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MEMORANDUM

DATE: October 16, 2020

TO: West Windsor Township Zoning Board of Adjustment

FROM: Jeffrey A. L'Amoreaux, P.E., Traffic Consultant


SUBJECT: Windsor 1 Developers, LLC
Preliminary and Final Major Site Plan, Minor Subdivision and Variances
Comment Review Memo #3
ZB19-06
3499 US Route 1
Block 7, Lot 59
West Windsor Township, Mercer County, New Jersey

We received an electronic submission for review for a Preliminary and Final Major Site Plan approval, Minor Subdivision approval, and variances for a proposed Wawa food market and vehicle fueling pumps, and a proposed Hyatt House hotel to be located along US Route 1 southbound at Emmons Drive. The electronic submission was from Dynamic Engineering Consultants, P.C., and dated October 13, 2020. The submission contained the following:

- A PDF copy of a letter to Erika Ward, West Windsor Township Zoning Board Secretary, from Matthew Sharo, P.E., P.P. and Ryan MacNeill of Dynamic Engineering Consultants, P.C. (Dynamic Engineering), covering particulars of the submission, dated October 13, 2020
- A PDF copy of a Wawa & Hotel Emmons Drive Monument Sign (Hyatt House) Detail, prepared by Dynamic Engineering, dated October 13, 2020
- A PDF copy of Wawa & Hotel Revised Landscape Plan, prepared by Dynamic Engineering, dated October 7, 2020
- A PDF copy of a Wawa & Hotel Revised Site Plan, prepared by Dynamic Engineering, dated October 7, 2020
- A PDF copy of a Wawa & Hotel Emmons Drive Wawa Monument Sign Detail, prepared by Dynamic Engineering, dated October 6, 2020
- A PDF copy of Wawa & Hotel Revised ID Sign (Wawa & Hyatt House) detail, prepared by Dynamic Engineering, dated October 6, 2020

- A PDF copy of details for Wawa & Hotel Route 1 Wawa Directional Signs, prepared by Dynamic Engineering, dated October 6, 2020
- A PDF copy of Gas Canopy and Trash Compound elevations and illustrations for Store #8447, prepared by Andrew Dorin, Architect, dated October 1, 2020
- A PDF copy of External Elevation Renderings & Floor Plans for Wawa Store #8447, prepared by Andrew Dorin, Architect, dated October 1, 2020

For the purposes of this memorandum, US Route 1 is oriented to the north and south, and the proposed project is situated along the southbound side of US Route 1, also known as Brunswick Pike, on the southwest corner of the intersection with Emmons Drive. US Route 1 is divided at the Emmons Drive intersection; there is no access to or from northbound US Route 1. The property is bounded by Emmons Drive to the north, US Route 1 to the east, a shopping plaza (Windsor Green Shopping Center) containing Marshall's and Whole Foods to the south, and a driveway to the same shopping plaza to the west. Across Emmons Drive from the site is a Pep Boys automotive supply store and repair facility. Across the western shopping center driveway from the site is A-1 Limousine services. The project site is currently occupied by a hotel containing a restaurant – The Palmer Inn and The Anjappar Indian Bar and Grill.

The project proposes the construction of a free-standing 5,585 SF Wawa convenience store and 16 vehicle fueling positions and a separate four-story 120-room Hyatt House hotel. The Wawa store will be closest to the corner of US Route 1 and Emmons Drive, and the Hyatt House hotel will be located about 200 feet to the west. The project is in the B-2 zone, where convenience stores are permitted by right, and as of August 17, 2020 vehicle fueling and hotels are also permitted uses, whereas prior to that date, they were conditional uses.

This proposed development will be served by a right-in/right-out driveway from/to southbound US Route 1, and three full-access driveways along Emmons Drive. No direct vehicular connection is proposed to the adjacent shopping plaza (Windsor Green) containing Marshall's and Whole Foods, among other retail uses. Currently, the uses on the project site are served by a single full-movement driveway along Emmons Drive, and a right-in/right-out driveway along US Route 1.

