DRMP, Inc.
8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262

May 16, 2025

Ravi Vasireddy
Roms Investments LLC
1105 Baltusrol Lane
Waxhaw, NC 28173
P: 704-577-4138
E: mjorsinc@gmail.com

Reference: Marvin Oaks – Marvin, NC

Subject: Traffic Impact Study

Dear Mr. Vasireddy:

This document provides the results from a Traffic Impact Study (TIS) for the proposed commercial development. The site is located west of Marvin School Road and north of New Town Road in Marvin, North Carolina. The proposed development, anticipated to be completed in 2030, is assumed to consist of up to a minimum of 35,000 SF of strip retail plaza. See Appendix A for the proposed development scoping email document. Refer to Figure 1 in Appendix B for the site location map. Site plans are provided in Appendix C.

Existing Peak Hour Conditions:

Marvin School Road is a two-lane minor collector road. It is maintained by the North Carolina Department of Transportation (NCDOT). Existing peak hour traffic volumes were determined based on traffic counts conducted on Marvin School Road. Counts were performed in March of 2025 during a typical weekday for a 24-hour period. The daily traffic volume on Marvin School Road was 12,713 vehicles. See Appendix D for the traffic count data. Figure 3 illustrates the existing characteristics of Marvin School Road. Figure 4 illustrates the 2025 Existing AM and PM peak hour traffic volumes.

Using historical data, it was determined that an annual growth rate of 3% would be used to generate 2030 projected weekday AM and PM peak hour traffic volumes. No adjacent developments were identified to be included within the study. Figure 5 illustrates the 2030 No-Build AM and PM peak hour traffic volumes.

Site Access:

The proposed site access is located approximately 500 feet north of the Marvin School Road and New Town Road roundabout. Two driveway scenarios were analyzed for the proposed development. Scenario 1 proposes a full movement driveway and Scenario 2 proposes a left-over access (right-in/right-out, left-in) into the development. The proposed development will also have a southern connection to Village Hall; however, Village Hall trips were not analyzed in this study. The extra trips should be accounted for due to the intensity of the proposed development analyzed being higher than what is expected to be developed.

Trip Generation:

Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE Trip Generation Manual, 11.1 Edition. Refer to Table 1 for the trip generation of the proposed development.

Table 1: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Strip Retail Plaza (822)	35,000 SF	1,707	50	33	115	116

It is estimated that the proposed development will generate approximately 1,707 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 83 trips (50 entering and 33 exiting) will occur during the weekday AM peak hour and 231 trips (115 entering and 116 exiting) will occur during the weekday PM peak hour.

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns and engineering judgment. It was assumed that the site trips would be distributed equally from each direction (north and south of the site).

The site trip distributions are shown in Figure 6A and 6B for each access scenario. Site trip assignments are shown in Figure 7A and 7B. To estimate the 2030 Build traffic volumes, the site trips were added to the 2030 No-Build traffic volumes. Refer to Figure 8a and 8b for the 2030 Build peak hour traffic volumes. Figures are provided in Appendix B.

Capacity Analysis:

Study intersections were analyzed using the methodology outlined in the *Highway Capacity Manual* (HCM), 6th Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 11.1), was used to complete the analyses for the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as "the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions." Level of service (LOS) is a term used to represent different driving conditions and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers." Level of service varies from Level "A" representing free flow, to Level "F" where breakdown conditions are evident. Refer to Table 2 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes "initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay". Capacity analysis was completed according to the NCDOT Congestion Management Guidelines.

Table 2: Highway Capacity Manual Levels-of-Service and Delay

UNSIGNALIZED INTERSECTION		SIGNALIZED INTERSECTION	
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)
A	0-10	A	0-10
B	10-15	B	10-20
C	15-25	C	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

Capacity analysis was done for the full movement approach at the site access for Scenario 1. The minor-street approach is expected to operate at LOS F or better on the proposed driveway with a maximum queue of 722 feet under Build conditions. Significant queues were reported on the northbound left turn as well.

Scenario 2 was analyzed with a left-over configuration directing the exiting traffic to utilize the roundabout located along New Town Road just approximately 450 feet south of the proposed site access. Capacity analysis indicated the major-street left-turn movements operate at LOS C or better during both AM and PM peak hours. The minor street approach is expected to operate at LOS A during both AM and PM peak hours. A maximum queue of 51 feet was reported on the northbound left turn.

Synchro reports are provided in Appendix E. SimTraffic reports can be found in Appendix F.

Turn lanes were considered based on NCDOT's peak hour traffic volume graphs. Scenario 1 would require a 50-foot storage left and right turn lane. However, scenario 2 requires a 75-foot storage left turn lane. Turn lane warrants can be found in Appendix G.

Table 3: Analysis Summary of Marvin School Road and Proposed Site Access

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			APPROACH	OVERALL (SECONDS)	APPROACH	OVERALL (SECONDS)
2025 Existing	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	C (18)[2] A (9)[1] --	N/A	C (24)[2] A (9)[1] --	N/A
2030 No-Build	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	C (21)[2] A (10)[1] --	N/A	D (32)[2] A (9)[1] --	N/A
2030 Build (Scenario 1)	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	D (26)[2] A (10)[1] --	N/A	F (264)[2] A (10)[1] --	N/A

2030 Build (Scenario 2)	EB NB SB	1 RT 1 LT, 1 TH 1 TH, 1 RT	C (16)[2] A (10)[1] --	N/A	C (17)[2] A (10)[1] --	N/A

1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Conclusions and Recommendations:

This memo evaluated the operations of the proposed site access point along Marvin School Road. The proposed site access is expected to operate at acceptable levels-of-service under build scenario 2 future year conditions. Scenario 1 recommends a full movement access and would require a left turn lane with 50 feet of storage and a right turn lane with 50 feet of storage. Scenario 2 recommends a left turn lane with 75 feet of storage.

Per coordination with NCDOT and the Village of Marvin, Scenario 2 is preferred with an approximately 50’ southbound right turn lane and 150’ northbound left turn lane.

If you should have any questions, please feel free to contact me at (704) 549-4260.

Sincerely,

Dyron D. Capers

Dyron Capers, PE
Traffic Analysis Project Manager
DRMP, Inc.
License #F-1524

Attachments

- Appendix A TIA Scope Email
- Appendix B Figures
- Appendix C Site Plans
- Appendix D Traffic Counts
- Appendix E Synchro Reports
- Appendix F SimTraffic Reports
- Appendix G Turn Lane Warrants

TECHNICAL APPENDIX

APPENDIX A

SCOPING DOCUMENTATION

River McClelland

From: Andrew Eagle
Sent: Friday, March 28, 2025 9:40 AM
To: Hunter Nestor
Cc: Ravi V; Skylar DeMatteis
Subject: RE: [External] RE: Marvin Oaks

Hey Hunter,

Thanks for letting me know about NCDOT's stance. I was unaware of the intent to restrict Village Hall access to RIRO, and potentially restricting lefts from the Marvin Oaks access. For purposes of the TIA, we're only studying the Marvin Oaks access. We'll assume it is full access so the analysis will be based on the worst case scenario.

Andrew Eagle, PE, PTOE
Senior Traffic Analysis Project Manager
Transportation
Main: 704.549.4260 | Direct: 704.220.6847 | Cell: 704.467.0325
aeagle@drmp.com

8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262

From: Hunter Nestor <planner@marvinnc.gov>
Sent: Friday, March 28, 2025 9:34 AM
To: Andrew Eagle <aeagle@drmp.com>
Subject: RE: [External] RE: Marvin Oaks

Andrew,

I am not sure if they got back to you, but they are not requiring a TIA for this project. Since the property owner has elected to do one, The Village will review and NCDOT will do a curiosity review. Regarding access, I believe the intent is to make the Village Hall access right-in/right-out only. A dedicated left into the main access for this development. Potentially restricting the egress from the Marvin Oaks site as a right-out only as well.

Thanks,

Hunter Nestor, MPA
Village Planning Director
10006 Marvin School Road
Marvin, NC 28173
Phone: (704) 843-1680
Cell: (704) 993-0172
Fax: (704) 843-1660

Please note, my email address has changed as our website domain has migrated to marvinnc.gov

---

From: Andrew Eagle <aeagle@drmp.com>
Sent: Monday, March 24, 2025 9:03 AM
To: Gardner, Zachary L <zlgardner@ncdot.gov>; Helms, Amelia C <achelms@ncdot.gov>; Hunter Nestor <planner@marvinnc.gov>
Cc: Ravi V <mjorsinc@gmail.com>; Lokesh Kolluru <Lokesh.Kolluru@drmp.com>
Subject: RE: [External] RE: Marvin Oaks

Amelia/Zach,

Can you confirm NCDOT will not require any type of traffic study for this site? Will NCDOT require any turn lanes at the driveway?

Andrew Eagle, PE, PTOE
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Suite 220, Charlotte, NC 28262

From: Andrew Eagle <aeagle@drmp.com>
Sent: Wednesday, March 12, 2025 2:49 PM
To: Gardner, Zachary L <zlgardner@ncdot.gov>; Helms, Amelia C <achelms@ncdot.gov>; Nestor, Hunter <Planner@marvinnc.gov>
Cc: Ravi V <mjorsinc@gmail.com>; Lokesh Kolluru <Lokesh.Kolluru@drmp.com>
Subject: RE: [External] RE: Marvin Oaks

Hey Zach, here is the trip generation.

Code	Land Use	Size	Unit	Daily			A
				In	Out	Total	In
822	Strip Retail Plaza	35000	SF	953	953	1,707	50

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Suite 220, Charlotte, NC 28262

From: Gardner, Zachary L <zlgardner@ncdot.gov>
Sent: Wednesday, March 12, 2025 2:41 PM
To: Andrew Eagle <aeagle@drmp.com>; Helms, Amelia C <achelms@ncdot.gov>; Nestor, Hunter <Planner@marvinnc.gov>
Cc: Ravi V <mjorsinc@gmail.com>; Lokesh Kolluru <Lokesh.Kolluru@drmp.com>
Subject: RE: [External] RE: Marvin Oaks

Hey Andrew,

What type of trip generation would we anticipate for this site?

Thanks,
Zach Gardner, PE
Division 10 Traffic Engineer
North Carolina Department of Transportation

704-983-4400 office
zlgardner@ncdot.gov

716 W. Main Street
Albemarle, NC 28001

From: Andrew Eagle <aeagle@drmp.com>
Sent: Wednesday, March 12, 2025 9:40 AM

To: Helms, Amelia C <achelms@ncdot.gov>; Gardner, Zachary L <zlgardner@ncdot.gov>; Nestor, Hunter <Planner@marvinnc.gov>
Cc: Ravi V <mjorsinc@gmail.com>; Lokesh Kolluru <Lokesh.Kolluru@drmp.com>
Subject: [External] RE: Marvin Oaks

Amelia/Zach,

Can you confirm NCDOT will not require any type of traffic study for this site? Will NCDOT require any turn lanes at the driveway? Thanks!

