
ZEBULON

NORTH CAROLINA

**TOWN OF ZEBULON
PLANNING BOARD MEETING
March 13, 2023
Following 6:00 Joint Public Hearing**

- I. CALL TO ORDER**
- II. APPROVAL OF THE AGENDA**
- III. APPROVAL OF MINUTES**
 - A. February 13, 2023
- IV. NEW BUSINESS**
 - A. **CZ -2023-02 0 Weavers Pond Dr (Wall Purdy Tract)** – Conditional rezoning request for a 43.61-acre parcel from R-40W (Wake County zoning) to Residential Neighborhood - Conditional (R4-C) District for the development of an 87-lot residential subdivision.
- V. DEVELOPMENT UPDATES**
- VI. ADJOURNMENT**

**Zebulon
Planning Board
Minutes
February 13, 2023**

Present: David Lowry, Laura Johnson Michael Germano, Domenick Schilling, Stephanie Jenkins, Peggy Alexander, Joe Moore-Town Manager, Michael Clark-Planning, Lisa Markland-Town Clerk, Sam Slater-Town Attorney

Absent: Genia Newkirk

David Lowry called the meeting to order.

APPROVAL OF AGENDA

Laura Johnson made a motion, second by Domenick Schilling to approve the agenda. There was no discussion and the motion passed unanimously.

APPROVAL OF MINUTES

Domenick Schilling explained he had sent an email to staff about wanting more details included in the December 12, 2022 minutes. Lisa Markland responded to his email explaining the statutory requirements for minutes. Mr. Schilling wanted more detail about the reasoning for his vote.

Domenick Schilling made a motion, second by Michael Germano to remove the minutes from the agenda so staff could add more detail. There was no discussion and the motion passed unanimously.

Stephanie Jenkins made a motion, second by Laura Johnson to approve the January 23, 2023 minutes. There was no further discussion and the motion passed unanimously.

NEW BUSINESS

A. TA 2023-01 – BOA/Article 10 of UDO

Michael Clark stated his presentation was for information purposes only since the Board of Commissioners tabled the Public Hearing. The request was to amend section 10.2 of the UDO to allow the Planning Board members to fill the Board of Adjustment and to increase the Board of Adjustment to seven voting members. Mr. Clark spoke about the purpose of the Board of Adjustment. The current status was shown explaining there were only two current members and there had been unfilled vacancies since 2017. A table was displayed showing the Board of Adjustment cases from 1990 to 2023 with the most number of cases occurring in 2017 and 2011 with three cases and no cases in 2013, 2014, 2015, 2016, 2020, 2022 and 2023. The proposed changes would also change two of the voting members to be ETJ members.

The reasons behind the proposed change was because the Board of Adjustment met so infrequently, lacked quorum membership, currently had no ETJ representation, and would require additional meetings and training sessions.

David Lowry asked Sam Slater if he had any concerns with the boards being the same body. Mr. Slater stated he did not have concerns because 160D granted the Town the ability to assign additional duties to an appointed board.

There were concerns expressed about the Board of Adjustment members' roles being taken away from them. Michael Clark gave examples of ways members could participate and have a more active role for the Town. There were other concerns about the Town being unprotected by not having a Board of Adjustment.

A question was raised about voting for variance matters. Sam Slater explained a 4/5 vote was required in variance cases.

DEVELOPMENT UPDATES

Michael Clark provided development updates and stated the Planning Department recently hired a New Economic Development Specialist and Senior Planner.

Laura Johnson made a motion, second by Michael Germano to adjourn. There was no discussion and the motion passed unanimously.

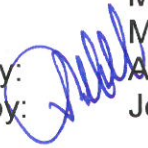
Adopted this the 13th day of March 2023.

