



*Planned Development Narrative*

**416 Sheetz Zebulon**

1406 N Arendell Ave  
Zebulon, North Carolina

PIN: 2706011220

Prepared for:  
**Town of Zebulon, North Carolina**

Date: September 12, 2025  
KHA Reference #: 110529004



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Phone: 919-677-2000

**416 SHEETZ ZEBULON  
1406 N ARENDELL AVE  
ZEBULON, NORTH CAROLINA**

**PLANNED DEVELOPMENT NARRATIVE**

**OWNER:**

OLDE HERITAGE PROPERTIES LLC  
806 N ARENDELL AVE, ZEBULON, NC, 27597

**DEVELOPER:**

SHEETZ, INC.  
KELLEY BROWN – KBROWN@SHEETZ.COM  
243 SHEETZ WAY, CLAYSBURG, PA 16625

**ENGINEER:**

KIMLEY-HORN  
HEATHER TIMOTHY, PE – HEATHER.TIMOTHY@KIMLEY-HORN.COM  
421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601

**TRAFFIC ENGINEER:**

MORGAN ROSAMOND, PE – MORGAN.ROSAMOND@KIMLEY-HORN.COM  
KIMLEY-HORN AND ASSOCIATES, INC.  
421 FAYETTEVILLE STREET, SUITE 600, RALEIGH, NC 27601

**SEPTEMBER 2025**

**KHA PROJECT NO. 110529004**

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## **PLANNED DEVELOPMENT NARRATIVE**

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## 1.0 INTRODUCTION

The proposed project is the redevelopment of the existing Sheetz site located at 1406 N Arendell Avenue in Zebulon (PIN 2706011220). Maintaining the commercial use is consistent with the current Town of Zebulon Comprehensive Land Use Plan (CLUP), as the property is designated General Commercial (GC). As noted in the CLUP, the current Heavy Commercial (HC) zone is closely associated with GC. The GC designation "is for properties in commercial retail, office and service uses, primarily along portions of major roadway corridors within the community for high visibility and accessibility[.]" The primary land use types in the GC designation include "automobile service related enterprises (e.g., gas stations)." This application is consistent with CLUP and the proposed use directly aligns with the GC designation.

The building and site will be demolished and rebuilt to include a 6,139 SF building with a pick-up window and one additional MPD (two additional fueling stations). The existing car wash will be removed. The new pick-up window has triggered the Planned Development application process.

## 2.0 PERMITTED USES

This site is zoned Heavy Commercial (HC) per the Town of Zebulon Unified Development Ordinance (UDO) amended April 17, 2025. The proposed principal use, convenience store (with gasoline sales), and the proposed accessory use, drive through (pick-up window), are both permitted by-right in this zone.

The convenience store (with gasoline sales) principal use is subject to the specific standards from 4.3.5.Q:

1. Location of fuel pump islands
  - a. Pump islands may not be located between a building and any adjacent street right-of-way. ***Applicant is proposing a condition related to this standard. See Section 10.0 Conditions.***
  - b. Pump islands shall be at least 10 feet from any lot line and 12 feet from any principal building. Canopies over the pump islands may be located within 10 feet of a lot line. ***Project in compliance.***
2. Location of fuel tanks
  - a. Gasoline and fuel storage tanks shall be located a minimum of 20 feet from any lot line or building. ***Project in compliance.***

The drive through (pick-up window) accessory use is subject to the specific standards from 4.4.7.I:

1. Outdoor speakers associated with a drive-through shall be at least 50 feet from any lot with a residential zoning district designation. ***N/A – no outdoor speakers associated with pick-up window.***
2. Drive-through windows, menus, or order boxes shall not be located on the front façade of the building they serve. ***Project in compliance.***
3. Drive-through facilities shall be designed so as not to obstruct the movement of pedestrians along sidewalks, through areas intended for public use, or between the building entrance and customer parking spaces. ***Project in compliance.***
4. Canopies or other features installed over a drive through window shall maintain common roof lines and materials with the principal structure. ***Project in compliance.***
5. New construction of drive-throughs shall conform to the mixed-use design standards in section 5.3.2. ***N/A – per coordination with the Town, this project will use the Commercial Design Standards as the basis of reference.***

### 3.0 ZONING REQUIREMENTS

The site is subject to the following district dimensional standards of its existing zone, Heavy Commercial (HC), per UDO Section 3.4.4:

- Minimum Lot Area: 6,000 SF
- Minimum Lot Width: 50 FT
- Maximum Lot Coverage: 80%
- Maximum Building Height: 50 FT
- Minimum (Building) Street Setback: 30 FT
  - *Applicant is proposing a condition related to this standard. See Section 10.0 Conditions for Pearces Rd because of trash enclosure.*
- Minimum (Building) Side Setback: 5 FT
- Minimum (Building) Rear Setback: 25 FT

The site is subject to the following perimeter and streetscape buffer requirements per UDO Sections 5.6.10 and 5.6.12:

- Minimum Perimeter Buffer (PIN 2706012606) 30 FT
- Minimum Perimeter Buffer (PIN 1796919353) 10 FT
  - *Applicant is proposing a condition related to this standard. See Section 10.0 Conditions which notes 3 FT buffer proposed to maintain existing curb lines.*
- Minimum Streetscape Buffer: 15 FT
  - *Applicant is proposing a condition related to this standard. See Section 10.0 Conditions which notes 0 FT buffer for Pearces Rd and N Arendell Ave to maintain existing curb lines. Applicant is exempt from the streetscape buffer requirement since the primary building façade is “visible from the arterial or collector street right-of-way (UDO Section 5.6.12.C.1).”*

The project proposes the following additional dimensional standards as required for Planned Development (PD) District applications per UDO Section 3.5.6.B.6:

- Maximum Individual Building Size 10,000 SF
- Floor Area Ratio 0.10 MAXIMUM

The site has adequate parking per UDO Section 5.8.4. 45 spaces have been provided, meeting the required standard of 1 space per 200 sf of a “Convenience Store (with gasoline sales)” which equates to 30 spaces.

### 4.0 ARCHITECTURAL STANDARDS

The architecture of the proposed building will follow all Commercial Design Standards, except where Applicant has proposed targeted conditions, as detailed in Section 10.0 Conditions. Appendix B provides the proposed building elevations with fenestration calculations.

The front building façade is the primary building wall. There are two secondary building walls, both adjacent to the front building façade. The pick-up window-side building wall is a tertiary wall.

### 5.0 SIGNAGE

Signage has been provided per UDO Section 5.11. There is one proposed wall mounted sign on each building façade. There is one proposed ground sign and one flag near the intersection of N Arendell

Avenue and Pearces Road. Additional wall mounted signage is provided on the ends of the fuel canopy and on the order pickup clearance bar.

## **6.0 STORMWATER MANAGEMENT**

The proposed development will meet all applicable Town of Zebulon and North Carolina requirements through the decrease of impervious surfaces. The stormwater controls in the existing condition are to remain and be maintained by owner. The majority of the proposed site outfalls to the existing wet pond on the north of the site which is then conveyed to the rock swale along N Arendell Avenue within the North Carolina Department of Transportation (NCDOT) right-of-way.

## **7.0 OPEN SPACE**

This site shall comply with minimum open space set-aside requirements as defined in Section 5.7.4 where commercial open space is required to be 3%. This site complies with the open space through the use of the stormwater detention facility as passive open space which makes up 3.6% of the site area.

## **8.0 UTILITIES**

Sheetz will demolish and replace the existing water, sanitary sewer, and storm laterals onsite.

- A proposed water lateral connects the proposed building to the main off of Pearces Road.
- A proposed sanitary lateral and sanitary lateral with a grease trap connects to the main off of Pearces Road.
- There are multiple stormwater pipes proposed on site. All proposed stormwater pipes convey water from the site via curb inlets to the existing wet pond north of the site. This water is then conveyed to the rock swale along N Arendell Avenue which is consistent with existing drainage patterns.

This project will meet the 60 points required for the Utility Allocation Policy by the following:

- 40 base points for single use retail
- 3 points for abatement of any existing non-conforming structures
- 2 points for enhanced buffer landscaping
- 10 points for installation of native shade tree species
- 1 point for deck/patio – more than 1000 square feet
- 2 points for canopy including fixed permanent seating
- 1 point for permanent tables with shade cover
- 1 point for artist-design bicycle racks

## **9.0 TRANSPORTATION IMPACT ANALYSIS**

A traffic impact analysis was completed by Kimley-Horn dated June 1, 2025 and is attached in Appendix C.

NCDOT TIP project U-5118 FB proposes to construct an additional southbound through lane along NC 96 beginning approximately 830 feet north of the intersection of NC 96 at Pearces Road and ending at US 64-264 WB Ramps/Dogwood Drive. At the intersection of NC 96 at Pearces Road, the westbound right lane is expected to be restriped to a shared left/right lane and the existing traffic signal is expected to be modified to accommodate these improvements. While this project was considered for inclusion during scoping discussions with the Town, it was ultimately excluded in order to provide a conservative analysis of the intersection of NC 96 at Pearces Road.

All study intersections are expected to operate with acceptable levels-of service and, based on SimTraffic observations, maximum queues are expected to increase minimally with the redevelopment of the Sheetz. Therefore, no improvements are recommended with the proposed expansion.

## 10.0 CONDITIONS

This project is subject to the following conditions:

1. The fuel pump canopy island shall be located between the proposed building and N. Arendell Avenue (NC 96).

Summary of Proposed Condition: This condition is proposed following extensive review with staff and Applicant's discussion with surrounding property owners. The subject property is unique insofar as it not only sits at the intersection of Pearces Road and North Arendell Avenue – but also the property boundary and intersection configuration creates an acute angle as North Arendell Avenue runs southwest along the boundary line. This creates significant limitations on the location of the fuel pump canopy island – with the proposed option as shown on the site plan being preferable to promote (and not inhibit) site circulation. Additionally, it places a key activity center towards the intersection – and away from the neighboring properties (including an adjacent townhome/residential property) in an effort to minimize any effect of this redevelopment.

2. No more than sixty percent (60%) of off-street parking will be located between the proposed structure's primary façade and North Arendell Avenue.

Summary of Proposed Condition: As reflected in the site plan, Applicant is proposing forty-five (45) total parking spaces. Nineteen (19) of those spaces are located on/along the sides of the primary structure with twenty-six (26) spaces located along the frontage of the building and to the right of the fuel pump canopy. This total is actually 57.78% of the total parking and a slight increase above the requirement in the ordinance of no more than fifty percent (50%) located between the primary façade and the adjoining street.

This request is needed to focus site activity on the middle of the site and at the access points, which will promote safe, effective, and efficient ingress and egress. It will minimize any impacts to the adjoining properties – including the townhome/residential property adjoining this site. Additionally, this parking configuration is necessary to avoid any conflicts with the proposed pick-up lane – which significantly limits/restricts the rear area of the subject site for parking.

3. The proposed dumpster enclosure shall be located as shown on the site plan. The proposed dumpster shall be fully screened and enclosed. The enclosure shall be built consistent with the elevations, attached hereto and made a condition hereof. The enclosure shall be constructed with brick, concrete masonry, and pressure treated wood (or reasonably similar quality materials) to ensure aesthetic consistency with the primary structure.

Summary of Proposed Condition: Applicant consulted with the adjacent residential property owners and property owners' association. In those discussions, the location of the proposed dumpster enclosure was a focal point. The adjacent residential property owners specifically requested that the dumpster enclosure be located/relocated away from the shared property boundary. In an effort to address those concerns, Applicant has proposed this location as shown on the site plan – which will be fully screened from view of any right-of-way and composed of masonry, brick, wood, or similar

materials (as shown in the elevation). These materials match the aesthetic of the proposed primary structure.

4. The primary wall/façade (facing North Arendell Avenue) will be occupied by no less than twenty-seven percent (27%) of visually transparent windows or doors. Applicant shall supplement with additional false/opaque windows and/or articulated wall forms.

Summary of Proposed Condition: Applicant seeks a slight adjustment from Section 5.3.1.F.7(a) of the Commercial Design Standards for fenestration for the primary façade facing North Arendell Avenue. As shown on the elevations and proposed designs for this site, Applicant provides significant fenestration and transparent windows and doors along the primary façade. The proposed percentage in this condition is the maximum Applicant is able to reasonably provide, given that Applicant cannot (for security and safety reasons) place transparent windows and doors where interior bathrooms or storage areas are located. Applicant will supplement the primary façade with false/opaque windows and/or articulated wall forms to meet the intent of the fenestration design standards.

5. The secondary wall/façade (facing Pearces Road) will be occupied by no less than twenty-four (24%) of visually transparent windows or doors, false or opaque windows, or articulated wall forms.

Summary of Proposed Condition: Applicant seeks a slight adjustment from Section 5.3.1.F.7(b) of the Commercial Design Standards for fenestration for the secondary façade facing Pearces Road. As shown on the elevations and proposed designs for this site, Applicant provides significant fenestration and transparent windows and doors along the secondary façade facing Pearces Road. The proposed percentage in this condition is the maximum Applicant is able to reasonably provide, given that Applicant cannot (for security and safety reasons) place transparent windows and doors where interior bathrooms or storage areas are located. Where possible, Applicant will supplement the secondary façade with false/opaque windows and/or articulated wall forms to meet the intent of the fenestration design standards.

6. The street setback for Pearces Road shall be ten (10) feet for the dumpster enclosure.

Summary of Proposed Condition: Applicant seeks a slight adjustment from the street setback requirement for Pearces Road, as detailed in Section 3.4.4(C). Specifically, the requested street setback for Pearces Road of ten (10) feet is primarily to facilitate the proposed location of the dumpster enclosure. This is a narrow request, insofar as the structures, the fuel pumps, and parking are all compliant with the thirty (30) foot street setback from Pearces Road.

7. The side perimeter buffer for the boundary adjoining the property located at 1420 North Arendell Avenue (PIN: 1796919353) shall be three (3) feet.

Summary of Proposed Condition: Applicant requests a three-foot side perimeter buffer for the boundary adjoining the property located at 1420 North Arendell Avenue (PIN: 1796919353). Applicant will maintain a three-foot perimeter buffer at this location – which will supplement and enhance existing buffering located on the adjoining commercial property. This request is appropriate given site limitations for increased buffering along that boundary line – specifically, given the drive access that connects the two sites and the need for an adequate drive aisle for ingress, egress, and circulation. This proposed condition also aligns with the existing curb lines at the subject property.

8. The streetscape buffer along North Arendell Avenue and Pearces Road shall be zero (0) feet.

Summary of Proposed Condition: Applicant requests the elimination of the streetscape buffer requirement along North Arendell Avenue and Pearces Road. Applicant is arguably exempt from that requirement, pursuant to Section 5.6.12(C)(1), where the primary building façade "is visible from the arterial or collector street right-of-way." Here, the primary façade is directly visible from the rights-of-way for Pearces Road and North Arendell Avenue. Additionally, Applicant proposes this condition, given the site layout and to ensure safe visibility to and from the site, and to maintain the existing curb lines.

Additionally, Applicant proposes this condition because the proposed plantings and landscaping, as shown on the landscape plan, is the maximum Applicant is reasonably able to provide, given the location of rights-of-way, easements, and a retaining wall, all of which significantly constrain Applicant's ability to include additional streetscape buffering beyond what is shown. Applicant is planting additional trees and landscaping beyond what is required in other areas of the subject property and is willing to consider further supplementation in those areas, as needed.

9. Parking spaces 11, 12, 13, and 14 (as shown on the site plan) shall be permitted to be further than fifty (50) feet from the trunk of a canopy tree. Planters shall be located along the sidewalk at the storefront to enhance landscaping for the parking area and for the parking spaces 11, 12, 13, and 14.

Summary of Proposed Condition: More than 90% of the proposed parking spaces will be within fifty (50) feet of the trunk of a canopy tree, which complies with the landscape requirements of the Town's ordinances. The parking spaces directly in front of the primary façade/entry for the subject property are slightly beyond that fifty (50) foot distance and Applicant has reasonably located proposed canopy trees as close to those spaces as reasonably practicable. To supplement the landscaping for the parking area, Applicant shall locate planters along the walkway adjoining those front spaces (including parking spaces 11, 12, 13, and 14).

## **APPENDIX A: VICINITY MAP**



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**Kimley»Horn**

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PHONE: 919-677-2000  
WWW.KIMLEY-HORN.COM

## VICINITY MAP

**SHEETZ**  
**1406 N ARENDELL AVE**

|             |            |
|-------------|------------|
| KHA PROJECT | 110529004  |
| DATE        | 04/03/2025 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | RND        |
| DRAWN BY    | RND        |
| CHECKED BY  | HRT        |



## **APPENDIX B: BUILDING ELEVATIONS**





1 FRONT ELEVATION  
1/4" = 1'-0"

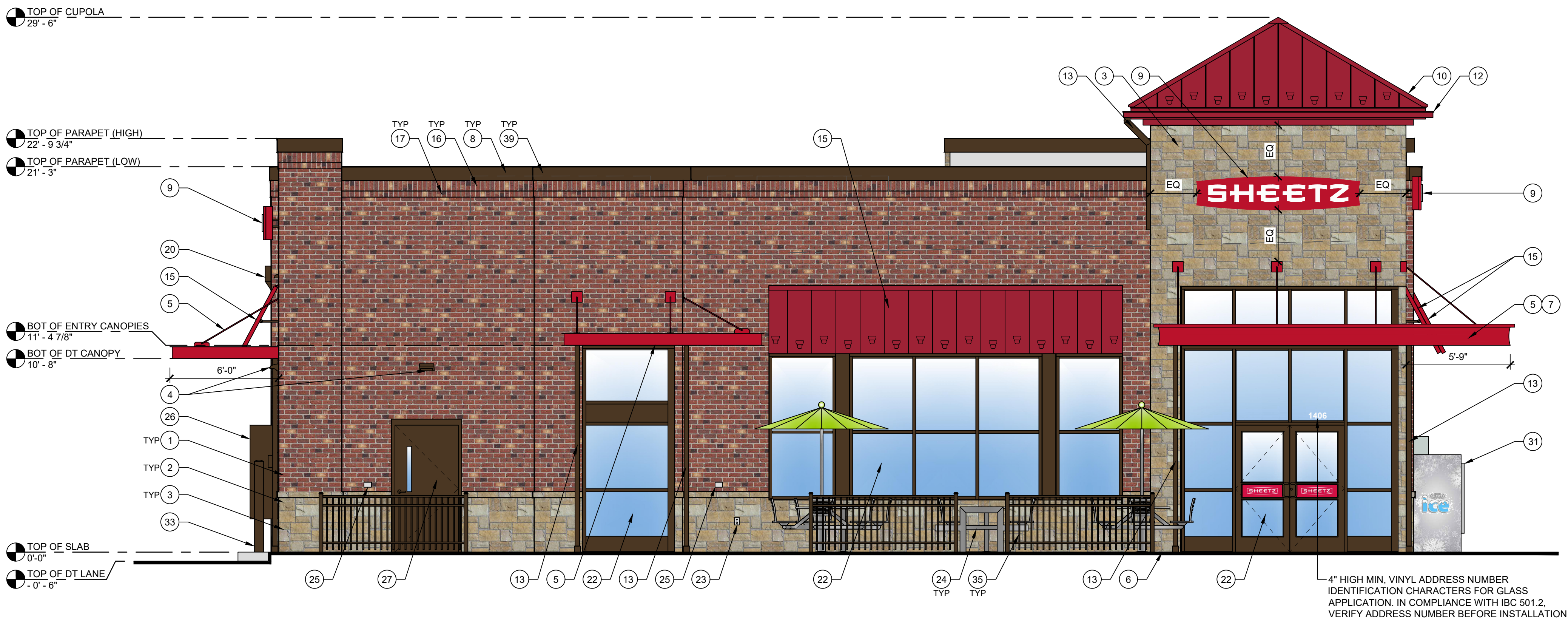
TYPICAL EXTERIOR ELEVATION NOTES:

- ALL LIGHTS SHOWN ABOVE AND/OR BELOW DOORS OR WINDOWS ARE TO BE CENTERED ON THE DOOR OR WINDOW UNLESS NOTED OTHERWISE.
- FIXTURES/EQUIPMENT BETWEEN TWO DOORS OR WINDOWS ARE TO BE CENTERED EQUALLY.
- EXTERIOR SEALANT FOR STONE SHALL COMPLY WITH SECTION 07 9005 JOINT SEALANTS. GENERAL BUILDING FASCIADE WEATHER SEALANT AND SHALL MATCH THE COLOR OF THE STORE.

EXTERIOR ELEVATION KEYNOTES:

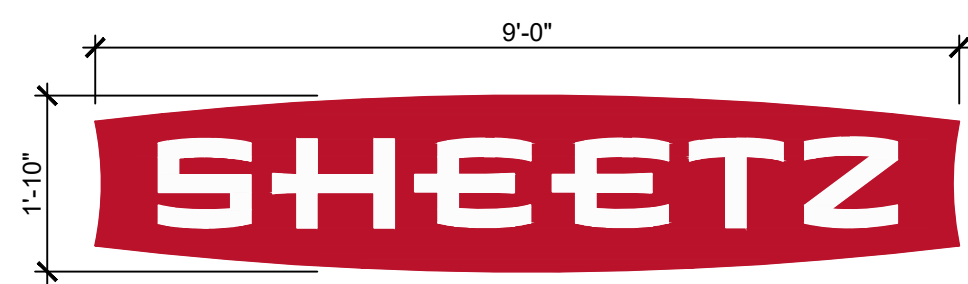
- BRICK VENEER, COLOR: 680 BY CONTINENTAL BRICK COMPANY. SEE MASONRY SPEC
- CAST STONE SILL, COLOR: CRAB ORCHARD. SEE MASONRY SPEC
- ANCHORED CAST STONE MASONRY VENEER, COLOR: CRAB ORCHARD. SEE MASONRY SPEC
- EXTERIOR LIGHT FIXTURE, REFER TO ELECTRICAL DRAWINGS
- ARCHITECTURAL CANOPY, COLOR: REGAL RED, PREMIUM TWO-COAT KYNAR FINISH
- BRICK PAVER WALKWAY
- LIGHTED CURVED FASCIA CANOPY ATTACHMENT
- METAL COPING, COLOR: DARK BRONZE
- WALL MOUNTED BUILDING SIGN, SEE SHEET A200.
- STANDING SEAM METAL ROOF, COLOR: BRITE RED
- NOT USED
- GUTTER, COLOR TO MATCH CUPOLA COLOR
- DOWNSPOUT, COLOR: DARK BRONZE
- DRIVE-THRU WINDOW (IF APPLICABLE)
- METAL STANDING SEAM SHED STYLE AWNING AND FRAME ASSEMBLY, ROOF COLOR: BRITE RED, FRAME COLOR: DARK BRONZE
- BRICK SOLDIER COURSE, COLOR: 680 BY CONTINENTAL BRICK COMPANY. SEE MASONRY SPEC
- BRICK ROWLOCK COURSE, COLOR: 680 BY CONTINENTAL BRICK COMPANY. SEE MASONRY SPEC
- CONTROL JOINT, SEE MASONRY SPEC
- STEEL ROOF LADDER AND CRANKY POST, COLOR: DARK BRONZE
- STANDARD THROUGH WALL SCUPPER WITH CONDUCTOR HEAD & DOWNSPOUT, COLOR: DARK BRONZE
- OVERFLOW SCUPPER
- ALUMINUM STOREFRONT SYSTEM, SEE A600
- EXTERIOR HOSE BIB, REFER TO PLUMBING DRAWINGS
- OUTDOOR FURNITURE
- ELECTRICAL RECEPTACLE, REFER TO ELECTRICAL DRAWINGS
- ELECTRICAL EQUIPMENT, REFER TO ELECTRICAL DRAWINGS
- HM DOOR AND FRAME, COLOR: DARK BRONZE
- EMERGENCY WATER CONNECTION, REFER TO PLUMBING DRAWINGS
- SEAMLESS ALUM PANEL SYSTEM WITH EXPOSED FASTENERS, COLOR: DARK BRONZE
- PROPANE LOCKER
- ICE MERCHANDISER
- RTI FILLPORT
- STEEL BOLLARD, COLOR: DARK BRONZE
- CO2 FILLPORT
- DECORATIVE ALUMINUM FENCE, COLOR DARK BRONZE
- AUTOMATIC DOOR PUSH PLATE AND BOLLARD, BOLLARD COLOR: DARK BRONZE
- GAS METER AND RISER, REFER TO CIVIL UTILITY PLAN, COLOR: DARK BRONZE
- NOT USED
- LIGHT CHANNEL AT PARAPET COPING, SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
- NOT USED
- FAUX WINDOWS WITH INTERNAL GRAPHIC

| GLAZING CALCULATION FRONT ELEVATION = 2199.82 SQ FT |                     |              |
|-----------------------------------------------------|---------------------|--------------|
| DESCRIPTION                                         | 40% OF COVERAGE REQ | PROVIDED     |
| TRANSPARENT GLAZING                                 | 879.92 SQ FT        | 590.61 SQ FT |
| FAUX WINDOW GLAZING                                 | 879.92 SQ FT        | 120.61 SQ FT |
| TOTAL GLAZING                                       | 879.92 SQ FT        | 711.22 SQ FT |



2 LEFT ELEVATION  
1/4" = 1'-0"

| GLAZING CALCULATION FRONT ELEVATION = 1275.16 SQ FT |                     |             |
|-----------------------------------------------------|---------------------|-------------|
| DESCRIPTION                                         | 30% OF COVERAGE REQ | PROVIDED    |
| TRANSPARENT GLAZING                                 | 383 SQ FT           | 392.2 SQ FT |
| FAUX WINDOW GLAZING                                 | N/A                 | N/A         |
| TOTAL GLAZING                                       | 383 SQ FT           | 392.2 SQ FT |



OUTLINE AREA = 14.84 SQ.FT.  
BOX AREA = 16.52 SQ.FT.  
TYPICAL OF FOUR  
PROJECTS 7" OFF FACE OF BUILDING

A WALL MOUNTED "SHEETZ" BUILDING SIGN  
1/2" = 1'-0"

Convenience Architecture  
and Design P.C.  
351 Sheetz Way, Claysburg, PA 16625  
phone (814) 239-6013  
email tcolumbu@sheetz.com  
web site www.sheetz.com

PROJECT NAME:  
NEW SHEETZ STORE  
STORE #416R

ZEBULON  
ARENDALL AVE.

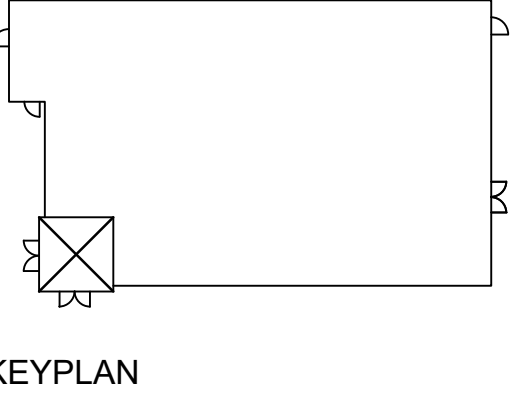
Int. of North Arendall Avenue  
and Pearces Road  
Zebulon, NC 27597-8734

OWNER:  
SHEETZ, INC.

5700 SIXTH AVE.  
ALTOONA, PA 16602

CONSULTANT

PROFESSIONAL



KEYPLAN

ISSUE: 09.10.2025  
SITE ID NO: 416R  
AUTHOR BY: RJK / AMM  
REVIEW BY: TMC / RJH  
VERSION: 6139\_v1.8

EXTERIOR  
ELEVATIONS

A200

PRELIMINARY ELEVATIONS



PROJECT NAME:  
**NEW SHEETZ STORE  
STORE #416R**

**ZEBULON  
ARENDALL AVE.**

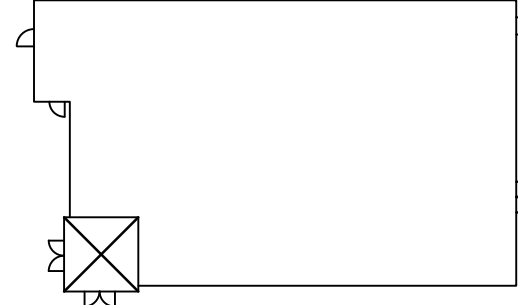
Int. of North Arendall Avenue  
and Pearses Road  
Zebulon, NC 27597-8734

OWNER:  
SHEETZ, INC.

5700 SIXTH AVE.  
ALTOONA, PA 16602

CONSULTANT

PROFESSIONAL



KEYPLAN

ISSUE: **09.10.2025**  
SITE ID NO: **416R**  
AUTHOR BY: **RJK / AMM**  
REVIEW BY: **TMC / RJH**  
VERSION: **6139\_v1.8**

EXTERIOR  
ELEVATIONS

**A201**

PRELIMINARY ELEVATIONS



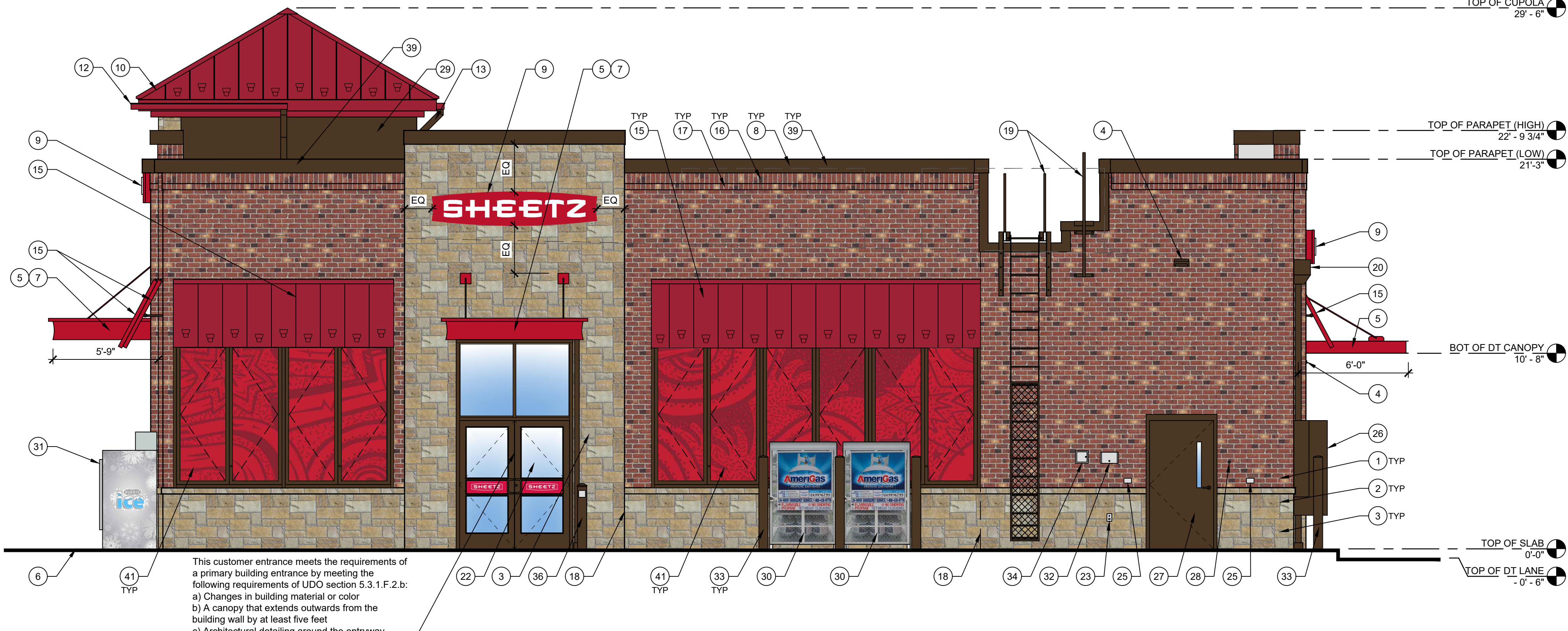
### 3 REAR ELEVATION

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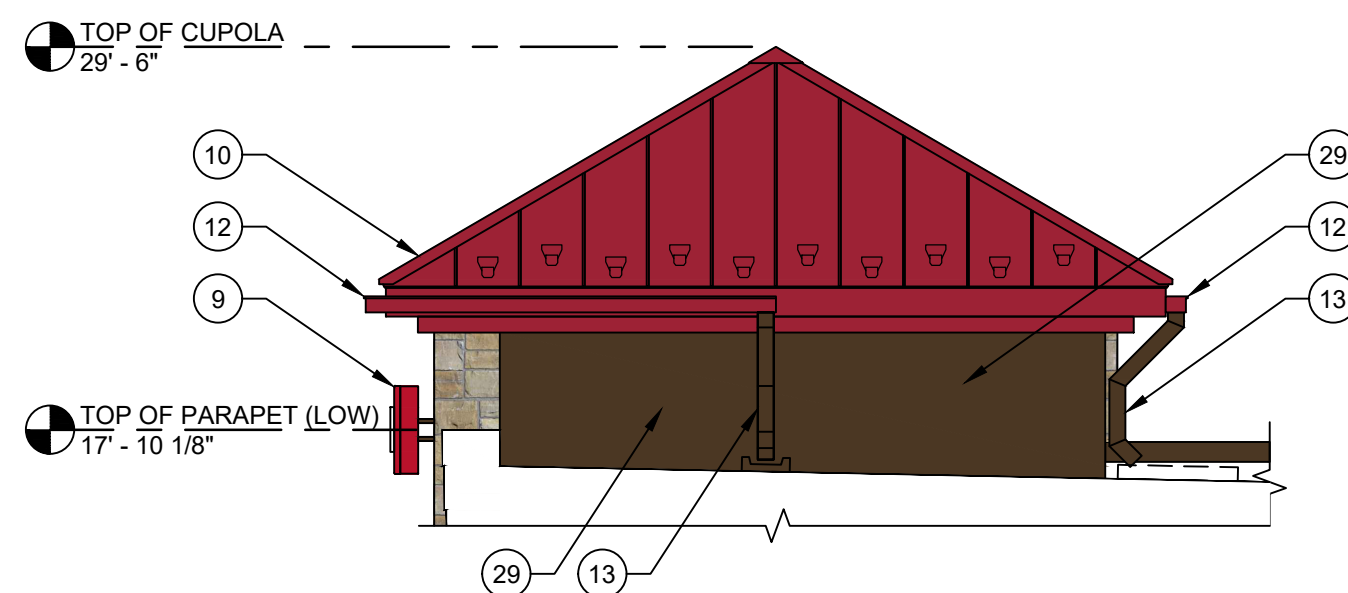
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- EMERGENCY WATER CONNECTION, REFER TO PLUMBING DRAWINGS
- SEAMLESS ALUM PANEL SYSTEM WITH EXPOSED FASTENERS, COLOR: DARK BRONZE
- PROPANE LOCKER
- ICE MERCHANDISER
- RTI FILLPORT
- STEEL BOLLARD, COLOR: DARK BRONZE
- CO2 FILLPORT
- DECORATIVE ALUMINUM FENCE, COLOR DARK BRONZE
- AUTOMATIC DOOR PUSH PLATE AND BOLLARD, BOLLARD COLOR: DARK BRONZE
- GAS METER AND RISER, REFER TO CIVIL UTILITY PLAN, COLOR: DARK BRONZE
- NOT USED
- LIGHT CHANNEL AT PARAPET COPING, SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR MORE INFORMATION.
- NOT USED
- FAUX WINDOWS WITH INTERNAL GRAPHIC

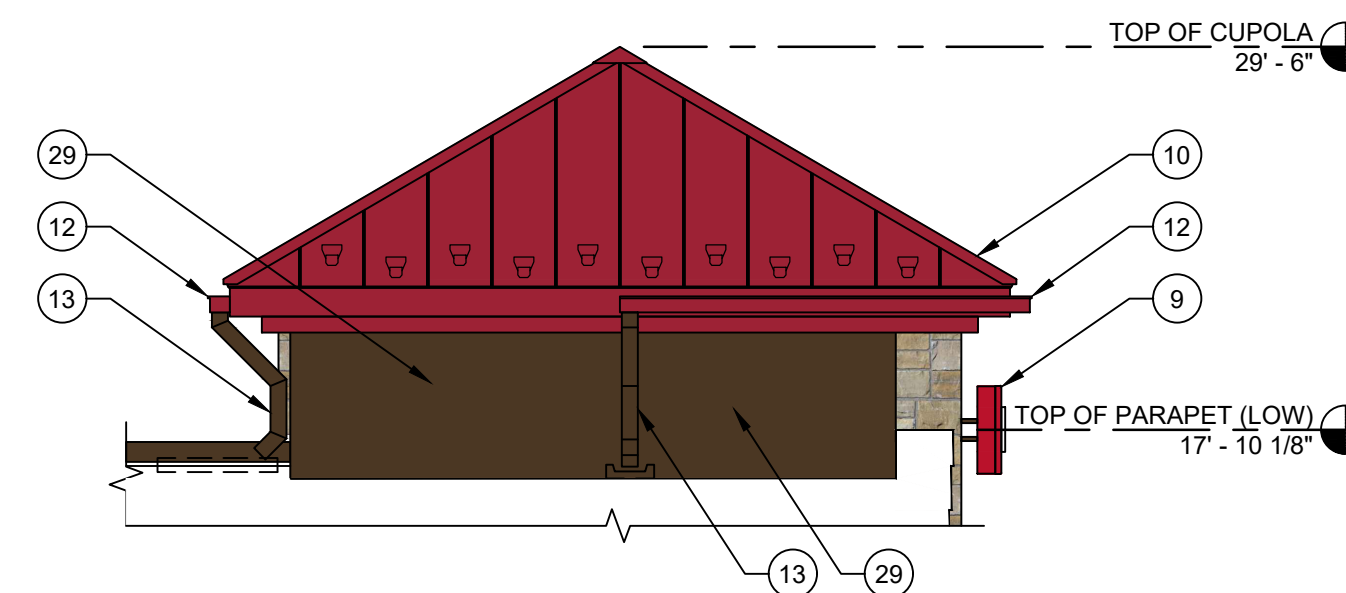


### 4 RIGHT ELEVATION

| GLAZING CALCULATION RIGHT ELEVATION = 1,257 SQ FT |                     |          |
|---------------------------------------------------|---------------------|----------|
| DESCRIPTION                                       | 30% OF COVERAGE REQ | PROVIDED |
| TRANSPARENT GLAZING                               | 377.10              | 73.34    |
| FAUX WINDOW GLAZING                               | 377.10              | 239.96   |
| TOTAL GLAZING                                     | 377.10              | 313.3    |



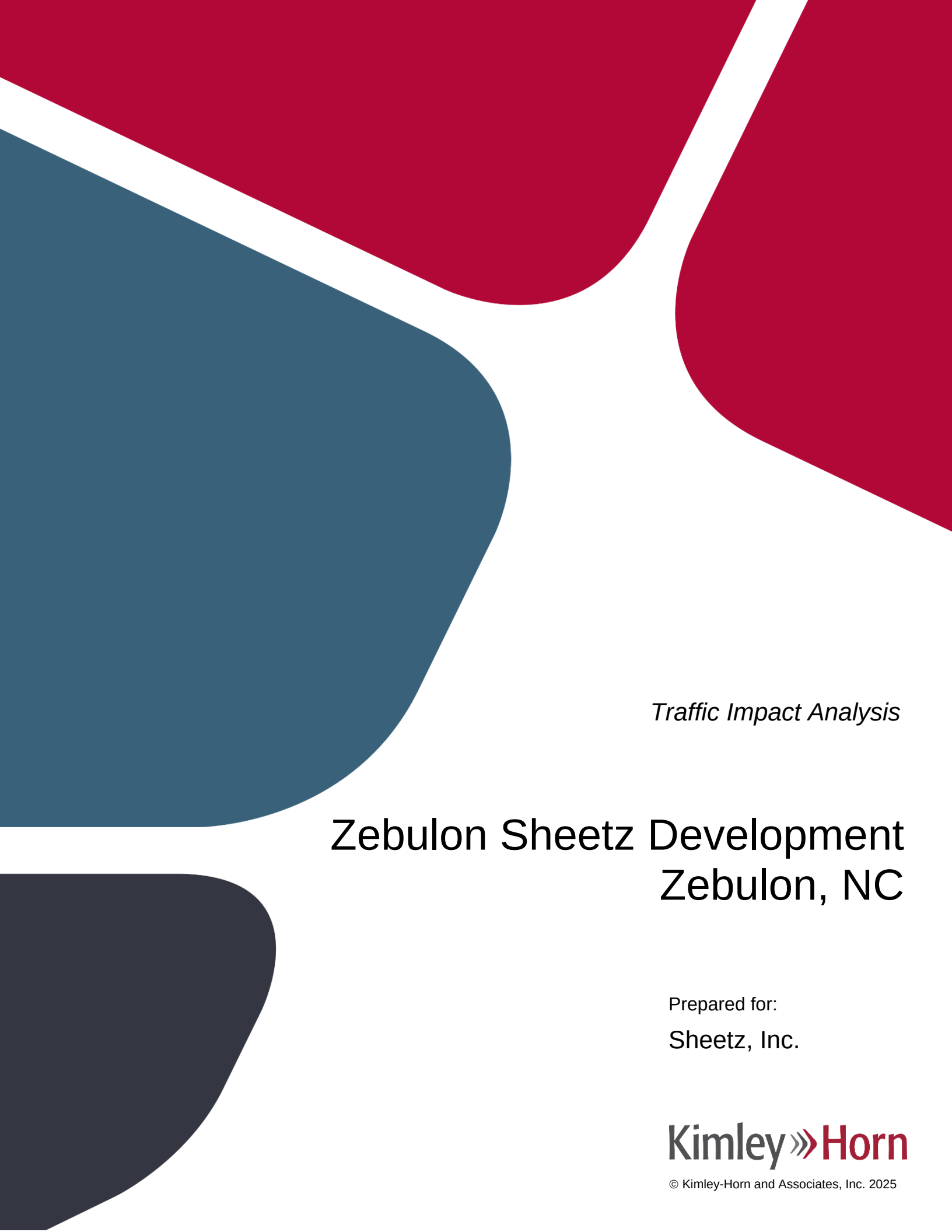
### 5 CUPOLA ELEVATION FROM ROOF



### 6 CUPOLA ELEVATION FROM ROOF



## **APPENDIX C: TRAFFIC IMPACT ANALYSIS**



*Traffic Impact Analysis*

# Zebulon Sheetz Development Zebulon, NC

Prepared for:  
Sheetz, Inc.

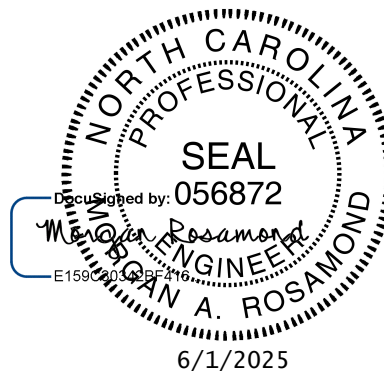
**Kimley»Horn**

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**Traffic Impact Analysis for**  
**Zebulon Sheetz Development**  
**Zebulon, North Carolina**

**Prepared for:**  
**Sheetz, Inc.**

**Prepared by:**  
**Kimley-Horn and Associates, Inc.**  
**NC License #F-0102**  
**421 Fayetteville Street, Suite 600**  
**Raleigh, NC 27601**  
**(919) 677-2000**



**June 2025**  
**110529004**



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## Executive Summary

Kimley-Horn and Associates, Inc. has performed a Traffic Impact Analysis for the Zebulon Sheetz redevelopment, located east of NC 96 and north of Pearces Road in Zebulon, NC. The existing Sheetz on the property consists of a 5,000 square foot (s.f.) convenience store/gas station with 12 vehicle fueling positions (vfp). The development is proposing to demolish the existing store and build a new store with a 6,150 s.f. convenience store/gas station with 14 vfp. The site can currently be accessed via a right-in/right-out only driveway along NC 96 and a full movement driveway along Pearces Road. No changes to site access are proposed as part of this redevelopment. Build-out of the development is anticipated by 2026.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development.

Per the Town of Zebulon (Town) Unified Development Ordinance (UDO), the future traffic conditions were analyzed for the build-out year plus one year into the future after the development is completed (2027). Therefore, the traffic conditions studied include the following:

- Existing (2025)
- Background (2027)
- Build-out (2027)

### ***Trip Generation***

The traffic generation potential of the proposed development was determined using the trip generation data published in *Trip Generation* (Institute of Transportation Engineers, Eleventh Edition, 2021). As shown in Table ES-1 located on the following page, compared to the existing Sheetz store on the site, the proposed store is projected to generate approximately 196 additional new daily trips, 16 new AM peak hour trips, and 16 new PM peak hour trips.



| Table ES-1<br>ITE Traffic Generation (Vehicles)   |                                                    |           |      |              |            |            |              |           |           |              |           |           |
|---------------------------------------------------|----------------------------------------------------|-----------|------|--------------|------------|------------|--------------|-----------|-----------|--------------|-----------|-----------|
| Land Use                                          |                                                    | Intensity |      | Daily        |            |            | AM Peak Hour |           |           | PM Peak Hour |           |           |
|                                                   |                                                    |           |      | Total        | In         | Out        | Total        | In        | Out       | Total        | In        | Out       |
| 945                                               | Convenience Store/Gas Station: 9-15 vfp - Existing | 5,000     | s.f. | 3,502        | 1,751      | 1,751      | 283          | 142       | 141       | 273          | 137       | 136       |
| 945                                               | Convenience Store/Gas Station: 9-15 vfp - Proposed | 6,150     | s.f. | 4,308        | 2,154      | 2,154      | 348          | 174       | 174       | 335          | 168       | 167       |
| <i>Pass-By Reductions - Existing</i>              |                                                    |           |      | 2,644        | 1,322      | 1,322      | 215          | 108       | 107       | 205          | 103       | 102       |
| <i>Pass-By Reductions - Proposed</i>              |                                                    |           |      | 3,254        | 1,627      | 1,627      | 264          | 132       | 132       | 251          | 126       | 125       |
| <b><i>Difference in Pass-By Reductions</i></b>    |                                                    |           |      | <b>610</b>   | <b>305</b> | <b>305</b> | <b>49</b>    | <b>24</b> | <b>25</b> | <b>46</b>    | <b>23</b> | <b>23</b> |
| <b>Total Net New External Trips - Existing</b>    |                                                    |           |      | <b>858</b>   | <b>429</b> | <b>429</b> | <b>68</b>    | <b>34</b> | <b>34</b> | <b>68</b>    | <b>34</b> | <b>34</b> |
| <b>Total Net New External Trips - Proposed</b>    |                                                    |           |      | <b>1,054</b> | <b>527</b> | <b>527</b> | <b>84</b>    | <b>42</b> | <b>42</b> | <b>84</b>    | <b>42</b> | <b>42</b> |
| <b>Difference in Total Net New External Trips</b> |                                                    |           |      | <b>196</b>   | <b>98</b>  | <b>98</b>  | <b>16</b>    | <b>8</b>  | <b>8</b>  | <b>16</b>    | <b>8</b>  | <b>8</b>  |

### Capacity Analysis

Capacity analyses were performed using Synchro Version 12 software. [Table ES-2](#) summarizes the operation of the study intersections for the AM and PM peak hour traffic conditions.

