

UPDATED
TRAFFIC IMPACT ANALYSIS

FOR

PROPOSED WAWA

ROUTE 35 AND NEW MONMOUTH ROAD
BLOCK 807, LOT 1.02
TOWNSHIP OF MIDDLETOWN
MONMOUTH COUNTY, NEW JERSEY

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INTRODUCTION

This updated analysis has been prepared to support an application filed with the Township of Middletown for a 4,736 square foot Wawa Convenience market with 12 vehicle fueling positions. Previously, the Wawa was proposed with a 5,585 square foot convenience market. The site is located along southbound Route 35 and is currently occupied by Two River Community Bank and a vacant Friendly's Restaurant. The Wawa will replace the restaurant and the bank drive-thru lanes will be removed to improve circulation.

Access exists via separate ingress and egress driveways for both the bank and the former Friendly's along Route 35. Alternative access to New Monmouth Road exists via a full-movement driveway that is also shared with adjacent Lot 1 that is developed with a new CVS Pharmacy and a Chase Bank.

The bank access and New Monmouth Road driveway are proposed to remain while a new right-in/right-out driveway will replace the existing Friendly's driveways to serve the proposed Wawa. As the site is located along a State highway, the proposed redevelopment for the Wawa will require a Major Access Permit with Planning Review from NJDOT.

Dolan & Dean Consulting Engineers, LLC (D&D) has been retained by the applicant to prepare this updated Traffic Impact Analysis for the proposed Wawa. This report provides an assessment of the existing roadways and intersections proximate to the site, a projection of future traffic volumes inclusive of site generated traffic and an assessment of future driveway and intersection conditions. In addition, this report provides a review of the proposed site access, on-site circulation design, and parking supply.



EXISTING CONDITIONS

As previously noted, the subject property is located on southbound Route 35, just north of New Monmouth Road. The site is designated as Block 807 Lot 1.02 and is shown on appended Figure 1.

EXISTING ROADWAY CONDITIONS

Route 35 is under the jurisdiction of the New Jersey Department of Transportation and is classified as an Urban Principal Arterial. Route 35 is designated as a north-south highway, however along the site frontage runs in a more of an east-west orientation. Route 35 generally provides two lanes and a shoulder in each travel direction separated by a concrete median. However, along the site frontage and continuing through the intersection of New Monmouth Road, Route 35 provides three lanes. The posted speed limit along the site frontage is 50 miles per hour.

New Monmouth Road is under Monmouth County jurisdiction and is designated as County Route 50. New Monmouth Road has a north-south orientation in the site vicinity and provides one lane for each travel direction. Sidewalks exist along both sides of New Monmouth Road along the site frontage and the posted speed limit is 35 miles per hour.

Route 35 and New Monmouth Road intersect to form a 4-leg, traffic-signal controlled intersection. The New Monmouth Road approaches each provide a shared left-turn/through-lane and a shared through/right-turn lane, although right turns are prohibited on the southbound New Monmouth Road approach to the intersection. The Route 35 approaches both provide two exclusive through lanes and a shared through/right-turn lane. Far side jughandles are located on each side of the intersection for left-turns and U-turns from Route 35.



EXISTING TRAFFIC VOLUMES

To examine existing traffic conditions in the site vicinity, D&D performed traffic counts at the Route 35 intersection with New Monmouth Road and at the New Monmouth Road/site driveway intersection. The following summarizes the dates and times of the manual turning movement traffic during the weekday morning, evening, and Saturday peak periods:

- Thursday, January 11, 2018 from 4:00 p.m. to 6:30 p.m.
- Saturday, January 13, 2018 from 11:00 a.m. to 2:00 p.m.
- Thursday, January 18, 2018 from 7:00 a.m. to 9:00 a.m.

Based on the counts, the morning peak hour occurs from 8:00 a.m. to 9:00 a.m., the evening peak hour occurs from 4:45 p.m. to 5:45 p.m. and the Saturday peak hour occurs from 11:45 a.m. to 12:45 p.m. The peak hour volumes are shown in Figures 2, 3 and 4.

ANALYSIS OF EXISTING TRAFFIC CONDITIONS

A volume/capacity Level of Service analysis was conducted for the existing traffic volumes using the Highway Capacity Manual (HCM) computer software. This type of analysis is performed to assess intersection operations and to identify any areas of excessive delay.

Figure 5 has been prepared to illustrate the existing Levels of Service at the subject intersection. As shown, during all peak hours, vehicle movements operate at Level of service "E" or better.

During the evening and Saturday counts, queues were observed to periodically extend to the New Monmouth Road driveway following a certain period after the light turned red. These queues cleared upon the New Monmouth Road green phase of the signal and allowed site ingress and egress without significant delay.



TRAFFIC CHARACTERISTICS OF THE PROPOSED USE

TRIP GENERATION

Traffic generation estimates for the Wawa were developed using the 10th Edition of the Trip Generation Manual published by the Institute of Transportation Engineers (ITE). For the proposed Wawa, the proper land use category is a “Super Convenience Store with Gas Pumps”. Table I summarizes the Wawa trip generation projections.

TABLE I
TOTAL TRIP GENERATION ESTIMATES
PROPOSED WAWA – 4,736 SQUARE FEET

PEAK HOUR	ENTER	EXIT	TOTAL
Morning	197	197	394
Evening	164	164	328
Saturday	151	151	302

As noted in the ITE Trip Generation Handbook, certain uses such as convenience stores, gas stations, restaurants, banks, etc., are typically located along busy streets in order to attract existing motorists as a convenient, interim stop. These uses generally attract most of their customers from traffic passing the site on the way from an origin to an ultimate destination. These trips are momentarily diverted into the site specifically because of its perceived convenient location. Consequently, most traffic to such uses is therefore not new to the adjacent street system, but are considerate “pass-by” trips. Pass-by trips are defined as: “...trips attracted to a particular development from the traffic “passing-by” on the adjacent street.”¹

¹ ITE Journal, May, 1992 - “Refinement of Procedures Used for Estimating Pass-By Trip Percentages



Based on a 2001 ITE study, peak hour pass-by percentages of 80% would be reasonably anticipated during the peak hours. Research performed by this firm and others at convenience stores, gas stations, and combination gas/store sites, indicate pass-by percentages in excess of 80%. However, NJDOT has conservatively established the following percentages for “pass-by” traffic that were used in this report. These percentages tend to overestimate the impacts of “new” traffic attracted to a highway facility such as the Wawa.

- Morning Peak Hour - 75%
- Evening Peak Hour - 75%
- Saturday Peak Hour - 50%

The following table summarizes trip generation by trip type:

TABLE II
TRIP GENERATION BY TYPE

PEAK HOUR	TRIP TYPE	ENTER	EXIT	TOTAL
Morning	Total	<u>197</u>	<u>197</u>	<u>394</u>
	Wawa – Pass By	148	148	296
	Wawa – New	49	49	98
Evening	Total	<u>164</u>	<u>164</u>	<u>328</u>
	Wawa – Pass By	123	123	246
	Wawa – New	41	41	82
Saturday	Total	<u>151</u>	<u>151</u>	<u>302</u>
	Wawa – Pass By	76	76	152
	Wawa – New	75	75	150

DISTRIBUTION OF SITE GENERATED TRAFFIC

The majority of site traffic will be influenced by the attraction of significant pass-by traffic as previously discussed. Particularly during peak hours, many site visits will be linked to



another primary trip purpose, for example, traveling to/from work or a combined trip with other shopping related errands.

“New” trips are likely to follow existing commuter travel patterns that are influenced by proximity to residential neighborhoods. The site generated traffic is shown on Figures 6, 7, and 8.



FUTURE TRAFFIC CONDITIONS

FUTURE TRAFFIC VOLUMES

For the purposes of this analysis, a two-year development approval and site build-out has been assumed. To project future traffic volumes, a background growth factor was applied to existing traffic volumes. Based on data compiled by NJDOT, the typical growth rate for Monmouth County principal arterial highways is 1.50% per year.

In addition to background growth, traffic from other known area development was added to create the "no-build" volumes in Figures 9, 10, and 11. The projected traffic was derived from the traffic impact studies submitted for the respective applications. These projects are as follows:

- A pharmacy and bank that have been constructed and opened on the adjacent property after the traffic counts were performed.
- 380,000 square feet of retail space and 350 residential units between Kings Highway East and Kanans Lane.

Projected Wawa site traffic was then added to the "no-build" traffic volumes to establish future "build" traffic volumes. These future build traffic volumes are shown on Figures 12, 13, and 14.

ANALYSIS OF FUTURE TRAFFIC CONDITIONS

The projected "no-build" and "build" traffic volumes were analyzed to determine future operational conditions at the study intersection. As shown on Figures 15 and 16, the addition of site traffic – even under conservative forecasts of "new" traffic - will have virtually no



effect on the intersection's operational performance. With the addition of site traffic, all movements will continue to operate at the same conditions as they would under "no-build" conditions, thus demonstrating the absence of any material traffic impact.

