
TRAFFIC IMPACT STUDY

For

**Marlboro Green
Township of Marlboro
Monmouth County, New Jersey**

Prepared For:

**Marlboro Development Group
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LANGAN

**13 April 2020
130153301**

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EXECUTIVE SUMMARY

Marlboro Development Group has retained Langan Engineering and Environmental Services to prepare a traffic impact study for a proposed mixed-use development containing 85 townhome units, 20 apartment units, a 4,000 sf drive-in bank with 1 drive-thru lane, and 8,110 sf of retail space currently contemplated to be tenanted with a 2,000 sf coffee shop with a drive-thru window. The site is located at the southeast corner of the NJ Route 79 and Stevenson Drive intersection in the Township of Marlboro, Monmouth County, New Jersey.

The site is located at the southeast corner of the NJ Route 79 and Stevenson Drive intersection. It is bordered on the east by the Henry Hudson Trail, on the west by NJ Route 79, on the north by Stevenson Drive, and on the south by commercial land uses and Buck Lane. Access to the site will be provided via four stop-controlled access driveways. One driveway is proposed to intersect NJ Route 79 at a T-shaped intersection that restricts left-turn egress. Traffic volumes to southbound NJ Route 79 will be directed to Stevenson Drive. Two driveways are proposed to intersect Stevenson Drive to form full-movement T-shaped intersections. One driveway is proposed to intersect Buck Lane to form a full-movement T-shaped intersection.

We prepared trip generation estimates for the proposed development using data compiled for Land Use 220 (Multifamily Housing (Low-Rise)), Land Use 820 (Shopping Center), Land Use 912 (Drive-In Bank), and Land Use 937 (Coffee/Donut Shop with Drive-Thru Window) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 10th edition. Langan estimates that the development will generate approximately 145 new trips (59 enter, 86 exit) during the weekday morning peak hour, 161 new trips (87 enter, 74 exit) during the weekday evening peak hour, and 225 new trips (116 enter, 109 exit) during the Saturday midday peak hour.

We determined the directional distribution of the site-generated trips based on an examination of census data, demographic data, a journey-to-work model, a gravity model, and existing travel patterns in the study area. We conducted capacity analyses at the following intersections:

- NJ Route 79 and Stevenson Drive
- NJ Route 79 and Buck Lane
- NJ Route 79 and Site Driveway 1
- Stevenson Drive and Site Driveway 2
- Stevenson Drive and Site Driveway 3

Based upon the results of our analyses, we do not expect the proposed development to significantly alter the existing intersections during peak traffic hours if a traffic signal is installed at the Stevenson Road and NJ Route 79 intersection. The Stevenson Drive approach to the

INTRODUCTION

Marlboro Development Group has retained Langan Engineering and Environmental Services to prepare a traffic impact study for a proposed mixed-use development. The site is located at the southeast corner of the NJ Route 79 and Stevenson Drive intersection in the Township of Marlboro, Monmouth County, New Jersey.

Project Description

The proposed development consists of 85 townhome units, 20 apartment units, a 4,000 sf drive-in bank with 1 drive-thru lane, and 8,110 sf of retail space currently contemplated to be tenanted with a 2,000 sf coffee shop with a drive-thru window. The site is designated as Block 213.01, Lot 44 according to Township of Marlboro tax maps. The site location is shown on Figure 1.

The site is located at the southeast corner of the NJ Route 79 and Stevenson Drive intersection. It is bordered on the east by the Henry Hudson Trail, on the west by NJ Route 79, on the north by Stevenson Drive, and on the south by commercial land uses and Buck Lane. Access to the site will be provided via four stop-controlled access driveways. One driveway is proposed to intersect NJ Route 79 at a T-shaped intersection that restricts left-turn egress. Two driveways are proposed to intersect Stevenson Drive to form full-movement T-shaped intersections. One driveway is proposed to intersect Buck Lane to form a full-movement T-shaped intersection.

Study Area

We conducted capacity analyses at the following intersections:

- NJ Route 79 and Stevenson Drive
- NJ Route 79 and Buck Lane
- NJ Route 79 and Site Driveway 1
- Stevenson Drive and Site Driveway 2
- Stevenson Drive and Site Driveway 3

An inventory of the physical road conditions is presented in the section "Description of Existing Conditions."

Scope of Study

Langan undertook the following steps to prepare this study in accordance with standard traffic engineering methodologies:

1. Conducted a field examination of the site and surrounding road network to inventory physical and regulatory conditions including the number of lanes, lane assignments, channelization, traffic-control devices, lateral clearances and other factors that limit traffic capacity.
2. Conducted a series of turning movement traffic counts at the study intersections. Turning movement counts were conducted on a typical weekday and a typical Saturday during the peak periods. The existing weekday morning, evening and Saturday midday peak hour traffic volumes were identified based on the traffic count data.
3. Established 2023 base traffic volumes by applying the New Jersey Department of Transportation (NJDOT) Monmouth County growth factor of 1.25 percent per year to the existing traffic volumes.
4. Prepared peak hour trip generation estimates for the proposed mixed-use development based on trip generation data published by the Institute of Transportation Engineers (ITE).
5. Developed trip distribution based on an examination of census data, demographic data, a journey-to-work model, a gravity model, and existing travel patterns in the study area.
6. Assigned site-generated trips to the site access roads and surrounding road network based on the likely travel routes motorists will use to travel to and from the site.
7. Established 2023 Build traffic volumes by adding site-generated trips to the 2023 No-Build traffic volumes.
8. Performed intersection capacity analyses for the weekday morning, evening, and Saturday midday peak hours using Synchro Software.

DESCRIPTION OF EXISTING CONDITIONS

This section describes the roads, intersections and traffic volumes in the area of the proposed development located in the Township of Marlboro, Monmouth County, New Jersey.

Roads

NJ Route 79

NJ Route 79 is classified as an urban principal arterial and is under NJDOT jurisdiction. The roadway has a general north-south orientation and provides one travel lane in each direction in the vicinity of the development. The posted speed limit in the immediate study area is 50 mph.

Stevenson Drive

Stevenson Drive is a local road. The roadway has a general east-west orientation and provides one travel lane in each direction. The posted speed limit in the immediate study area is 35 mph.

Buck Lane

Buck Lane is a local road. The roadway has a general east-west orientation and provides one travel lane in each direction. The posted speed limit is 25 mph.

Intersections

NJ Route 79 and Stevenson Drive

Stevenson Drive intersects NJ Route 79 to form a T-shaped intersection under stop control. The westbound Stevenson Drive approach provides one shared left-turn/right-turn lane and is stop-controlled. The northbound NJ Route 79 approach provides one shared thru/right-turn lane. The southbound NJ Route 79 approach provides one left-turn lane and one thru lane.

NJ Route 79 and Buck Lane

Buck Lane intersects NJ Route 79 to form a T-shaped intersection under stop control. The westbound Bucks Lane approach provides one shared left-turn/right-turn lane and is stop-controlled. The northbound NJ Route 79 approach provides one shared thru/right-turn lane. The southbound NJ Route 79 approach provides one left-turn lane and one thru lane.

Traffic Volumes

To examine traffic conditions near the development, turning movement traffic counts were conducted during the weekday morning, evening and Saturday midday peak periods on a typical weekday and Saturday at the study intersections. Specifically, turning movement counts were conducted on Tuesday, 14 January 2020, from 7:00 AM to 9:00 AM and 3:00 PM to 7:00 PM,

and on Saturday, 11 January 2020, from 11:00 AM to 3:00 PM. Additionally, Automatic Traffic Recorder (ATR) counts were conducted on NJ Route 79 at the location of the proposed development's driveway from Friday, 10 January 2020 to Friday, 17 January 2020.

The traffic counts identify distinct times during the weekday morning and evening hours when traffic experienced its highest levels. According to the traffic count data collected, the weekday morning peak hour occurs from 7:30 AM to 8:30 AM, the weekday evening peak hour occurs from 4:30 PM to 5:30 PM, and the Saturday midday peak hour occurs from 12:45 PM to 1:45 PM.

Figure 2 illustrates the existing weekday morning and evening peak hour traffic volumes. Summaries of the manual traffic counts are contained in Appendix B.

ESTIMATE OF FUTURE CONDITIONS

This section of the report covers background traffic growth, site-generated trips, trip distribution, and future traffic volumes. We anticipate the project will be completed by the end of 2023. Accordingly, we projected traffic volumes to include existing traffic and new traffic created by background growth to derive the 2023 No-Build traffic volumes. The site-generated trips were added to the 2023 No-Build traffic volumes to derive the 2023 Build traffic volumes.

Background Traffic Growth

The existing counted traffic volumes were increased by a compounded annual growth rate of 1.25 percent, established by NJDOT for Monmouth County for short term growth projections, to derive the 2023 No-Build traffic volumes. Figure 3 illustrates the 2023 No-Build traffic volumes.

Site-Generated Trips

We prepared trip generation estimates for the proposed development using data compiled for Land Use 220 (Multifamily Housing (Low-Rise)), Land Use 820 (Shopping Center), Land Use 912 (Drive-In Bank), and Land Use 937 (Coffee/Donut Shop with Drive-Thru Window) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 10th edition.

A certain percentage of traffic attracted to retail land uses generally relates to the volume of traffic passing by the site. These trips are diverted into the site from the adjacent passing travel stream and continue along their original trip path when exiting a site. These specified trips are known as "pass-by" trips and are not new to an area.

We utilized pass-by percentages in accordance with data contained in the ITE Trip Generation Handbook, 3rd Edition, as well as accepted rates published by NJDOT. For the retail, we used pass-by percentages of 0% for the weekday morning peak hour, 34% for the weekday evening peak hour, and 26% for the Saturday midday peak hour. For the Drive-In Bank, we used pass-by percentages of 29% for the weekday morning peak hour, 35% for the weekday evening peak hour, and 38% for the Saturday midday peak hour. For the coffee/donut shop, we used pass-by percentages of 63% for the weekday morning peak hour, 66% for the weekday evening peak hour, and 50% for the Saturday midday peak hour. Table 1 summarizes the trip generation estimates. Figure 4 shows the pass-by trips.

Table 1 – Trip Generation Estimates

Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Midday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Townhomes (85 units)	9	32	41	32	19	51	30	26	56
Apartments (20 units)	4	9	13	9	6	15	8	6	14
Shopping Center (6,110 sf)	4	2	6	37	38	75	35	33	68
Drive-In Bank (1 lane)	9	9	18	13	14	27	14	14	28
Coffee/Donut Shop (2,000 sf)	96	100	196	43	44	87	87	88	175
Total Trips	122	152	274	134	121	255	174	167	341
Pass-By Trips									
Townhomes (85 units)	0	0	0	0	0	0	0	0	0
Apartments (20 units)	0	0	0	0	0	0	0	0	0
Shopping Center (6,110 sf)	0	0	0	13	13	26	9	9	18
Drive-In Bank (1 lane)	3	3	6	5	5	10	5	5	10
Coffee/Donut Shop (2,000 sf)	60	63	123	29	29	58	44	44	88
Total	63	66	129	47	47	94	58	58	116
New Trips									
Townhomes (85 units)	9	32	41	32	19	51	30	26	56
Apartments (20 units)	4	9	13	9	6	15	8	6	14
Shopping Center (6,110 sf)	4	2	6	24	25	49	26	24	50
Drive-In Bank (1 lane)	6	6	12	8	9	17	9	9	18
Coffee/Donut Shop (2,000 sf)	36	37	73	14	15	29	43	44	87
Total New Trips	59	86	145	87	74	161	116	109	225

Trip Distribution

We determined the directional distribution of the site-generated trips based on an examination of census demographic data, a journey-to-work model, a gravity model, and existing travel patterns in the study area. The directional distribution of site traffic is shown in Table 2.

Table 2 - Trip Distribution

Direction (To/From)	Arrival & Departure Distributions	
	Residential	Commercial
NJ Route 79 (North)	35%	44%
NJ Route 79 (South)	50%	42%
Vanderburg Road (East)	15%	7%
Stevenson Drive (East)	-	7%
Total	100%	100%

The arrival and departure distributions associated with the development are shown on Figures 5, 6, and 7. The new site-generated trips were applied to the adjacent roadway system as per the above distributions. Figures 8, 9, and 10 show the new site generated trips assigned to the roadway network for the townhomes, apartments, and retail uses, respectively. Figure 11 shows the total new site-generated trips assigned to the roadway network for the development. The

total site-generated trips, shown in Figure 12, were determined by adding the pass-by trips to the new site-generated trips.

Build Traffic Volumes

The 2023 Build traffic volumes were derived by adding the total site-generated trips to the 2023 No-Build traffic volumes. Figure 13 illustrates the 2023 Build weekday morning, evening, and Saturday midday peak hour traffic volumes.

ANALYSIS OF TRAFFIC OPERATIONS

This section describes the capacity analysis we conducted to assess traffic operations for the No-Build and Build conditions. Capacity analysis provides an indication of the adequacy of road facilities to serve traffic demand.

Level of Service Criteria

Level of Service (LOS) is the term used to denote different operating conditions that occur on a given road segment under various traffic volume demands. LOS is a qualitative measure that considers a number of factors including road geometry, speed, travel delay and freedom to maneuver. LOS designations range from A to F and provide an index of operational qualities of a road segment or an intersection. LOS A represents the best operating conditions; LOS F represents the worst.

LOS designations are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection. For unsignalized intersections, the analysis considers the operation of all movements that conflict with other movements, such as main-line left turns and traffic exiting a side street. The evaluation criteria used to analyze the study area intersections are based on the Highway Capacity Manual, 6th edition (HCM), published by the Transportation Research Board and the latest version of the Synchro Software.

The HCM defines LOS for signalized intersections as follows:

LOS	Control Delay per Vehicle
A	≤10 sec
B	>10 and ≤20 sec
C	>20 and ≤35 sec
D	>35 and ≤55 sec
E	>55 and ≤80 sec
F	>80 sec

The HCM defines LOS for unsignalized intersections as follows:

LOS	Delay Range (sec/veh)
A	≤10 sec
B	>10 and ≤15 sec
C	>15 and ≤25 sec
D	>25 and ≤35 sec
E	>35 and ≤50 sec
F	>50 sec

Capacity Analysis

We conducted capacity analyses for the intersections in the study area and found that the proposed development will not significantly alter traffic operations in the study area during peak hours with the installation of a traffic signal at the intersection of NJ Route 79 and Stevenson Drive. Table 3 summarizes the 2023 No-Build and 2023 Build levels of service (LOS) at each relevant study intersection during the weekday morning, evening, and Saturday midday peak hours. Following are discussions pertaining to each of the intersections analyzed for the project. All capacity analysis printouts are contained in Appendix D.

Table 3 – Intersection Capacity Analysis Summary

Location	Movement		2023 No-Build Condition			2023 Build Condition		
			AM	PM	SAT	AM	PM	SAT
Signalized Intersection								
NJ Route 79 and Stevenson Drive	WB	L,R	-	-	-	C (23.7)	C (21.5)	C (25.6)
	NB	T,R	-	-	-	B (12.7)	B (11.1)	B (17.3)
	SB	L	-	-	-	A (6.3)	A (6.6)	A (9.9)
		T	-	-	-	B (12.0)	A (9.9)	B (14.3)
	Overall		-	-	-	B (13.3)	B (11.1)	B (16.6)
Unsignalized Intersections								
NJ Route 79 and Stevenson Drive	WB	L,R	E (35.3)	D (31.0)	E (46.4)	F (172.4)	F (125.1)	F (397.8)
	SB	L	A (9.6)	A (9.7)	A (10.0)	A (9.8)	A (9.9)	B (10.3)
NJ Route 79 and Buck Lane	WB	L	C (15.4)	C (18.8)	C (17.8)	C (23.2)	C (23.7)	C (29.8)
	SB	L	A (9.2)	A (9.4)	A (9.6)	A (9.3)	A (9.6)	A (9.8)
NJ Route 79 and Site Driveway 1	WB	R	-	-	-	C (15.3)	C (16.3)	C (17.9)
	SB	L	-	-	-	A (9.6)	A (9.9)	B (10.3)
Stevenson Drive and Site Driveway 2	WB	L	-	-	-	A (7.3)	A (7.4)	A (7.4)
	NB	L,R	-	-	-	A (9.5)	A (9.6)	B (10.1)
Stevenson Drive and Site Driveway 3	WB	L	-	-	-	A (0.0)	A (7.4)	A (7.4)
	NB	L,R	-	-	-	A (9.0)	A (9.2)	A (9.5)

Based on Synchro Software *Level of Service (Average vehicle delay [seconds per vehicle])

NJ Route 79 and Stevenson Drive

All turning movements at the stop-controlled intersection are expected to operate at LOS E or better during the weekday morning and Saturday midday peak hours and at LOS D or better during the weekday evening peak hour under the No-Build condition. The added trips generated by the proposed development are expected to degrade the westbound Stevenson Drive approach to LOS F during the weekday morning, evening, and Saturday midday peak hours.

To mitigate the increase in delays, a traffic signal (subject to NJDOT approval) is proposed to be installed while maintaining the existing lane geometry. A two-phase traffic signal with a 75-second cycle length is expected to operate at an overall LOS B during the weekday morning, evening, and Saturday midday peak hours under the Build condition. The intersection meets peak-hour and four-hour warrants. The warrant analyses are contained in Appendix D.

