional volume of weaving traffic would occur due to new site trips. It is not clear from Figure 6 how many incremental weaves would occur during the AM, PM, and Saturday midday peak hours. EXHIBIT 3 graphically shows the location where the new weaving would occur due to site traffic. The Applicant should revise the TIS to depict the projected new site trip ends at each roadway shown on the volume network figures in the report and provide capacity analyses for off-site intersections if/where the volume is greater than 100 vehicles enter during any one peak hour. The Applicant should provide testimony regarding the operation of the existing weave between Route 35 and Asbury Avenue and further examine whether site traffic would cause any traffic impacts at the interchange.

Response: Please see the attached Weave Analysis Report prepared by our office, dated August 11, 2021. Testimony will be provided regarding the off-site intersections.

7. Asbury Avenue Improvements

- a. The Applicant should provide testimony regarding the vehicle queues that may develop in the proposed two-way left-turn lane (TWLTL) on Asbury Avenue. The Applicant should demonstrate that queues for lefts into Colonial Ave would not overlap with queues for left turns into the easterly site driveway on Asbury Avenue-note that this may require turning movement count data not previously collected at the intersection of Colonial Avenue & Asbury Park.

Response: Trip generation projections utilizing the NJDOT's Highway Access Permit System and ITE's Trip Generation Manual, 10th Edition were utilized to calculate the trip generation of the residential area to the north of Asbury Avenue that would utilize Colonial Avenue (approximately 75 single-family houses). A Level of Service and Volume/Capacity analysis was conducted at the intersection of Colonial Avenue and Asbury Avenue during the critical weekday evening peak hour. Based on the analysis, the proposed two-way left-turn lane and site-generated traffic volumes would not have a significant impact on the Colonial Avenue traffic. The analysis results are summarized in Table I below.

Table 1: Asbury Avenue & Colonial Avenue LOS (delay)

		Summer Peak Period		Yearly Average	
		Weekday Evening Peak Hour		Weekday Evening Peak Hour	
		No-Build	Build	No-Build	Build
Asbury Avenue & Colonial Avenue	EB Left/Through	A (9.7)	A (9.9)	A (9.4)	A (9.6)
	SB Left/Right	C (23.2)	D (25.8)	C (20.7)	C (22.7)

- b. There is a bus transit route on Asbury Avenue with a westbound bus stop located at Overbrook Avenue and an eastbound stop at Bimble Boulevard. Depending on the traffic volumes on Asbury Avenue, a TWLTL would impact traffic when buses are present (potentially inadequate room to pass the bus if there are vehicles queued in the TWLTL). The Applicant should provide testimony regarding the potential for traffic blockages as a result of the TWLTL while buses are present and modify the proposed plans accordingly.

Response: The westbound bus stop located at Overbrook Avenue and the eastbound stop at Bimble Boulevard provide access to NJ Transit Bus Route 832. It is noted that bus 832 stops at these two (2) locations one (1) time per hour. Due to the infrequent service at the Overbrook Avenue and Bimble Boulevard bus stops, extensive delays along Asbury Avenue are not expected. In the area of the Overbrook Avenue bus stop, the roadway will be widened to approximately 22 feet, which would provide sufficient spacing for a motorist to pass the stopped bus. With the approval of the County and NJ Transit, the Bimble Boulevard bus stop can be shifted to the east beyond the two-way left-turn lane.

- c. There are four presently vacant (undeveloped) lots on the north side of Asbury Avenue in the Township of Ocean opposite from the site (noting that the township boundary is the center of Asbury Avenue). The installation of a new TWLTL at this time could favor the site at the potential detriment of these four undeveloped parcels (Block 140.17 Lots 11, 10, 9, and 8). The Applicant should prepare an exhibit showing at least one potential location, size, and design of a driveway along Asbury Avenue for these undeveloped lots and provide testimony regarding how these future driveways would interact with the proposed TWLTL and site traffic. The Applicant should demonstrate that site traffic would not encumber the future right of access for these undeveloped parcels. These parcels are shown in EXHIBIT 4.

Response: See attached the Asbury Avenue Driveway Exhibit depicting the potential driveway locations for the properties on the northerly side of Asbury Avenue.

8. Circulation and Schedule of Trash Removal Trucks

- a. The Site Plan shows multiple trash enclosures located in areas prone to become inaccessible due to vehicle queues for on-site operations; namely, the trash enclosures located within the drive-thru for the fast-food restaurant and adjacent to the drive-thru for the retail store would only be accessible if vehicles are not present/queued in the drive-thru for the respective land use. The Applicant should provide testimony regarding the proposed schedule of trash removals and deliveries as it relates to the business hours of operation for the proposed uses. The Applicant must demonstrate that the proposed site operations would operate safely and efficiently.

Response: Testimony will be provided regarding the trash removal and delivery operations.

Should you have any questions, please do not hesitate to contact our office.

Best regards,



Matthew J. Seckler, PE, PP, PTOE
Stonefield Engineering and Design, LLC