Even though the Levels of Service do not change, the NJDOT intersection delay degradation criteria would be violated during the evening and Saturday peak hours. Much of the capacity at the intersection is used by the other area development while the Wawa will primarily generate pass-by traffic that does not impact the signal. Under the NJDOT Highway Access Code, any operational violations must be mitigated by the applicant. For this development, the NJDOT criteria can be satisfied with minimal timing changes to the signal. The appended spreadsheets demonstrate the timing mitigation needed to satisfy NJDOT's criteria. No other off-tract improvements are necessary.

Site ingress and egress at the site driveways will operate at the acceptable Level of Service "C" or better during all peak periods.



SITE ACCESS AND CIRCULATION

The Site Plan prepared by Kennedy Consulting Engineers has been reviewed with specific focus on site access, circulation, and parking supply and orientation. We offer the following comments:

- As previously stated, access to the Wawa will be provided via a new right-in/right-out driveway along Route 35. Alternative access will continue to be provided via a full movement driveway along New Monmouth Road. The new Route 35 driveway requires a Major Access Permit with Planning Review from NJDOT.
- 6 fuel dispensers, allowing for 12 fueling positions, are proposed. The provision of multiple fueling positions results in a more efficient operation, allowing vehicles to enter the site and readily access a fueling position which accommodate their fuel tank fill location. By providing multiple fueling positions, vehicular queuing typically does not occur.
- The Site Plan provides 51 striped parking spaces adjacent to the Wawa which exceeds the Ordinance requirement of 32 spaces. It is important to acknowledge that the 12 fueling positions also serve as de facto parking for store customers. The combination of a mart or convenience store and fueling stations is customary, in that store purchases can be made while vehicles are being fueled. The provision of 63 parking positions on-site is expected to more than adequately accommodate parking demands.

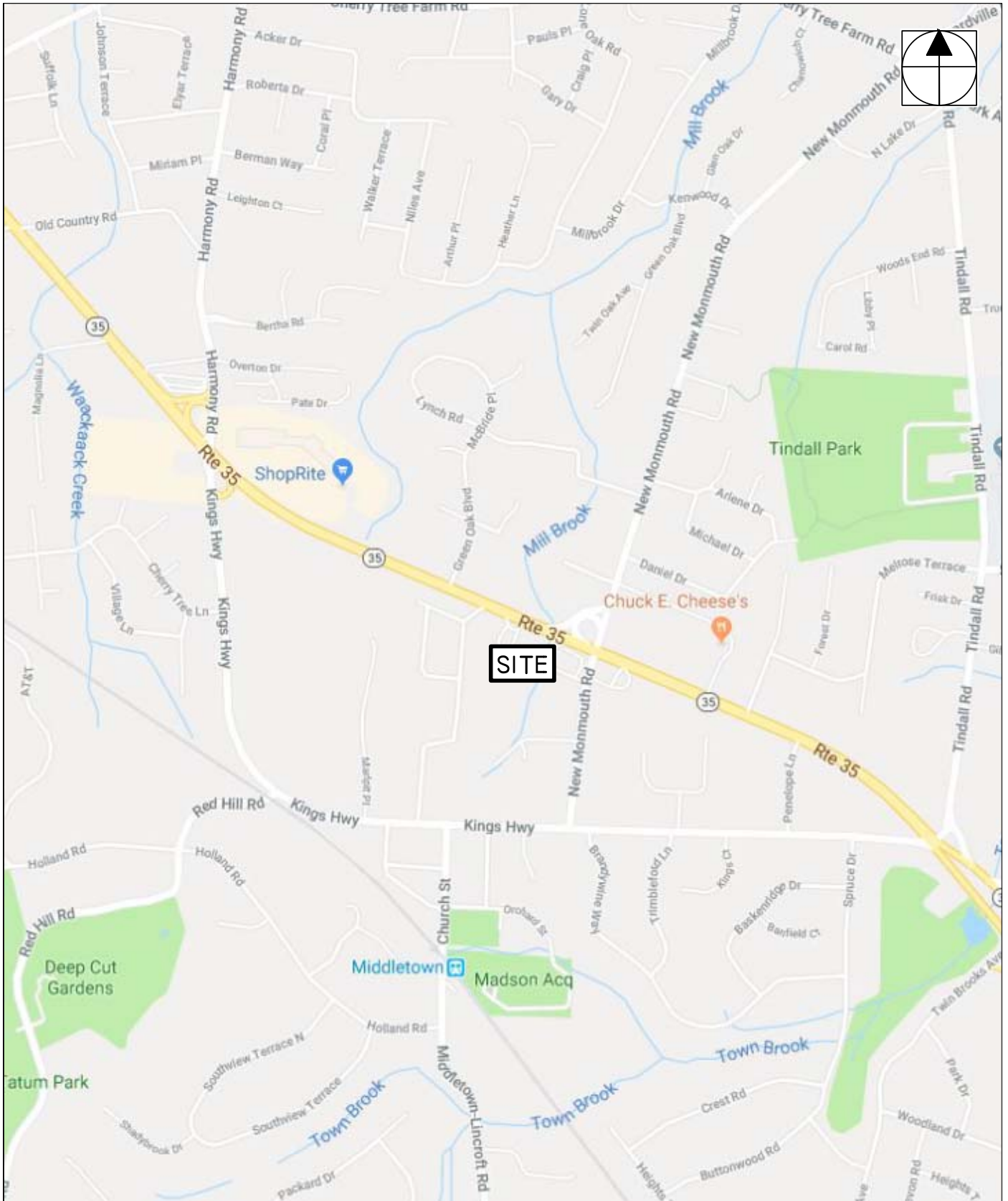
Overall, 85 parking spaces are proposed on site for the proposed Wawa and existing bank building. This exceeds the Ordinance requirement of 76 parking spaces.



- The site layout provides for two-way circulation along three side of the building, around the fueling area, and between parking spaces. The site design will accommodate passenger vehicles, delivery vehicles, and refuse trucks.

