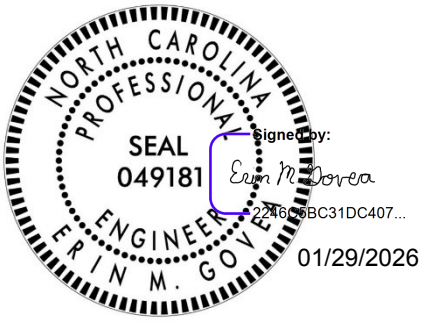
DAVENPORT

Trip Generation and Turn Lane Technical Memorandum

Forest Street Subdivision
Shallotte, NC
Prepared for Stillwater Engineering
DAVENPORT Project Number 252044

Prepared by Clayton Cole
Reviewed and Sealed by Erin M. Govea, PE

January 29, 2026



1.0 Introduction

DAVENPORT has prepared this technical memorandum to summarize the trip generation for the proposed Forest Street Subdivision development, as well as the need for turn lanes based on the NCDOT Turn Lane Nomograph. The development is located at 570 Forest Street Extended, NW in Shallotte, North Carolina (Tax Parcel ID 18200177). The existing zoning for the parcel is MF-14, a multi-family residential district with a principal use of single-family and multifamily development. The development proposes to build 85 single-family detached homes with a build-out year of 2027.

NCDOT requires a traffic study for a development with 3,000 daily trips, which is not met by this development. The Town of Shallotte Unified Development Ordinance (UDO) states that a traffic impact study shall be required for qualifying development projects estimated to generate more than 800 trips per day or containing 80 or more dwelling units. It goes on to provide two ways that a development could be exempt: 1) there is no change in land use or density that would increase travel – which is not applicable, or 2) material is submitted to demonstrate that traffic created by the development will not result in a need for transportation improvements. Therefore, this memorandum presents information to support that no transportation improvements are required and, therefore, no additional traffic impact study is required.

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2.0 Existing Conditions

A review of the existing roadway conditions in the study area was conducted. Table 1 presents a summary of the study area roadway conditions.

Table 1 - Street Inventory

Facility Name	Route #	2023 AADT (vpd)	Typical Cross Section	Lane Width	Speed Limit (MPH)	Maintained By
Ocean Highway West	US 17	39,000	4-lane divided	12 feet	55	NCDOT
Main Street	US 17 Business	15,000	2-lane undivided	12 feet	35	NCDOT
Forest Street Extended NW	n/a	Not reported	2-lane undivided	10 feet	25	Town of Shallotte

3.0 Site Plan

A conceptual site plan, site location map, and vicinity map are provided in Figures 1, 2, and 3.

4.0 Volume Development and Approved Background Developments

Forest Street Extended NW is a dead-end roadway that terminates in the existing Green Bay Village residential neighborhood. All through trips passing the proposed Forest Street Subdivision are therefore trips to or from Green Bay Village. The Institute of Transportation Engineers (ITE) 11th Edition *Trip Generation Manual* was used to project the through volumes that could be generated by the 176 single-family detached homes of Green Bay Village. Table 2 provides the results of the Green Bay Village trip generation.

Table 2 - ITE 11th Edition Trip Generation - Green Bay Village

Average Weekday Driveway Volumes				Daily Volume	AM Peak Hour			PM Peak Hour		
ITE Land Use Code	Size		Data Source		Enter	Exit	Total	Enter	Exit	Total
210, Single-Family Detached Housing	176	Dwelling Units	Adjacent-Equation	1,697	31	94	125	107	62	169

Four approved developments or projects are in the vicinity of the study site. None of the four will change the lane geometry or results in any additional trips on Forest Street Extended NW at the proposed site access, as all four occur south of the site. The four developments or projects are listed below and shown in Figure 2.