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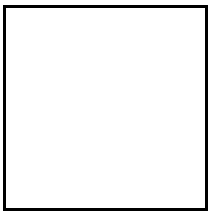
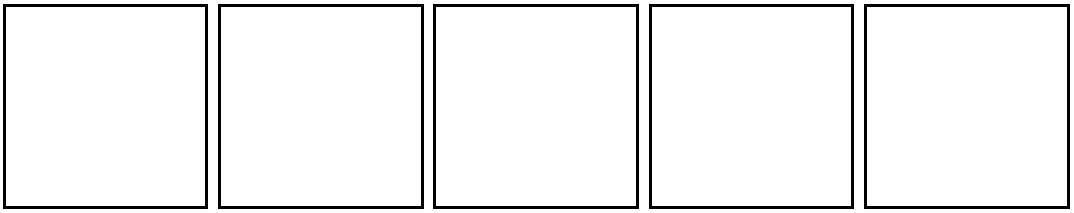


8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262



From: Andrew Eagle <aeagle@drmp.com>
Sent: Wednesday, March 5, 2025 2:43 PM
To: Helms, Amelia C <achelms@ncdot.gov>; Gardner, Zachary L <zlgardner@ncdot.gov>; planner@marvinnc.gov
Cc: Ravi V <mjorsinc@gmail.com>; Lokesh Kolluru <Lokesh.Kolluru@drmp.com>
Subject: RE: Marvin Oaks

I'm adding in Hunter Nestor with the Village of Marvin to this email chain.

Andrew Eagle, PE, PTOE
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aeagle@drmp.com

8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262

From: Andrew Eagle <aeagle@drmp.com>
Sent: Wednesday, March 5, 2025 10:09 AM
To: Helms, Amelia C <achelms@ncdot.gov>; Gardner, Zachary L <zlgardner@ncdot.gov>
Cc: Ravi V <mjorsinc@gmail.com>; Lokesh Kolluru <Lokesh.Kolluru@drmp.com>
Subject: Marvin Oaks

Amelia/Zach,

We're working on a proposed development located on Marvin School Road, north of New Town Road in Marvin. Trip generation is below NCDOT's threshold for requiring a TIA. It's my understanding the Town is not requiring a TIA. I'd like to confirm that NCDOT will not need a TIA either. Please provide your feedback on this and also if you anticipate requiring any turn lanes at the driveway. We will likely prepare a short traffic study to present at Planning Board and Council meetings. Thank you

Code	Land Use	Size	Unit	Daily			A	
				In	Out	Total	In	
822	Strip Retail Plaza	35000	SF	953	953	1,707	50	

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aeagle@drmp.com

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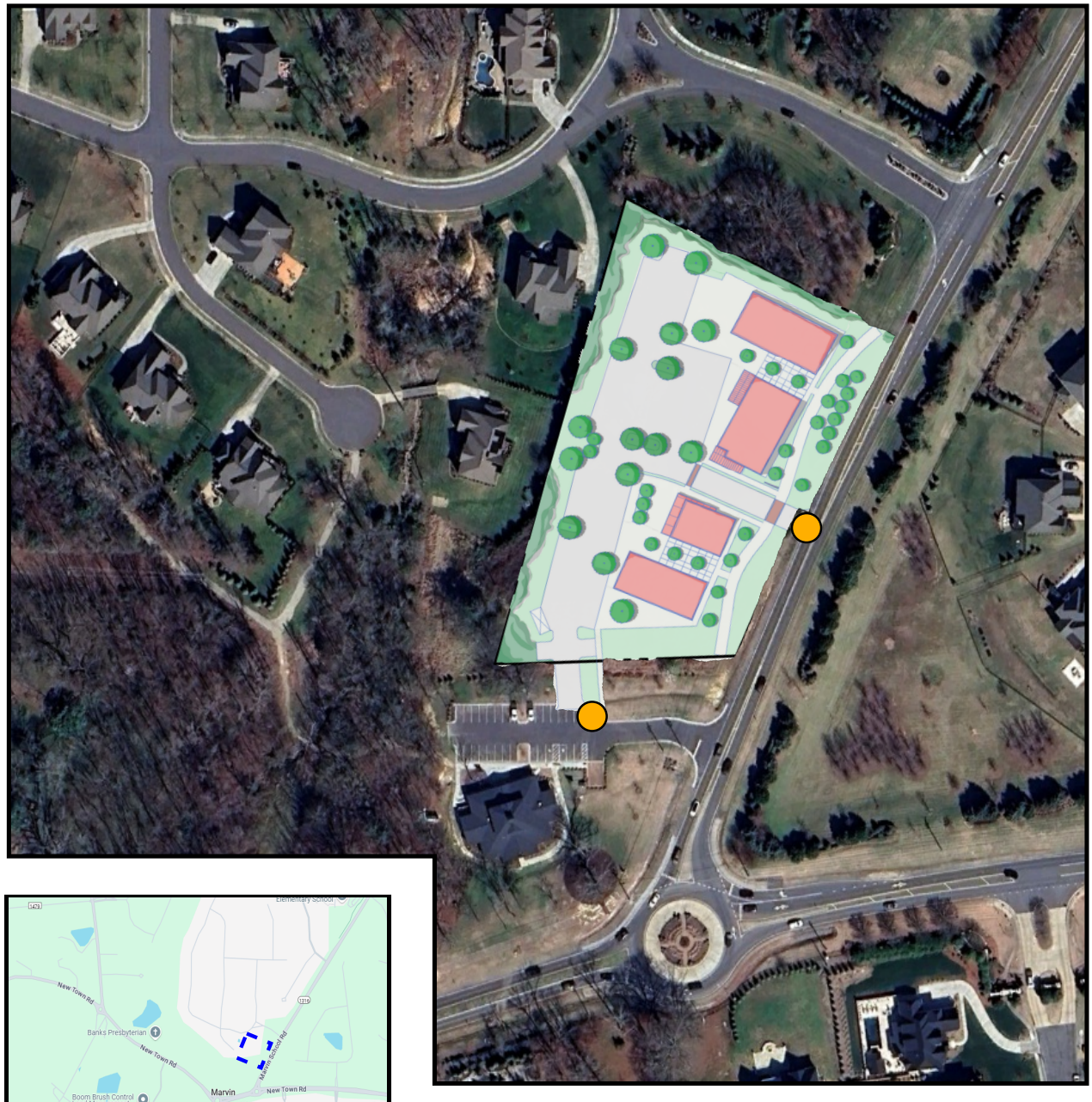
APPENDIX B

FIGURES

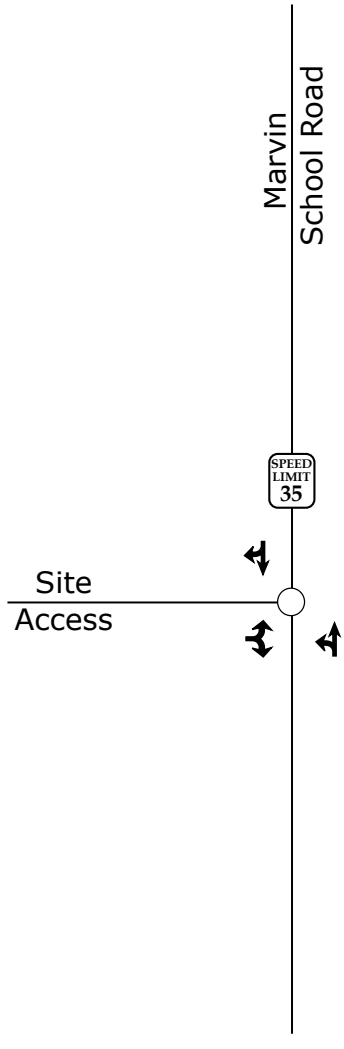


N

LEGEND

- Proposed Site Access
- Study Area

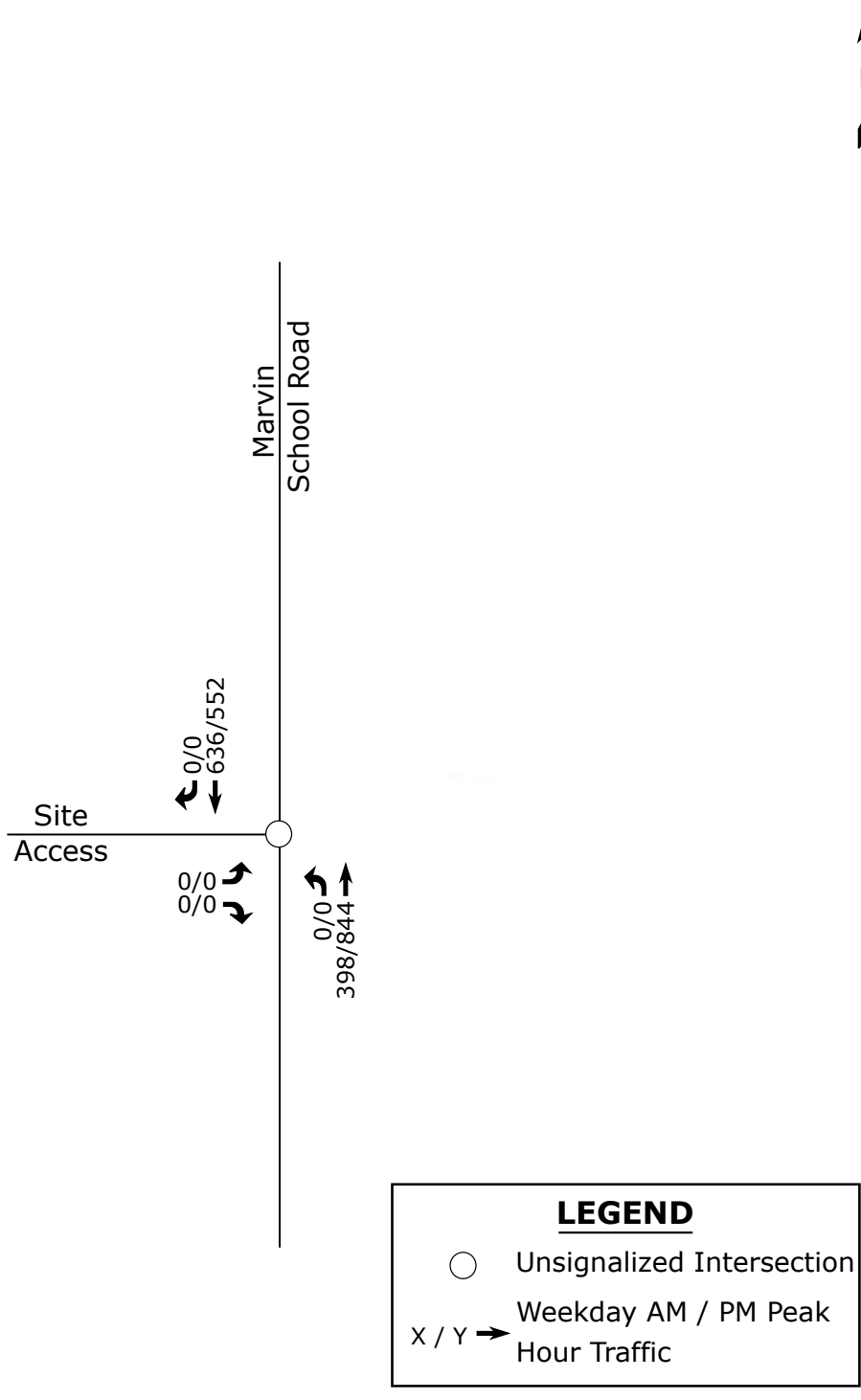
DRMP	Marvin Oaks Marvin, NC	Site Location Map Scale: Not to Scale | Figure 1