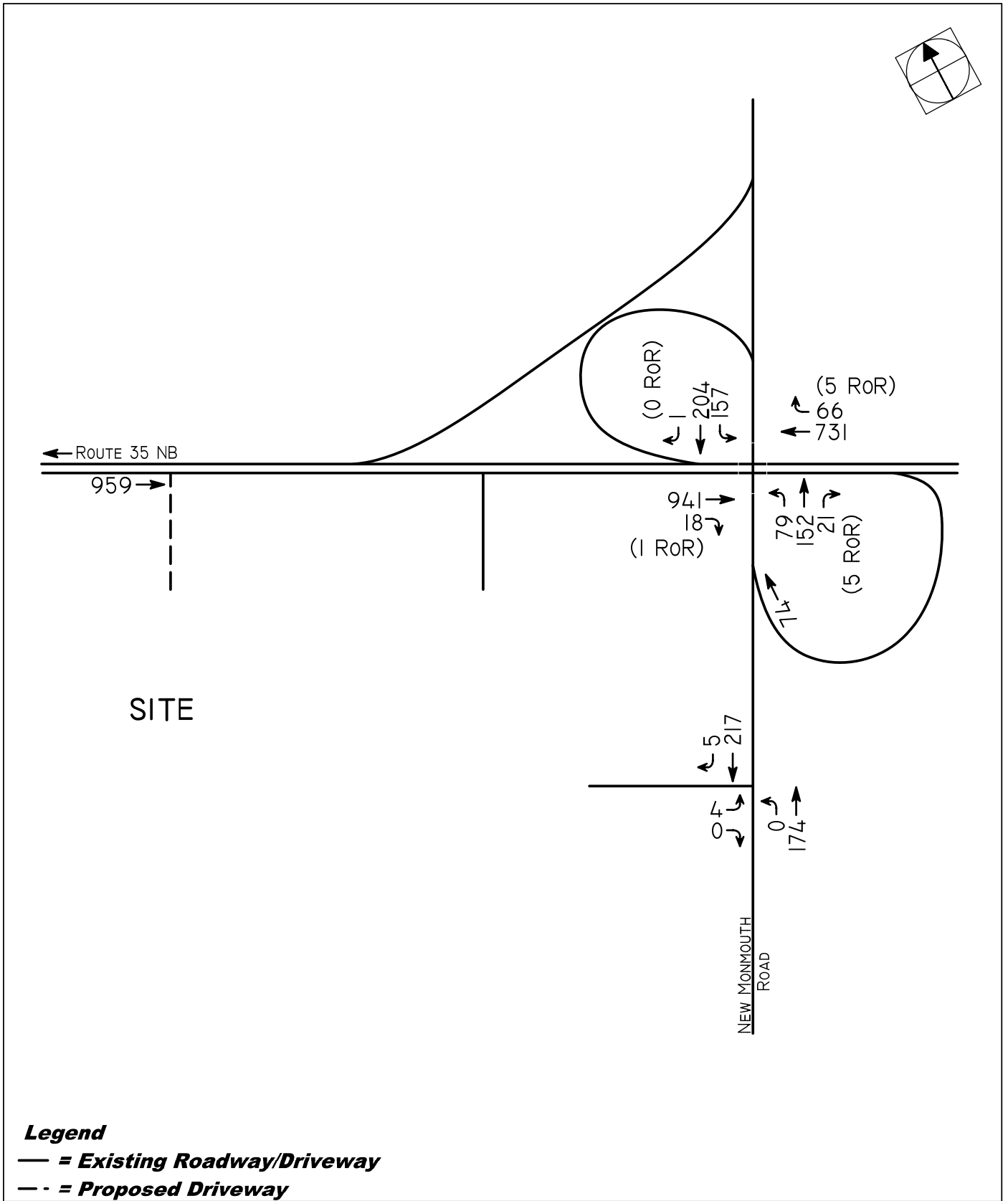


TECHNICAL APPENDIX



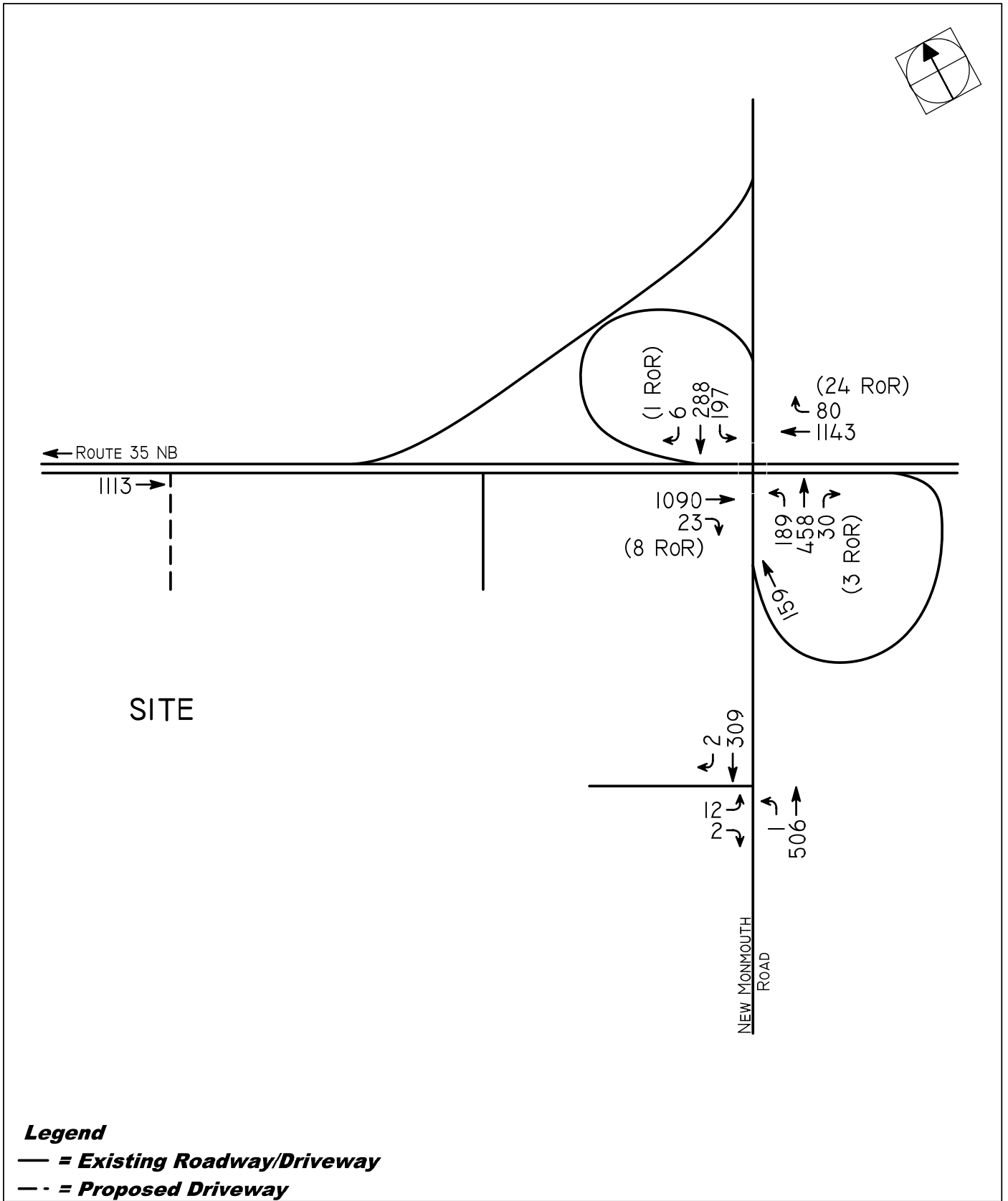
PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE I



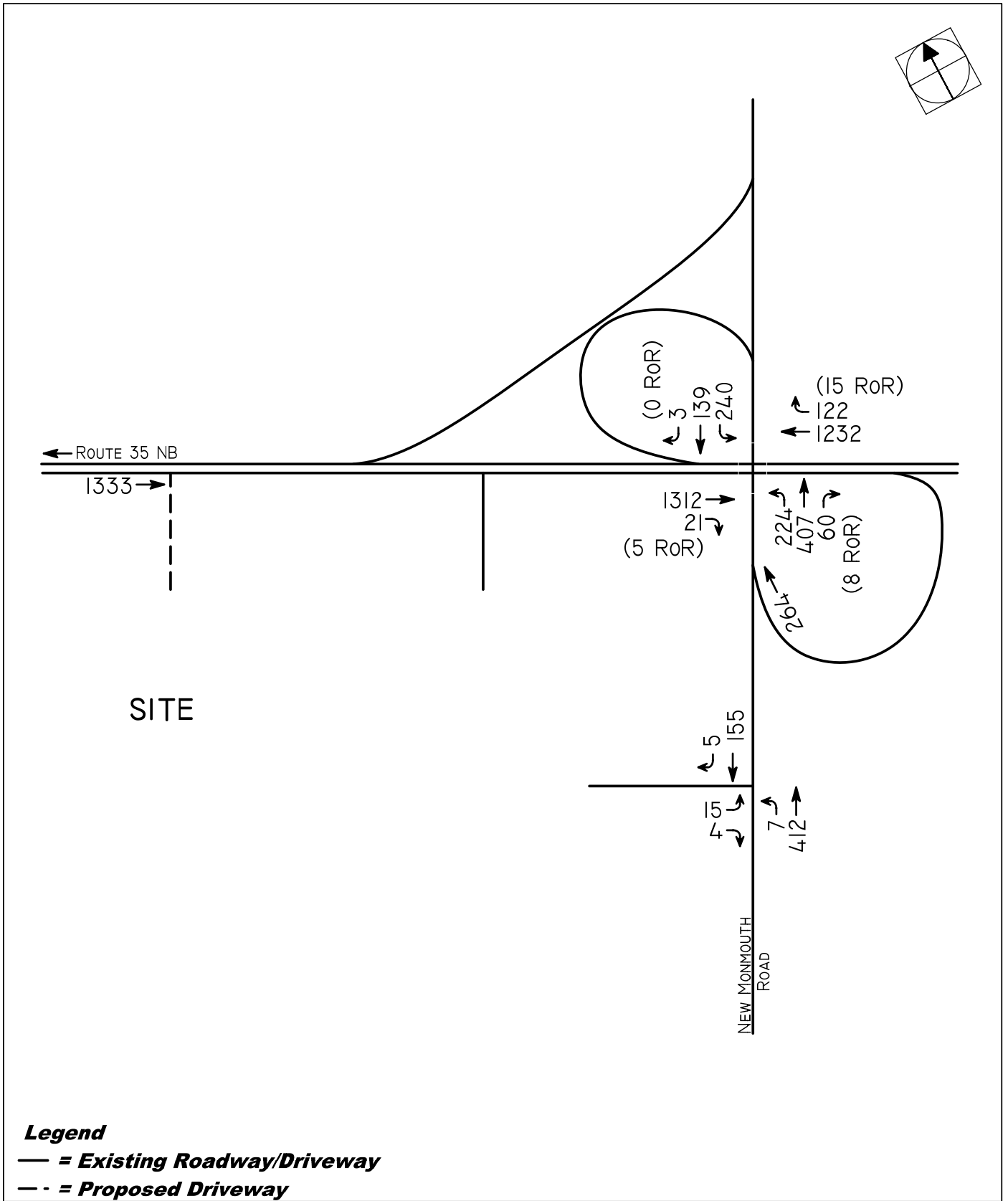
PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 2