1. NCDOT STIP R-5857 US 17 Improvements
2. Forest Street Extended NW Residential Development
3. Royal Farms #541
4. Shallotte Master Development

5.0 Trip Generation, Distribution, & Assignment

The ITE 11th Edition *Trip Generation Manual* was used to project the weekday daily, AM peak hour, and PM peak hour traffic that could be generated by the proposed Forest Street Subdivision. No internal capture, pass-by, or diverted trip reductions are assumed. The results of the trip generation are shown in Table 3.

Table 3 - ITE 11th Edition Trip Generation – Forest Street Subdivision

Average Weekday Driveway Volumes				Daily Volume	AM Peak Hour			PM Peak Hour		
ITE Land Use Code	Size		Data Source		Enter	Exit	Total	Enter	Exit	Total
210, Single-Family Detached Housing	85	Dwelling Units	Adjacent-Equation	869	16	48	64	54	31	85

Given the location of the site access on a dead-end street and assuming there are no residential-to-residential movements between the Forest Street Subdivision and Green Bay Village, all of the site trips turn right into the site and left out of the site. Figures 4, 5, and 6 show the proposed trip distribution, site trip assignment, and 2027 build volumes, respectively.

6.0 Turn Lane Analysis

Turn lanes were considered based upon criteria set forth by the turn lane warrant nomograph from page 80 of the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*, included in the Supplemental Documents section. During the morning and afternoon peak hours, no more than 54 vehicles enter the site drive according to the trip generation values. The nomograph plots below the 50-foot storage line; therefore, no turn lane is warranted.

7.0 Conclusion

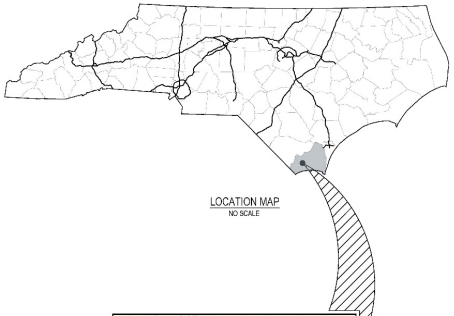
In conclusion, this memorandum summarizes the trip generation based on the proposed Forest Street Subdivision development. The need for a turn lane at the site access was evaluated using the NCDOT Turn Lane Nomograph. While there is an increase in trips on Forest Street Extended NW due to the proposed development, it is not significant and no turn lane improvements are warranted. As there are no warranted physical improvements, the development requests an exemption from providing a formal traffic impact study.

Please let us know if you need additional information.

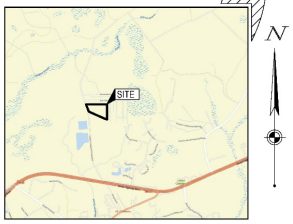
Supporting Documents

FOREST STREET
By MICHAEL NORTON

570 FOREST STREET EXT. NW, SHALLOTTE, NC 28470
TMS#: 18200177



LOCATION MAP
NO SCALE



VICINITY MAP
NO SCALE

DEVELOPER
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SURVEYOR
ESP ASSOCIATES, INC.
PHONE: (910) 444-3899

SHEET INDEX	
Sheet Number	Sheet Title
C-001	COVER SHEET
C-002	GENERAL NOTES
C-100	CLEARING & DEMOLITION PLAN
C-200	EC PHASE I
C-210	EC PHASE II
C-220	EC PHASE III
C-230	EC NOTES
C-231	EC DETAILS
C-232	EC DETAILS
C-233	EC DETAILS
C-234	EC DETAILS
C-235	EC DETAILS
C-300	SITE PLAN
C-301	ROAD PLAN & PROFILE
C-302	ROAD PLAN & PROFILE
C-303	ROAD PLAN & PROFILE
C-310	SITE DETAILS
C-400	GRADING PLAN
C-410	DRAINAGE PLAN
C-420	STORM PROFILES
C-430	POND DETAIL SHEET
C-440	STORMWATER DETAILS
C-441	STORMWATER DETAILS
C-500	UTILITY PLAN
C-510	SEWER PROFILES
C-511	SEWER PROFILES
C-520	WATER PROFILES
C-530	PUMP STATION DETAILS
C-531	PUMP STATION DETAILS
C-532	PUMP STATION DETAILS
C-540	UTILITY DETAILS
C-541	UTILITY DETAILS
V-100	PRELIMINARY PLAT