David Lowry—Chair

SEAL

Stacie Paratore, CMC—Deputy Town Clerk

STAFF REPORT
CONDITIONAL ZONING 2023-02
0 WEAVERS POND DR
MARCH 13, 2023

Topic: CZ 2023-02 - 0 Weavers Pond Dr (The Wall Purdy Tract)
Speaker: Michael J. Clark, CZO, AICP, Planning Director
From: Michael J. Clark, CZO, AICP, Planning Director
Prepared by: Aaron H. Chalker, CZO, Planner II
Approved by:  Joseph M. Moore II, PE, Town Manager

Executive Summary:

The Board of Commissioners will consider a Conditional Zoning Map Amendment for 0 Weavers Pond Dr (PIN# 1797701367). This is a legislative case.

Background:

The Applicant, Weaver's Pond Development Company, LLC, requests rezoning a 43.61-acre parcel from R-40W (Wake County zoning) to Residential Neighborhood - Conditional (R4-C) District for the development of an 87-lot residential subdivision. This property is currently outside of the Town's Planning Jurisdiction and is seeking annexation simultaneously with this rezoning application.

The property is adjacent to the Weaver's Pond subdivision and proposes connection through the extension of two Town-maintained stub streets (Weavers Pond Dr and Yulee Dr).

Discussion:

Unified Development Ordinance (UDO) Section 2.2.6.K provides the following standards for

the Board to base their decision on the rezoning request:

1. Whether the proposed conditional rezoning advances the public health, safety, or welfare;
2. Whether and the extent to which the proposed conditional rezoning is appropriate for its proposed location, and is consistent with the purposes, goals, objectives, and policies of the Town's adopted policy guidance;
3. Whether an approval of the conditional rezoning is reasonable and in the public interest;
4. Whether and the extent to which the concept plan associated with the conditional rezoning is consistent with this Ordinance; and
5. Any other factors as the Board of Commissioners may determine to be relevant.

Policy Analysis:Comprehensive Land Use Plan:

The Future Land Use and Character Map designates the future use of the property as Rural Conservation (RC) because part of the original tract of land is within the watershed protection area designated for the Little River Reservoir. The property was subdivided and the area requesting rezoning is not within the watershed protection area.

Approval of this rezoning application would amend the Future Land Use and Character Map for this parcel to Suburban Residential (SR) which is intended to be less dense and preserve more open space than what is typical in an urban residential setting.

Unified Development Ordinance:

The Applicant proposes limiting the uses to single-family detached dwelling, community garden, park (public or private) and utility, minor. The Applicant has proposed site design and architecture conditions for the Board to consider (see Attachments).

All conditions and details on the concept plan meet the spirit and intent of the UDO. If approved, the applicant would proceed with Technical Review Committee (TRC) review of final site plan and construction drawings before development can begin.

Financial Analysis:

Rezoning the property to R4-C will allow the applicant to develop 87 single-family detached homes. Based on data from the Wake County Tax Administration, the median tax value of a single-family residence in Zebulon as of January 1, 2022 is \$216,181. Under this assumption, each home would generate \$1,243.04 in tax revenue a year, or a total of \$108,144.48 for 87 homes.

The subject property is contiguous to the Town's corporate boundaries. If approved, the 87 new homes would require the extension of Town services outside the current service boundary for Public Works, Police, and Code Enforcement. The proposed development is currently within the Fire service boundary. For Public Works, extended services include residential trash and recycling, street light electricity, and street maintenance. For Police, every 150 new homes generate the need for a new officer, priced at approximately \$125,000 including salary and equipment. This development proposal equals 58% of the demand for a new officer. Additionally, response times for Police and Code Enforcement will increase.

Any infrastructure extension and connection costs would be paid by the developer when the property is developed.

Staff Recommendation:

Staff recommends seeking public input during a joint public hearing and referring the matter to the Planning Board for recommendation.

Attachments:

1. Application, Site Plan, Renderings, and TIA
2. Future Land Use and Character Map
3. Aerial Map
4. Zoning Map
5. Little River Watershed Map
6. Site Pictures
7. Public Hearing Notification Affidavit



PART 1. DESCRIPTION OF REQUEST/PROPERTY		
Street Address of the Property: 0 Weavers Pond Dr		Acreage: 43.61
Parcel Identification Number (NC PIN): 1797701367	Deed Book: 014676	Deed Page(s): 00016
Existing Zoning of the Property: R40W (Wake County)	Proposed Zoning of the Property: R4-C	
Existing Use of the Property: Vacant Parcel	Proposed Use of the Property: Single family detached	
Reason for Conditional Rezoning: The purpose of the rezoning is to facilitate a single family detached residential community containing up to 2.0 dwelling units per acre with associated amenities and open space consistent with the requirements of the Town of Zebulon Unified Development Ordinance.		