LEGEND

- Unsignalized Intersection
- Existing Lane
- X' Storage (In Feet)
- SPEED LIMIT XX Posted Speed Limit

DRMP	Marvin Oaks Marvin, NC	2025 Existing Lane Configurations	
		Scale: Not to Scale	Figure 3



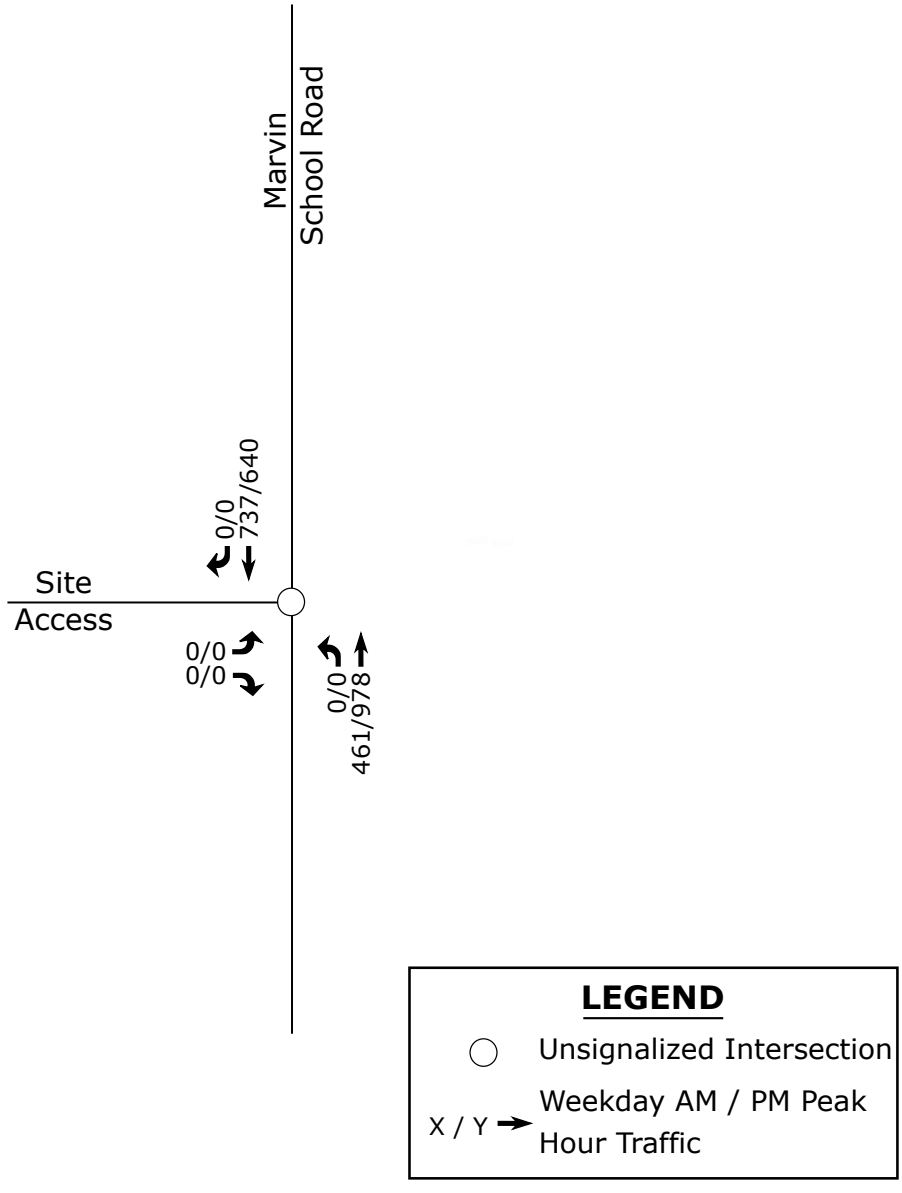
LEGEND

◯ Unsignalized Intersection

X / Y → Weekday AM / PM Peak Hour Traffic

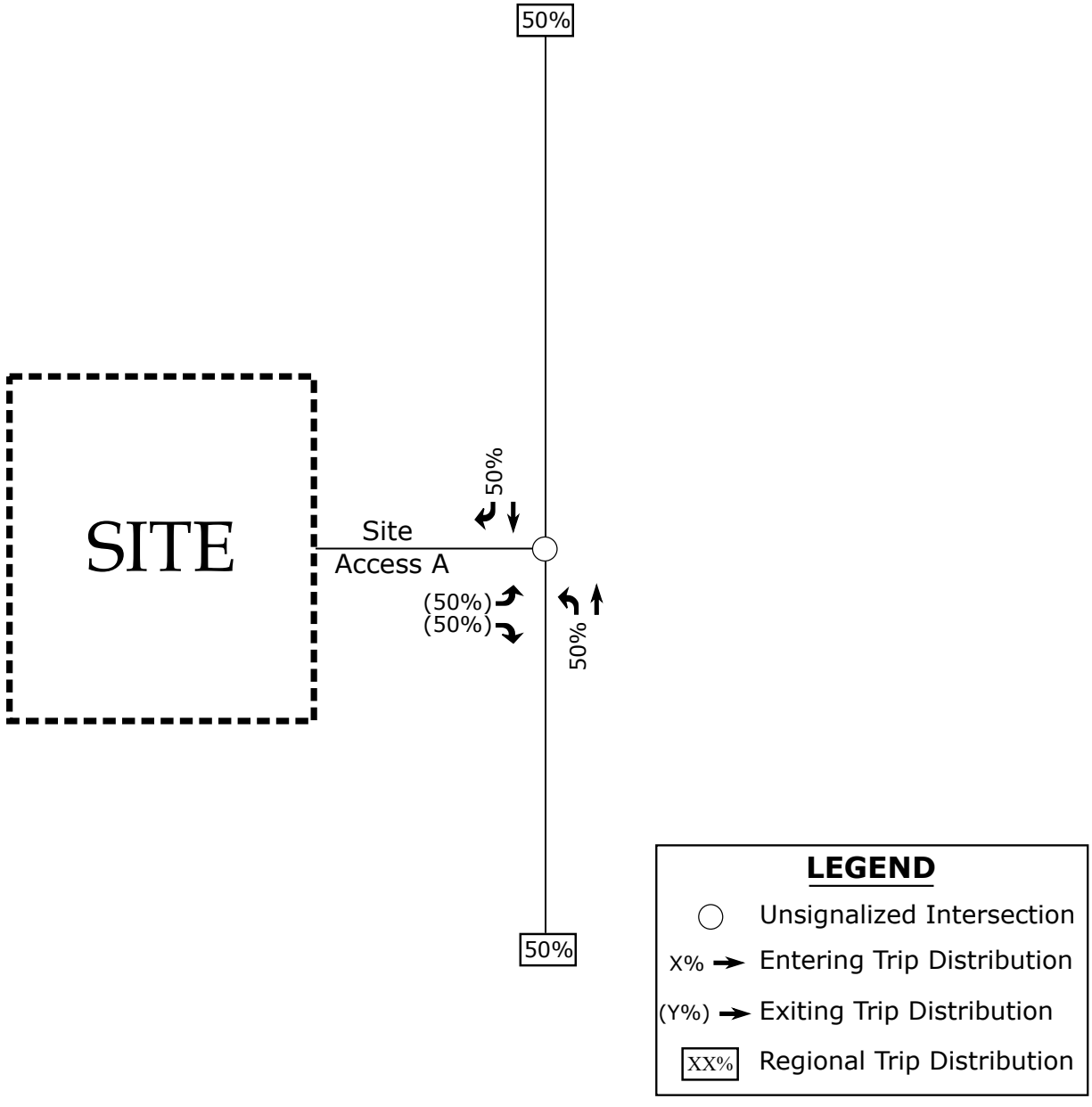
Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

DRMP	Marvin Oaks Marvin, NC	2025 Existing Peak Hour Traffic	
		Scale: Not to Scale	Figure 4

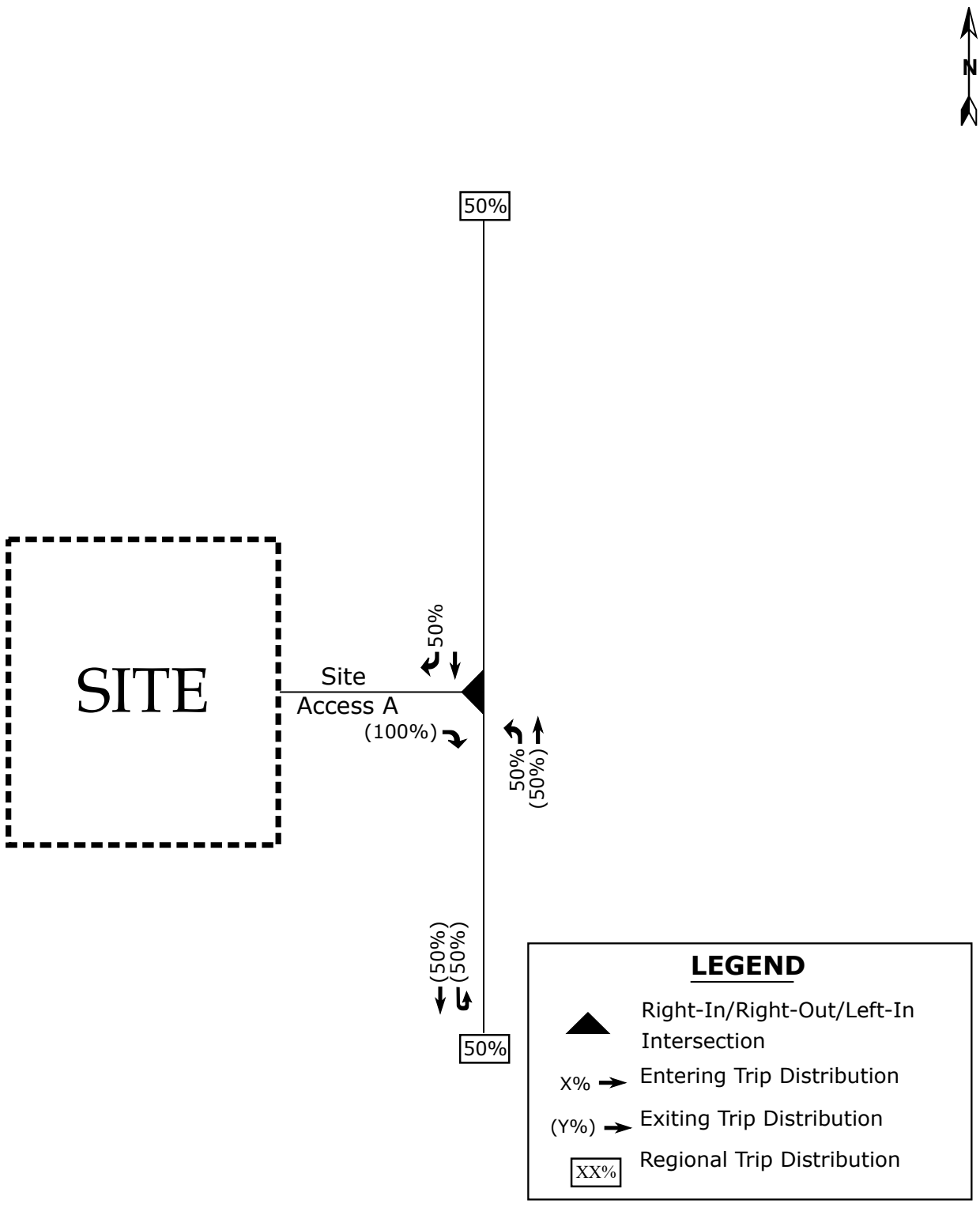


Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

DRMP	Marvin Oaks Marvin, NC	2030 No-Build Peak Hour Traffic	
		Scale: Not to Scale	Figure 5