Parking is proposed for 50 spaces around the Wawa convenience store, not including the sixteen fueling positions. Two of the 50 parking spaces are to be designated as handicap accessible and another two are for use by customers using the air inflation pump. At the Hyatt House hotel, 126 parking spaces are proposed, with six proposed as handicap accessible.

We have completed our review of the above-referenced documentation and offer the following comments for the Board's consideration. Our original comments from our May 26, 2020 memorandum remain in this memorandum, and our comments, based on Dynamic Engineering Consultants, PC's August 13, 2020 response letter, are presented in italics. The latest comments generated by Mr. Sharo's October 13, 2020 email are presented in **bold text**.

General Comments

1. The applicant is proposing three driveways accessing Emmons Drive, over the course of approximately 325 feet. Section 200-29.I.(1)(f) of the Township Code states:

“Where two or more driveways connect a single site to any one road, a minimum clear distance of 200 feet measured along the right-of-way line shall separate the closest edges of any two such driveways. Where such development fronts on an arterial street, access to parking and service areas, where practicable, shall be provided by a single access to the arterial street.”

The driveways do not appear to conform to this provision of the code as they are each within 200 feet of each other (approximately 95’ and 110’, respectively). On Sheet 3 of the project plans, under General Notes, item 12D, the applicant designates this section of the code as “not applicable”. We do not understand this interpretation, and the applicant will need to justify the assertion. It appears to us that adherence to this section of the Township Code may have far-reaching implications for the site layout as it is now proposed.

It is our opinion that neither the intent nor the spirit of the Code is satisfied through the proposed Emmons Drive access road provisions.

Four access points between US Route 1 and the Windsor Green driveway access would be in place, a total distance of approximately 800’, metrics that are not in keeping with current day access management provisions.

It is recommended that the consolidation of some of these access points be pursued.

It appears that one or at most two access points can be provided to accommodate the Wawa/hotel uses so that the spacing provisions contained in the above-referenced Code section can be achieved.

Modifying the site’s proposed access provisions should include eliminating the two-way dead-end aisle behind the hotel.

Comment partially satisfied. The Applicant will request a waiver to allow the two hotel lot driveways.

No further revisions have been made to driveway locations; however, we note that the applicant has banked 8 spaces of hotel employee parking immediately adjacent to the easternmost driveway. We believe this will reduce potential congestion at the easternmost driveway.

2. North of the proposed project, US Route 1 has its curb lane designated as a right-turn-only lane. The applicant should verify with the New Jersey Department of Transportation (NJDOT) if this designation is going to remain as-is or be extended to the south along the property frontage. We recognize this is an access matter under NJDOT’s jurisdiction, but nevertheless an important access consideration regarding access into Emmons Drive as well as access into Wawa’s US Route 1 access.

Comment open. The applicant’s engineer has yet to offer evidence that they contacted the NJDOT to resolve the question posed in our earlier memorandum.

Comment remains open, no evidence has been provided to suggest that NJDOT has been approached about extending the right-turn-or-merge markings in the right lane along this frontage. We recommend the Township board(s) make certified delivery of a letter from the applicant to NJDOT advocating for the right-turn-or-merge lane a condition of approval. This office is prepared to assist in this regard at Township direction.

3. The proposed Wawa development is projected to produce 464 driveway movements (232 in, 232 out) during the morning peak hour. This is consistent with our observations at other Wawa sites in the Greater Philadelphia area. This amount of traffic equals one driveway movement slightly more frequently than every eight seconds.

Wawa sites of a similar nature include in their traffic flows trucks with trailers (e.g. landscaping crews or utility crews) which do not maneuver with the same efficiency as passenger cars and which present on-site parking problems. Provisions for these types of vehicles are to be provided. On-street parking is not an option.

Because the Wawa convenience store and the land uses in the Windsor Green shopping center typically experience non-coincident peak hours, an interconnection would benefit the overall driveway and roadway system. Specifically, the intersection of the Windsor Center shopping center driveway with Emmons Drive (near A-1 Limousine) experiences lunchtime and evening peak congestion. In our professional opinion, an interconnection between Wawa and Windsor Green will allow for optimal use of all driveways by motorists throughout the day. An interconnection between the properties could be constructed as an extension of the Windsor Green property's access aisle currently behind Wendy's restaurant, entering the site near the Wawa trash enclosure.