PART 2. APPLICANT/AGENT INFORMATION		
Name of Applicant/Agent: Weaver's Pond Development Company, LLC		
Street Address of Applicant/Agent: 4020 Wake Forest Rd, STE 102F		
City: Raleigh	State: North Carolina	Zip Code: 27609-5221
Email of Applicant/Agent: jbarron@morningstarlawgroup.com	Telephone Number of Applicant/Agent: 919-590-0371	Fax Number of Applicant/Agent:
Are you the owner of the property? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are you the owner's agent? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Note: If you are not the owner of the property, you <u>must</u> obtain the Owner's consent and signature giving you permission to submit this application.

PART 3. PROPERTY OWNER INFORMATION		
Name of Property Owner: Wall Purdy Family LLC		
Street Address of Property Owner: 3309 Felton Pl.		
City: Raleigh	State: North Carolina	Zip Code: 27612-5001
Email of Property Owner: jbblack3@gmail.com	Telephone Number of Property Owner: 919-880-2029	Fax Number of Property Owner:
<i>I hereby state that the facts related in this application and any documents submitted herewith are complete, true, correct, and accurate to the best of my knowledge.</i>		
Signature of Applicant:	Print Name: Weaver's Pond Development Company, LLC; Grey Berry, Agent	Date:
Signature of Owner: 	Print Name: Phyllis Purdy	Date: 7.28 2022



CONDITIONAL REZONING MAP AMENDMENT

LEGISLATIVE CONSIDERATIONS – CONDITIONAL REZONING

The applicant shall propose site-specific standards and conditions that take into account the following considerations, which are considerations that are relevant to the legislative determination of whether or not the proposed conditional zoning district rezoning is in the public interest. These considerations do not exclude the legislative consideration of any other factor that is relevant to the public interest. Failure to adequately address the findings below may result in denial of the application. Please attach additional pages if necessary. The petition is justified based on the facts as they relate to the Standards in Section 2.2.6.K of the UDO as follows:

1. Please explain how the proposed Conditional Rezoning advances the public health, safety, or welfare
<p>The subject property is currently zoned R40W in Wake County. The proposed conditional rezoning to R4-C will bring much needed housing to the area while conserving the rural aesthetics of the district as designated in the Future Land Use and Character map.</p>
2. Please explain how the proposed conditional rezoning is appropriate for its proposed location, and is consistent with the purposes, goals, objectives, and policies of the town’s adopted policy guidance;
<p>The Zebulon Comprehensive Plan Future Land Use and Character map designates the subject property as a Rural Conservation (RC) district. The applicant acknowledges that the proposed rezoning requires an amendment to the Comprehensive Plan. However, the applicant submits the change is reasonable and in the public interest. First, the subject property abuts Weaver’s Pond to the south and east. Weaver’s Pond has been developed to include single family detached dwellings on lots that are of complimentary size to those proposed in this R4-C rezoning request.</p>
3. Please explain how an approval of the conditional rezoning is reasonable and in the public interest;
<p>The proposed conditional rezoning will bring much needed housing to the area and will do so in a manner that is complimentary to the existing Weaver’s Pond community, which borders the subject property to the south and the east.</p>
4. Please explain how the concept plan associated with the conditional rezoning is consistent with this Ordinance; and
<p>The concept plan associated with the conditional rezoning is consistent with the provisions of Chapter 5 and Chapter 6 of the UDO, along with the other relevant provisions. The plan has been developed to include access and circulation consistent with the ordinance requirements. Further, the concept plan will ensure a high quality development that addresses the open space, design and other key features of the UDO.</p>
5. Please explain how the proposed conditional rezoning addresses any other factors as the Board of Commissioners may determine to be relevant. These include but are not limited to the proposed uses requested and any requested deviations and proposed alternative means of compliance.
<p>The proposed rezoning provides conditions that require the proposed development to meet or exceed the requirements of the Town of Zebulon's Unified Development Ordinance. The conditions can be found on the attached conditions page.</p>