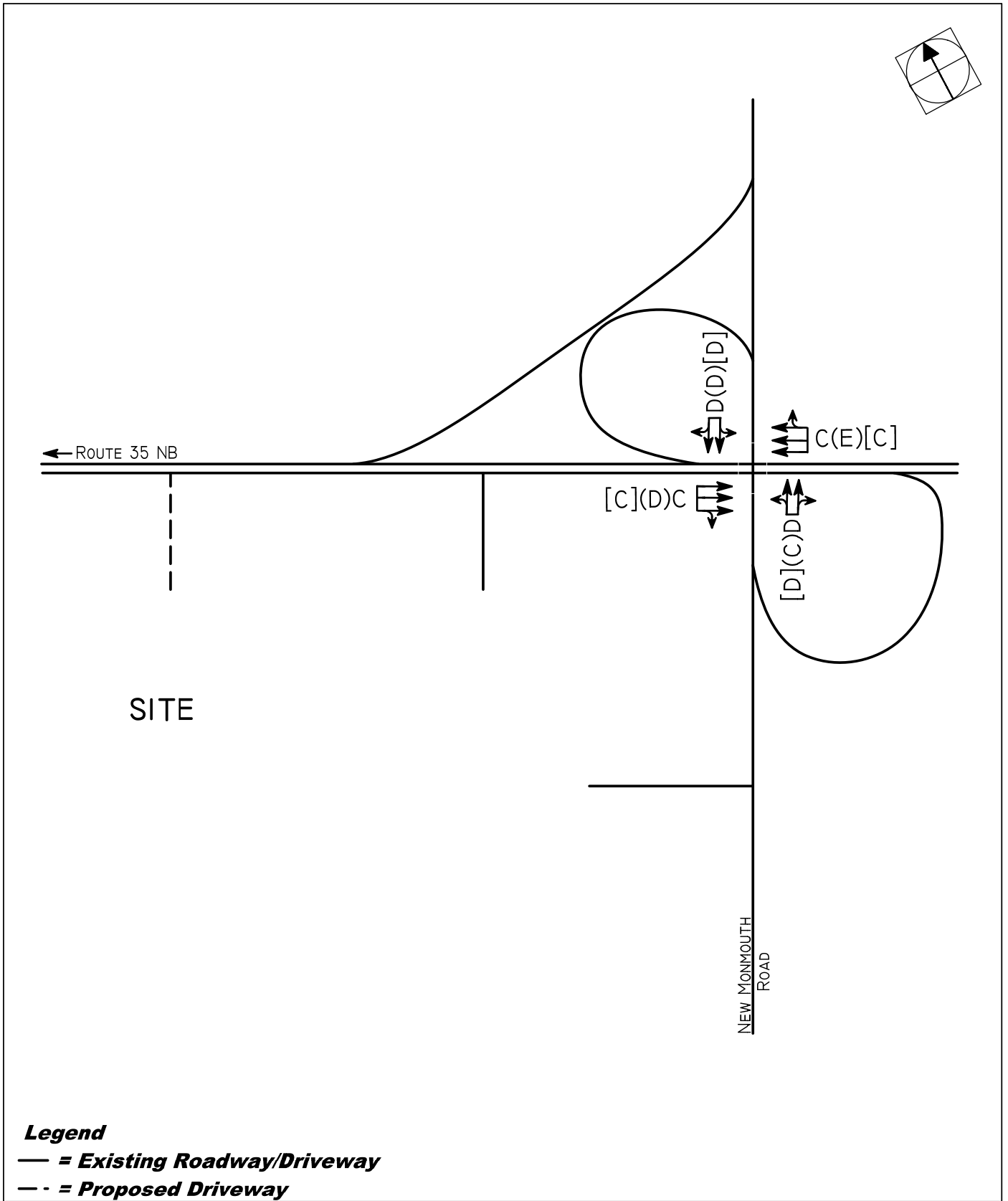
PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 3



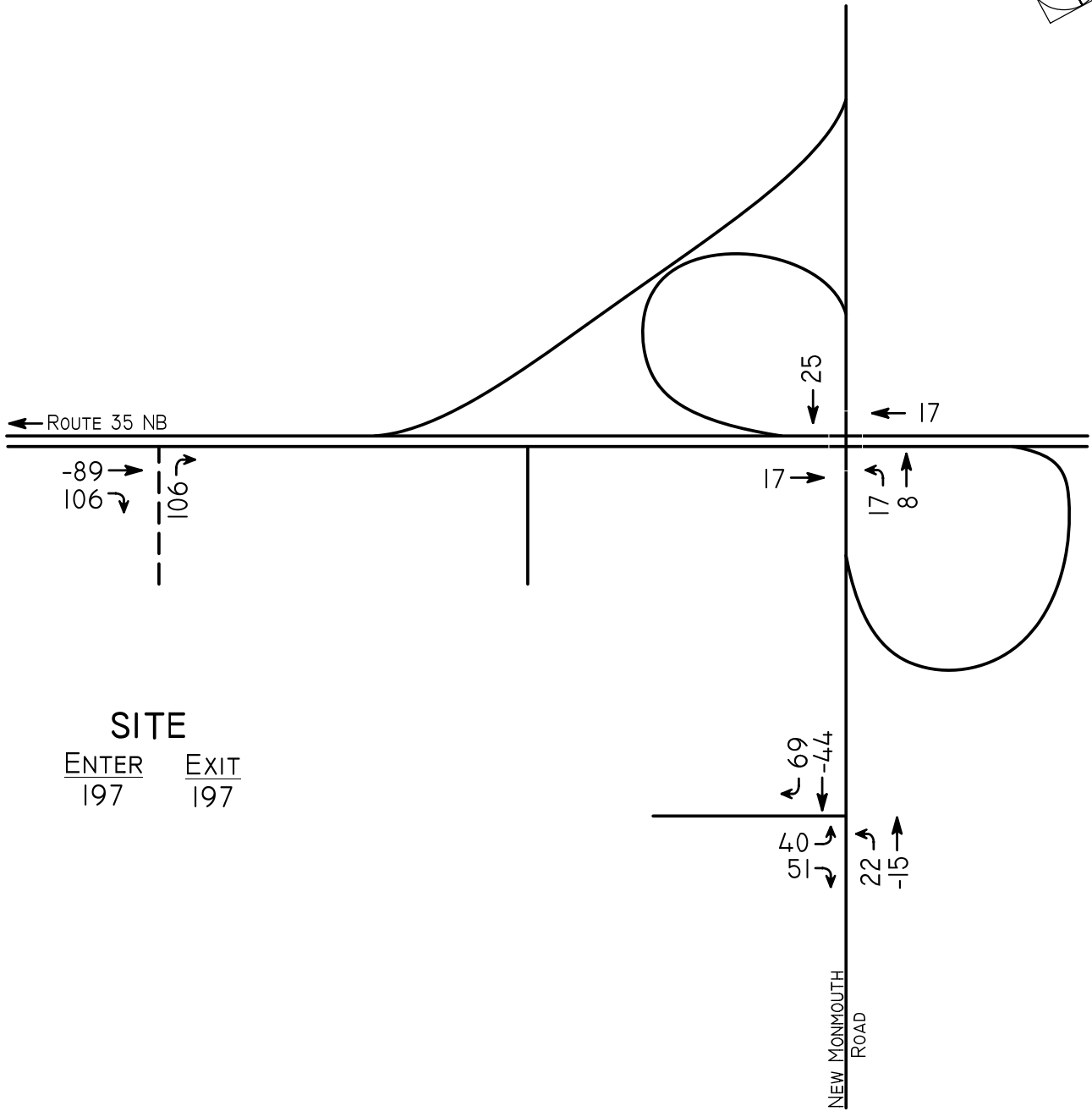
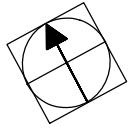
PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 4



PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 5



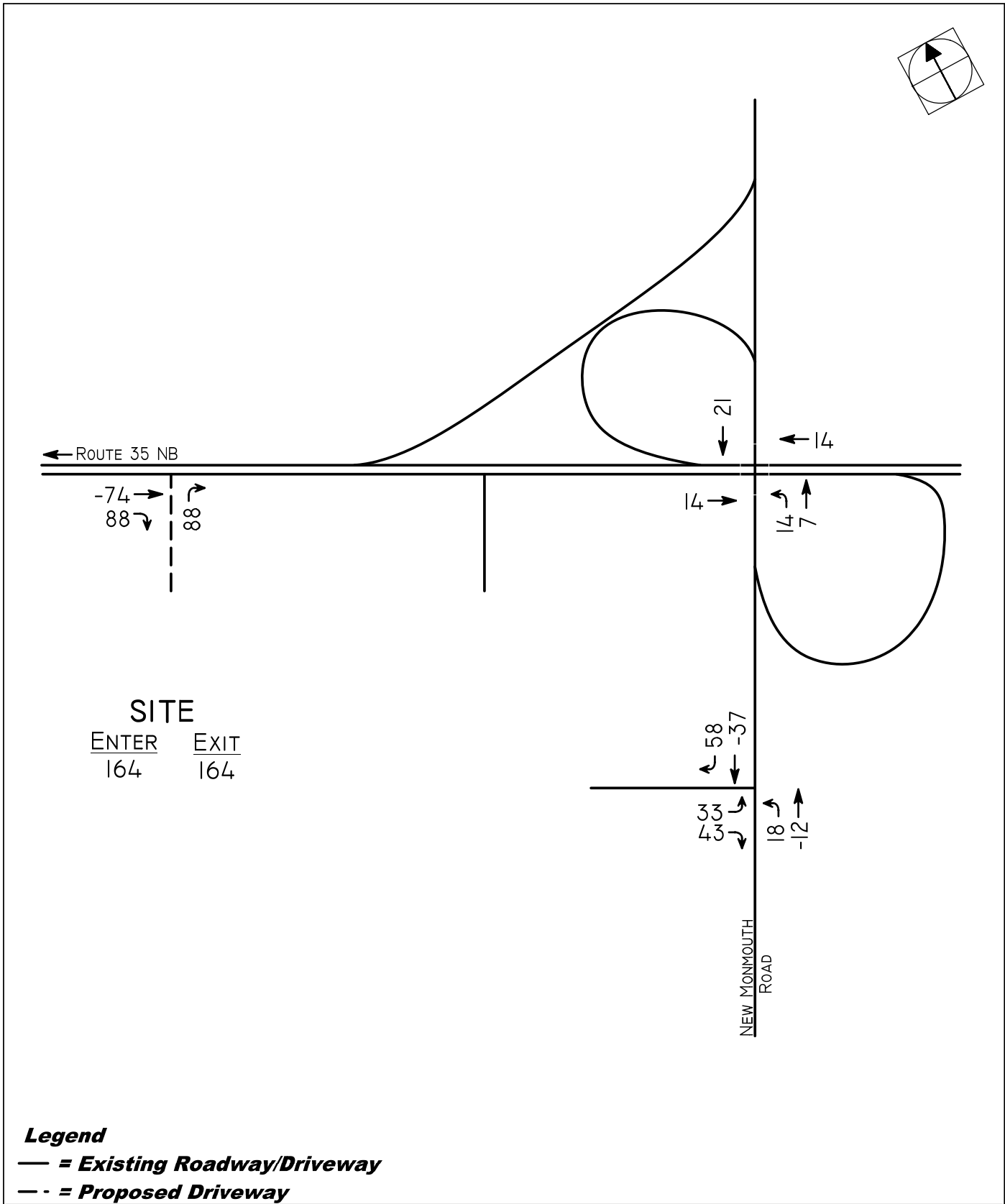
Legend
 — = Existing Roadway/Driveway
 - - = Proposed Driveway

PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 6

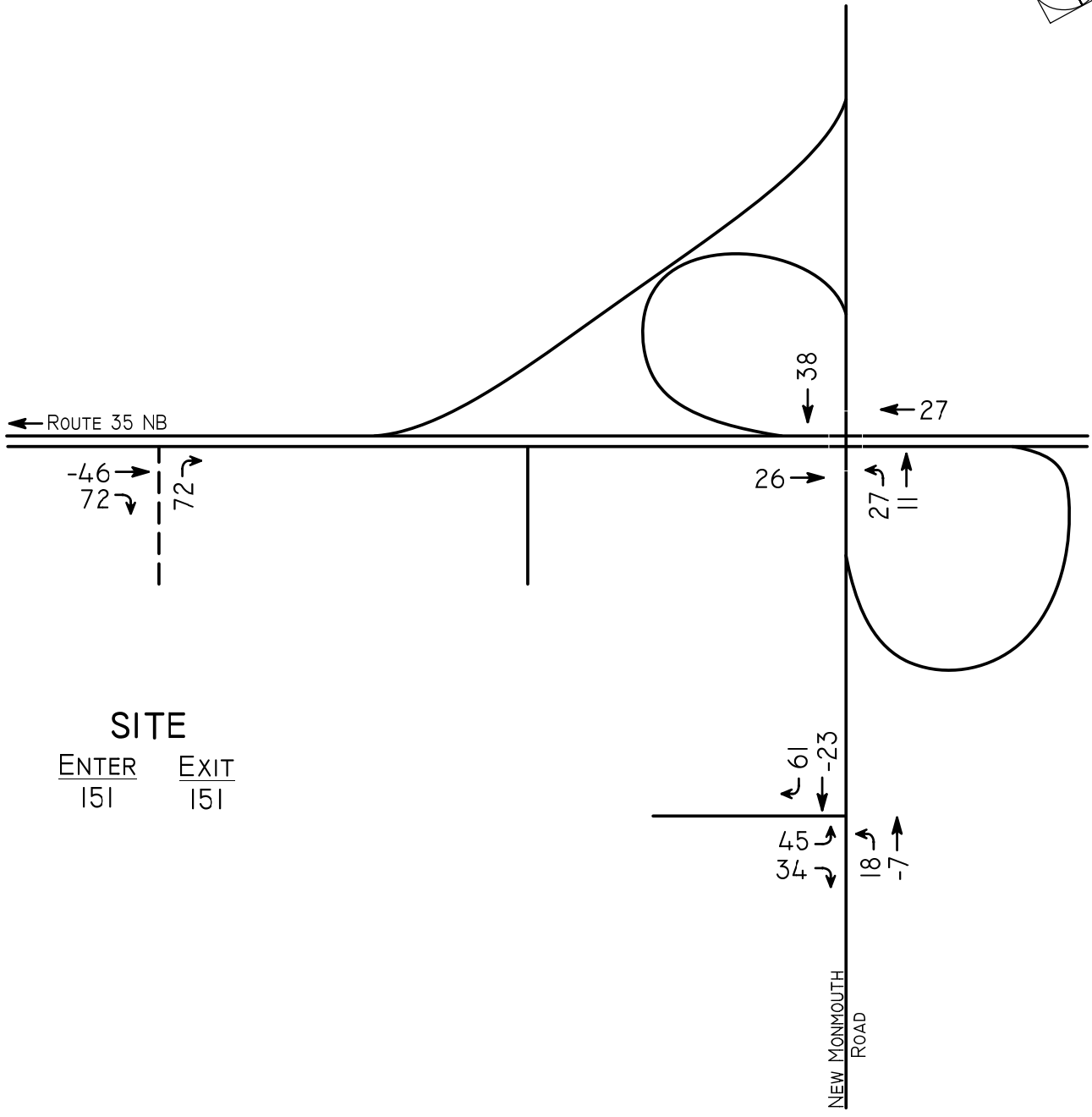
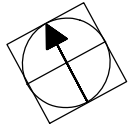


SITE GENERATED TRAFFIC VOLUMES
 MORNING PEAK HOUR [8:00 AM - 9:00 AM]



PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 7

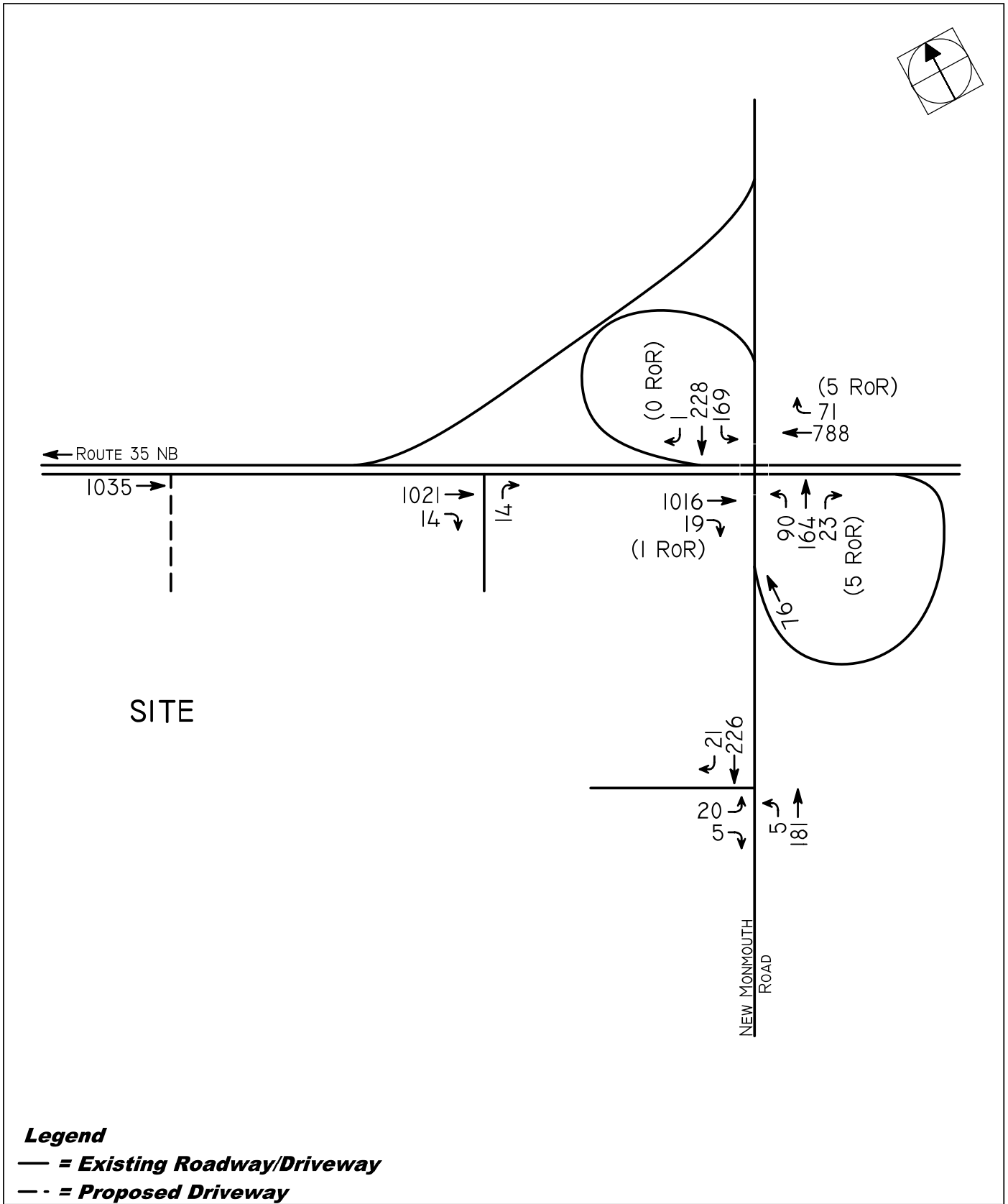


PROPOSED WAWA
TOWNSHIP OF MIDDLETOWN
MONMOUTH COUNTY, NEW JERSEY

FIGURE 8

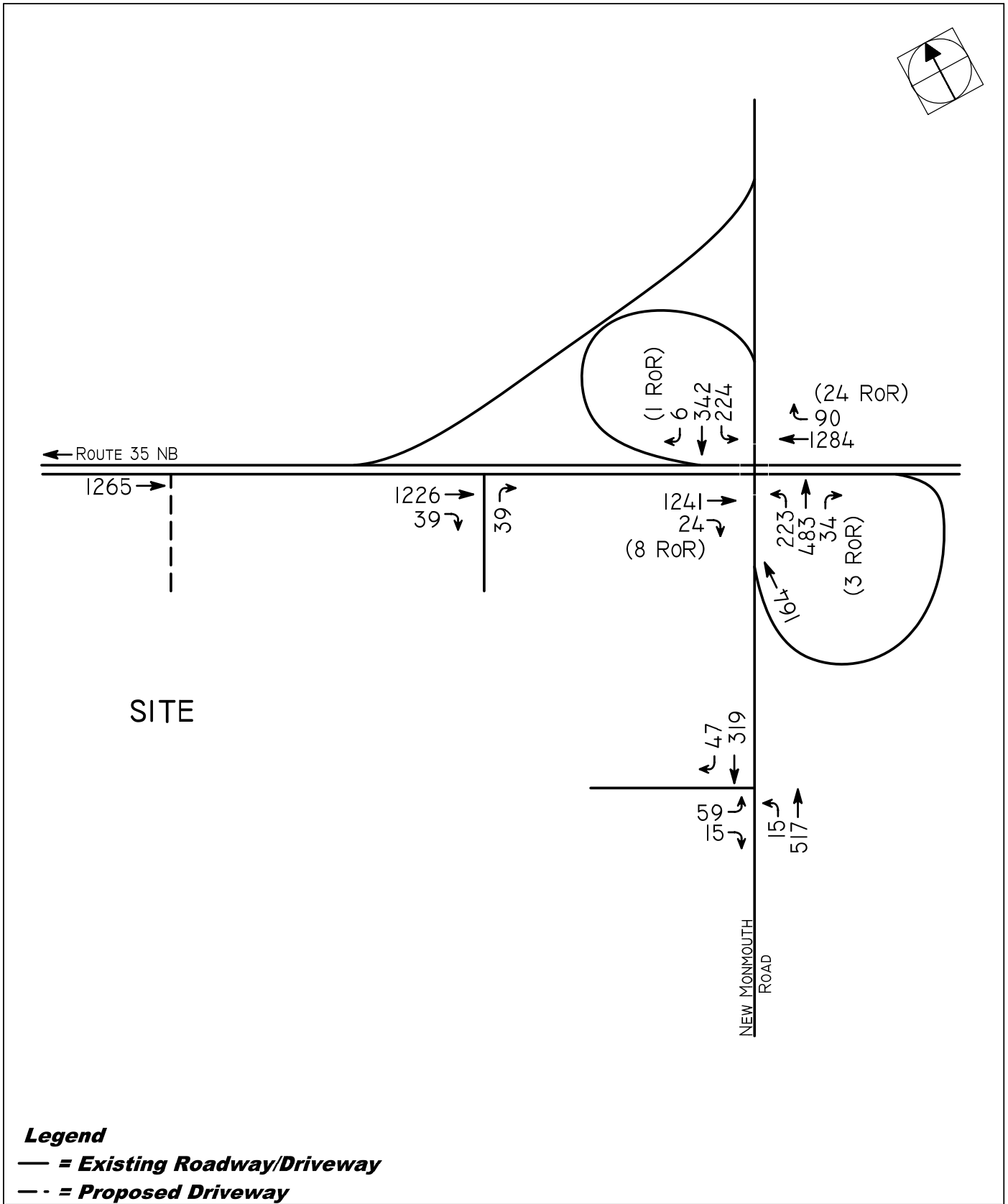


SITE GENERATED TRAFFIC VOLUMES
SATURDAY PEAK HOUR [11:45 AM - 12:45 PM]



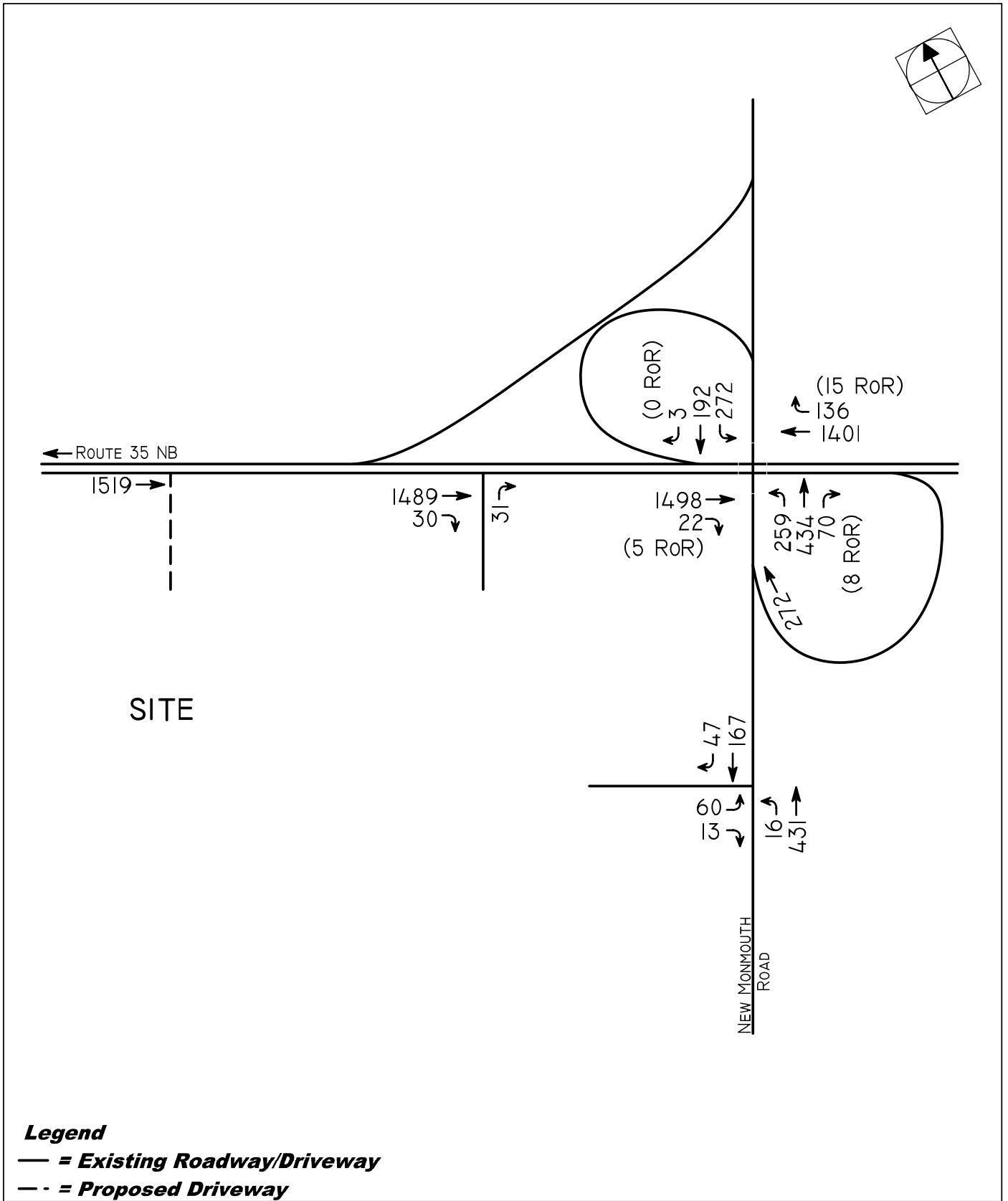
PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 9