It is noted that a pedestrian connection is proposed between the subject site and Windsor Green.

Also, commentary is to be provided regarding the availability of diesel fuel on this site and, if it is, how will tractor trailer use be restricted?

Comment partially satisfied. We understand that tractor trailers will be restricted by Wawa fueling personnel. We still recommend that the applicant consider construction of an interconnection to the Windsor Green shopping center, and provide evidence of a good faith effort to do so, based upon transportation engineering principles as stated in the book "Transportation and Land Development, 2nd Edition" published by the Institute of Transportation Engineers. On page 8-5, the book states "Provide unified parking and circulation with adjacent compatible land uses whenever possible." No further revisions have been made to address this previous comment, comment remains partially satisfied.

4. We are concerned about the level of congestion which could occur at the Emmons Drive entrance. Motorists entering the site could face some indecision in the throat of the entrance as they search to find an open fueling position, prohibiting other motorists from entering and exiting the site causing potential congestion on Emmons Drive and within the throat area.

In order to mitigate potential operational problems at the Wawa's first internal intersection off of Emmons Drive, it is recommended that a "deeper" throat area be provided for this site driveway access.

Another point to note is the proximity of parking to this access point/throat area. This parking is to occur along a major access road for the site that will transport a fairly large volume of traffic associated with the Wawa operation and, to a lesser extent, hotel traffic.

It is recommended that the parking be removed (10 spaces) along the west side of the main circulation aisle between the first internal site intersection and a proposed landscaped island to the south of it.

These 10 spaces are to be used for hotel employee parking. Eliminating these spaces and relocating these spaces elsewhere on-site will eliminate the proposed Employee Parking signs from being installed in an unprotected space.

*Comment open. We respectfully disagree with the applicant's traffic engineer's professional opinion that the Emmons Drive driveway will experience moderate use. In our opinion, it will experience heavy use, based on the character of US Route 1. Route 1, for all intents and purposes, operates much like an expressway, given its nearby full interchanges with Meadow and Quakerbridge Roads. Although a driveway will be provided to US Route 1, in our opinion, many motorists will avoid it if they can, simply because of the "hassle" of decelerating from using Route 1. Therefore, we asked the question of whether NJDOT is planning to extend the right lane "right turn only" status to the south of the site (see comment 2.) **Comment partially satisfied. The Applicant has revised the Site and Landscaping Plans to "bank" the eight hotel employee spaces accessed via the Wawa driveway noting that they can be converted back into parking spaces if needed at some future time.***

We encourage the applicant to arrange for extension of the right lane/right-turn restriction south well past the site, as that will promote smoother deceleration and acceleration from and onto Route 1. Absent that designation, we believe that Wawa motorists will avoid using Route 1 whenever possible, and use Wheeler Way and Emmons Drive instead, and disproportionately concentrate traffic at the Emmons Drive driveway. This is another reason we advocate for interconnection to Windsor Green shopping center – to thin the concentration of traffic on municipal roads.

5. The intersections of Emmons Drive/Windsor Green Shopping Center Driveway and Wheeler Way/Meadow Road/Canal Pointe Boulevard are to be included in the Traffic Impact Study. PDF versions of Synchro analyses, and SimTraffic video capture files of each intersection should be provided for our review.

It is anticipated that these two additional study locations (with local roads) could experience an appreciable increase in traffic. Additional commentary is provided in the following items.