PROPOSED CONDITIONAL USES

An application has been duly filed requesting that the property described in this application be rezoned from R40W (Wake County) to R4-C. It is understood and acknowledged that if the property is rezoned as requested, the property described in this request will be perpetually bound to the use(s) authorized and subject to such conditions as imposed, unless subsequently changed or amended as provided for in the Unified Development Ordinance. It is further understood and acknowledged that final plans for any specific development to be made pursuant to any such Conditional Zoning shall be submitted for site or subdivision plan approval. Use additional pages as needed.

The Rezoned Lands may be used for, and only for, the uses listed immediately below. The permitted uses are subject to the limitations and regulations stated in the Use Table and any additional limitations or regulations stated below. For convenience, some relevant sections of the Unified Development may be referenced; such references do not imply that other sections of the Unified Development Ordinance do not apply.

1.	single family detached dwelling	25.	
2.	community garden	26.	
3.	park (public or private)	27.	
4.	utility, minor	28.	
5.		29.	
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24.		48.	



OWNER'S CONSENT FORM

Name of Project: The Wall Purdy Tract Submittal Date: _____

OWNER'S AUTHORIZATION

I hereby give CONSENT to Weaver's Pond Development Company, LLC; Grey Berry, Agent (type, stamp or print clearly full name of agent) to act on my behalf, to submit or have submitted this application and all required material and documents, and to attend and represent me at all meetings and public hearings pertaining to the application(s) indicated above. Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify I have full knowledge the property I have an ownership interest in is the subject of this application. I acknowledge and agree that, pursuant to Section 2.2.6 M. of the Town of Zebulon Unified Development Ordinance, that lands subject to a conditional rezoning shall be subject to all the standards, conditions, and plans approved as part of that application. These standards, plans, and approved conditions are perpetually binding on the land as an amendment to this Ordinance and the Official Zoning Map, and may only be changed in accordance with the procedures established in this Ordinance. Development located outside the Town of Zebulon's corporate limits shall comply with all Town policies related to annexation and the extension of utilities. I understand that all other applicable standards and regulations of the UDO will remain applicable to the subject lands unless specifically listed as conditions or deviations as part of this request. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I acknowledge that additional information may be required to process this application. I further consent to the Town of Zebulon to publish, copy or reproduce any copyrighted document submitted as a part of this application for any third party. I further agree to all terms and conditions, which may be imposed as part of the approval of this application.

Phyllis Purdy
Signature of Owner

Phyllis Purdy
Print Name

7-28-2022
Date

CERTIFICATION OF PROPERTY OWNER

I hereby certify the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Zebulon, North Carolina, and will not be returned.

Phyllis Purdy
Signature of Owner

Phyllis Purdy
Print Name

7-28-2022
Date

*Owner of record as shown by the Wake County Revenue Department (www.wakegov.com). An option to purchase does not constitute ownership. If ownership has been recently transferred, a copy of the deed must accompany this form.