NJ Route 79 and Buck Lane

All turning movements at the stop-controlled intersection are expected to operate at LOS C or better during the weekday morning, evening, and Saturday midday peak hours under the No-Build condition. Under the Build condition, all turning movements are expected to operate at LOS D or better during the weekday morning, evening, and Saturday midday peak hours.

NJ Route 79 and Site Driveway 1

Geometry

The site driveway is proposed to intersect NJ Route 79 to form a T-shaped intersection under stop-control. The westbound site driveway approach will provide one right-turn lane, restricting left-turn egress, and will be stop-controlled. The northbound NJ Route 79 approach will provide one shared thru/right-turn. The southbound NJ Route 79 approach will provide one shared left-turn/thru lane.

Analysis

All movements at the stop-controlled intersection are expected to operate at LOS C or better during the weekday morning, evening, and Saturday midday peak hours under the Build condition.

Stevenson Drive and Site Driveway 2

Geometry

The site driveway is proposed to intersect Stevenson Drive to form a T-shaped intersection under stop-control. The eastbound Stevenson Drive approach will provide one shared right-turn/thru lane. The westbound Stevenson Drive approach will provide one shared left-turn/thru lane. The northbound site driveway approach will provide one shared left-turn/right-turn lane and will be stop-controlled.

Analysis

All movements at the stop-controlled intersection are expected to operate at LOS B or better during the weekday morning, evening, and Saturday midday peak hours under the Build condition.

Stevenson Drive and Site Driveway 3

Geometry

The site driveway is proposed to intersect Stevenson Drive to form a T-shaped intersection under stop-control. The eastbound Stevenson Drive approach will provide one shared right-turn/thru

lane. The westbound Stevenson Drive approach will provide one shared left-turn/thru lane. The northbound site driveway approach will provide one shared left-turn/right-turn lane and will be stop-controlled.

Analysis

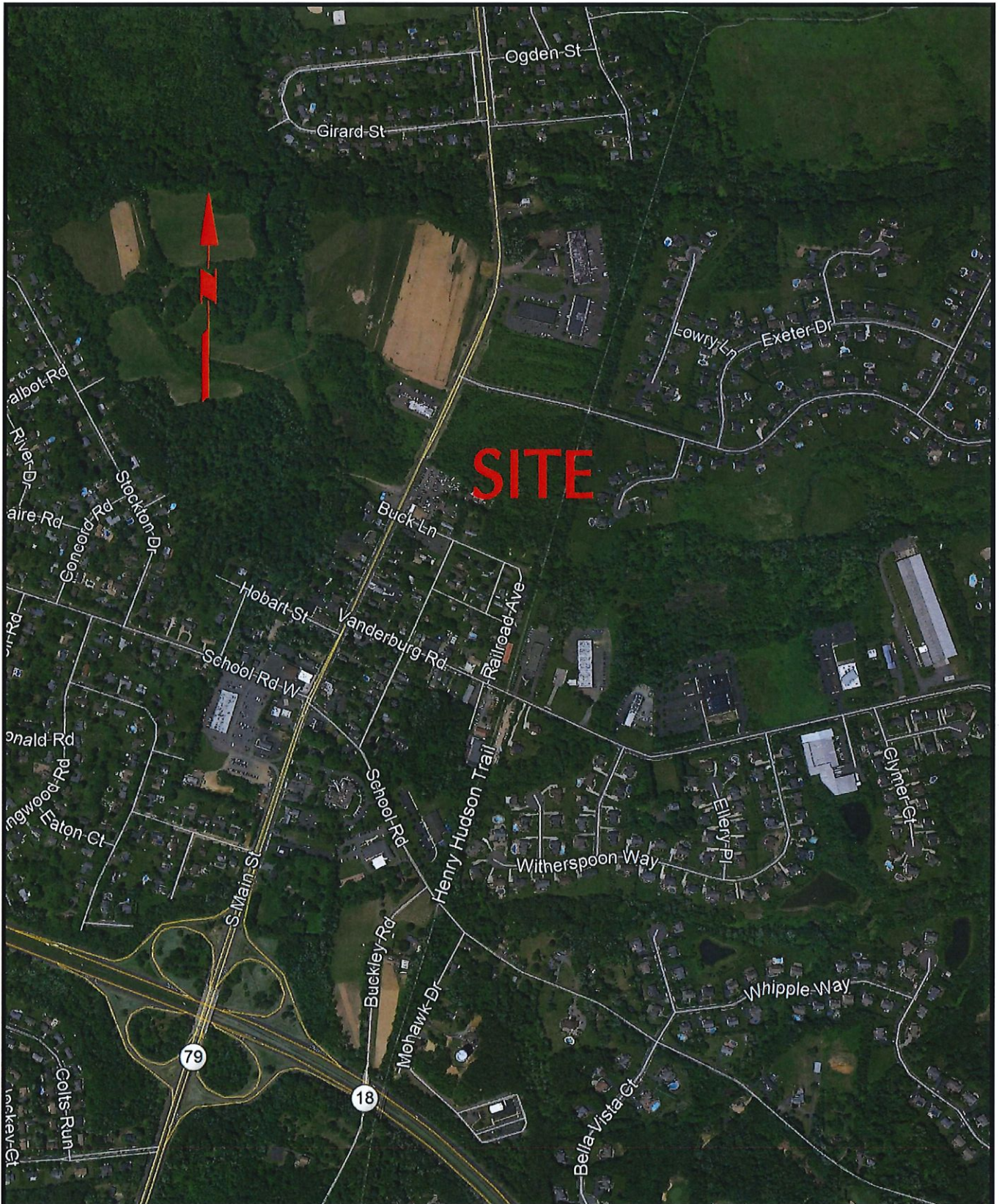
All movements at the stop-controlled intersection are expected to operate at LOS A during the weekday morning, evening, and Saturday midday peak hours under the Build condition.

CONCLUSIONS

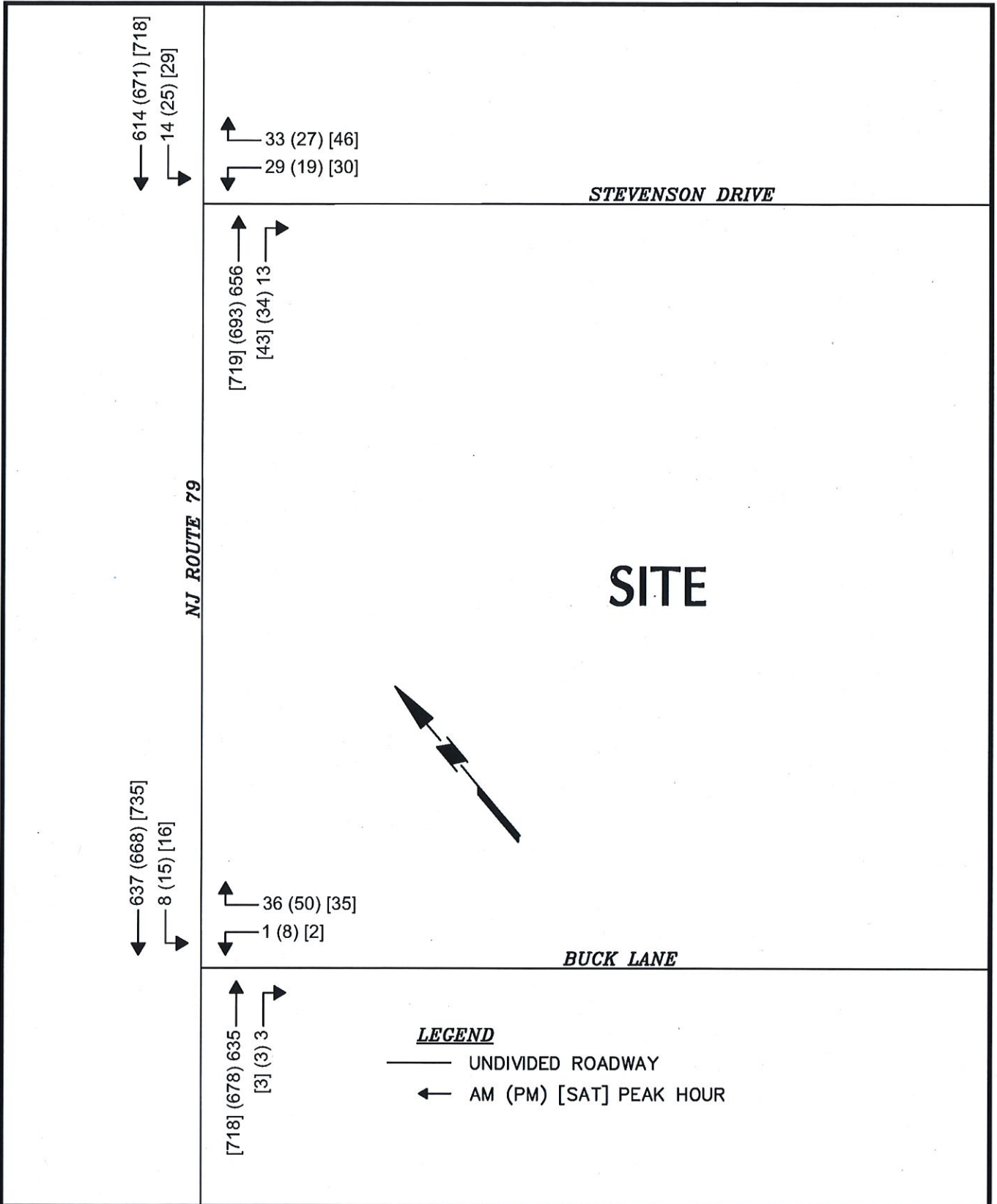
Langan has concluded that the proposed mixed-use development will not significantly impact area traffic operations during peak hours with implementation of the recommendations discussed herein. Installation of a traffic signal at the intersection of Route 79 with Stevenson Drive is recommended. The Stevenson Drive approach to the intersection operates at level of service (LOS) E during weekday morning and Saturday midday peak hours. A traffic signal improves the approach to LOS C and the overall intersection is expected to operate at LOS B. Based on our analyses, we determined that the adjacent roadway network has sufficient capacity to accommodate the site-generated trips associated with the proposed retail building. Moreover, the proposed site driveways are expected to operate acceptably during peak traffic hours.

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APPENDIX A
FIGURES

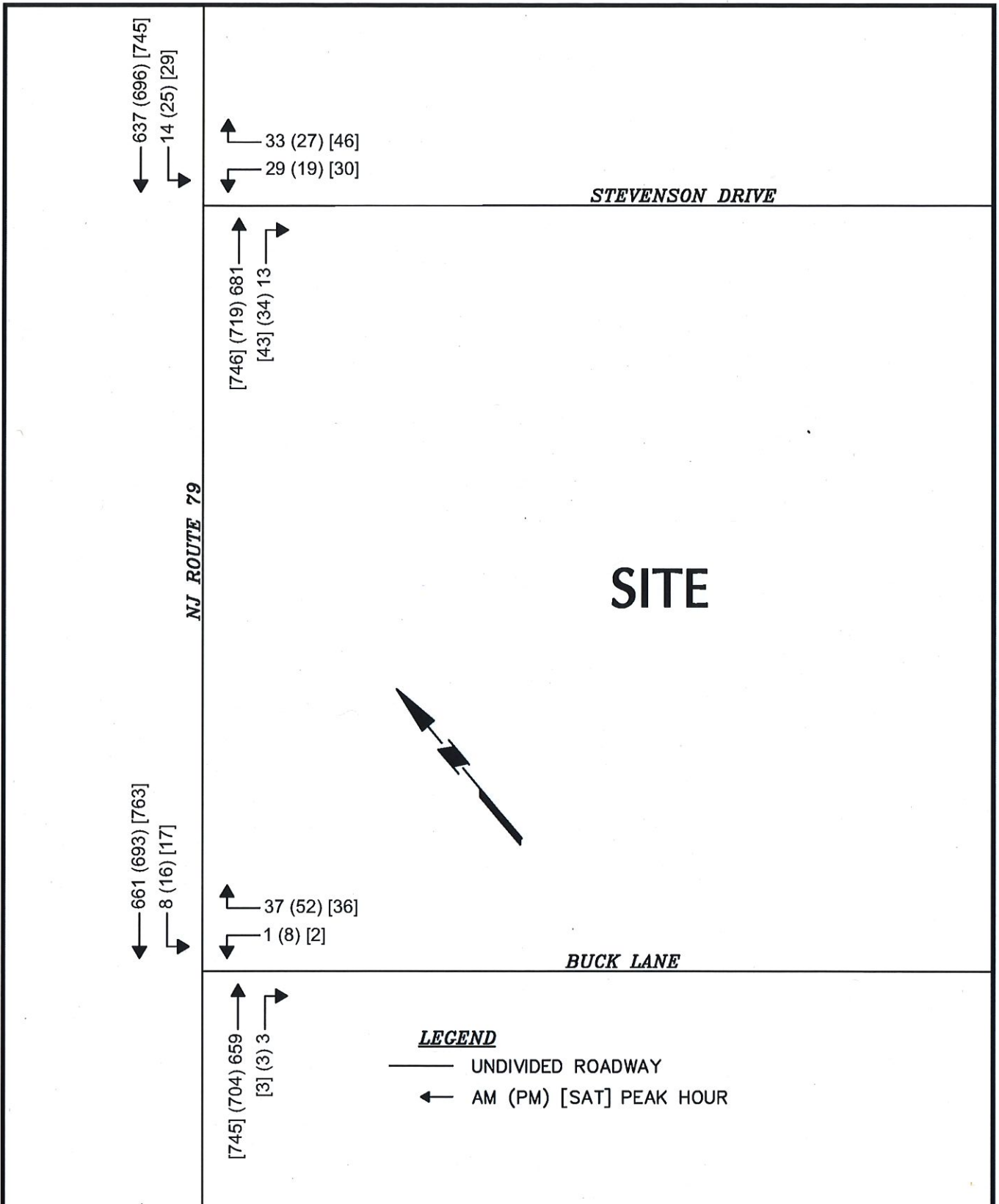


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	MARLBORO GREEN	SITE LOCATION MAP	130153301	FIGURE
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date	1
			4/7/2020	Sheet 1 of 13
		Drawn By	JEG	
		Checked By	KAP	

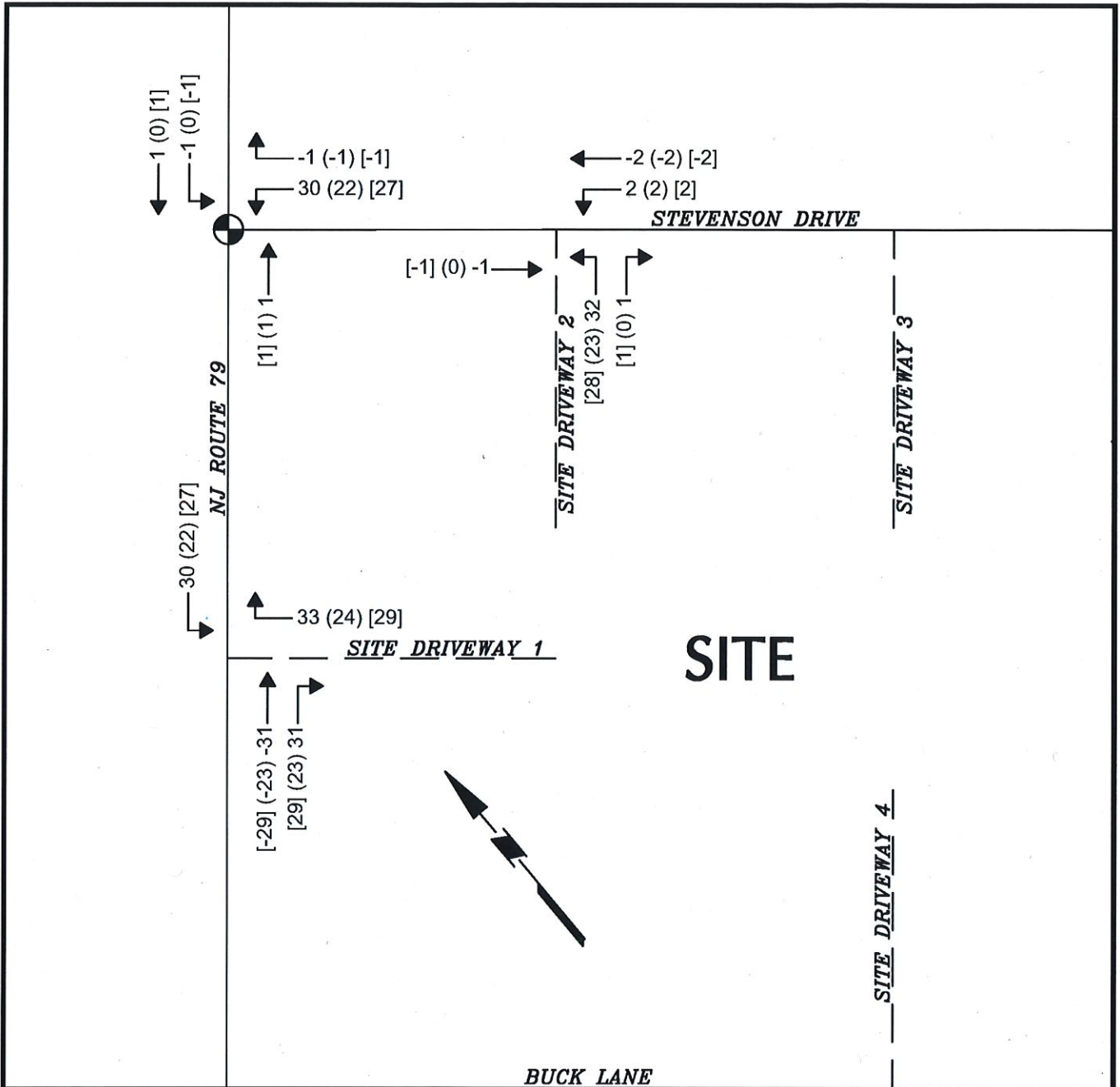


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	MARLBORO GREEN	2020 EXISTING TRAFFIC VOLUMES	130153301	FIGURE 2
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date 4/7/2020	
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			Checked By KAP	Sheet 2 of 13