Comment partially satisfied. The applicant's engineer has stated that because the Windsor Green Driveway and Emmons Drive is related to a private driveway, it is outside the scope of services of their traffic study. Regardless of public or private status, our personal direct observations of the intersection in question reveal substantial queuing on the Windsor Green Driveway approach, and its proximity to Wheeler Way (250 feet) results in bona fide congestion during weekday evening peak hours. Part of the reason for our discussion in item 4, above, regarding the hassle factor of using Route 1 is evidenced by the heavy use of the back entrance to Windsor Green. Perhaps

designation of the right lane along Route 1 in front of Windsor Green and the proposed Wawa would be of benefit by reducing traffic using rear entrances. At any rate, we recommend the applicant study and address this issue, and as previously requested, contact NJDOT about extending the right lane/right turn only designation along Route 1. No further revisions have been made to address this previous comment since the previous August 13, 2020 response letter. As noted in comment 2 above, no evidence has been provided to suggest that NJDOT has been approached about extending the right-turn-or-merge markings in the right lane along this frontage.

Capacity analysis of Wheeler Way/Meadow Road/Canal Pointe Boulevard is forecasted to provide acceptable performance based on information provided by the applicant's traffic engineering consultant.

6. The Woodstone 443-apartment residential development is now under construction on the west side of Wheeler Way near the Princeton Theological Seminary housing. Traffic from Woodstone was accounted for in the Traffic Impact Analysis on page six, by including it in a one percent per year background growth rate, as the study indicates that there were "no other developments in the vicinity of the site that have been approved but not yet constructed that are identified as significant traffic generators." We believe this may be an incorrect assumption by the applicant. Woodstone was approved by the West Windsor Township Planning Board on June 18, 2018, however, traffic counts for the Wawa/hotel project were conducted in the Fall, 2019. It is recommended that all traffic analyses include traffic from Woodstone as "add-on" traffic volumes, not as part of the 1% background traffic growth.

Comment satisfied, based on information provided by the applicant's traffic engineer. Levels of service are not expected to change appreciably, in this analysis, due to addition of Woodstone traffic. Comment satisfied by previous, August 13, 2020, response letter.

7. Notwithstanding the validity of traffic counts and future projections, the intersection of Emmons Drive and Wheeler Way was included in the Traffic Impact Study and is expected to operate with Levels of Service of "C" or better. However, we recommend the applicant examine the operation with an all-way STOP configuration and examine eight-hour warrants for all-way STOP control. The applicant should consider Section 2B.07 Multi-Way Stop Applications of the MUTCD, which under Options, states:

"An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection."

From the on-going Woodstone project, the Traffic Impact Study recommended that the existing Stop control be removed from the two Wheeler Way approaches and placed on the Emmons Drive approaches. In conjunction with this, the recommendation was also made to provide a channelized Yield-control westbound right turn movement from Emmons Drive onto Wheeler Way northbound.

This traffic control provision should also be studied in light of the additional traffic to be placed into this intersection by the proposed project.

The applicant's traffic engineer is to provide a recommendation regarding the appropriate traffic control for the intersection.

Comment satisfied. The applicant's traffic engineer has conducted an analysis as requested and has offered a recommendation that the STOP control at Wheeler Way and Emmons Drive remain as is, with STOP signs posted on the Wheeler Way approaches. We concur with their analysis. Comment satisfied by previous, August 13, 2020, response letter.

8. The directional distribution of new site-generated traffic should be reviewed. Our experience indicates that more traffic may use Emmons Drive and Wheeler Way (connecting to Meadow Road and Canal Pointe Boulevard) than the Traffic Impact Study cites. Motorists familiar with the area will tend to use these local roadways as a "back entrance" to Wawa rather than use US Route 1. Traffic patterns from the existing Windsor Green shopping center should be used as a guide to determine the traffic effects on the collector roadway system to the site's west and north (especially along Canal Pointe Boulevard).

In particular, traffic with a northerly and westerly orientation from/to Princeton and the residential area along Canal Pointe Boulevard would be inclined to use Canal Pointe Boulevard and Alexander Road.

Comment open. See discussion in items 3, 4 and 5, above. Comment remains open. This goes hand-in-hand with the request to have NJDOT extend the right-turn-or-merge markings in the right lane along Route 1 through this property's frontage. If NJDOT truly believes that more traffic will use the US 1 driveway than the back entrance as we noted in this comment and as the Applicant indicated in their August 13, 2020 response letter, they really should be in agreement to extend these markings and should be approached about same as discussed in 2 & 5 above.