DRMP	Marvin Oaks Marvin, NC	Site Trip Distribution (Scenario 1)
		Scale: Not to Scale | Figure 6a



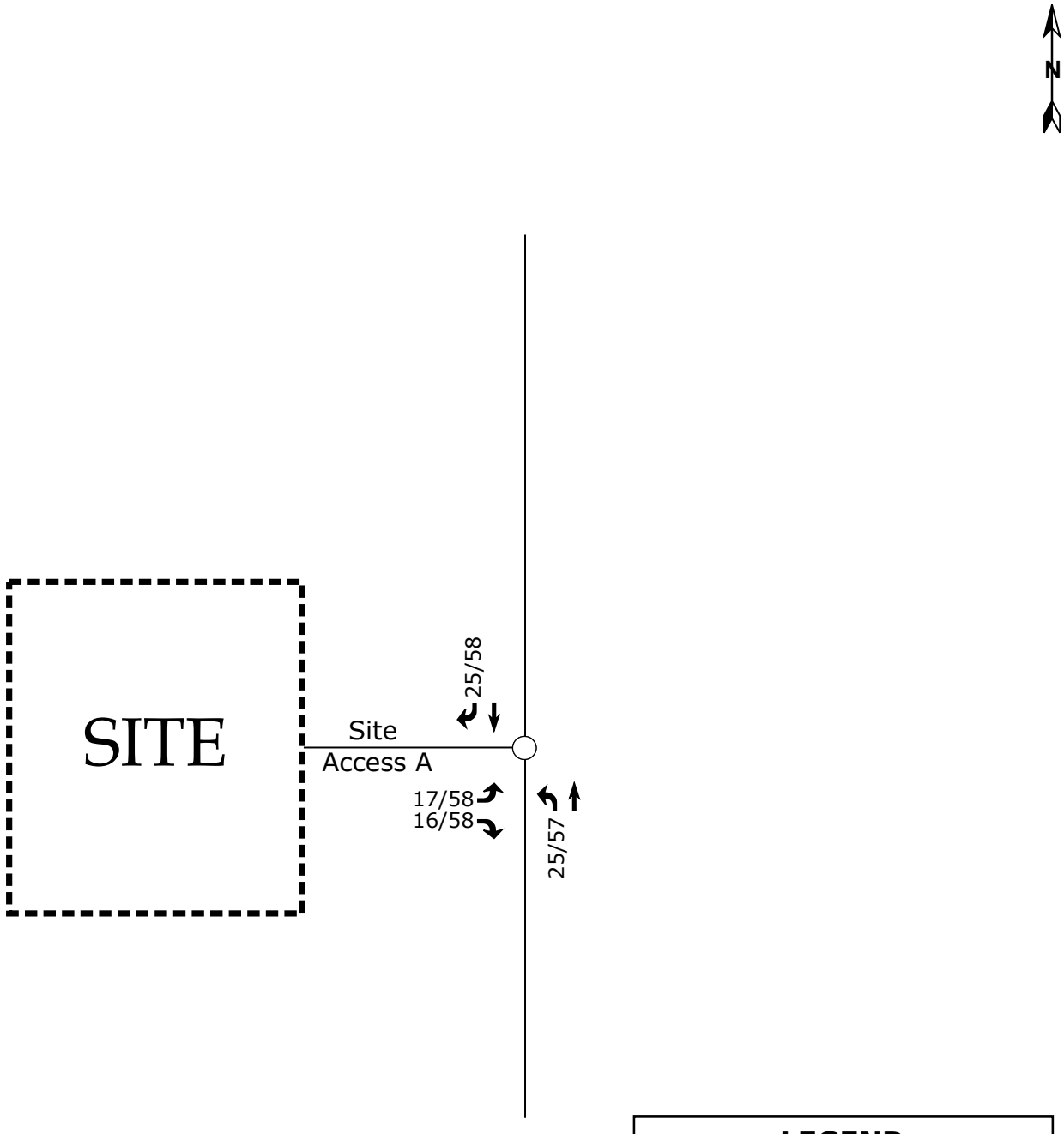
DRMP

Marvin Oaks
Marvin, NC

Site Trip Distribution (Scenario 2)

Scale: Not to Scale

Figure 6b

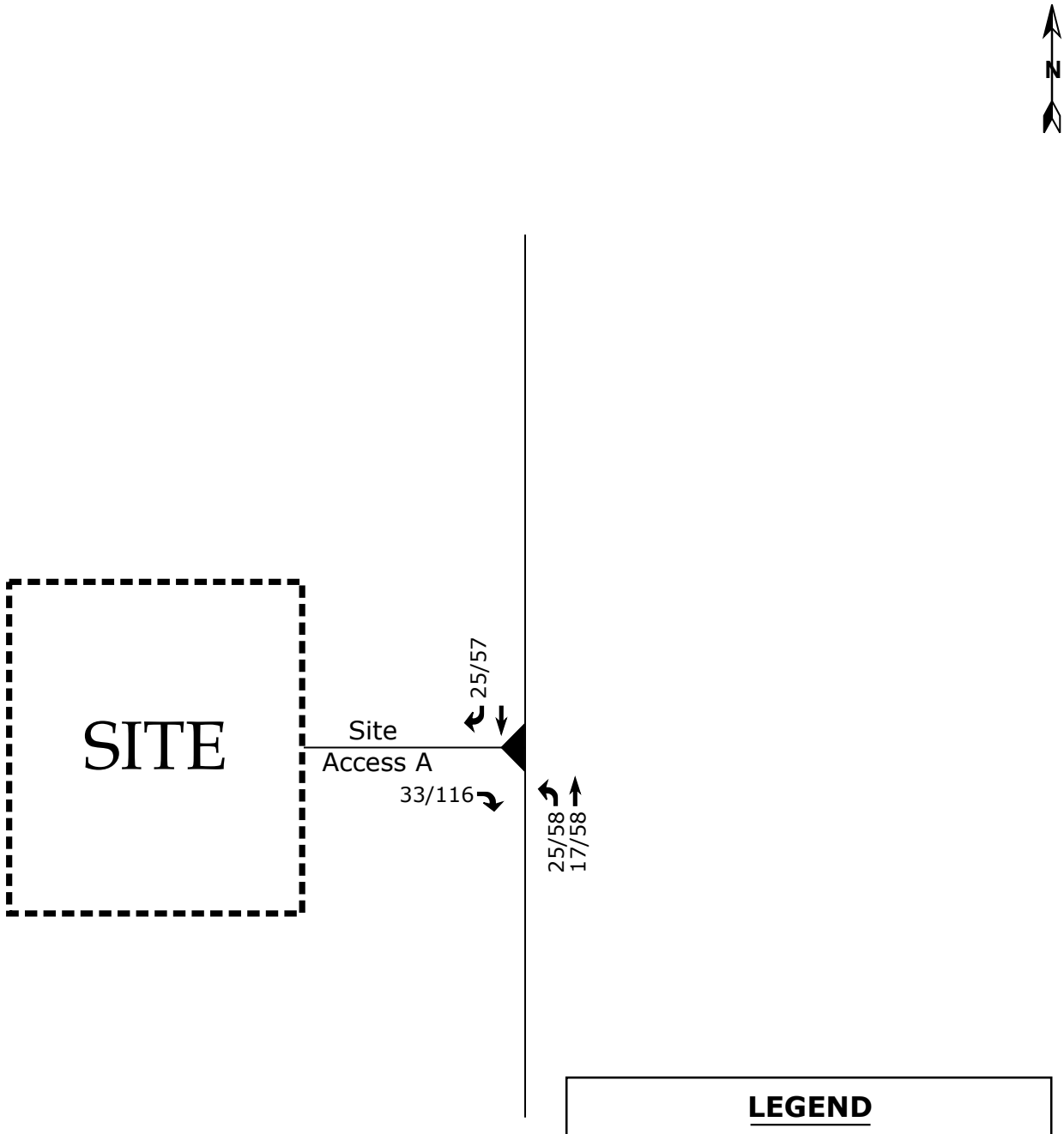


LEGEND

Unsignalized Intersection

X / Y → Weekday AM / PM Peak Hour Site Trips

DRMP	Marvin Oaks Marvin, NC	Site Trip Assignment (Scenario 1)
		Scale: Not to Scale — Figure 7a