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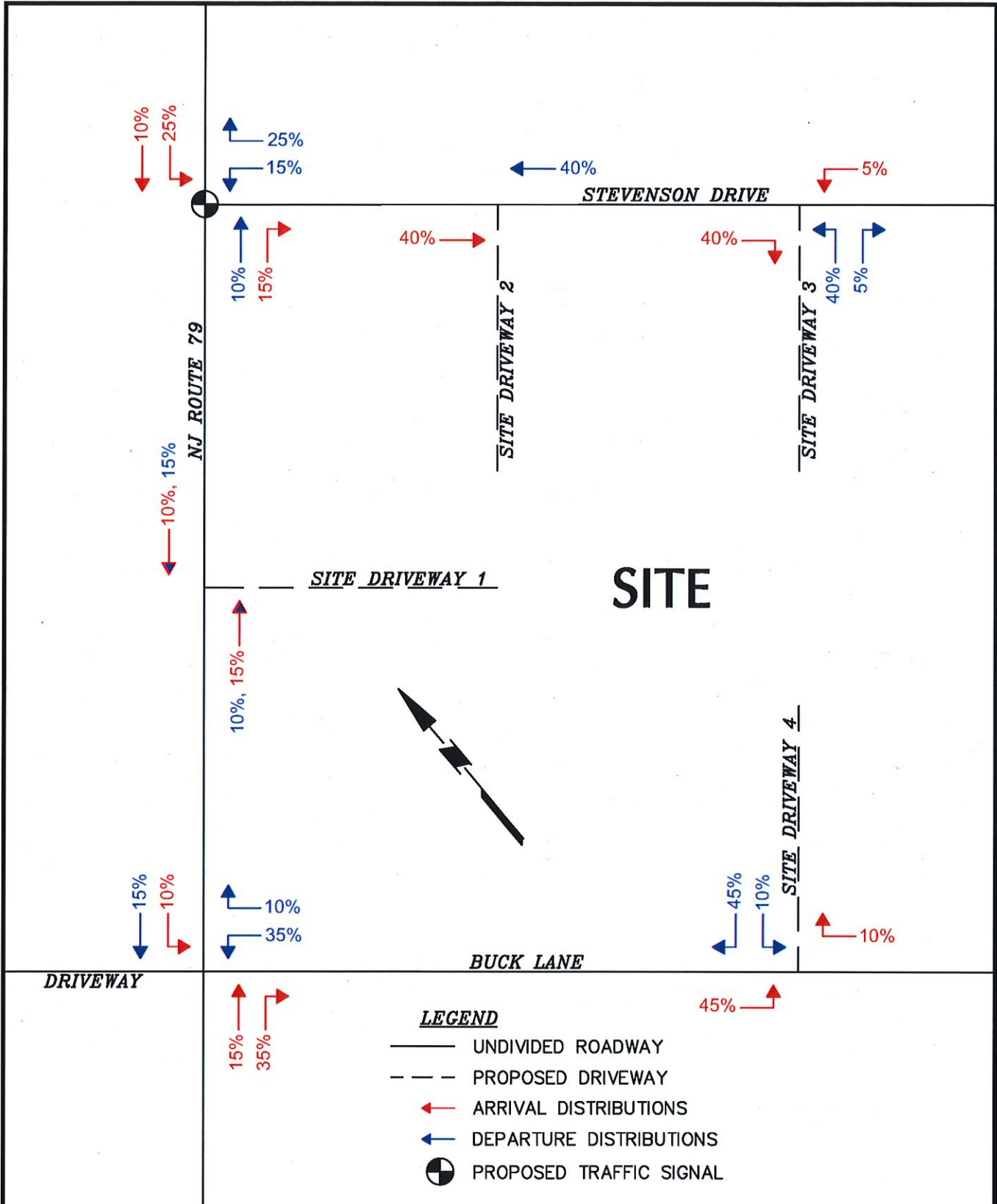
LANGAN Langan Engineering and Environmental Services, Inc. 999 Lenox Drive, Suite 124 Lawrenceville, NJ 08648 T: 609.282.8000 F: 609.282.8001 www.langan.com NJ Certificate of Authorization No.24GA27996400	Project	Drawing Title	Project No.	Drawing No.
	MARLBORO GREEN	2023 NO-BUILD TRAFFIC VOLUMES	130153301	FIGURE 3
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date 4/7/2020	
			Drawn By JEG	
			Checked By KAP	Sheet 3 of 13



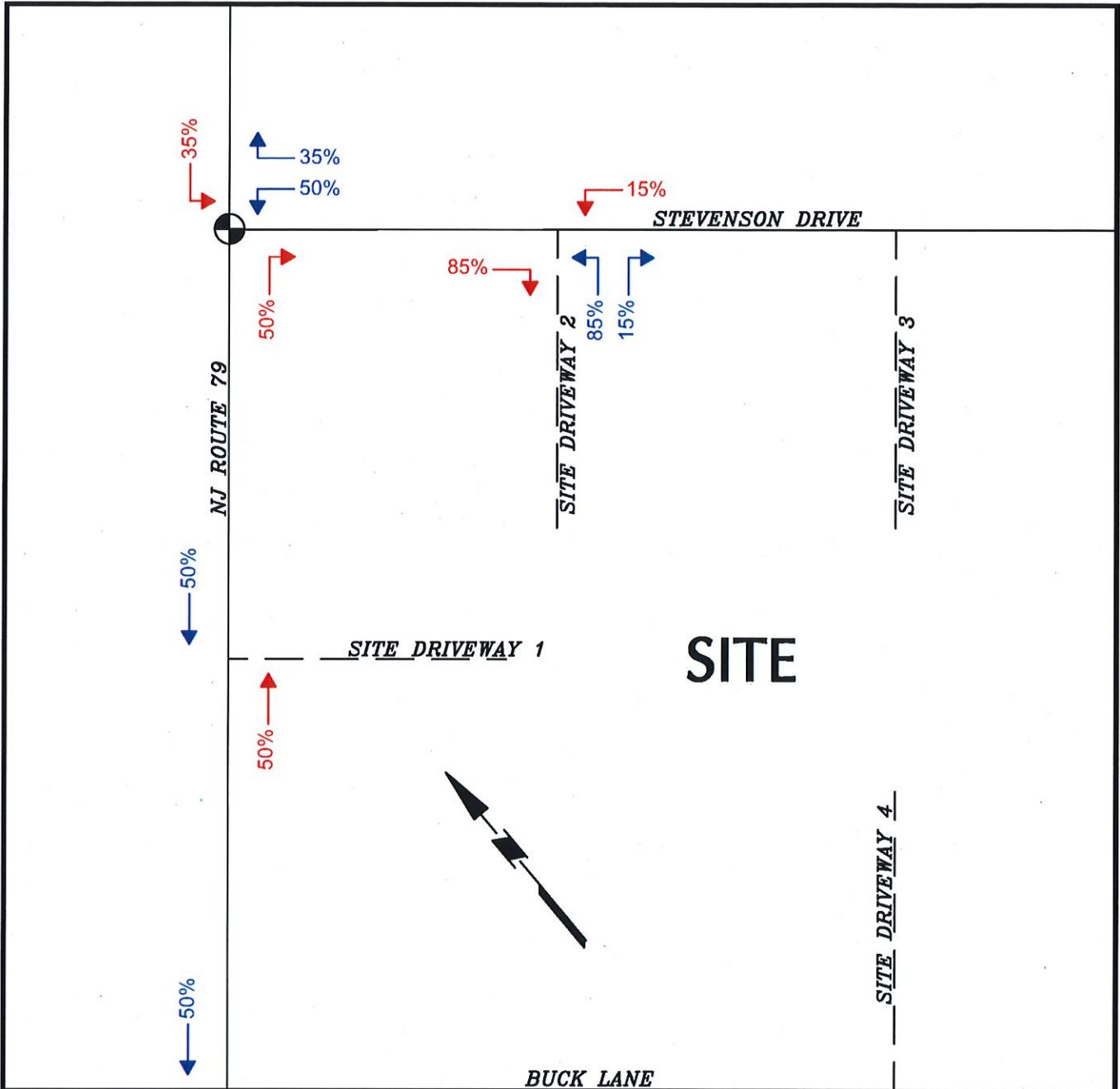
LEGEND

- UNDIVIDED ROADWAY
- - - PROPOSED DRIVEWAY
- ← AM (PM) [SAT] PEAK HOUR
- ⊕ PROPOSED TRAFFIC SIGNAL

<p>LANGAN Langan Engineering and Environmental Services, Inc. 989 Lenox Drive, Suite 124 Lawrenceville, NJ 08648 T: 609.282.8000 F: 609.282.8001 www.langan.com NJ Certificate of Authorization No. 24GA27996400</p>	Project	Drawing Title	Project No.	Drawing No.
	MARLBORO GREEN	PASS-BY TRIPS	130153301	FIGURE 4
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date 4/7/2020	
				Drawn By JEG
			Checked By KAP	



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			Date 4/7/2020	Sheet 5 of 13
			Drawn By JEG	
			Checked By KAP	



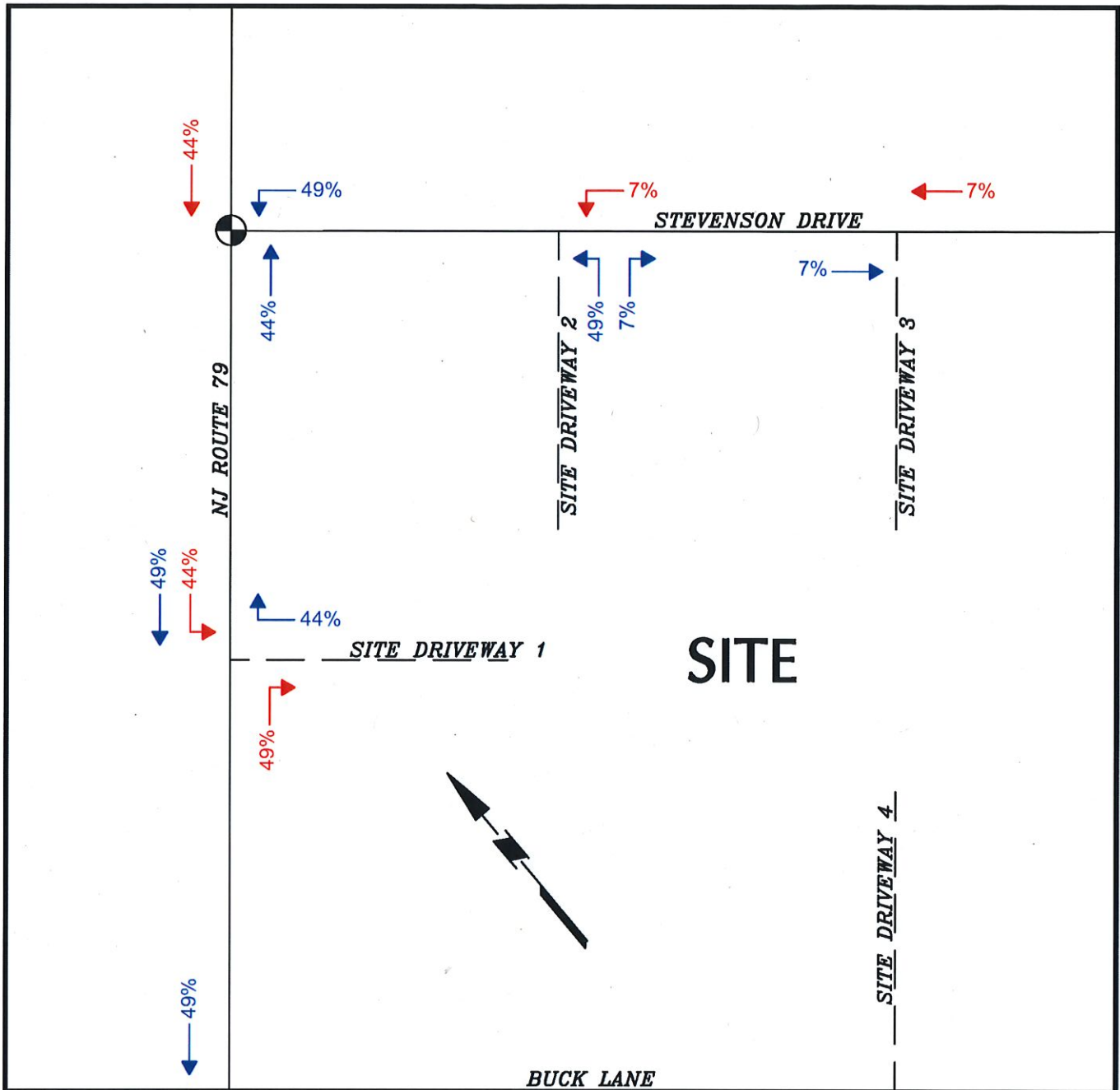
DRIVEWAY



LEGEND

- UNDIVIDED ROADWAY
- - - PROPOSED DRIVEWAY
- ARRIVAL DISTRIBUTIONS
- ← DEPARTURE DISTRIBUTIONS
- ⊕ PROPOSED TRAFFIC SIGNAL

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	MARLBORO GREEN	ARRIVAL & DEPARTURE DISTRIBUTIONS APARTMENTS	130153301	FIGURE
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date 4/7/2020	6
			Drawn By JEG	Sheet 6 of 13
			Checked By KAP	



SITE

LEGEND

- UNDIVIDED ROADWAY
- - - PROPOSED DRIVEWAY
- ← ARRIVAL DISTRIBUTIONS
- DEPARTURE DISTRIBUTIONS
- ⊙ PROPOSED TRAFFIC SIGNAL

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Project

MARLBORO GREEN

BLOCK No. 213.01, LOT No. 44
TOWNSHIP OF MARLBORO
MONMOUTH COUNTY NEW JERSEY

Drawing Title

**ARRIVAL &
DEPARTURE
DISTRIBUTIONS
COMMERCIAL**

Project No.