9. The applicant is to acknowledge a commitment to provide its fair-share, off-tract financial contribution to the Township's Roadway Improvement Program, or actual off-tract improvements as identified by this project.

Comment satisfied. The applicant's engineer has acknowledged same. Comment satisfied by previous, August 13, 2020, response letter

Site Plan Comments

10. Section 200-27.B.2 of the West Windsor Township ordinance requires six bicycle parking spaces on the Hyatt property, rather than four.

Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.

11. Per section 200-27.D(2) of the West Windsor Township Code, the Hyatt House property requires a loading berth, which is not provided. A design waiver will be required by the Zoning Board of Adjustment if one cannot be provided.

The types and frequencies of deliveries associated with the hotel are to be provided along with the type of anticipated delivery vehicle.

Comment partially satisfied. The applicant will provide testimony and request a waiver from this requirement. Comment was partially satisfied by previous, August 13, 2020, response letter.

Sheet 5 – Site Plan

12. The NJDOT type of ADA curb ramp should be noted on each plan. The westernmost ramp on the site plan (along Emmons Drive) should be examined for conformance to ADA guidelines and modified if necessary. *Comment partially satisfied. The westernmost ramp still needs to be examined. Comment was partially satisfied by previous, August 13, 2020, response letter, but the issue with the westernmost ramp noted above remains open.*
13. The detectable warning surface on the southwest corner of Emmons Drive and US Route 1 should be considered for removal as there is no receiving sidewalk on the north side of Emmons Drive. *Comment satisfied. NJDOT has requested reconstruction of the related curb ramp. Comment satisfied by previous, August 13, 2020, response letter.*
14. No Parking signs should be shown for installation along Emmons Drive on the project side. The appropriate sign detail should be shown in the plan set. *Comment partially satisfied. Although the applicant will allow the existing signs to remain on the Demolition Plan, we recommend applicant's engineer determine the number of signs needed by Title 39 and add the minimum number of signs necessary to be in conformance. Comment was partially satisfied by previous, August 13, 2020, response letter, the current submission does not include the plans to address this issue.*
15. Cross-hatched areas should be defined in the plan set details. They may be pavement markings. *Comment partially satisfied. We recommend using 24" wide epoxy stripes, 12' on center at 45 degrees, like NJDOT gore striping. Use white markings; see comment 31. Comment was partially satisfied by previous, August 13, 2020, response letter, the current submission does not include the plans to address this issue.*
16. No thermoplastic pavement marking materials should be used on concrete. Thermoplastic won't adhere to concrete over the long term. The applicant should consider using epoxy materials instead on concrete. Thermoplastic markings are acceptable on asphalt pavement. The general "rule-of-thumb" is to use thermoplastic materials for transverse markings and epoxy paint for longitudinal striping. *Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.*
17. Signing indicating No Parking Loading Zone should be placed on the Wawa building. Sign details should be included in the plan set appropriately. *Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.*
18. Stop bars should not be striped unless required by NJDOT in areas under their jurisdiction, and at the Emmons Drive access driveways. *Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.*