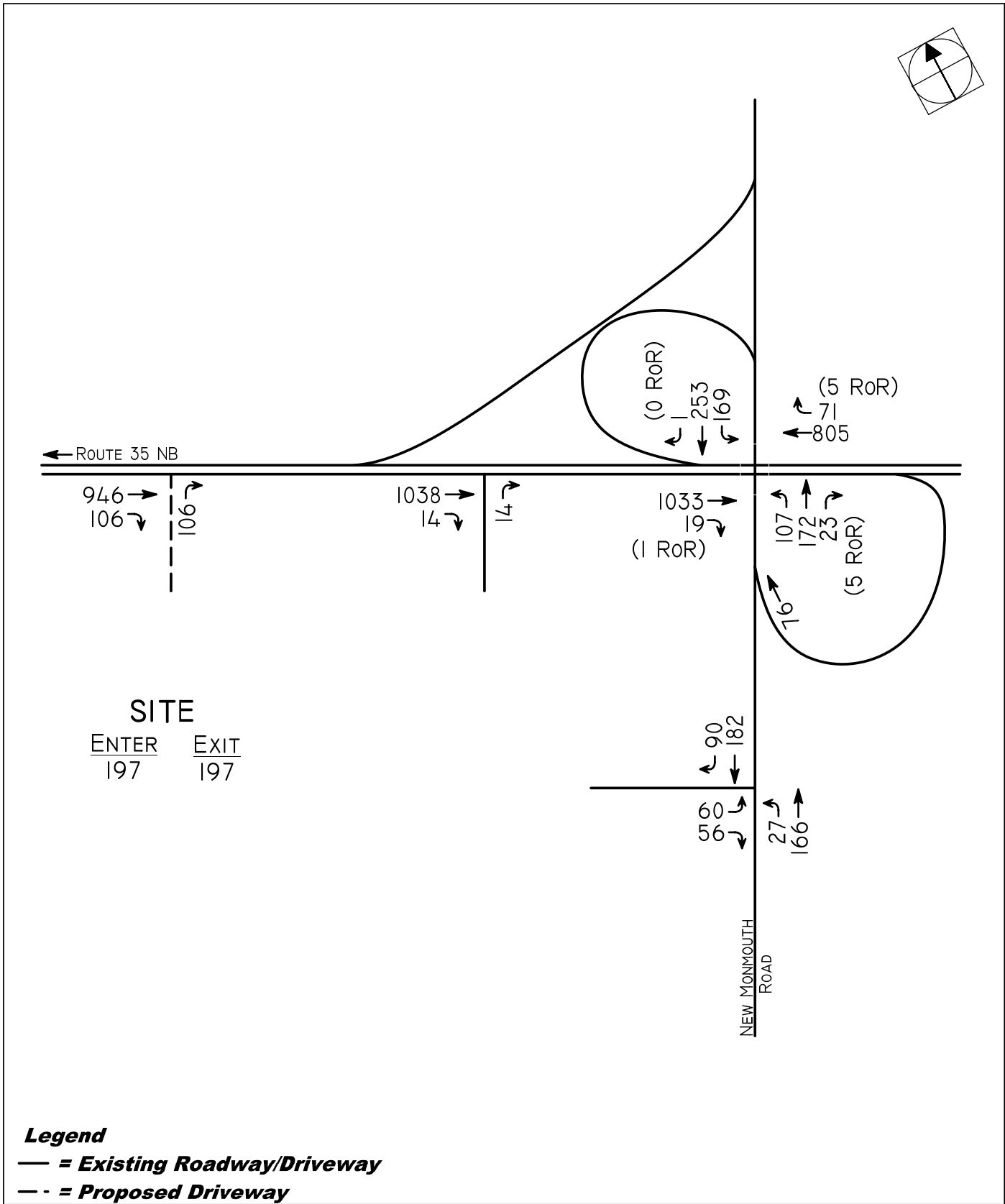
PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 10



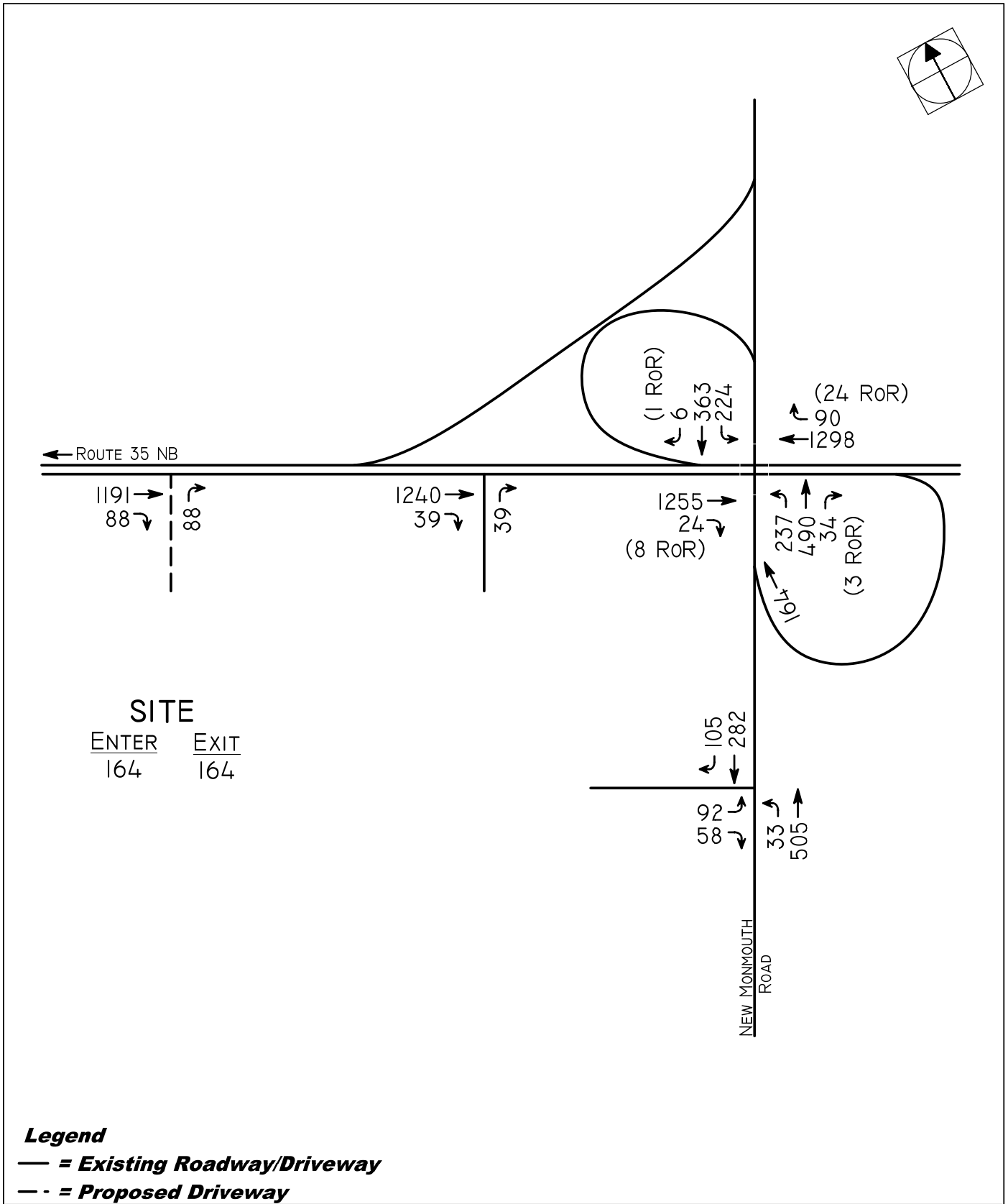
PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE II



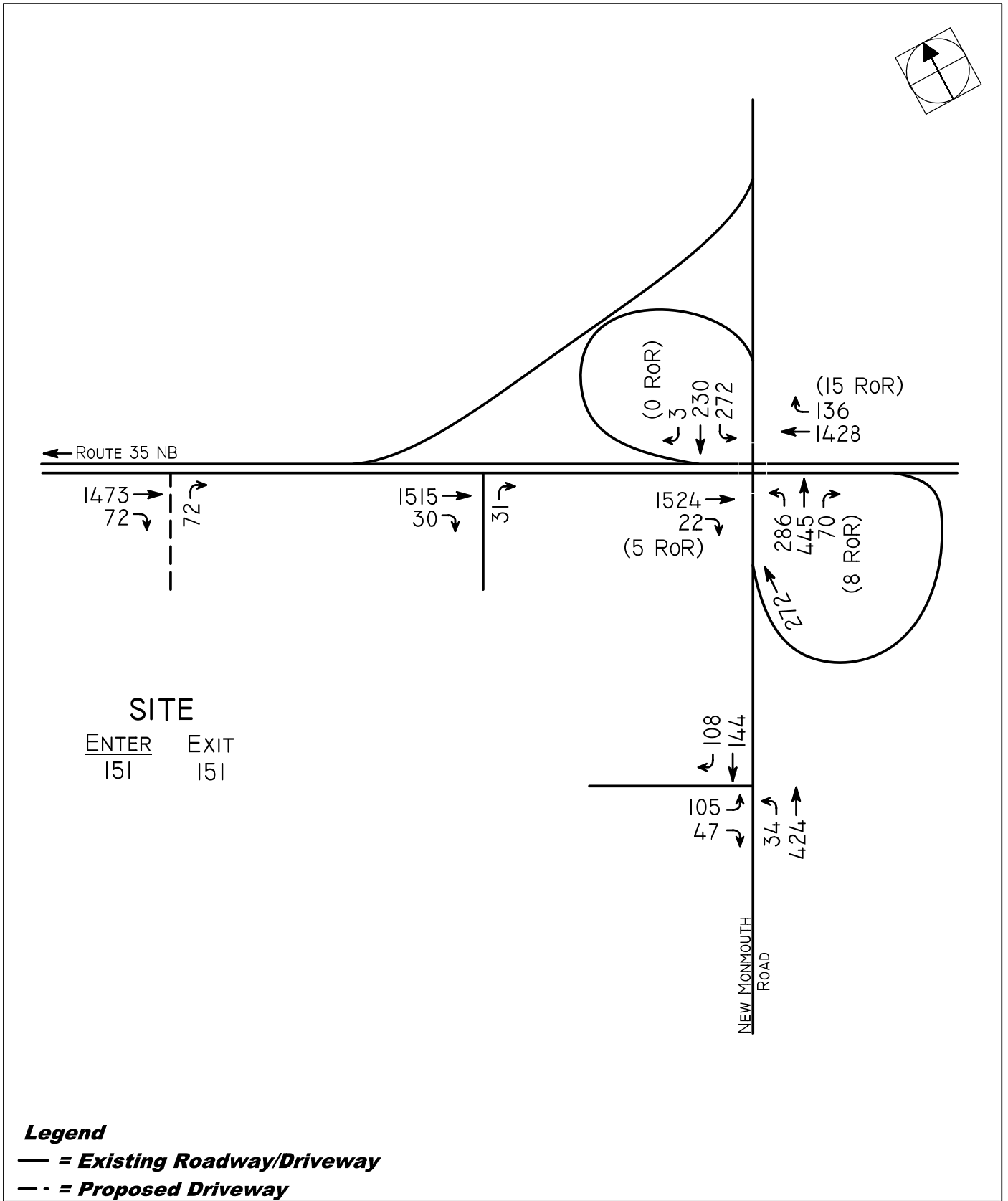
PROPOSED WAWA
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FIGURE 12