130153301

Date

4/7/2020

Drawn By

JEG

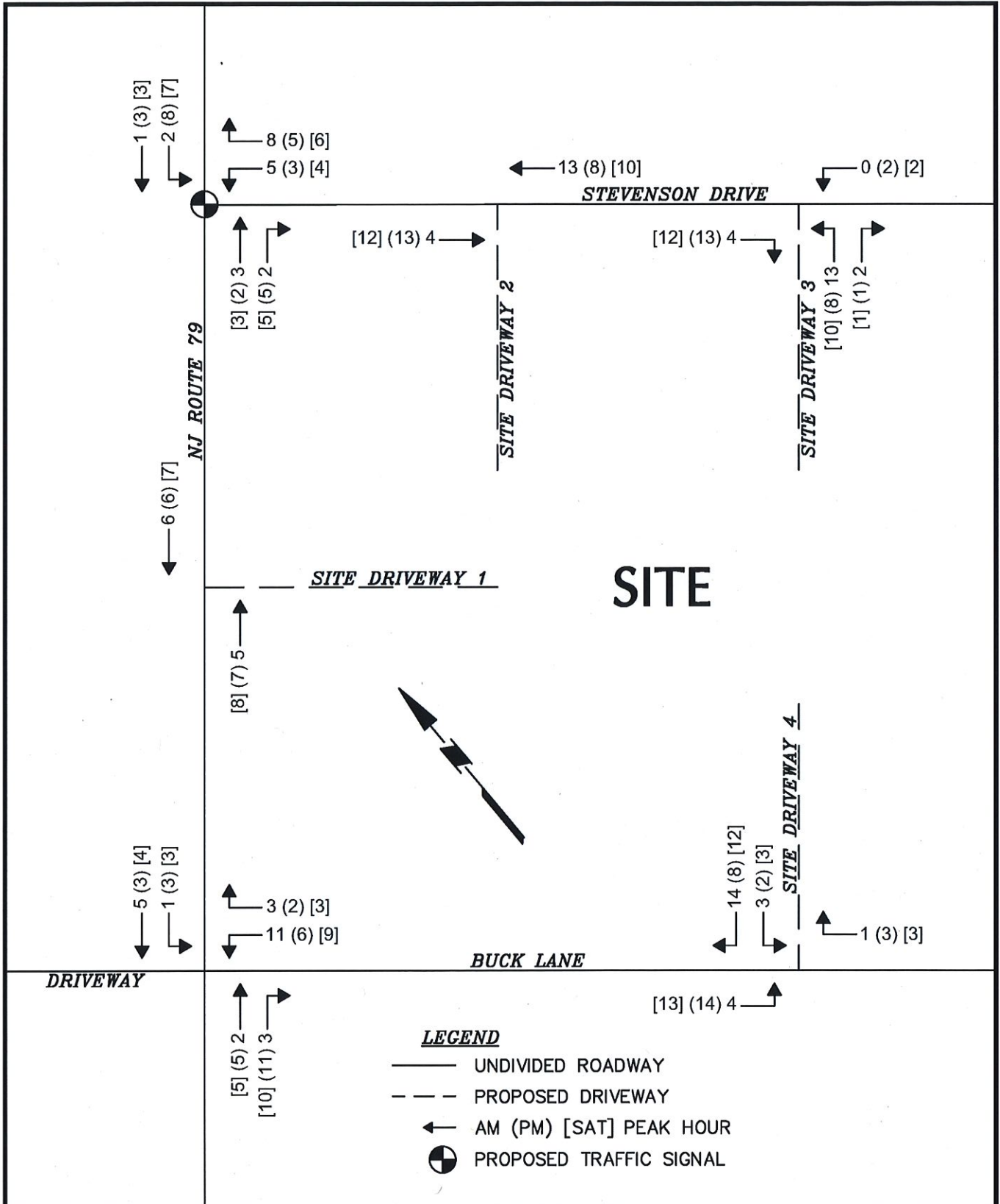
Checked By

KAP

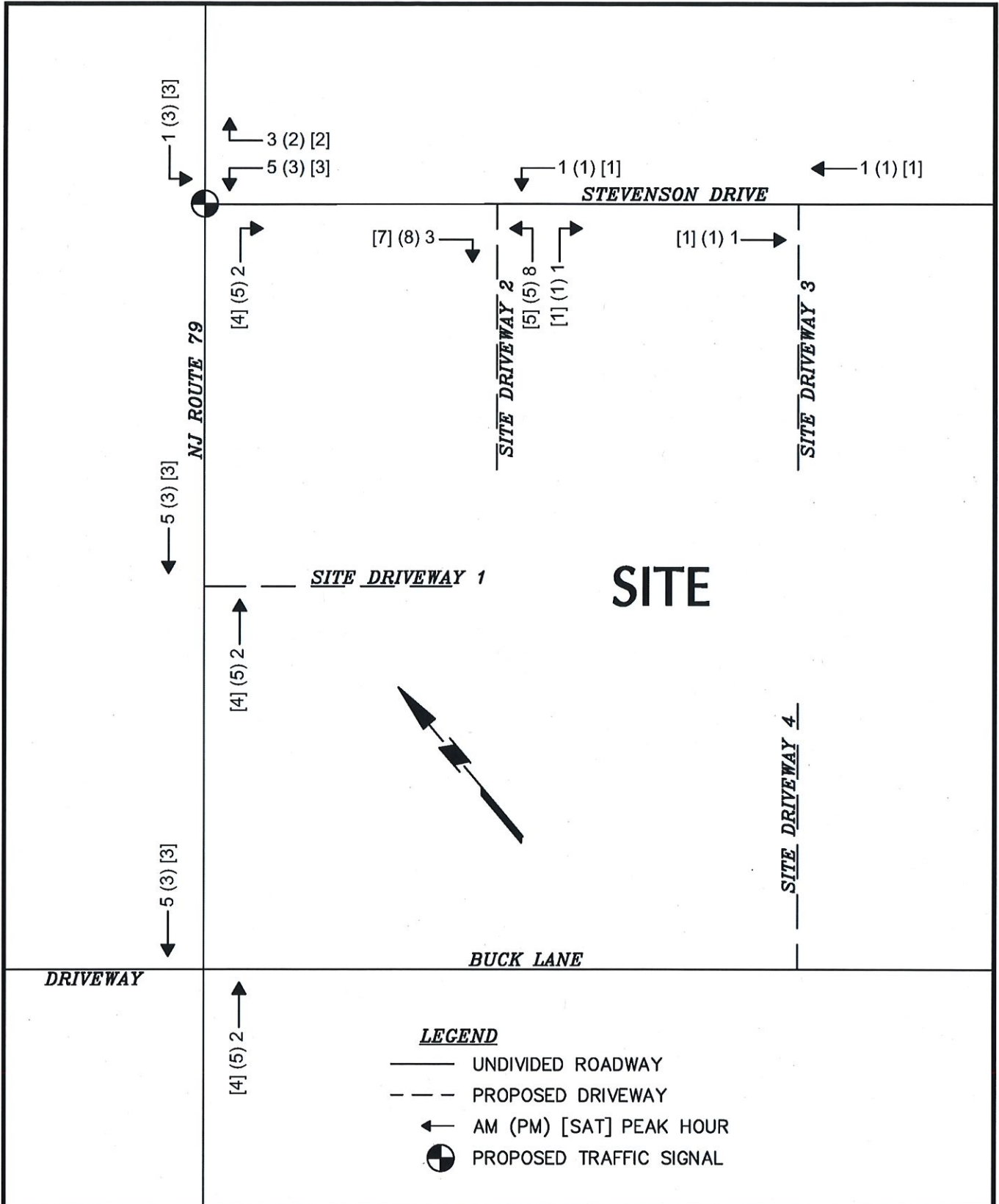
Drawing No.

**FIGURE
7**

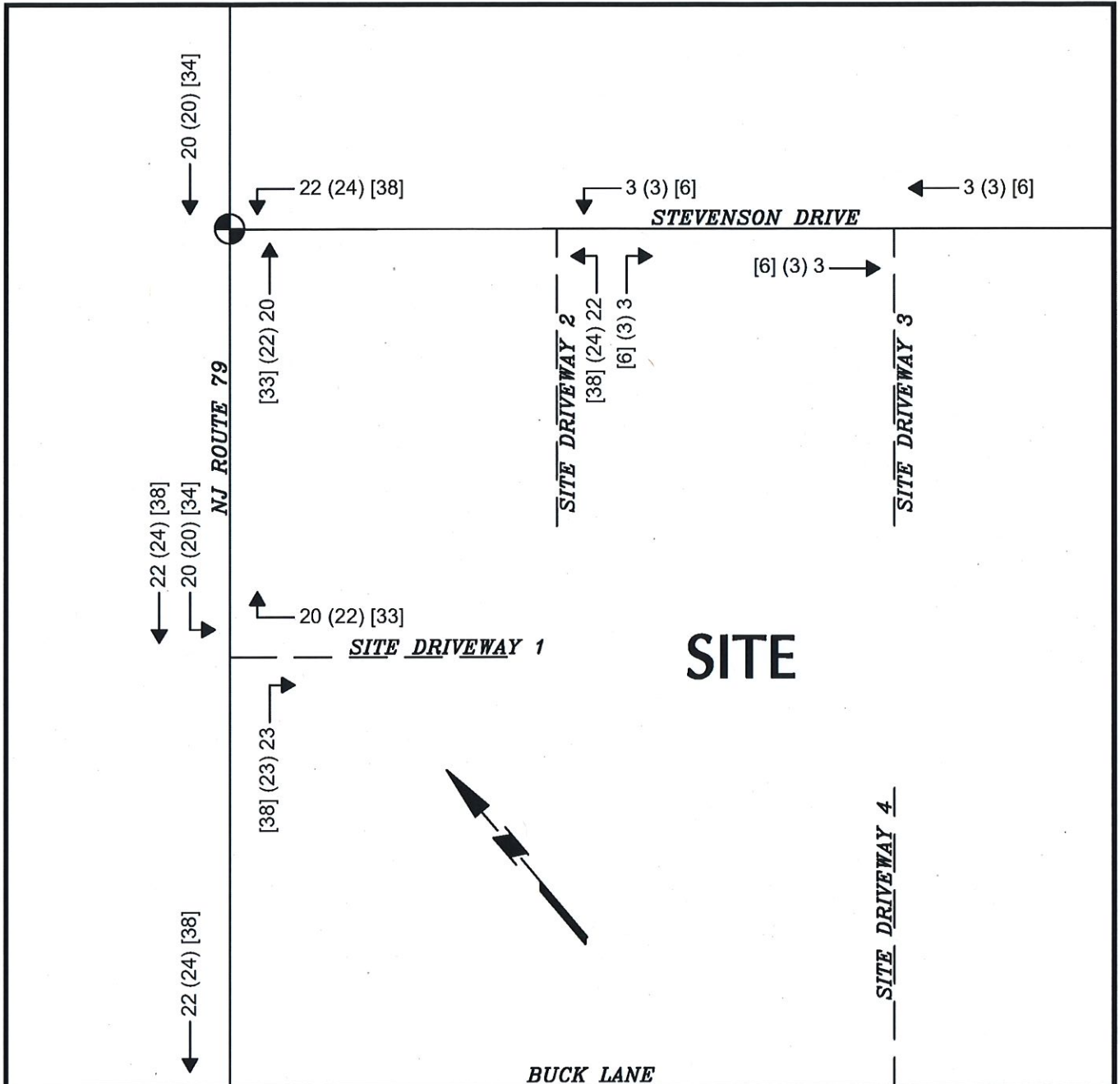
Sheet 7 of 13



LANGAN Langan Engineering and Environmental Services, Inc. 989 Lenox Drive, Suite 124 Lawrenceville, NJ 08648 T: 609.282.8000 F: 609.282.8001 www.langan.com NJ Certificate of Authorization No. 24GA27998400	Project	Drawing Title	Project No.	Drawing No.
	MARLBORO GREEN	SITE-GENERATED TRIPS TOWNHOMES	130153301	FIGURE 8
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date 4/7/2020	
			Drawn By JEG	
			Checked By KAP	Sheet 8 of 13



<p>LANGAN Langan Engineering and Environmental Services, Inc. 989 Lenox Drive, Suite 124 Lawrenceville, NJ 08648 T: 609.282.8000 F: 609.282.8001 www.langan.com NJ Certificate of Authorization No. 24GA27996400</p>	Project	Drawing Title	Project No.	Drawing No.
	MARLBORO GREEN	SITE-GENERATED TRIPS APARTMENTS	130153301	FIGURE 9
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date 4/7/2020	
			Drawn By JEG	
			Checked By KAP	Sheet 9 of 13



LEGEND

- UNDIVIDED ROADWAY
- - - PROPOSED DRIVEWAY
- ← AM (PM) [SAT] PEAK HOUR
- ⊕ PROPOSED TRAFFIC SIGNAL

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989 Lenox Drive, Suite 124
Lawrenceville, NJ 08848

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NJ Certificate of Authorization No. 24GA27998400

Project

MARLBORO GREEN

BLOCK No. 213.01, LOT No. 44
TOWNSHIP OF MARLBORO
MONMOUTH COUNTY NEW JERSEY

Drawing Title

**SITE-GENERATED
TRIPS
COMMERCIAL**

Project No.

130153301

Date

4/7/2020

Drawn By

JEG

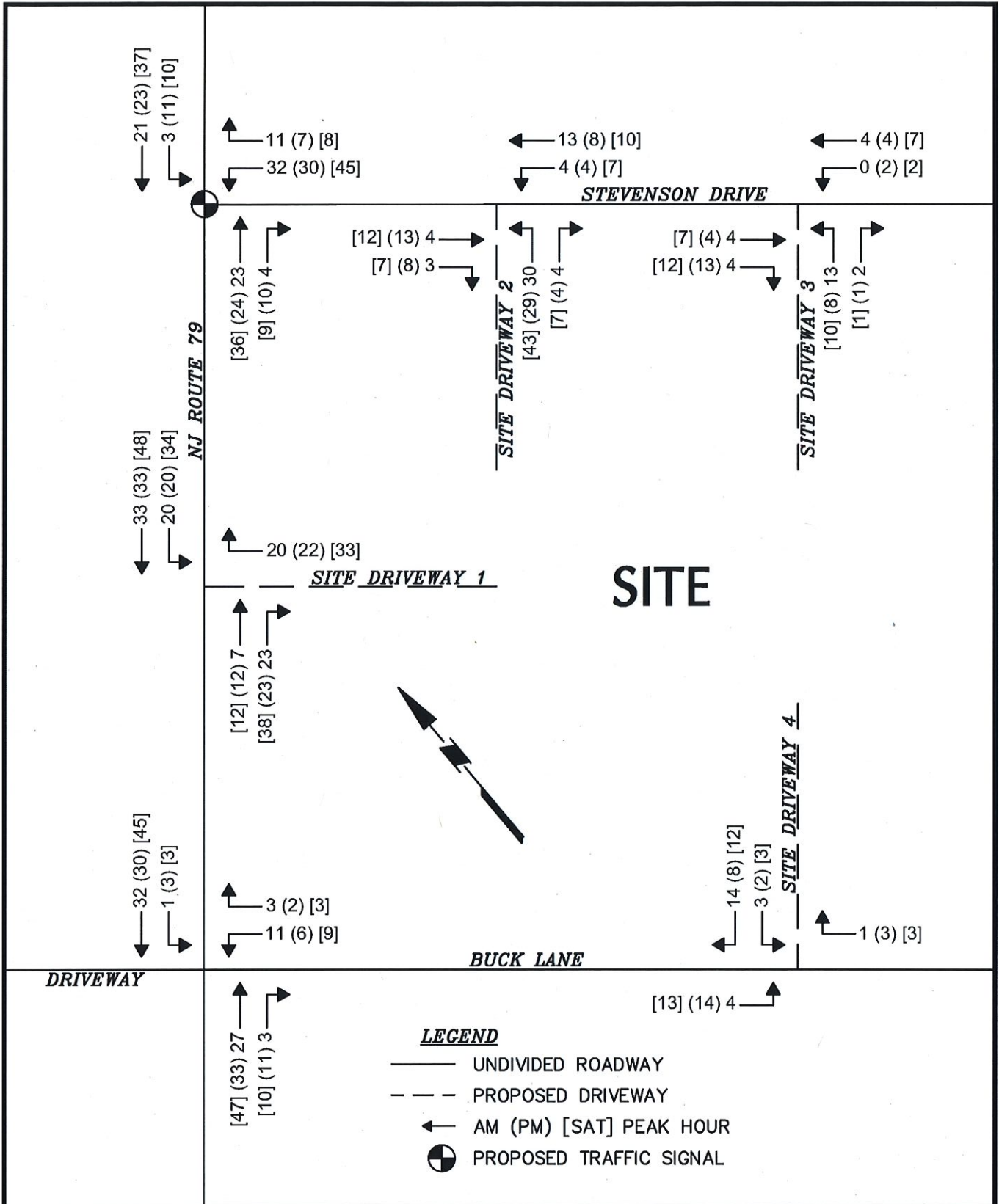
Checked By

KAP

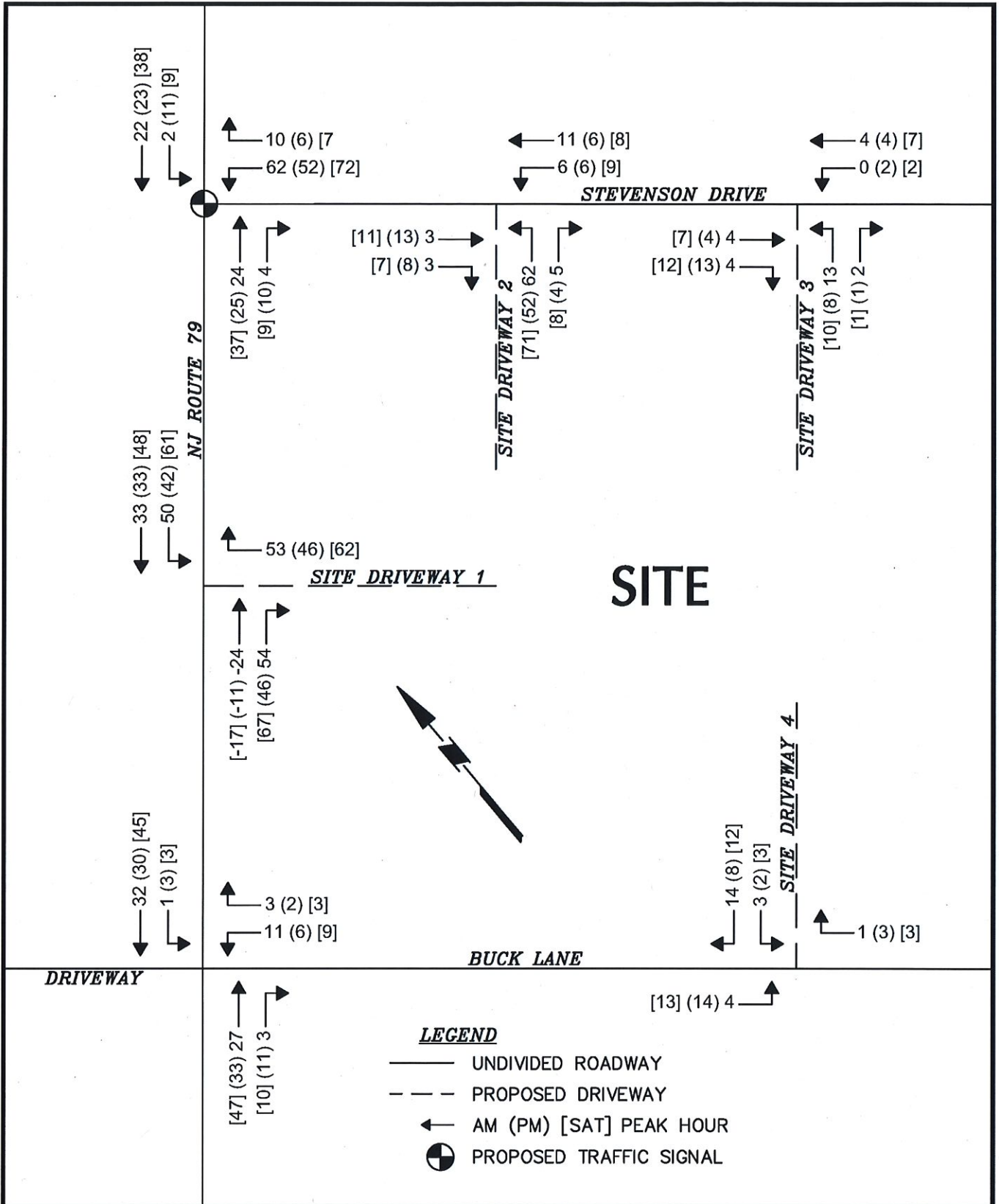
Drawing No.