19. Striping is shown in the area of the air pump. Details (color, dimensions, stripe width) should be indicated. *Comment partially satisfied. Use white markings, see comment 31* **Comment was partially satisfied by previous, August 13, 2020, response letter, Revised Site Plan in the current submission still shows these markings as yellow contrary to our previous recommendation.**
20. The proposed traffic island at the US Route 1 access seems small. Industry standards' rule of thumb is 150 square feet minimum, 100 square feet absolute minimum. We recognize this is under NJDOT jurisdiction. *Comment satisfied. NJDOT's minimum square foot requirement is 75 square feet and 83 square feet are proposed.* **Comment satisfied by previous, August 13, 2020, response letter.**
21. Along the southerly parking row for the Wawa site, 11 parking spaces are shown leading to a total site parking supply for Wawa of 51 spaces. This total will require one additional handicap-accessible space to be provided. *Comment satisfied. The total number of spaces has been revised to 50, which still meets ordinance requirements, and the outstanding space was converted to an accessible space.* **Comment satisfied by previous, August 13, 2020, response letter.**
22. A ONE WAY right sign is recommended for installation on the "Jersey barrier" at the right-in/right-out exit on US Route 1. It's recognized that this matter is NJDOT's decision. *Comment satisfied. The applicant is not proposing a sign, in keeping with their observations of other areas along Route 1.* **Comment satisfied by previous, August 13, 2020, response letter.**
23. STOP signs on the site should be limited to site driveway intersections with Emmons Drive and US Route 1. We recommend against "oversigning" the site. *Comment satisfied.* **Comment satisfied by previous, August 13, 2020, response letter.**
24. Pavement markings should be limited to parking stalls, loading areas and required Americans with Disabilities Act (ADA) markings. Two-way drive aisle pavement marking arrows are not necessary. We recommend against "overmarking" the site. *Comment satisfied.* **Comment satisfied by previous, August 13, 2020, response letter.**
25. Pursuant to Code Section 200-29M.(4), "hairpin" striping is to be used to designate parking spaces on-site. *Comment partially satisfied. Testimony will be provided in concert with a waiver request.* **Comment was partially satisfied by previous, August 13, 2020, response letter, the current submission does not include the plans to address this issue.**
26. All trees within sight triangles and within ten feet of paved areas should be limbed to a minimum height of seven feet. In similar locations plantings should not exceed three feet in height. These dimensions are necessary to maintain driver's eye height sight distance. This may be handled with a note appropriately placed in the plan set. *Comment satisfied.* **Comment satisfied by previous, August 13, 2020, response letter.**
27. Trees should not be planted in areas of traffic signing. *Comment satisfied through addition of a note on the plan (Sheet 8.)* **Comment satisfied by previous, August 13, 2020, response letter.**
28. A street tree is proposed in the sight triangle on Emmons Drive. Any such tree should be limbed to the minimum 7' height and also have their locations reviewed to avoid a "wall-appearing"

obstruction to the access point sight triangles. *Comment satisfied through addition of a note on the plan (Sheet 8.) Comment satisfied by previous, August 13, 2020, response letter.*

29. A Truck Turning Template is to be provided for a typical West Windsor Township fire truck. This template is to show access into and out of the site as well as through both the Wawa and the hotel sites. *Comment satisfied through furnishing of plan, recognizing that Township emergency officials may possibly conduct their own review. Comment satisfied by previous, August 13, 2020, response letter.*
30. Trash provisions for the proposed hotel are to be shown/discussed. A Truck Turning Template for a refuse truck for the hotel site is to be provided. *Comment satisfied through furnishing of plan; applicant indicates that testimony will be provided. Comment satisfied by previous, August 13, 2020, response letter.*
31. Parking stall stripes shall be white, not yellow, per the MUTCD, in Section 3B.19. Pavement markings/stripping on the site shall be installed in white except blue as required by the ADA for handicap parking stalls. *Comment open. Stall stripes are still designated as yellow. Comment remains open, Revised Site Plan in the current submission still shows these markings as yellow contrary to our previous recommendation.*
32. A No Left Turn sign is shown without a sign border; a border is to be added. *Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.*
33. The A.D.A. Parking Sign on Bollard Detail is to be revised as follows:
 - a) The Van Accessible Plaque is to be designated as R7-8P and shown with a size of 18" X 9".
 - b) The Penalty Plate is to be shown with a size of 10" X 12" and designated as "Penalty Plate". The R7-8P designation is to be removed.

Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.

34. For the Accessible Parking Sign detail on the Wawa Construction Details (Sheet 15 of 19), the sign revisions are to be made to coincide with those described in Comment 33., a) and b) above. *Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.*
35. Wherever Yield signs are to be installed, they are to be an MUTCD-compliant sign of 36" X 36" X 36". If these signs are not used, they are to be removed from Sheet 16 of 19, Wawa Construction Details. *Comment satisfied. Comment satisfied by previous, August 13, 2020, response letter.*

This concludes our comments currently. Additional comments may be provided as the project moves forward.

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