**Table ES-2 - Level of Service Summary**

| Intersection and Approach/Movement     | Traffic Control     | Existing (2025)<br>Traffic |                 | Background (2027)<br>Traffic |                 | Build-out (2027)<br>Traffic |                 |
|----------------------------------------|---------------------|----------------------------|-----------------|------------------------------|-----------------|-----------------------------|-----------------|
|                                        |                     | AM                         | PM              | AM                           | PM              | AM                          | PM              |
| <b>NC 96 at Pearces Road</b>           | <b>Signalized</b>   | <b>C (21.8)</b>            | <b>B (15.1)</b> | <b>C (26.4)</b>              | <b>B (17.5)</b> | <b>C (26.9)</b>             | <b>B (17.9)</b> |
| Eastbound                              |                     | B (16.6)                   | B (11.6)        | C (21.9)                     | B (15.3)        | C (22.2)                    | B (15.6)        |
| Westbound                              |                     | B (15.3)                   | A (7.5)         | B (19.9)                     | A (9.8)         | C (20.3)                    | B (10.0)        |
| Southbound                             |                     | D (42.3)                   | D (50.4)        | D (43.8)                     | D (48.4)        | D (44.4)                    | D (48.7)        |
| <b>NC 96 at Site Driveway 1</b>        | <b>Unsignalized</b> | <b>- (-)</b>               | <b>- (-)</b>    | <b>- (-)</b>                 | <b>- (-)</b>    | <b>- (-)</b>                | <b>- (-)</b>    |
| Southbound                             |                     | B (14.4)                   | C (15.6)        | C (15.8)                     | C (18.2)        | C (15.9)                    | C (18.5)        |
| <b>Pearces Road at Site Driveway 2</b> | <b>Unsignalized</b> | <b>- (-)</b>               | <b>- (-)</b>    | <b>- (-)</b>                 | <b>- (-)</b>    | <b>- (-)</b>                | <b>- (-)</b>    |
| Eastbound                              |                     | B (13.9)                   | C (17.2)        | C (16.4)                     | C (22.9)        | C (17.9)                    | D (26.8)        |
| Northbound Left                        |                     | A (8.5)                    | A (8.2)         | A (8.9)                      | A (8.5)         | A (9.0)                     | A (8.6)         |



**Conclusions**

NCDOT TIP project U-5118 FB proposes to construct an additional southbound through lane along NC 96 beginning approximately 830 feet north of the intersection of NC 96 at Pearces Road and ending at US 64-264 WB Ramps/Dogwood Drive. At the intersection of NC 96 at Pearces Road the westbound right lane is expected to be restriped to a shared left/right lane and the existing traffic signal is expected to be modified to accommodate these laneage improvements. While this project was considered for inclusion during scoping discussions with the Town, it was ultimately excluded in order to provide a conservative analysis of the intersection of NC 96 at Pearces Road.

All study intersections are expected to operate with acceptable levels-of service and, based on SimTraffic observations, maximum queues are expected to increase minimally with the redevelopment of the Sheetz. Therefore, no improvements are recommended with the proposed expansion.

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## **1.0 Introduction**

Kimley-Horn and Associates, Inc. has performed a Traffic Impact Analysis for the Zebulon Sheetz redevelopment, located east of NC 96 and north of Pearces Road in Zebulon, NC. The existing Sheetz on the property consists of a 5,000 square foot (s.f.) convenience store/gas station with 12 vehicle fueling positions (vfp). The development is proposing to demolish the existing store and build a new store with a 6,150 s.f. convenience store/gas station with 14 vfp. The site can currently be accessed via a right-in/right-out only driveway along NC 96 and a full movement driveway along Pearces Road. No changes to site access are proposed as part of this redevelopment. Build-out of the development is anticipated by 2026.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development.

Per the Town of Zebulon (Town) Unified Development Ordinance (UDO), the future traffic conditions were analyzed for the build-out year plus one year into the future after the development is completed (2027). Therefore, the traffic conditions studied include the following:

- Existing (2025)
- Background (2027)
- Build-out (2027)

Town planning staff provided background data and were consulted regarding the elements to be covered in this analysis. The approved assumptions memorandum is included in the Appendix of this report.



## 2.0 Inventory

### 2.1 Study Area

The study area for this development includes the following intersections:

- NC 96 at Pearces Road
- NC 96 at Site Driveway 1
- Pearces Road at Site Driveway 2

**Figure 2.1** shows the site location and driveway connections. The conceptual site plan is shown on **Figure 2.2**.

### 2.2 Existing Conditions

The Zebulon Sheetz development is located east of NC 96 and north of Pearces Road in Zebulon, NC. Roadways in the study area include NC 96 and Pearces Road. Roadway network elements (speed limit, estimated average daily traffic volume, and existing configuration) of study area roadways are summarized in Table 2.1. The existing roadway laneage is shown in **Figure 2.3**.

| <b>Table 2.1<br/>Roadway Network Summary</b> |                    |                                                                        |                                       |
|----------------------------------------------|--------------------|------------------------------------------------------------------------|---------------------------------------|
| <b>Roadway</b>                               | <b>Speed Limit</b> | <b>Estimated AADT Volume</b>                                           | <b>Typical Existing Configuration</b> |
| NC 96                                        | 35 mph             | 12,500 vpd west of Pearces Road*;<br>24,000 vpd east of Pearces Road** | 2-Lane Undivided/<br>4-Lane Undivided |
| Pearces Road                                 | 35 mph             | 7,500 vpd north of NC 96***                                            | 2-Lane Undivided                      |

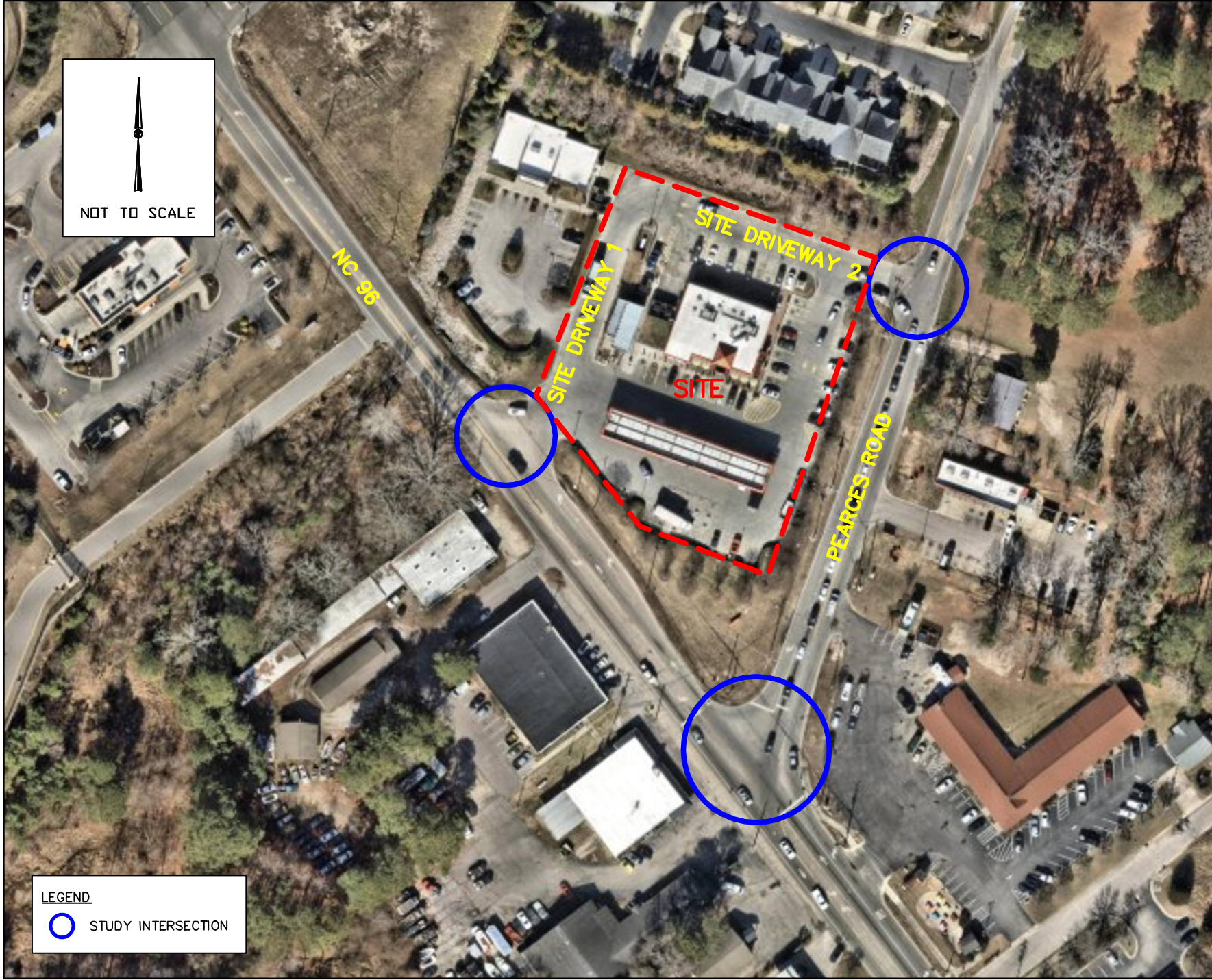
\*2021 AADT from NCDOT.

\*\*2023 AADT from NCDOT

\*\*\*ADT was calculated for this roadway using existing AM and PM traffic volumes, assuming the total of those peak hours is 20% of the daily traffic volumes.

### 2.3 Future Roadway Improvements

NCDOT TIP project U-5118 FB proposes to construct an additional southbound through lane along NC 96 beginning approximately 830 feet north of the intersection of NC 96 at Pearces Road and ending at US 64-264 WB Ramps/Dogwood Drive. At the intersection of NC 96 at Pearces Road the westbound right lane is expected to be restriped to a shared left/right lane and the existing traffic signal is expected to be modified to accommodate these laneage improvements. While this project was considered for inclusion during scoping discussions with the Town, it was ultimately excluded in order to provide a conservative analysis of the intersection of NC 96 at Pearces Road.









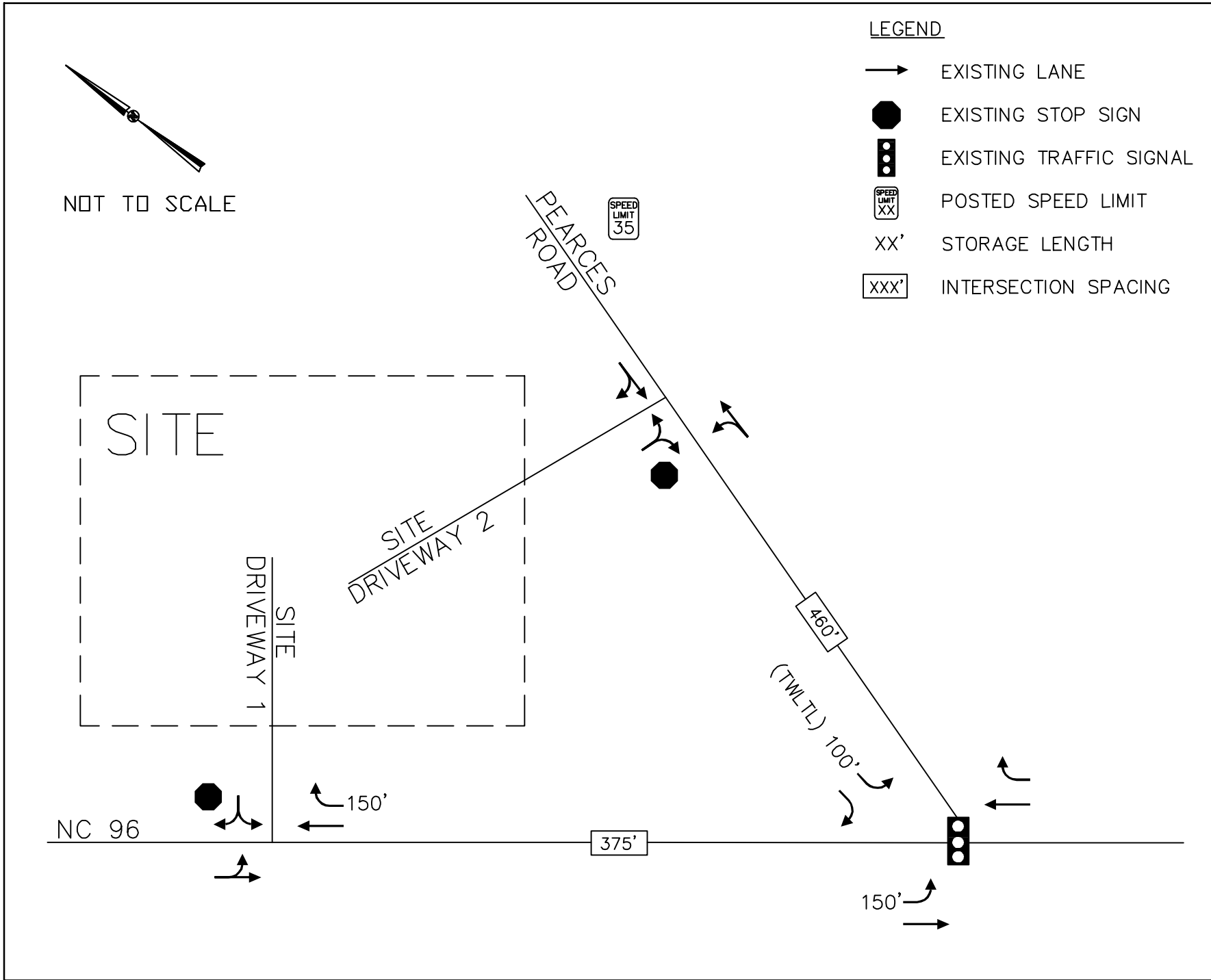


FIGURE  
2.3

EXISTING ROADWAY LANEAGE

ZEBULON SHEETZ  
ZEBULON, NC  
TRAFFIC IMPACT ANALYSIS

### 3.0 Traffic Generation

The traffic generation potential of the proposed development was determined using the traffic generation data published in *Trip Generation* (Institute of Transportation Engineers, Eleventh Edition, 2021). As currently envisioned, the proposed redevelopment is planned to consist of 6,150 s.f. convenience store/gas station with 14 vfp. Table 3.0 summarizes the estimated traffic generation for the proposed development.

| Table 3.0<br>ITE Traffic Generation (Vehicles)    |                                                    |           |      |              |            |            |              |           |           |              |           |           |
|---------------------------------------------------|----------------------------------------------------|-----------|------|--------------|------------|------------|--------------|-----------|-----------|--------------|-----------|-----------|
| Land Use                                          |                                                    | Intensity |      | Daily        |            |            | AM Peak Hour |           |           | PM Peak Hour |           |           |
|                                                   |                                                    |           |      | Total        | In         | Out        | Total        | In        | Out       | Total        | In        | Out       |
| 945                                               | Convenience Store/Gas Station: 9-15 vfp - Existing | 5,000     | s.f. | 3,502        | 1,751      | 1,751      | 283          | 142       | 141       | 273          | 137       | 136       |
| 945                                               | Convenience Store/Gas Station: 9-15 vfp - Proposed | 6,150     | s.f. | 4,308        | 2,154      | 2,154      | 348          | 174       | 174       | 335          | 168       | 167       |
| <i>Pass-By Reductions - Existing</i>              |                                                    |           |      | 2,644        | 1,322      | 1,322      | 215          | 108       | 107       | 205          | 103       | 102       |
| <i>Pass-By Reductions - Proposed</i>              |                                                    |           |      | 3,254        | 1,627      | 1,627      | 264          | 132       | 132       | 251          | 126       | 125       |
| <b><i>Difference in Pass-By Reductions</i></b>    |                                                    |           |      | <b>610</b>   | <b>305</b> | <b>305</b> | <b>49</b>    | <b>24</b> | <b>25</b> | <b>46</b>    | <b>23</b> | <b>23</b> |
| <b>Total Net New External Trips - Existing</b>    |                                                    |           |      | <b>858</b>   | <b>429</b> | <b>429</b> | <b>68</b>    | <b>34</b> | <b>34</b> | <b>68</b>    | <b>34</b> | <b>34</b> |
| <b>Total Net New External Trips - Proposed</b>    |                                                    |           |      | <b>1,054</b> | <b>527</b> | <b>527</b> | <b>84</b>    | <b>42</b> | <b>42</b> | <b>84</b>    | <b>42</b> | <b>42</b> |
| <b>Difference in Total Net New External Trips</b> |                                                    |           |      | <b>196</b>   | <b>98</b>  | <b>98</b>  | <b>16</b>    | <b>8</b>  | <b>8</b>  | <b>16</b>    | <b>8</b>  | <b>8</b>  |

Table 3.0 shows that the proposed development has the potential to generate 6,894 new daily trips in a typical weekday with 196 new daily trips, 16 new AM peak hour trips, and 16 new PM peak hour trips.

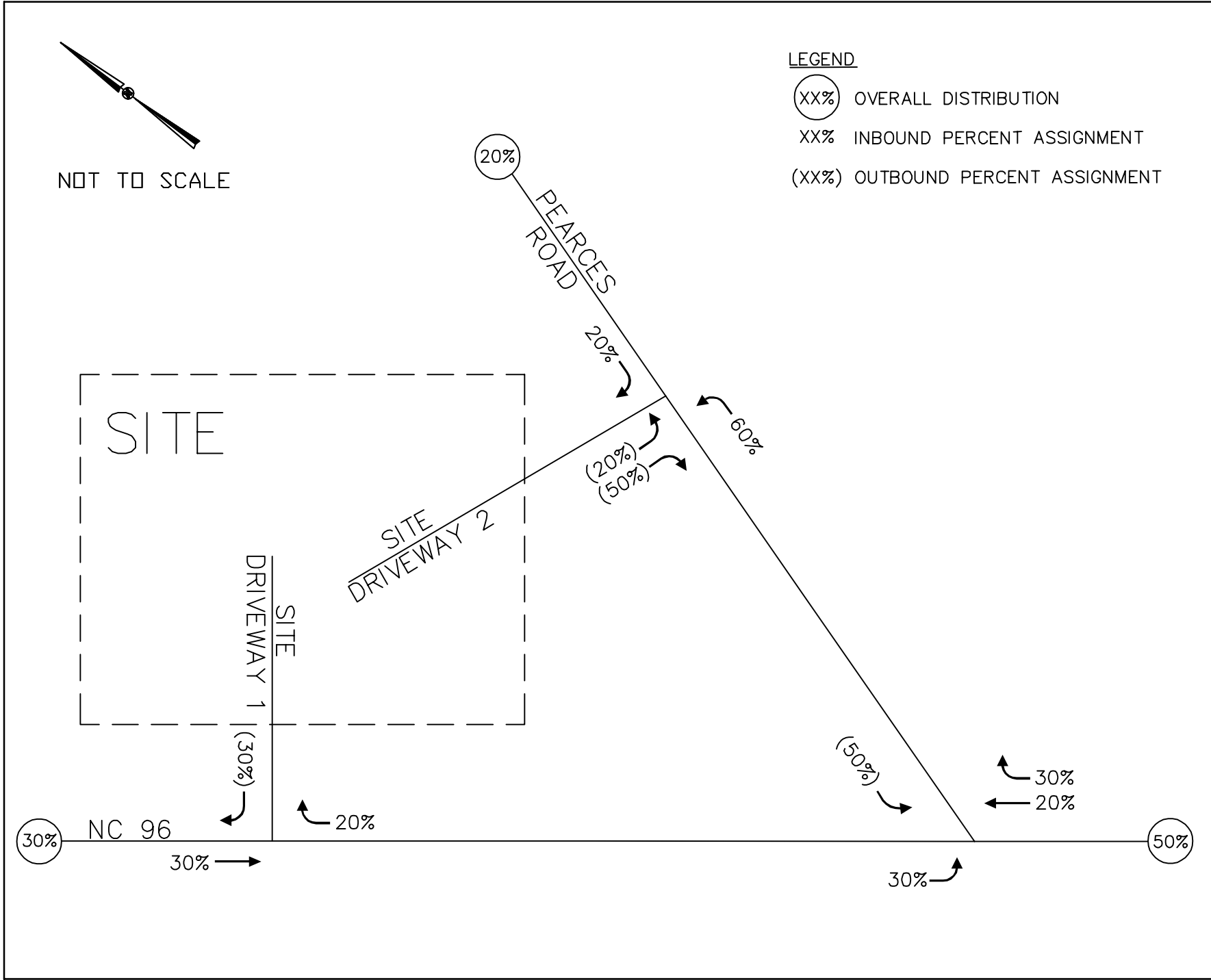
#### 4.0 Site Traffic Distribution

The proposed site generated trips were assigned to the surrounding roadway network. The directional distribution and assignment are based on existing travel patterns.

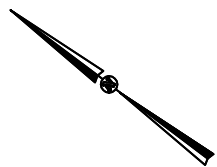
- 50% to/from the east via NC 96
- 30% to/from the west via NC 96
- 20% to/from the north via Peaces Road

The site traffic distribution and assignment are shown in **Figure 4.1**. The AM and PM pass-by trip distribution and assignments are shown in **Figure 4.2** and **Figure 4.3**, respectively.

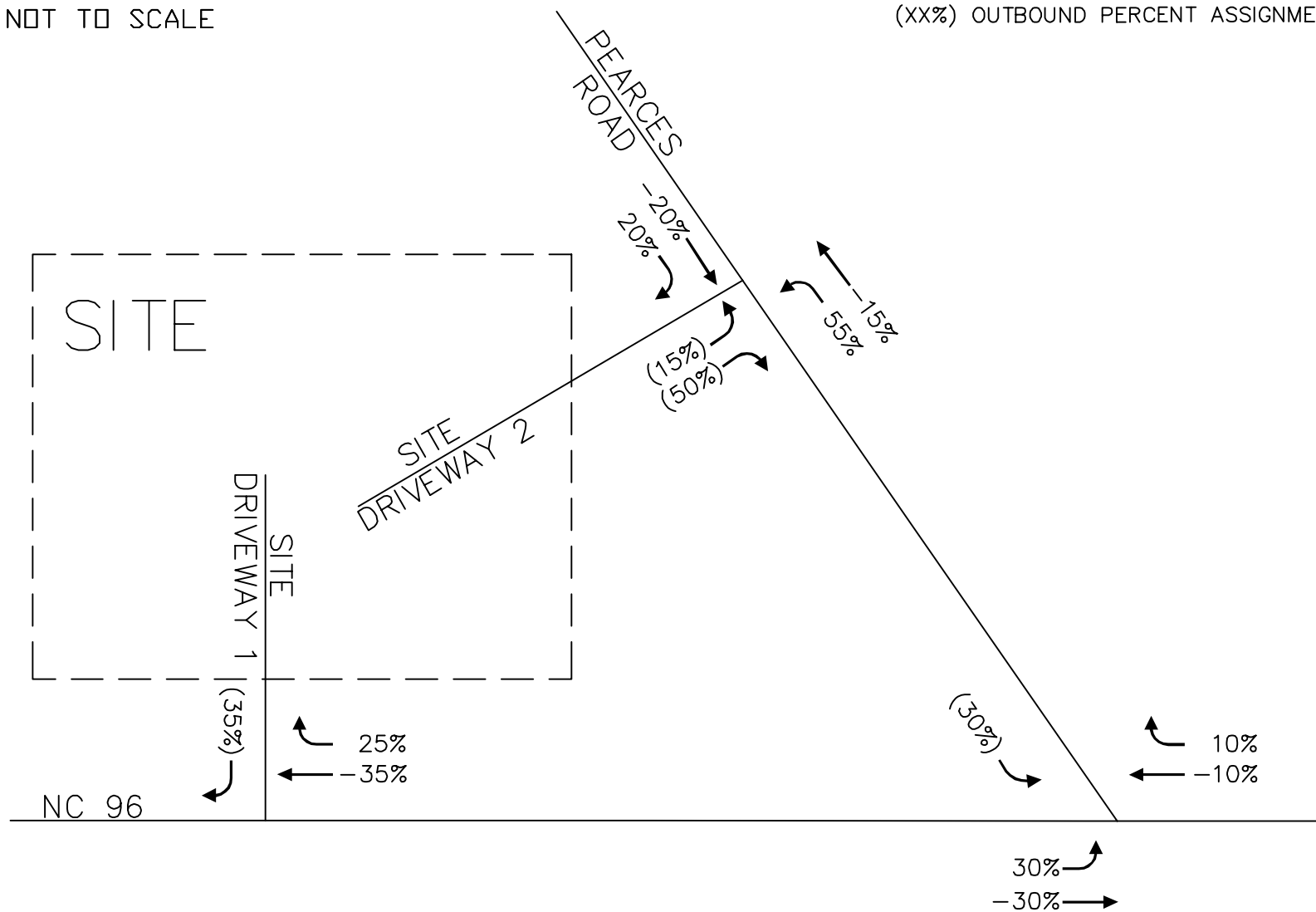




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NOT TO SCALE



### LEGEND

- XX% PASS-BY DISTRIBUTION
- XX% INBOUND PERCENT ASSIGNMENT
- (XX%) OUTBOUND PERCENT ASSIGNMENT

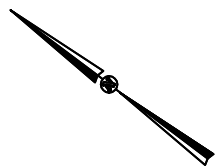
FIGURE  
4.2

AM PEAK HOUR  
PASS-BY ASSIGNMENT

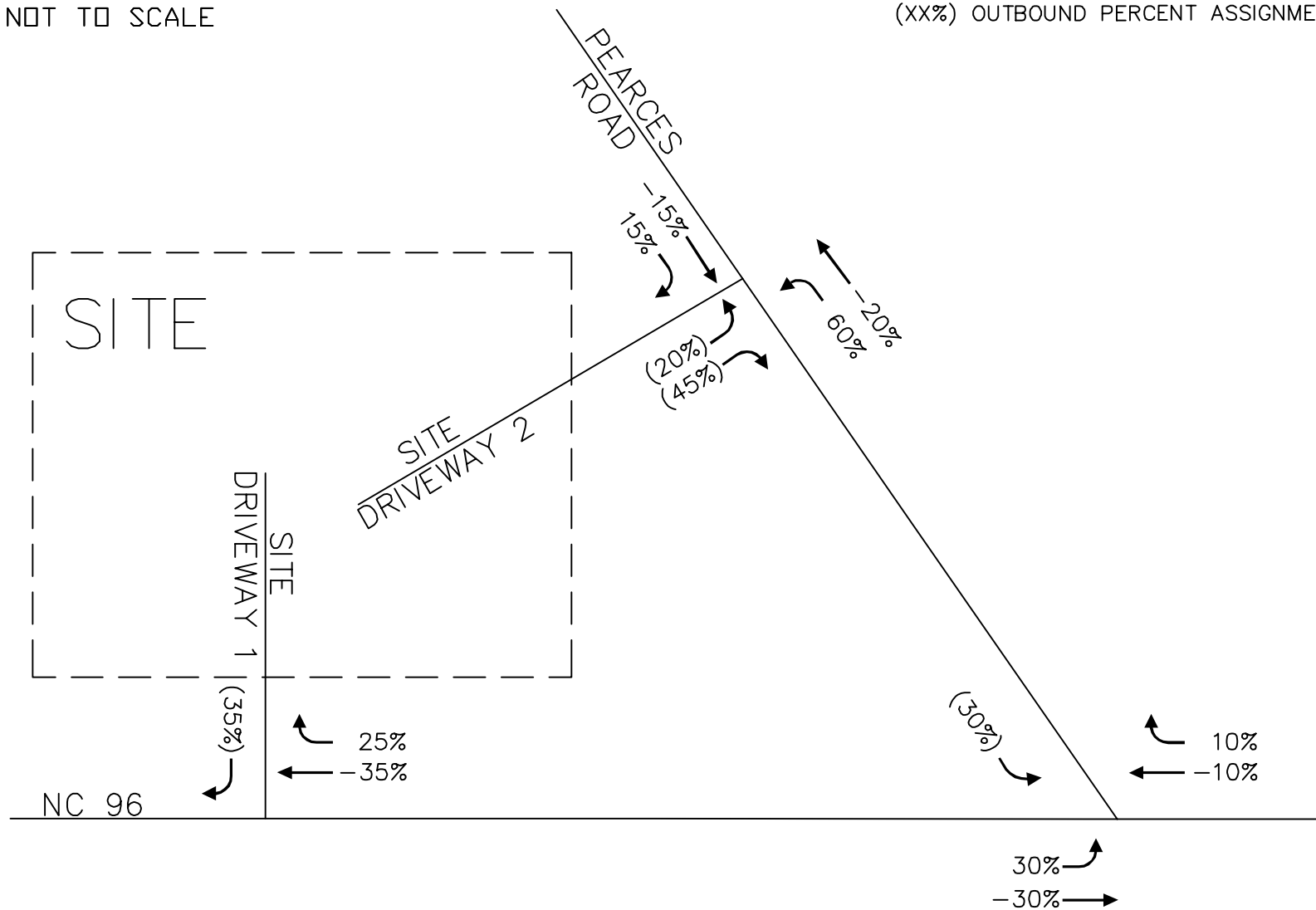
ZEBULON SHEETZ  
ZEBULON, NC  
TRAFFIC IMPACT ANALYSIS

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NOT TO SCALE



### LEGEND

-XX% PASS-BY DISTRIBUTION

XX% INBOUND PERCENT ASSIGNMENT

(XX%) OUTBOUND PERCENT ASSIGNMENT

FIGURE  
4.3

PM PEAK HOUR  
PASS-BY ASSIGNMENT

ZEBULON SHEETZ  
ZEBULON, NC  
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

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## 5.0 Projected Traffic Volumes

### 5.1 Existing Traffic

AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were performed at the following study intersection on January 28, 2025 while area schools were in session:

- NC 96 at Pearces Road

AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were performed at each of the following study intersections on March 26, 2025, while area schools were in session:

- NC 96 at Site Driveway 1
- Pearces Road at Site Driveway 2

The existing AM and PM peak hour traffic volumes are shown on **Figure 5.1** and **Figure 5.2**, respectively, and the traffic count data are included in the Appendix.

### 5.2 Approved Development Traffic

Approved development traffic is generated by approved but not yet constructed projects in the vicinity of the proposed project. Based on discussions with the Town and NCDOT, there were four (4) approved developments in the study area that were identified for inclusion as background traffic. These approved developments include 7-Eleven Convenience Store, Clifton Grove (formerly Pearces Road Residential), Domino's, and Weaver's Ridge.

#### 7-Eleven Convenience Store

- Location: East of NC 96 and north of US 64-264
- Land Uses: 4,714 s.f. convenience store with 16 vehicle fueling pumps and 3 truck fueling pumps
- Data Source: *Zebulon 7-Eleven Convenience Store TIA* (Impact Designs, Inc., March 2023)

#### Clifton Grove (formerly Pearces Road Residential)

- Location: West of Pearces Road and south of Pippin Road
- Land Uses: 232 single family detached units
- Data Source: *Pearces Road Residential Development TIA* (Timmons Group, October 2020)

#### Zebulon Domino's

- Location: North of Dogwood Drive and east of NC 96
- Land Uses: 1,632 s.f. Domino's Restaurant
- Data Source: *Zebulon Domino's TIA* (DRMP, Inc., November 2024)

#### Weaver's Ridge

- Location: East of NC 96 across from Glory Road
- Land Uses: 124 townhomes and 58 single-family homes

- Data Source: *Weaver's Ridge Traffic Study* (Ramey Kemp & Associates, Inc., July 2019)

Approved development traffic volumes for the future year scenarios are shown on **Figure 5.1** and **Figure 5.2** for the AM and PM peak hours, respectively.

### 5.3 Historic Growth Traffic

Historic growth traffic is the increase in traffic due to usage increases and non-specific growth throughout the area. In addition to the approved development traffic and per Town requirements, study intersections were grown to the 2027 build-out year using an annual growth rate of 2.5%.

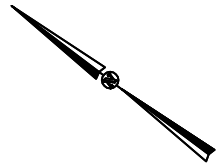
Projected future year (2027) background AM and PM peak hour traffic volumes are shown on **Figure 5.1** and **Figure 5.2**, respectively. Background growth calculations are detailed on intersection spreadsheets in the Appendix of this report.

### 5.4 Site Traffic

The proposed site traffic was generated and assigned to the adjacent roadway network according to the distributions discussed previously in *Section 4.0*. The primary AM and PM peak hour site traffic volumes are shown on **Figure 5.3** and **Figure 5.4**, respectively. The pass-by AM and PM peak hour site traffic volumes are shown on **Figure 5.3** and **Figure 5.4**, respectively.

### 5.5 Build-Out Traffic

To obtain the projected (2027) build-out traffic volumes, the projected site traffic volumes were added to the projected (2027) background traffic. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report. **Figure 5.3** and **Figure 5.4** show the projected (2027) AM and PM peak hour build-out traffic volumes, respectively.



NOT TO SCALE

### LEGEND

- XX EXISTING TRAFFIC
- (XX) BACKGROUND GROWTH
- <XX> APPROVED DEVELOPMENT TRAFFIC
- [XX] BACKGROUND TRAFFIC

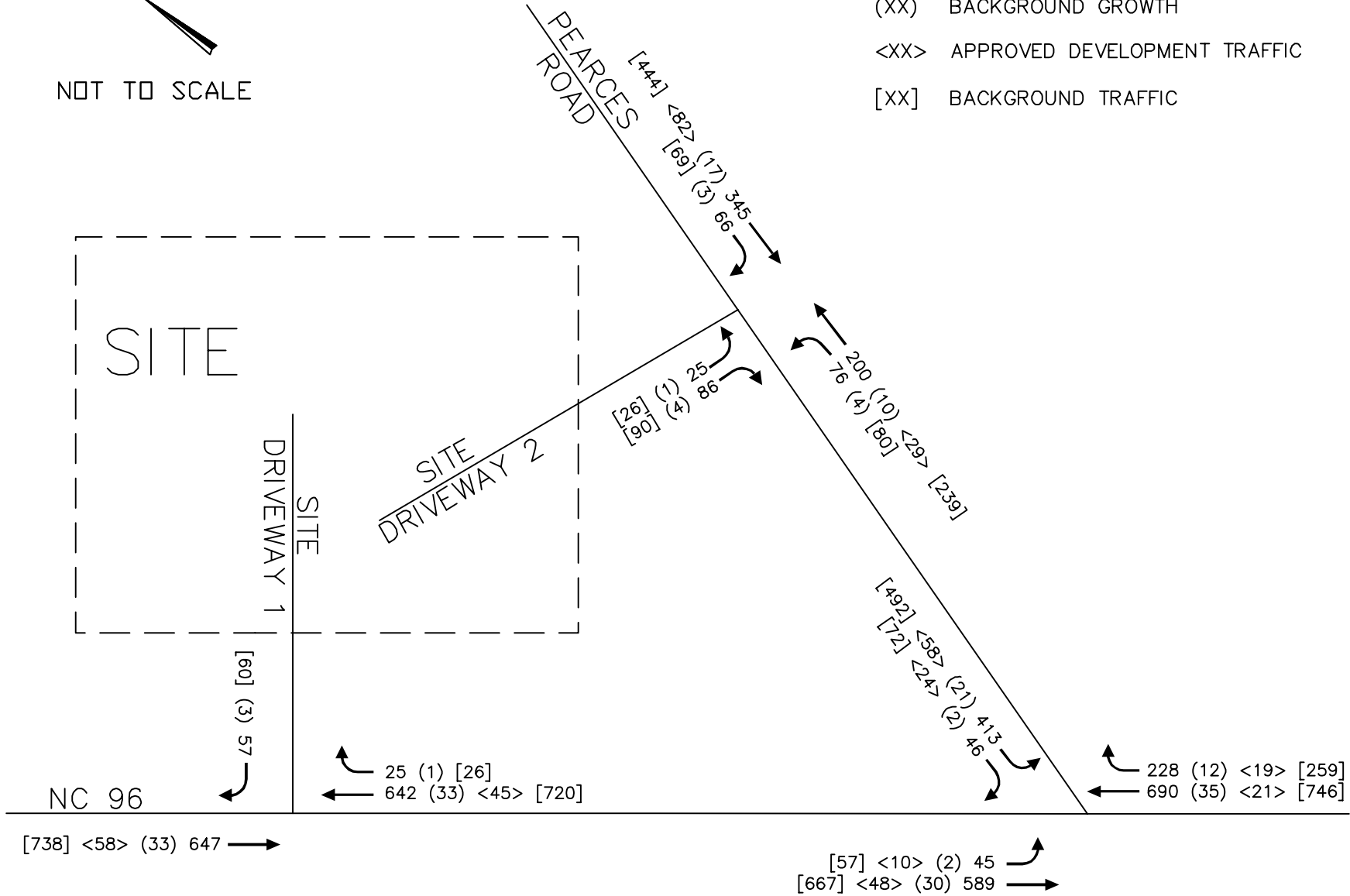


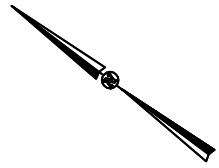
FIGURE  
5.1

EXISTING (2025) AND  
PROJECTED (2027) AM HOUR  
TRAFFIC VOLUMES

ZEBULON SHEETZ  
ZEBULON, NC  
TRAFFIC IMPACT ANALYSIS



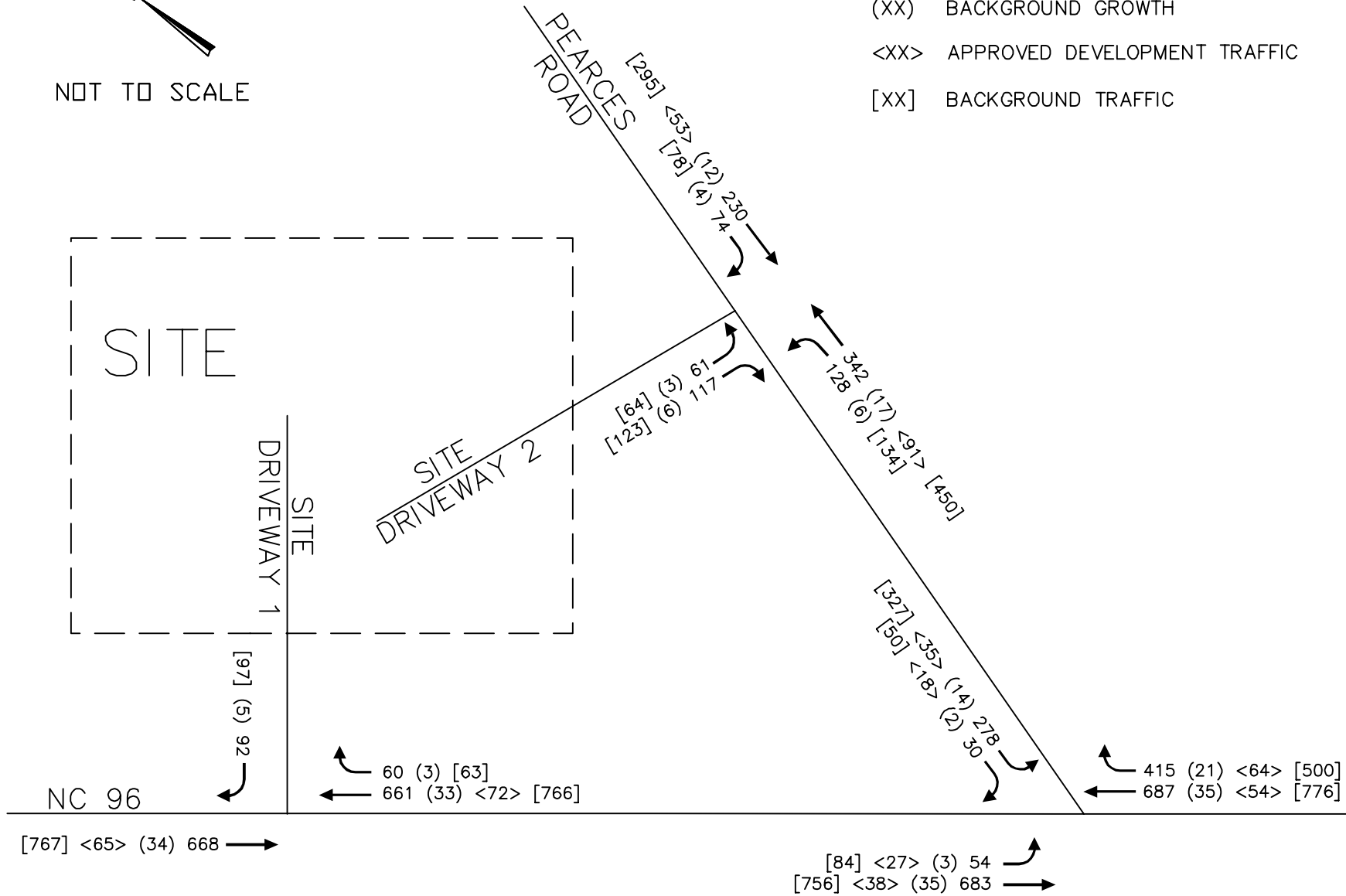


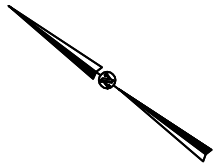


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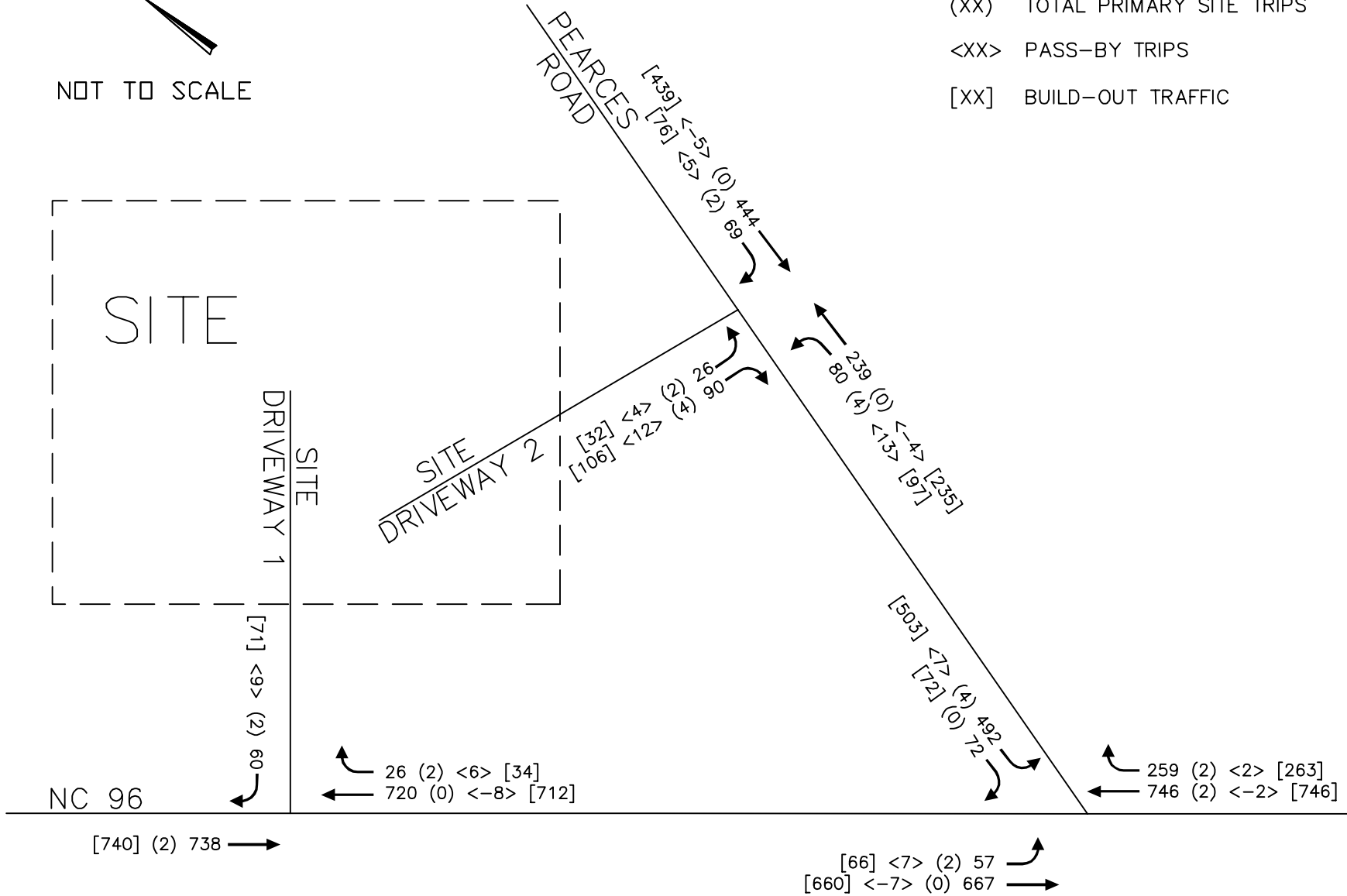
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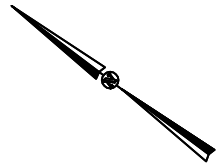
- XX EXISTING TRAFFIC
- (XX) BACKGROUND GROWTH
- <XX> APPROVED DEVELOPMENT TRAFFIC
- [XX] BACKGROUND TRAFFIC





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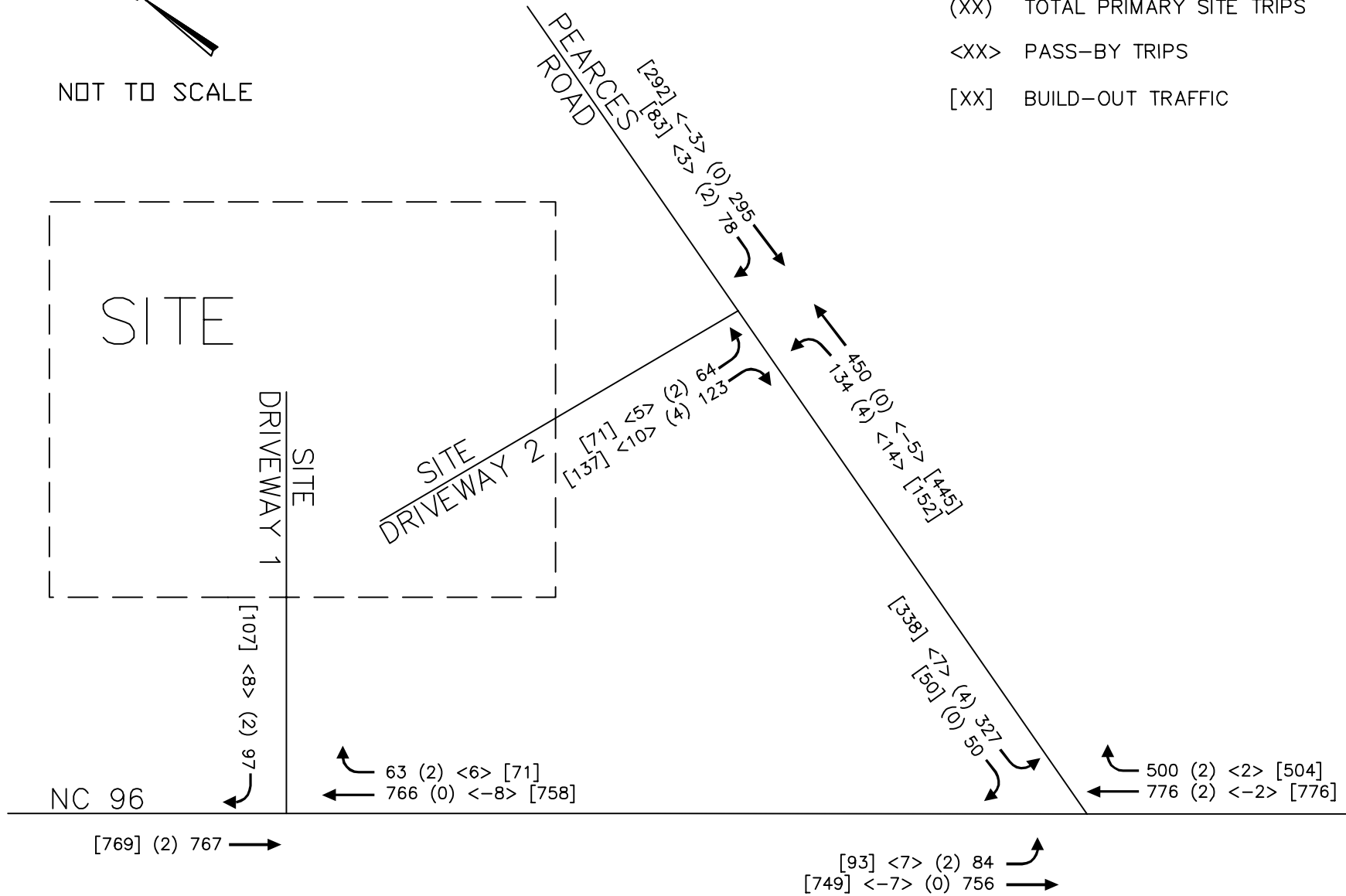


FIGURE  
5.4

PROJECTED (2027)  
BUILD-OUT PM PEAK  
HOUR TRAFFIC VOLUMES

ZEBULON SHEETZ  
ZEBULON, NC  
TRAFFIC IMPACT ANALYSIS



THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



## 6.0 Capacity Analysis

Capacity analyses (see Appendix) were performed for the AM and PM peak hours for the existing traffic condition (2025) and the projected (2027) background and build-out traffic conditions using Synchro/SimTraffic Version 12 software to determine the operating characteristics of the adjacent road network and the impacts of the proposed project.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by Synchro/SimTraffic Version 12 or computable using methodology published in the *Highway Capacity Manual*. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. [Table 6.0](#) lists the LOS control delay thresholds published in the *Highway Capacity Manual* for signalized and unsignalized intersections.

| Table 6.0<br>Level-of-Service Control Delay Thresholds |                                                                |                                                                                                    |                 |
|--------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------|
| Level-of-Service                                       | Signalized Intersections – Control Delay Per Vehicle [sec/veh] | Unsignalized Intersections – Average Control Delay [sec/veh] & Qualitative Operational Description |                 |
| A                                                      | ≤ 10                                                           | ≤ 10                                                                                               | Short Delays    |
| B                                                      | > 10 – 20                                                      | > 10 – 15                                                                                          |                 |
| C                                                      | > 20 – 35                                                      | > 15 – 25                                                                                          |                 |
| D                                                      | > 35 – 55                                                      | > 25 – 35                                                                                          | Moderate Delays |
| E                                                      | > 55 – 80                                                      | > 35 – 50                                                                                          |                 |
| F                                                      | > 80                                                           | > 50                                                                                               | Long Delays     |

Existing peak hour factors were used for existing (2025) traffic conditions. A peak hour factor of 0.9 was used for all future scenarios. To provide a conservative analysis, existing coordinated signal timings were used in all future traffic conditions at the intersection of NC 96 at Pearces Road.