**FIGURE
10**

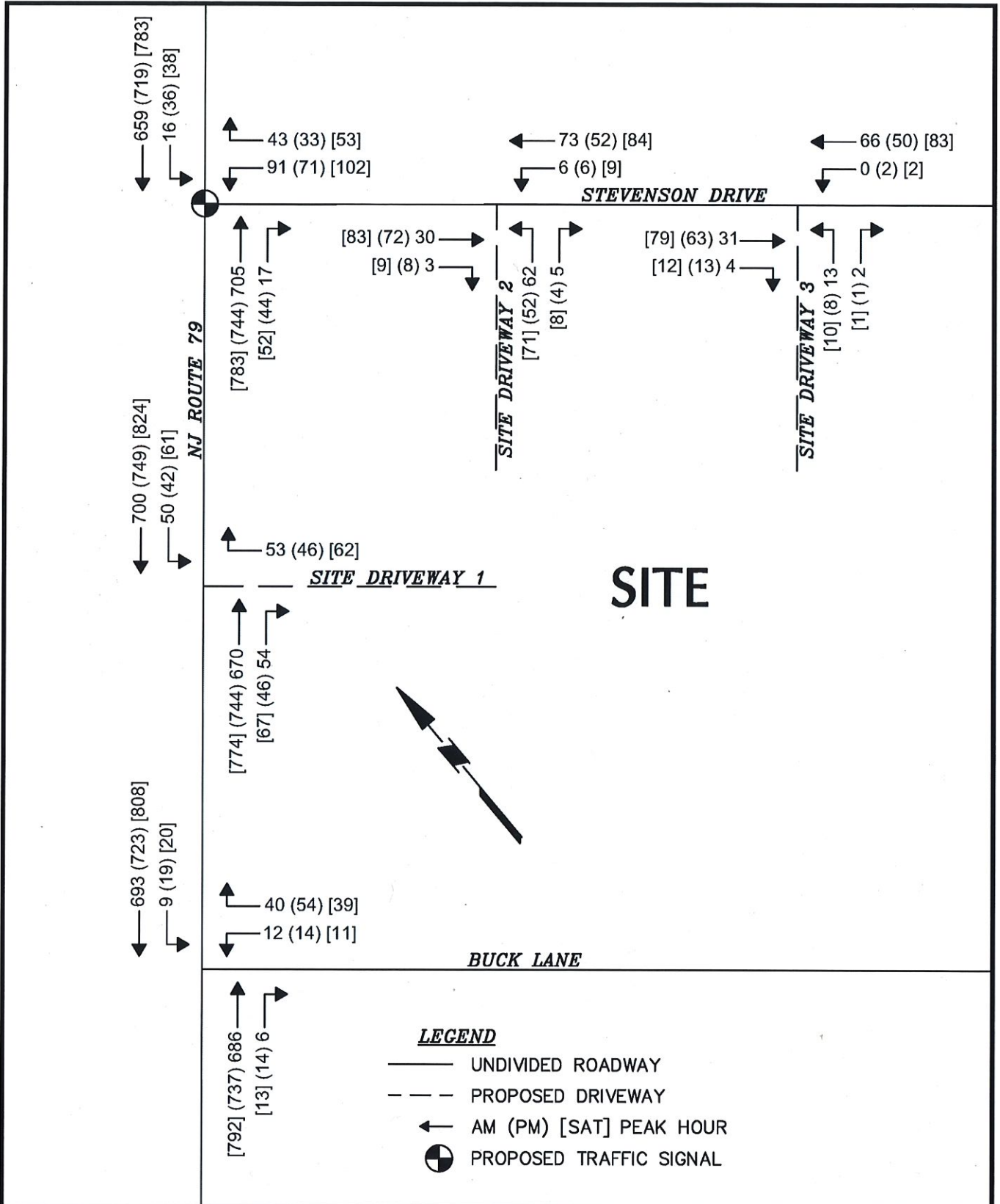
Sheet 10 of 13



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	MARLBORO GREEN	TOTAL NEW SITE-GENERATED TRIPS	130153301	FIGURE 11
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date 4/7/2020	
			Drawn By JEG	
			Checked By KAP	Sheet 11 of 13



LANGAN Langan Engineering and Environmental Services, Inc. 989 Lenox Drive, Suite 124 Lawrenceville, NJ 08648 T: 609.282.8000 F: 609.282.8001 www.langan.com NJ Certificate of Authorization No. 24GA27996400	Project MARLBORO GREEN BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY	Drawing Title TOTAL SITE-GENERATED TRIPS	Project No. 130153301 Date 4/7/2020 Drawn By JEG Checked By KAP	Drawing No. FIGURE 12 Sheet 12 of 13
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	MARLBORO GREEN	2023 BUILD TRAFFIC VOLUMES	130153301	FIGURE 13
	BLOCK No. 213.01, LOT No. 44 TOWNSHIP OF MARLBORO MONMOUTH COUNTY NEW JERSEY		Date	4/7/2020
			Drawn By	JEG
			Checked By	KAP
				Sheet 13 of 13

APPENDIX B
TRAFFIC COUNTS



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File Name : TUE NJ Route 79 & Stevenson
Site Code : 00000000
Start Date : 1/14/2020
Page No : 1

NJ Route 79 & Stevenson Drive
Turning Movement Count
Weekday AM & PM Peak Hours
Tuesday, 14 January 2020

Groups Printed- Lights - Trucks - Buses

Start Time	NJ ROUTE 79 Southbound				STEVENSON DRIVE Westbound				NJ ROUTE 79 Northbound			
	Left	Thru	App. Total		Left	Right	App. Total		Thru	Right	App. Total	Int. Total
07:00 AM	1	83	84		13	9	22		125	3	128	234
07:15 AM	2	102	104		9	9	18		145	1	146	268
07:30 AM	3	132	135		4	7	11		147	3	150	296
07:45 AM	2	159	161		8	9	17		214	2	216	394
Total	8	476	484		34	34	68		631	9	640	1192
08:00 AM	3	164	167		7	10	17		159	8	167	351
08:15 AM	6	159	165		10	7	17		136	0	136	318
08:30 AM	1	145	146		7	6	13		132	4	136	295
08:45 AM	3	132	135		15	9	24		136	4	140	299
Total	13	600	613		39	32	71		563	16	579	1263
*** BREAK ***												
03:00 PM	17	214	231		2	7	9		120	7	127	367
03:15 PM	7	166	173		5	9	14		120	7	127	314
03:30 PM	7	173	180		3	6	9		145	10	155	344
03:45 PM	7	168	175		1	7	8		166	13	179	362
Total	38	721	759		11	29	40		551	37	588	1387
04:00 PM	10	181	191		7	1	8		165	6	171	370
04:15 PM	8	159	167		5	8	13		154	7	161	341
04:30 PM	4	131	135		5	10	15		192	12	204	354
04:45 PM	10	213	223		5	4	9		166	5	171	403
Total	32	684	716		22	23	45		677	30	707	1468
05:00 PM	5	153	158		4	7	11		167	12	179	348
05:15 PM	6	174	180		5	6	11		168	5	173	364
05:30 PM	3	167	170		7	11	18		160	9	169	357
05:45 PM	11	168	179		4	5	9		172	13	185	373
Total	25	662	687		20	29	49		667	39	706	1442
06:00 PM	6	153	159		7	5	12		136	10	146	317
06:15 PM	8	139	147		2	4	6		118	10	128	281
06:30 PM	7	126	133		2	4	6		106	15	121	260
06:45 PM	5	99	104		5	4	9		120	9	129	242
Total	26	517	543		16	17	33		480	44	524	1100



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NJ Route 79 & Stevenson Drive
Turning Movement Count
Weekday AM & PM Peak Hours
Tuesday, 14 January 2020

File Name : TUE NJ Route 79 & Stevenson
Site Code : 00000000
Start Date : 1/14/2020
Page No : 3

Start Time	NJ ROUTE 79 Southbound			STEVENSON DRIVE Westbound			NJ ROUTE 79 Northbound			
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	3	132	135	4	7	11	147	3	150	296
07:45 AM	2	159	161	8	9	17	214	2	216	394
08:00 AM	3	164	167	7	10	17	159	8	167	351
08:15 AM	6	159	165	10	7	17	136	0	136	318
Total Volume	14	614	628	29	33	62	656	13	669	1359
% App. Total	2.2	97.8		46.8	53.2		98.1	1.9		
PHF	.583	.936	.940	.725	.825	.912	.766	.406	.774	.862
Lights	13	550	563	29	30	59	624	13	637	1259
% Lights	92.9	89.6	89.6	100	90.9	95.2	95.1	100	95.2	92.6
Trucks	0	11	11	0	0	0	18	0	18	29
% Trucks	0	1.8	1.8	0	0	0	2.7	0	2.7	2.1
Buses	1	53	54	0	3	3	14	0	14	71
% Buses	7.1	8.6	8.6	0	9.1	4.8	2.1	0	2.1	5.2
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	4	131	135	5	10	15	192	12	204	354
04:45 PM	10	213	223	5	4	9	166	5	171	403
05:00 PM	5	153	158	4	7	11	167	12	179	348
05:15 PM	6	174	180	5	6	11	168	5	173	364
Total Volume	25	671	696	19	27	46	693	34	727	1469
% App. Total	3.6	96.4		41.3	58.7		95.3	4.7		
PHF	.625	.788	.780	.950	.675	.767	.902	.708	.891	.911
Lights	24	655	679	19	27	46	683	34	717	1442
% Lights	96.0	97.6	97.6	100	100	100	98.6	100	98.6	98.2
Trucks	0	8	8	0	0	0	5	0	5	13
% Trucks	0	1.2	1.1	0	0	0	0.7	0	0.7	0.9
Buses	1	8	9	0	0	0	5	0	5	14
% Buses	4.0	1.2	1.3	0	0	0	0.7	0	0.7	1.0



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NJ Route 79 & Stevenson Drive
Turning Movement Count
Saturday Midday Peak Hour
Saturday, 11 January 2020

File Name : SAT NJ Route 79 & Stevenson
Site Code : 00000000
Start Date : 1/11/2020
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	NJ ROUTE 79 Southbound				STEVENSON DRIVE Westbound				NJ ROUTE 79 Northbound			
	Left	Thru	App. Total		Left	Right	App. Total		Thru	Right	App. Total	Int. Total
11:00 AM	2	145	147		13	7	20		133	15	148	315
11:15 AM	3	135	138		10	9	19		145	10	155	312
11:30 AM	6	118	124		3	5	8		93	5	98	230
11:45 AM	6	147	153		9	6	15		183	8	191	359
Total	17	545	562		35	27	62		554	38	592	1216
12:00 PM	6	185	191		9	10	19		164	12	176	386
12:15 PM	5	162	167		9	6	15		140	11	151	333
12:30 PM	4	163	167		9	6	15		159	13	172	354
12:45 PM	7	160	167		10	13	23		172	9	181	371
Total	22	670	692		37	35	72		635	45	680	1444
01:00 PM	7	171	178		3	9	12		165	14	179	369
01:15 PM	7	190	197		11	15	26		207	7	214	437
01:30 PM	8	197	205		6	9	15		175	13	188	408
01:45 PM	6	177	183		13	6	19		142	11	153	355
Total	28	735	763		33	39	72		689	45	734	1569
02:00 PM	7	158	165		10	6	16		161	3	164	345
02:15 PM	6	165	171		5	2	7		140	12	152	330
02:30 PM	10	157	167		5	2	7		139	9	148	322
02:45 PM	10	152	162		12	8	20		140	5	145	327
Total	33	632	665		32	18	50		580	29	609	1324
Grand Total	100	2582	2682		137	119	256		2458	157	2615	5553
Approach %	3.7	96.3		53.5	46.5			94	6			
Total %	1.8	46.5	48.3	2.5	2.1	4.6		44.3	2.8	47.1		
% Lights	97	2546	2643	135	118	253		2423	155	2578		5474
% Trucks	97	98.6	98.5	98.5	99.2	98.8		98.6	98.7	98.6		98.6
% Trucks	1	31	32	2	0	2		30	2	32		66
% Buses	1	1.2	1.2	1.5	0	0.8		1.2	1.3	1.2		1.2
% Buses	2	5	7	0	1	1		5	0	5		13
% Buses	2	0.2	0.3	0	0	0.4		0.2	0	0.2		0.2



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NJ Route 79 & Stevenson Drive
Turning Movement Count
Saturday Midday Peak Hour
Saturday, 11 January 2020

File Name : SAT NJ Route 79 & Stevenson
Site Code : 00000000
Start Date : 1/11/2020
Page No : 2

Start Time	NJ ROUTE 79 Southbound			STEVENSON DRIVE Westbound			NJ ROUTE 79 Northbound			
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:45 PM										
12:45 PM	7	160	167	10	13	23	172	9	181	371
01:00 PM	7	171	178	3	9	12	165	14	179	369
01:15 PM	7	190	197	11	15	26	207	7	214	437
01:30 PM	8	197	205	6	9	15	175	13	188	408
Total Volume	29	718	747	30	46	76	719	43	762	1585
% App. Total	3.9	96.1		39.5	60.5		94.4	5.6		
PHF	.906	.911	.911	.682	.767	.731	.868	.768	.890	.907
Lights	27	711	738	28	45	73	708	42	750	1561
% Lights	93.1	99.0	98.8	93.3	97.8	96.1	98.5	97.7	98.4	98.5
Trucks	0	7	7	2	0	2	8	1	9	18
% Trucks	0	1.0	0.9	6.7	0	2.6	1.1	2.3	1.2	1.1
Buses	2	0	2	0	1	1	3	0	3	6
% Buses	6.9	0	0.3	0	2.2	1.3	0.4	0	0.4	0.4



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File Name : TUE NJ Route 79 & Buck
Site Code : 00000000
Start Date : 1/14/2020
Page No : 1

NJ Route 79 & Buck Lane
Turning Movement Count
Weekday AM & PM Peak Hours
Tuesday, 14 January 2020

Groups Printed- Lights - Trucks - Buses

Start Time	NJ ROUTE 79 Southbound				NJ ROUTE 79 Northbound				BUCK LANE Westbound				BUCK LANE Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	97	0	98	1	0	2	3	0	127	0	127	0	0	0	0	228
07:15 AM	0	107	0	107	0	0	7	7	0	138	0	138	0	0	0	0	252
07:30 AM	3	134	0	137	0	0	7	7	0	149	0	151	0	0	0	0	295
07:45 AM	1	161	0	162	1	0	17	18	0	192	0	193	0	0	0	0	373
Total	5	499	0	504	2	0	33	35	0	606	0	609	0	0	0	0	1148
08:00 AM	3	173	0	176	0	0	9	9	0	159	0	159	0	0	0	0	344
08:15 AM	1	169	0	170	0	0	3	3	2	135	0	137	0	0	0	0	310
08:30 AM	4	152	0	156	0	0	1	1	1	134	0	135	0	0	0	0	292
08:45 AM	5	142	2	149	2	0	10	12	6	128	2	136	0	0	0	0	297
Total	13	636	2	651	2	0	23	25	9	556	2	567	0	0	0	0	1243
*** BREAK ***																	
03:00 PM	5	205	0	210	1	0	3	4	2	121	2	125	0	0	0	0	339
03:15 PM	5	170	2	177	2	0	4	6	0	126	1	127	0	0	1	1	311
03:30 PM	5	168	0	173	0	0	11	11	0	145	0	145	0	0	0	0	329
03:45 PM	2	171	0	173	0	0	10	10	0	171	0	171	0	0	0	0	354
Total	17	714	2	733	3	0	28	31	2	563	3	568	0	0	1	1	1333
04:00 PM	7	180	0	187	2	0	12	14	0	162	1	163	0	0	0	0	364
04:15 PM	5	153	0	158	0	0	7	7	1	153	2	156	0	0	0	0	321
04:30 PM	1	132	0	133	3	0	17	20	0	191	1	192	0	0	0	0	345
04:45 PM	5	204	0	209	1	0	5	6	0	162	1	163	0	0	0	0	378
Total	18	669	0	687	6	0	41	47	1	668	5	674	0	0	0	0	1408
05:00 PM	7	160	0	167	4	1	16	21	0	164	0	164	1	0	5	6	358
05:15 PM	2	172	0	174	0	0	12	12	0	161	1	162	0	0	0	0	348
05:30 PM	0	173	0	173	1	0	1	2	0	160	0	160	0	0	0	0	335
05:45 PM	5	157	0	162	0	0	5	5	0	173	1	174	0	0	0	0	341
Total	14	662	0	676	5	1	34	40	0	658	2	660	1	0	5	6	1382
06:00 PM	3	164	0	167	0	0	11	11	0	140	1	141	0	0	0	0	319
06:15 PM	2	141	0	143	0	0	5	5	0	123	0	123	0	0	0	0	271
06:30 PM	1	129	0	130	0	0	2	2	0	122	1	123	0	0	0	0	255
06:45 PM	1	108	0	109	1	0	5	6	0	132	1	133	0	0	1	1	249
Total	7	542	0	549	1	0	23	24	0	517	3	520	0	0	1	1	1094