1. ALL LOTS SHALL BE A MINIMUM OF 8,700 SQUARE FEET.
2. ALL LOT WIDTHS SHALL BE A MINIMUM OF 70’.
3. ALL DWELLINGS WILL HAVE A MINIMUM TWO-CAR GARAGE.
4. GARAGE DOORS WILL HAVE WINDOWS AND CARRIAGE HARDWARE.
5. GARAGES: GARAGE DOORS SHALL BE RECESSED BEHIND THE FRONT PLAIN OF THE HOME A MINIMUM OF 8”. WHERE A HOME PROVIDES A FRONT PORCH, THE GARAGE MAY EXTEND BEYOND THE FRONT PLAIN OF THE HOME, PROVIDED THE FRONT PORCH EXTENDS BEYOND THE FRONT PLAIN OF THE GARAGE A MINIMUM OF 1’.
6. SIDE LOADED GARAGES SHALL BE REQUIRED ON A MINIMUM OF 20% OF THE HOMES CONSTRUCTED. SIDE LOADED GARAGES AND “J” DRIVEWAYS SHALL BE ALLOWED A SIDE SETBACK OF 5’.
7. FOR ALL LOTS, THE ENTIRE YARD WILL BE SODDED.
8. EXTERIOR BUILDING MATERIALS: EXTERIOR SIDING WILL BE PRIMARILY FIBER CEMENT WITH BRICK OR STONE ACCENTS. THE USE OF VINYL SIDING SHALL BE PROHIBITED, EXCEPT FOR TRIM ELEMENTS OF THE DWELLING UNIT FACADE. SIDING STYLES WILL INCLUDE HORIZONTAL, SHAKE, OR BOARD AND BATTEN DESIGN. AT LEAST TWO (2) OF THE FOLLOWING MATERIALS SHALL BE USED ON EACH UNIT FIBER-CEMENT, MASONRY BRICK, BRICK VENEER, MASONRY STONE, STONE VENEER. OR SYNTHETIC STONE.
9. FOUNDATIONS: FOUNDATIONS SHALL BE RAISED ABOVE THE FINISHED GRADE – AS MEASURED ALONG THE FRONT, STREET FACING FINISHED GRADE OF THE BUILDING PAD - A MINIMUM OF 18”. FOUNDATION TYPES TO BE MAY INCLUDE, STEM WALL, RAISED SLAB, OR CRAWL SPACE.
10. AMENITIES WILL INCLUDE A DOG PARK, WALKING TRAILS, AND MAINTAINED OPEN SPACE. ALL OPEN SPACE AND AMENITIES WILL BE MAINTAINED BY THE HOA
11. A MINIMUM OF 8" ROOF OVERHANG SHALL BE PROVIDED ALONG THE FRONT AND BACK OF EACH DWELLING UNIT.
12. A 10-FOOT UNDISTURBED BUFFER WILL BE MAINTAINED AROUND THE DEVELOPMENT. WHERE EXISTING PLANTS DO NOT MEET THE REQUIREMENTS OF THE UDO, PLANTINGS WILL BE SUPPLEMENTED TO MEET THE REQUIREMENT.
13. REQUIRED DECORATIVE FEATURES EACH UNIT SHALL UTILIZE AT LEAST ONE OF THE FOLLOWING: A DECORATIVE FRONT DOOR (MINIMUM 25% GLAZING); WINDOW TRANSOM, DOOR SIDELIGHTS, OR DOOR TRANSOM.
14. WINDOW TREATMENTS: WINDOWS ON FRONT ELEVATIONS SHALL OFFER EITHER TRIM OR SHUTTERS. TRIM ALONG HEADERS AND SILLS SHALL BE A MINIMUM OF 3” WIDE. SHUTTERS ARE DECORATIVE AND

Attachment 1
CZ 2023-02

- MAY OR MAY NOT BE “OPERATIONAL”. SHUTTERS SHALL HAVE A MINIMUM WIDTH OF 18”.
15. PORCHES: FRONT PORCHES SHALL EXTEND BEYOND THE FRONT PLAIN OF THE GARAGE ON 20% OF THE HOMES CONSTRUCTED. FRONT PORCHES SHALL BE ALLOWED TO EXTEND BEYOND THE FRONT SETBACK OF THE BUILDING ENVELOP A MAXIMUM OF 10’.
 16. FRONT PORCHES SHALL WRAP AROUND THE CORNER OF THE FRONT FAÇADE ON A MINIMUM OF 20% OF THE HOMES CONSTRUCTED.
 17. ALL HOMES WILL HAVE A REAR PATIO OR DECK OF AT LEAST 100 SQUARE FEET.
 18. ACCESSORY BUILDINGS SHALL BE CONSTRUCTED OF MATERIALS THAT MATCH THE SINGLE-FAMILY DWELLING.
 19. IN ORDER TO PROMOTE VARIATION IN HOME APPEARANCE, NO FRONT ELEVATION OR PRIMARY SIDING COLOR SHALL BE CONSTRUCTED WITHIN TWO HOUSES OF AN IDENTICAL ELEVATION OR PRIMARY SIDING COLOR ON THE SAME SIDE OF THE STREET OR ACROSS THE STREET. FOR CORNER LOTS, NO IDENTICAL ELEVATION OR PRIMARY SIDING COLOR WILL BE CONSTRUCTED DIAGONALLY ACROSS AN INTERSECTION.
 20. HOMEOWNERS ASSOCIATION WILL LIMIT THE NUMBER OF RENTAL HOMES TO A MAXIMUM OF 20%. THIS RESTRICTION SHALL BE RECORDED IN HOA COVENANTS, CONDITIONS AND RESTRICTIONS.
 21. ALL HOME DESIGN AND CONSTRUCTION SHALL CONFORM TO SECTION 5.2 OF THE TOWN OF ZEBULON’S UNIFIED DEVELOPEMNT ORDINACE.