All capacity analyses are included in the Appendix and are briefly summarized in the following sub-sections.

### 6.1 NC 96 at Pearces Road

Analyses indicate that the signalized intersection of NC 96 at Pearces Road currently operates at LOS C in the AM peak hour and LOS B in the PM peak hour. The signalized intersection is expected to continue to operate at LOS C in the AM peak hour and LOS B in the PM peak hour, with or without the proposed redevelopment in place. With the increase in site traffic as part of the Sheetz redevelopment, minimal increases in vehicular queues are expected from background to build-out traffic conditions.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic.

Table 6.1 summarizes the operation of the intersection of NC 96 at Pearces Road for existing (2025), background (2027), and build-out (2027) traffic conditions.

| <b>Table 6.1</b><br><b>NC 96 at Pearces Road (Signalized)</b> |                                                                       |                                                                       |
|---------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Condition</b>                                              | <b>AM Peak Hour<br/>LOS (Delay)</b>                                   | <b>PM Peak Hour<br/>LOS (Delay)</b>                                   |
| Existing (2025) Traffic                                       | Overall - C (21.8)<br>EB - B (16.6)<br>WB - B (15.3)<br>SB - D (42.3) | Overall - B (15.1)<br>EB - B (11.6)<br>WB - A (7.5)<br>SB - D (50.4)  |
| Background (2027) Traffic                                     | Overall - C (26.4)<br>EB - C (21.9)<br>WB - B (19.9)<br>SB - D (43.8) | Overall - B (17.5)<br>EB - B (15.3)<br>WB - A (9.8)<br>SB - D (48.4)  |
| Build-out (2027) Traffic                                      | Overall - C (26.9)<br>EB - C (22.2)<br>WB - C (20.3)<br>SB - D (44.4) | Overall - B (17.9)<br>EB - B (15.6)<br>WB - B (10.0)<br>SB - D (48.7) |

## 6.2 NC 96 at Site Driveway 1

Analyses indicate that the unsignalized intersection of NC 96 at Site Driveway 1 currently operates with short delays in both peak hours for the minor-street approach (Site Driveway 1). The minor-street approach of this intersection is expected to continue to operate with short delays in both peak hours, with or without the proposed redevelopment in place. With the increase in site traffic as part of the Sheetz redevelopment, minimal increases in vehicular queues are expected from background to build-out traffic conditions.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic.

Table 6.2 summarizes the operation of the intersection of NC 96 at Site Driveway 1 for existing (2025), background (2027), and build-out (2027) traffic conditions.

| <b>Table 6.2</b>                               |                                     |                                     |
|------------------------------------------------|-------------------------------------|-------------------------------------|
| <b>NC 96 at Site Driveway 1 (Unsignalized)</b> |                                     |                                     |
| <b>Condition</b>                               | <b>AM Peak Hour<br/>LOS (Delay)</b> | <b>PM Peak Hour<br/>LOS (Delay)</b> |
| Existing (2025) Traffic                        | SB - B (14.4)                       | SB - C (15.6)                       |
| Background (2027) Traffic                      | SB - C (15.8)                       | SB - C (18.2)                       |
| Build-out (2027) Traffic                       | SB - C (15.9)                       | SB - C (18.5)                       |



### 6.3 Pearces Road at Site Driveway 2

Analyses indicate that the unsignalized intersection of Pearces Road at Site Driveway 2 currently operates with short delays in both peak hours for the minor-street approach (Site Driveway 2). The minor-street approach of this intersection is expected to continue to operate with short delays in both peak hours under background (2027) traffic conditions. With the proposed redevelopment in place, the minor-street approach is expected to operate with short delays in the AM peak hour and moderate delays in the PM peak hour. With the increase in site traffic as part of the Sheetz redevelopment, minimal increases in vehicular queues are expected from background to build-out traffic conditions.

As site traffic is expected to have minimal impact on the operation of this intersection, no improvements are recommended to accommodate projected site traffic.

Table 6.3 summarizes the operation of the intersection of Pearces Road at Site Driveway 2 for existing (2025), background (2027), and build-out (2027) traffic conditions.

| <b>Table 6.3</b><br><b>Pearces Road at Site Driveway 2 (Unsignalized)</b> |                                     |                                     |
|---------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| <b>Condition</b>                                                          | <b>AM Peak Hour<br/>LOS (Delay)</b> | <b>PM Peak Hour<br/>LOS (Delay)</b> |
| Existing (2025) Traffic                                                   | EB - B (13.9)<br>NBL - A (8.5)      | EB - C (17.2)<br>NBL - A (8.2)      |
| Background (2027) Traffic                                                 | EB - C (16.4)<br>NBL - A (8.9)      | EB - C (22.9)<br>NBL - A (8.5)      |
| Build-out (2027) Traffic                                                  | EB - C (17.9)<br>NBL - A (9.0)      | EB - D (26.8)<br>NBL - A (8.6)      |

## 7.0 Conclusions

NCDOT TIP project U-5118 FB proposes to construct an additional southbound through lane along NC 96 beginning approximately 830 feet north of the intersection of NC 96 at Pearces Road and ending at US 64-264 WB Ramps/Dogwood Drive. At the intersection of NC 96 at Pearces Road the westbound right lane is expected to be restriped to a shared left/right lane and the existing traffic signal is expected to be modified to accommodate these laneage improvements. While this project was considered for inclusion during scoping discussions with the Town, it was ultimately excluded in order to provide a conservative analysis of the intersection of NC 96 at Pearces Road.

All study intersections are expected to operate with acceptable levels-of service and, based on SimTraffic observations, maximum queues are expected to increase minimally with the redevelopment of the Sheetz. Therefore, no improvements are recommended with the proposed expansion.

## **Appendix**

**Appendix A:**  
**Approved Assumptions Memorandum**



**Preliminary Assumptions – Zebulon Sheetz - UPDATED**  
**Traffic Impact Analysis**  
**Zebulon, North Carolina**

KHA will perform analyses for the Zebulon Sheetz development, a proposed commercial project located along east of NC 96 and north of Pearces Road in Zebulon, North Carolina. The following assumptions will be used in the analysis of the site:

**Study Intersections**

The study area will consist of the following intersections:

- NC 96 at Pearces Road
- NC 96 at Site Driveway 1 (*right-in/right-out access*)
- Pearces Road at Site Driveway 2 (*full movement access*)

**Analysis Scenarios**

Weekday AM and PM peak hour analyses will be performed for the following traffic conditions:

- Existing (2025)
- Background (2026 +1)\*
- Build-out (2026 +1)\*
- Build-out (2026 +1)\* - with Improvements

*\*Per the Town of Zebulon Unified Development Ordinance (UDO), the future traffic conditions will be analyzed for the build-out year plus one year into the future after the development is completed (2027).*

**Background Traffic Growth**

Based on historical AADT data from NCDOT and nearby developments and Town of Zebulon ordinances, an annual growth rate of 2.5% will be used to grow the existing traffic counts to the build-out year.

**Approved Developments**

Additionally, based on the Town of Zebulon Development Activity Map, the following approved developments were identified for inclusion in this analysis as background traffic:

- 7-Eleven
- Zebulon Domino's
- Clifton Grove (Pearces Road Residential)
- Weavers Ridge

Traffic for these approved developments will be obtained or developed from either site plans or traffic studies attained from the Town of Zebulon.

**Roadway Improvements by Others**

State Transportation Improvement Program (TIP) project U-5118 FB proposes to construct access management improvements north of Pearces Road to Dogwood Drive along NC 96. This project is expected to begin construction in 2025. While this project was considered for inclusion during scoping discussions with the Town, it will ultimately be excluded in order to provide a conservative analysis of the intersection of NC 96 at Pearces Road.

**Trip Distribution**

The following overall distribution will be used for Zebulon Sheetz Development entering and exiting traffic:

- 50% to/from the east on NC 96
- 30% to/from the west on NC 96

- 20% to/from the north on Pearces Road

**Trip Generation**

The property is currently consists of a 5,000 square foot (SF) convenience store/gas station with 12 vehicle fueling positions (vfp). The development is proposing to expand the store to 6,150 SF with 14 vfp. See attached for the existing and proposed trip generation of the Zebulon Sheetz development.

**Other Study Assumptions**

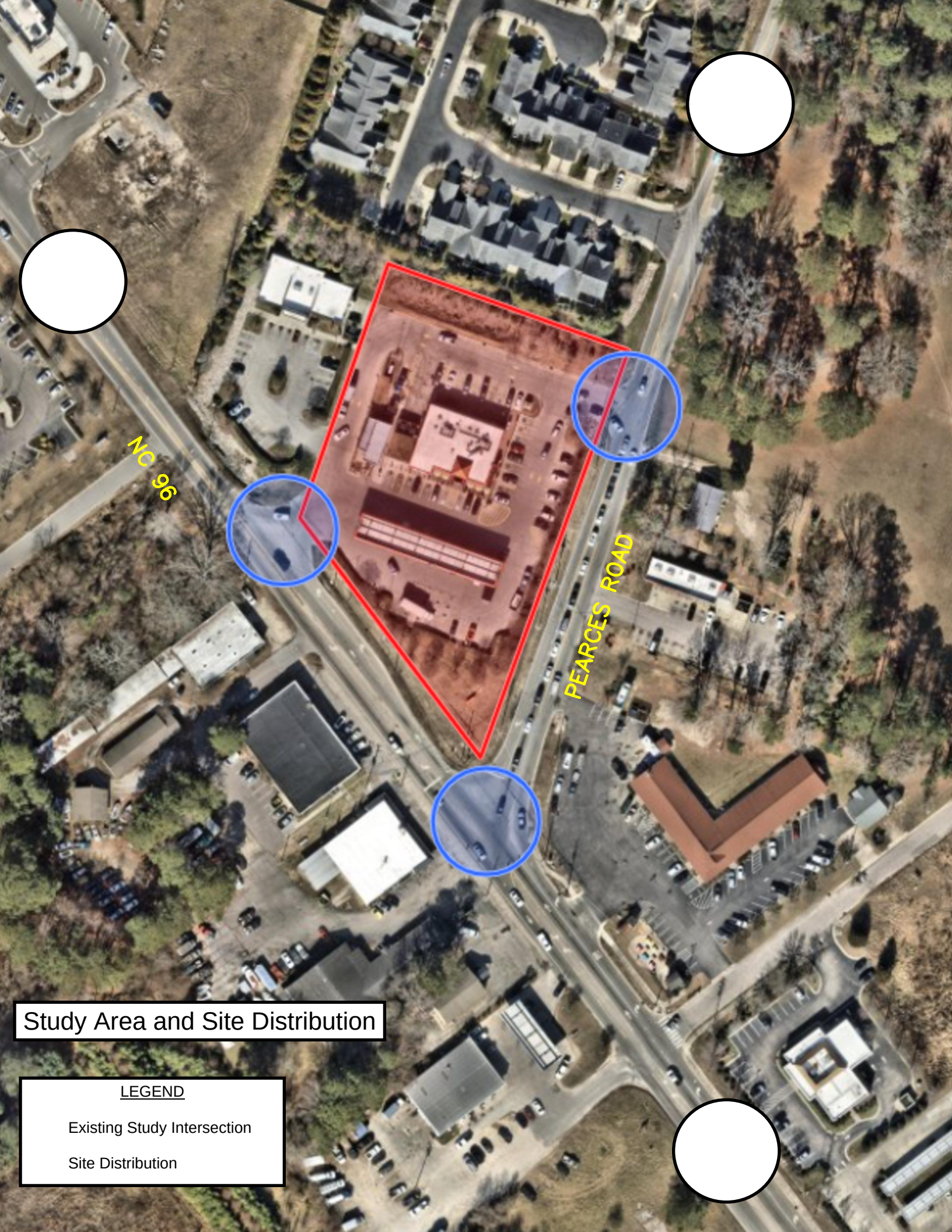
Existing peak hour factors (PHF) will be used in each traffic condition where those exceed the default PHF of 0.90. For future traffic signals, inputs (right-turns on red, permitted + protected phasing) will be obtained from the signal plans, and optimized signal timings will be used in each of the traffic conditions.

## Sheetz Zebulon

**Table 1 - Trip Generation (11th Edition): 6150SF Store, 14 vfp**

| Land Use                                                | Intensity |           | Daily |       |       | AM Peak Hour |     |     | PM Peak Hour |     |     |
|---------------------------------------------------------|-----------|-----------|-------|-------|-------|--------------|-----|-----|--------------|-----|-----|
|                                                         |           |           | Total | In    | Out   | Total        | In  | Out | Total        | In  | Out |
| 945 Convenience Store/Gas Station: 9-15 vfp. - Existing | 5,000     | s.f.      | 3,502 | 1,751 | 1,751 | 283          | 142 | 141 | 273          | 137 | 136 |
| 945 Convenience Store/Gas Station: 9-15 vfp. - Proposed | 6,150     | s.f.      | 4,308 | 2,154 | 2,154 | 348          | 174 | 174 | 335          | 168 | 167 |
| <u>Pass-By Capture</u>                                  | <u>AM</u> | <u>PM</u> |       |       |       |              |     |     |              |     |     |
| 945 Convenience Store/Gas Station - Existing            | 76%       | 75%       | 2,644 | 1322  | 1,322 | 215          | 108 | 107 | 205          | 103 | 102 |
| 945 Convenience Store/Gas Station - Proposed            | 76%       | 75%       | 3,254 | 1627  | 1,627 | 264          | 132 | 132 | 251          | 126 | 125 |
| Difference in Pass-By Trips                             |           |           | 610   | 305   | 305   | 49           | 24  | 25  | 46           | 23  | 23  |
|                                                         |           |           |       |       |       |              |     |     |              |     |     |
| Total Net New External Trips: Proposed Site             |           |           | 1,054 | 527   | 527   | 84           | 42  | 42  | 84           | 42  | 42  |
| Total Net New External Trips: Existing Site             |           |           | 858   | 429   | 429   | 68           | 34  | 34  | 68           | 34  | 34  |
| Difference in Total Net New External Trips              |           |           | 196   | 98    | 98    | 16           | 8   | 8   | 16           | 8   | 8   |
|                                                         |           |           |       |       |       |              |     |     |              |     |     |





## Study Area and Site Distribution

### LEGEND

Existing Study Intersection

Site Distribution



## **Appendix B:**

### **Trip Generation**

## Sheetz Zebulon

**Table 1 - Trip Generation (11th Edition): 6150SF Store, 14 vfp**

| Land Use                                                | Intensity |           | Daily |       |       | AM Peak Hour |     |     | PM Peak Hour |     |     |
|---------------------------------------------------------|-----------|-----------|-------|-------|-------|--------------|-----|-----|--------------|-----|-----|
|                                                         |           |           | Total | In    | Out   | Total        | In  | Out | Total        | In  | Out |
| 945 Convenience Store/Gas Station: 9-15 vfp. - Existing | 5,000     | s.f.      | 3,502 | 1,751 | 1,751 | 283          | 142 | 141 | 273          | 137 | 136 |
| 945 Convenience Store/Gas Station: 9-15 vfp. - Proposed | 6,150     | s.f.      | 4,308 | 2,154 | 2,154 | 348          | 174 | 174 | 335          | 168 | 167 |
| <u>Pass-By Capture</u>                                  | <u>AM</u> | <u>PM</u> |       |       |       |              |     |     |              |     |     |
| 945 Convenience Store/Gas Station - Existing            | 76%       | 75%       | 2,644 | 1322  | 1,322 | 215          | 108 | 107 | 205          | 103 | 102 |
| 945 Convenience Store/Gas Station - Proposed            | 76%       | 75%       | 3,254 | 1627  | 1,627 | 264          | 132 | 132 | 251          | 126 | 125 |
| Difference in Pass-By Trips                             |           |           | 610   | 305   | 305   | 49           | 24  | 25  | 46           | 23  | 23  |
|                                                         |           |           |       |       |       |              |     |     |              |     |     |
| Total Net New External Trips: Proposed Site             |           |           | 1,054 | 527   | 527   | 84           | 42  | 42  | 84           | 42  | 42  |
| Total Net New External Trips: Existing Site             |           |           | 858   | 429   | 429   | 68           | 34  | 34  | 68           | 34  | 34  |
| Difference in Total Net New External Trips              |           |           | 196   | 98    | 98    | 16           | 8   | 8   | 16           | 8   | 8   |
|                                                         |           |           |       |       |       |              |     |     |              |     |     |

## **Appendix C:**

### **Traffic Count Data**

## SR 96/ N Arendell Ave &amp; Pearces Rd/Five County Spay and Neuter Clinic Dwy

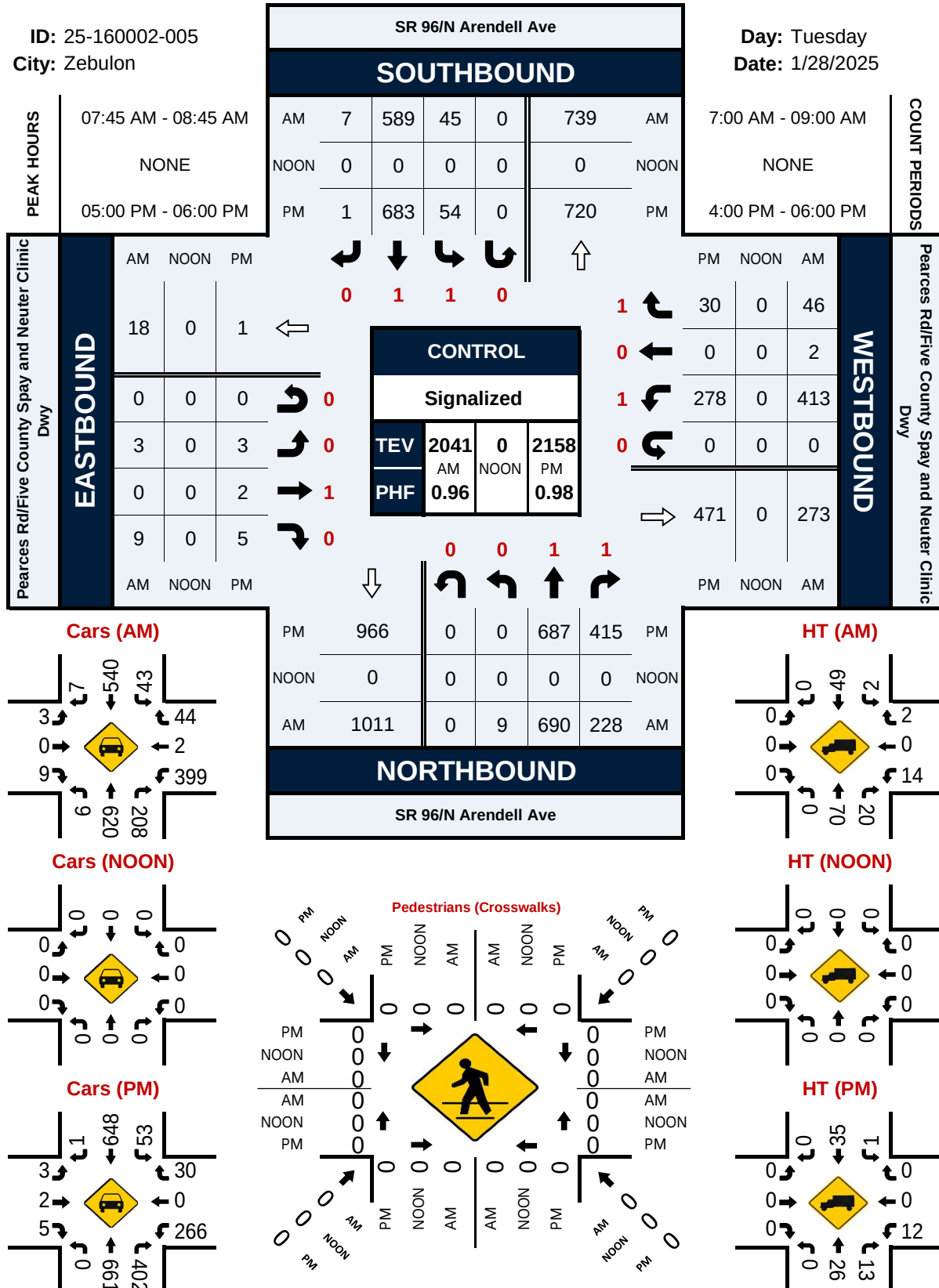
## Peak Hour Turning Movement Count

ID: 25-160002-005

City: Zebulon

Day: Tuesday

Date: 1/28/2025



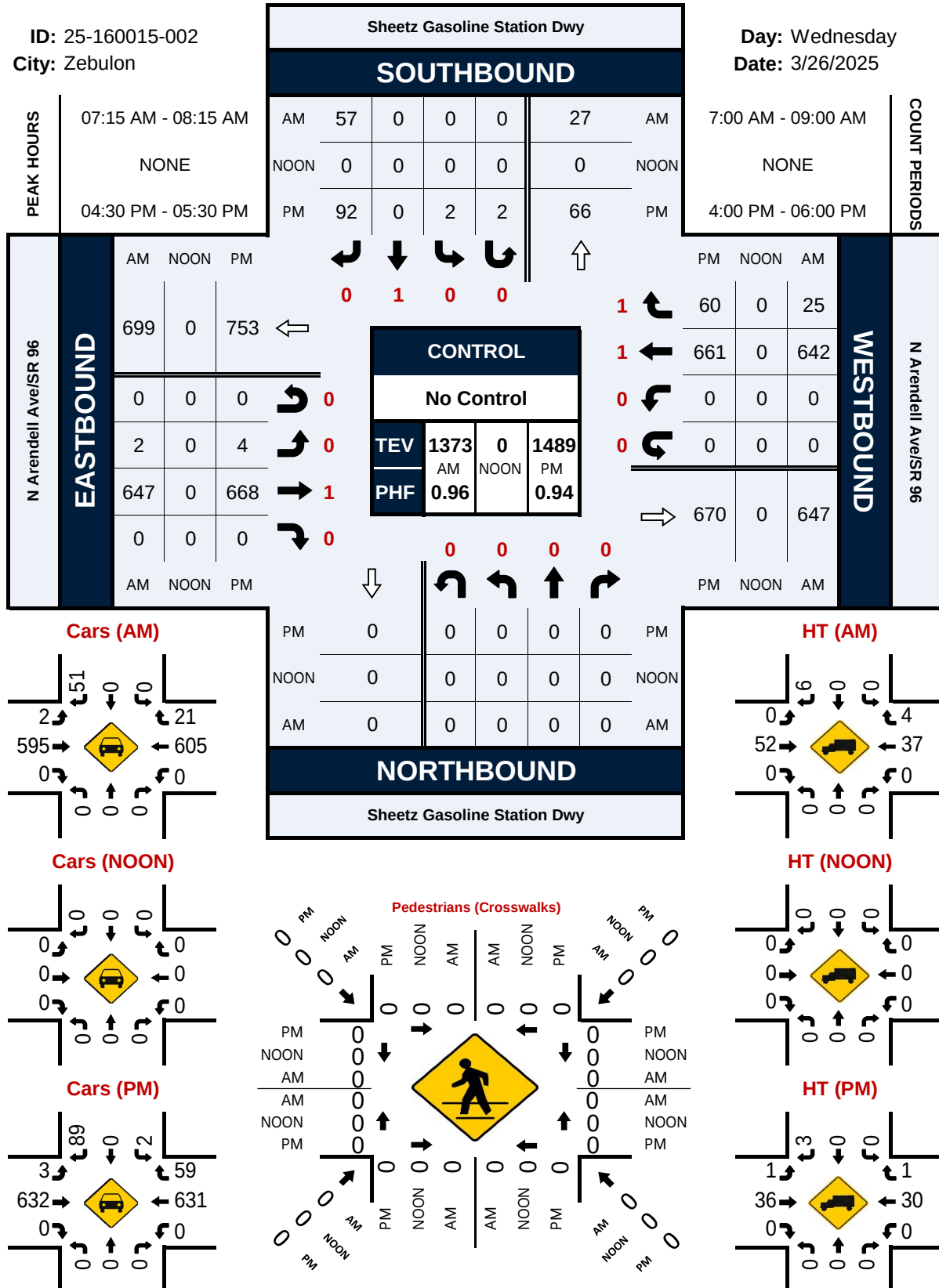


## Sheetz Gasoline Station Dwy &amp; N Arendell Ave/SR 96

## Peak Hour Turning Movement Count

ID: 25-160015-002  
City: Zebulon

Day: Wednesday  
Date: 3/26/2025



## Pearces Rd/CR 1001 &amp; Sheetz Gasoline Station Dwy

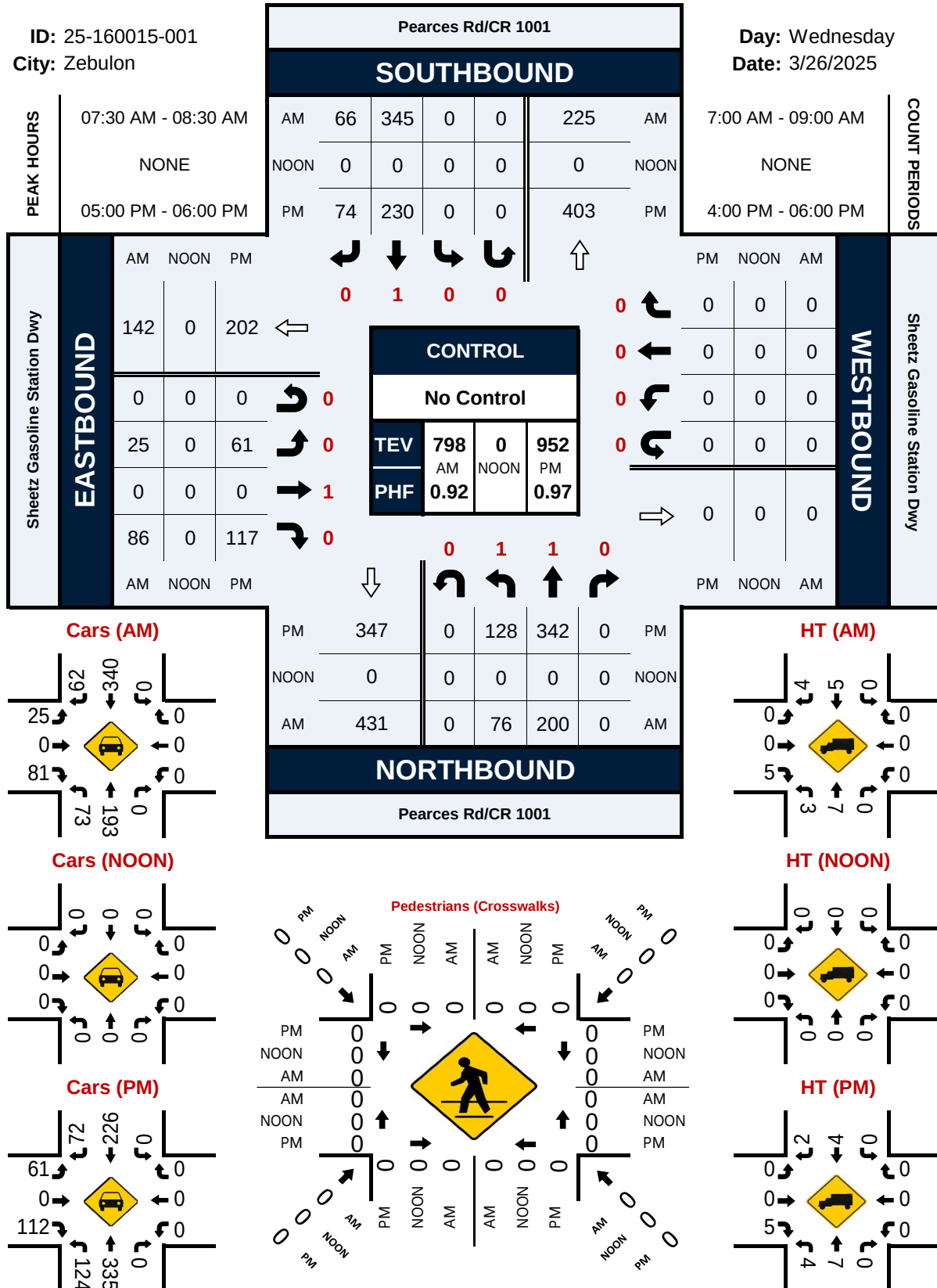
## Peak Hour Turning Movement Count

ID: 25-160015-001

City: Zebulon

Day: Wednesday

Date: 3/26/2025



**Appendix D:**  
**Approved Development Information**

# TRAFFIC IMPACT ANALYSIS

## *Zebulon 7-Eleven Convenience Store*

*ZEBULON, NORTH CAROLINA*



**REPORT PREPARED FOR:**

C4 CStore Holdings II, LLC  
121 West Trade Street, Suite 2550  
Charlotte, NC 28202

**REPORT PREPARED BY**

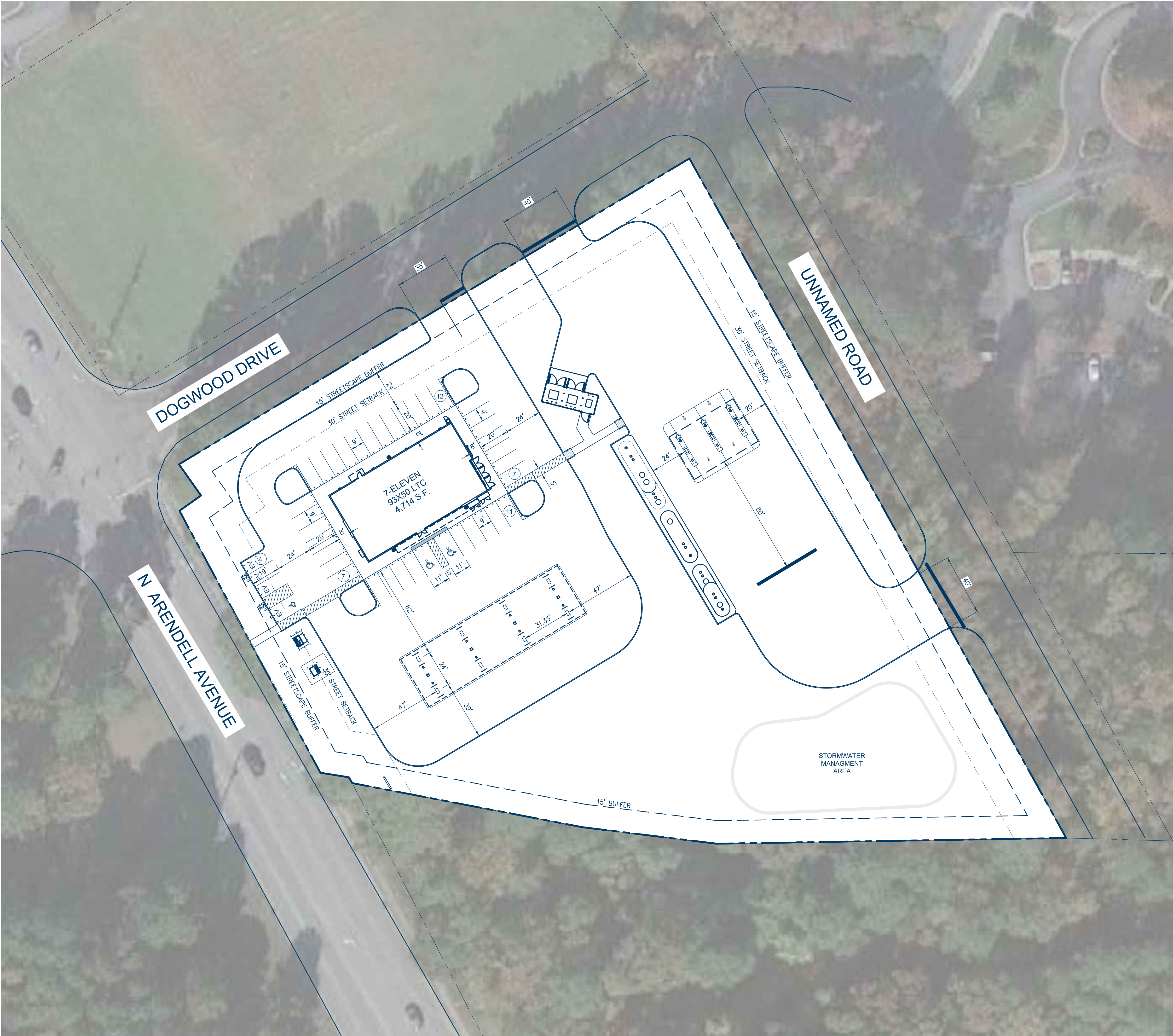
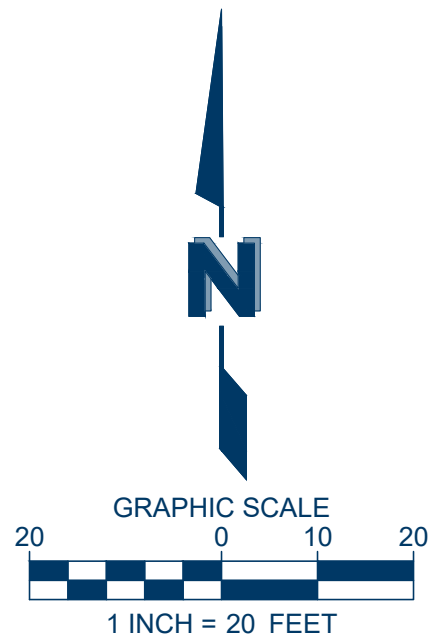
Impact Designs, Inc.  
PO Box 3728  
Mooresville, NC 28117  
nick@impactdesignsinc.com



Drawing name: L:\7-Eleven\2022\C22-144 & C22-145 - 1056397 - Zebulon, NC (N Arendell Ave & Dogwood Dr)\01 Preliminary\Site Sketch\C22144 - CSP1.dwg, Oct 26, 2022 - 11:28am

- QUALIFICATIONS
1. THIS SITE PLAN WAS PRODUCED WITH THE BEST INFORMATION AVAILABLE AT DATE OF PRODUCTION.
  2. NO ALTA/TOPO SURVEY, NO TITLE REPORT, NO EASEMENT RESEARCH WAS AVAILABLE.
  3. TRANSPORTATION, UTILITY, ARCHEOLOGICAL, HISTORICAL RESEARCH WAS NOT PERFORMED.
  4. NO ZONING REQUIREMENTS, SETBACKS, BUFFERS WERE SUPPLIED AT THE DATE OF THIS PLAN. PROPOSED LAYOUT MAY NEED TO BE ADJUSTED PENDING ADDITIONAL INFORMATION.
  5. WATER QUALITY/QUANTITY TREATMENT LOCATION AND SIZE SUBJECT TO ENGINEERING CALCULATIONS AND AGENCY REVIEW.
  6. FOR ILLUSTRATIVE PURPOSES ONLY. NOT FOR LEASING DIMENSIONS OR CONSTRUCTION. ALL DIMENSIONS AND LAYOUT SUBJECT TO CHANGE.
  7. SITE PLAN WILL REQUIRE 7-ELEVEN AND CITY APPROVAL.

|                |               |
|----------------|---------------|
| SITE SUMMARY   |               |
| AREA           | 152,875 S.F.± |
| PARKING SPACES | 41            |



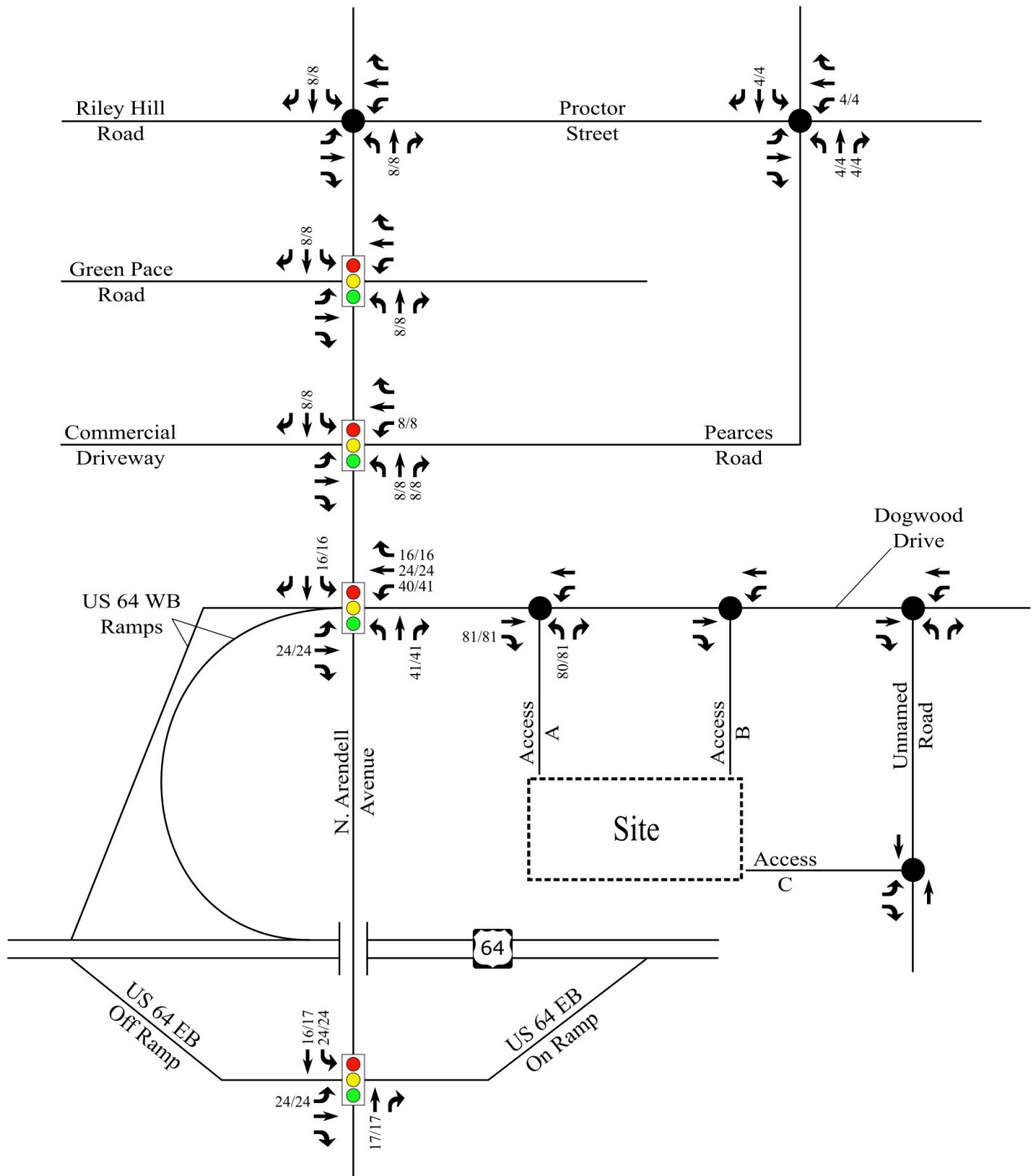
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| 99  |      |                      |    |
| 100 |      |                      |    |

| CONCEPTUAL SITE PLAN                       | SHEET |
|--------------------------------------------|-------|
| N ARENDELL AVE & DOGWOOD DR<br>ZEBULON, NC | CSP1  |

**THE DIMENSION GROUP**  
ARCHITECTURE • CIVIL ENGINEERING • MEP ENGINEERING  
1000 N. ZEPHURUS BLVD., SUITE 200  
ZEBULON, NC 27358  
TEL: 214.243.9400 www.dimensiongroup.com

THIS PLAN IS THE PROPERTY OF THE DIMENSION GROUP. IT IS NOT TO BE REPRODUCED OR USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF THE DIMENSION GROUP.





### LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
- X / Y → AM / PM Passenger Vehicle Site Trips

**IMPACT**  
Designs, Inc.

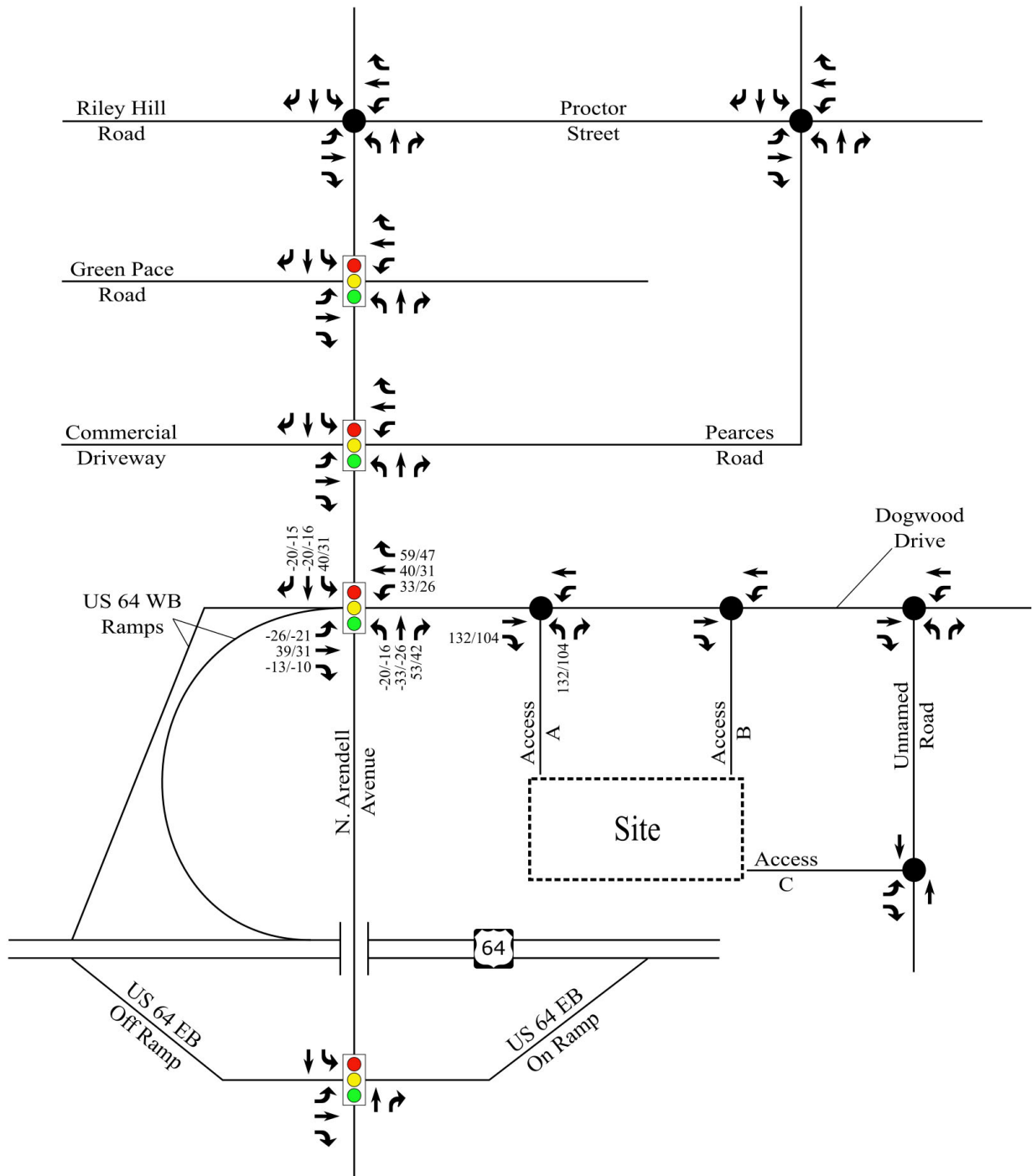
*Zebulon 7-Eleven  
Zebulon, NC*

Primary Trip Assignments -  
Passenger Vehicles

Scale: Not to Scale

Figure

8



#### LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
- X/Y → AM / PM Pass-By Trips

**IMPACT**  
Designs, Inc.

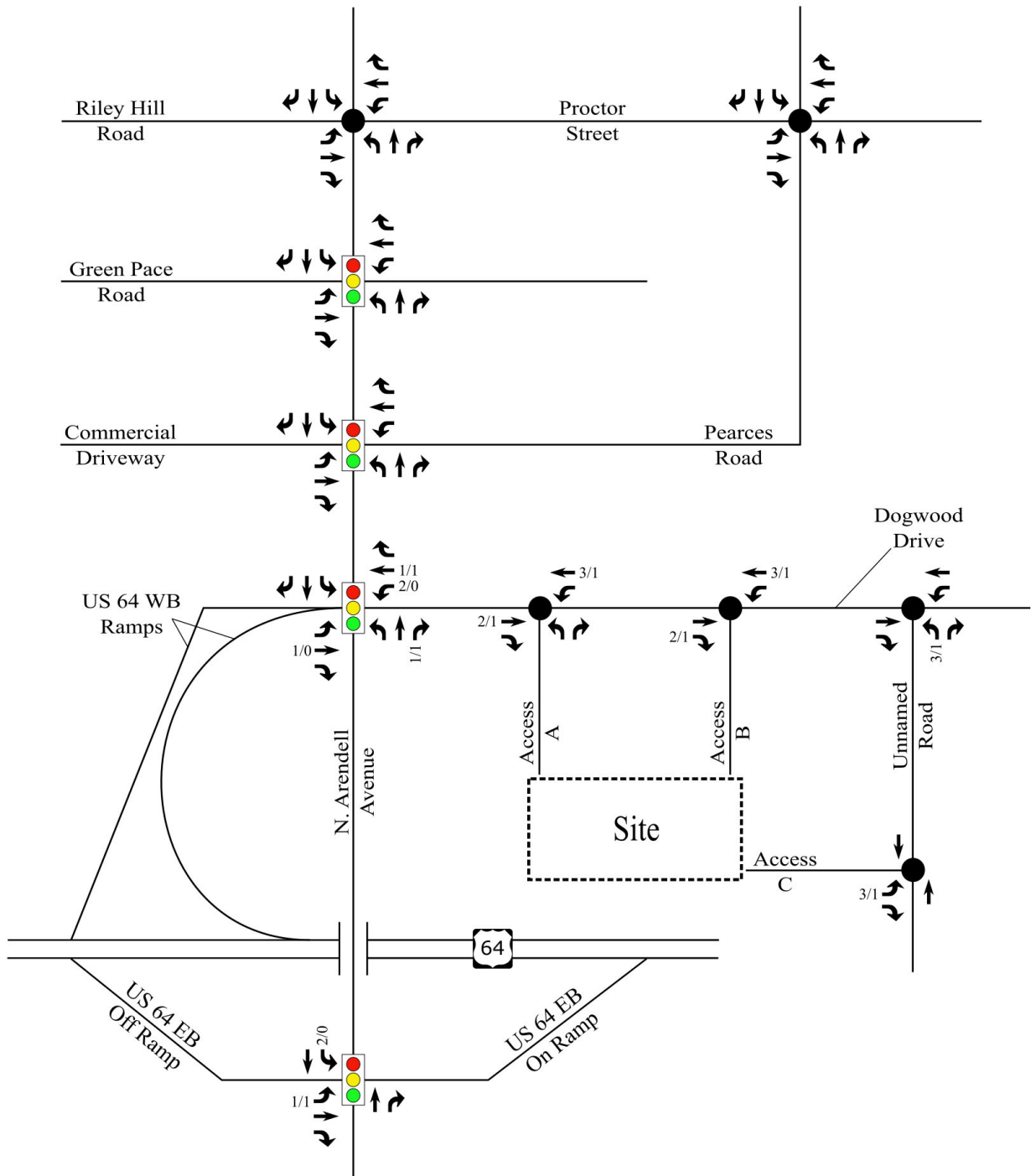
*Zebulon 7-Eleven  
Zebulon, NC*

Pass-By Trip Assignments

Scale: Not to Scale

Figure

10



# LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
- X/Y → AM / PM Truck Site Trips

**IMPACT**  
Designs, Inc.

*Zebulon 7-Eleven  
Zebulon, NC*

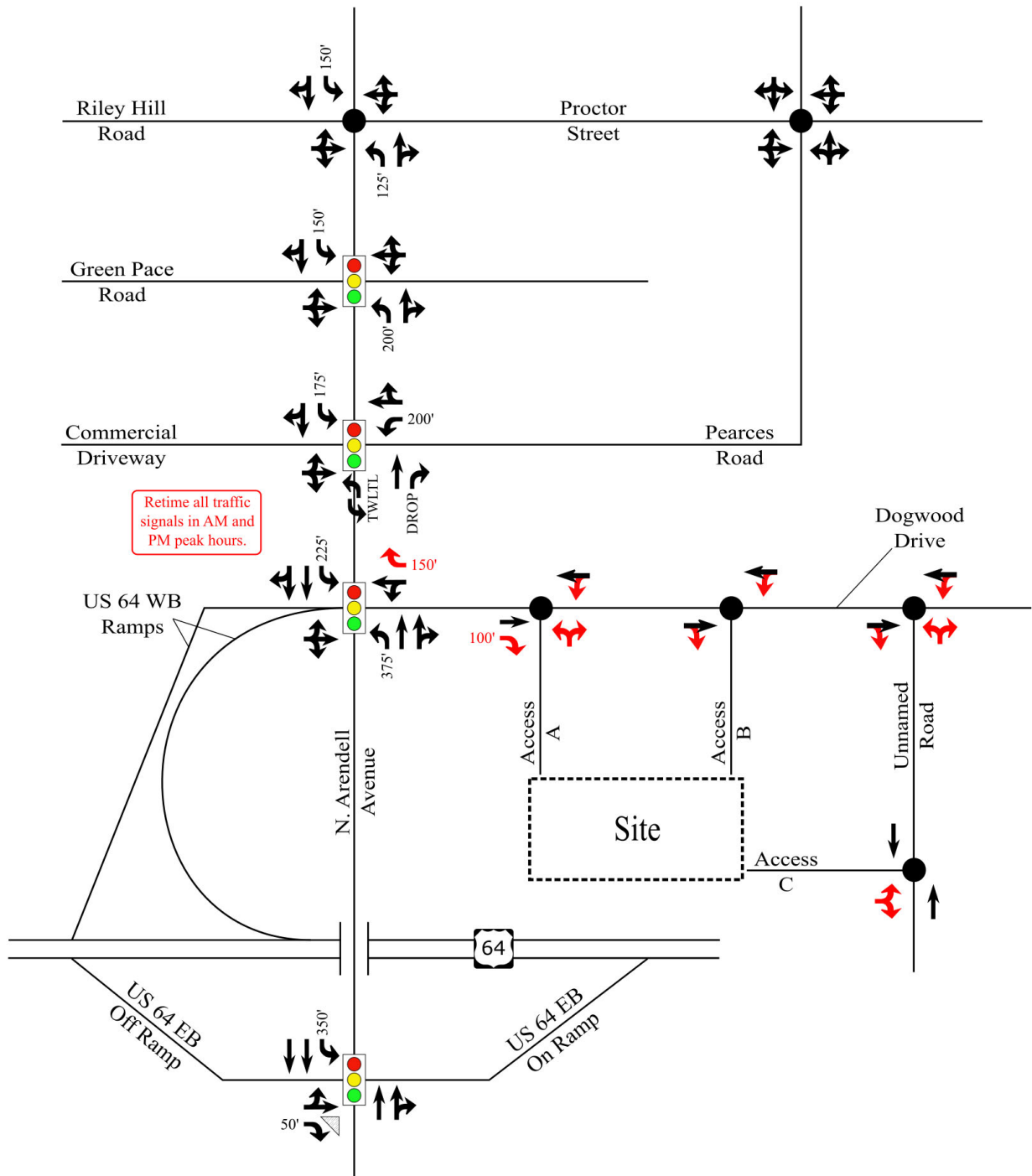
Primary Trip Assignments -  
Trucks

Scale: Not to Scale

Figure

12





### LEGEND

-  Signalized Intersection
-  Unsignalized Intersection
-  Existing Lane
-  Channelized Movement
-  Recommended Improvement
-  Storage (In Feet)

**IMPACT**  
Designs, Inc.

*Zebulon 7-Eleven  
Zebulon, NC*

Proposed Lane Configurations  
and Traffic Control

Scale: Not to Scale

Figure

14

# Pearces Road Residential Development

## Traffic Impact Analysis

Zebulon, North Carolina

October 2020

*Prepared for:*

DR Horton





#### SITE DATA

SITE ADDRESSES: 1015 Pearces Road  
 0 Pippin Road  
 921 Pearces Road  
 Total Acreage: ±117.47 Ac.  
 Conservation Area (Includes Rec. Area): 61.24 Ac. (52.13%)  
 Development Area: 56.23 Ac.  
 Total No. Lots: 232  
 Gross Density: 1.98 DU/AC  
 Watershed: Moccasin Creek

**Wm. G. Daniel & Assoc.**  
 Engineering Planning  
 Site Design  
 1100-4E GARDEN ROAD  
 SUITE 200  
 CARY, NC 27513  
 PH: 919-467-8700, FX: 919-460-7568  
 E: G1239  
 FDD: 106 56-1273588

#### Revisions

Project  
 D.R. Horton Property  
 Zebulon, NC

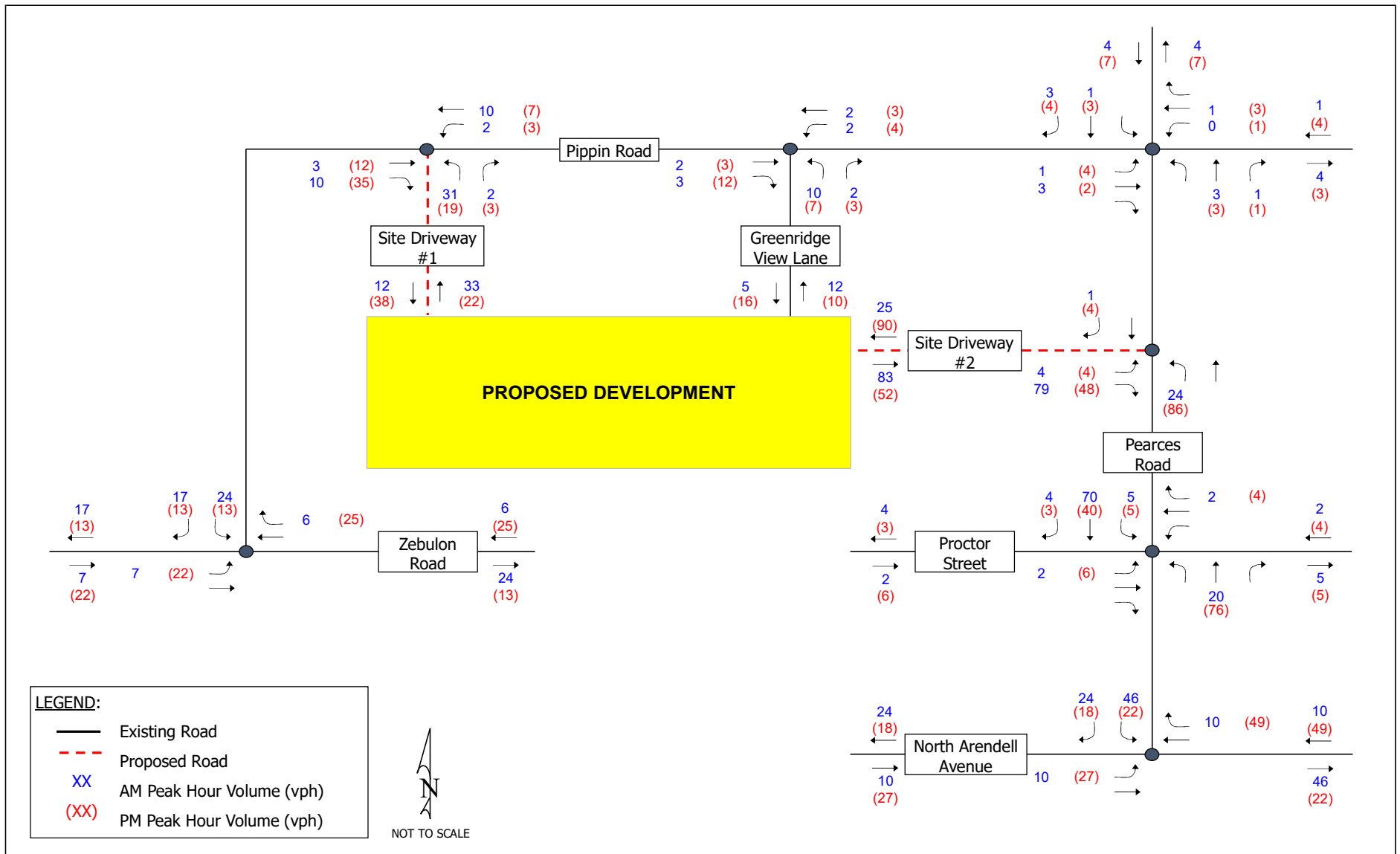
Conservation Subdivision  
 Development Areas Map

Date  
 July 2, 2020

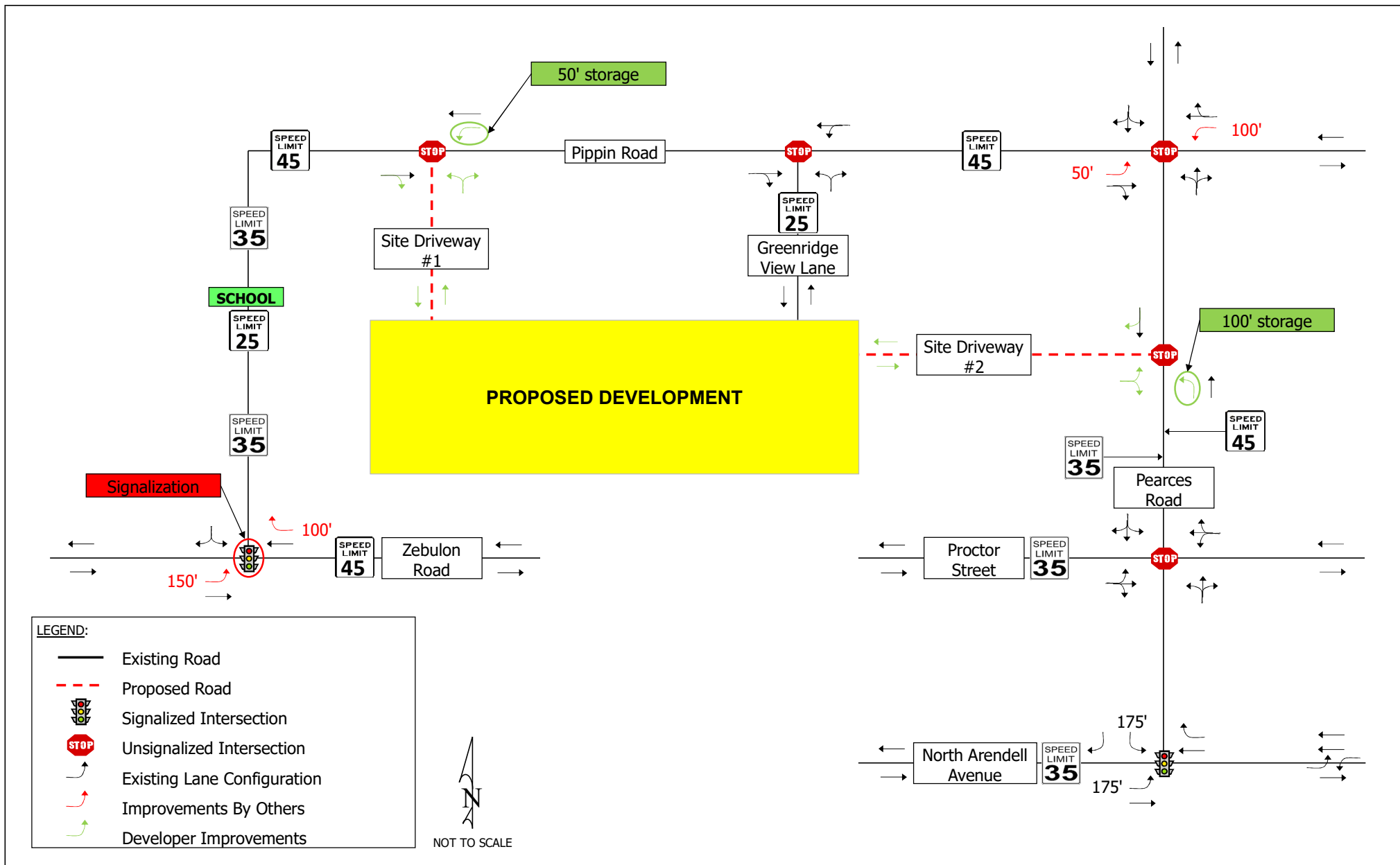
Scale  
 1" = 200'

Sheet

1 of 1









**TRAFFIC IMPACT  
ANALYSIS  
FOR  
ZEBULON DOMINO'S  
LOCATED IN  
ZEBULON, NORTH CAROLINA**

**Prepared For:**

Rivers & Associates, Inc.  
353 E Six Forks Road  
Suite 230  
Raleigh, NC

**Prepared By:**

DRMP, Inc.  
License #F-1524

| SITE DATA TABLE                         |                                                                                                                                                                                                                                                                                |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROPERTY INFORMATION / SITE ADDRESSES - | NC PIN - 27-0600-6772<br>ADDRESS - 1000 HENDRICKS DR<br>ZEBULON, WAKE COUNTY, NORTH CAROLINA 27597<br>LITTLE RIVER (PER IMAPS)                                                                                                                                                 |
| TOWNSHIP -                              | JTSJ INC.                                                                                                                                                                                                                                                                      |
| OWNER/ DEVELOPER -                      | 9107 S TRYON ST STE, F, CHARLOTTE, NC 28273                                                                                                                                                                                                                                    |
| SITE AREA -                             | 0.913 AC (PER SURVEY)                                                                                                                                                                                                                                                          |
| LAND USE -                              | EXISTING - VACANT / STORMWATER CONTROL MEASURE<br>PROPOSED - RESTAURANT WALK-UP ONLY                                                                                                                                                                                           |
| ZONING -                                | HC-HEAVY COMMERCIAL                                                                                                                                                                                                                                                            |
| STREET -                                | 30'                                                                                                                                                                                                                                                                            |
| SETBACKS -                              | SIDE - 0', 9' IF PROVIDED<br>REAR - 0'                                                                                                                                                                                                                                         |
| BUFFERS -                               | 15' STREETSCAPE BUFFER ALONG HENDRICKS DR & JONES ST<br>10' TYPE 'W' PERIMETER BUFFER ALONG ADJACENT PROPERTIES                                                                                                                                                                |
| BUILDING DATA -                         | PROPOSED BUILDING FOOTPRINT = +/- 1,632 SF<br>1 SPACE / EMPLOYEE ON LARGEST SHIFT<br>1 SPACE / OUTDOOR SEATING LOCATION<br>11 EMPLOYEES + 2 OUTDOOR SEATING LOCATIONS<br>= 13 PARKING SPACES REQUIRED<br>PROVIDED - 13 PARKING SPACES, INCL. 2 VAN ACCESSIBLE HANDICAP SPACES. |
| PARKING -                               | MINIMUM DIMENSIONS: 10' X 20'<br>1 SPACE / 20 OFF-STREET AUTO PARKING SPACES<br>20 SPACES ON SITE, NO BICYCLE PARKING REQUIRED                                                                                                                                                 |
| BICYCLE PARKING -                       | REQUIRED -                                                                                                                                                                                                                                                                     |
| IMPERVIOUS SURFACE -                    | EXISTING - N/A                                                                                                                                                                                                                                                                 |
| AREA                                    | PROPOSED - ASPHALT PAVEMENT - +/-12,848 SF<br>(INCLUDES C + G)<br>CONCRETE - +/- 2,231 SF<br>BUILDING - +/- 1,632 SF<br>TOTAL - +/-16,771 SF<br>(+/- 0.385 AC)<br>PROPOSED IMPERVIOUS PERCENTAGE - +/- 42.17%                                                                  |

GENERAL NOTES:

1. ALL SITE WORK SHALL BE DONE IN ACCORDANCE WITH THE PLANS PREPARED BY RIVERS AND ASSOCIATES, INC., THE CURRENT REQUIREMENTS OF THE TOWN OF ZEBULON, THE APPLICABLE SECTIONS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADWAY CONSTRUCTION, AND ALL OTHER PERTINENT FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, PROVISIONS, AND POLICIES GOVERNING SAFETY AND HEALTH, INCLUDING THE FEDERAL CONSTRUCTION SAFETY ACT (PUBLIC LAW 91-54), FEDERAL REGISTER, CHAPTER XVI, PART 1508 OF TITLE 29 REGULATIONS, OCCUPATIONAL SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION, AND SUBSEQUENT PUBLICATIONS UPDATING THESE REGULATIONS.
2. THE CONTRACTOR SHALL COMPLY AT ALL TIMES WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, PROVISIONS, AND POLICIES GOVERNING SAFETY AND HEALTH, INCLUDING THE FEDERAL CONSTRUCTION SAFETY ACT (PUBLIC LAW 91-54), FEDERAL REGISTER, CHAPTER XVI, PART 1508 OF TITLE 29 REGULATIONS, OCCUPATIONAL SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION, AND SUBSEQUENT PUBLICATIONS UPDATING THESE REGULATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXAMINING THE AREAS AND CONDITIONS UNDER WHICH THE PROJECT IS TO BE CONSTRUCTED PRIOR TO THE SUBMISSION OF A BID. SUBMISSION OF A BID SHALL BE CONSIDERED TO MEAN THE CONTRACTOR HAS REVIEWED THE SITE AND IS FAMILIAR WITH CONDITIONS AND CONSTRAINTS OF THE SITE.
4. BEFORE EXCAVATION, ALL UNDERGROUND UTILITIES SHALL BE LOCATED IN THE FIELD BY THE PROPER AUTHORITIES. THE CONTRACTOR SHALL NOTIFY N.C. ONE CALL AT 1-800-652-4049. THE LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES ARE APPROXIMATE AND MAY NOT ALL BE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND EXACT LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES.
5. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT PRIOR TO INITIATION OF ANY EARTHWORK ACTIVITY.
6. CONTRACTOR SHALL NOTIFY PUBLIC WORKS STREET MAINTENANCE DIVISION 48 HOURS PRIOR TO MAKING CONNECTIONS TO EXISTING STORM DRAINS LOCATED WITHIN PUBLIC STORM DRAINAGE EASEMENTS OR ROW.
7. REFER TO C1.02 FOR SURVEY CONTROL INFORMATION.
8. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION.
9. PER FEMA FIRM MAP 372046000L DATED 7/7/14, THIS PROJECT IS IN ZONE X AND THEREFORE THERE IS NO REGULATORY FLOODPLAIN LOCATED ON THIS PROPERTY.
10. BUILDINGS, STRUCTURES OR OTHER IMPROVEMENTS, MATERIALS AND SURFACES, INCLUDING BUT NOT LIMITED TO PAVEMENT AND ACCESSORY STRUCTURES AND ADDITIONS AND APPURTENANCES THERETO, SIGNAGE, FENCES, WALLS, MECHANICAL EQUIPMENT, CANOPIES, ANTENNAS, MASTS, DEBRIS, SOLID WASTE COLLECTION CONTAINERS, MAIL RECEPTACLES, AND IMPERVIOUS SURFACES SHALL NOT ENCROACH WITHIN ANY DEDICATED EASEMENT WITHOUT PRIOR APPROVAL OF TOWN OF ZEBULON & THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
11. SOIL EROSION AND SEDIMENTATION CONTROL PLAN IS NOT APPLICABLE, THE SITE DISTURBANCE IS LESS THAN ONE ACRE.
12. WETLANDS ARE VALUABLE NATURAL RESOURCES THAT PROVIDE IMPORTANT ECOLOGICAL FUNCTIONS. BE ADVISED THAT ACTIVITIES IN WETLANDS ARE REGULATED BY THE FEDERAL GOVERNMENT UNDER SECTION 404 OF THE CLEAN WATER ACT. JURISDICTIONAL WETLANDS MAY INCLUDE THE PINE-SPRUE POCCONS THAT ARE COMMON IN THIS REGION. IF ANY PRIVATE LAND OWNER, DEVELOPER, CORPORATION, OR OTHER PERSON PROPOSES TO UNDERTAKE CONSTRUCTION/FILLING ACTIVITIES IN OR NEAR A LAKE, STREAM, CREEK TRIBUTARY OR ANY UNNAMED BODY OF WATER INCLUDING ITS ADJACENT WETLANDS, FEDERAL PERMIT AUTHORIZATION MAY BE REQUIRED FROM THE U.S. ARMY CORPS OF ENGINEERS PRIOR TO COMMENCEMENT OF SUCH LAND-DESTRUCTING ACTIVITIES. PLEASE CONTACT MS. TRACY WHEELER, TELEPHONE (252) 975-1616 FOR A WETLAND DETERMINATION AND INFORMATION REGARDING SPECIFIC PERMIT REQUIREMENTS, WETLAND DETERMINATION PENDING, BY OTHERS.
13. APPROVAL OF SITE PLAN DOES NOT CONSTITUTE APPROVAL OF SIGNS. SEPARATE SIGN PERMITS ARE REQUIRED.
14. ALL SLOPES SHALL BE 3:1 (HORIZONTAL:VERTICAL) MAXIMUM UNLESS NOTED OTHERWISE.
15. ALL AREAS NOT PAVED SHALL BE TOPSOILED, SEEDED, MULCHED OR LANDSCAPED/SODDED UNLESS OTHERWISE NOTED IN THE CONSTRUCTION DRAWINGS, SITE SPECIFICATIONS OR INSTRUCTED BY THE OWNER.
16. ALL REQUIRED IMPROVEMENTS SHALL COMPLY WITH THE TOWN OF ZEBULON ZONING ORDINANCE.
17. REFUSE COLLECTION SHALL BE PROVIDED BY PRIVATE CONTRACTOR.
18. CONSTRUCTION OF ROADWAY EXTENSION BY OTHERS.

STORMWATER MANAGEMENT NOTES:

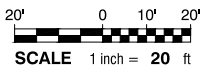
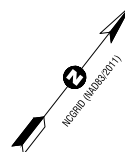
1. EXISTING STORMWATER MANAGEMENT DETENTION BASIN  
A. ON-SITE ALLOWABLE IMPERVIOUS SURFACE AREA = 1.89 AC = 82,328 SF  
B. SONIC IMPERVIOUS SURFACE AREA = 0.84 AC = 36,398 SF  
C. CAPITAL BANK IMPERVIOUS SURFACE AREA = 0.96 AC = 41,894 SF
2. ALLOWABLE IMPERVIOUS SURFACE AREA FOR SITE = 0.48 AC = 21,344 SF
3. PROPOSED IMPERVIOUS SURFACE AREA FOR SITE = 0.46 AC = 19,771 SF
4. ALLOWABLE FUTURE IMPERVIOUS AREA = 21,344 SF - 19,771 SF = 1,573 SF

NOTE:

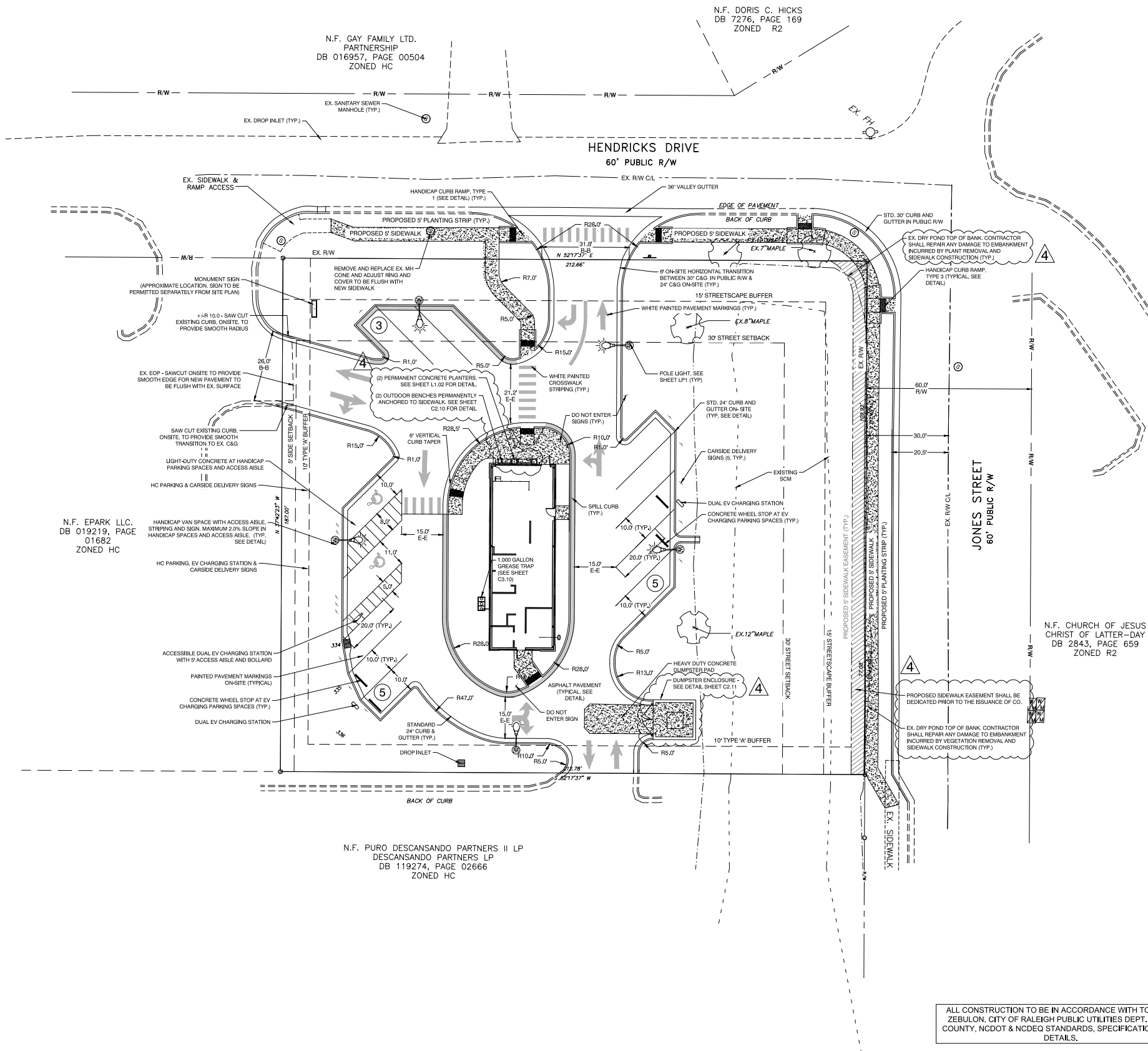
1. PAVEMENT MARKINGS WITHIN SITE CAN BE PAINTED. PAVEMENT MARKINGS WITHIN RIGHT OF WAY SHALL BE THERMOPLASTIC AND SHALL BE INSTALLED IN ACCORDANCE WITH NCDOT STANDARDS AND SPECIFICATIONS.
2. EXISTING ON-SITE FIBER OPTIC LINES TO BE REROUTED BY CONTRACTOR.

HC RAMPS:

1. ALL HC RAMPS TO BE FIELD ADJUSTED WITH INPUT FROM THE TOWN OF ZEBULON FIELD INSPECTOR PRIOR TO INSTALLATION.
2. POWER POLES WHICH CONFLICT WITH FIELD LOCATED HC RAMPS ARE TO BE RELOCATED BY APPROPRIATE UTILITY COMPANY.



ALL CONSTRUCTION TO BE IN ACCORDANCE WITH TOWN OF ZEBULON, CITY OF RALEIGH PUBLIC UTILITIES DEPT., WAKE COUNTY, NCDOT & NCEQ STANDARDS, SPECIFICATIONS AND DETAILS.



NC License: F-5534

**Rivers**

Engineers  
Surveyors  
Landscape Architects

615.848.8333

615.848.8333

615.848.8333

Site: 230  
Road  
Raleigh, NC 27609  
919.594.1826

CONSTRUCTION DRAWINGS

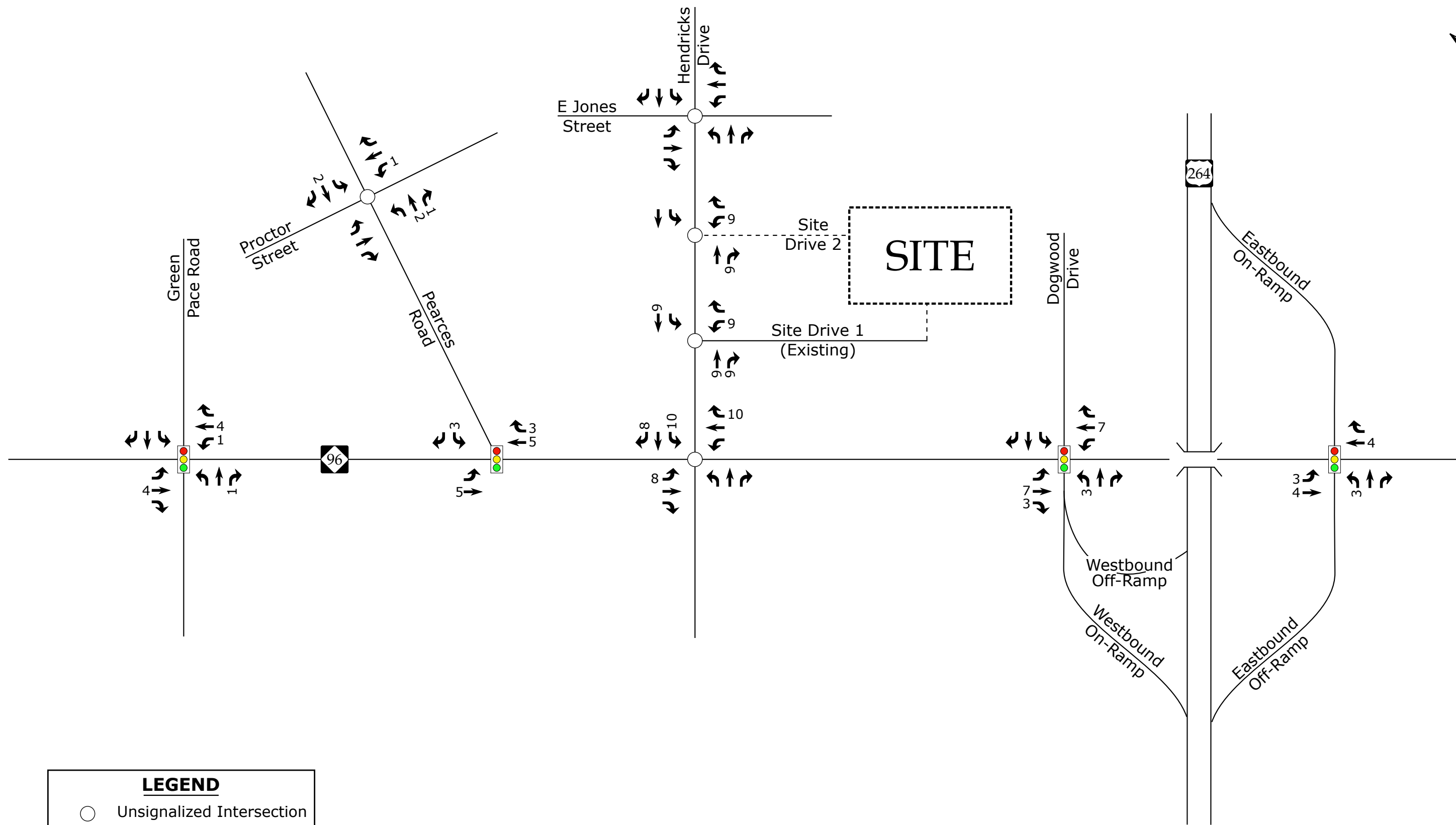
**DOMINO'S ZEBULON**

TOWN OF ZEBULON - WAKE COUNTY - NORTH CAROLINA

SITE PLAN

| REVISIONS: |    |                                   |      |    |
|------------|----|-----------------------------------|------|----|
| DATE       | BY | DESCRIPTION                       | DATE | BY |
| 08/28/24   |    | CONSTRUCTION DRAWING SUBMITTAL #5 |      |    |
| 05/22/24   |    | CONSTRUCTION DRAWING SUBMITTAL #4 |      |    |
| 01/19/24   |    | CONSTRUCTION DRAWING SUBMITTAL #3 |      |    |
| 12/07/23   |    | CONSTRUCTION DRAWING SUBMITTAL #2 |      |    |
| 11/07/23   |    | TRC REVIEW PLAN                   |      |    |
| 06/07/23   |    | CONSTRUCTION DRAWING SUBMITTAL #1 |      |    |
|            |    |                                   |      |    |

|              |              |
|--------------|--------------|
| DATE:        |              |
| DESIGNED BY: | SF/MS        |
| DRAWN BY:    | SF/MS        |
| CHECKED BY:  | JSJ/PRM      |
| PROJECT No.  | 2023018      |
| DRAWING No.  | W-4081       |
| SCALE:       | AS SHOWN     |
| SHEET No.    | <b>C2.01</b> |

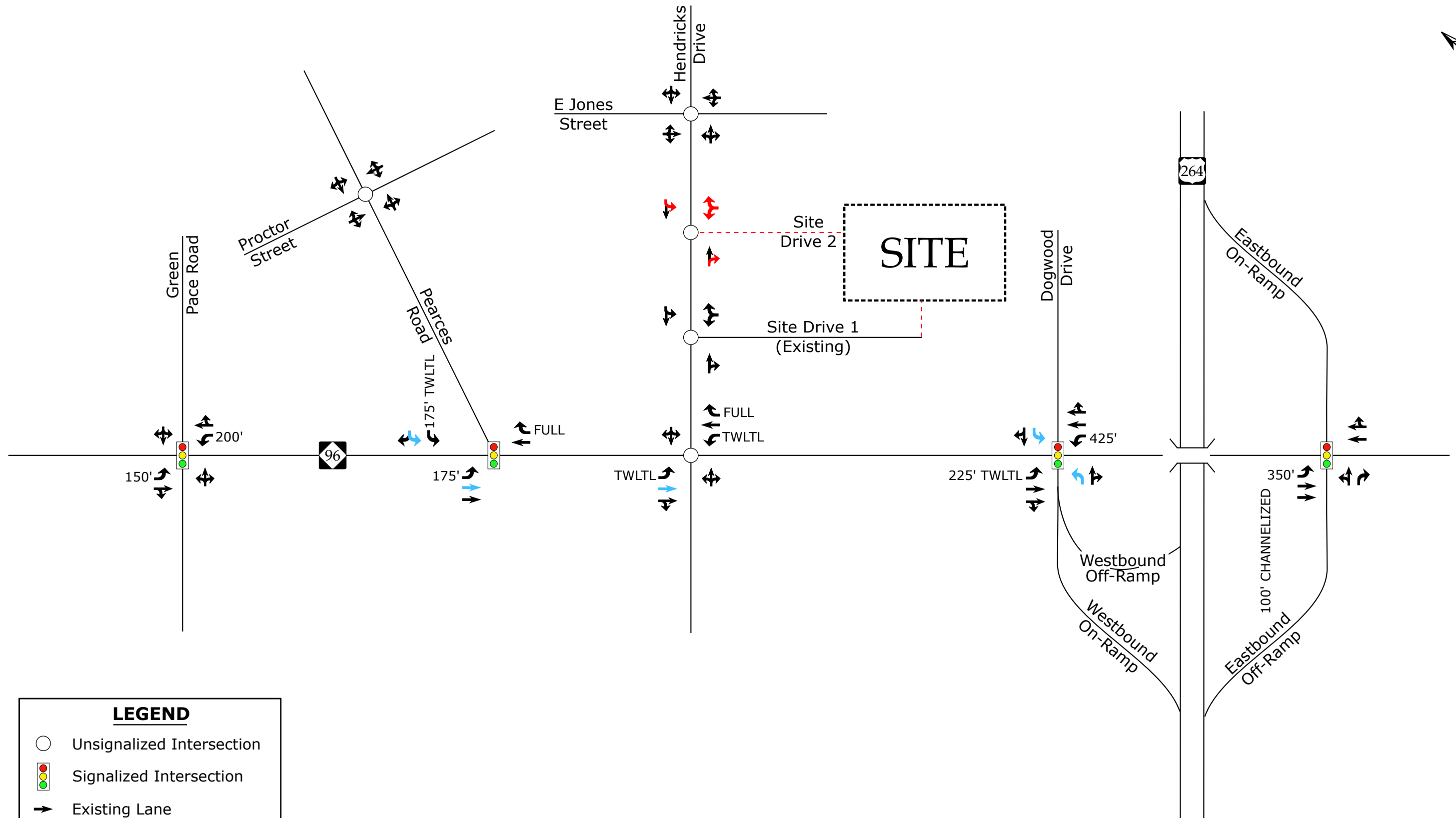


**LEGEND**

- Unsignalized Intersection
- ◫ Signalized Intersection
- X → Weekday PM Peak Hour Site Trips

|                                                                                       |                                 |                      |          |
|---------------------------------------------------------------------------------------|---------------------------------|----------------------|----------|
|  | Zebulon Domino's<br>Zebulon, NC | Site Trip Assignment |          |
|                                                                                       |                                 | Scale: Not to Scale  | Figure 7 |





**LEGEND**

- Unsignalized Intersection
- ◫ Signalized Intersection
- ➡ Existing Lane
- ➡ Improvement by Developer
- ➡ NCDOT Improvement
- x' Storage (In Feet)



Zebulon Domino's  
Zebulon, NC

Recommended Lane  
Configurations

Scale: Not to Scale Figure 11



RAMEY KEMP & ASSOCIATES, INC.  
5808 Faringdon Place, Suite 100  
Raleigh, NC 27609  
Phone: 919-872-5115  
www.rameykemp.com

July 25, 2019

Mr. Meade Bradshaw  
Assistant Planning Director  
Town of Zebulon  
1003 N. Arendell Avenue  
Zebulon, NC 27597  
Phone: (919) 269-7455  
Email: [mbradshaw@townofzebulon.org](mailto:mbradshaw@townofzebulon.org)

Subject: Traffic Study  
Weaver's Ridge – Zebulon, North Carolina

Dear Mr. Bradshaw:

This letter provides the findings of the traffic study prepared by Ramey Kemp & Associates, Inc. (RKA) for the proposed Weaver's Ridge development located east of Zebulon Road (NC 96) across from Glory Road in Zebulon, North Carolina. The purpose of the study is to determine how traffic generated by the proposed development is expected to impact surrounding roadways and intersections.