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NJ Route 79 & Buck Lane
Turning Movement Count
Weekday AM & PM Peak Hours
Tuesday, 14 January 2020

File Name : TUE NJ Route 79 & Buck
Site Code : 00000000
Start Date : 1/14/2020
Page No : 2

Groups Printed- Lights - Trucks - Buses

	NJ ROUTE 79 Southbound				BUCK LANE Westbound				NJ ROUTE 79 Northbound				BUCK LANE Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Grand Total	74	3722	4	3800	19	1	182	202	12	3568	18	3598	1	0	7	8	7608
Approch % Total %	1.9	97.9	0.1		9.4	0.5	90.1		0.3	99.2	0.5		12.5	0	87.5		
	1	48.9	0.1	49.9	0.2	0	2.4	2.7	0.2	46.9	0.2	47.3	0	0	0.1	0.1	
% Lights	69	3570	4	3643	19	1	177	197	12	3455	18	3485	1	0	7	8	7333
% Trucks	93.2	95.9	100	95.9	100	100	97.3	97.5	100	96.8	100	96.9	100	0	100	100	96.4
% Buses	1	49	0	50	0	0	1	1	0	54	0	54	0	0	0	0	105
	1.4	1.3	0	1.3	0	0	0.5	0.5	0	1.5	0	1.5	0	0	0	0	1.4
	4	103	0	107	0	0	4	4	0	59	0	59	0	0	0	0	170
% Buses	5.4	2.8	0	2.8	0	0	2.2	2	0	1.7	0	1.6	0	0	0	0	2.2



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File Name : TUE NJ Route 79 & Buck
Site Code : 00000000
Start Date : 1/14/2020
Page No : 3

NJ Route 79 & Buck Lane
Turning Movement Count
Weekday AM & PM Peak Hours
Tuesday, 14 January 2020

Start Time	NJ ROUTE 79 Southbound			BUCK LANE Westbound			NJ ROUTE 79 Northbound			BUCK LANE Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1												
Peak Hour for Entire Intersection Begins at 07:30 AM												
07:30 AM	3	134	0	0	0	7	0	149	2	0	0	0
07:45 AM	1	161	0	1	0	17	0	192	1	0	0	0
08:00 AM	3	173	0	0	0	9	0	159	0	0	0	0
08:15 AM	1	169	0	0	0	3	2	135	0	0	0	0
Total Volume	8	637	0	1	0	36	2	635	3	0	0	0
% App. Total	1.2	98.8	0	2.7	0	97.3	0.3	99.2	0.5	0	0	0
PHF	.667	.921	.000	.250	.000	.529	.250	.827	.375	.000	.000	.000
Lights	8	569	0	1	0	34	2	607	3	0	0	0
% Lights	100	89.3	0	100	0	94.4	100	95.6	100	0	0	0
Trucks	0	15	0	0	0	0	0	16	0	0	0	0
% Trucks	0	2.4	0	0	0	0	0	2.5	0	0	0	0
Buses	0	53	0	0	0	2	0	12	0	0	0	0
% Buses	0	8.3	0	0	0	5.6	0	1.9	0	0	0	0
Total Volume	15	668	0	8	1	50	0	678	3	1	0	5
% App. Total	2.2	97.8	0	13.6	1.7	84.7	0	99.6	0.4	16.7	0	83.3
PHF	.536	.819	.000	.500	.250	.735	.000	.887	.750	.250	.000	.250
Lights	14	652	0	8	1	50	0	669	3	1	0	5
% Lights	93.3	97.6	0	100	100	100	0	98.7	100	100	0	100
Trucks	0	8	0	0	0	0	0	4	0	0	0	0
% Trucks	0	1.2	0	0	0	0	0	0.6	0	0	0	0
Buses	1	8	0	0	0	0	0	5	0	0	0	0
% Buses	6.7	1.2	0	0	0	0	0	0.7	0	0	0	0
04:30 PM	1	132	0	3	0	17	0	191	1	0	0	0
04:45 PM	5	204	0	1	0	5	0	162	1	0	0	0
05:00 PM	7	160	0	4	1	16	0	164	0	1	0	5
05:15 PM	2	172	0	0	0	12	0	161	1	0	0	0
Total Volume	15	668	0	8	1	50	0	678	3	1	0	5
% App. Total	2.2	97.8	0	13.6	1.7	84.7	0	99.6	0.4	16.7	0	83.3
PHF	.536	.819	.000	.500	.250	.735	.000	.887	.750	.250	.000	.250
Lights	14	652	0	8	1	50	0	669	3	1	0	5
% Lights	93.3	97.6	0	100	100	100	0	98.7	100	100	0	100
Trucks	0	8	0	0	0	0	0	4	0	0	0	0
% Trucks	0	1.2	0	0	0	0	0	0.6	0	0	0	0
Buses	1	8	0	0	0	0	0	5	0	0	0	0
% Buses	6.7	1.2	0	0	0	0	0	0.7	0	0	0	0
Total Volume	15	668	0	8	1	50	0	678	3	1	0	5
% App. Total	2.2	97.8	0	13.6	1.7	84.7	0	99.6	0.4	16.7	0	83.3
PHF	.536	.819	.000	.500	.250	.735	.000	.887	.750	.250	.000	.250
Lights	14	652	0	8	1	50	0	669	3	1	0	5
% Lights	93.3	97.6	0	100	100	100	0	98.7	100	100	0	100
Trucks	0	8	0	0	0	0	0	4	0	0	0	0
% Trucks	0	1.2	0	0	0	0	0	0.6	0	0	0	0
Buses	1	8	0	0	0	0	0	5	0	0	0	0
% Buses	6.7	1.2	0	0	0	0	0	0.7	0	0	0	0
04:30 PM	1	132	0	3	0	17	0	191	1	0	0	0
04:45 PM	5	204	0	1	0	5	0	162	1	0	0	0
05:00 PM	7	160	0	4	1	16	0	164	0	1	0	5
05:15 PM	2	172	0	0	0	12	0	161	1	0	0	0
Total Volume	15	668	0	8	1	50	0	678	3	1	0	5
% App. Total	2.2	97.8	0	13.6	1.7	84.7	0	99.6	0.4	16.7	0	83.3
PHF	.536	.819	.000	.500	.250	.735	.000	.887	.750	.250	.000	.250
Lights	14	652	0	8	1	50	0	669	3	1	0	5
% Lights	93.3	97.6	0	100	100	100	0	98.7	100	100	0	100
Trucks	0	8	0	0	0	0	0	4	0	0	0	0
% Trucks	0	1.2	0	0	0	0	0	0.6	0	0	0	0
Buses	1	8	0	0	0	0	0	5	0	0	0	0
% Buses	6.7	1.2	0	0	0	0	0	0.7	0	0	0	0
04:30 PM	1	132	0	3	0	17	0	191	1	0	0	0
04:45 PM	5	204	0	1	0	5	0	162	1	0	0	0
05:00 PM	7	160	0	4	1	16	0	164	0	1	0	5
05:15 PM	2	172	0	0	0	12	0	161	1	0	0	0
Total Volume	15	668	0	8	1	50	0	678	3	1	0	5
% App. Total	2.2	97.8	0	13.6	1.7	84.7	0	99.6	0.4	16.7	0	83.3
PHF	.536	.819	.000	.500	.250	.735	.000	.887	.750	.250	.000	.250
Lights	14	652	0	8	1	50	0	669	3	1	0	5
% Lights	93.3	97.6	0	100	100	100	0	98.7	100	100	0	100
Trucks	0	8	0	0	0	0	0	4	0	0	0	0
% Trucks	0	1.2	0	0	0	0	0	0.6	0	0	0	0
Buses	1	8	0	0	0	0	0	5	0	0	0	0
% Buses	6.7	1.2	0	0	0	0	0	0.7	0	0	0	0
04:30 PM	1	132	0	3	0	17	0	191	1	0	0	0
04:45 PM	5	204	0	1	0	5	0	162	1	0	0	0
05:00 PM	7	160	0	4	1	16	0	164	0	1	0	5
05:15 PM	2	172	0	0	0	12	0	161	1	0	0	0
Total Volume	15	668	0	8	1	50	0	678	3	1	0	5
% App. Total	2.2	97.8	0	13.6	1.7	84.7	0	99.6	0.4	16.7	0	83.3
PHF	.536	.819	.000	.500	.250	.735	.000	.887	.750	.250	.000	.250
Lights	14	652	0	8	1	50	0	669	3	1	0	5
% Lights	93.3	97.6	0	100	100	100	0	98.7	100	100	0	100
Trucks	0	8	0	0	0	0	0	4	0	0	0	0
% Trucks	0	1.2	0	0	0	0	0	0.6	0	0	0	0
Buses	1	8	0	0	0	0	0	5	0	0	0	0
% Buses	6.7	1.2	0	0	0	0	0	0.7	0	0	0	0

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM



www.TSTData.com
184 Baker Rd

Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

NJ Route 79 & Buck Lane
Turning Movement Count
Saturday Midday Peak Hour
Saturday, 11 January 2020

File Name : SAT NJ Route 79 & Buck
Site Code : 00000000
Start Date : 1/11/2020
Page No : 2

Start Time	NJ ROUTE 79 Southbound				BUCK LANE Westbound				NJ ROUTE 79 Northbound				BUCK LANE Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 01:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:45 PM																	
12:45 PM	2	160	0	162	1	0	5	6	0	181	1	182	0	0	0	0	350
01:00 PM	3	177	0	180	1	0	13	14	0	160	1	161	0	0	0	0	355
01:15 PM	2	199	0	201	0	0	10	10	0	207	0	207	0	0	0	0	418
01:30 PM	9	199	0	208	0	0	7	7	0	170	1	171	0	0	0	0	386
Total Volume	16	735	0	751	2	0	35	37	0	718	3	721	0	0	0	0	1509
% App. Total	2.1	97.9	0	903	5.4	0	94.6	661	0	99.6	0.4	871	.000	.000	.000	.000	903
PHF	.444	.923	.000	.903	.500	.000	.673	.661	.000	.867	.750	.871	.000	.000	.000	.000	1490
% Lights	16	726	0	742	2	0	35	37	0	708	3	711	0	0	0	0	98.7
% Trucks	100	98.8	0	98.8	100	0	100	100	0	98.6	100	98.6	0	0	0	0	16
% Trucks	0	9	0	9	0	0	0	0	0	7	0	7	0	0	0	0	1.1
% Buses	0	1.2	0	1.2	0	0	0	0	0	1.0	0	1.0	0	0	0	0	3
% Buses	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0.2
% Buses	0	0	0	0	0	0	0	0	0	0.4	0	0.4	0	0	0	0	0

Tri-State Traffic Data, Inc.
610-466-1469
TSTData.com

Road: Rt. 79
Location: 530 ft S of Stevenson Dr
Counter: 23136 & 22701

Site Code: 1
Station ID:

Latitude: 40° 31895.0000 North

Start Time	Friday, January 10, 2020		Saturday, January 11, 2020		Sunday, January 12, 2020		Monday, January 13, 2020		Tuesday, January 14, 2020		Wednesday, January 15, 2020		Thursday, January 16, 2020		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	104	78	99	99	24	24	33	28	27	33	33	38	58	50
01:00	*	*	51	48	72	52	13	13	12	18	23	12	21	15	32	26
02:00	*	*	38	20	40	35	11	9	10	14	11	11	7	14	20	17
03:00	*	*	20	19	18	14	17	9	20	14	17	14	22	14	19	14
04:00	*	*	18	14	13	6	42	38	44	35	39	33	38	34	32	27
05:00	*	*	42	40	24	32	112	128	108	120	110	109	115	116	85	91
06:00	*	*	109	117	63	70	369	271	353	277	380	264	357	297	272	216
07:00	*	*	195	231	147	122	651	668	650	519	661	522	668	480	495	390
08:00	*	*	297	362	214	265	619	648	593	648	594	594	632	651	492	528
09:00	*	*	406	506	404	365	499	539	464	461	484	515	483	494	457	480
10:00	*	*	544	646	451	550	409	413	442	460	423	450	438	455	451	496
11:00	*	*	685	646	417	590	382	487	456	490	420	512	420	519	463	541
12:00 PM	389	555	682	713	566	672	462	474	487	478	512	481	482	553	511	561
01:00	530	575	720	760	564	580	482	493	447	522	515	549	500	520	537	571
02:00	629	615	623	670	541	564	543	588	541	568	580	629	611	562	581	599
03:00	633	822	579	607	532	510	547	674	592	736	571	811	632	765	584	704
04:00	733	717	651	623	545	440	704	723	709	708	714	693	679	653	676	651
05:00	703	753	544	603	432	393	682	744	700	683	769	713	688	800	645	670
06:00	576	662	459	466	364	289	550	567	540	544	630	644	512	578	519	536
07:00	491	557	418	376	284	254	403	465	423	463	503	628	469	484	427	461
08:00	356	360	292	252	202	169	288	273	279	370	331	403	337	340	298	310
09:00	345	256	262	199	114	123	190	205	226	213	219	210	234	218	227	203
10:00	211	232	247	187	91	100	121	100	121	109	126	138	128	140	149	144
11:00	153	129	170	172	49	56	59	50	72	56	67	82	81	54	93	86
Total	5749	6233	8156	8355	6275	6350	8179	8403	8322	8534	8730	9050	8587	8794	8123	8372
Day	11982	16511	12625	16582	16856	17780	17381	16495								
AM Peak	-	-	11:00	10:00	10:00	11:00	07:00	08:00	07:00	08:00	07:00	08:00	07:00	08:00	07:00	11:00
Vol.	16:00	15:00	13:00	646	451	590	651	648	650	648	661	594	668	651	495	541
PM Peak	733	822	720	760	566	672	704	744	709	736	769	811	688	800	676	704

APPENDIX C
CAPACITY ANALYSES

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	29	33	681	13	14	637
Future Vol, veh/h	29	33	681	13	14	637
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	9	5	0	7	10
Mvmt Flow	34	38	792	15	16	741

Major/Minor	Minor1	Major1	Major2	Minor2	Minor3
Conflicting Flow All	1573	800	0	0	807
Stage 1	800	-	-	-	-
Stage 2	773	-	-	-	-
Critical Hdwy	6.4	6.29	-	-	4.17
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.381	-	-	2.263
Pot Cap-1 Maneuver	123	374	-	-	796
Stage 1	446	-	-	-	-
Stage 2	459	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	121	374	-	-	796
Mov Cap-2 Maneuver	121	-	-	-	-
Stage 1	446	-	-	-	-
Stage 2	450	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.3	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	189	796
HCM Lane V/C Ratio	-	-	0.381	0.02
HCM Control Delay (s)	-	-	35.3	9.6
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	1.7	0.1

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		Y		Y	Y
Traffic Vol, veh/h	19	27	719	34	25	696
Future Vol, veh/h	19	27	719	34	25	696
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	0	4	2
Mvmt Flow	21	30	790	37	27	765

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1628	809	0	0	827
Stage 1	809	-	-	-	-
Stage 2	819	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.14
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.236
Pot Cap-1 Maneuver	113	384	-	-	795
Stage 1	441	-	-	-	-
Stage 2	437	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	109	384	-	-	795
Mov Cap-2 Maneuver	109	-	-	-	-
Stage 1	441	-	-	-	-
Stage 2	422	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	188	795
HCM Lane V/C Ratio	-	-	0.269	0.035
HCM Control Delay (s)	-	-	31	9.7
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1	0.1

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	30	46	746	43	29	745
Future Vol, veh/h	30	46	746	43	29	745
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	2	2	2	7	1
Mvmt Flow	33	51	820	47	32	819