DEVELOPMENT SUMMARY:

SITE SUMMARY:

CURRENT ZONING:	MF-14
PROPOSED ZONING:	MF-14
SITE AREA:	15.63 ACRES
DISTURBED AREA:	15.63 ACRES
IMPERVIOUS AREA:	6.15 ACRES
LOT COUNT:	85 LOTS
PROPOSED DENSITY:	5.44 UNITS/AC

PRODUCT SUMMARY:

LOT AREA:

MINIMUM LOT AREA:	3,000 S.F.
MINIMUM LOT DEPTH:	100 FT.
MINIMUM LOT WIDTH:	30 FT.
PROPOSED LOT AREA:	4,500 S.F. (MINIMUM)
PROPOSED LOT DEPTH:	105 FT.
PROPOSED LOT WIDTH:	46 FT.

SETBACKS:

FRONT	15 FT.
SIDE	8 FT.
REAR	20 FT.
CORNER	10 FT.

NATURAL AREA SUMMARY:

EXISTING WETLANDS:	0.00 ACRES
WETLANDS IMPACTS:	0.00 ACRES

PARCEL IS LOCATED WITHIN "ZONE X" AS INDICATED BY THE FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NUMBER 3720108900K, EFFECTIVE DATE: 08/28/2018; PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

OPEN SPACE:

REQUIRED OPEN SPACE	N/A ACRES
PROVIDED OPEN SPACE	2.46 ACRES

NC 811 ORG
Know what's below. Call before you dig.

Stillwater ENGINEERS

STILLWATER ENGINEERS NC, PLLC
10720 BRYNHAM HILL AVE, SUITE 300
CHARLOTTE, NC 28277
704-464-3360

NO.	DATE	REVISION DESCRIPTION

NORTH CAROLINA STILLWATER ENGINEERS NC, PLLC No. P-3112 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 058743 ENGINEER PETER DAY

FOREST STREET SUBDIVISION
SINGLE FAMILY RESIDENTIAL
MICHAEL NORTON
FOREST ST EXT. SHALLOTTE, NC
COVER SHEET

ISSUE:
NOT FOR CONSTUCTION
DATE:
11/6/25
JOB NO.: 25101301
DESIGN: PFD
CHECKED: JBR
SHEET NO.
C-001

C:\USERS\JUSTIN RICHARD ZOTL\STILLWATER DEVELOPMENT\SWD - STILLWATER ENGINEERS\PROJECTS\2025\25-101301 - MICHAEL NORTON\25101301 - FOREST DRIVE\02-DRAWINGS\CAD\SHEETS\02-001 COVER SHEET.DWG - 11/11/2025 9:37 AM

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FIGURE 1
CONCEPTUAL SITE PLAN