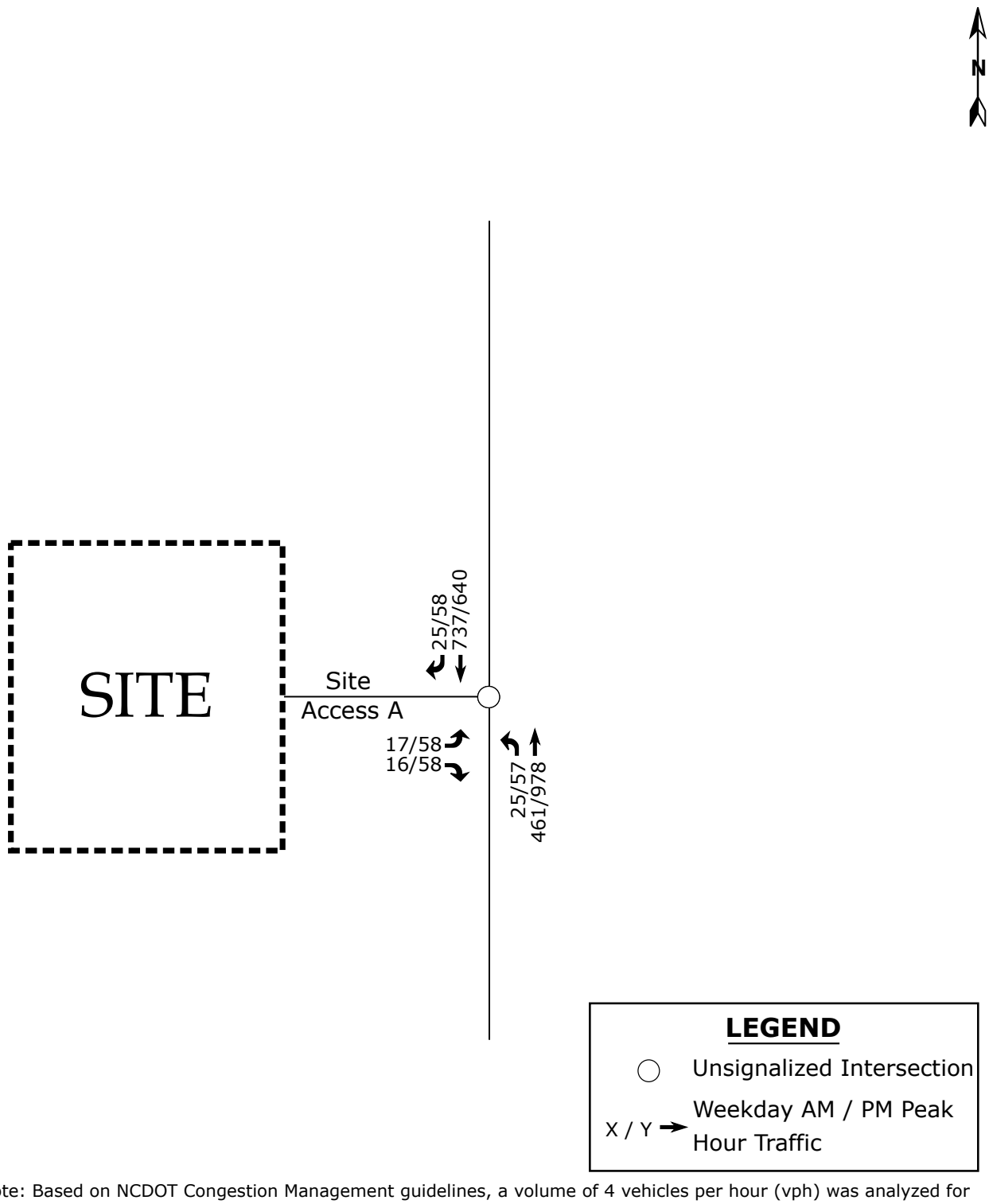


LEGEND

Right-In/Right-Out/Left-In Intersection

X / Y → Weekday AM / PM Peak Hour Site Trips

DRMP	Marvin Oaks Marvin, NC	Site Trip Assignment (Scenario 2)
		Scale: Not to Scale | Figure 7b



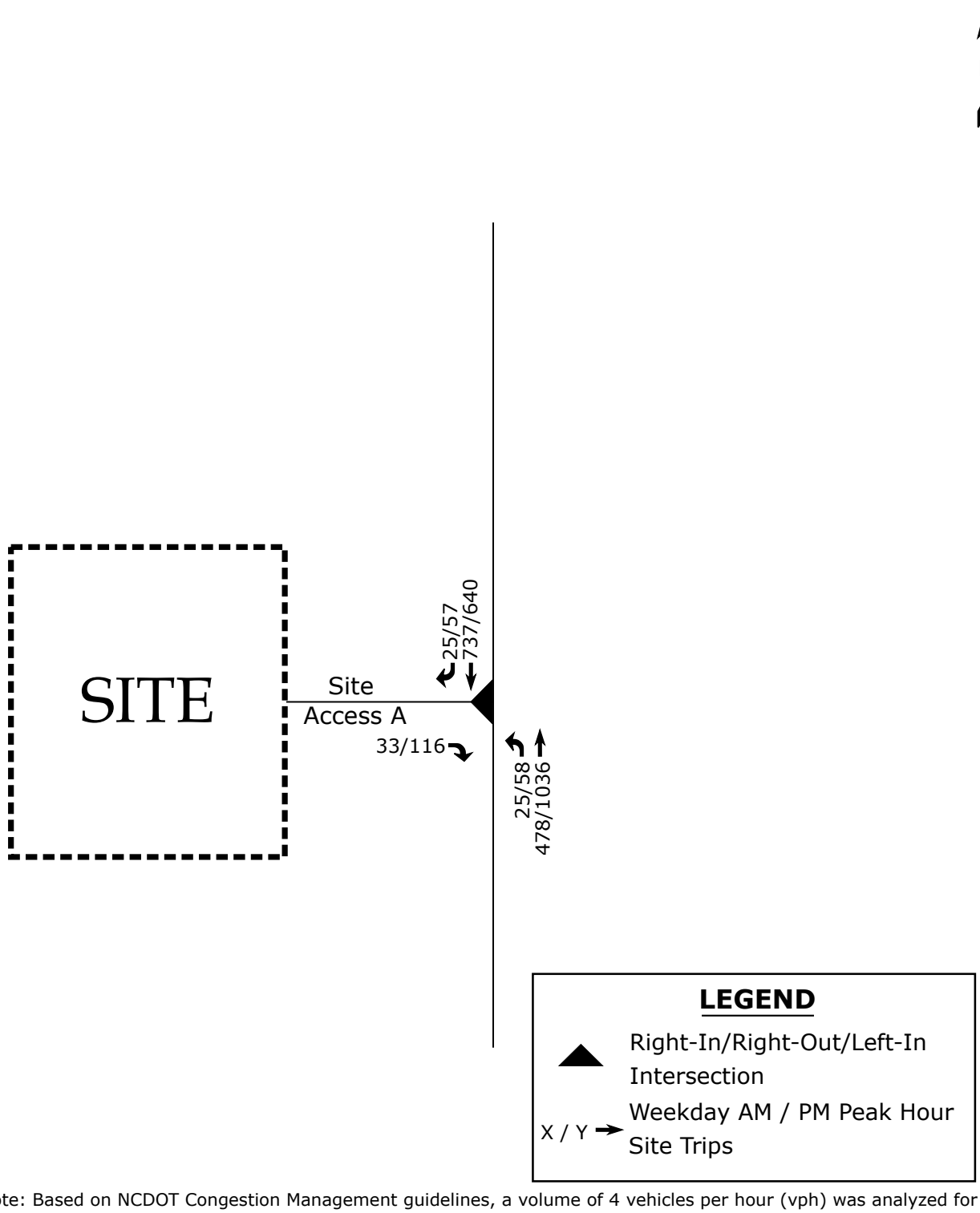
LEGEND

◯ Unsignalized Intersection

X / Y → Weekday AM / PM Peak Hour Traffic

Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

DRMP	Marvin Oaks Marvin, NC	2030 Build Peak Hour Traffic (Scenario 1)	
		Scale: Not to Scale	Figure 8a



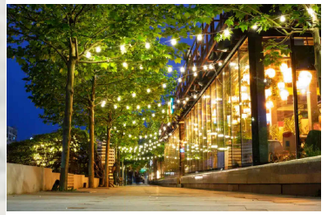
Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

DRMP	Marvin Oaks Marvin, NC	2030 Build Peak Hour Traffic (Scenario 2)
		Scale: Not to Scale | Figure 8b

APPENDIX C

SITE PLANS

COURTYARD PRECEDENT IMAGERY



DECORATIVE CROSSWALK PRECEDENT IMAGERY

NOTE

THIS PLAN IS FOR ILLUSTRATIVE PURPOSES ONLY AND ARE CONCEPTUAL IN NATURE. FINAL DESIGN MAY VARY.

SCALE: 1" = 20'
0 10' 20' 40'

dpr design

master planning . civil engineering
urban design . landscape architecture

939 berryhill rd. ste 101 . charlotte, nc 28208
704.332.1204 . www.dprdesign
NC Eng. Firm #C-0839 | LA Firm #C-252

CLIENT / OWNER
ROMS INVESTMENTS, LLC
1105 BALTUSROL LANE
WAXHAW, NC 28173

LAND SURVEYOR
JEREMY D. GILLIARD, PLS
2712 OLD COURSE ROAD
MONROE, NC 28112
(704)-634-2192

LAND USE ATTORNEY
THE DUGGAN LAW FIRM, PC
101 S. MAIN ST.
MONROE, NC 28112
(704)-776-9610

ARCHITECT
REDLINE DESIGN GROUP
925 TUCKASEEGEE ROAD
SUITE 110
(704)-377-2990

KEY MAP

PROJECT

MARVIN OAKS

10018 MARVIN SCHOOL ROAD
MARVIN, NORTH CAROLINA 28173

PROJECT NUMBER
23015

DATE
02.04.2025

ISSUED FOR
REZONING

REVISIONS

NO.	DATE	DESCRIPTION	BY

PROJ. MANAGER: SKY
DRAWN BY: SKY + CM
CHECKED BY: SKY + CM

SEAL

SCALE
AS INDICATED

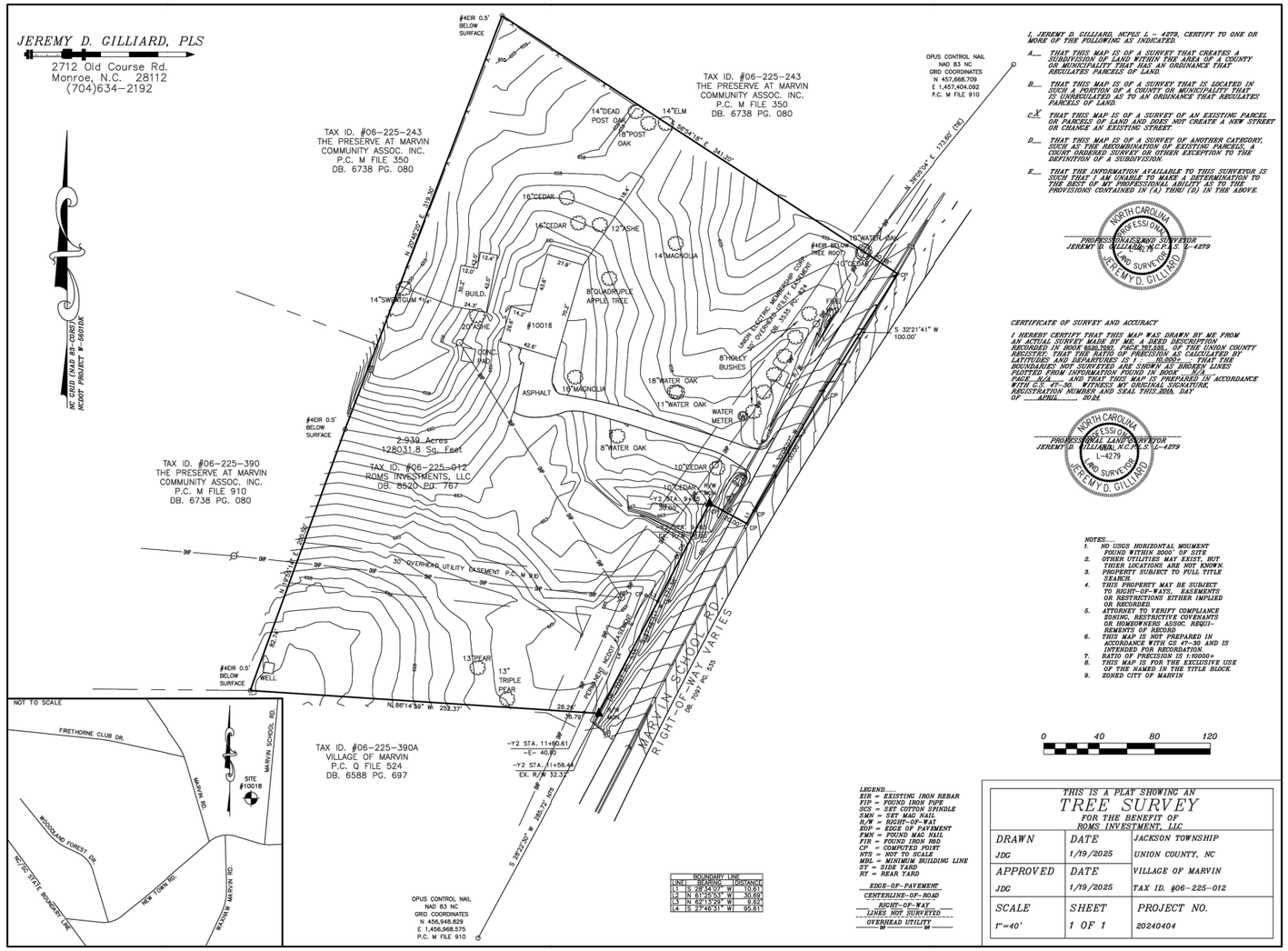
DRAWING
ILLUSTRATIVE SITE PLAN

RZ-1

ORIGINAL SHEET SIZE: 30" X 42"