The proposed residential development is assumed to consist of 124 townhomes and 58 single-family homes. Refer to Figure 1 for the site location map. Site access will be provided via one (1) full movement site driveway along Zebulon Road (NC 96) across from Glory Road and a connection to the Weaver's Pond Development via Golden Plum Lane.

Refer to Figure 2 for the preliminary site plan of the proposed development and Figure 3 for an illustration of the existing lane configurations within the study area.

The study analyzes traffic conditions for the study intersections during the weekday AM and PM peak hours for the following scenarios:

- Existing (2019) Traffic Conditions
- Background (2024 +1) Traffic Conditions
- Combined (2024 +1) Traffic Conditions
- Combined (2024 +1) Traffic Conditions with Improvements

#### **Existing (2019) Peak Hour Conditions**

Through coordination with the Town of Zebulon (Town) and the North Carolina Department of Transportation (NCDOT), existing peak hour traffic volumes were determined based on previous and current traffic studies conducted within the study area. The counts from the Weaver's Pond Development were conducted by Ramey Kemp & Associates, Inc. in August of 2017 and projected to the year 2019 for the existing (2019) volumes for the following intersections:

- Zebulon Road (NC 96) and Pippin Road
- Pippin Road and Pearces Road

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in April of 2019 by Ramey Kemp & Associates, Inc. during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- Zebulon Road (NC 96) and Glory Road

The volumes conducted in 2017 were grown to the year 2019 using an annual 3% growth rate and then the volumes were balanced along Zebulon Road (NC 96) to account for any variance associated with the different count dates. Volumes were not balanced along Pippin Road due to the reasonable imbalance in comparison to the land uses between the intersections along Pippin Road. Refer to Figure 4 for existing weekday AM and PM peak hour traffic volumes. A copy of the count data is attached to this report. Through coordination with the Town and the NCDOT, it was determined that an annual growth rate of 3% would be used to generate projected traffic volumes. Refer to Figure 5 for projected (2025) traffic. It should be noted that the balanced existing (2019) traffic is not re-balanced after the growth rate is applied for the projected (2025) traffic volumes, which can result in minor (1 vehicle) imbalances due to rounding.

### **Adjacent Developments**

Through coordination with the Town, the following residential developments were identified to be included as an adjacent development in this study:

- Weaver's Pond
- Taryn Lake & Taryn Creek

Adjacent development trips are shown in Figure 6. Refer to the appendix in the attachments for the adjacent development information.

### **Background (2025) Peak Hour Conditions**

Background traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments. The background (2025) traffic volumes were determined by projecting the existing (2019) peak hour traffic to the year 2025 and adding the adjacent development trips. Refer to Figure 7 for background (2025) peak hour traffic.

### **Future Roadway Improvements**

The Weaver's Pond development has committed to improvements at the intersection of Zebulon Road (NC 96) and Pippin Road. The improvements are expected to consist of a northbound right-turn lane with at least 100 feet of storage and appropriate decel and taper, a southbound left-turn lane with at least 150 feet of storage and appropriate decel and taper, and signalization of the intersection.

### **Trip Generation**

The proposed development is assumed to consist of 124 townhomes and 58 single-family homes. 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*, 10<sup>th</sup> Edition. Refer to Table 1 for a detailed breakdown of the proposed site trip generation.

**Table 1: Trip Generation Summary**

| Land Use<br>(ITE Code)                                 | Intensity | Daily<br>Traffic<br>(vpd) | AM Peak Hour<br>Trips (vph) |           | PM Peak Hour<br>Trips (vph) |           |
|--------------------------------------------------------|-----------|---------------------------|-----------------------------|-----------|-----------------------------|-----------|
|                                                        |           |                           | Enter                       | Exit      | Enter                       | Exit      |
| Single-Family Detached Housing<br>(210)                | 58 units  | 630                       | 11                          | 35        | 38                          | 22        |
| Multifamily Housing (Low-Rise)<br>(Townhomes)<br>(220) | 124 units | 900                       | 14                          | 45        | 45                          | 27        |
| <b>Total Trips</b>                                     |           | <b>1,530</b>              | <b>25</b>                   | <b>80</b> | <b>83</b>                   | <b>49</b> |

It is estimated that the proposed development will generate approximately 1,530 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 105 trips (25 entering and 80 exiting) will occur during the weekday AM peak hour and 132 trips (83 entering and 49 exiting) will occur during the weekday PM peak hour.

#### **Site Trip Distribution and Assignment**

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. All trip distributions were approved by the Town and NCDOT during the scoping process. It is estimated that trips will be regionally distributed as follows:

- 20% to/from the north via Pearces Road
- 5% to/from the south via Pearces Road
- 50% to/from the south via Zebulon Road (NC 96)
- 25% to/from the north via Zebulon Road (NC 96)

It should be noted that based on engineering judgement it was determined that 100% of site trips will exit the site using the full movement site driveway located along Zebulon Road (NC 96). The site trip distribution is shown in Figure 8. Refer to Figure 9 for the site trip assignment.

It is not expected that the traffic from the proposed development will utilize the Weaver's Pond access; however, it is expected that a portion of the Weaver's Pond development will utilize the new site drive along Zebulon Road (NC 96). Based on coordination with the NCDOT and Town, Phases 3A and 5 of the Weaver's Pond Master Plan are proposed to be rerouted from the Weaver's Pond access on Pippin Road to the new Zebulon Road (NC 96) site drive aligned with Glory Road. Phases 3A and 5 include 137 homes combined, or approximately 19% of the total homes in the Weaver's Pond development. 19% of the Weaver's Pond site trips were rerouted from Pippin Road to the proposed site drive. Figure 10 illustrates the anticipated rerouted Weaver's Pond development site trips through the proposed Weaver's Ridge site.



### **Combined (2025) Peak Hour Conditions**

To estimate traffic conditions with the site fully built-out, the total site trips were added to the background (2025) traffic volumes to determine the combined (2025) traffic volumes. Refer to Figure 11 for an illustration of the combined (2025) peak hour traffic volumes with the proposed site fully developed.

### **Capacity Analysis**

The existing (2019), background (2025), and combined (2025) weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. The results of the analysis are presented in the following section of this report.

Zebulon Road (NC 96) and Pippin Road

The existing intersection of Zebulon Road (NC 96) and Pippin Road was analyzed under existing (2019), background (2025), and combined (2025) traffic conditions with the lane configurations and traffic control shown in Table 2. It should be noted that this intersection was analyzed as a signalized intersection for the background (2025) and combined (2025) scenarios. Refer to Table 2 for a summary of the analysis results. The Synchro capacity analysis reports are included in the attached appendix.

**Table 2: Analysis Summary of Zebulon Road (NC 96) and Pippin Road**

| ANALYSIS SCENARIO                                | A<br>P<br>P<br>O<br>N<br>D<br>A<br>C<br>H | LANE CONFIGURATIONS                               | WEEKDAY AM PEAK HOUR<br>LEVEL OF SERVICE |                   | WEEKDAY PM PEAK HOUR<br>LEVEL OF SERVICE |                   |
|--------------------------------------------------|-------------------------------------------|---------------------------------------------------|------------------------------------------|-------------------|------------------------------------------|-------------------|
|                                                  |                                           |                                                   | Approach                                 | Overall (seconds) | Approach                                 | Overall (seconds) |
| Existing (2019) Conditions                       | WB<br>NB<br>SB                            | 1 LT-RT<br>1 TH-RT<br>1 LT-TH                     | C <sup>2</sup><br>--<br>A <sup>1</sup>   | N/A               | D <sup>2</sup><br>--<br>A <sup>1</sup>   | N/A               |
| Background (2025) Conditions - <b>Signalized</b> | WB<br>NB<br>SB                            | 1 LT-RT<br>1 TH, <u>1 RT</u><br><u>1 LT</u> , 1TH | C<br>C<br>B                              | C<br>(22)         | D<br>C<br>C                              | C<br>(23)         |
| Combined (2025) Conditions - <b>Signalized</b>   | WB<br>NB<br>SB                            | 1 LT-RT<br>1 TH, <u>1 RT</u><br><u>1 LT</u> , 1TH | C<br>C<br>B                              | C<br>(21)         | D<br>C<br>C                              | C<br>(26)         |

Improvements by Weaver's Pond shown underlined.

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

Capacity analysis of existing (2019) traffic conditions indicates the minor-street approach at Zebulon Road (NC 96) and Pippin Road operates at LOS C during the weekday AM peak hour and LOS D during the weekday PM peak hour. The Weaver's Pond development is committed to constructing a northbound right-turn lane, a southbound left-turn lane and installing a signal at this intersection. These improvements were analyzed under future (2025) traffic conditions. Because signal plans and timings have not yet been finalized, the signal timings were optimized under background (2025) traffic conditions and the same timings were used to analyze combined (2025) traffic conditions. Under background (2025) and combined (2025) traffic conditions, the intersection is expected to operate at an overall LOS C or better.

It is anticipated that the improvements associated with the Weaver's Pond development will accommodate the proposed site traffic at this intersection.

Pippin Road and Pearces Road

The existing unsignalized intersection of Pippin Road and Pearces Road was analyzed under existing (2019), background (2025), and combined (2025) traffic conditions with the lane configurations and traffic control shown in Table 3. Refer to Table 3 for a summary of the analysis results. The Synchro capacity analysis reports are included in the attached appendix.

**Table 3: Analysis Summary of Pippin Road and Pearces Road**

| ANALYSIS SCENARIO            | A<br>P<br>P<br>R<br>O<br>A<br>C<br>H | LANE CONFIGURATIONS | WEEKDAY AM<br>PEAK HOUR<br>LEVEL OF SERVICE |                   | WEEKDAY PM<br>PEAK HOUR<br>LEVEL OF SERVICE |                   |
|------------------------------|--------------------------------------|---------------------|---------------------------------------------|-------------------|---------------------------------------------|-------------------|
|                              |                                      |                     | Approach                                    | Overall (seconds) | Approach                                    | Overall (seconds) |
| Existing (2019) Conditions   | EB                                   | 1 LT-TH-RT          | B <sup>2</sup>                              | N/A               | B <sup>2</sup>                              | N/A               |
|                              | WB                                   | 1 LT-TH-RT          | B <sup>2</sup>                              |                   | B <sup>2</sup>                              |                   |
|                              | NB                                   | 1 LT-TH-RT          | A <sup>1</sup>                              |                   | A <sup>1</sup>                              |                   |
|                              | SB                                   | 1 LT-TH-RT          | A <sup>1</sup>                              |                   | A <sup>1</sup>                              |                   |
| Background (2025) Conditions | EB                                   | 1 LT-TH-RT          | C <sup>2</sup>                              | N/A               | C <sup>2</sup>                              | N/A               |
|                              | WB                                   | 1 LT-TH-RT          | C <sup>2</sup>                              |                   | C <sup>2</sup>                              |                   |
|                              | NB                                   | 1 LT-TH-RT          | A <sup>1</sup>                              |                   | A <sup>1</sup>                              |                   |
|                              | SB                                   | 1 LT-TH-RT          | A <sup>1</sup>                              |                   | A <sup>1</sup>                              |                   |
| Combined (2025) Conditions   | EB                                   | 1 LT-TH-RT          | C <sup>2</sup>                              | N/A               | C <sup>2</sup>                              | N/A               |
|                              | WB                                   | 1 LT-TH-RT          | C <sup>2</sup>                              |                   | C <sup>2</sup>                              |                   |
|                              | NB                                   | 1 LT-TH-RT          | A <sup>1</sup>                              |                   | A <sup>1</sup>                              |                   |
|                              | SB                                   | 1 LT-TH-RT          | A <sup>1</sup>                              |                   | A <sup>1</sup>                              |                   |

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

Capacity analysis of existing (2019), background (2025), and combined (2025) traffic conditions indicates the minor-street approaches and major-street left-turn movements at Pippin Road and Pearces Road are expected to operate at LOS C or better during both the weekday AM and PM peak hours.

Zebulon Road (NC 96) and Glory Road/Site Drive

The existing unsignalized intersection of Zebulon Road and Glory Road/Site Drive was analyzed under existing (2019), background (2025), and combined (2025) traffic conditions with the lane configurations and traffic control shown in Table 4. Refer to Table 4 for a summary of the analysis results. The Synchro capacity analysis reports are included in the attached appendix.

**Table 4: Analysis Summary of Zebulon Road (NC 96) and Glory Road/Site Drive**

| ANALYSIS SCENARIO                                             | A<br>P<br>P<br>R<br>O<br>A<br>C<br>H | LANE CONFIGURATIONS                                                                          | WEEKDAY AM<br>PEAK HOUR<br>LEVEL OF SERVICE                          |                   | WEEKDAY PM<br>PEAK HOUR<br>LEVEL OF SERVICE                          |                   |
|---------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------|----------------------------------------------------------------------|-------------------|
|                                                               |                                      |                                                                                              | Approach                                                             | Overall (seconds) | Approach                                                             | Overall (seconds) |
| Existing (2019) Conditions                                    | EB<br>NB<br>SB                       | 1 LT-RT<br>1 LT-TH<br>1 TH-RT                                                                | C <sup>2</sup><br>A <sup>1</sup><br>--                               | N/A               | B <sup>2</sup><br>A <sup>1</sup><br>--                               | N/A               |
| Background (2025) Conditions                                  | EB<br>NB<br>SB                       | 1 LT-RT<br>1 LT-TH<br>1 TH-RT                                                                | C <sup>2</sup><br>A <sup>1</sup><br>--                               | N/A               | C <sup>2</sup><br>A <sup>1</sup><br>--                               | N/A               |
| Combined (2025) Conditions                                    | EB<br><b>WB</b><br>NB<br>SB          | 1 LT- <b>TH</b> -RT<br><b>1 LT, 1 TH-RT</b><br>1 LT-TH, <b>1 RT</b><br>1 <b>LT</b> -TH-RT    | D <sup>2</sup><br>F <sup>2</sup><br>A <sup>1</sup><br>A <sup>1</sup> | N/A               | E <sup>2</sup><br>F <sup>2</sup><br>A <sup>1</sup><br>A <sup>1</sup> | N/A               |
| Combined (2025) Conditions –<br><b>Signalized to meet UDO</b> | EB<br><b>WB</b><br>NB<br>SB          | 1 LT- <b>TH</b> -RT<br><b>1 LT, 1 TH-RT</b><br>1 LT-TH, <b>1 RT</b><br>1 <b>LT</b> , 1 TH-RT | D<br>D<br>B<br>B                                                     | B<br>(17)         | D<br>D<br>A<br>B                                                     | B<br>(11)         |

Improvements by Developer shown in **bold**.

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

Capacity analysis of existing (2019) and background (2025) traffic conditions indicates the minor-street approach and major-street left-turn movement at Pippin Road and Glory Road are expected to operate at LOS C or better during both the weekday AM and PM peak hours. Under combined (2025) traffic conditions, the proposed development is expected to add a 4<sup>th</sup> leg to the intersection. With the addition of the 4<sup>th</sup> leg, the eastbound minor-street approach is expected to operate at LOS D during the weekday AM peak hour and LOS E during the weekday PM peak hour, and the new westbound approach is expected to operate at LOS F during both the weekday AM and PM peak hours.

Right and left-turn lanes were analyzed and recommended per the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* (Driveway Manual). A southbound left-turn lane with 50 feet of storage and appropriate decel and taper is recommended, as well as a northbound right-turn lane with 100 feet of storage and appropriate decel and taper.

Per the Town's UDO, if a site access operates at LOS D or worse, additional site access points may need to be considered. It should be noted that the proposed Weaver's Ridge development is expected to have connectivity to the Weaver's Pond development, which has two site access points along Pippin Road. Drivers will likely use an alternative site access if they experience significant delay at the more convenient site access.

In order to meet the Town's UDO, improvements must be identified to improve the intersection to an acceptable level-of-service. Signalization and/or additional capacity along Zebulon Road (NC 96) would be necessary for significant improvement at the intersection. A traffic signal was considered at this intersection, and combined (2025) traffic volumes were analyzed utilizing the criteria contained in the *Manual on Uniform Traffic Control Devices* (MUTCD). A traffic signal was warranted during both weekday peak hours under combined (2025) traffic conditions; however, due to the high volume of residential development, which typically generates trips during two peak hours each day, it is anticipated that a 4- or 8-hour signal warrant would not be met.

A traffic signal was analyzed at the intersection to meet the Town's UDO requirements. With a signal, the intersection is expected to operate at LOS B with all approaches operating at LOS D or better.



## **Conclusions**

This traffic study was conducted to determine the potential traffic impacts for the proposed Weaver's Ridge residential development located east of Zebulon Road (NC 96) across from Glory Road in Zebulon, North Carolina.

The proposed residential development is assumed to consist of 124 townhomes and 58 single-family homes. The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- Existing (2019) Traffic Conditions
- Background (2025) Traffic Conditions
- Combined (2025) Traffic Conditions
- Combined (2025) Traffic Conditions with Improvements

It is estimated that the proposed development will generate approximately 1,530 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 105 trips (25 entering and 80 exiting) will occur during the weekday AM peak hour and 132 trips (83 entering and 49 exiting) will occur during the weekday PM peak hour.

## **Recommendations**

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 12 for an illustration of the recommended lane configuration for the proposed development.

### **Committed Improvements by Weaver's Pond**

#### **Zebulon Road (NC 96) and Pippin Road**

- Provide designated northbound right-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Provide designated southbound left-turn lane with at least 150 feet of storage and appropriate decel and taper.
- Install traffic signal at intersection when warranted.

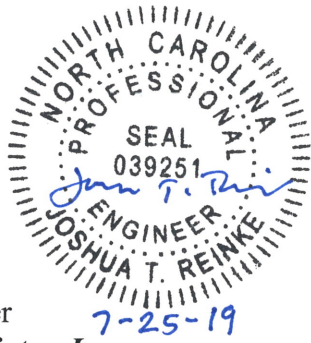
### **Recommended Improvements by Developer**

#### **Zebulon Road (NC 96) and Glory Road / Site Drive 1**

- Provide site access via westbound approach with one ingress lane and two egress lanes striped as one left-turn lane and one shared through/right-turn lane.
- Provide designated northbound right-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Provide designated southbound left-turn lane with at least 50 feet of storage and appropriate decel and taper.
- Monitor intersection for signalization.

If you should have any questions, please feel free to contact me at (919) 872-5115.

Sincerely,



Joshua Reinke, P.E.  
Transportation Engineer  
**Ramey Kemp & Associates, Inc.**

NC Corporate License # C-0910

Attachments: Appendix



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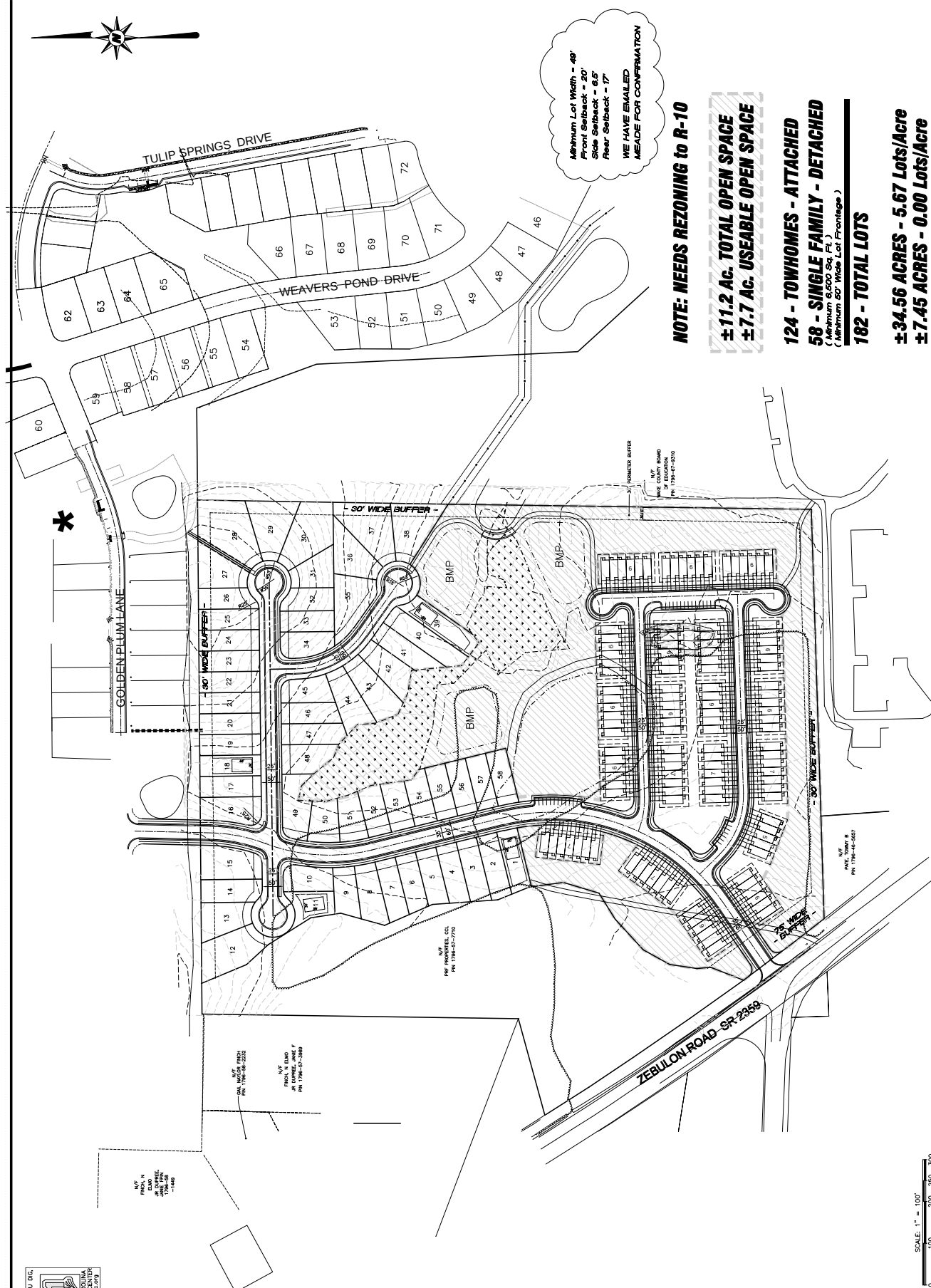
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**WEAVER'S RIDGE - PRELIMINARY TOPO**  
**ZEBULON, WAKE COUNTY, NORTH CAROLINA**

**MASTER MATRIX LAYOUT**

|           |               |          |
|-----------|---------------|----------|
| REVISIONS | FILE NO.      | 2019-008 |
|           | HORIZ. SCALE: | 1"=100'  |
|           | VERT. SCALE:  | NONE     |

TOPO



**Minimum Lot Width - 49'**  
**Front Setback - 20'**  
**Side Setback - 6.5'**  
**Rear Setback - 17'**

**NOTE: NEEDS REZONING to R-10**

**±11.2 AC. TOTAL OPEN SPACE**  
**±7.7 AC. USEABLE OPEN SPACE**

**124 - TOWHOMES - ATTACHED**

**58 - SINGLE FAMILY - DETACHED**  
( Minimum 6,500 Sq. Ft. )  
( Minimum 50' Wide Lot Frontage )

**182 - TOTAL LOTS**

**±34.56 ACRES - 5.67 Lots/Acre**

**±7.45 ACRES - 0.00 Lots/Acre**

SCALE: 1" = 100'

MANY ARE THE PLANS IN A PERSON'S HEART, BUT IT IS THE LORD'S PURPOSE THAT PREVAILS. PROVERBS 19:21



### LEGEND



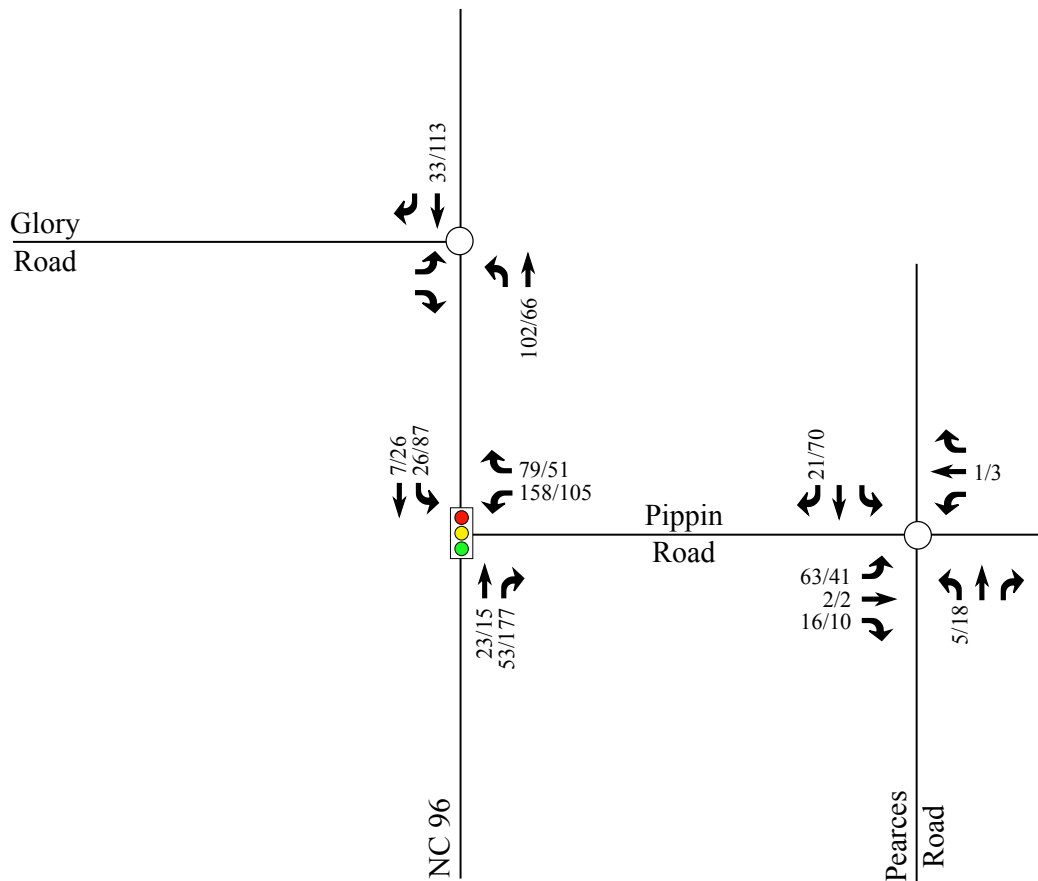
Unsignalized Intersection



Signalized Intersection

X / Y ➔

Weekday AM / PM Peak Hour  
Adjacent Development Trips

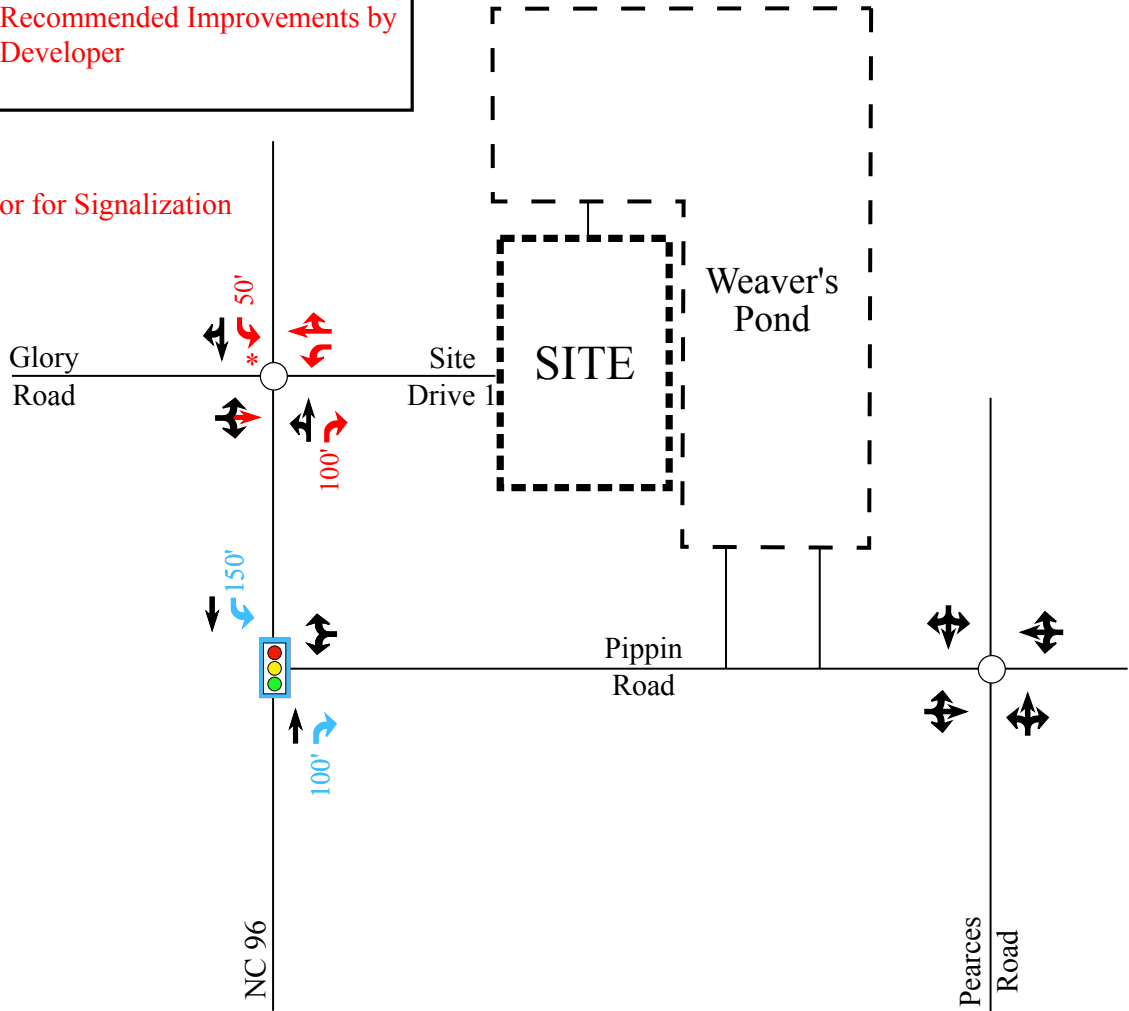


# LEGEND

- Unsignalized Intersection
-  Signalized Intersection
- ➡ Existing Lane
- ➡ Improvements Committed to by Weaver's Pond
- ➡ Recommended Improvements by Developer



\* Monitor for Signalization



Weaver's Ridge  
Zebulon, NC

Recommended Lane  
Configuration

Scale: Not to Scale

Figure 12



## **Appendix E:**

### **Intersection Spreadsheets**

# INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #1  
NC 96 at -/Pearces Road

## AM PEAK HOUR

|                                          | Northbound |      |         |       | Pearces Road Southbound |       |         |       | NC 96 Eastbound |      |         |       | NC 96 Westbound |      |         |       |
|------------------------------------------|------------|------|---------|-------|-------------------------|-------|---------|-------|-----------------|------|---------|-------|-----------------|------|---------|-------|
|                                          | U-Turn     | Left | Through | Right | U-Turn                  | Left  | Through | Right | U-Turn          | Left | Through | Right | U-Turn          | Left | Through | Right |
| Observed 2025 Traffic Volumes            | 0          | 0    | 0       | 0     | 0                       | 413   | 0       | 46    | 0               | 45   | 589     | 0     | 0               | 0    | 690     | 228   |
| Count Balancing                          |            |      |         |       |                         |       |         |       |                 |      |         |       |                 |      |         |       |
| Pedestrians                              | 0          |      |         |       | 0                       |       |         |       | 0               |      |         |       | 0               |      |         |       |
| Conflicting Pedestrians                  |            | 0    |         | 0     |                         | 0     |         | 0     |                 | 0    |         | 0     |                 | 0    |         | 0     |
| Bicycles                                 | 0          | 0    | 0       | 0     | 0                       | 0     | 0       | 0     | 0               | 0    | 0       | 0     | 0               | 0    | 0       | 0     |
| Conflicting Bicycles                     |            |      |         | 0     |                         |       |         | 0     |                 |      |         | 0     |                 |      |         | 0     |
| Heavy Vehicles                           | 0          | 0    | 0       | 0     | 0                       | 14    | 0       | 2     | 0               | 2    | 49      | 0     | 0               | 0    | 70      | 20    |
| Heavy Vehicle %                          | 2%         | 2%   | 2%      | 2%    | 2%                      | 3%    | 2%      | 4%    | 2%              | 4%   | 8%      | 2%    | 2%              | 2%   | 10%     | 9%    |
| Peak Hour Factor                         | 0.96       |      |         |       | 0.96                    |       |         |       | 0.96            |      |         |       | 0.96            |      |         |       |
| Adjustment Factor                        | 1          | 1    | 1       | 1     | 1                       | 1     | 1       | 1     | 1               | 1    | 1       | 1     | 1               | 1    | 1       | 1     |
| Adjusted 2025 Volumes                    | 0          | 0    | 0       | 0     | 0                       | 413   | 0       | 46    | 0               | 45   | 589     | 0     | 0               | 0    | 690     | 228   |
| Annual Growth Rate                       | 2.5%       | 2.5% | 2.5%    | 2.5%  | 2.5%                    | 2.5%  | 2.5%    | 2.5%  | 2.5%            | 2.5% | 2.5%    | 2.5%  | 2.5%            | 2.5% | 2.5%    | 2.5%  |
| Growth Factor                            | 1.05       | 1.05 | 1.05    | 1.05  | 1.05                    | 1.05  | 1.05    | 1.05  | 1.05            | 1.05 | 1.05    | 1.05  | 1.05            | 1.05 | 1.05    | 1.05  |
| Background Growth                        | 0          | 0    | 0       | 0     | 0                       | 21    | 0       | 2     | 0               | 2    | 30      | 0     | 0               | 0    | 35      | 12    |
| New Road Adjustment                      |            |      |         |       |                         |       |         |       |                 |      |         |       |                 |      |         |       |
| 7-Eleven                                 | 0          | 0    | 0       | 0     | 0                       | 8     | 0       | 0     | 0               | 0    | 8       | 0     | 0               | 0    | 8       | 8     |
| Clifton Grove (Pearces Road Residential) | 0          | 0    | 0       | 0     | 0                       | 46    | 0       | 24    | 0               | 10   | 0       | 0     | 0               | 0    | 0       | 10    |
| Zebulon Domino's                         | 0          | 0    | 0       | 0     | 0                       | 0     | 0       | 0     | 0               | 0    | 0       | 0     | 0               | 0    | 0       | 0     |
| Weaver's Ridge                           | 0          | 0    | 0       | 0     | 0                       | 4     | 0       | 0     | 0               | 0    | 40      | 0     | 0               | 0    | 13      | 1     |
| Total Approved Development Trips         | 0          | 0    | 0       | 0     | 0                       | 58    | 0       | 24    | 0               | 10   | 48      | 0     | 0               | 0    | 21      | 19    |
| 2027 No-Build Traffic                    | 0          | 0    | 0       | 0     | 0                       | 492   | 0       | 72    | 0               | 57   | 667     | 0     | 0               | 0    | 746     | 259   |
| 2027 No-Build Pedestrians                | 0          |      |         |       | 0                       |       |         |       | 0               |      |         |       | 0               |      |         |       |
| 2027 No-Build Conflicting Pedestrians    |            | 0    |         | 0     |                         | 0     |         | 0     |                 | 0    |         | 0     |                 | 0    |         | 0     |
| 2027 No-Build Bicycles                   | 0          | 0    | 0       | 0     | 0                       | 0     | 0       | 0     | 0               | 0    | 0       | 0     | 0               | 0    | 0       | 0     |
| 2027 No-Build Conflicting Bicycles       |            |      |         | 0     |                         |       |         | 0     |                 |      |         | 0     |                 |      |         | 0     |
| Trip Distribution IN                     |            |      |         |       |                         |       |         |       |                 | 30%  |         |       |                 |      | 20%     | 30%   |
| Trip Distribution OUT                    |            |      |         |       |                         | (50%) |         |       |                 |      |         |       |                 |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                         |       |         |       |                 |      |         |       |                 |      |         |       |
| Retail Trips                             | 0          | 0    | 0       | 0     | 0                       | 4     | 0       | 0     | 0               | 2    | 0       | 0     | 0               | 0    | 2       | 2     |
| Total Primary Site Trips                 | 0          | 0    | 0       | 0     | 0                       | 4     | 0       | 0     | 0               | 2    | 0       | 0     | 0               | 0    | 2       | 2     |
| Pass-By Distribution REDUCTION           |            |      |         |       |                         |       |         |       |                 |      | -30%    |       |                 |      | -10%    |       |
| Pass-By Distribution IN                  |            |      |         |       |                         |       |         |       |                 | 30%  |         |       |                 |      |         | 10%   |
| Pass-By Distribution OUT                 |            |      |         |       |                         | (30%) |         |       |                 |      |         |       |                 |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                         | -1    |         |       |                 |      |         |       |                 |      |         |       |
| Pass-By Trips                            | 0          | 0    | 0       | 0     | 0                       | 7     | 0       | 0     | 0               | 7    | -7      | 0     | 0               | 0    | -2      | 2     |
| Total Vehicular Project Trips            | 0          | 0    | 0       | 0     | 0                       | 11    | 0       | 0     | 0               | 9    | -7      | 0     | 0               | 0    | 0       | 4     |
| 2027 Build Traffic                       | 0          | 0    | 0       | 0     | 0                       | 503   | 0       | 72    | 0               | 66   | 660     | 0     | 0               | 0    | 746     | 263   |
| 2027 Build Heavy Vehicle %               | 2%         | 2%   | 2%      | 2%    | 2%                      | 3%    | 2%      | 3%    | 2%              | 3%   | 8%      | 2%    | 2%              | 2%   | 10%     | 8%    |
| 2027 Build Pedestrians                   | 0          |      |         |       | 0                       |       |         |       | 0               |      |         |       | 0               |      |         |       |
| 2027 Build Conflicting Pedestrians       |            | 0    |         | 0     |                         | 0     |         | 0     |                 | 0    |         | 0     |                 | 0    |         | 0     |
| 2027 Build Bicycles                      | 0          | 0    | 0       | 0     | 0                       | 0     | 0       | 0     | 0               | 0    | 0       | 0     | 0               | 0    | 0       | 0     |
| 2027 Build Conflicting Bicycles          |            |      |         | 0     |                         |       |         | 0     |                 |      |         | 0     |                 |      |         | 0     |

# INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #1  
NC 96 at -/Pearces Road

## PM PEAK HOUR

|                                          | Northbound |      |         |       | Pearces Road Southbound |       |         |       | NC 96 Eastbound |      |         |       | NC 96 Westbound |      |         |       |
|------------------------------------------|------------|------|---------|-------|-------------------------|-------|---------|-------|-----------------|------|---------|-------|-----------------|------|---------|-------|
|                                          | U-Turn     | Left | Through | Right | U-Turn                  | Left  | Through | Right | U-Turn          | Left | Through | Right | U-Turn          | Left | Through | Right |
| Observed 2025 Traffic Volumes            | 0          | 0    | 0       | 0     | 0                       | 278   | 0       | 30    | 0               | 54   | 683     | 0     | 0               | 0    | 687     | 415   |
| Count Balancing                          |            |      |         |       |                         |       |         |       |                 |      |         |       |                 |      |         |       |
| Pedestrians                              | 0          |      |         |       |                         |       |         |       | 0               |      |         |       | 0               |      |         |       |
| Conflicting Pedestrians                  |            | 0    |         | 0     |                         | 0     |         | 0     |                 |      |         | 0     |                 | 0    |         |       |
| Bicycles                                 | 0          | 0    | 0       | 0     | 0                       | 0     | 0       | 0     | 0               | 0    | 0       | 0     | 0               | 0    | 0       | 0     |
| Conflicting Bicycles                     |            |      |         | 0     |                         |       |         | 0     |                 |      |         | 0     |                 |      |         | 0     |
| Heavy Vehicles                           | 0          | 0    | 0       | 0     | 0                       | 12    | 0       | 0     | 0               | 1    | 35      | 0     | 0               | 0    | 26      | 13    |
| Heavy Vehicle %                          | 2%         | 2%   | 2%      | 2%    | 2%                      | 4%    | 2%      | 2%    | 2%              | 2%   | 5%      | 2%    | 2%              | 2%   | 4%      | 3%    |
| Peak Hour Factor                         | 0.98       |      |         |       | 0.98                    |       |         |       | 0.98            |      |         |       | 0.98            |      |         |       |
| Adjustment Factor                        | 1          | 1    | 1       | 1     | 1                       | 1     | 1       | 1     | 1               | 1    | 1       | 1     | 1               | 1    | 1       | 1     |
| Adjusted 2025 Volumes                    | 0          | 0    | 0       | 0     | 0                       | 278   | 0       | 30    | 0               | 54   | 683     | 0     | 0               | 0    | 687     | 415   |
| Annual Growth Rate                       | 2.5%       | 2.5% | 2.5%    | 2.5%  | 2.5%                    | 2.5%  | 2.5%    | 2.5%  | 2.5%            | 2.5% | 2.5%    | 2.5%  | 2.5%            | 2.5% | 2.5%    | 2.5%  |
| Growth Factor                            | 1.05       | 1.05 | 1.05    | 1.05  | 1.05                    | 1.05  | 1.05    | 1.05  | 1.05            | 1.05 | 1.05    | 1.05  | 1.05            | 1.05 | 1.05    | 1.05  |
| Background Growth                        | 0          | 0    | 0       | 0     | 0                       | 14    | 0       | 2     | 0               | 3    | 35      | 0     | 0               | 0    | 35      | 21    |
| New Road Adjustment                      |            |      |         |       |                         |       |         |       |                 |      |         |       |                 |      |         |       |
| 7-Eleven                                 | 0          | 0    | 0       | 0     | 0                       | 8     | 0       | 0     | 0               | 0    | 8       | 0     | 0               | 0    | 8       | 8     |
| Clifton Grove (Pearces Road Residential) | 0          | 0    | 0       | 0     | 0                       | 22    | 0       | 18    | 0               | 27   | 0       | 0     | 0               | 0    | 0       | 49    |
| Zebulon Domino's                         | 0          | 0    | 0       | 0     | 0                       | 3     | 0       | 0     | 0               | 0    | 5       | 0     | 0               | 0    | 5       | 3     |
| Weaver's Ridge                           | 0          | 0    | 0       | 0     | 0                       | 2     | 0       | 0     | 0               | 0    | 25      | 0     | 0               | 0    | 41      | 4     |
| Total Approved Development Trips         | 0          | 0    | 0       | 0     | 0                       | 35    | 0       | 18    | 0               | 27   | 38      | 0     | 0               | 0    | 54      | 64    |
| 2027 No-Build Traffic                    | 0          | 0    | 0       | 0     | 0                       | 327   | 0       | 50    | 0               | 84   | 756     | 0     | 0               | 0    | 776     | 500   |
| 2027 No-Build Pedestrians                | 0          |      |         |       | 0                       |       |         |       | 0               |      |         |       | 0               |      |         |       |
| 2027 No-Build Conflicting Pedestrians    |            | 0    |         | 0     |                         | 0     |         | 0     |                 | 0    |         | 0     |                 | 0    |         | 0     |
| 2027 No-Build Bicycles                   | 0          | 0    | 0       | 0     | 0                       | 0     | 0       | 0     | 0               | 0    | 0       | 0     | 0               | 0    | 0       | 0     |
| 2027 No-Build Conflicting Bicycles       |            |      |         | 0     |                         |       |         | 0     |                 |      |         | 0     |                 |      |         | 0     |
| Trip Distribution IN                     |            |      |         |       |                         |       |         |       |                 | 30%  |         |       |                 |      | 20%     | 30%   |
| Trip Distribution OUT                    |            |      |         |       |                         | (50%) |         |       |                 |      |         |       |                 |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                         |       |         |       |                 |      |         |       |                 |      |         |       |
| Retail Trips                             | 0          | 0    | 0       | 0     | 0                       | 4     | 0       | 0     | 0               | 2    | 0       | 0     | 0               | 0    | 2       | 2     |
| Total Primary Site Trips                 | 0          | 0    | 0       | 0     | 0                       | 4     | 0       | 0     | 0               | 2    | 0       | 0     | 0               | 0    | 2       | 2     |
| Pass-By Distribution REDUCTION           |            |      |         |       |                         |       |         |       |                 |      | -30%    |       |                 |      | -10%    |       |
| Pass-By Distribution IN                  |            |      |         |       |                         |       |         |       |                 | 30%  |         |       |                 |      |         | 10%   |
| Pass-By Distribution OUT                 |            |      |         |       |                         | (30%) |         |       |                 |      |         |       |                 |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                         |       |         |       |                 |      |         |       |                 |      |         |       |
| Pass-By Trips                            | 0          | 0    | 0       | 0     | 0                       | 7     | 0       | 0     | 0               | 7    | -7      | 0     | 0               | 0    | -2      | 2     |
| Total Vehicular Project Trips            | 0          | 0    | 0       | 0     | 0                       | 11    | 0       | 0     | 0               | 9    | -7      | 0     | 0               | 0    | 0       | 4     |
| 2027 Build Traffic                       | 0          | 0    | 0       | 0     | 0                       | 338   | 0       | 50    | 0               | 93   | 749     | 0     | 0               | 0    | 776     | 504   |
| 2027 Build Heavy Vehicle %               | 2%         | 2%   | 2%      | 2%    | 2%                      | 4%    | 2%      | 2%    | 2%              | 2%   | 5%      | 2%    | 2%              | 2%   | 4%      | 3%    |
| 2027 Build Pedestrians                   | 0          |      |         |       | 0                       |       |         |       | 0               |      |         |       | 0               |      |         |       |
| 2027 Build Conflicting Pedestrians       |            | 0    |         | 0     |                         | 0     |         | 0     |                 | 0    |         | 0     |                 | 0    |         | 0     |
| 2027 Build Bicycles                      | 0          | 0    | 0       | 0     | 0                       | 0     | 0       | 0     | 0               | 0    | 0       | 0     | 0               | 0    | 0       | 0     |
| 2027 Build Conflicting Bicycles          |            |      |         | 0     |                         |       |         | 0     |                 |      |         | 0     |                 |      |         | 0     |

# INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #2

NC 96 at -/Site Driveway 1

## AM PEAK HOUR

|                                          | -          |      |         |       | Site Driveway 1 |      |         |       | NC 96     |      |         |       | NC 96     |      |         |       |
|------------------------------------------|------------|------|---------|-------|-----------------|------|---------|-------|-----------|------|---------|-------|-----------|------|---------|-------|
|                                          | Northbound |      |         |       | Southbound      |      |         |       | Eastbound |      |         |       | Westbound |      |         |       |
|                                          | U-Turn     | Left | Through | Right | U-Turn          | Left | Through | Right | U-Turn    | Left | Through | Right | U-Turn    | Left | Through | Right |
| Observed 2025 Traffic Volumes            | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 57    | 0         | 0    | 647     | 0     | 0         | 0    | 642     | 25    |
| Count Balancing                          |            |      |         |       |                 |      |         |       |           |      |         |       |           |      |         |       |
| Pedestrians                              | 0          |      |         |       | 0               |      |         |       | 0         |      |         |       | 0         |      |         |       |
| Conflicting Pedestrians                  |            | 0    |         | 0     |                 | 0    |         | 0     |           | 0    |         | 0     |           | 0    |         | 0     |
| Bicycles                                 | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 0       | 0     | 0         | 0    | 0       | 0     |
| Conflicting Bicycles                     |            |      |         | 0     |                 |      |         | 0     |           |      |         | 0     |           |      |         | 0     |
| Heavy Vehicles                           | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 6     | 0         | 0    | 52      | 0     | 0         | 0    | 37      | 4     |
| Heavy Vehicle %                          | 2%         | 2%   | 2%      | 2%    | 2%              | 2%   | 2%      | 11%   | 2%        | 2%   | 8%      | 2%    | 2%        | 2%   | 6%      | 16%   |
| Peak Hour Factor                         | 0.96       |      |         |       | 0.96            |      |         |       | 0.96      |      |         |       | 0.96      |      |         |       |
| Adjustment Factor                        | 1          | 1    | 1       | 1     | 1               | 1    | 1       | 1     | 1         | 1    | 1       | 1     | 1         | 1    | 1       | 1     |
| Adjusted 2025 Volumes                    | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 57    | 0         | 0    | 647     | 0     | 0         | 0    | 642     | 25    |
| Annual Growth Rate                       | 2.5%       | 2.5% | 2.5%    | 2.5%  | 2.5%            | 2.5% | 2.5%    | 2.5%  | 2.5%      | 2.5% | 2.5%    | 2.5%  | 2.5%      | 2.5% | 2.5%    | 2.5%  |
| Growth Factor                            | 1.05       | 1.05 | 1.05    | 1.05  | 1.05            | 1.05 | 1.05    | 1.05  | 1.05      | 1.05 | 1.05    | 1.05  | 1.05      | 1.05 | 1.05    | 1.05  |
| Background Growth                        | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 3     | 0         | 0    | 33      | 0     | 0         | 0    | 33      | 1     |
| New Road Adjustment                      |            |      |         |       |                 |      |         |       |           |      |         |       |           |      |         |       |
| 7-Eleven                                 | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 8       | 0     | 0         | 0    | 8       | 0     |
| Clifton Grove (Pearces Road Residential) | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 10      | 0     | 0         | 0    | 24      | 0     |
| Zebulon Domino's                         | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 0       | 0     | 0         | 0    | 0       | 0     |
| Weaver's Ridge                           | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 40      | 0     | 0         | 0    | 13      | 0     |
| Total Approved Development Trips         | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 58      | 0     | 0         | 0    | 45      | 0     |
| 2027 No-Build Traffic                    | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 60    | 0         | 0    | 738     | 0     | 0         | 0    | 720     | 26    |
| 2027 No-Build Pedestrians                | 0          |      |         |       | 0               |      |         |       | 0         |      |         |       | 0         |      |         |       |
| 2027 No-Build Conflicting Pedestrians    |            | 0    |         | 0     |                 | 0    |         | 0     |           | 0    |         | 0     |           | 0    |         | 0     |
| 2027 No-Build Bicycles                   | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 0       | 0     | 0         | 0    | 0       | 0     |
| 2027 No-Build Conflicting Bicycles       |            |      |         | 0     |                 |      |         | 0     |           |      |         | 0     |           |      |         | 0     |
| Trip Distribution IN                     |            |      |         |       |                 |      |         |       |           |      | 30%     |       |           |      |         | 20%   |
| Trip Distribution OUT                    |            |      |         |       |                 |      |         | (30%) |           |      |         |       |           |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                 |      |         |       |           |      |         |       |           |      |         |       |
| Retail Trips                             | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 2     | 0         | 0    | 2       | 0     | 0         | 0    | 0       | 2     |
| Total Primary Site Trips                 | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 2     | 0         | 0    | 2       | 0     | 0         | 0    | 0       | 2     |
| Pass-By Distribution REDUCTION           |            |      |         |       |                 |      |         |       |           |      |         |       |           |      | -35%    |       |
| Pass-By Distribution IN                  |            |      |         |       |                 |      |         |       |           |      |         |       |           |      |         | 25%   |
| Pass-By Distribution OUT                 |            |      |         |       |                 |      |         | (35%) |           |      |         |       |           |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                 |      |         |       |           |      |         |       |           |      |         |       |
| Pass-By Trips                            | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 9     | 0         | 0    | 0       | 0     | 0         | 0    | -8      | 6     |
| Total Vehicular Project Trips            | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 11    | 0         | 0    | 2       | 0     | 0         | 0    | -8      | 8     |
| 2027 Build Traffic                       | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 71    | 0         | 0    | 740     | 0     | 0         | 0    | 712     | 34    |
| 2027 Build Heavy Vehicle %               | 2%         | 2%   | 2%      | 2%    | 2%              | 2%   | 2%      | 9%    | 2%        | 2%   | 7%      | 2%    | 2%        | 2%   | 5%      | 12%   |
| 2027 Build Pedestrians                   | 0          |      |         |       | 0               |      |         |       | 0         |      |         |       | 0         |      |         |       |
| 2027 Build Conflicting Pedestrians       |            | 0    |         | 0     |                 | 0    |         | 0     |           | 0    |         | 0     |           | 0    |         | 0     |
| 2027 Build Bicycles                      | 0          | 0    | 0       | 0     | 0               | 0    | 0       | 0     | 0         | 0    | 0       | 0     | 0         | 0    | 0       | 0     |
| 2027 Build Conflicting Bicycles          |            |      |         | 0     |                 |      |         | 0     |           |      |         | 0     |           |      |         | 0     |

# INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #2

NC 96 at -/Site Driveway 1

## PM PEAK HOUR

|                                          | Northbound |      |         |       | Site Driveway 1<br>Southbound |      |         |       | NC 96<br>Eastbound |      |         |       | NC 96<br>Westbound |      |         |       |
|------------------------------------------|------------|------|---------|-------|-------------------------------|------|---------|-------|--------------------|------|---------|-------|--------------------|------|---------|-------|
|                                          | U-Turn     | Left | Through | Right | U-Turn                        | Left | Through | Right | U-Turn             | Left | Through | Right | U-Turn             | Left | Through | Right |
| Observed 2025 Traffic Volumes            | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 92    | 0                  | 0    | 668     | 0     | 0                  | 0    | 661     | 60    |
| Count Balancing                          |            |      |         |       |                               |      |         |       |                    |      |         |       |                    |      |         |       |
| Pedestrians                              | 0          |      |         |       | 0                             |      |         |       | 0                  |      |         |       | 0                  |      |         |       |
| Conflicting Pedestrians                  |            | 0    |         | 0     |                               | 0    |         | 0     |                    | 0    |         | 0     |                    | 0    |         | 0     |
| Bicycles                                 | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 0       | 0     | 0                  | 0    | 0       | 0     |
| Conflicting Bicycles                     |            |      |         | 0     |                               |      |         | 0     |                    |      |         | 0     |                    |      |         | 0     |
| Heavy Vehicles                           | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 3     | 0                  | 0    | 36      | 0     | 0                  | 0    | 30      | 1     |
| Heavy Vehicle %                          | 2%         | 2%   | 2%      | 2%    | 2%                            | 2%   | 2%      | 3%    | 2%                 | 2%   | 5%      | 2%    | 2%                 | 2%   | 5%      | 2%    |
| Peak Hour Factor                         | 0.94       |      |         |       | 0.94                          |      |         |       | 0.94               |      |         |       | 0.94               |      |         |       |
| Adjustment Factor                        | 1          | 1    | 1       | 1     | 1                             | 1    | 1       | 1     | 1                  | 1    | 1       | 1     | 1                  | 1    | 1       | 1     |
| Adjusted 2025 Volumes                    | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 92    | 0                  | 0    | 668     | 0     | 0                  | 0    | 661     | 60    |
| Annual Growth Rate                       | 2.5%       | 2.5% | 2.5%    | 2.5%  | 2.5%                          | 2.5% | 2.5%    | 2.5%  | 2.5%               | 2.5% | 2.5%    | 2.5%  | 2.5%               | 2.5% | 2.5%    | 2.5%  |
| Growth Factor                            | 1.05       | 1.05 | 1.05    | 1.05  | 1.05                          | 1.05 | 1.05    | 1.05  | 1.05               | 1.05 | 1.05    | 1.05  | 1.05               | 1.05 | 1.05    | 1.05  |
| Background Growth                        | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 5     | 0                  | 0    | 34      | 0     | 0                  | 0    | 33      | 3     |
| New Road Adjustment                      |            |      |         |       |                               |      |         |       |                    |      |         |       |                    |      |         |       |
| 7-Eleven                                 | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 8       | 0     | 0                  | 0    | 8       | 0     |
| Clifton Grove (Pearces Road Residential) | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 27      | 0     | 0                  | 0    | 18      | 0     |
| Zebulon Domino's                         | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 5       | 0     | 0                  | 0    | 5       | 0     |
| Weaver's Ridge                           | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 25      | 0     | 0                  | 0    | 41      | 0     |
| Total Approved Development Trips         | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 65      | 0     | 0                  | 0    | 72      | 0     |
| 2027 No-Build Traffic                    | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 97    | 0                  | 0    | 767     | 0     | 0                  | 0    | 766     | 63    |
| 2027 No-Build Pedestrians                | 0          |      |         |       | 0                             |      |         |       | 0                  |      |         |       | 0                  |      |         |       |
| 2027 No-Build Conflicting Pedestrians    |            | 0    |         | 0     |                               | 0    |         | 0     |                    | 0    |         | 0     |                    | 0    |         | 0     |
| 2027 No-Build Bicycles                   | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 0       | 0     | 0                  | 0    | 0       | 0     |
| 2027 No-Build Conflicting Bicycles       |            |      |         | 0     |                               |      |         | 0     |                    |      |         | 0     |                    |      |         | 0     |
| Trip Distribution IN                     |            |      |         |       |                               |      |         |       |                    |      | 30%     |       |                    |      |         | 20%   |
| Trip Distribution OUT                    |            |      |         |       |                               |      | (30%)   |       |                    |      |         |       |                    |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                               |      |         |       |                    |      |         |       |                    |      |         |       |
| Retail Trips                             | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 2     | 0                  | 0    | 2       | 0     | 0                  | 0    | 0       | 2     |
| Total Primary Site Trips                 | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 2     | 0                  | 0    | 2       | 0     | 0                  | 0    | 0       | 2     |
| Pass-By Distribution REDUCTION           |            |      |         |       |                               |      |         |       |                    |      |         |       |                    |      | -35%    |       |
| Pass-By Distribution IN                  |            |      |         |       |                               |      |         |       |                    |      |         |       |                    |      |         | 25%   |
| Pass-By Distribution OUT                 |            |      |         |       |                               |      | (35%)   |       |                    |      |         |       |                    |      |         |       |
| Balancing Adjustment                     |            |      |         |       |                               |      |         |       |                    |      |         |       |                    |      |         |       |
| Pass-By Trips                            | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 8     | 0                  | 0    | 0       | 0     | 0                  | 0    | -8      | 6     |
| Total Vehicular Project Trips            | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 10    | 0                  | 0    | 2       | 0     | 0                  | 0    | -8      | 8     |
| 2027 Build Traffic                       | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 107   | 0                  | 0    | 769     | 0     | 0                  | 0    | 758     | 71    |
| 2027 Build Heavy Vehicle %               | 2%         | 2%   | 2%      | 2%    | 2%                            | 2%   | 2%      | 3%    | 2%                 | 2%   | 5%      | 2%    | 2%                 | 2%   | 4%      | 2%    |
| 2027 Build Pedestrians                   | 0          |      |         |       | 0                             |      |         |       | 0                  |      |         |       | 0                  |      |         |       |
| 2027 Build Conflicting Pedestrians       |            | 0    |         | 0     |                               | 0    |         | 0     |                    | 0    |         | 0     |                    | 0    |         | 0     |
| 2027 Build Bicycles                      | 0          | 0    | 0       | 0     | 0                             | 0    | 0       | 0     | 0                  | 0    | 0       | 0     | 0                  | 0    | 0       | 0     |
| 2027 Build Conflicting Bicycles          |            |      |         | 0     |                               |      |         | 0     |                    |      |         | 0     |                    |      |         | 0     |



# INTERSECTION VOLUME DEVELOPMENT

## INTERSECTION #3

Pearces Road at Site Driveway 2/-

### AM PEAK HOUR

|                                          | Pearces Road<br>Northbound |      |         |       | Pearces Road<br>Southbound |      |         |       | Site Driveway 2<br>Eastbound |       |         |       | -<br>Westbound |      |         |       |
|------------------------------------------|----------------------------|------|---------|-------|----------------------------|------|---------|-------|------------------------------|-------|---------|-------|----------------|------|---------|-------|
|                                          | U-Turn                     | Left | Through | Right | U-Turn                     | Left | Through | Right | U-Turn                       | Left  | Through | Right | U-Turn         | Left | Through | Right |
| Observed 2025 Traffic Volumes            | 0                          | 76   | 200     | 0     | 0                          | 0    | 345     | 66    | 0                            | 25    | 0       | 86    | 0              | 0    | 0       | 0     |
| Count Balancing                          |                            |      |         |       |                            |      |         |       |                              |       |         |       |                |      |         |       |
| Pedestrians                              | 0                          |      |         |       | 0                          |      |         |       | 0                            |       |         |       | 0              |      |         |       |
| Conflicting Pedestrians                  |                            | 0    |         | 0     |                            | 0    |         | 0     |                              | 0     |         | 0     |                | 0    |         | 0     |
| Bicycles                                 | 0                          | 0    | 0       | 0     | 0                          | 0    | 0       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Conflicting Bicycles                     |                            |      |         | 0     |                            |      |         | 0     |                              |       |         | 0     |                |      |         | 0     |
| Heavy Vehicles                           | 0                          | 3    | 7       | 0     | 0                          | 0    | 5       | 4     | 0                            | 0     | 0       | 5     | 0              | 0    | 0       | 0     |
| Heavy Vehicle %                          | 2%                         | 4%   | 4%      | 2%    | 2%                         | 2%   | 2%      | 6%    | 2%                           | 2%    | 2%      | 6%    | 2%             | 2%   | 2%      | 2%    |
| Peak Hour Factor                         | 0.92                       |      |         |       | 0.92                       |      |         |       | 0.92                         |       |         |       | 0.92           |      |         |       |
| Adjustment Factor                        | 1                          | 1    | 1       | 1     | 1                          | 1    | 1       | 1     | 1                            | 1     | 1       | 1     | 1              | 1    | 1       | 1     |
| Adjusted 2025 Volumes                    | 0                          | 76   | 200     | 0     | 0                          | 0    | 345     | 66    | 0                            | 25    | 0       | 86    | 0              | 0    | 0       | 0     |
| Annual Growth Rate                       | 2.5%                       | 2.5% | 2.5%    | 2.5%  | 2.5%                       | 2.5% | 2.5%    | 2.5%  | 2.5%                         | 2.5%  | 2.5%    | 2.5%  | 2.5%           | 2.5% | 2.5%    | 2.5%  |
| Growth Factor                            | 1.05                       | 1.05 | 1.05    | 1.05  | 1.05                       | 1.05 | 1.05    | 1.05  | 1.05                         | 1.05  | 1.05    | 1.05  | 1.05           | 1.05 | 1.05    | 1.05  |
| Background Growth                        | 0                          | 4    | 10      | 0     | 0                          | 0    | 17      | 3     | 0                            | 1     | 0       | 4     | 0              | 0    | 0       | 0     |
| New Road Adjustment                      |                            |      |         |       |                            |      |         |       |                              |       |         |       |                |      |         |       |
| 7-Eleven                                 | 0                          | 0    | 8       | 0     | 0                          | 0    | 8       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Clifton Grove (Pearces Road Residential) | 0                          | 0    | 20      | 0     | 0                          | 0    | 70      | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Zebulon Domino's                         | 0                          | 0    | 0       | 0     | 0                          | 0    | 0       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Weaver's Ridge                           | 0                          | 0    | 1       | 0     | 0                          | 0    | 4       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Total Approved Development Trips         | 0                          | 0    | 29      | 0     | 0                          | 0    | 82      | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| 2027 No-Build Traffic                    | 0                          | 80   | 239     | 0     | 0                          | 0    | 444     | 69    | 0                            | 26    | 0       | 90    | 0              | 0    | 0       | 0     |
| 2027 No-Build Pedestrians                | 0                          |      |         |       | 0                          |      |         |       | 0                            |       |         |       | 0              |      |         |       |
| 2027 No-Build Conflicting Pedestrians    |                            | 0    |         | 0     |                            | 0    |         | 0     |                              | 0     |         | 0     |                | 0    |         | 0     |
| 2027 No-Build Bicycles                   | 0                          | 0    | 0       | 0     | 0                          | 0    | 0       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| 2027 No-Build Conflicting Bicycles       |                            |      |         | 0     |                            |      |         | 0     |                              |       |         | 0     |                |      |         | 0     |
| Trip Distribution IN                     |                            | 60%  |         |       |                            |      |         | 20%   |                              |       |         |       |                |      |         |       |
| Trip Distribution OUT                    |                            |      |         |       |                            |      |         |       |                              | (20%) |         | (50%) |                |      |         |       |
| Balancing Adjustment                     |                            | -1   |         |       |                            |      |         |       |                              |       |         |       |                |      |         |       |
| Retail Trips                             | 0                          | 4    | 0       | 0     | 0                          | 0    | 0       | 2     | 0                            | 2     | 0       | 4     | 0              | 0    | 0       | 0     |
| Total Primary Site Trips                 | 0                          | 4    | 0       | 0     | 0                          | 0    | 0       | 2     | 0                            | 2     | 0       | 4     | 0              | 0    | 0       | 0     |
| Pass-By Distribution REDUCTION           |                            |      | -15%    |       |                            |      | -20%    |       |                              |       |         |       |                |      |         |       |
| Pass-By Distribution IN                  |                            | 55%  |         |       |                            |      |         | 20%   |                              |       |         |       |                |      |         |       |
| Pass-By Distribution OUT                 |                            |      |         |       |                            |      |         |       |                              | (15%) |         | (50%) |                |      |         |       |
| Balancing Adjustment                     |                            |      |         |       |                            |      |         |       |                              |       |         | -1    |                |      |         |       |
| Pass-By Trips                            | 0                          | 13   | -4      | 0     | 0                          | 0    | -5      | 5     | 0                            | 4     | 0       | 12    | 0              | 0    | 0       | 0     |
| Total Vehicular Project Trips            | 0                          | 17   | -4      | 0     | 0                          | 0    | -5      | 7     | 0                            | 6     | 0       | 16    | 0              | 0    | 0       | 0     |
| 2027 Build Traffic                       | 0                          | 97   | 235     | 0     | 0                          | 0    | 439     | 76    | 0                            | 32    | 0       | 106   | 0              | 0    | 0       | 0     |
| 2027 Build Heavy Vehicle %               | 2%                         | 3%   | 3%      | 2%    | 2%                         | 2%   | 2%      | 6%    | 2%                           | 2%    | 2%      | 5%    | 2%             | 2%   | 2%      | 2%    |
| 2027 Build Pedestrians                   | 0                          |      |         |       | 0                          |      |         |       | 0                            |       |         |       | 0              |      |         |       |
| 2027 Build Conflicting Pedestrians       |                            | 0    |         | 0     |                            | 0    |         | 0     |                              | 0     |         | 0     |                | 0    |         | 0     |
| 2027 Build Bicycles                      | 0                          | 0    | 0       | 0     | 0                          | 0    | 0       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| 2027 Build Conflicting Bicycles          |                            |      |         | 0     |                            |      |         | 0     |                              |       |         | 0     |                |      |         | 0     |

# INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #3

Pearces Road at Site Driveway 2/-

## PM PEAK HOUR

|                                          | Pearces Road<br>Northbound |      |         |       | Pearces Road<br>Southbound |      |         |       | Site Driveway 2<br>Eastbound |       |         |       | -<br>Westbound |      |         |       |
|------------------------------------------|----------------------------|------|---------|-------|----------------------------|------|---------|-------|------------------------------|-------|---------|-------|----------------|------|---------|-------|
|                                          | U-Turn                     | Left | Through | Right | U-Turn                     | Left | Through | Right | U-Turn                       | Left  | Through | Right | U-Turn         | Left | Through | Right |
| Observed 2025 Traffic Volumes            | 0                          | 128  | 342     | 0     | 0                          | 0    | 230     | 74    | 0                            | 61    | 0       | 117   | 0              | 0    | 0       | 0     |
| Count Balancing                          |                            |      |         |       |                            |      |         |       |                              |       |         |       |                |      |         |       |
| Pedestrians                              | 0                          |      |         |       | 0                          |      |         |       | 0                            |       |         |       | 0              |      |         |       |
| Conflicting Pedestrians                  |                            | 0    |         | 0     |                            | 0    |         | 0     |                              | 0     |         | 0     |                | 0    |         | 0     |
| Bicycles                                 | 0                          | 0    | 0       | 0     | 0                          | 0    | 0       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Conflicting Bicycles                     |                            |      |         | 0     |                            |      |         | 0     |                              |       |         | 0     |                |      |         | 0     |
| Heavy Vehicles                           | 0                          | 4    | 7       | 0     | 0                          | 0    | 4       | 2     | 0                            | 0     | 0       | 5     | 0              | 0    | 0       | 0     |
| Heavy Vehicle %                          | 2%                         | 3%   | 2%      | 2%    | 2%                         | 2%   | 2%      | 3%    | 2%                           | 2%    | 2%      | 4%    | 2%             | 2%   | 2%      | 2%    |
| Peak Hour Factor                         | 0.97                       |      |         |       | 0.97                       |      |         |       | 0.97                         |       |         |       | 0.97           |      |         |       |
| Adjustment Factor                        | 1                          | 1    | 1       | 1     | 1                          | 1    | 1       | 1     | 1                            | 1     | 1       | 1     | 1              | 1    | 1       | 1     |
| Adjusted 2025 Volumes                    | 0                          | 128  | 342     | 0     | 0                          | 0    | 230     | 74    | 0                            | 61    | 0       | 117   | 0              | 0    | 0       | 0     |
| Annual Growth Rate                       | 2.5%                       | 2.5% | 2.5%    | 2.5%  | 2.5%                       | 2.5% | 2.5%    | 2.5%  | 2.5%                         | 2.5%  | 2.5%    | 2.5%  | 2.5%           | 2.5% | 2.5%    | 2.5%  |
| Growth Factor                            | 1.05                       | 1.05 | 1.05    | 1.05  | 1.05                       | 1.05 | 1.05    | 1.05  | 1.05                         | 1.05  | 1.05    | 1.05  | 1.05           | 1.05 | 1.05    | 1.05  |
| Background Growth                        | 0                          | 6    | 17      | 0     | 0                          | 0    | 12      | 4     | 0                            | 3     | 0       | 6     | 0              | 0    | 0       | 0     |
| New Road Adjustment                      |                            |      |         |       |                            |      |         |       |                              |       |         |       |                |      |         |       |
| 7-Eleven                                 | 0                          | 0    | 8       | 0     | 0                          | 0    | 8       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Clifton Grove (Pearces Road Residential) | 0                          | 0    | 76      | 0     | 0                          | 0    | 40      | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Zebulon Domino's                         | 0                          | 0    | 3       | 0     | 0                          | 0    | 3       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Weaver's Ridge                           | 0                          | 0    | 4       | 0     | 0                          | 0    | 2       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| Total Approved Development Trips         | 0                          | 0    | 91      | 0     | 0                          | 0    | 53      | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| 2027 No-Build Traffic                    | 0                          | 134  | 450     | 0     | 0                          | 0    | 295     | 78    | 0                            | 64    | 0       | 123   | 0              | 0    | 0       | 0     |
| 2027 No-Build Pedestrians                | 0                          |      |         |       | 0                          |      |         |       | 0                            |       |         |       | 0              |      |         |       |
| 2027 No-Build Conflicting Pedestrians    |                            | 0    |         | 0     |                            | 0    |         | 0     |                              | 0     |         | 0     |                | 0    |         | 0     |
| 2027 No-Build Bicycles                   | 0                          | 0    | 0       | 0     | 0                          | 0    | 0       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| 2027 No-Build Conflicting Bicycles       |                            |      |         | 0     |                            |      |         | 0     |                              |       |         | 0     |                |      |         | 0     |
| Trip Distribution IN                     |                            | 60%  |         |       |                            |      |         | 20%   |                              |       |         |       |                |      |         |       |
| Trip Distribution OUT                    |                            |      |         |       |                            |      |         |       |                              | (20%) |         | (50%) |                |      |         |       |
| Balancing Adjustment                     |                            | -1   |         |       |                            |      |         |       |                              |       |         |       |                |      |         |       |
| Retail Trips                             | 0                          | 4    | 0       | 0     | 0                          | 0    | 0       | 2     | 0                            | 2     | 0       | 4     | 0              | 0    | 0       | 0     |
| Total Primary Site Trips                 | 0                          | 4    | 0       | 0     | 0                          | 0    | 0       | 2     | 0                            | 2     | 0       | 4     | 0              | 0    | 0       | 0     |
| Pass-By Distribution REDUCTION           |                            |      | -20%    |       |                            |      | -15%    |       |                              |       |         |       |                |      |         |       |
| Pass-By Distribution IN                  |                            | 60%  |         |       |                            |      |         | 15%   |                              |       |         |       |                |      |         |       |
| Pass-By Distribution OUT                 |                            |      |         |       |                            |      |         |       |                              | (20%) |         | (40%) |                |      |         |       |
| Balancing Adjustment                     |                            |      |         |       |                            |      |         |       |                              |       |         | 1     |                |      |         |       |
| Pass-By Trips                            | 0                          | 14   | -5      | 0     | 0                          | 0    | -3      | 3     | 0                            | 5     | 0       | 10    | 0              | 0    | 0       | 0     |
| Total Vehicular Project Trips            | 0                          | 18   | -5      | 0     | 0                          | 0    | -3      | 5     | 0                            | 7     | 0       | 14    | 0              | 0    | 0       | 0     |
| 2027 Build Traffic                       | 0                          | 152  | 445     | 0     | 0                          | 0    | 292     | 83    | 0                            | 71    | 0       | 137   | 0              | 0    | 0       | 0     |
| 2027 Build Heavy Vehicle %               | 2%                         | 3%   | 2%      | 2%    | 2%                         | 2%   | 2%      | 3%    | 2%                           | 2%    | 2%      | 4%    | 2%             | 2%   | 2%      | 2%    |
| 2027 Build Pedestrians                   | 0                          |      |         |       | 0                          |      |         |       | 0                            |       |         |       | 0              |      |         |       |
| 2027 Build Conflicting Pedestrians       |                            | 0    |         | 0     |                            | 0    |         | 0     |                              | 0     |         | 0     |                | 0    |         | 0     |
| 2027 Build Bicycles                      | 0                          | 0    | 0       | 0     | 0                          | 0    | 0       | 0     | 0                            | 0     | 0       | 0     | 0              | 0    | 0       | 0     |
| 2027 Build Conflicting Bicycles          |                            |      |         | 0     |                            |      |         | 0     |                              |       |         | 0     |                |      |         | 0     |

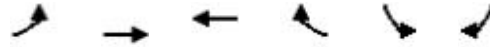
**Appendix F:**  
**Synchro Output: Existing (2025)**

Zebulon Sheetz  
1: NC 96 & Pearces Road

Existing (2025) AM  
05/20/2025



| Lane Group              | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations     |       |       |       |       |       |       |
| Traffic Volume (vph)    | 45    | 589   | 690   | 228   | 413   | 46    |
| Future Volume (vph)     | 45    | 589   | 690   | 228   | 413   | 46    |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width (ft)         | 12    | 12    | 12    | 12    | 12    | 12    |
| Grade (%)               |       | 1%    | 0%    |       | 1%    |       |
| Storage Length (ft)     | 185   |       |       | 0     | 100   | 0     |
| Storage Lanes           | 1     |       |       | 1     | 1     | 1     |
| Taper Length (ft)       | 50    |       |       |       | 100   |       |
| Satd. Flow (prot)       | 1727  | 1750  | 1727  | 1482  | 1744  | 1545  |
| Flt Permitted           | 0.249 |       |       |       | 0.950 |       |
| Satd. Flow (perm)       | 453   | 1750  | 1727  | 1482  | 1744  | 1545  |
| Right Turn on Red       |       |       |       | No    |       | No    |
| Satd. Flow (RTOR)       |       |       |       |       |       |       |
| Link Speed (mph)        |       | 35    | 35    |       | 35    |       |
| Link Distance (ft)      |       | 340   | 452   |       | 446   |       |
| Travel Time (s)         |       | 6.6   | 8.8   |       | 8.7   |       |
| Confl. Peds. (#/hr)     |       |       |       |       |       |       |
| Confl. Bikes (#/hr)     |       |       |       |       |       |       |
| Peak Hour Factor        | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  |
| Growth Factor           | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |
| Heavy Vehicles (%)      | 4%    | 8%    | 10%   | 9%    | 3%    | 4%    |
| Bus Blockages (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     |
| Parking (#/hr)          |       |       |       |       |       |       |
| Mid-Block Traffic (%)   |       | 0%    | 0%    |       | 0%    |       |
| Shared Lane Traffic (%) |       |       |       |       |       |       |
| Lane Group Flow (vph)   | 47    | 614   | 719   | 238   | 430   | 48    |
| Turn Type               | Perm  | NA    | NA    | pm+ov | Prot  | Prot  |
| Protected Phases        |       | 2     | 6     | 4     | 4     | 4     |
| Permitted Phases        | 2     |       |       | 6     |       |       |
| Detector Phase          | 2     | 2     | 6     | 4     | 4     | 4     |
| Switch Phase            |       |       |       |       |       |       |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 7.0   | 7.0   | 7.0   |
| Minimum Split (s)       | 18.0  | 18.0  | 17.0  | 15.0  | 15.0  | 15.0  |
| Total Split (s)         | 57.0  | 57.0  | 57.0  | 43.0  | 43.0  | 43.0  |
| Total Split (%)         | 57.0% | 57.0% | 57.0% | 43.0% | 43.0% | 43.0% |
| Yellow Time (s)         | 3.8   | 3.8   | 3.8   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)        | 2.3   | 2.3   | 1.8   | 3.3   | 3.3   | 3.3   |
| Lost Time Adjust (s)    | -1.1  | -1.1  | -0.6  | -1.3  | -1.3  | -1.3  |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                |       |       |       |       |       |       |
| Lead-Lag Optimize?      |       |       |       |       |       |       |
| Recall Mode             | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effect Green (s)    | 59.7  | 59.7  | 59.7  | 100.0 | 30.3  | 30.3  |
| Actuated g/C Ratio      | 0.60  | 0.60  | 0.60  | 1.00  | 0.30  | 0.30  |
| v/c Ratio               | 0.17  | 0.59  | 0.70  | 0.16  | 0.81  | 0.10  |
| Control Delay (s/veh)   | 13.4  | 16.9  | 20.2  | 0.2   | 44.4  | 23.1  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay (s/veh)     | 13.4  | 16.9  | 20.2  | 0.2   | 44.4  | 23.1  |



| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| LOS                     | B    | B    | C    | A    | D    | C    |
| Approach Delay (s/veh)  |      | 16.6 | 15.3 |      | 42.3 |      |
| Approach LOS            |      | B    | B    |      | D    |      |
| Queue Length 50th (ft)  | 13   | 229  | 298  | 0    | 251  | 22   |
| Queue Length 95th (ft)  | 39   | 404  | 531  | 0    | 331  | 43   |
| Internal Link Dist (ft) |      | 260  | 372  |      | 366  |      |
| Turn Bay Length (ft)    | 185  |      |      |      | 100  |      |
| Base Capacity (vph)     | 270  | 1044 | 1030 | 1478 | 662  | 587  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.17 | 0.59 | 0.70 | 0.16 | 0.65 | 0.08 |

#### Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 74 (74%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay (s/veh): 21.8

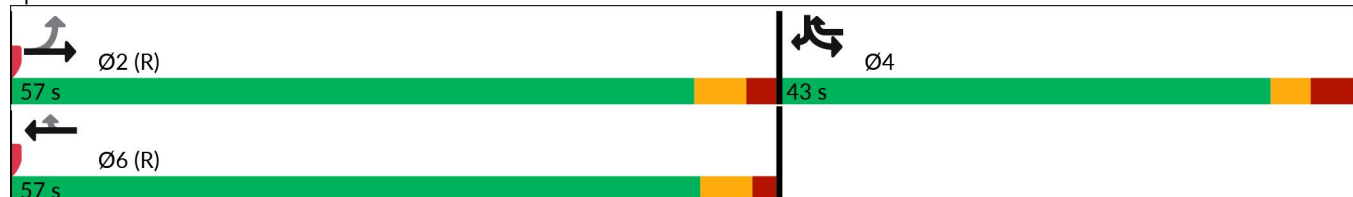
Intersection LOS: C

Intersection Capacity Utilization 68.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: NC 96 & Pearces Road







| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations     |      | ↑    | ↑    | ↑    |      | ↑    |
| Traffic Volume (vph)    | 0    | 647  | 642  | 25   | 0    | 57   |
| Future Volume (vph)     | 0    | 647  | 642  | 25   | 0    | 57   |
| Ideal Flow (vphpl)      | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft)         | 12   | 12   | 12   | 12   | 12   | 12   |
| Grade (%)               |      | 1%   | 2%   |      | 0%   |      |
| Storage Length (ft)     | 0    |      |      | 125  | 0    | 0    |
| Storage Lanes           | 0    |      |      | 1    | 0    | 1    |
| Taper Length (ft)       | 25   |      |      |      | 25   |      |
| Satd. Flow (prot)       | 0    | 1750 | 1775 | 1378 | 0    | 1481 |
| Flt Permitted           |      |      |      |      |      |      |
| Satd. Flow (perm)       | 0    | 1750 | 1775 | 1378 | 0    | 1481 |
| Link Speed (mph)        |      | 35   | 35   |      | 15   |      |
| Link Distance (ft)      |      | 421  | 340  |      | 208  |      |
| Travel Time (s)         |      | 8.2  | 6.6  |      | 9.5  |      |
| Confl. Peds. (#/hr)     |      |      |      |      |      |      |
| Confl. Bikes (#/hr)     |      |      |      |      |      |      |
| Peak Hour Factor        | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Growth Factor           | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%)      | 2%   | 8%   | 6%   | 16%  | 2%   | 11%  |
| Bus Blockages (#/hr)    | 0    | 0    | 0    | 0    | 0    | 0    |
| Parking (#/hr)          |      |      |      |      |      |      |
| Mid-Block Traffic (%)   |      | 0%   | 0%   |      | 0%   |      |
| Shared Lane Traffic (%) |      |      |      |      |      |      |
| Lane Group Flow (vph)   | 0    | 674  | 669  | 26   | 0    | 59   |
| Sign Control            |      | Free | Free |      | Stop |      |

#### Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 44.0%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

| Intersection              |        |        |      |        |      |       |
|---------------------------|--------|--------|------|--------|------|-------|
| Int Delay, s/veh          | 0.6    |        |      |        |      |       |
| Movement                  | EBL    | EBT    | WBT  | WBR    | SBL  | SBR   |
| Lane Configurations       |        | ↑      | ↑    | ↗      |      | ↗     |
| Traffic Vol, veh/h        | 0      | 647    | 642  | 25     | 0    | 57    |
| Future Vol, veh/h         | 0      | 647    | 642  | 25     | 0    | 57    |
| Conflicting Peds, #/hr    | 0      | 0      | 0    | 0      | 0    | 0     |
| Sign Control              | Free   | Free   | Free | Free   | Stop | Stop  |
| RT Channelized            | -      | None   | -    | None   | -    | None  |
| Storage Length            | -      | -      | -    | 125    | -    | 0     |
| Veh in Median Storage, #  | -      | 0      | 0    | -      | 0    | -     |
| Grade, %                  | -      | 1      | 2    | -      | 0    | -     |
| Peak Hour Factor          | 96     | 96     | 96   | 96     | 96   | 96    |
| Heavy Vehicles, %         | 2      | 8      | 6    | 16     | 2    | 11    |
| Mvmt Flow                 | 0      | 674    | 669  | 26     | 0    | 59    |
|                           |        |        |      |        |      |       |
| Major/Minor               | Major1 | Major2 |      | Minor2 |      |       |
| Conflicting Flow All      | -      | 0      | -    | 0      | -    | 669   |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
| Critical Hdwy             | -      | -      | -    | -      | -    | 6.31  |
| Critical Hdwy Stg 1       | -      | -      | -    | -      | -    | -     |
| Critical Hdwy Stg 2       | -      | -      | -    | -      | -    | -     |
| Follow-up Hdwy            | -      | -      | -    | -      | -    | 3.399 |
| Pot Cap-1 Maneuver        | 0      | -      | -    | -      | 0    | 442   |
| Stage 1                   | 0      | -      | -    | -      | 0    | -     |
| Stage 2                   | 0      | -      | -    | -      | 0    | -     |
| Platoon blocked, %        |        | -      | -    | -      |      |       |
| Mov Cap-1 Maneuver        | -      | -      | -    | -      | -    | 442   |
| Mov Cap-2 Maneuver        | -      | -      | -    | -      | -    | -     |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Approach                  | EB     | WB     |      | SB     |      |       |
| HCM Control Delay, s/v    | 0      | 0      |      | 14.4   |      |       |
| HCM LOS                   | B      |        |      |        |      |       |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Minor Lane/Major Mvmt     | EBT    | WBT    | WBR  | SBLn1  |      |       |
| Capacity (veh/h)          | -      | -      | -    | 442    |      |       |
| HCM Lane V/C Ratio        | -      | -      | -    | 0.134  |      |       |
| HCM Control Delay (s/veh) | -      | -      | -    | 14.4   |      |       |
| HCM Lane LOS              | -      | -      | -    | B      |      |       |
| HCM 95th %tile Q (veh)    | -      | -      | -    | 0.5    |      |       |

Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Existing (2025) AM  
05/20/2025

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                        | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (vph)              | 25                                                                                | 86                                                                                | 76                                                                                | 200                                                                               | 345                                                                               | 66                                                                                |
| Future Volume (vph)               | 25                                                                                | 86                                                                                | 76                                                                                | 200                                                                               | 345                                                                               | 66                                                                                |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)                   | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                         | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 1%                                                                                |                                                                                   |
| Storage Length (ft)               | 0                                                                                 | 0                                                                                 | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 |
| Storage Lanes                     | 1                                                                                 | 0                                                                                 | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |
| Taper Length (ft)                 | 25                                                                                |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (prot)                 | 1600                                                                              | 0                                                                                 | 1736                                                                              | 1827                                                                              | 1801                                                                              | 0                                                                                 |
| Flt Permitted                     | 0.989                                                                             |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                 | 1600                                                                              | 0                                                                                 | 1736                                                                              | 1827                                                                              | 1801                                                                              | 0                                                                                 |
| Link Speed (mph)                  | 15                                                                                |                                                                                   |                                                                                   | 35                                                                                | 35                                                                                |                                                                                   |
| Link Distance (ft)                | 230                                                                               |                                                                                   |                                                                                   | 446                                                                               | 197                                                                               |                                                                                   |
| Travel Time (s)                   | 10.5                                                                              |                                                                                   |                                                                                   | 8.7                                                                               | 3.8                                                                               |                                                                                   |
| Confl. Peds. (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor                  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Growth Factor                     | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 4%                                                                                | 4%                                                                                | 2%                                                                                | 6%                                                                                |
| Bus Blockages (#/hr)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)             | 120                                                                               | 0                                                                                 | 83                                                                                | 217                                                                               | 447                                                                               | 0                                                                                 |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                        | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:                     | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 43.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service A                                                            |                                                                                   |                                                                                   |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

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| Intersection              |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|---------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Int Delay, s/veh          | 2.7                                                                               |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Movement                  | EBL                                                                               | EBR    | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                                |
| Lane Configurations       |  |        |  |  |  |  |
| Traffic Vol, veh/h        | 25                                                                                | 86     | 76                                                                                | 200                                                                               | 345                                                                               | 66                                                                                 |
| Future Vol, veh/h         | 25                                                                                | 86     | 76                                                                                | 200                                                                               | 345                                                                               | 66                                                                                 |
| 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                                                                                 | 1                                                                                 | -                                                                                  |
| Peak Hour Factor          | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                 |
| Heavy Vehicles, %         | 2                                                                                 | 6      | 4                                                                                 | 4                                                                                 | 2                                                                                 | 6                                                                                  |
| Mvmt Flow                 | 27                                                                                | 93     | 83                                                                                | 217                                                                               | 375                                                                               | 72                                                                                 |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Major/Minor               | Minor2                                                                            | Major1 |                                                                                   | Major2                                                                            |                                                                                   |                                                                                    |
| Conflicting Flow All      | 794                                                                               | 411    | 447                                                                               | 0                                                                                 | -                                                                                 | 0                                                                                  |
| Stage 1                   | 411                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Stage 2                   | 383                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Critical Hdwy             | 6.42                                                                              | 6.26   | 4.14                                                                              | -                                                                                 | -                                                                                 | -                                                                                  |
| Critical Hdwy Stg 1       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Critical Hdwy Stg 2       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Follow-up Hdwy            | 3.518                                                                             | 3.354  | 2.236                                                                             | -                                                                                 | -                                                                                 | -                                                                                  |
| Pot Cap-1 Maneuver        | 357                                                                               | 632    | 1103                                                                              | -                                                                                 | -                                                                                 | -                                                                                  |
| Stage 1                   | 669                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Stage 2                   | 689                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Platoon blocked, %        |                                                                                   |        |                                                                                   | -                                                                                 | -                                                                                 | -                                                                                  |
| Mov Cap-1 Maneuver        | 330                                                                               | 632    | 1103                                                                              | -                                                                                 | -                                                                                 | -                                                                                  |
| Mov Cap-2 Maneuver        | 330                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Stage 1                   | 619                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
| Stage 2                   | 689                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                  |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Approach                  | EB                                                                                | NB     |                                                                                   | SB                                                                                |                                                                                   |                                                                                    |
| HCM Control Delay, s/v    | 13.9                                                                              | 2.3    |                                                                                   | 0                                                                                 |                                                                                   |                                                                                    |
| HCM LOS                   | B                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| Minor Lane/Major Mvmt     | NBL                                                                               | NBT    | EBLn1                                                                             | SBT                                                                               | SBR                                                                               |                                                                                    |
| Capacity (veh/h)          | 1103                                                                              | -      | 524                                                                               | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane V/C Ratio        | 0.075                                                                             | -      | 0.23                                                                              | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Control Delay (s/veh) | 8.5                                                                               | -      | 13.9                                                                              | -                                                                                 | -                                                                                 |                                                                                    |
| HCM Lane LOS              | A                                                                                 | -      | B                                                                                 | -                                                                                 | -                                                                                 |                                                                                    |
| HCM 95th %tile Q (veh)    | 0.2                                                                               | -      | 0.9                                                                               | -                                                                                 | -                                                                                 |                                                                                    |