Forest Street Subdivision
Project Number 252044

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FIGURE 2
SITE LOCATION MAP

SITE INDICATOR

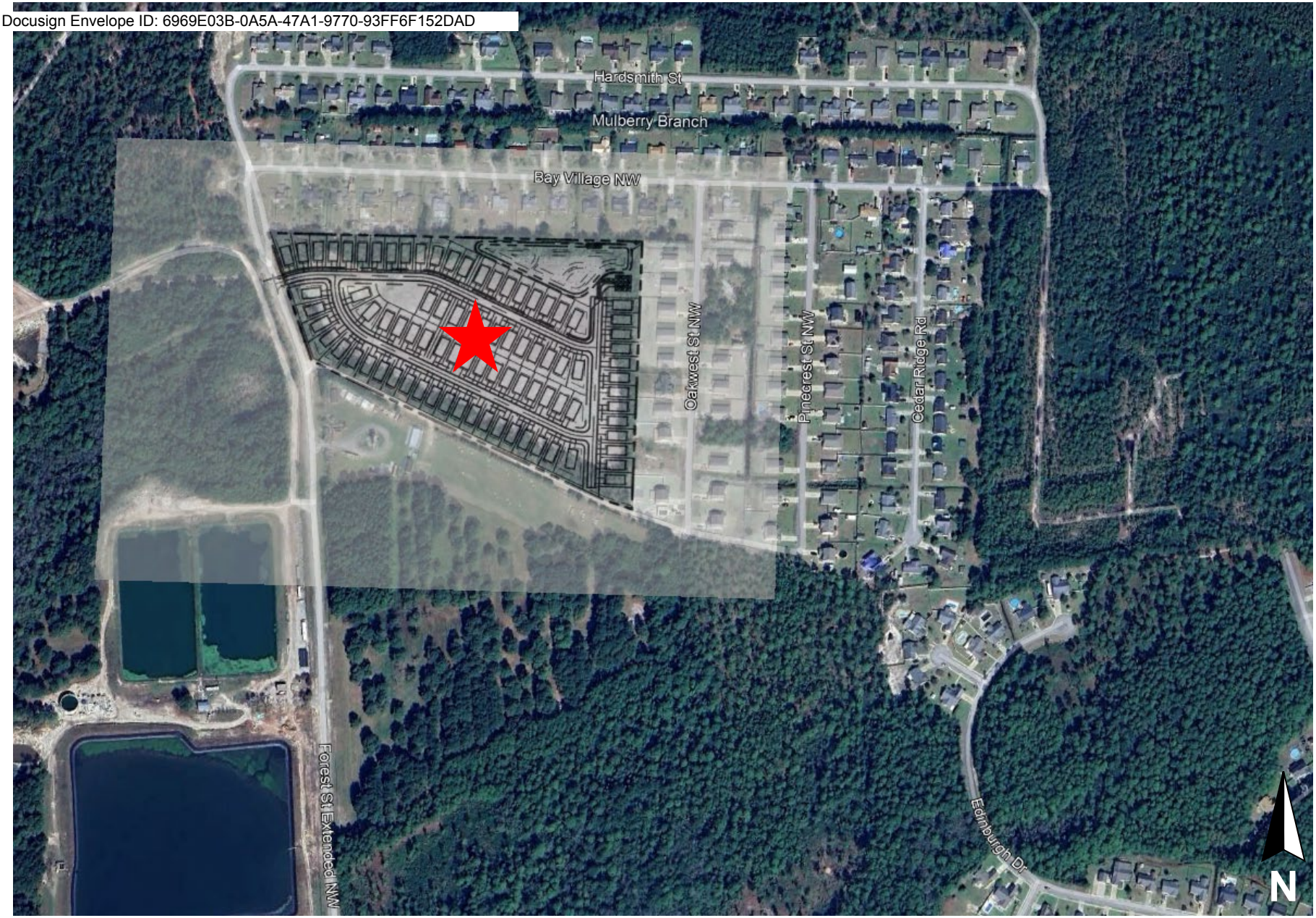

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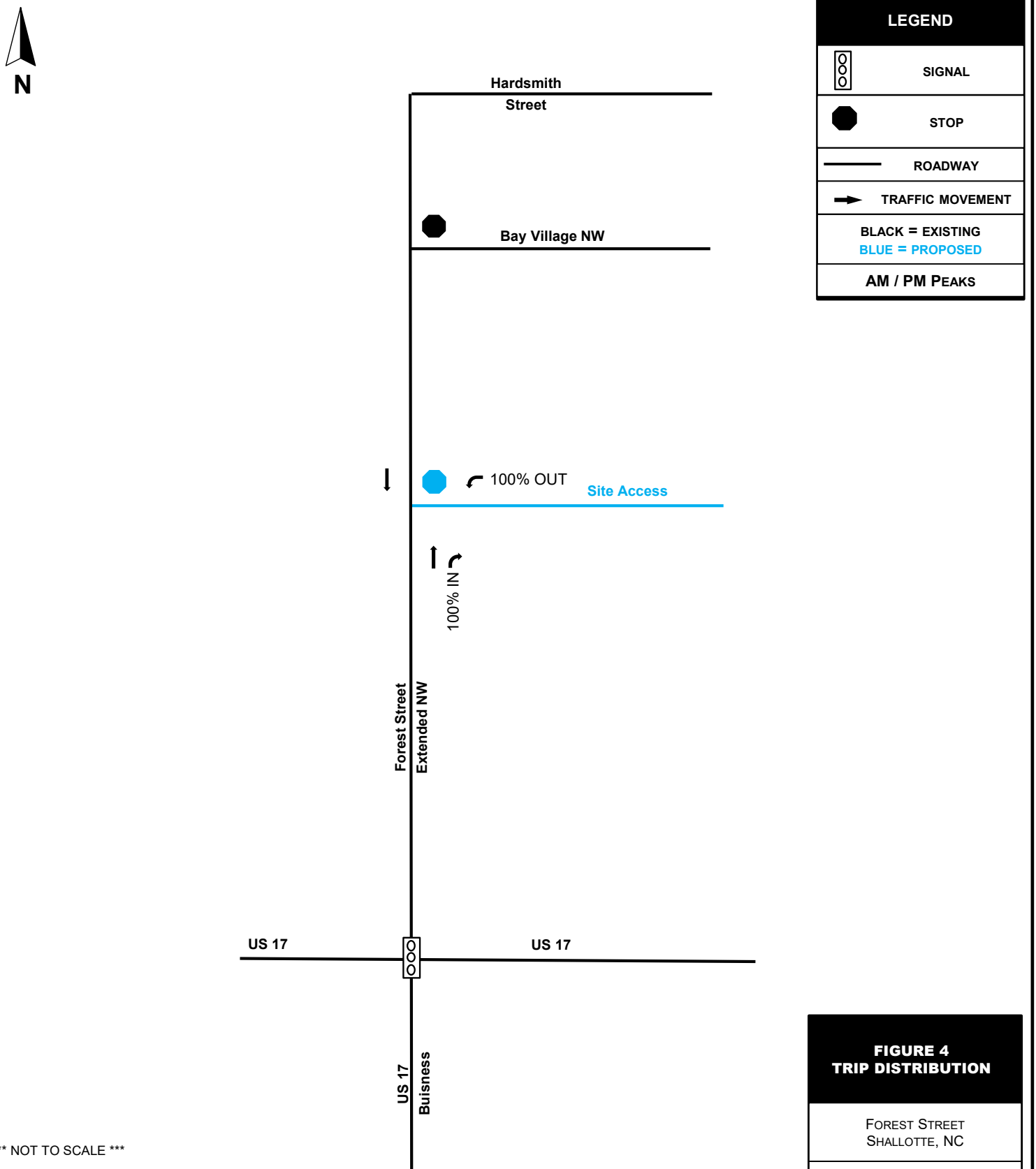
FIGURE 3
VICINITY MAP