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1727	844	0	0	867
Stage 1	844	-	-	-	-
Stage 2	883	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.17
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.263
Pot Cap-1 Maneuver	95	363	-	-	756
Stage 1	413	-	-	-	-
Stage 2	396	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	91	363	-	-	756
Mov Cap-2 Maneuver	91	-	-	-	-
Stage 1	413	-	-	-	-
Stage 2	379	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.4	0	0.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	167	756
HCM Lane V/C Ratio	-	-	0.5	0.042
HCM Control Delay (s)	-	-	46.4	10
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	2.4	0.1

Intersection						
Int Delay, s/veh	15.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T		Y	T
Traffic Vol, veh/h	91	43	705	17	16	659
Future Vol, veh/h	91	43	705	17	16	659
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	9	5	0	7	10
Mvmt Flow	106	50	820	20	19	766

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	1634	830	0	840	0
Stage 1	830	-	-	-	-
Stage 2	804	-	-	-	-
Critical Hdwy	6.4	6.29	-	4.17	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.381	-	2.263	-
Pot Cap-1 Maneuver	112	360	-	774	-
Stage 1	432	-	-	-	-
Stage 2	444	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	109	360	-	774	-
Mov Cap-2 Maneuver	109	-	-	-	-
Stage 1	432	-	-	-	-
Stage 2	433	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	172.4	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	140	774
HCM Lane V/C Ratio	-	-	1.113	0.024
HCM Control Delay (s)	-	-	172.4	9.8
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	8.7	0.1

Intersection						
Int Delay, s/veh	8.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	T	T		T	T
Traffic Vol, veh/h	71	33	744	44	36	719
Future Vol, veh/h	71	33	744	44	36	719
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	1	0	4	2
Mvmt Flow	78	36	818	48	40	790

Major/Minor	Minor1	Major1	Major2	Major3	Major4
Conflicting Flow All	1712	842	0	0	866
Stage 1	842	-	-	-	-
Stage 2	870	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.14
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.236
Pot Cap-1 Maneuver	101	367	-	-	769
Stage 1	426	-	-	-	-
Stage 2	413	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	96	367	-	-	769
Mov Cap-2 Maneuver	96	-	-	-	-
Stage 1	426	-	-	-	-
Stage 2	392	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	125.1	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	125	769
HCM Lane V/C Ratio	-	-	0.914	0.051
HCM Control Delay (s)	-	-	125.1	9.9
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	5.9	0.2

Intersection

Int Delay, s/veh 34.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T		T	T
Traffic Vol, veh/h	102	53	783	52	38	783
Future Vol, veh/h	102	53	783	52	38	783
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	2	2	2	7	1
Mvmt Flow	112	58	860	57	42	860

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1833	889	0	0	917
Stage 1	889	-	-	-	-
Stage 2	944	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.17
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.263
Pot Cap-1 Maneuver	~ 81	342	-	-	724
Stage 1	394	-	-	-	-
Stage 2	370	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 76	342	-	-	724
Mov Cap-2 Maneuver	~ 76	-	-	-	-
Stage 1	394	-	-	-	-
Stage 2	349	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	397.8	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	104	724
HCM Lane V/C Ratio	-	-	1.638	0.058
HCM Control Delay (s)	-	-	397.8	10.3
HCM Lane LOS	-	-	F	B
HCM 95th %tile Q(veh)	-	-	13.1	0.2

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
Weekday AM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↘	↖
Traffic Volume (vph)	91	43	705	17	16	659
Future Volume (vph)	91	43	705	17	16	659
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				40	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.957		0.997			
Flt Protected	0.967				0.950	
Satd. Flow (prot)	1709	0	1806	0	1687	1727
Flt Permitted	0.967				0.236	
Satd. Flow (perm)	1709	0	1806	0	419	1727
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	30		3			
Link Speed (mph)	35		50			50
Link Distance (ft)	234		398			493
Travel Time (s)	4.6		5.4			6.7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	9%	5%	0%	7%	10%
Adj. Flow (vph)	106	50	820	20	19	766
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	840	0	19	766
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	40		30			30
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6

Lanes, Volumes, Timings
1: NJ Route 79 & Stevenson Drive

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases					6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	5.0		25.0		25.0	25.0
Minimum Split (s)	11.0		32.0		32.0	32.0
Total Split (s)	25.0		50.0		50.0	50.0
Total Split (%)	33.3%		66.7%		66.7%	66.7%
Maximum Green (s)	19.0		43.0		43.0	43.0
Yellow Time (s)	4.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.0		7.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Min	Min
Act Effct Green (s)	9.9		37.7		37.7	37.7
Actuated g/C Ratio	0.18		0.67		0.67	0.67
v/c Ratio	0.48		0.70		0.07	0.66
Control Delay	23.7		12.7		6.3	12.0
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	23.7		12.7		6.3	12.0
LOS	C		B		A	B
Approach Delay	23.7		12.7			11.9
Approach LOS	C		B			B
90th %ile Green (s)	15.1		43.0		43.0	43.0
90th %ile Term Code	Gap		Max		Max	Max
70th %ile Green (s)	12.1		40.0		40.0	40.0
70th %ile Term Code	Gap		Gap		Hold	Hold
50th %ile Green (s)	9.8		30.9		30.9	30.9
50th %ile Term Code	Gap		Gap		Hold	Hold
30th %ile Green (s)	7.8		25.0		25.0	25.0
30th %ile Term Code	Gap		Min		Min	Min
10th %ile Green (s)	0.0		40.0		40.0	40.0
10th %ile Term Code	Skip		Dwell		Dwell	Dwell
Stops (vph)	90		465		8	413
Fuel Used(gal)	2		11		0	10
CO Emissions (g/hr)	108		757		14	700
NOx Emissions (g/hr)	21		147		3	136
VOC Emissions (g/hr)	25		175		3	162
Dilemma Vehicles (#)	0		46		0	43
Queue Length 50th (ft)	36		183		2	161
Queue Length 95th (ft)	93		354		11	315
Internal Link Dist (ft)	154		318			413
Turn Bay Length (ft)					50	
Base Capacity (vph)	611		1416		328	1353
Starvation Cap Reductn	0		0		0	0
Spillback Cap Reductn	0		0		0	0
Storage Cap Reductn	0		0		0	0

Lanes, Volumes, Timings
 1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
 Weekday AM Peak Hour



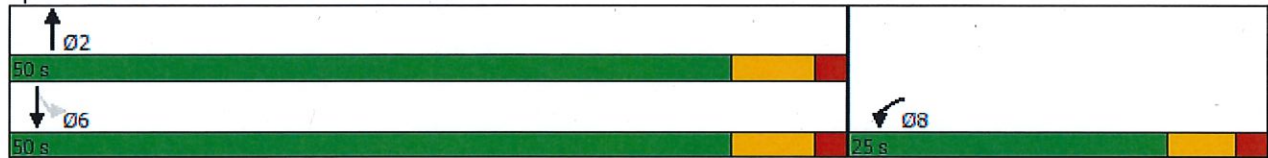
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Reduced v/c Ratio	0.26		0.59		0.06	0.57

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	56.5
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	13.3
Intersection Capacity Utilization	56.6%
Analysis Period (min)	15
90th %ile Actuated Cycle:	71.1
70th %ile Actuated Cycle:	65.1
50th %ile Actuated Cycle:	53.7
30th %ile Actuated Cycle:	45.8
10th %ile Actuated Cycle:	47










Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 1: NJ Route 79 & Stevenson Drive



Lanes, Volumes, Timings
1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
Weekday PM Peak Hour

											
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT					
Lane Configurations											
Traffic Volume (vph)	71	33	744	44	36	719					
Future Volume (vph)	71	33	744	44	36	719					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Storage Length (ft)	0	0		0	50						
Storage Lanes	1	0		0	1						
Taper Length (ft)	25				40						
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Frt	0.957		0.993								
Flt Protected	0.967				0.950						
Satd. Flow (prot)	1758	0	1869	0	1736	1863					
Flt Permitted	0.967				0.229						
Satd. Flow (perm)	1758	0	1869	0	418	1863					
Right Turn on Red		Yes		Yes							
Satd. Flow (RTOR)	30		7								
Link Speed (mph)	35		50			50					
Link Distance (ft)	234		398			493					
Travel Time (s)	4.6		5.4			6.7					
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91					
Heavy Vehicles (%)	0%	0%	1%	0%	4%	2%					
Adj. Flow (vph)	78	36	818	48	40	790					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	114	0	866	0	40	790					
Enter Blocked Intersection	No	No	No	No	No	No					
Lane Alignment	Left	Right	Left	Right	Left	Left					
Median Width(ft)	12		12			12					
Link Offset(ft)	0		0			0					
Crosswalk Width(ft)	40		30			30					
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00					
Turning Speed (mph)	15	9		9	15						
Number of Detectors	1		2		1	2					
Detector Template	Left		Thru		Left	Thru					
Leading Detector (ft)	20		100		20	100					
Trailing Detector (ft)	0		0		0	0					
Detector 1 Position(ft)	0		0		0	0					
Detector 1 Size(ft)	20		6		20	6					
Detector 1 Type	CI+Ex		CI+Ex		CI+Ex	CI+Ex					
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0		0.0	0.0					
Detector 1 Queue (s)	0.0		0.0		0.0	0.0					
Detector 1 Delay (s)	0.0		0.0		0.0	0.0					
Detector 2 Position(ft)			94			94					
Detector 2 Size(ft)			6			6					
Detector 2 Type			CI+Ex			CI+Ex					
Detector 2 Channel											
Detector 2 Extend (s)			0.0			0.0					
Turn Type	Prot		NA		Perm	NA					
Protected Phases	8		2			6					

Lanes, Volumes, Timings
1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
Weekday PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases					6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	5.0		25.0		25.0	25.0
Minimum Split (s)	11.0		32.0		32.0	32.0
Total Split (s)	25.0		50.0		50.0	50.0
Total Split (%)	33.3%		66.7%		66.7%	66.7%
Maximum Green (s)	19.0		43.0		43.0	43.0
Yellow Time (s)	4.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.0		7.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Min	Min
Act Effect Green (s)	8.4		36.9		36.9	36.9
Actuated g/C Ratio	0.15		0.68		0.68	0.68
v/c Ratio	0.39		0.68		0.14	0.62
Control Delay	21.5		11.1		6.6	9.9
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	21.5		11.1		6.6	9.9
LOS	C		B		A	A
Approach Delay	21.5		11.1			9.7
Approach LOS	C		B			A
90th %ile Green (s)	12.2		43.0		43.0	43.0
90th %ile Term Code	Gap		Max		Max	Max
70th %ile Green (s)	9.9		36.9		36.9	36.9
70th %ile Term Code	Gap		Gap		Hold	Hold
50th %ile Green (s)	8.2		28.9		28.9	28.9
50th %ile Term Code	Gap		Gap		Hold	Hold
30th %ile Green (s)	6.7		26.7		26.7	26.7
30th %ile Term Code	Gap		Dwell		Dwell	Dwell
10th %ile Green (s)	0.0		40.0		40.0	40.0
10th %ile Term Code	Skip		Dwell		Dwell	Dwell
Stops (vph)	68		485		15	410
Fuel Used(gal)	1		11		0	10
CO Emissions (g/hr)	80		784		27	698
NOx Emissions (g/hr)	16		152		5	136
VOC Emissions (g/hr)	18		182		6	162
Dilemma Vehicles (#)	0		56		0	51
Queue Length 50th (ft)	22		169		5	146
Queue Length 95th (ft)	73		351		18	297
Internal Link Dist (ft)	154		318			413
Turn Bay Length (ft)					50	
Base Capacity (vph)	648		1514		338	1508
Starvation Cap Reductn	0		0		0	0
Spillback Cap Reductn	0		0		0	0
Storage Cap Reductn	0		0		0	0

Lanes, Volumes, Timings
 1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
 Weekday PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Reduced v/c Ratio	0.18		0.57		0.12	0.52

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	54.3
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	11.1
Intersection Capacity Utilization:	58.6%
Analysis Period (min):	15
90th %ile Actuated Cycle:	68.2
70th %ile Actuated Cycle:	59.8
50th %ile Actuated Cycle:	50.1
30th %ile Actuated Cycle:	46.4
10th %ile Actuated Cycle:	47

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 1: NJ Route 79 & Stevenson Drive









Lanes, Volumes, Timings
1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
Saturday Midday Peak Hour

	↙	↘	↑	↙	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↘		↙	↘
Traffic Volume (vph)	102	53	783	52	38	783
Future Volume (vph)	102	53	783	52	38	783
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	50	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				40	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.954		0.992			
Fl _t Protected	0.968				0.950	
Satd. Flow (prot)	1666	0	1848	0	1687	1881
Fl _t Permitted	0.968				0.173	
Satd. Flow (perm)	1666	0	1848	0	307	1881
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	33		7			
Link Speed (mph)	35		50			50
Link Distance (ft)	234		398			493
Travel Time (s)	4.6		5.4			6.7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	7%	2%	2%	2%	7%	1%
Adj. Flow (vph)	112	58	860	57	42	860
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	0	917	0	42	860
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	40		30			30
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1		2		1	2
Detector Template	Left		Thru		Left	Thru
Leading Detector (ft)	20		100		20	100
Trailing Detector (ft)	0		0		0	0
Detector 1 Position(ft)	0		0		0	0
Detector 1 Size(ft)	20		6		20	6
Detector 1 Type	CI+Ex		CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0		0.0	0.0
Detector 1 Queue (s)	0.0		0.0		0.0	0.0
Detector 1 Delay (s)	0.0		0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			CI+Ex			CI+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6

Lanes, Volumes, Timings
1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
Saturday Midday Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases					6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	5.0		25.0		25.0	25.0
Minimum Split (s)	11.0		32.0		32.0	32.0
Total Split (s)	25.0		50.0		50.0	50.0
Total Split (%)	33.3%		66.7%		66.7%	66.7%
Maximum Green (s)	19.0		43.0		43.0	43.0
Yellow Time (s)	4.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	6.0		7.0		7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Min	Min
Act Effct Green (s)	10.8		37.9		37.9	37.9
Actuated g/C Ratio	0.17		0.61		0.61	0.61
v/c Ratio	0.54		0.81		0.22	0.75
Control Delay	25.6		17.3		9.9	14.3
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	25.6		17.3		9.9	14.3
LOS	C		B		A	B
Approach Delay	25.6		17.3			14.1
Approach LOS	C		B			B
90th %ile Green (s)	16.2		43.0		43.0	43.0
90th %ile Term Code	Gap		Max		Max	Max
70th %ile Green (s)	12.9		43.0		43.0	43.0
70th %ile Term Code	Gap		Max		Hold	Hold
50th %ile Green (s)	10.8		35.7		35.7	35.7
50th %ile Term Code	Gap		Gap		Hold	Hold
30th %ile Green (s)	8.5		28.4		28.4	28.4
30th %ile Term Code	Gap		Gap		Hold	Hold
10th %ile Green (s)	6.2		39.6		39.6	39.6
10th %ile Term Code	Gap		Dwell		Dwell	Dwell
Stops (vph)	106		577		19	532
Fuel Used(gal)	2		14		0	13
CO Emissions (g/hr)	130		972		34	902
NOx Emissions (g/hr)	25		189		7	175
VOC Emissions (g/hr)	30		225		8	209
Dilemma Vehicles (#)	0		61		0	56
Queue Length 50th (ft)	44		223		6	196
Queue Length 95th (ft)	106		#559		26	410
Internal Link Dist (ft)	154		318			413
Turn Bay Length (ft)					50	
Base Capacity (vph)	543		1308		216	1329
Starvation Cap Reductn	0		0		0	0
Spillback Cap Reductn	0		0		0	0
Storage Cap Reductn	0		0		0	0

Lanes, Volumes, Timings
 1: NJ Route 79 & Stevenson Drive

2023 Build Condition w/Traffic Signal
 Saturday Midday Peak Hour

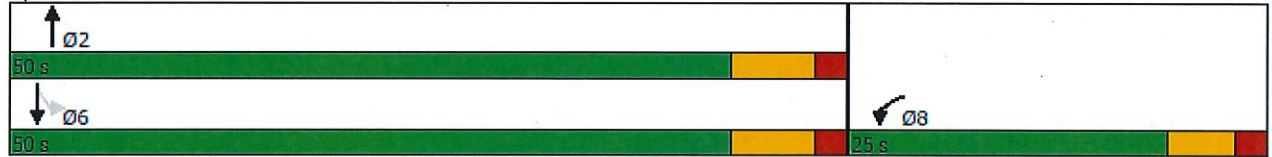


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Reduced v/c Ratio	0.31		0.70		0.19	0.65

Intersection Summary

Area Type: Other
 Cycle Length: 75
 Actuated Cycle Length: 61.9
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 16.6
 Intersection Capacity Utilization 64.1%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 72.2
 70th %ile Actuated Cycle: 68.9
 50th %ile Actuated Cycle: 59.5
 30th %ile Actuated Cycle: 49.9
 10th %ile Actuated Cycle: 58.8
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: NJ Route 79 & Stevenson Drive



Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	1	37	659	3	8	661
Future Vol, veh/h	1	37	659	3	8	661
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	6	4	0	0	11
Mvmt Flow	1	42	740	3	9	743