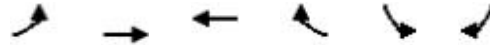
Zebulon Sheetz  
1: NC 96 & Pearces Road

Existing (2025) PM  
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| Lane Group              | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations     |       |       |       |       |       |       |
| Traffic Volume (vph)    | 54    | 683   | 687   | 415   | 278   | 30    |
| Future Volume (vph)     | 54    | 683   | 687   | 415   | 278   | 30    |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width (ft)         | 12    | 12    | 12    | 12    | 12    | 12    |
| Grade (%)               |       | 1%    | 0%    |       | 1%    |       |
| Storage Length (ft)     | 185   |       |       | 0     | 100   | 0     |
| Storage Lanes           | 1     |       |       | 1     | 1     | 1     |
| Taper Length (ft)       | 50    |       |       |       | 100   |       |
| Satd. Flow (prot)       | 1761  | 1800  | 1827  | 1568  | 1727  | 1575  |
| Flt Permitted           | 0.311 |       |       |       | 0.950 |       |
| Satd. Flow (perm)       | 576   | 1800  | 1827  | 1568  | 1727  | 1575  |
| Right Turn on Red       |       |       |       | No    |       | No    |
| Satd. Flow (RTOR)       |       |       |       |       |       |       |
| Link Speed (mph)        |       | 35    | 35    |       | 35    |       |
| Link Distance (ft)      |       | 366   | 439   |       | 465   |       |
| Travel Time (s)         |       | 7.1   | 8.6   |       | 9.1   |       |
| Confl. Peds. (#/hr)     |       |       |       |       |       |       |
| Confl. Bikes (#/hr)     |       |       |       |       |       |       |
| Peak Hour Factor        | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Growth Factor           | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |
| Heavy Vehicles (%)      | 2%    | 5%    | 4%    | 3%    | 4%    | 2%    |
| Bus Blockages (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     |
| Parking (#/hr)          |       |       |       |       |       |       |
| Mid-Block Traffic (%)   |       | 0%    | 0%    |       | 0%    |       |
| Shared Lane Traffic (%) |       |       |       |       |       |       |
| Lane Group Flow (vph)   | 55    | 697   | 701   | 423   | 284   | 31    |
| Turn Type               | Perm  | NA    | NA    | pm+ov | Prot  | Prot  |
| Protected Phases        |       | 2     | 6     | 4     | 4     | 4     |
| Permitted Phases        | 2     |       |       | 6     |       |       |
| Detector Phase          | 2     | 2     | 6     | 4     | 4     | 4     |
| Switch Phase            |       |       |       |       |       |       |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 7.0   | 7.0   | 7.0   |
| Minimum Split (s)       | 18.0  | 18.0  | 17.0  | 15.0  | 15.0  | 15.0  |
| Total Split (s)         | 70.0  | 70.0  | 70.0  | 40.0  | 40.0  | 40.0  |
| Total Split (%)         | 63.6% | 63.6% | 63.6% | 36.4% | 36.4% | 36.4% |
| Yellow Time (s)         | 3.8   | 3.8   | 3.8   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)        | 2.3   | 2.3   | 1.8   | 3.3   | 3.3   | 3.3   |
| Lost Time Adjust (s)    | -1.1  | -1.1  | -0.6  | -1.3  | -1.3  | -1.3  |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                |       |       |       |       |       |       |
| Lead-Lag Optimize?      |       |       |       |       |       |       |
| Recall Mode             | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effect Green (s)    | 76.0  | 76.0  | 76.0  | 110.0 | 24.0  | 24.0  |
| Actuated g/C Ratio      | 0.69  | 0.69  | 0.69  | 1.00  | 0.22  | 0.22  |
| v/c Ratio               | 0.14  | 0.56  | 0.56  | 0.27  | 0.75  | 0.09  |
| Control Delay (s/veh)   | 8.4   | 11.9  | 11.8  | 0.4   | 52.4  | 32.0  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay (s/veh)     | 8.4   | 11.9  | 11.8  | 0.4   | 52.4  | 32.0  |





| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| LOS                     | A    | B    | B    | A    | D    | C    |
| Approach Delay (s/veh)  |      | 11.6 | 7.5  |      | 50.4 |      |
| Approach LOS            |      | B    | A    |      | D    |      |
| Queue Length 50th (ft)  | 12   | 221  | 221  | 0    | 189  | 18   |
| Queue Length 95th (ft)  | 35   | 407  | 405  | 0    | 258  | 39   |
| Internal Link Dist (ft) |      | 286  | 359  |      | 385  |      |
| Turn Bay Length (ft)    | 185  |      |      |      | 100  |      |
| Base Capacity (vph)     | 397  | 1242 | 1261 | 1561 | 549  | 501  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.14 | 0.56 | 0.56 | 0.27 | 0.52 | 0.06 |

#### Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 50 (45%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 15.1

Intersection LOS: B

Intersection Capacity Utilization 68.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: NC 96 & Pearces Road



Zebulon Sheetz  
2: NC 96 & Site Driveway 1

Existing (2025) PM  
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| Lane Group                              | EBL          | EBT  | WBT  | WBR                    | SBL  | SBR  |
|-----------------------------------------|--------------|------|------|------------------------|------|------|
| Lane Configurations                     |              | ↕    | ↕    | ↕                      |      | ↕    |
| Traffic Volume (vph)                    | 0            | 668  | 661  | 60                     | 0    | 92   |
| Future Volume (vph)                     | 0            | 668  | 661  | 60                     | 0    | 92   |
| Ideal Flow (vphpl)                      | 1900         | 1900 | 1900 | 1900                   | 1900 | 1900 |
| Lane Width (ft)                         | 12           | 12   | 12   | 12                     | 12   | 12   |
| Grade (%)                               |              | 1%   | 2%   |                        | 0%   |      |
| Storage Length (ft)                     | 0            |      |      | 125                    | 0    | 0    |
| Storage Lanes                           | 0            |      |      | 1                      | 0    | 1    |
| Taper Length (ft)                       | 25           |      |      |                        | 25   |      |
| Satd. Flow (prot)                       | 0            | 1800 | 1791 | 1568                   | 0    | 1596 |
| Flt Permitted                           |              |      |      |                        |      |      |
| Satd. Flow (perm)                       | 0            | 1800 | 1791 | 1568                   | 0    | 1596 |
| Link Speed (mph)                        |              | 35   | 35   |                        | 15   |      |
| Link Distance (ft)                      |              | 592  | 366  |                        | 225  |      |
| Travel Time (s)                         |              | 11.5 | 7.1  |                        | 10.2 |      |
| Confl. Peds. (#/hr)                     |              |      |      |                        |      |      |
| Confl. Bikes (#/hr)                     |              |      |      |                        |      |      |
| Peak Hour Factor                        | 0.94         | 0.94 | 0.94 | 0.94                   | 0.94 | 0.94 |
| Growth Factor                           | 100%         | 100% | 100% | 100%                   | 100% | 100% |
| Heavy Vehicles (%)                      | 2%           | 5%   | 5%   | 2%                     | 2%   | 3%   |
| Bus Blockages (#/hr)                    | 0            | 0    | 0    | 0                      | 0    | 0    |
| Parking (#/hr)                          |              |      |      |                        |      |      |
| Mid-Block Traffic (%)                   |              | 0%   | 0%   |                        | 0%   |      |
| Shared Lane Traffic (%)                 |              |      |      |                        |      |      |
| Lane Group Flow (vph)                   | 0            | 711  | 703  | 64                     | 0    | 98   |
| Sign Control                            |              | Free | Free |                        | Stop |      |
| Intersection Summary                    |              |      |      |                        |      |      |
| Area Type:                              | Other        |      |      |                        |      |      |
| Control Type:                           | Unsignalized |      |      |                        |      |      |
| Intersection Capacity Utilization 47.2% |              |      |      | ICU Level of Service A |      |      |
| Analysis Period (min) 15                |              |      |      |                        |      |      |

| Intersection              |        |        |      |        |      |       |
|---------------------------|--------|--------|------|--------|------|-------|
| Int Delay, s/veh          | 1      |        |      |        |      |       |
| Movement                  | EBL    | EBT    | WBT  | WBR    | SBL  | SBR   |
| Lane Configurations       |        | ↑      | ↑    | ↗      |      | ↗     |
| Traffic Vol, veh/h        | 0      | 668    | 661  | 60     | 0    | 92    |
| Future Vol, veh/h         | 0      | 668    | 661  | 60     | 0    | 92    |
| Conflicting Peds, #/hr    | 0      | 0      | 0    | 0      | 0    | 0     |
| Sign Control              | Free   | Free   | Free | Free   | Stop | Stop  |
| RT Channelized            | -      | None   | -    | None   | -    | None  |
| Storage Length            | -      | -      | -    | 125    | -    | 0     |
| Veh in Median Storage, #  | -      | 0      | 0    | -      | 0    | -     |
| Grade, %                  | -      | 1      | 2    | -      | 0    | -     |
| Peak Hour Factor          | 94     | 94     | 94   | 94     | 94   | 94    |
| Heavy Vehicles, %         | 2      | 5      | 5    | 2      | 2    | 3     |
| Mvmt Flow                 | 0      | 711    | 703  | 64     | 0    | 98    |
|                           |        |        |      |        |      |       |
| Major/Minor               | Major1 | Major2 |      | Minor2 |      |       |
| Conflicting Flow All      | -      | 0      | -    | 0      | -    | 703   |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
| Critical Hdwy             | -      | -      | -    | -      | -    | 6.23  |
| Critical Hdwy Stg 1       | -      | -      | -    | -      | -    | -     |
| Critical Hdwy Stg 2       | -      | -      | -    | -      | -    | -     |
| Follow-up Hdwy            | -      | -      | -    | -      | -    | 3.327 |
| Pot Cap-1 Maneuver        | 0      | -      | -    | -      | 0    | 436   |
| Stage 1                   | 0      | -      | -    | -      | 0    | -     |
| Stage 2                   | 0      | -      | -    | -      | 0    | -     |
| Platoon blocked, %        |        | -      | -    | -      |      |       |
| Mov Cap-1 Maneuver        | -      | -      | -    | -      | -    | 436   |
| Mov Cap-2 Maneuver        | -      | -      | -    | -      | -    | -     |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Approach                  | EB     | WB     |      | SB     |      |       |
| HCM Control Delay, s/v    | 0      | 0      |      | 15.6   |      |       |
| HCM LOS                   | C      |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Minor Lane/Major Mvmt     | EBT    | WBT    | WBR  | SBLn1  |      |       |
| Capacity (veh/h)          | -      | -      | -    | 436    |      |       |
| HCM Lane V/C Ratio        | -      | -      | -    | 0.224  |      |       |
| HCM Control Delay (s/veh) | -      | -      | -    | 15.6   |      |       |
| HCM Lane LOS              | -      | -      | -    | C      |      |       |
| HCM 95th %tile Q (veh)    | -      | -      | -    | 0.9    |      |       |

Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Existing (2025) PM  
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|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                        | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (vph)              | 61                                                                                | 117                                                                               | 128                                                                               | 342                                                                               | 230                                                                               | 74                                                                                |
| Future Volume (vph)               | 61                                                                                | 117                                                                               | 128                                                                               | 342                                                                               | 230                                                                               | 74                                                                                |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)                   | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                         | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 1%                                                                                |                                                                                   |
| Storage Length (ft)               | 0                                                                                 | 0                                                                                 | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 |
| Storage Lanes                     | 1                                                                                 | 0                                                                                 | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |
| Taper Length (ft)                 | 25                                                                                |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (prot)                 | 1647                                                                              | 0                                                                                 | 1752                                                                              | 1863                                                                              | 1788                                                                              | 0                                                                                 |
| Flt Permitted                     | 0.983                                                                             |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                 | 1647                                                                              | 0                                                                                 | 1752                                                                              | 1863                                                                              | 1788                                                                              | 0                                                                                 |
| Link Speed (mph)                  | 15                                                                                |                                                                                   |                                                                                   | 35                                                                                | 35                                                                                |                                                                                   |
| Link Distance (ft)                | 239                                                                               |                                                                                   |                                                                                   | 465                                                                               | 197                                                                               |                                                                                   |
| Travel Time (s)                   | 10.9                                                                              |                                                                                   |                                                                                   | 9.1                                                                               | 3.8                                                                               |                                                                                   |
| Confl. Peds. (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor                  | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              |
| Growth Factor                     | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)                | 2%                                                                                | 4%                                                                                | 3%                                                                                | 2%                                                                                | 2%                                                                                | 3%                                                                                |
| Bus Blockages (#/hr)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)             | 184                                                                               | 0                                                                                 | 132                                                                               | 353                                                                               | 313                                                                               | 0                                                                                 |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                        | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:                     | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 44.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service A                                                            |                                                                                   |                                                                                   |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

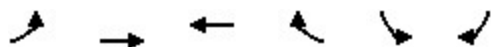
Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Existing (2025) PM  
05/20/2025

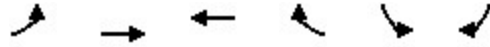
| Intersection              |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh          | 4.3                                                                               |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                  | EBL                                                                               | EBR    | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations       |  |        |  |  |  |  |
| Traffic Vol, veh/h        | 61                                                                                | 117    | 128                                                                               | 342                                                                               | 230                                                                               | 74                                                                                |
| Future Vol, veh/h         | 61                                                                                | 117    | 128                                                                               | 342                                                                               | 230                                                                               | 74                                                                                |
| 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                                                                                 | 1                                                                                 | -                                                                                 |
| Peak Hour Factor          | 97                                                                                | 97     | 97                                                                                | 97                                                                                | 97                                                                                | 97                                                                                |
| Heavy Vehicles, %         | 2                                                                                 | 4      | 3                                                                                 | 2                                                                                 | 2                                                                                 | 3                                                                                 |
| Mvmt Flow                 | 63                                                                                | 121    | 132                                                                               | 353                                                                               | 237                                                                               | 76                                                                                |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Major/Minor               | Minor2                                                                            | Major1 |                                                                                   | Major2                                                                            |                                                                                   |                                                                                   |
| Conflicting Flow All      | 892                                                                               | 275    | 313                                                                               | 0                                                                                 | -                                                                                 | 0                                                                                 |
| Stage 1                   | 275                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                   | 617                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy             | 6.42                                                                              | 6.24   | 4.13                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 1       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 2       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Follow-up Hdwy            | 3.518                                                                             | 3.336  | 2.227                                                                             | -                                                                                 | -                                                                                 | -                                                                                 |
| Pot Cap-1 Maneuver        | 312                                                                               | 759    | 1242                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 1                   | 771                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                   | 538                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Platoon blocked, %        |                                                                                   |        |                                                                                   | -                                                                                 | -                                                                                 | -                                                                                 |
| Mov Cap-1 Maneuver        | 279                                                                               | 759    | 1242                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Mov Cap-2 Maneuver        | 279                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 1                   | 689                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                   | 538                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach                  | EB                                                                                | NB     |                                                                                   | SB                                                                                |                                                                                   |                                                                                   |
| HCM Control Delay, s/v    | 17.2                                                                              | 2.2    |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |
| HCM LOS                   | C                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minor Lane/Major Mvmt     | NBL                                                                               | NBT    | EBLn1                                                                             | SBT                                                                               | SBR                                                                               |                                                                                   |
| Capacity (veh/h)          | 1242                                                                              | -      | 477                                                                               | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Lane V/C Ratio        | 0.106                                                                             | -      | 0.385                                                                             | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Control Delay (s/veh) | 8.2                                                                               | -      | 17.2                                                                              | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Lane LOS              | A                                                                                 | -      | C                                                                                 | -                                                                                 | -                                                                                 |                                                                                   |
| HCM 95th %tile Q (veh)    | 0.4                                                                               | -      | 1.8                                                                               | -                                                                                 | -                                                                                 |                                                                                   |



**Appendix G:**  
**Synchro Output: Background (2027)**



| Lane Group              | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations     |       |       |       |       |       |       |
| Traffic Volume (vph)    | 57    | 667   | 746   | 259   | 492   | 72    |
| Future Volume (vph)     | 57    | 667   | 746   | 259   | 492   | 72    |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width (ft)         | 12    | 12    | 12    | 12    | 12    | 12    |
| Grade (%)               |       | 1%    | 0%    |       | 1%    |       |
| Storage Length (ft)     | 185   |       |       | 0     | 100   | 0     |
| Storage Lanes           | 1     |       |       | 1     | 1     | 1     |
| Taper Length (ft)       | 50    |       |       |       | 100   |       |
| Satd. Flow (prot)       | 1727  | 1750  | 1727  | 1482  | 1744  | 1545  |
| Flt Permitted           | 0.185 |       |       |       | 0.950 |       |
| Satd. Flow (perm)       | 336   | 1750  | 1727  | 1482  | 1744  | 1545  |
| Right Turn on Red       |       |       |       | No    |       | No    |
| Satd. Flow (RTOR)       |       |       |       |       |       |       |
| Link Speed (mph)        |       | 35    | 35    |       | 35    |       |
| Link Distance (ft)      |       | 340   | 452   |       | 446   |       |
| Travel Time (s)         |       | 6.6   | 8.8   |       | 8.7   |       |
| Confl. Peds. (#/hr)     |       |       |       |       |       |       |
| Confl. Bikes (#/hr)     |       |       |       |       |       |       |
| Peak Hour Factor        | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  |
| Growth Factor           | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |
| Heavy Vehicles (%)      | 4%    | 8%    | 10%   | 9%    | 3%    | 4%    |
| Bus Blockages (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     |
| Parking (#/hr)          |       |       |       |       |       |       |
| Mid-Block Traffic (%)   |       | 0%    | 0%    |       | 0%    |       |
| Shared Lane Traffic (%) |       |       |       |       |       |       |
| Lane Group Flow (vph)   | 59    | 695   | 777   | 270   | 513   | 75    |
| Turn Type               | Perm  | NA    | NA    | pm+ov | Prot  | Prot  |
| Protected Phases        |       | 2     | 6     | 4     | 4     | 4     |
| Permitted Phases        | 2     |       |       | 6     |       |       |
| Detector Phase          | 2     | 2     | 6     | 4     | 4     | 4     |
| Switch Phase            |       |       |       |       |       |       |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 7.0   | 7.0   | 7.0   |
| Minimum Split (s)       | 18.0  | 18.0  | 17.0  | 15.0  | 15.0  | 15.0  |
| Total Split (s)         | 57.0  | 57.0  | 57.0  | 43.0  | 43.0  | 43.0  |
| Total Split (%)         | 57.0% | 57.0% | 57.0% | 43.0% | 43.0% | 43.0% |
| Yellow Time (s)         | 3.8   | 3.8   | 3.8   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)        | 2.3   | 2.3   | 1.8   | 3.3   | 3.3   | 3.3   |
| Lost Time Adjust (s)    | -1.1  | -1.1  | -0.6  | -1.3  | -1.3  | -1.3  |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                |       |       |       |       |       |       |
| Lead-Lag Optimize?      |       |       |       |       |       |       |
| Recall Mode             | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effect Green (s)    | 56.2  | 56.2  | 56.2  | 100.0 | 33.8  | 33.8  |
| Actuated g/C Ratio      | 0.56  | 0.56  | 0.56  | 1.00  | 0.34  | 0.34  |
| v/c Ratio               | 0.31  | 0.71  | 0.80  | 0.18  | 0.87  | 0.14  |
| Control Delay (s/veh)   | 19.4  | 22.1  | 26.8  | 0.3   | 47.0  | 22.2  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay (s/veh)     | 19.4  | 22.1  | 26.8  | 0.3   | 47.0  | 22.2  |



| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| LOS                     | B    | C    | C    | A    | D    | C    |
| Approach Delay (s/veh)  |      | 21.9 | 19.9 |      | 43.8 |      |
| Approach LOS            |      | C    | B    |      | D    |      |
| Queue Length 50th (ft)  | 20   | 316  | 388  | 0    | 295  | 32   |
| Queue Length 95th (ft)  | 56   | 494  | #664 | 0    | #417 | 62   |
| Internal Link Dist (ft) |      | 260  | 372  |      | 366  |      |
| Turn Bay Length (ft)    | 185  |      |      |      | 100  |      |
| Base Capacity (vph)     | 188  | 982  | 970  | 1474 | 662  | 587  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.31 | 0.71 | 0.80 | 0.18 | 0.77 | 0.13 |

#### Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 74 (74%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay (s/veh): 26.4

Intersection LOS: C

Intersection Capacity Utilization 83.0%

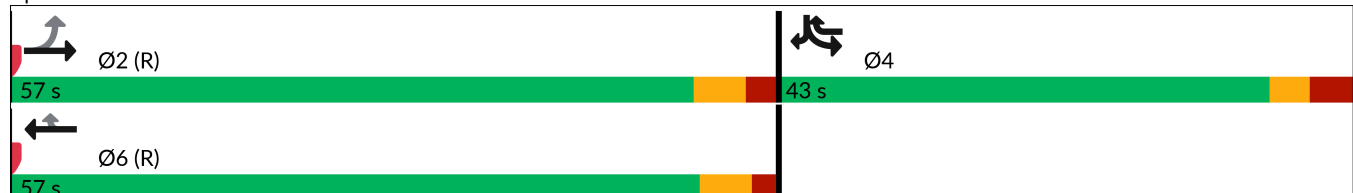
ICU Level of Service E

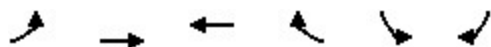
Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: NC 96 & Pearces Road





| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations     |      | ↑    | ↑    | ↗    |      | ↗    |
| Traffic Volume (vph)    | 0    | 738  | 720  | 26   | 0    | 60   |
| Future Volume (vph)     | 0    | 738  | 720  | 26   | 0    | 60   |
| Ideal Flow (vphpl)      | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft)         | 12   | 12   | 12   | 12   | 12   | 12   |
| Grade (%)               |      | 1%   | 2%   |      | 0%   |      |
| Storage Length (ft)     | 0    |      |      | 125  | 0    | 0    |
| Storage Lanes           | 0    |      |      | 1    | 0    | 1    |
| Taper Length (ft)       | 25   |      |      |      | 25   |      |
| Satd. Flow (prot)       | 0    | 1750 | 1775 | 1378 | 0    | 1481 |
| Flt Permitted           |      |      |      |      |      |      |
| Satd. Flow (perm)       | 0    | 1750 | 1775 | 1378 | 0    | 1481 |
| Link Speed (mph)        |      | 35   | 35   |      | 15   |      |
| Link Distance (ft)      |      | 421  | 340  |      | 208  |      |
| Travel Time (s)         |      | 8.2  | 6.6  |      | 9.5  |      |
| Confl. Peds. (#/hr)     |      |      |      |      |      |      |
| Confl. Bikes (#/hr)     |      |      |      |      |      |      |
| Peak Hour Factor        | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Growth Factor           | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%)      | 2%   | 8%   | 6%   | 16%  | 2%   | 11%  |
| Bus Blockages (#/hr)    | 0    | 0    | 0    | 0    | 0    | 0    |
| Parking (#/hr)          |      |      |      |      |      |      |
| Mid-Block Traffic (%)   |      | 0%   | 0%   |      | 0%   |      |
| Shared Lane Traffic (%) |      |      |      |      |      |      |
| Lane Group Flow (vph)   | 0    | 769  | 750  | 27   | 0    | 63   |
| Sign Control            |      | Free | Free |      | Stop |      |

#### Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 48.3%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

| Intersection              |        |        |      |        |      |       |
|---------------------------|--------|--------|------|--------|------|-------|
| Int Delay, s/veh          | 0.6    |        |      |        |      |       |
| Movement                  | EBL    | EBT    | WBT  | WBR    | SBL  | SBR   |
| Lane Configurations       |        | ↑      | ↑    | ↗      |      | ↗     |
| Traffic Vol, veh/h        | 0      | 738    | 720  | 26     | 0    | 60    |
| Future Vol, veh/h         | 0      | 738    | 720  | 26     | 0    | 60    |
| Conflicting Peds, #/hr    | 0      | 0      | 0    | 0      | 0    | 0     |
| Sign Control              | Free   | Free   | Free | Free   | Stop | Stop  |
| RT Channelized            | -      | None   | -    | None   | -    | None  |
| Storage Length            | -      | -      | -    | 125    | -    | 0     |
| Veh in Median Storage, #  | -      | 0      | 0    | -      | 0    | -     |
| Grade, %                  | -      | 1      | 2    | -      | 0    | -     |
| Peak Hour Factor          | 96     | 96     | 96   | 96     | 96   | 96    |
| Heavy Vehicles, %         | 2      | 8      | 6    | 16     | 2    | 11    |
| Mvmt Flow                 | 0      | 769    | 750  | 27     | 0    | 63    |
|                           |        |        |      |        |      |       |
| Major/Minor               | Major1 | Major2 |      | Minor2 |      |       |
| Conflicting Flow All      | -      | 0      | -    | 0      | -    | 750   |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
| Critical Hdwy             | -      | -      | -    | -      | -    | 6.31  |
| Critical Hdwy Stg 1       | -      | -      | -    | -      | -    | -     |
| Critical Hdwy Stg 2       | -      | -      | -    | -      | -    | -     |
| Follow-up Hdwy            | -      | -      | -    | -      | -    | 3.399 |
| Pot Cap-1 Maneuver        | 0      | -      | -    | -      | 0    | 397   |
| Stage 1                   | 0      | -      | -    | -      | 0    | -     |
| Stage 2                   | 0      | -      | -    | -      | 0    | -     |
| Platoon blocked, %        |        | -      | -    | -      |      |       |
| Mov Cap-1 Maneuver        | -      | -      | -    | -      | -    | 397   |
| Mov Cap-2 Maneuver        | -      | -      | -    | -      | -    | -     |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Approach                  | EB     | WB     |      | SB     |      |       |
| HCM Control Delay, s/v    | 0      | 0      |      | 15.8   |      |       |
| HCM LOS                   | C      |        |      |        |      |       |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Minor Lane/Major Mvmt     | EBT    | WBT    | WBR  | SBLn1  |      |       |
| Capacity (veh/h)          | -      | -      | -    | 397    |      |       |
| HCM Lane V/C Ratio        | -      | -      | -    | 0.157  |      |       |
| HCM Control Delay (s/veh) | -      | -      | -    | 15.8   |      |       |
| HCM Lane LOS              | -      | -      | -    | C      |      |       |
| HCM 95th %tile Q (veh)    | -      | -      | -    | 0.6    |      |       |

Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Background (2027) AM  
05/20/2025

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                        | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (vph)              | 26                                                                                | 90                                                                                | 80                                                                                | 239                                                                               | 444                                                                               | 69                                                                                |
| Future Volume (vph)               | 26                                                                                | 90                                                                                | 80                                                                                | 239                                                                               | 444                                                                               | 69                                                                                |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)                   | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                         | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 1%                                                                                |                                                                                   |
| Storage Length (ft)               | 0                                                                                 | 0                                                                                 | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 |
| Storage Lanes                     | 1                                                                                 | 0                                                                                 | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |
| Taper Length (ft)                 | 25                                                                                |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (prot)                 | 1600                                                                              | 0                                                                                 | 1736                                                                              | 1827                                                                              | 1811                                                                              | 0                                                                                 |
| Flt Permitted                     | 0.989                                                                             |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                 | 1600                                                                              | 0                                                                                 | 1736                                                                              | 1827                                                                              | 1811                                                                              | 0                                                                                 |
| Link Speed (mph)                  | 15                                                                                |                                                                                   |                                                                                   | 35                                                                                | 35                                                                                |                                                                                   |
| Link Distance (ft)                | 230                                                                               |                                                                                   |                                                                                   | 446                                                                               | 197                                                                               |                                                                                   |
| Travel Time (s)                   | 10.5                                                                              |                                                                                   |                                                                                   | 8.7                                                                               | 3.8                                                                               |                                                                                   |
| Confl. Peds. (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor                  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Growth Factor                     | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)                | 2%                                                                                | 6%                                                                                | 4%                                                                                | 4%                                                                                | 2%                                                                                | 6%                                                                                |
| Bus Blockages (#/hr)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)             | 126                                                                               | 0                                                                                 | 87                                                                                | 260                                                                               | 558                                                                               | 0                                                                                 |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                        | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:                     | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 49.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service A                                                            |                                                                                   |                                                                                   |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |



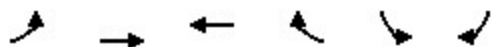
Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Background (2027) AM  
05/20/2025

| Intersection              |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
|---------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh          | 2.7                                                                               |        |                                                                                   |                                                                                   |                                                                                   |      |
| Movement                  | EBL                                                                               | EBR    | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations       |  |        |  |  |  |      |
| Traffic Vol, veh/h        | 26                                                                                | 90     | 80                                                                                | 239                                                                               | 444                                                                               | 69   |
| Future Vol, veh/h         | 26                                                                                | 90     | 80                                                                                | 239                                                                               | 444                                                                               | 69   |
| 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                                                                                 | 1                                                                                 | -    |
| Peak Hour Factor          | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %         | 2                                                                                 | 6      | 4                                                                                 | 4                                                                                 | 2                                                                                 | 6    |
| Mvmt Flow                 | 28                                                                                | 98     | 87                                                                                | 260                                                                               | 483                                                                               | 75   |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Major/Minor               | Minor2                                                                            | Major1 |                                                                                   | Major2                                                                            |                                                                                   |      |
| Conflicting Flow All      | 955                                                                               | 521    | 558                                                                               | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                   | 521                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 434                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy             | 6.42                                                                              | 6.26   | 4.14                                                                              | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy            | 3.518                                                                             | 3.354  | 2.236                                                                             | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver        | 287                                                                               | 548    | 1003                                                                              | -                                                                                 | -                                                                                 | -    |
| Stage 1                   | 596                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 653                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %        |                                                                                   |        |                                                                                   | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver        | 262                                                                               | 548    | 1003                                                                              | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver        | 262                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 1                   | 544                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 653                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Approach                  | EB                                                                                | NB     |                                                                                   | SB                                                                                |                                                                                   |      |
| HCM Control Delay, s/v    | 16.4                                                                              | 2.2    |                                                                                   | 0                                                                                 |                                                                                   |      |
| HCM LOS                   | C                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |      |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt     | NBL                                                                               | NBT    | EBLn1                                                                             | SBT                                                                               | SBR                                                                               |      |
| Capacity (veh/h)          | 1003                                                                              | -      | 440                                                                               | -                                                                                 | -                                                                                 |      |
| HCM Lane V/C Ratio        | 0.087                                                                             | -      | 0.287                                                                             | -                                                                                 | -                                                                                 |      |
| HCM Control Delay (s/veh) | 8.9                                                                               | -      | 16.4                                                                              | -                                                                                 | -                                                                                 |      |
| HCM Lane LOS              | A                                                                                 | -      | C                                                                                 | -                                                                                 | -                                                                                 |      |
| HCM 95th %tile Q (veh)    | 0.3                                                                               | -      | 1.2                                                                               | -                                                                                 | -                                                                                 |      |



| Lane Group              | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations     |       |       |       |       |       |       |
| Traffic Volume (vph)    | 84    | 756   | 776   | 500   | 327   | 50    |
| Future Volume (vph)     | 84    | 756   | 776   | 500   | 327   | 50    |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width (ft)         | 12    | 12    | 12    | 12    | 12    | 12    |
| Grade (%)               |       | 1%    | 0%    |       | 1%    |       |
| Storage Length (ft)     | 185   |       |       | 0     | 100   | 0     |
| Storage Lanes           | 1     |       |       | 1     | 1     | 1     |
| Taper Length (ft)       | 50    |       |       |       | 100   |       |
| Satd. Flow (prot)       | 1761  | 1800  | 1827  | 1568  | 1727  | 1575  |
| Flt Permitted           | 0.244 |       |       |       | 0.950 |       |
| Satd. Flow (perm)       | 452   | 1800  | 1827  | 1568  | 1727  | 1575  |
| Right Turn on Red       |       |       |       | No    |       | No    |
| Satd. Flow (RTOR)       |       |       |       |       |       |       |
| Link Speed (mph)        |       | 35    | 35    |       | 35    |       |
| Link Distance (ft)      |       | 366   | 439   |       | 465   |       |
| Travel Time (s)         |       | 7.1   | 8.6   |       | 9.1   |       |
| Confl. Peds. (#/hr)     |       |       |       |       |       |       |
| Confl. Bikes (#/hr)     |       |       |       |       |       |       |
| Peak Hour Factor        | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Growth Factor           | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |
| Heavy Vehicles (%)      | 2%    | 5%    | 4%    | 3%    | 4%    | 2%    |
| Bus Blockages (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     |
| Parking (#/hr)          |       |       |       |       |       |       |
| Mid-Block Traffic (%)   |       | 0%    | 0%    |       | 0%    |       |
| Shared Lane Traffic (%) |       |       |       |       |       |       |
| Lane Group Flow (vph)   | 86    | 771   | 792   | 510   | 334   | 51    |
| Turn Type               | Perm  | NA    | NA    | pm+ov | Prot  | Prot  |
| Protected Phases        |       | 2     | 6     | 4     | 4     | 4     |
| Permitted Phases        | 2     |       |       | 6     |       |       |
| Detector Phase          | 2     | 2     | 6     | 4     | 4     | 4     |
| Switch Phase            |       |       |       |       |       |       |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 7.0   | 7.0   | 7.0   |
| Minimum Split (s)       | 18.0  | 18.0  | 17.0  | 15.0  | 15.0  | 15.0  |
| Total Split (s)         | 70.0  | 70.0  | 70.0  | 40.0  | 40.0  | 40.0  |
| Total Split (%)         | 63.6% | 63.6% | 63.6% | 36.4% | 36.4% | 36.4% |
| Yellow Time (s)         | 3.8   | 3.8   | 3.8   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)        | 2.3   | 2.3   | 1.8   | 3.3   | 3.3   | 3.3   |
| Lost Time Adjust (s)    | -1.1  | -1.1  | -0.6  | -1.3  | -1.3  | -1.3  |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                |       |       |       |       |       |       |
| Lead-Lag Optimize?      |       |       |       |       |       |       |
| Recall Mode             | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effect Green (s)    | 72.8  | 72.8  | 72.8  | 110.0 | 27.2  | 27.2  |
| Actuated g/C Ratio      | 0.66  | 0.66  | 0.66  | 1.00  | 0.25  | 0.25  |
| v/c Ratio               | 0.29  | 0.65  | 0.66  | 0.33  | 0.78  | 0.13  |
| Control Delay (s/veh)   | 12.7  | 15.6  | 15.8  | 0.6   | 51.1  | 30.4  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay (s/veh)     | 12.7  | 15.6  | 15.8  | 0.6   | 51.1  | 30.4  |



| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| LOS                     | B    | B    | B    | A    | D    | C    |
| Approach Delay (s/veh)  |      | 15.3 | 9.8  |      | 48.4 |      |
| Approach LOS            |      | B    | A    |      | D    |      |
| Queue Length 50th (ft)  | 24   | 299  | 311  | 0    | 219  | 28   |
| Queue Length 95th (ft)  | 65   | 520  | 537  | 0    | 296  | 55   |
| Internal Link Dist (ft) |      | 286  | 359  |      | 385  |      |
| Turn Bay Length (ft)    | 185  |      |      |      | 100  |      |
| Base Capacity (vph)     | 298  | 1190 | 1208 | 1564 | 549  | 501  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.29 | 0.65 | 0.66 | 0.33 | 0.61 | 0.10 |

#### Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 50 (45%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay (s/veh): 17.5

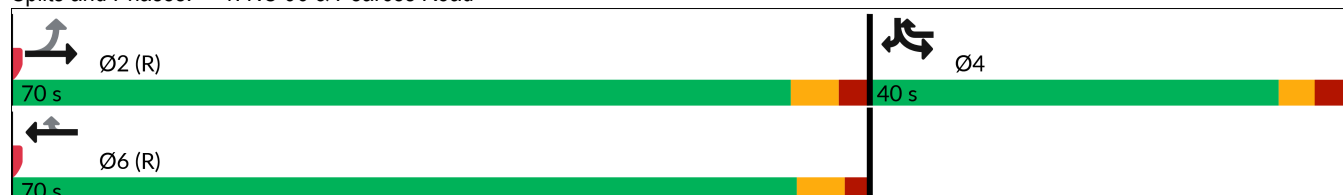
Intersection LOS: B

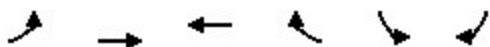
Intersection Capacity Utilization 79.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: NC 96 & Pearces Road





| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations     |      | ↑    | ↑    | ↗    |      | ↗    |
| Traffic Volume (vph)    | 0    | 767  | 766  | 63   | 0    | 97   |
| Future Volume (vph)     | 0    | 767  | 766  | 63   | 0    | 97   |
| Ideal Flow (vphpl)      | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft)         | 12   | 12   | 12   | 12   | 12   | 12   |
| Grade (%)               |      | 1%   | 2%   |      | 0%   |      |
| Storage Length (ft)     | 0    |      |      | 125  | 0    | 0    |
| Storage Lanes           | 0    |      |      | 1    | 0    | 1    |
| Taper Length (ft)       | 25   |      |      |      | 25   |      |
| Satd. Flow (prot)       | 0    | 1800 | 1791 | 1568 | 0    | 1596 |
| Flt Permitted           |      |      |      |      |      |      |
| Satd. Flow (perm)       | 0    | 1800 | 1791 | 1568 | 0    | 1596 |
| Link Speed (mph)        |      | 35   | 35   |      | 15   |      |
| Link Distance (ft)      |      | 592  | 366  |      | 225  |      |
| Travel Time (s)         |      | 11.5 | 7.1  |      | 10.2 |      |
| Confl. Peds. (#/hr)     |      |      |      |      |      |      |
| Confl. Bikes (#/hr)     |      |      |      |      |      |      |
| Peak Hour Factor        | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Growth Factor           | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%)      | 2%   | 5%   | 5%   | 2%   | 2%   | 3%   |
| Bus Blockages (#/hr)    | 0    | 0    | 0    | 0    | 0    | 0    |
| Parking (#/hr)          |      |      |      |      |      |      |
| Mid-Block Traffic (%)   |      | 0%   | 0%   |      | 0%   |      |
| Shared Lane Traffic (%) |      |      |      |      |      |      |
| Lane Group Flow (vph)   | 0    | 816  | 815  | 67   | 0    | 103  |
| Sign Control            |      | Free | Free |      | Stop |      |

#### Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 53.0%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Intersection

Int Delay, s/veh 1

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↑    | ↑    | ↑    |      | ↑    |
| Traffic Vol, veh/h       | 0    | 767  | 766  | 63   | 0    | 97   |
| Future Vol, veh/h        | 0    | 767  | 766  | 63   | 0    | 97   |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | 125  | -    | 0    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 1    | 2    | -    | 0    | -    |
| Peak Hour Factor         | 94   | 94   | 94   | 94   | 94   | 94   |
| Heavy Vehicles, %        | 2    | 5    | 5    | 2    | 2    | 3    |
| Mvmt Flow                | 0    | 816  | 815  | 67   | 0    | 103  |

| Major/Minor          | Major1 | Major2 | Minor2    |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | -      | 0      | - 0 - 815 |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |
| Critical Hdwy        | -      | -      | - - 6.23  |
| Critical Hdwy Stg 1  | -      | -      | - - -     |
| Critical Hdwy Stg 2  | -      | -      | - - -     |
| Follow-up Hdwy       | -      | -      | - - 3.327 |
| Pot Cap-1 Maneuver   | 0      | -      | - 0 376   |
| Stage 1              | 0      | -      | - 0 -     |
| Stage 2              | 0      | -      | - 0 -     |
| Platoon blocked, %   | -      | -      | -         |
| Mov Cap-1 Maneuver   | -      | -      | - - 376   |
| Mov Cap-2 Maneuver   | -      | -      | - - -     |
| Stage 1              | -      | -      | - - -     |
| Stage 2              | -      | -      | - - -     |

| Approach               | EB | WB | SB   |
|------------------------|----|----|------|
| HCM Control Delay, s/v | 0  | 0  | 18.2 |
| HCM LOS                |    |    | C    |

| Minor Lane/Major Mvmt     | EBT | WBT | WBR | SBLn1 |
|---------------------------|-----|-----|-----|-------|
| Capacity (veh/h)          | -   | -   | -   | 376   |
| HCM Lane V/C Ratio        | -   | -   | -   | 0.274 |
| HCM Control Delay (s/veh) | -   | -   | -   | 18.2  |
| HCM Lane LOS              | -   | -   | -   | C     |
| HCM 95th %tile Q (veh)    | -   | -   | -   | 1.1   |

Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Background (2027) PM  
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| Lane Group              | EBL   | EBR  | NBL   | NBT  | SBT  | SBR  |
|-------------------------|-------|------|-------|------|------|------|
| Lane Configurations     |       |      |       |      |      |      |
| Traffic Volume (vph)    | 64    | 123  | 134   | 450  | 295  | 78   |
| Future Volume (vph)     | 64    | 123  | 134   | 450  | 295  | 78   |
| Ideal Flow (vphpl)      | 1900  | 1900 | 1900  | 1900 | 1900 | 1900 |
| Lane Width (ft)         | 12    | 12   | 12    | 12   | 12   | 12   |
| Grade (%)               | 0%    |      |       | 0%   | 1%   |      |
| Storage Length (ft)     | 0     | 0    | 50    |      |      | 0    |
| Storage Lanes           | 1     | 0    | 1     |      |      | 0    |
| Taper Length (ft)       | 25    |      | 100   |      |      |      |
| Satd. Flow (prot)       | 1647  | 0    | 1752  | 1863 | 1798 | 0    |
| Flt Permitted           | 0.983 |      | 0.950 |      |      |      |
| Satd. Flow (perm)       | 1647  | 0    | 1752  | 1863 | 1798 | 0    |
| Link Speed (mph)        | 15    |      |       | 35   | 35   |      |
| Link Distance (ft)      | 239   |      |       | 465  | 197  |      |
| Travel Time (s)         | 10.9  |      |       | 9.1  | 3.8  |      |
| Confl. Peds. (#/hr)     |       |      |       |      |      |      |
| Confl. Bikes (#/hr)     |       |      |       |      |      |      |
| Peak Hour Factor        | 0.97  | 0.97 | 0.97  | 0.97 | 0.97 | 0.97 |
| Growth Factor           | 100%  | 100% | 100%  | 100% | 100% | 100% |
| Heavy Vehicles (%)      | 2%    | 4%   | 3%    | 2%   | 2%   | 3%   |
| Bus Blockages (#/hr)    | 0     | 0    | 0     | 0    | 0    | 0    |
| Parking (#/hr)          |       |      |       |      |      |      |
| Mid-Block Traffic (%)   | 0%    |      |       | 0%   | 0%   |      |
| Shared Lane Traffic (%) |       |      |       |      |      |      |
| Lane Group Flow (vph)   | 193   | 0    | 138   | 464  | 384  | 0    |
| Sign Control            | Stop  |      |       | Free | Free |      |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 48.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Background (2027) PM  
05/20/2025

| Intersection              |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
|---------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh          | 4.7                                                                               |        |                                                                                   |                                                                                   |                                                                                   |      |
| Movement                  | EBL                                                                               | EBR    | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations       |  |        |  |  |  |      |
| Traffic Vol, veh/h        | 64                                                                                | 123    | 134                                                                               | 450                                                                               | 295                                                                               | 78   |
| Future Vol, veh/h         | 64                                                                                | 123    | 134                                                                               | 450                                                                               | 295                                                                               | 78   |
| 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                                                                                 | 1                                                                                 | -    |
| Peak Hour Factor          | 97                                                                                | 97     | 97                                                                                | 97                                                                                | 97                                                                                | 97   |
| Heavy Vehicles, %         | 2                                                                                 | 4      | 3                                                                                 | 2                                                                                 | 2                                                                                 | 3    |
| Mvmt Flow                 | 66                                                                                | 127    | 138                                                                               | 464                                                                               | 304                                                                               | 80   |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Major/Minor               | Minor2                                                                            | Major1 |                                                                                   | Major2                                                                            |                                                                                   |      |
| Conflicting Flow All      | 1084                                                                              | 344    | 384                                                                               | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                   | 344                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 740                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy             | 6.42                                                                              | 6.24   | 4.13                                                                              | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy            | 3.518                                                                             | 3.336  | 2.227                                                                             | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver        | 240                                                                               | 694    | 1169                                                                              | -                                                                                 | -                                                                                 | -    |
| Stage 1                   | 718                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 472                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %        |                                                                                   |        |                                                                                   | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver        | 212                                                                               | 694    | 1169                                                                              | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver        | 212                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 1                   | 633                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 472                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Approach                  | EB                                                                                | NB     |                                                                                   | SB                                                                                |                                                                                   |      |
| HCM Control Delay, s/v    | 22.9                                                                              | 1.9    |                                                                                   | 0                                                                                 |                                                                                   |      |
| HCM LOS                   | C                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |      |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt     | NBL                                                                               | NBT    | EBLn1                                                                             | SBT                                                                               | SBR                                                                               |      |
| Capacity (veh/h)          | 1169                                                                              | -      | 390                                                                               | -                                                                                 | -                                                                                 |      |
| HCM Lane V/C Ratio        | 0.118                                                                             | -      | 0.494                                                                             | -                                                                                 | -                                                                                 |      |
| HCM Control Delay (s/veh) | 8.5                                                                               | -      | 22.9                                                                              | -                                                                                 | -                                                                                 |      |
| HCM Lane LOS              | A                                                                                 | -      | C                                                                                 | -                                                                                 | -                                                                                 |      |
| HCM 95th %tile Q (veh)    | 0.4                                                                               | -      | 2.6                                                                               | -                                                                                 | -                                                                                 |      |