SITE INDICATOR ★



*** NOT TO SCALE ***

** A minimum of 4 vehicles per hour is analyzed for each movement per NCDOT Congestion Management Guidelines.

FIGURE 4
TRIP DISTRIBUTION

FOREST STREET
SHALLOTTE, NC

PROJECT NUMBER 252044

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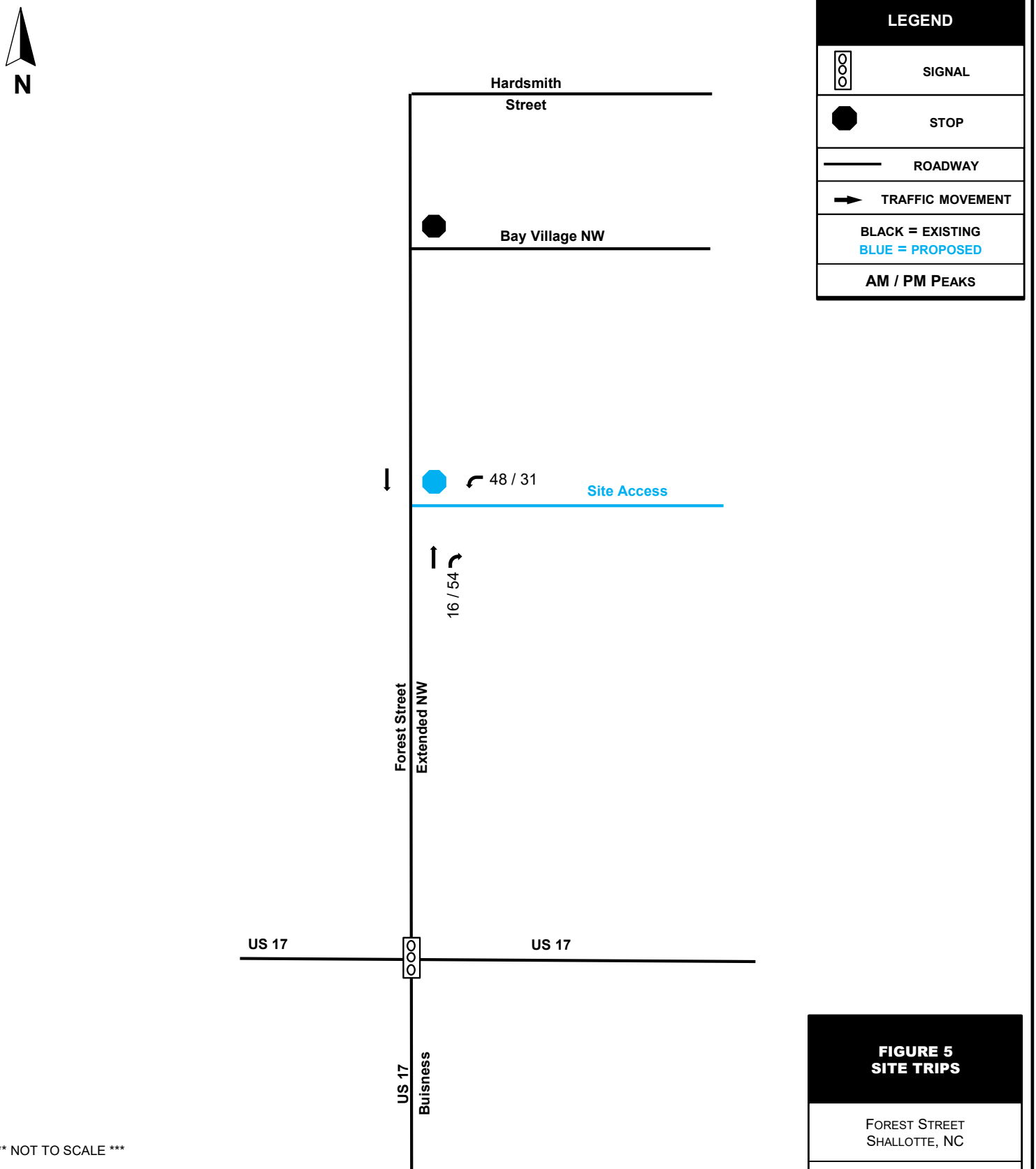