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1503	742	0	0	743
Stage 1	742	-	-	-	-
Stage 2	761	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	2.2
Pot Cap-1 Maneuver	135	409	-	-	873
Stage 1	474	-	-	-	-
Stage 2	465	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	133	409	-	-	873
Mov Cap-2 Maneuver	133	-	-	-	-
Stage 1	474	-	-	-	-
Stage 2	457	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	388	873
HCM Lane V/C Ratio	-	-	0.11	0.01
HCM Control Delay (s)	-	-	15.4	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0

Intersection

Int Delay, s/veh 0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	8	52	704	3	16	693
Future Vol, veh/h	8	52	704	3	16	693
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	7	2
Mvmt Flow	8	55	741	3	17	729

Major/Minor	Minor1	Major1	Major2	Major3	Major4	Major5
Conflicting Flow All	1506	743	0	0	744	0
Stage 1	743	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.17	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.263	-
Pot Cap-1 Maneuver	135	418	-	-	841	-
Stage 1	474	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	130	418	-	-	841	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	448	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	323	841
HCM Lane V/C Ratio	-	-	0.196	0.02
HCM Control Delay (s)	-	-	18.8	9.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1

HCM 6th TWSC
2: NJ Route 79 & Buck Lane

2023 No-Build Condition
Saturday Midday Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	2	36	745	3	17	763
Future Vol, veh/h	2	36	745	3	17	763
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	2	40	828	3	19	848

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1716	830	0	0	831
Stage 1	830	-	-	-	-
Stage 2	886	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	100	373	-	-	810
Stage 1	432	-	-	-	-
Stage 2	406	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	96	373	-	-	810
Mov Cap-2 Maneuver	96	-	-	-	-
Stage 1	432	-	-	-	-
Stage 2	388	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.8	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	324	810
HCM Lane V/C Ratio	-	-	0.13	0.023
HCM Control Delay (s)	-	-	17.8	9.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	12	40	686	6	9	693
Future Vol, veh/h	12	40	686	6	9	693
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	6	4	0	0	11
Mvmt Flow	13	45	771	7	10	779

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1574	775	0	0	778
Stage 1	775	-	-	-	-
Stage 2	799	-	-	-	-
Critical Hdwy	6.4	6.26	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.354	-	-	2.2
Pot Cap-1 Maneuver	122	392	-	-	848
Stage 1	458	-	-	-	-
Stage 2	446	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	119	392	-	-	848
Mov Cap-2 Maneuver	119	-	-	-	-
Stage 1	458	-	-	-	-
Stage 2	437	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.2	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	256	848
HCM Lane V/C Ratio	-	-	0.228	0.012
HCM Control Delay (s)	-	-	23.2	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	14	54	737	14	19	723
Future Vol, veh/h	14	54	737	14	19	723
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	7	2
Mvmt Flow	15	57	776	15	20	761

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1585	784	0	0	791
Stage 1	784	-	-	-	-
Stage 2	801	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.17
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.263
Pot Cap-1 Maneuver	120	396	-	-	808
Stage 1	453	-	-	-	-
Stage 2	445	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	115	396	-	-	808
Mov Cap-2 Maneuver	115	-	-	-	-
Stage 1	453	-	-	-	-
Stage 2	426	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	263	808
HCM Lane V/C Ratio	-	-	0.272	0.025
HCM Control Delay (s)	-	-	23.7	9.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1

HCM 6th TWSC
2: NJ Route 79 & Buck Lane

2023 Build Condition
Saturday Midday Peak Hour

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	11	39	792	13	20	808
Future Vol, veh/h	11	39	792	13	20	808
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	1	0	0	1
Mvmt Flow	12	43	880	14	22	898

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1829	887	0	0	894
Stage 1	887	-	-	-	-
Stage 2	942	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2
Pot Cap-1 Maneuver	85	346	-	-	767
Stage 1	406	-	-	-	-
Stage 2	382	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	80	346	-	-	767
Mov Cap-2 Maneuver	80	-	-	-	-
Stage 1	406	-	-	-	-
Stage 2	360	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.8	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	200	767
HCM Lane V/C Ratio	-	-	0.278	0.029
HCM Control Delay (s)	-	-	29.8	9.8
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↘			↖
Traffic Vol, veh/h	0	53	670	54	50	700
Future Vol, veh/h	0	53	670	54	50	700
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	5	2	2	10
Mvmt Flow	0	58	728	59	54	761

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	758	0	0	787
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218
Pot Cap-1 Maneuver	0	407	-	-	832
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	407	-	-	832
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	407	832
HCM Lane V/C Ratio	-	-	0.142	0.065
HCM Control Delay (s)	-	-	15.3	9.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↖	↗			↖
Traffic Vol, veh/h	0	46	744	46	42	749
Future Vol, veh/h	0	46	744	46	42	749
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	1	2	2	2
Mvmt Flow	0	50	809	50	46	814

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	834	0	0	859
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218
Pot Cap-1 Maneuver	0	368	-	-	782
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	368	-	-	782
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	368	782
HCM Lane V/C Ratio	-	-	0.136	0.058
HCM Control Delay (s)	-	-	16.3	9.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↘			↖
Traffic Vol, veh/h	0	62	774	67	61	824
Future Vol, veh/h	0	62	774	67	61	824
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	1
Mvmt Flow	0	67	841	73	66	896

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	878	0	0	914
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218
Pot Cap-1 Maneuver	0	347	-	-	746
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	-	347	-	-	746
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	347	746
HCM Lane V/C Ratio	-	-	0.194	0.089
HCM Control Delay (s)	-	-	17.9	10.3
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.7	0.3

HCM 6th TWSC
4: Site Driveway 2 & Stevenson Drive

2023 Build Condition
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	30	3	6	73	62	5
Future Vol, veh/h	30	3	6	73	62	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	2	2	5	2	2
Mvmt Flow	33	3	7	79	67	5

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	36	0	128
Stage 1	-	-	-	-	35
Stage 2	-	-	-	-	93
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1575	-	866
Stage 1	-	-	-	-	987
Stage 2	-	-	-	-	931
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1575	-	862
Mov Cap-2 Maneuver	-	-	-	-	862
Stage 1	-	-	-	-	987
Stage 2	-	-	-	-	926

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	873	-	-	1575	-
HCM Lane V/C Ratio	0.083	-	-	0.004	-
HCM Control Delay (s)	9.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

HCM 6th TWSC
4: Site Driveway 2 & Stevenson Drive

2023 Build Condition
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	72	8	6	52	52	4
Future Vol, veh/h	72	8	6	52	52	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	9	7	57	57	4

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	87	0	154
Stage 1	-	-	-	-	83
Stage 2	-	-	-	-	71
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1509	-	838
Stage 1	-	-	-	-	940
Stage 2	-	-	-	-	952
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1509	-	834
Mov Cap-2 Maneuver	-	-	-	-	834
Stage 1	-	-	-	-	940
Stage 2	-	-	-	-	947

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	843	-	-	1509	-
HCM Lane V/C Ratio	0.072	-	-	0.004	-
HCM Control Delay (s)	9.6	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
4: Site Driveway 2 & Stevenson Drive

2023 Build Condition
Saturday Midday Peak Hour

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	83	7	9	84	71	8
Future Vol, veh/h	83	7	9	84	71	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	2	2	4	2	2
Mvmt Flow	90	8	10	91	77	9

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	98	0	205
Stage 1	-	-	-	-	94
Stage 2	-	-	-	-	111
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1495	-	783
Stage 1	-	-	-	-	930
Stage 2	-	-	-	-	914
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1495	-	778
Mov Cap-2 Maneuver	-	-	-	-	778
Stage 1	-	-	-	-	930
Stage 2	-	-	-	-	908

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	793	-	-	1495	-
HCM Lane V/C Ratio	0.108	-	-	0.007	-
HCM Control Delay (s)	10.1	-	-	7.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	31	4	0	66	13	2
Future Vol, veh/h	31	4	0	66	13	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	2	2	5	2	2
Mvmt Flow	34	4	0	72	14	2

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	38	0	108
Stage 1	-	-	-	-	36
Stage 2	-	-	-	-	72
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1572	-	889
Stage 1	-	-	-	-	986
Stage 2	-	-	-	-	951
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1572	-	889
Mov Cap-2 Maneuver	-	-	-	-	889
Stage 1	-	-	-	-	986
Stage 2	-	-	-	-	951

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	906	-	-	1572	-
HCM Lane V/C Ratio	0.018	-	-	-	-
HCM Control Delay (s)	9	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
5: Site Driveway 3 & Stevenson Drive

2023 Build Condition
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Traffic Vol, veh/h	63	13	2	50	8	1
Future Vol, veh/h	63	13	2	50	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	14	2	54	9	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	82	0	133
Stage 1	-	-	-	-	75
Stage 2	-	-	-	-	58
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1515	-	861
Stage 1	-	-	-	-	948
Stage 2	-	-	-	-	965
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1515	-	860
Mov Cap-2 Maneuver	-	-	-	-	860
Stage 1	-	-	-	-	948
Stage 2	-	-	-	-	964

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	872	-	-	1515	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	79	12	2	83	10	1
Future Vol, veh/h	79	12	2	83	10	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	2	2	4	2	2
Mvmt Flow	86	13	2	90	11	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	99	0	187
Stage 1	-	-	-	-	93
Stage 2	-	-	-	-	94
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1494	-	802
Stage 1	-	-	-	-	931
Stage 2	-	-	-	-	930
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1494	-	801
Mov Cap-2 Maneuver	-	-	-	-	801
Stage 1	-	-	-	-	931
Stage 2	-	-	-	-	929

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	814	-	-	1494	-
HCM Lane V/C Ratio	0.015	-	-	0.001	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX D
SIGNAL WARRANT ANALYSES

Warrant 2: Four-hour Vehicular Volume

1: NJ Route 79 & Stevenson Drive

Intersection Information

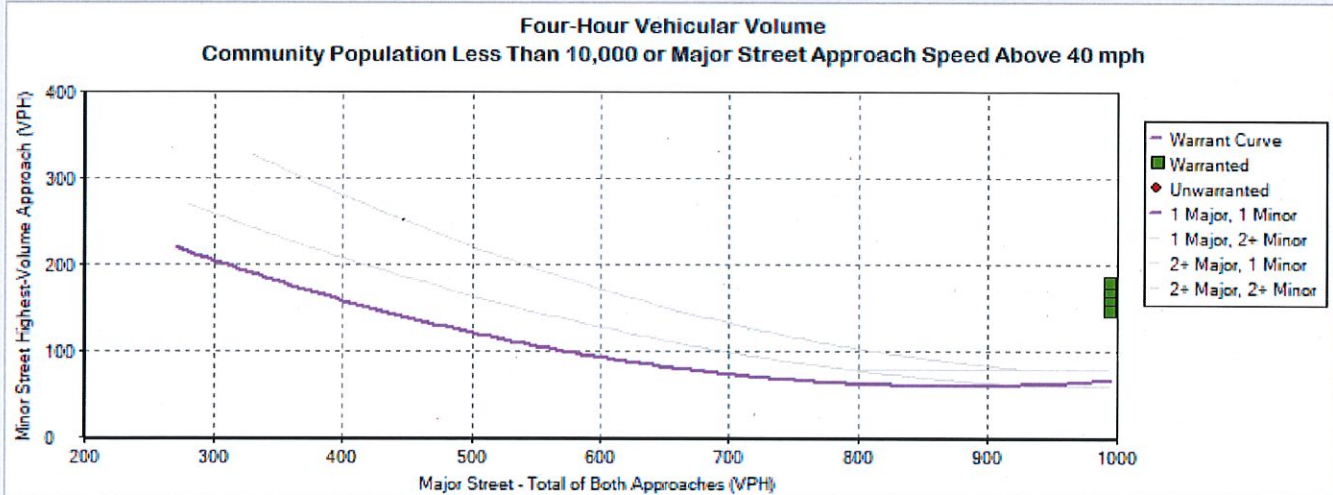
	Major Street	Minor Street
Street Name	NJ Route 79	Stevenson Drive
Direction	NB/SB	WB
Number of Lanes	1	1
Approach Speed	50	35

Warrant 2 Met? **Yes**

Details:

Notes 6 Hours met (4 required)

Low population **No**



Warrant 2: Four-hour Vehicular Volume

1: NJ Route 79 & Stevenson Drive

Hourly Volumes

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
00:00:00 - 01:00:00	0	0
01:00:00 - 02:00:00	0	0
02:00:00 - 03:00:00	0	0
03:00:00 - 04:00:00	0	0
04:00:00 - 05:00:00	0	0
05:00:00 - 06:00:00	0	0
06:00:00 - 07:00:00	0	0
07:00:00 - 08:00:00	1,232	167
08:00:00 - 09:00:00	1,315	161
09:00:00 - 10:00:00	0	0
10:00:00 - 11:00:00	0	0
11:00:00 - 12:00:00	0	0
12:00:00 - 13:00:00	0	0
13:00:00 - 14:00:00	0	0
14:00:00 - 15:00:00	0	0
15:00:00 - 16:00:00	1,522	158
16:00:00 - 17:00:00	1,615	171
17:00:00 - 18:00:00	1,589	179
18:00:00 - 19:00:00	1,220	148
19:00:00 - 20:00:00	0	0
20:00:00 - 21:00:00	0	0
21:00:00 - 22:00:00	0	0
22:00:00 - 23:00:00	0	0

Warrant 2: Four-hour Vehicular Volume

1: NJ Route 79 & Stevenson Drive

23:00:00 - 00:00:00	0	0
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Warranted Hours

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
07:00:00 - 08:00:00	1,232.00	167.00
08:00:00 - 09:00:00	1,315.00	161.00
15:00:00 - 16:00:00	1,522.00	158.00
16:00:00 - 17:00:00	1,615.00	171.00
17:00:00 - 18:00:00	1,589.00	179.00
18:00:00 - 19:00:00	1,220.00	148.00

Note: Only data of hours warranted is represented in the above table.

Warrant 3: Peak Hour

1: NJ Route 79 & Stevenson Drive

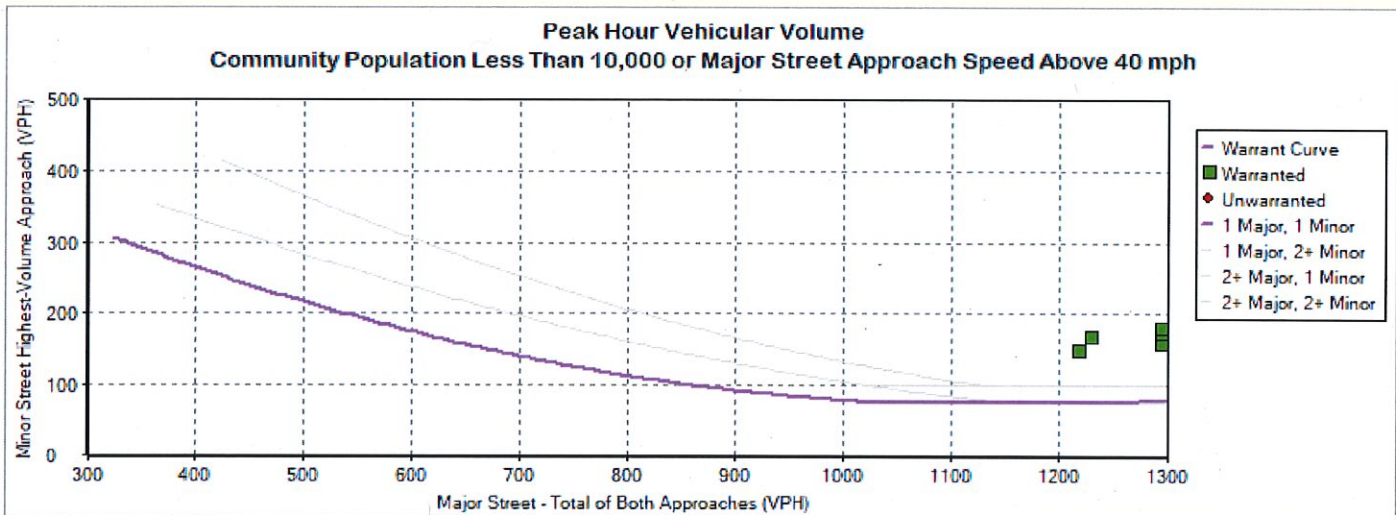
Intersection Information

	Major Street	Minor Street
Street Name	NJ Route 79	Stevenson Drive
Direction	NB/SB	WB
Number of Lanes	1	1
Approach Speed	50	35

Warrant 3 Met? **Yes**

Details

Low Population?	No		
Condition A Met?	No	Condition B Met?	Yes
Notes	0 Hours met (1 required)	Notes	6 Hours met (1 required)
Minor Approach Time Delay Condition Met?	Not Met		
Minor Approach Volume Condition Met?	Met		
Total Entering Intersection Volume Condition Met?	Not Met		



Warrant 3: Peak Hour

1: NJ Route 79 & Stevenson Drive

Hour	Major Street Total All Approaches (vph)	Minor Street Highest Volume Approach (vph)
7:00	1,232	167
8:00	1,315	161
15:00	1,522	158
16:00	1,615	171
17:00	1,589	179
18:00	1,220	148