PLOTTED: Z:\Shared\Projects\2023\23015 Marvin Oaks- ROMS Investment-Marvin\Dwg\Sheets\Rezoning\23015-RZ1.dwg / 2/4/2025 10:32 AM

JEREMY D. GILLIARD, PLS
2712 Old Course Rd.
Monroe, N.C. 28112
(704)634-2192



BOUNDARY LINE			
LINE	BEARING		DISTANCE
L1	S 28°34'07"	W	10.61
L2	N 67°25'53"	W	30.69
L3	N 62°13'28"	W	9.65
L4	S 27°46'31"	W	95.61

LEGEND.....
EIR = EXISTING IRON REBAR
FIP = FOUND IRON PIPE
SCS = SET COTTON SPINDLE
SMN = SET MAG NAIL
R/W = RIGHT-OF-WAY
EOP = EDGE OF PAVEMENT
FMN = FOUND MAG NAIL
FIR = FOUND IRON ROD
CP = COMPUTED POINT
NTS = NOT TO SCALE
MBL = MINIMUM BUILDING LINE
SY = SIDE YARD
RY = REAR YARD

EDGE-OF-PAVEMENT
CENTERLINE-OF-ROAD
RIGHT-OF-WAY
LINES NOT SURVEYED
OVERHEAD UTILITY

I, JEREMY D. GILLIARD, NCPLS L-4279, CERTIFY TO ONE OR MORE OF THE FOLLOWING AS INDICATED:

A___ THAT THIS MAP IS OF A SURVEY THAT CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND.

B___ THAT THIS MAP IS OF A SURVEY THAT IS LOCATED IN SUCH A PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNREGULATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND.

C_X_ THAT THIS MAP IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET.

D___ THAT THIS MAP IS OF A SURVEY OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT ORDERED SURVEY OR OTHER EXCEPTION TO THE DEFINITION OF A SUBDIVISION.

E___ THAT THE INFORMATION AVAILABLE TO THIS SURVEYOR IS SUCH THAT I AM UNABLE TO MAKE A DETERMINATION TO THE BEST OF MY PROFESSIONAL ABILITY AS TO THE PROVISIONS CONTAINED IN (A) THRU (D) IN THE ABOVE.

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR
JEREMY D. GILLIARD, N.C.P.L.S. L-4279
JEREMY D. GILLIARD

CERTIFICATE OF SURVEY AND ACCURACY

I, JEREMY D. GILLIARD, CERTIFY THAT THIS MAP WAS DRAWN BY ME FROM AN ACTUAL SURVEY MADE BY ME, A DEED DESCRIPTION RECORDED IN BOOK 6588 PAGE 697, OF THE UNION COUNTY REGISTRY; THAT THE RATIO OF PRECISION AS CALCULATED BY LATITUDES AND DEPARTURES IS 1 : 10,000+ ; THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN BOOK N/A, PAGE N/A ; AND THAT THIS MAP IS PREPARED IN ACCORDANCE WITH G.S. 47-30. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 20th DAY OF JANUARY, 2025.

NORTH CAROLINA PROFESSIONAL LAND SURVEYOR
JEREMY D. GILLIARD, N.C.P.L.S. L-4279
L-4279
JEREMY D. GILLIARD

NOTES.....
1. NO USGS HORIZONTAL MOUMENT FOUND WITHIN 2000' OF SITE
2. OTHER UTILITIES MAY EXIST, BUT THIER LOCATIONS ARE NOT KNOWN.
3. PROPERTY SUBJECT TO FULL TITLE SEARCH.
4. THIS PROPERTY MAY BE SUBJECT TO RIGHT-OF-WAYS, EASEMENTS OR RESTRICTIONS EITHER IMPLIED OR RECORDED.
5. ATTORNEY TO VERIFY COMPLIANCE ZONING, RESTRICTIVE COVENANTS OR HOMEOWNERS ASSOC. REQUI-REMENTS OF RECORD
6. THIS MAP IS NOT PREPARED IN ACCORDANCE WITH GS 47-30 AND IS INTENDED FOR RECORDATION.
7. RATIO OF PRECISION IS 1:10000+
8. THIS MAP IS FOR THE EXCLUSIVE USE OF THE NAMED IN THE TITLE BLOCK.
9. ZONED CITY OF MARVIN

0 40 80 120

THIS IS A PLAT SHOWING AN
TREE SURVEY
FOR THE BENEFIT OF
ROMS INVESTMENT, LLC

DRAWN	DATE	JACKSON TOWNSHIP
JDG	1/19/2025	UNION COUNTY, NC
APPROVED	DATE	VILLAGE OF MARVIN
JDG	1/19/2025	TAX ID. #06-225-012
SCALE	SHEET	PROJECT NO.
1"=40'	1 OF 1	20240404

SITE DATA

PROPERTY OWNER:	ROMS INVESTMENTS, LLC 1105 BALTUSROL LANE WAXHAW, NC 28173
TOTAL SITE AREA:	2.94 ACRES±
TAX PARCEL ID:	06-225-012
EXISTING ZONING:	RR (RURAL RESIDENTIAL)
PROPOSED ZONING:	HD-CO-CZ (HERITAGE DISTRICT-COMMERCIAL ONLY)
EXISTING USE:	SINGLE-FAMILY RESIDENTIAL
PROPOSED USE:	THE PROPERTY SHALL BE DEVOTED TO COMMERCIAL USES SUCH AS RETAIL, RESTAURANT AND OFFICE, ALONG WITH ALL USES PERMITTED BY-RIGHT IN THE COMMERCIAL ONLY SUB-DISTRICT OF THE VILLAGE OF MARVIN HERITAGE DISTRICT (HD-CO). THESE USES ARE SUBJECT TO COMPLIANCE WITH VALID APPLICABLE STANDARDS SET FORTH IN THE MARVIN HERITAGE DISTRICT SMALL AREA PLAN ADOPTED DECEMBER 14, 2021, AS AMENDED MAY 14, 2024 (AMENDMENT #2024-01). ALL SPECIAL USES ALLOWED IN THE HD-CO SUB-DISTRICT SHALL REQUIRE A SPECIAL USE PERMIT.
PARKING RATIO:	98 SPACES / 35,000 SF = ± 3.5 SPACES / 1,000 SF
PEV STATIONS PROPOSED:	3
BICYCLE PARKING REQUIRED:	4 SPACES / BUILDING
BICYCLE PARKING PROVIDED:	4 SPACES / BUILDING (LOCATED ON PARKING LOT SIDE OF BUILDINGS)
BUILDING TYPE:	CONVENTIONAL SQUARE COMMERCIAL
MAX. GFA OF DEVELOPMENT:	UP TO FOUR (4) SEPARATE COMMERCIAL BUILDINGS NOT TO EXCEED: BLDG 1: 8,000 SF GFA BLDG 2: 7,000 SF GFA BLDG 3: 10,000 SF GFA BLDG 4: 5,000 SF GFA
MAX. BUILDING HEIGHT:	35'
MAX. PR. BUILDING HEIGHT:	35'
MAX. NUMBER OF BUILDINGS:	4
PARKING:	APPLICANT RESERVES THE RIGHT TO INCREASE, DECREASE, OR RELOCATE PARKING SPACES AS NECESSARY SUBJECT TO COMPLIANCE WITH APPLICABLE REGULATIONS

SETBACKS

FRONT:	50 FT FROM MARVIN SCHOOL ROAD R.O.W.
SIDES:	5 FT
REAR:	75 FT

IMPERVIOUS AREA

TOTAL IMPERVIOUS AREA: ± 1.85 AC (UP TO 70% MAX PROPOSED)

REQUESTED DEVIATION TO STANDARDS

THE FOLLOWING MODIFICATION TO MINIMUM STANDARDS ARE REQUIRED FOR THE SUCCESSFUL DEVELOPMENT OF THIS PROPERTY. OTHER MODIFICATIONS MAY BE REQUESTED DURING THE FINAL DESIGN OF THE PROJECT AS PROVIDED IN THE VILLAGE OF MARVIN DEVELOPMENT ORDINANCE (MDO).

A. ARTICLE 8.5-6(H)(3)(j) REQUIRES ONE (1) PEV SPACE PER 10 PARKING SPACES. A MODIFICATION IS REQUESTED TO REDUCE THE REQUIRED NUMBER FROM TEN (10) TO THREE (3).

B. LIGHTING: ZERO FOOT-CANDLE MUST BE DEPICTED DURING PERMITTING ON PHOTOMETRICS PLAN.

C. TRASH MUST BE REMOVED FROM ANY BUILDING SIDE FRONTING MARVIN SCHOOL ROAD WITHIN 24 HOURS.

D. DELIVERIES & TRASH PICK-UP TO OCCUR ONLY BETWEEN HOURS OF 6 AM AND 10 PM.

E. BUILDING FOOTPRINTS ARE NOT FINAL IN NATURE AND WILL BE REVISED AS NEEDED DURING DESIGN AND ARE NOT TO EXCEED THE GROSS FLOOR AREAS LISTED.

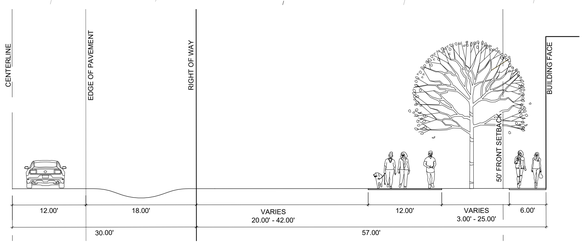
F. SITE TO BE BUILT IN TWO PHASES AND COMPLETED WITHIN SEVEN YEARS.

NOTES

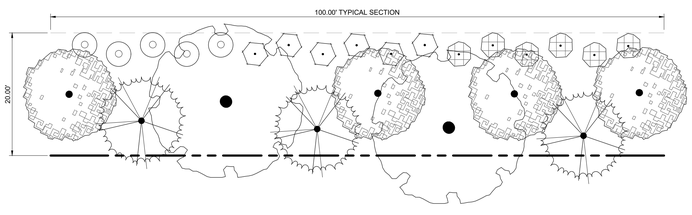
A. PROJECT PHASING MAY BE REQUIRED DUE TO LIMITATIONS OF AVAILABLE SEWER CAPACITY ALLOCATION. FLOW ACCEPTANCE IS NOT GUARANTEED UNTIL PROJECT PERMITTING.