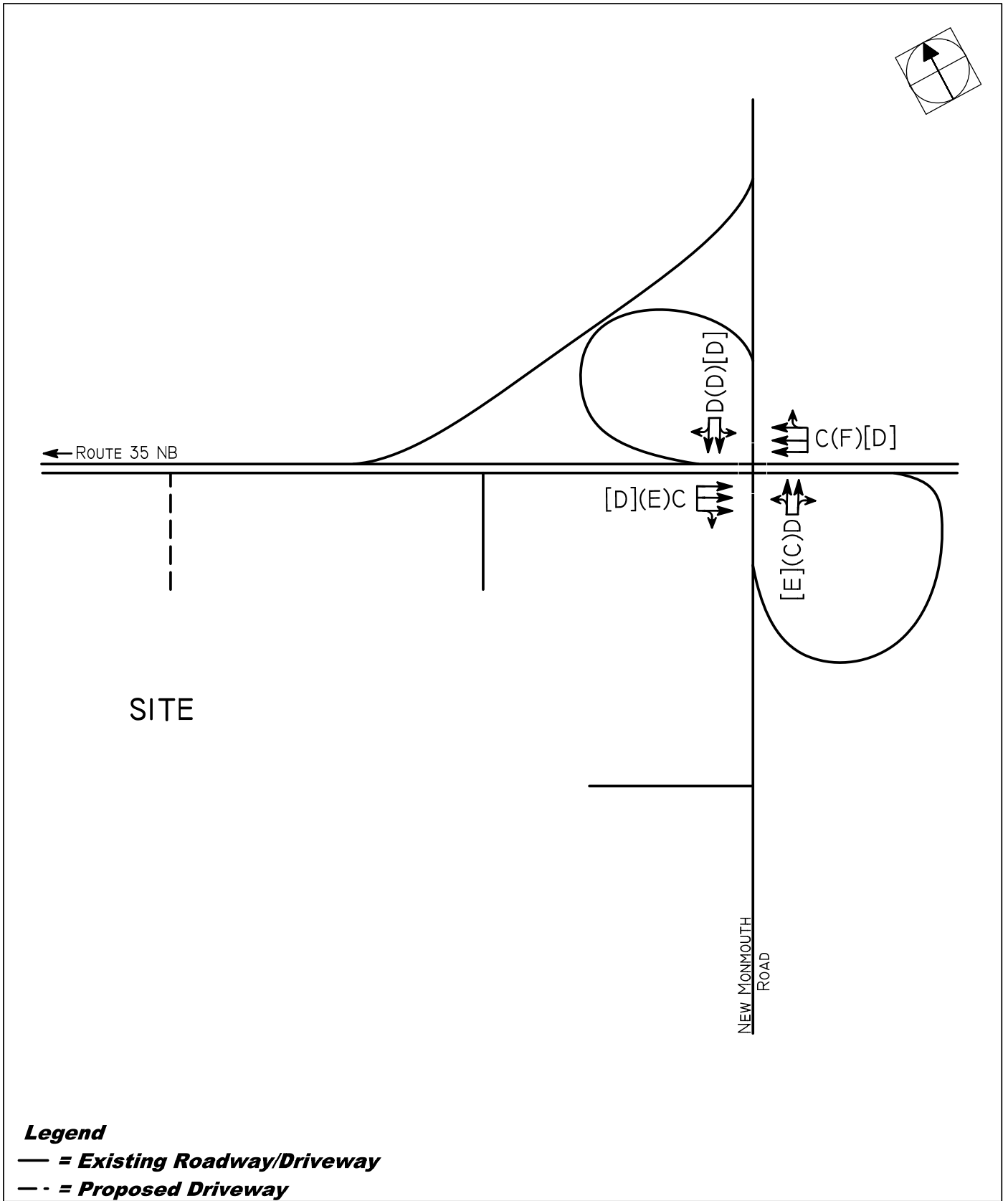
PROPOSED WAWA
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FIGURE 13



PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
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FIGURE 14

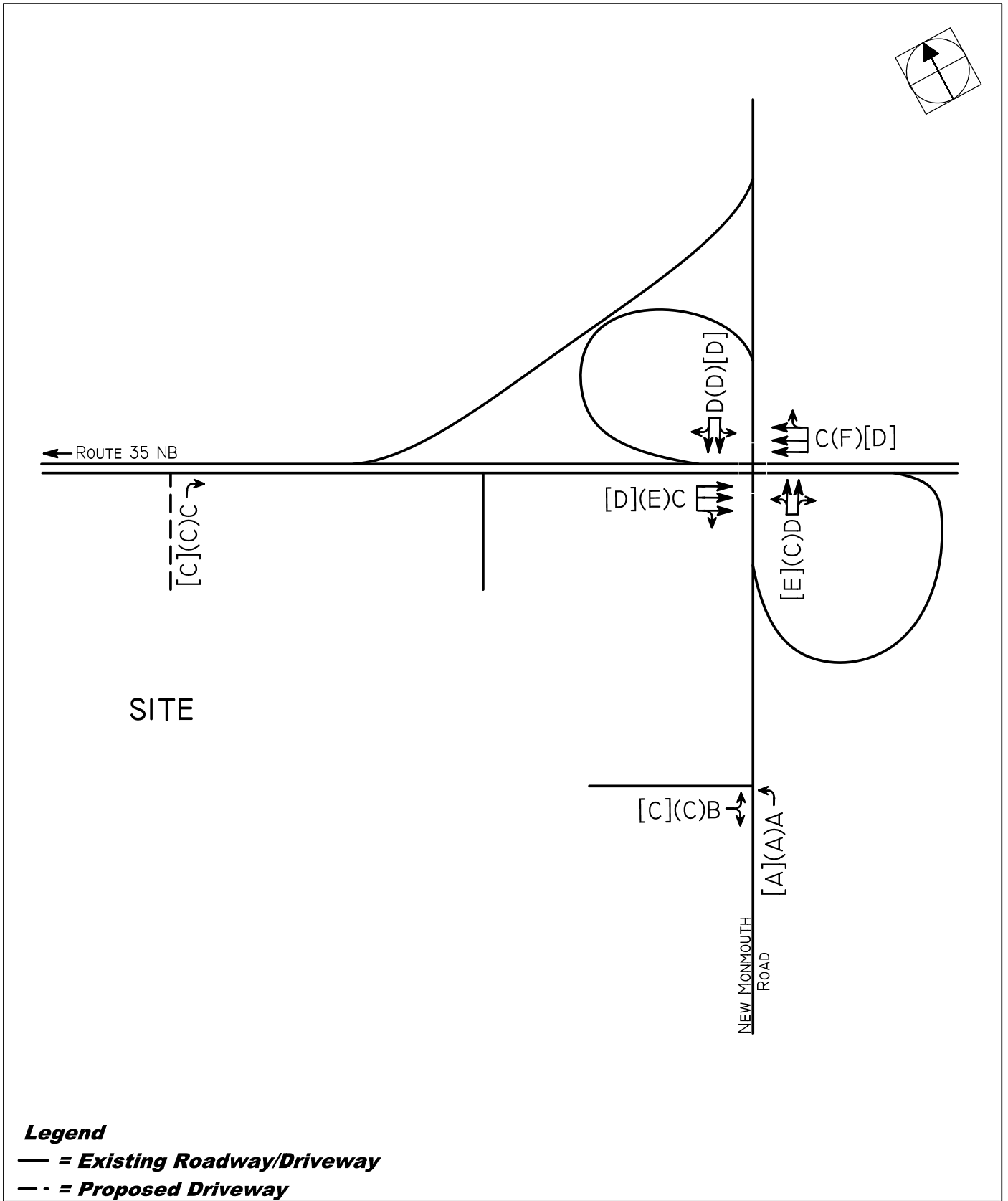


PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 15



NO-BUILD LEVELS OF SERVICE
 MORNING(EVENING)[SATURDAY] PEAK HOUR



PROPOSED WAWA
 TOWNSHIP OF MIDDLETOWN
 MONMOUTH COUNTY, NEW JERSEY

FIGURE 16



BUILD LEVELS OF SERVICE
 MORNING(EVENING)[SATURDAY] PEAK HOUR