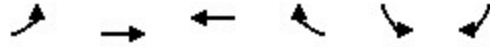
**Appendix H:**  
**Synchro Output: Build-Out (2027)**

Zebulon Sheetz  
1: NC 96 & Pearces Road

Build-Out (2027) AM  
05/20/2025



| Lane Group              | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations     |       |       |       |       |       |       |
| Traffic Volume (vph)    | 66    | 660   | 746   | 263   | 503   | 72    |
| Future Volume (vph)     | 66    | 660   | 746   | 263   | 503   | 72    |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width (ft)         | 12    | 12    | 12    | 12    | 12    | 12    |
| Grade (%)               |       | 1%    | 0%    |       | 1%    |       |
| Storage Length (ft)     | 185   |       |       | 0     | 100   | 0     |
| Storage Lanes           | 1     |       |       | 1     | 1     | 1     |
| Taper Length (ft)       | 50    |       |       |       | 100   |       |
| Satd. Flow (prot)       | 1744  | 1750  | 1727  | 1495  | 1744  | 1560  |
| Flt Permitted           | 0.180 |       |       |       | 0.950 |       |
| Satd. Flow (perm)       | 330   | 1750  | 1727  | 1495  | 1744  | 1560  |
| Right Turn on Red       |       |       |       | No    |       | No    |
| Satd. Flow (RTOR)       |       |       |       |       |       |       |
| Link Speed (mph)        |       | 35    | 35    |       | 35    |       |
| Link Distance (ft)      |       | 340   | 452   |       | 446   |       |
| Travel Time (s)         |       | 6.6   | 8.8   |       | 8.7   |       |
| Confl. Peds. (#/hr)     |       |       |       |       |       |       |
| Confl. Bikes (#/hr)     |       |       |       |       |       |       |
| Peak Hour Factor        | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  |
| Growth Factor           | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |
| Heavy Vehicles (%)      | 3%    | 8%    | 10%   | 8%    | 3%    | 3%    |
| Bus Blockages (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     |
| Parking (#/hr)          |       |       |       |       |       |       |
| Mid-Block Traffic (%)   |       | 0%    | 0%    |       | 0%    |       |
| Shared Lane Traffic (%) |       |       |       |       |       |       |
| Lane Group Flow (vph)   | 69    | 688   | 777   | 274   | 524   | 75    |
| Turn Type               | Perm  | NA    | NA    | pm+ov | Prot  | Prot  |
| Protected Phases        |       | 2     | 6     | 4     | 4     | 4     |
| Permitted Phases        | 2     |       |       | 6     |       |       |
| Detector Phase          | 2     | 2     | 6     | 4     | 4     | 4     |
| Switch Phase            |       |       |       |       |       |       |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 7.0   | 7.0   | 7.0   |
| Minimum Split (s)       | 18.0  | 18.0  | 17.0  | 15.0  | 15.0  | 15.0  |
| Total Split (s)         | 57.0  | 57.0  | 57.0  | 43.0  | 43.0  | 43.0  |
| Total Split (%)         | 57.0% | 57.0% | 57.0% | 43.0% | 43.0% | 43.0% |
| Yellow Time (s)         | 3.8   | 3.8   | 3.8   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)        | 2.3   | 2.3   | 1.8   | 3.3   | 3.3   | 3.3   |
| Lost Time Adjust (s)    | -1.1  | -1.1  | -0.6  | -1.3  | -1.3  | -1.3  |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                |       |       |       |       |       |       |
| Lead-Lag Optimize?      |       |       |       |       |       |       |
| Recall Mode             | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effect Green (s)    | 55.7  | 55.7  | 55.7  | 100.0 | 34.3  | 34.3  |
| Actuated g/C Ratio      | 0.56  | 0.56  | 0.56  | 1.00  | 0.34  | 0.34  |
| v/c Ratio               | 0.38  | 0.71  | 0.81  | 0.18  | 0.88  | 0.14  |
| Control Delay (s/veh)   | 21.8  | 22.2  | 27.3  | 0.3   | 47.6  | 22.0  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay (s/veh)     | 21.8  | 22.2  | 27.3  | 0.3   | 47.6  | 22.0  |



| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| LOS                     | C    | C    | C    | A    | D    | C    |
| Approach Delay (s/veh)  |      | 22.2 | 20.3 |      | 44.4 |      |
| Approach LOS            |      | C    | C    |      | D    |      |
| Queue Length 50th (ft)  | 24   | 317  | 394  | 0    | 301  | 32   |
| Queue Length 95th (ft)  | 68   | 485  | #664 | 0    | #442 | 62   |
| Internal Link Dist (ft) |      | 260  | 372  |      | 366  |      |
| Turn Bay Length (ft)    | 185  |      |      |      | 100  |      |
| Base Capacity (vph)     | 183  | 975  | 962  | 1485 | 662  | 592  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.38 | 0.71 | 0.81 | 0.18 | 0.79 | 0.13 |

#### Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 74 (74%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 26.9

Intersection LOS: C

Intersection Capacity Utilization 88.0%

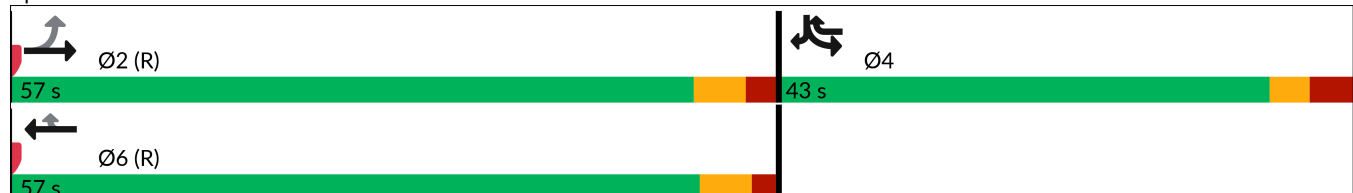
ICU Level of Service E

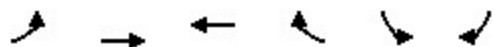
Analysis Period (min) 15

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: NC 96 & Pearces Road





| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations     |      | ↑    | ↑    | ↗    |      | ↗    |
| Traffic Volume (vph)    | 0    | 740  | 712  | 34   | 0    | 71   |
| Future Volume (vph)     | 0    | 740  | 712  | 34   | 0    | 71   |
| Ideal Flow (vphpl)      | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft)         | 12   | 12   | 12   | 12   | 12   | 12   |
| Grade (%)               |      | 1%   | 2%   |      | 0%   |      |
| Storage Length (ft)     | 0    |      |      | 125  | 0    | 0    |
| Storage Lanes           | 0    |      |      | 1    | 0    | 1    |
| Taper Length (ft)       | 25   |      |      |      | 25   |      |
| Satd. Flow (prot)       | 0    | 1767 | 1791 | 1428 | 0    | 1508 |
| Flt Permitted           |      |      |      |      |      |      |
| Satd. Flow (perm)       | 0    | 1767 | 1791 | 1428 | 0    | 1508 |
| Link Speed (mph)        |      | 35   | 35   |      | 15   |      |
| Link Distance (ft)      |      | 421  | 340  |      | 208  |      |
| Travel Time (s)         |      | 8.2  | 6.6  |      | 9.5  |      |
| Confl. Peds. (#/hr)     |      |      |      |      |      |      |
| Confl. Bikes (#/hr)     |      |      |      |      |      |      |
| Peak Hour Factor        | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Growth Factor           | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%)      | 2%   | 7%   | 5%   | 12%  | 2%   | 9%   |
| Bus Blockages (#/hr)    | 0    | 0    | 0    | 0    | 0    | 0    |
| Parking (#/hr)          |      |      |      |      |      |      |
| Mid-Block Traffic (%)   |      | 0%   | 0%   |      | 0%   |      |
| Shared Lane Traffic (%) |      |      |      |      |      |      |
| Lane Group Flow (vph)   | 0    | 771  | 742  | 35   | 0    | 74   |
| Sign Control            |      | Free | Free |      | Stop |      |

#### Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 48.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

| Intersection              |        |        |      |        |      |       |
|---------------------------|--------|--------|------|--------|------|-------|
| Int Delay, s/veh          | 0.7    |        |      |        |      |       |
| Movement                  | EBL    | EBT    | WBT  | WBR    | SBL  | SBR   |
| Lane Configurations       |        | ↑      | ↑    | ↗      |      | ↗     |
| Traffic Vol, veh/h        | 0      | 740    | 712  | 34     | 0    | 71    |
| Future Vol, veh/h         | 0      | 740    | 712  | 34     | 0    | 71    |
| Conflicting Peds, #/hr    | 0      | 0      | 0    | 0      | 0    | 0     |
| Sign Control              | Free   | Free   | Free | Free   | Stop | Stop  |
| RT Channelized            | -      | None   | -    | None   | -    | None  |
| Storage Length            | -      | -      | -    | 125    | -    | 0     |
| Veh in Median Storage, #  | -      | 0      | 0    | -      | 0    | -     |
| Grade, %                  | -      | 1      | 2    | -      | 0    | -     |
| Peak Hour Factor          | 96     | 96     | 96   | 96     | 96   | 96    |
| Heavy Vehicles, %         | 2      | 7      | 5    | 12     | 2    | 9     |
| Mvmt Flow                 | 0      | 771    | 742  | 35     | 0    | 74    |
|                           |        |        |      |        |      |       |
| Major/Minor               | Major1 | Major2 |      | Minor2 |      |       |
| Conflicting Flow All      | -      | 0      | -    | 0      | -    | 742   |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
| Critical Hdwy             | -      | -      | -    | -      | -    | 6.29  |
| Critical Hdwy Stg 1       | -      | -      | -    | -      | -    | -     |
| Critical Hdwy Stg 2       | -      | -      | -    | -      | -    | -     |
| Follow-up Hdwy            | -      | -      | -    | -      | -    | 3.381 |
| Pot Cap-1 Maneuver        | 0      | -      | -    | -      | 0    | 404   |
| Stage 1                   | 0      | -      | -    | -      | 0    | -     |
| Stage 2                   | 0      | -      | -    | -      | 0    | -     |
| Platoon blocked, %        |        | -      | -    | -      |      |       |
| Mov Cap-1 Maneuver        | -      | -      | -    | -      | -    | 404   |
| Mov Cap-2 Maneuver        | -      | -      | -    | -      | -    | -     |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Approach                  | EB     | WB     |      | SB     |      |       |
| HCM Control Delay, s/v    | 0      | 0      |      | 15.9   |      |       |
| HCM LOS                   | C      |        |      |        |      |       |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Minor Lane/Major Mvmt     | EBT    | WBT    | WBR  | SBLn1  |      |       |
| Capacity (veh/h)          | -      | -      | -    | 404    |      |       |
| HCM Lane V/C Ratio        | -      | -      | -    | 0.183  |      |       |
| HCM Control Delay (s/veh) | -      | -      | -    | 15.9   |      |       |
| HCM Lane LOS              | -      | -      | -    | C      |      |       |
| HCM 95th %tile Q (veh)    | -      | -      | -    | 0.7    |      |       |



Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Build-Out (2027) AM  
05/20/2025

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                        | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (vph)              | 32                                                                                | 106                                                                               | 97                                                                                | 235                                                                               | 439                                                                               | 76                                                                                |
| Future Volume (vph)               | 32                                                                                | 106                                                                               | 97                                                                                | 235                                                                               | 439                                                                               | 76                                                                                |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)                   | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                         | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 1%                                                                                |                                                                                   |
| Storage Length (ft)               | 0                                                                                 | 0                                                                                 | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 |
| Storage Lanes                     | 1                                                                                 | 0                                                                                 | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |
| Taper Length (ft)                 | 25                                                                                |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (prot)                 | 1613                                                                              | 0                                                                                 | 1752                                                                              | 1845                                                                              | 1806                                                                              | 0                                                                                 |
| Flt Permitted                     | 0.988                                                                             |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                 | 1613                                                                              | 0                                                                                 | 1752                                                                              | 1845                                                                              | 1806                                                                              | 0                                                                                 |
| Link Speed (mph)                  | 15                                                                                |                                                                                   |                                                                                   | 35                                                                                | 35                                                                                |                                                                                   |
| Link Distance (ft)                | 230                                                                               |                                                                                   |                                                                                   | 446                                                                               | 197                                                                               |                                                                                   |
| Travel Time (s)                   | 10.5                                                                              |                                                                                   |                                                                                   | 8.7                                                                               | 3.8                                                                               |                                                                                   |
| Confl. Peds. (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor                  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Growth Factor                     | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)                | 2%                                                                                | 5%                                                                                | 3%                                                                                | 3%                                                                                | 2%                                                                                | 6%                                                                                |
| Bus Blockages (#/hr)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)             | 150                                                                               | 0                                                                                 | 105                                                                               | 255                                                                               | 560                                                                               | 0                                                                                 |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                        | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:                     | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 51.4%                                                                             |                                                                                   |                                                                                   | ICU Level of Service A                                                            |                                                                                   |                                                                                   |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Zebulon Sheetz  
3: Pearces Road & Site Driveway 2

Build-Out (2027) AM  
05/20/2025

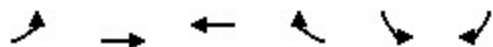
| Intersection              |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
|---------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh          | 3.4                                                                               |        |                                                                                   |                                                                                   |                                                                                   |      |
| Movement                  | EBL                                                                               | EBR    | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations       |  |        |  |  |  |      |
| Traffic Vol, veh/h        | 32                                                                                | 106    | 97                                                                                | 235                                                                               | 439                                                                               | 76   |
| Future Vol, veh/h         | 32                                                                                | 106    | 97                                                                                | 235                                                                               | 439                                                                               | 76   |
| 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                                                                                 | 1                                                                                 | -    |
| Peak Hour Factor          | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %         | 2                                                                                 | 5      | 3                                                                                 | 3                                                                                 | 2                                                                                 | 6    |
| Mvmt Flow                 | 35                                                                                | 115    | 105                                                                               | 255                                                                               | 477                                                                               | 83   |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Major/Minor               | Minor2                                                                            | Major1 |                                                                                   | Major2                                                                            |                                                                                   |      |
| Conflicting Flow All      | 984                                                                               | 519    | 560                                                                               | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                   | 519                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 465                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy             | 6.42                                                                              | 6.25   | 4.13                                                                              | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy            | 3.518                                                                             | 3.345  | 2.227                                                                             | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver        | 275                                                                               | 551    | 1006                                                                              | -                                                                                 | -                                                                                 | -    |
| Stage 1                   | 597                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 632                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %        |                                                                                   |        |                                                                                   | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver        | 246                                                                               | 551    | 1006                                                                              | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver        | 246                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 1                   | 535                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
| Stage 2                   | 632                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -    |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Approach                  | EB                                                                                | NB     |                                                                                   | SB                                                                                |                                                                                   |      |
| HCM Control Delay, s/v    | 17.9                                                                              | 2.6    |                                                                                   | 0                                                                                 |                                                                                   |      |
| HCM LOS                   | C                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |      |
|                           |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt     | NBL                                                                               | NBT    | EBLn1                                                                             | SBT                                                                               | SBR                                                                               |      |
| Capacity (veh/h)          | 1006                                                                              | -      | 428                                                                               | -                                                                                 | -                                                                                 |      |
| HCM Lane V/C Ratio        | 0.105                                                                             | -      | 0.35                                                                              | -                                                                                 | -                                                                                 |      |
| HCM Control Delay (s/veh) | 9                                                                                 | -      | 17.9                                                                              | -                                                                                 | -                                                                                 |      |
| HCM Lane LOS              | A                                                                                 | -      | C                                                                                 | -                                                                                 | -                                                                                 |      |
| HCM 95th %tile Q (veh)    | 0.4                                                                               | -      | 1.6                                                                               | -                                                                                 | -                                                                                 |      |

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| Lane Group              | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations     |       |       |       |       |       |       |
| Traffic Volume (vph)    | 93    | 749   | 776   | 504   | 338   | 50    |
| Future Volume (vph)     | 93    | 749   | 776   | 504   | 338   | 50    |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width (ft)         | 12    | 12    | 12    | 12    | 12    | 12    |
| Grade (%)               |       | 1%    | 0%    |       | 1%    |       |
| Storage Length (ft)     | 185   |       |       | 0     | 100   | 0     |
| Storage Lanes           | 1     |       |       | 1     | 1     | 1     |
| Taper Length (ft)       | 50    |       |       |       | 100   |       |
| Satd. Flow (prot)       | 1761  | 1800  | 1827  | 1568  | 1727  | 1575  |
| Flt Permitted           | 0.241 |       |       |       | 0.950 |       |
| Satd. Flow (perm)       | 447   | 1800  | 1827  | 1568  | 1727  | 1575  |
| Right Turn on Red       |       |       |       | No    |       | No    |
| Satd. Flow (RTOR)       |       |       |       |       |       |       |
| Link Speed (mph)        |       | 35    | 35    |       | 35    |       |
| Link Distance (ft)      |       | 366   | 439   |       | 465   |       |
| Travel Time (s)         |       | 7.1   | 8.6   |       | 9.1   |       |
| Confl. Peds. (#/hr)     |       |       |       |       |       |       |
| Confl. Bikes (#/hr)     |       |       |       |       |       |       |
| Peak Hour Factor        | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |
| Growth Factor           | 100%  | 100%  | 100%  | 100%  | 100%  | 100%  |
| Heavy Vehicles (%)      | 2%    | 5%    | 4%    | 3%    | 4%    | 2%    |
| Bus Blockages (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     |
| Parking (#/hr)          |       |       |       |       |       |       |
| Mid-Block Traffic (%)   |       | 0%    | 0%    |       | 0%    |       |
| Shared Lane Traffic (%) |       |       |       |       |       |       |
| Lane Group Flow (vph)   | 95    | 764   | 792   | 514   | 345   | 51    |
| Turn Type               | Perm  | NA    | NA    | pm+ov | Prot  | Prot  |
| Protected Phases        |       | 2     | 6     | 4     | 4     | 4     |
| Permitted Phases        | 2     |       |       | 6     |       |       |
| Detector Phase          | 2     | 2     | 6     | 4     | 4     | 4     |
| Switch Phase            |       |       |       |       |       |       |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 7.0   | 7.0   | 7.0   |
| Minimum Split (s)       | 18.0  | 18.0  | 17.0  | 15.0  | 15.0  | 15.0  |
| Total Split (s)         | 70.0  | 70.0  | 70.0  | 40.0  | 40.0  | 40.0  |
| Total Split (%)         | 63.6% | 63.6% | 63.6% | 36.4% | 36.4% | 36.4% |
| Yellow Time (s)         | 3.8   | 3.8   | 3.8   | 3.0   | 3.0   | 3.0   |
| All-Red Time (s)        | 2.3   | 2.3   | 1.8   | 3.3   | 3.3   | 3.3   |
| Lost Time Adjust (s)    | -1.1  | -1.1  | -0.6  | -1.3  | -1.3  | -1.3  |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Lead/Lag                |       |       |       |       |       |       |
| Lead-Lag Optimize?      |       |       |       |       |       |       |
| Recall Mode             | C-Max | C-Max | C-Max | None  | None  | None  |
| Act Effect Green (s)    | 72.2  | 72.2  | 72.2  | 110.0 | 27.8  | 27.8  |
| Actuated g/C Ratio      | 0.66  | 0.66  | 0.66  | 1.00  | 0.25  | 0.25  |
| v/c Ratio               | 0.32  | 0.65  | 0.66  | 0.33  | 0.79  | 0.13  |
| Control Delay (s/veh)   | 13.7  | 15.8  | 16.2  | 0.6   | 51.4  | 30.0  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay (s/veh)     | 13.7  | 15.8  | 16.2  | 0.6   | 51.4  | 30.0  |



| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| LOS                     | B    | B    | B    | A    | D    | C    |
| Approach Delay (s/veh)  |      | 15.6 | 10.0 |      | 48.7 |      |
| Approach LOS            |      | B    | B    |      | D    |      |
| Queue Length 50th (ft)  | 27   | 301  | 317  | 0    | 226  | 28   |
| Queue Length 95th (ft)  | 73   | 513  | 537  | 0    | 308  | 55   |
| Internal Link Dist (ft) |      | 286  | 359  |      | 385  |      |
| Turn Bay Length (ft)    | 185  |      |      |      | 100  |      |
| Base Capacity (vph)     | 293  | 1181 | 1199 | 1562 | 549  | 501  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.32 | 0.65 | 0.66 | 0.33 | 0.63 | 0.10 |

#### Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 50 (45%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay (s/veh): 17.9

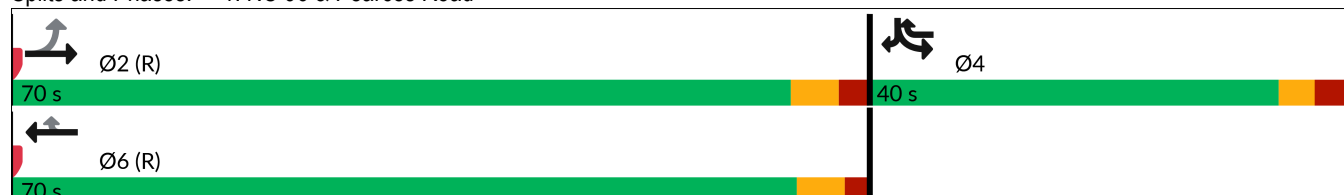
Intersection LOS: B

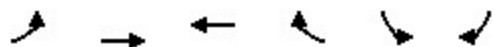
Intersection Capacity Utilization 80.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: NC 96 & Pearces Road





| Lane Group              | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|-------------------------|------|------|------|------|------|------|
| Lane Configurations     |      | ↑    | ↑    | ↗    |      | ↗    |
| Traffic Volume (vph)    | 0    | 769  | 758  | 71   | 0    | 107  |
| Future Volume (vph)     | 0    | 769  | 758  | 71   | 0    | 107  |
| Ideal Flow (vphpl)      | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width (ft)         | 12   | 12   | 12   | 12   | 12   | 12   |
| Grade (%)               |      | 1%   | 2%   |      | 0%   |      |
| Storage Length (ft)     | 0    |      |      | 125  | 0    | 0    |
| Storage Lanes           | 0    |      |      | 1    | 0    | 1    |
| Taper Length (ft)       | 25   |      |      |      | 25   |      |
| Satd. Flow (prot)       | 0    | 1800 | 1809 | 1568 | 0    | 1596 |
| Flt Permitted           |      |      |      |      |      |      |
| Satd. Flow (perm)       | 0    | 1800 | 1809 | 1568 | 0    | 1596 |
| Link Speed (mph)        |      | 35   | 35   |      | 15   |      |
| Link Distance (ft)      |      | 592  | 366  |      | 225  |      |
| Travel Time (s)         |      | 11.5 | 7.1  |      | 10.2 |      |
| Confl. Peds. (#/hr)     |      |      |      |      |      |      |
| Confl. Bikes (#/hr)     |      |      |      |      |      |      |
| Peak Hour Factor        | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Growth Factor           | 100% | 100% | 100% | 100% | 100% | 100% |
| Heavy Vehicles (%)      | 2%   | 5%   | 4%   | 2%   | 2%   | 3%   |
| Bus Blockages (#/hr)    | 0    | 0    | 0    | 0    | 0    | 0    |
| Parking (#/hr)          |      |      |      |      |      |      |
| Mid-Block Traffic (%)   |      | 0%   | 0%   |      | 0%   |      |
| Shared Lane Traffic (%) |      |      |      |      |      |      |
| Lane Group Flow (vph)   | 0    | 818  | 806  | 76   | 0    | 114  |
| Sign Control            |      | Free | Free |      | Stop |      |

#### Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 53.2%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

| Intersection              |        |        |      |        |      |       |
|---------------------------|--------|--------|------|--------|------|-------|
| Int Delay, s/veh          | 1.2    |        |      |        |      |       |
| Movement                  | EBL    | EBT    | WBT  | WBR    | SBL  | SBR   |
| Lane Configurations       |        | ↑      | ↑    | ↗      |      | ↗     |
| Traffic Vol, veh/h        | 0      | 769    | 758  | 71     | 0    | 107   |
| Future Vol, veh/h         | 0      | 769    | 758  | 71     | 0    | 107   |
| Conflicting Peds, #/hr    | 0      | 0      | 0    | 0      | 0    | 0     |
| Sign Control              | Free   | Free   | Free | Free   | Stop | Stop  |
| RT Channelized            | -      | None   | -    | None   | -    | None  |
| Storage Length            | -      | -      | -    | 125    | -    | 0     |
| Veh in Median Storage, #  | -      | 0      | 0    | -      | 0    | -     |
| Grade, %                  | -      | 1      | 2    | -      | 0    | -     |
| Peak Hour Factor          | 94     | 94     | 94   | 94     | 94   | 94    |
| Heavy Vehicles, %         | 2      | 5      | 4    | 2      | 2    | 3     |
| Mvmt Flow                 | 0      | 818    | 806  | 76     | 0    | 114   |
|                           |        |        |      |        |      |       |
| Major/Minor               | Major1 | Major2 |      | Minor2 |      |       |
| Conflicting Flow All      | -      | 0      | -    | 0      | -    | 806   |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
| Critical Hdwy             | -      | -      | -    | -      | -    | 6.23  |
| Critical Hdwy Stg 1       | -      | -      | -    | -      | -    | -     |
| Critical Hdwy Stg 2       | -      | -      | -    | -      | -    | -     |
| Follow-up Hdwy            | -      | -      | -    | -      | -    | 3.327 |
| Pot Cap-1 Maneuver        | 0      | -      | -    | -      | 0    | 380   |
| Stage 1                   | 0      | -      | -    | -      | 0    | -     |
| Stage 2                   | 0      | -      | -    | -      | 0    | -     |
| Platoon blocked, %        |        | -      | -    | -      |      |       |
| Mov Cap-1 Maneuver        | -      | -      | -    | -      | -    | 380   |
| Mov Cap-2 Maneuver        | -      | -      | -    | -      | -    | -     |
| Stage 1                   | -      | -      | -    | -      | -    | -     |
| Stage 2                   | -      | -      | -    | -      | -    | -     |
|                           |        |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Approach                  | EB     | WB     |      | SB     |      |       |
| HCM Control Delay, s/v    | 0      | 0      |      | 18.5   |      |       |
| HCM LOS                   | C      |        |      |        |      |       |
|                           |        |        |      |        |      |       |
| Minor Lane/Major Mvmt     | EBT    | WBT    | WBR  | SBLn1  |      |       |
| Capacity (veh/h)          | -      | -      | -    | 380    |      |       |
| HCM Lane V/C Ratio        | -      | -      | -    | 0.3    |      |       |
| HCM Control Delay (s/veh) | -      | -      | -    | 18.5   |      |       |
| HCM Lane LOS              | -      | -      | -    | C      |      |       |
| HCM 95th %tile Q (veh)    | -      | -      | -    | 1.2    |      |       |



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3: Pearces Road & Site Driveway 2

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|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                        | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (vph)              | 71                                                                                | 137                                                                               | 152                                                                               | 445                                                                               | 292                                                                               | 83                                                                                |
| Future Volume (vph)               | 71                                                                                | 137                                                                               | 152                                                                               | 445                                                                               | 292                                                                               | 83                                                                                |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Width (ft)                   | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                | 12                                                                                |
| Grade (%)                         | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 1%                                                                                |                                                                                   |
| Storage Length (ft)               | 0                                                                                 | 0                                                                                 | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 |
| Storage Lanes                     | 1                                                                                 | 0                                                                                 | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |
| Taper Length (ft)                 | 25                                                                                |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (prot)                 | 1647                                                                              | 0                                                                                 | 1752                                                                              | 1863                                                                              | 1794                                                                              | 0                                                                                 |
| Flt Permitted                     | 0.983                                                                             |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                 | 1647                                                                              | 0                                                                                 | 1752                                                                              | 1863                                                                              | 1794                                                                              | 0                                                                                 |
| Link Speed (mph)                  | 15                                                                                |                                                                                   |                                                                                   | 35                                                                                | 35                                                                                |                                                                                   |
| Link Distance (ft)                | 239                                                                               |                                                                                   |                                                                                   | 465                                                                               | 197                                                                               |                                                                                   |
| Travel Time (s)                   | 10.9                                                                              |                                                                                   |                                                                                   | 9.1                                                                               | 3.8                                                                               |                                                                                   |
| Confl. Peds. (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Peak Hour Factor                  | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              |
| Growth Factor                     | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              | 100%                                                                              |
| Heavy Vehicles (%)                | 2%                                                                                | 4%                                                                                | 3%                                                                                | 2%                                                                                | 2%                                                                                | 3%                                                                                |
| Bus Blockages (#/hr)              | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Mid-Block Traffic (%)             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Shared Lane Traffic (%)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)             | 214                                                                               | 0                                                                                 | 157                                                                               | 459                                                                               | 387                                                                               | 0                                                                                 |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                        | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:                     | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 51.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service A                                                            |                                                                                   |                                                                                   |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

Zebulon Sheetz  
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| Intersection              |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh          | 5.8                                                                               |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                  | EBL                                                                               | EBR    | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations       |  |        |  |  |  |  |
| Traffic Vol, veh/h        | 71                                                                                | 137    | 152                                                                               | 445                                                                               | 292                                                                               | 83                                                                                |
| Future Vol, veh/h         | 71                                                                                | 137    | 152                                                                               | 445                                                                               | 292                                                                               | 83                                                                                |
| 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                                                                                 | 1                                                                                 | -                                                                                 |
| Peak Hour Factor          | 97                                                                                | 97     | 97                                                                                | 97                                                                                | 97                                                                                | 97                                                                                |
| Heavy Vehicles, %         | 2                                                                                 | 4      | 3                                                                                 | 2                                                                                 | 2                                                                                 | 3                                                                                 |
| Mvmt Flow                 | 73                                                                                | 141    | 157                                                                               | 459                                                                               | 301                                                                               | 86                                                                                |
| Major/Minor               | Minor2                                                                            | Major1 |                                                                                   | Major2                                                                            |                                                                                   |                                                                                   |
| Conflicting Flow All      | 1117                                                                              | 344    | 387                                                                               | 0                                                                                 | -                                                                                 | 0                                                                                 |
| Stage 1                   | 344                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                   | 773                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy             | 6.42                                                                              | 6.24   | 4.13                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 1       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 2       | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Follow-up Hdwy            | 3.518                                                                             | 3.336  | 2.227                                                                             | -                                                                                 | -                                                                                 | -                                                                                 |
| Pot Cap-1 Maneuver        | 229                                                                               | 694    | 1166                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 1                   | 718                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                   | 455                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Platoon blocked, %        |                                                                                   |        |                                                                                   | -                                                                                 | -                                                                                 | -                                                                                 |
| Mov Cap-1 Maneuver        | 198                                                                               | 694    | 1166                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Mov Cap-2 Maneuver        | 198                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 1                   | 621                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                   | 455                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Approach                  | EB                                                                                | NB     |                                                                                   | SB                                                                                |                                                                                   |                                                                                   |
| HCM Control Delay, s/v    | 26.8                                                                              | 2.2    |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |
| HCM LOS                   | D                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minor Lane/Major Mvmt     | NBL                                                                               | NBT    | EBLn1                                                                             | SBT                                                                               | SBR                                                                               |                                                                                   |
| Capacity (veh/h)          | 1166                                                                              | -      | 374                                                                               | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Lane V/C Ratio        | 0.134                                                                             | -      | 0.573                                                                             | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Control Delay (s/veh) | 8.6                                                                               | -      | 26.8                                                                              | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Lane LOS              | A                                                                                 | -      | D                                                                                 | -                                                                                 | -                                                                                 |                                                                                   |
| HCM 95th %tile Q (veh)    | 0.5                                                                               | -      | 3.4                                                                               | -                                                                                 | -                                                                                 |                                                                                   |

# **Appendix I:**

## **SimTraffic Reports**

Queuing and Blocking Report  
Existing (2025) AM

05/21/2025

Intersection: 1: NC 96 & Pearces Road

| Movement              | EB  | EB  | WB  | WB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | R   | L   | R   |
| Maximum Queue (ft)    | 175 | 273 | 441 | 350 | 200 | 363 |
| Average Queue (ft)    | 41  | 170 | 222 | 32  | 176 | 144 |
| 95th Queue (ft)       | 102 | 281 | 375 | 159 | 227 | 355 |
| Link Distance (ft)    |     | 266 | 435 | 435 |     | 364 |
| Upstream Blk Time (%) |     | 1   | 1   | 0   |     | 0   |
| Queuing Penalty (veh) |     | 7   | 0   | 0   |     | 2   |
| Storage Bay Dist (ft) | 185 |     |     |     | 100 |     |
| Storage Blk Time (%)  |     | 6   |     |     | 37  | 1   |
| Queuing Penalty (veh) |     | 3   |     |     | 17  | 2   |

Intersection: 2: NC 96 & Site Driveway 1

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | T   | R   |
| Maximum Queue (ft)    | 150 | 83  |
| Average Queue (ft)    | 13  | 32  |
| 95th Queue (ft)       | 78  | 66  |
| Link Distance (ft)    | 371 | 154 |
| Upstream Blk Time (%) |     | 0   |
| Queuing Penalty (veh) |     | 0   |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

Intersection: 3: Pearces Road & Site Driveway 2

| Movement              | EB  | NB | SB  |
|-----------------------|-----|----|-----|
| Directions Served     | LR  | L  | TR  |
| Maximum Queue (ft)    | 116 | 58 | 52  |
| Average Queue (ft)    | 47  | 19 | 3   |
| 95th Queue (ft)       | 87  | 48 | 27  |
| Link Distance (ft)    | 196 |    | 163 |
| Upstream Blk Time (%) | 0   |    | 0   |
| Queuing Penalty (veh) | 0   |    | 0   |
| Storage Bay Dist (ft) |     | 50 |     |
| Storage Blk Time (%)  |     | 0  |     |
| Queuing Penalty (veh) |     | 1  |     |

Network Summary

Network wide Queuing Penalty: 32

Queuing and Blocking Report  
Existing (2025) PM

05/21/2025

Intersection: 1: NC 96 & Pearces Road

| Movement              | EB  | EB  | WB  | WB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | R   | L   | R   |
| Maximum Queue (ft)    | 164 | 294 | 397 | 182 | 199 | 301 |
| Average Queue (ft)    | 46  | 162 | 172 | 32  | 142 | 64  |
| 95th Queue (ft)       | 106 | 281 | 328 | 112 | 210 | 208 |
| Link Distance (ft)    |     | 290 | 421 | 421 |     | 381 |
| Upstream Blk Time (%) |     | 1   | 0   |     |     |     |
| Queuing Penalty (veh) |     | 3   | 0   |     |     |     |
| Storage Bay Dist (ft) | 185 |     |     |     | 100 |     |
| Storage Blk Time (%)  |     | 5   |     |     | 31  | 0   |
| Queuing Penalty (veh) |     | 3   |     |     | 9   | 0   |

Intersection: 2: NC 96 & Site Driveway 1

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | T   | R   |
| Maximum Queue (ft)    | 110 | 104 |
| Average Queue (ft)    | 7   | 44  |
| 95th Queue (ft)       | 49  | 81  |
| Link Distance (ft)    | 543 | 171 |
| Upstream Blk Time (%) |     |     |
| Queuing Penalty (veh) |     |     |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

Intersection: 3: Pearces Road & Site Driveway 2

| Movement              | EB  | NB | SB  |
|-----------------------|-----|----|-----|
| Directions Served     | LR  | L  | TR  |
| Maximum Queue (ft)    | 121 | 68 | 2   |
| Average Queue (ft)    | 56  | 26 | 0   |
| 95th Queue (ft)       | 93  | 57 | 3   |
| Link Distance (ft)    | 205 |    | 163 |
| Upstream Blk Time (%) |     |    |     |
| Queuing Penalty (veh) |     |    |     |
| Storage Bay Dist (ft) |     | 50 |     |
| Storage Blk Time (%)  |     | 1  |     |
| Queuing Penalty (veh) |     | 3  |     |

Network Summary

Network wide Queuing Penalty: 19

# Queuing and Blocking Report

## Background (2027) AM

05/21/2025

### Intersection: 1: NC 96 & Pearces Road

| Movement              | EB  | EB  | WB  | WB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | R   | L   | R   |
| Maximum Queue (ft)    | 227 | 282 | 468 | 417 | 200 | 374 |
| Average Queue (ft)    | 79  | 216 | 277 | 68  | 188 | 235 |
| 95th Queue (ft)       | 182 | 320 | 461 | 271 | 224 | 438 |
| Link Distance (ft)    |     | 266 | 435 | 435 |     | 364 |
| Upstream Blk Time (%) |     | 6   | 3   | 1   |     | 3   |
| Queuing Penalty (veh) |     | 42  | 0   | 0   |     | 18  |
| Storage Bay Dist (ft) | 185 |     |     |     | 100 |     |
| Storage Blk Time (%)  | 3   | 16  |     |     | 46  | 1   |
| Queuing Penalty (veh) | 17  | 9   |     |     | 33  | 7   |

### Intersection: 2: NC 96 & Site Driveway 1

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | T   | R   |
| Maximum Queue (ft)    | 318 | 93  |
| Average Queue (ft)    | 57  | 36  |
| 95th Queue (ft)       | 216 | 73  |
| Link Distance (ft)    | 371 | 154 |
| Upstream Blk Time (%) | 2   | 0   |
| Queuing Penalty (veh) | 0   | 0   |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

### Intersection: 3: Pearces Road & Site Driveway 2

| Movement              | EB  | NB | NB  | SB  |
|-----------------------|-----|----|-----|-----|
| Directions Served     | LR  | L  | T   | TR  |
| Maximum Queue (ft)    | 127 | 73 | 15  | 147 |
| Average Queue (ft)    | 54  | 27 | 1   | 19  |
| 95th Queue (ft)       | 107 | 59 | 11  | 93  |
| Link Distance (ft)    | 196 |    | 364 | 163 |
| Upstream Blk Time (%) | 1   |    |     | 1   |
| Queuing Penalty (veh) | 0   |    |     | 0   |
| Storage Bay Dist (ft) |     | 50 |     |     |
| Storage Blk Time (%)  |     | 1  | 0   |     |
| Queuing Penalty (veh) |     | 3  | 0   |     |

### Network Summary

Network wide Queuing Penalty: 129



Queuing and Blocking Report  
Background (2027) PM

05/21/2025

Intersection: 1: NC 96 & Pearces Road

| Movement              | EB  | EB  | WB  | WB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | R   | L   | R   |
| Maximum Queue (ft)    | 234 | 311 | 430 | 387 | 199 | 359 |
| Average Queue (ft)    | 125 | 219 | 230 | 62  | 160 | 110 |
| 95th Queue (ft)       | 239 | 344 | 401 | 225 | 219 | 295 |
| Link Distance (ft)    |     | 290 | 421 | 421 |     | 381 |
| Upstream Blk Time (%) |     | 7   | 1   | 0   |     | 0   |
| Queuing Penalty (veh) |     | 53  | 0   | 0   |     | 1   |
| Storage Bay Dist (ft) | 185 |     |     |     | 100 |     |
| Storage Blk Time (%)  | 12  | 15  |     |     | 37  | 1   |
| Queuing Penalty (veh) | 89  | 13  |     |     | 18  | 2   |

Intersection: 2: NC 96 & Site Driveway 1

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | T   | R   |
| Maximum Queue (ft)    | 434 | 104 |
| Average Queue (ft)    | 82  | 45  |
| 95th Queue (ft)       | 339 | 84  |
| Link Distance (ft)    | 543 | 171 |
| Upstream Blk Time (%) | 3   | 0   |
| Queuing Penalty (veh) | 0   | 0   |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

Intersection: 3: Pearces Road & Site Driveway 2

| Movement              | EB  | NB | SB  |
|-----------------------|-----|----|-----|
| Directions Served     | LR  | L  | TR  |
| Maximum Queue (ft)    | 138 | 74 | 36  |
| Average Queue (ft)    | 59  | 28 | 2   |
| 95th Queue (ft)       | 101 | 59 | 18  |
| Link Distance (ft)    | 205 |    | 163 |
| Upstream Blk Time (%) |     |    |     |
| Queuing Penalty (veh) |     |    |     |
| Storage Bay Dist (ft) |     | 50 |     |
| Storage Blk Time (%)  |     | 1  |     |
| Queuing Penalty (veh) |     | 4  |     |

Network Summary

Network wide Queuing Penalty: 180

# Queuing and Blocking Report

## Build-Out (2027) AM

05/21/2025

### Intersection: 1: NC 96 & Pearces Road

| Movement              | EB  | EB  | WB  | WB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | R   | L   | R   |
| Maximum Queue (ft)    | 231 | 290 | 468 | 411 | 200 | 376 |
| Average Queue (ft)    | 106 | 214 | 295 | 81  | 186 | 237 |
| 95th Queue (ft)       | 218 | 312 | 480 | 305 | 225 | 442 |
| Link Distance (ft)    |     | 266 | 435 | 435 |     | 364 |
| Upstream Blk Time (%) |     | 5   | 5   | 2   |     | 4   |
| Queuing Penalty (veh) |     | 39  | 0   | 0   |     | 23  |
| Storage Bay Dist (ft) | 185 |     |     |     | 100 |     |
| Storage Blk Time (%)  | 8   | 14  |     |     | 47  | 1   |
| Queuing Penalty (veh) | 50  | 9   |     |     | 34  | 4   |

### Intersection: 2: NC 96 & Site Driveway 1

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | T   | R   |
| Maximum Queue (ft)    | 282 | 89  |
| Average Queue (ft)    | 52  | 40  |
| 95th Queue (ft)       | 212 | 74  |
| Link Distance (ft)    | 371 | 154 |
| Upstream Blk Time (%) | 1   |     |
| Queuing Penalty (veh) | 0   |     |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

### Intersection: 3: Pearces Road & Site Driveway 2

| Movement              | EB  | NB | NB  | SB  |
|-----------------------|-----|----|-----|-----|
| Directions Served     | LR  | L  | T   | TR  |
| Maximum Queue (ft)    | 155 | 65 | 9   | 151 |
| Average Queue (ft)    | 61  | 27 | 0   | 22  |
| 95th Queue (ft)       | 120 | 59 | 9   | 108 |
| Link Distance (ft)    | 196 |    | 364 | 163 |
| Upstream Blk Time (%) | 1   |    |     | 2   |
| Queuing Penalty (veh) | 0   |    |     | 0   |
| Storage Bay Dist (ft) |     | 50 |     |     |
| Storage Blk Time (%)  |     | 1  |     |     |
| Queuing Penalty (veh) |     | 3  |     |     |

### Network Summary

Network wide Queuing Penalty: 162

# Queuing and Blocking Report

## Build-Out (2027) PM

05/21/2025

### Intersection: 1: NC 96 & Pearces Road

| Movement              | EB  | EB  | WB  | WB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | R   | L   | R   |
| Maximum Queue (ft)    | 235 | 330 | 432 | 393 | 199 | 372 |
| Average Queue (ft)    | 154 | 246 | 232 | 79  | 160 | 118 |
| 95th Queue (ft)       | 270 | 365 | 409 | 274 | 220 | 308 |
| Link Distance (ft)    |     | 290 | 421 | 421 |     | 381 |
| Upstream Blk Time (%) |     | 19  | 2   | 1   |     | 1   |
| Queuing Penalty (veh) |     | 145 | 0   | 0   |     | 2   |
| Storage Bay Dist (ft) | 185 |     |     |     | 100 |     |
| Storage Blk Time (%)  | 27  | 22  |     |     | 36  | 1   |
| Queuing Penalty (veh) | 201 | 20  |     |     | 18  | 2   |

### Intersection: 2: NC 96 & Site Driveway 1

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | T   | R   |
| Maximum Queue (ft)    | 530 | 126 |
| Average Queue (ft)    | 235 | 52  |
| 95th Queue (ft)       | 655 | 96  |
| Link Distance (ft)    | 543 | 171 |
| Upstream Blk Time (%) | 20  | 0   |
| Queuing Penalty (veh) | 0   | 0   |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

### Intersection: 3: Pearces Road & Site Driveway 2

| Movement              | EB  | NB | NB  | SB  |
|-----------------------|-----|----|-----|-----|
| Directions Served     | LR  | L  | T   | TR  |
| Maximum Queue (ft)    | 156 | 68 | 6   | 56  |
| Average Queue (ft)    | 71  | 32 | 0   | 3   |
| 95th Queue (ft)       | 126 | 60 | 6   | 31  |
| Link Distance (ft)    | 205 |    | 381 | 163 |
| Upstream Blk Time (%) | 1   |    |     | 0   |
| Queuing Penalty (veh) | 0   |    |     | 0   |
| Storage Bay Dist (ft) |     | 50 |     |     |
| Storage Blk Time (%)  |     | 1  | 0   |     |
| Queuing Penalty (veh) |     | 7  | 0   |     |

### Network Summary

Network wide Queuing Penalty: 395

## **Appendix J:**

## **Signal Plans**