B. REQUIRED SIGHT DISTANCES SHALL BE MAINTAINED AT ALL DRIVEWAYS.

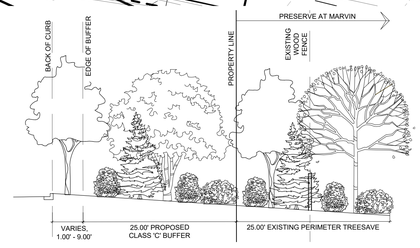
C. LANDSCAPING SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY AND QUANTITY, SIZE, AND LOCATION ARE SUBJECT TO CHANGE. MINIMUM CODE-REQUIRED LANDSCAPING WILL BE PROVIDED.



A TYPICAL STREET SECTION - MARVIN SCHOOL ROAD
SCALE: 1" = 10'



B TYPICAL CLASS 'C' BUFFER PLANTINGS
SCALE: 1" = 10'



C TYPICAL REAR YARD SECTION
SCALE: 1" = 10'

SCALE: 1" = 20'
0 10' 20' 40'

dpr design
master planning . civil engineering
urban design . landscape architecture
919 berryhill rd. ste 101 . charlotte, nc 28208
704.332.1204 . www.dpr.design
NC Eng. Firm #C-0650 | LA Firm #C-032

CLIENT / OWNER
ROMS INVESTMENTS, LLC
1105 BALTUSROL LANE
WAXHAW, NC 28173

LAND SURVEYOR
JEREMY D. GILLIARD, PLS
2712 OLD COURSE ROAD
MONROE, NC 28112
(704)-634-2192

LAND USE ATTORNEY
THE DUGGAN LAW FIRM, PC
101 S. MAIN ST.
MONROE, NC 28112
(704)-776-9610

ARCHITECT
REDLINE DESIGN GROUP
925 TUCKASEEGEE ROAD
SUITE 110
(704)-377-2990

KEY MAP

PROJECT
MARVIN OAKS

10018 MARVIN SCHOOL ROAD
MARVIN, NORTH CAROLINA 28173

PROJECT NUMBER
23015

DATE
05.20.2025

ISSUED FOR
REZONING

REVISIONS

NO.	DATE	DESCRIPTION	BY

PROJ. MANAGER: SKY
DRAWN BY: SKY + CM
CHECKED BY: SKY + CM

SEAL

SCALE
AS INDICATED

DRAWING
SCHEMATIC SITE PLAN

RZ-3

PLOTTED: Z:\Shared\Projects\2023\23015 Marvin Oaks- ROMS investment-Marvin\Dwg\Sheets\Rezoning\23015-RZ1.dwg / 5/16/2025 12:16 PM

ORIGINAL SHEET SIZE: 30" X 42"

APPENDIX D

TRAFFIC COUNTS

Prepared by National Data & Surveying Services

VOLUME

Marvin School Rd/SR 1316 N/O New Town Rd/CR 1315

Day: Tuesday
Date: 3/25/2025

City: Marvin
Project #: NC25_170005_001

DAILY TOTALS	NB	SB	EB	WB	Total
	5,767	6,946	0	0	12,713

15-Minutes Interval

TIME	NB	SB	EB	WB	TOTAL	TIME	NB	SB	EB	WB	TOTAL
0:00	0	3			3	12:00	68	90			158
0:15	1	1			2	12:15	69	73			142
0:30	1	0			1	12:30	73	79			152
0:45	1	2			3	12:45	72	86			158
1:00	1	0			1	13:00	67	92			159
1:15	0	3			3	13:15	90	83			173
1:30	0	1			1	13:30	93	109			202
1:45	0	1			1	13:45	128	99			227
2:00	0	0			0	14:00	68	158			226
2:15	0	0			0	14:15	75	126			201
2:30	1	0			1	14:30	76	102			178
2:45	0	1			1	14:45	81	124			205
3:00	0	1			1	15:00	102	151			253
3:15	0	1			1	15:15	174	130			304
3:30	1	0			1	15:30	97	160			257
3:45	1	1			2	15:45	94	166			260
4:00	1	0			1	16:00	77	169			246
4:15	5	0			5	16:15	125	181			306
4:30	4	2			6	16:30	114	177			291
4:45	2	5			7	16:45	100	203			303
5:00	4	2			6	17:00	88	194			282
5:15	11	1			12	17:15	109	217			326
5:30	12	9			21	17:30	107	229			336
5:45	24	2			26	17:45	94	204			298
6:00	18	12			30	18:00	118	154			272
6:15	36	20			56	18:15	86	176			262
6:30	88	27			115	18:30	78	169			247
6:45	124	37			161	18:45	62	136			198
7:00	216	82			298	19:00	88	124			212
7:15	155	130			285	19:15	70	105			175
7:30	115	151			266	19:30	64	78			142
7:45	150	189			339	19:45	59	92			151
8:00	157	76			233	20:00	59	79			138
8:15	129	98			227	20:15	28	64			92
8:30	173	131			304	20:30	30	84			114
8:45	164	101			265	20:45	30	53			83
9:00	121	82			203	21:00	44	53			97
9:15	96	100			196	21:15	25	48			73
9:30	96	48			144	21:30	12	39			51
9:45	74	62			136	21:45	24	28			52
10:00	78	65			143	22:00	17	25			42
10:15	53	54			107	22:15	10	15			25
10:30	80	64			144	22:30	9	15			24
10:45	76	73			149	22:45	5	19			24
11:00	88	64			152	23:00	6	9			15
11:15	80	86			166	23:15	4	8			12
11:30	77	92			169	23:30	4	6			10
11:45	76	78			154	23:45	4	7			11
TOTALS	2590	1958	0	0	4548	TOTALS	3177	4988	0	0	8165
SPLIT %	57%	43%	0%	0%	36%	SPLIT %	39%	61%	0%	0%	64%

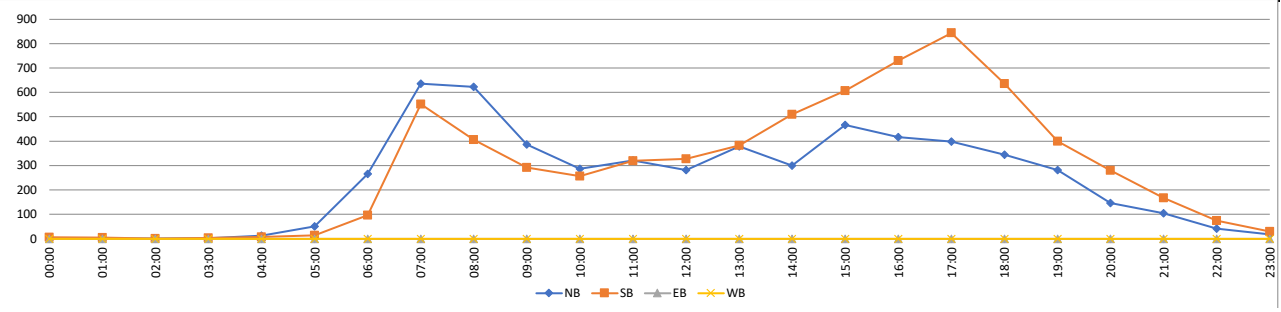
DAILY TOTALS

Hourly Intervals

TIME		NB	SB	EB	WB	TOTAL
00:00	01:00	3	6			9
01:00	02:00	1	5			6
02:00	03:00	1	1			2
03:00	04:00	2	3			5
04:00	05:00	12	7			19
05:00	06:00	51	14			65
06:00	07:00	266	96			362
07:00	08:00	636	552			1188
08:00	09:00	623	406			1029
09:00	10:00	387	292			679
10:00	11:00	287	256			543
11:00	12:00	321	320			641
12:00	13:00	282	328			610
13:00	14:00	378	383			761
14:00	15:00	300	510			810
15:00	16:00	467	607			1074
16:00	17:00	416	730			1146
17:00	18:00	398	844			1242
18:00	19:00	344	635			979
19:00	20:00	281	399			680
20:00	21:00	147	280			427
21:00	22:00	105	168			273
22:00	23:00	41	74			115
23:00	00:00	18	30			48

STATISTICS

	NB	SB	EB	WB	TOTAL
Peak Period	00:00	to	12:00		
Volume	2590	1958			4548
Peak Hour	7:00	7:00			7:00
Peak Volume	636	552			1188
Peak Hour Factor	0.736	0.730			0.876
Peak Period	12:00	to	00:00		
Volume	3177	4988			8165
Peak Hour	15:00	17:00			16:45
Peak Volume	467	844			1247
Peak Hour Factor	0.671	0.921			0.928
Peak Period	07:00	to	09:00		
Volume	1259	958			2217
Peak Hour	7:00	7:00			7:00
Peak Volume	636	552			1188
Peak Hour Factor	0.736	0.730			0.876
Peak Period	16:00	to	18:00		
Volume	814	1574			2388
Peak Hour	16:15	17:00			16:45
Peak Volume	427	844			1247
Peak Hour Factor	0.854	0.921			0.928



APPENDIX E

SYNCHRO REPORTS

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	4	4	398	636	4
Future Vol, veh/h	4	4	4	398	636	4
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, %	2	2	2	2	2	2
Mvmt Flow	4	4	4	442	707	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1159	709	711	0	-	0
Stage 1	709	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	216	434	888	-	-	-
Stage 1	488	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	215	434	888	-	-	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	642	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	888	-	288	-	-
HCM Lane V/C Ratio	0.005	-	0.031	-	-
HCM Control Delay (s)	9.1	0	17.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	4	4	844	552	4
Future Vol, veh/h	4	4	4	844	552	4
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, %	2	2	2	2	2	2
Mvmt Flow	4	4	4	938	613	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1561	615	617	0	-	0
Stage 1	615	-	-	-	-	-
Stage 2	946	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	123	491	963	-	-	-
Stage 1	539	-	-	-	-	-
Stage 2	377	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	491	963	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	534	-	-	-	-	-
Stage 2	377	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	963	-	195	-	-
HCM Lane V/C Ratio	0.005	-	0.046	-	-
HCM Control Delay (s)	8.8	0	24.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	4	4	461	737	4
Future Vol, veh/h	4	4	4	461	737	4
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, %	2	2	2	2	2	2
Mvmt Flow	4	4	4	512	819	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1341	821	823	0	-	0
Stage 1	821	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	168	374	807	-	-	-
Stage 1	432	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	167	374	807	-	-	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	429	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	807	-	231	-	-
HCM Lane V/C Ratio	0.006	-	0.038	-	-
HCM Control Delay (s)	9.5	0	21.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	4	4	978	640	4
Future Vol, veh/h	4	4	4	978	640	4
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, %	2	2	2	2	2	2
Mvmt Flow	4	4	4	1087	711	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1808	713	715	0	-	0
Stage 1	713	-	-	-	-	-
Stage 2	1095	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	87	432	885	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	86	432	885	-	-	-
Mov Cap-2 Maneuver	86	-	-	-	-	-
Stage 1	481	-	-	-	-	-
Stage 2	321	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	885	-	143	-	-
HCM Lane V/C Ratio	0.005	-	0.062	-	-
HCM Control Delay (s)	9.1	0	31.8	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	16	25	461	737	25
Future Vol, veh/h	17	16	25	461	737	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	18	28	512	819	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1401	833	847	0	-	0
Stage 1	833	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	154	369	790	-	-	-
Stage 1	427	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	149	369	790	-	-	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	412	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.2	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	790	-	149	369	-	-
HCM Lane V/C Ratio	0.035	-	0.127	0.048	-	-
HCM Control Delay (s)	9.7	-	32.6	15.2	-	-
HCM Lane LOS	A	-	D	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	0.2	-	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	58	58	57	978	640	58
Future Vol, veh/h	58	58	57	978	640	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	64	63	1087	711	64