*** NOT TO SCALE ***

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FIGURE 5
SITE TRIPS

FOREST STREET
SHALLOTTE, NC

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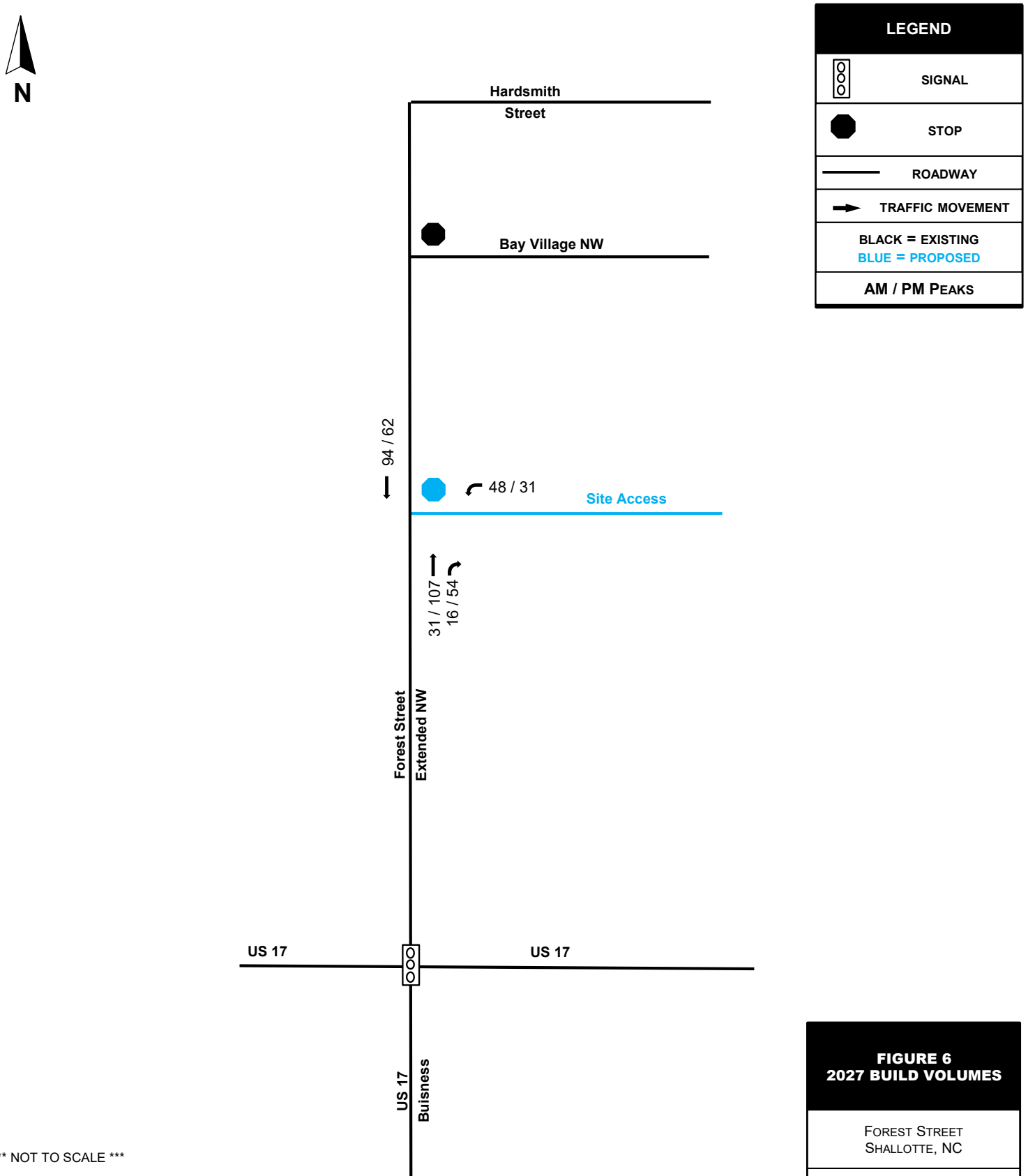