PRELIMINARY
NOT FOR CONSTRUCTION

PURDY FAMILY, LLC PROPERTY
2620 ZEBULON RD
ZEBULON, NC

ISSUED: 24 OCT 2022

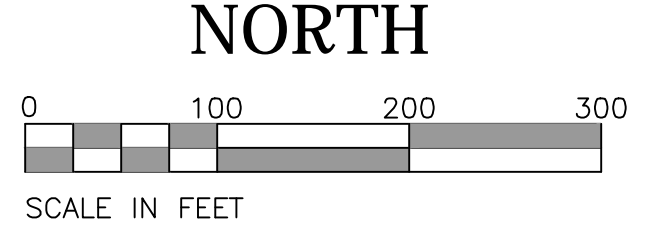
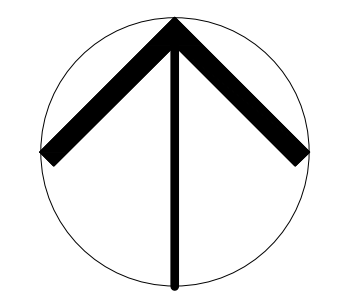
REVISIONS:

▲	7 NOV 2022	PER TOWN COMMENTS
▲	28 NOV 2022	PER TOWN COMMENTS
▲	13 JAN 2023	PER TOWN COMMENTS

DRAWN BY: JET
CHECKED BY: MLS
PROJECT: FDCWP9

**CONCEPTUAL
STORM
DRAINAGE PLAN**

DWG. NO. **EX 2.0**





"RESIDENTIAL COLLECTOR" STREET TYPE PER DETAIL THIS SHEET

CANOPY TREES (2 PER 100 LF (TYP.))

FIRE TRUCK TURN-AROUND

FIRE HYDRANT CROSSWALK

STREET LIGHT

10' ASPHALT GREENWAY (TYP.)

"RESIDENTIAL COLLECTOR" STREET TYPE PER DETAIL THIS SHEET

10' ASPHALT GREENWAY (TYP.)

20' GREENWAY EASEMENT

STREET LIGHT

STREET LIGHT

FIRE HYDRANT

CROSSWALK

5' CONC. SIDEWALK (TYP.)

FIRE HYDRANT CROSSWALK

CANOPY TREES (2 PER 100 LF (TYP.))

STREET LIGHT

"RESIDENTIAL COLLECTOR" STREET TYPE PER DETAIL THIS SHEET

THE MAIL KIOSK WILL BE ADA ACCESSIBLE AND UNDER A COVERED SHELTER

CROSSWALK

STREET LIGHT

FIRE HYDRANT

"RESIDENTIAL COLLECTOR" STREET TYPE PER DETAIL THIS SHEET

STREET LIGHT

CANOPY TREES (2 PER 100 LF (TYP.))

FIRE HYDRANT

STREET LIGHT

CROSSWALK

10' ASPHALT GREENWAY (TYP.)

5' CONC. SIDEWALK (TYP.)