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1956	743	775	0	-	0
Stage 1	743	-	-	-	-	-
Stage 2	1213	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	70	415	841	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	65	415	841	-	-	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	281	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	115.5	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	841	-	65	415	-	-
HCM Lane V/C Ratio	0.075	-	0.991	0.155	-	-
HCM Control Delay (s)	9.6	-	215.7	15.3	-	-
HCM Lane LOS	A	-	F	C	-	-
HCM 95th %tile Q(veh)	0.2	-	4.9	0.5	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	33	25	478	737	25
Future Vol, veh/h	0	33	25	478	737	25
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	150	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	28	531	819	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	819	847	0	-	0
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	375	790	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	375	790	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.6	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	790	-	375	-	-
HCM Lane V/C Ratio	0.035	-	0.098	-	-
HCM Control Delay (s)	9.7	-	15.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	116	58	1036	640	57
Future Vol, veh/h	0	116	58	1036	640	57
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	150	-	-	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	129	64	1151	711	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	711	774	0	-	0
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	433	842	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	433	842	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.8	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	842	-	433	-	-
HCM Lane V/C Ratio	0.077	-	0.298	-	-
HCM Control Delay (s)	9.6	-	16.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	-	-

APPENDIX F

SIMTRAFFIC QUEUEING REPORTS

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	46
Average Queue (ft)	9	4
95th Queue (ft)	31	27
Link Distance (ft)	1001	1070
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	40	57
Average Queue (ft)	8	3
95th Queue (ft)	32	22
Link Distance (ft)	1001	1070
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	36	46
Average Queue (ft)	7	5
95th Queue (ft)	29	31
Link Distance (ft)	1001	1070
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	35	74
Average Queue (ft)	6	4
95th Queue (ft)	27	29
Link Distance (ft)	1001	1070
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	66	153
Average Queue (ft)	25	31
95th Queue (ft)	54	106
Link Distance (ft)	1001	1070
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	722	382	27
Average Queue (ft)	397	97	1
95th Queue (ft)	924	252	14
Link Distance (ft)	1001	1070	1055
Upstream Blk Time (%)	7		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	64	39
Average Queue (ft)	17	14
95th Queue (ft)	45	39
Link Distance (ft)	982	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Marvin School Road & Access A

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	94	51
Average Queue (ft)	34	22
95th Queue (ft)	66	47
Link Distance (ft)	982	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

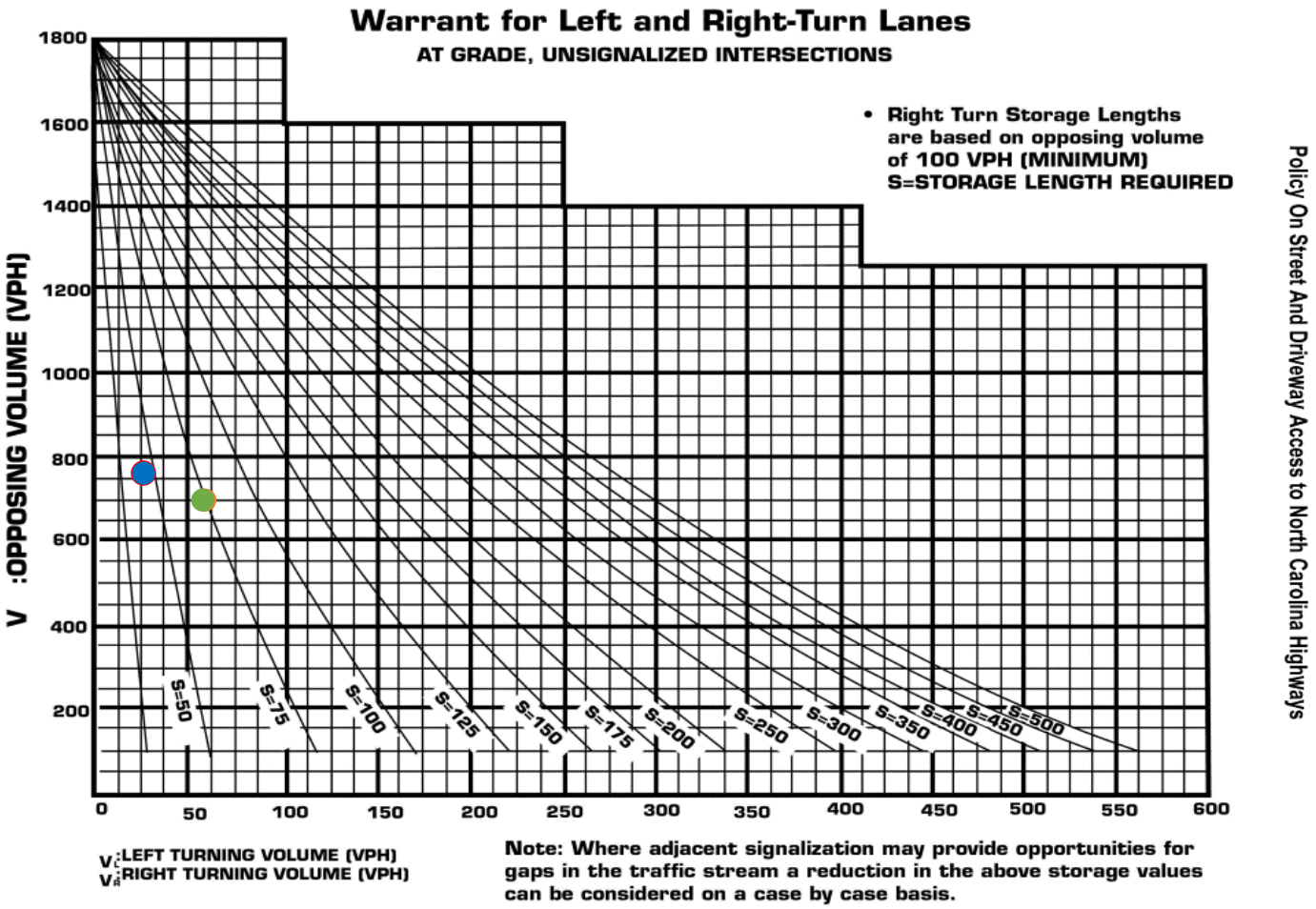
Network wide Queuing Penalty: 0

APPENDIX G

TURN LANE WARRANTS

Marvin Oaks

TURN LANE STORAGE WARRANTS

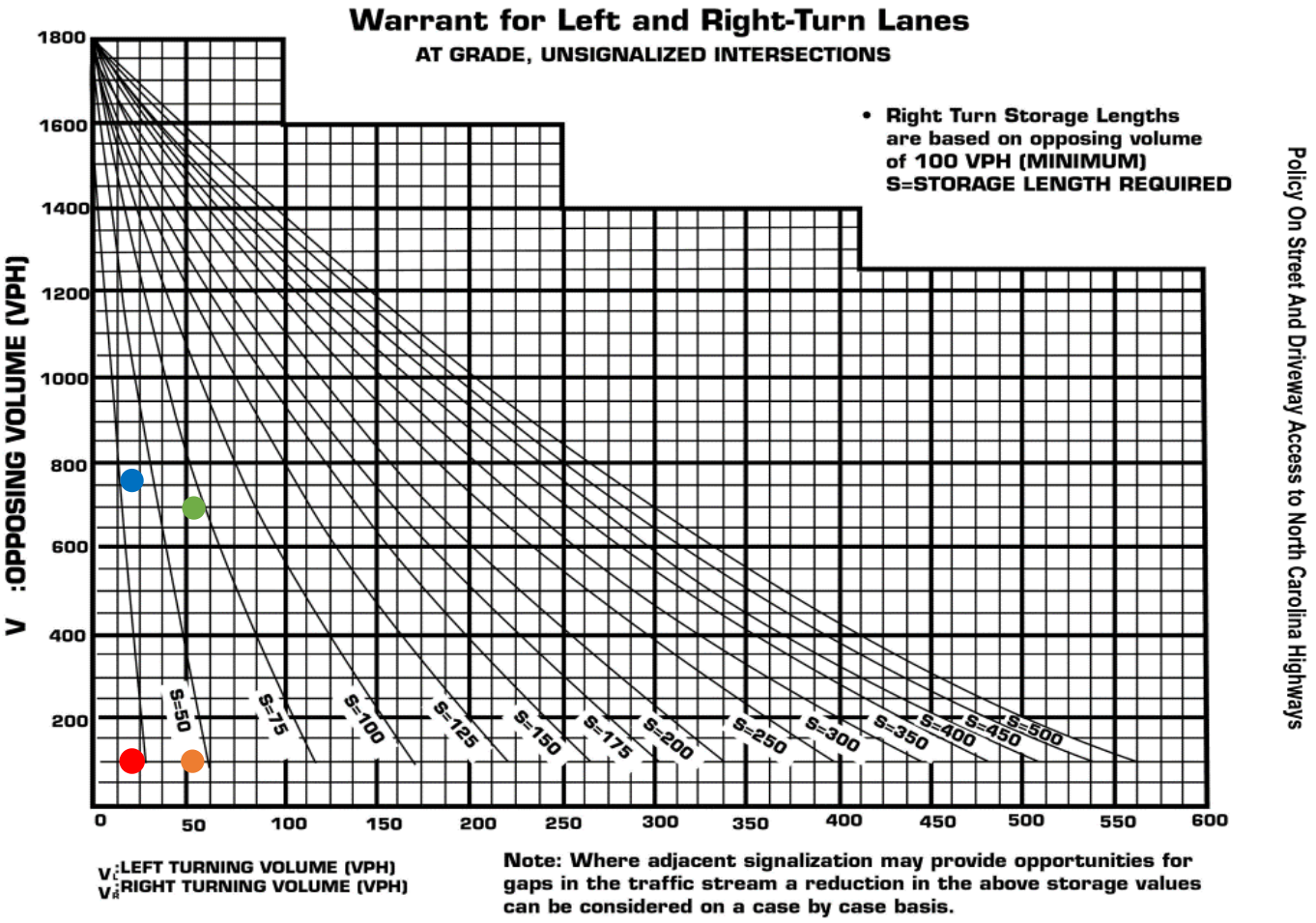


INTERSECTION: Marvin School Road and Site Access A (Scenario 1)

SCENARIO	Movement	Turn Lane	Turning Volume (V_R/V_L)	Approach / Opposing Volume (V_A/V_O)	Symbol
AM Build	SBR	Right	25	762	
AM Build	NBL	Left	25	762	
PM Build	SBR	Right	58	698	
PM Build	NBL	Left	57	698	

Marvin Oaks

TURN LANE STORAGE WARRANTS



INTERSECTION: Marvin School Road and Site Access A (Scenario 2)

SCENARIO	Movement	Turn Lane	Turning Volume (V_R/V_L)	Approach / Opposing Volume (V_A/V_O)	Symbol
AM Build	SBR	Right	25	100	
AM Build	NBL	Left	25	762	
PM Build	SBR	Right	57	100	
PM Build	NBL	Left	58	697	

DRMP