*** NOT TO SCALE ***

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FIGURE 6
2027 BUILD VOLUMES

FOREST STREET
SHALLOTTE, NC

PROJECT NUMBER 252044

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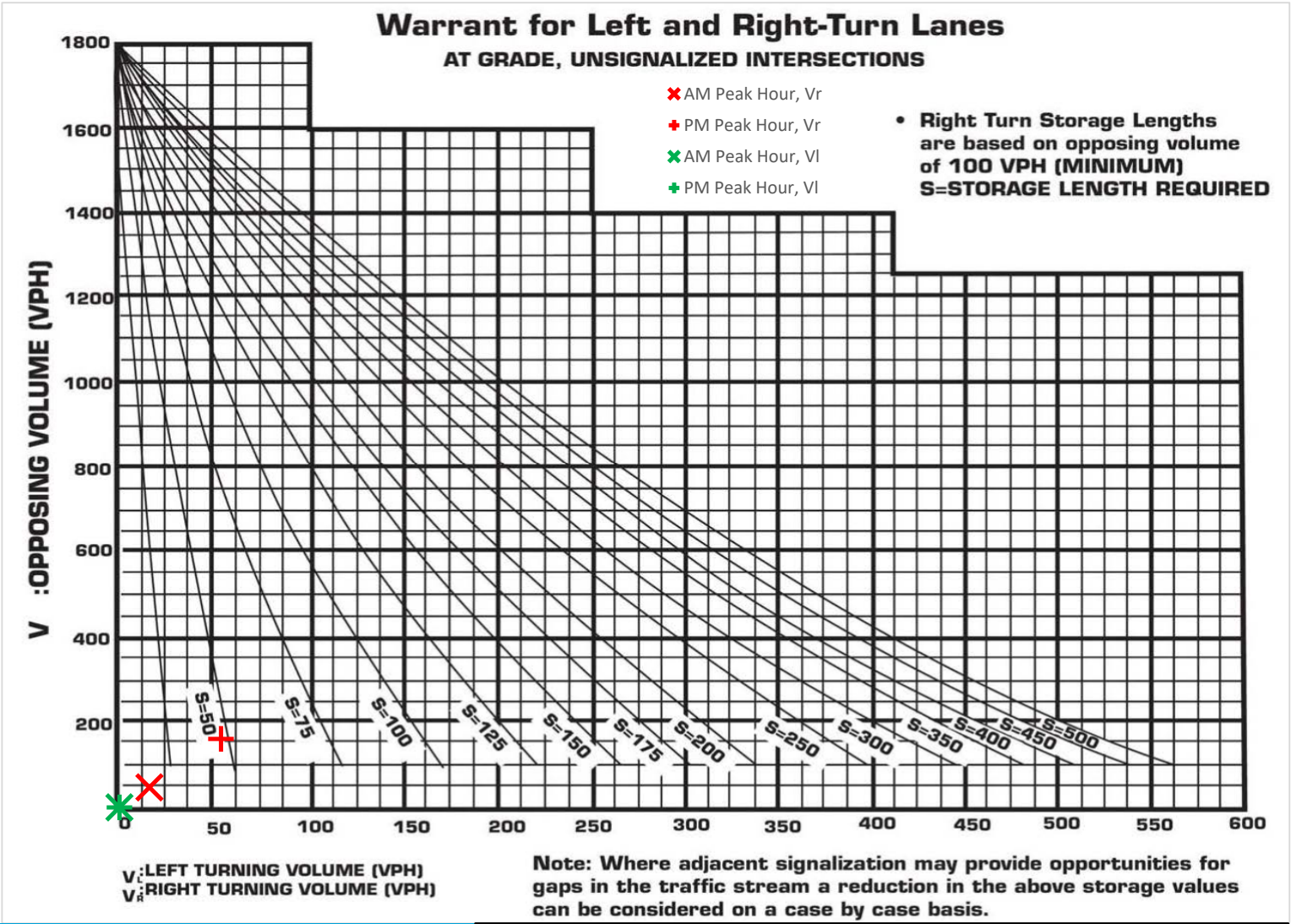
Peak Hour	Volumes		Peak Hour	Volumes	
	Opposing	Lefts		Opposing	Rights
AM	0	0	AM	47	16
PM	0	0	PM	161	54



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TURN LANE WARRANT SUMMARY

FOREST STREET EXTENDED NW AT SITE ACCESS