CROSSWALK

FIRE HYDRANT

SCM

SCM

VISITOR PARKING

96" CUL-DE-SAC PER NC FIRE CODE

"CUL-DE-SAC" STREET TYPE PER DETAIL THIS SHEET

ENHANCED LANDSCAPING

EXISTING WEAVERS POND SUBDIVISION

CONNECT NEW GREENWAY WITH EXISTING GREENWAY

EXISTING WEAVERS POND SUBDIVISION

ENHANCED LANDSCAPING

"RESIDENTIAL COLLECTOR" STREET TYPE PER DETAIL THIS SHEET



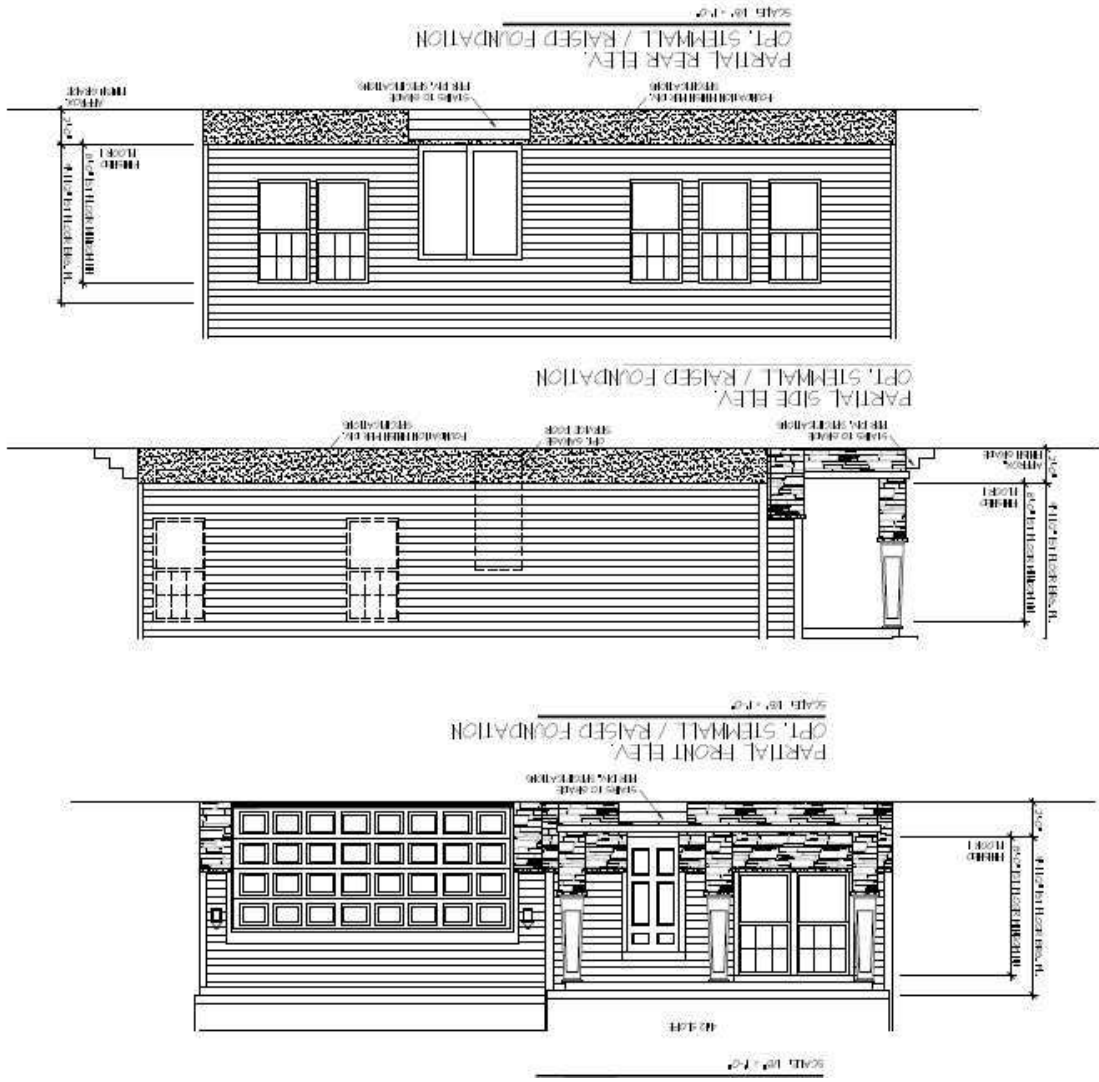
NORTH

SCALE IN FEET 100 200 300



Attachment 1
CZ 2023-02

ELEV





























RAMEY KEMP ASSOCIATES

TOGETHER WE ARE LIMITLESS

T 919 872 5115

5808 Faringdon Pl,
Raleigh, NC 27609

July 29, 2022

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

Subject: **Traffic Assessment**
Weaver's Pointe - Zebulon, North Carolina

Dear Mr. Bradshaw:

This letter provides a summary of a Traffic Assessment prepared for the Weaver's Pointe residential development located north of Pippin Road and east of NC 96 (Zebulon Road) in Zebulon, North Carolina. Refer to the attachments for the site location map. The purpose of the study is to determine how traffic generated by the proposed development is expected to impact the surrounding roadways and intersections.

The proposed additional phase is expected to consist of 105 single-family homes and is anticipated to be completed by 2024. Site access will be provided via connections to the existing Weaver's Pond and Weaver's Ridge developments via Yulee Drive and Golden Plum Lane.

Refer to the attachments for a copy of the preliminary site plan and for an illustration of the existing lane configurations within the study area.

Study Area

Based on coordination with the Town of Zebulon (Town) and the North Carolina Department of Transportation (NCDOT), the study area consists of the following intersections:

- NC 96 (Zebulon Road) & Pippin Road
- NC 96 (Zebulon Road) & Glory Road
- Pippin Road & Pearces Road

Analysis Scenarios

All capacity analyses were performed utilizing Synchro (Version 10.3). All study intersections were analyzed during the weekday AM and PM peak hours and PM school peak hours under the following proposed traffic scenarios:

- 2022 Existing Traffic Conditions
- 2025 (Build +1) No-Build Traffic Conditions
- 2025 (Build +1) Build Traffic Conditions



Attachment 1
CZ 2023-02

2022 Existing Traffic Volumes

Through coordination with the Town and NCDOT, existing peak hour traffic volumes were determined based on previously conducted turning movement counts collected as part of the Weaver’s Pond and Weaver’s Ridge traffic studies. Previously collected turning movement counts were grown from the year collected to the 2022 existing analysis year using a 3% annual growth rate.

Peak hour turning movement counts were conducted at the following study intersections during the weekday AM and PM peak hours at the listed dates:

- NC 96 (Zebulon Road) & Pippin Road – August 30th, 2017
- NC 96 (Zebulon Road) & Glory Road – April 10th, 2019
- Pippin Road & Pearces Road – October 3rd, 2017

It should be noted that the Weaver’s Pond development is currently fully build-out with the exception of Phase 5 (73 single-family homes). Therefore, the traffic associated with the currently built portion of the development was added to the grown traffic counts to accurately model existing traffic conditions. Refer to Table 1 below, for a breakdown of the expected trip generation of Weaver’s Pond and how the expected development trips were applied in this study.

Table 1: Weaver’s Pond Development Traffic

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Weaver’s Pond Full Buildout (From Weaver’s Pond TIA)						
Single-Family Housing (210)	525 DU	5,000	99	295	331	194
Townhouse (230)	55 DU	400	4	20	19	10
Total		5,400	103	315	350	204
Weaver’s Pond Phase 5 (To Be Built)						
Single-Family Housing (210) (Approx. 14% of Total SFH)	73 DU	695	14	41	46	27
Existing Development (Currently Built)						
Existing Weaver’s Pond Development (As of 2022)		4,705	89	274	304	177

Volumes were balanced along NC 96 (Zebulon Road) 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. A copy of the count data is attached to this report. Refer to the attachments for an illustration of the 2022 existing weekday AM and PM peak hour traffic volumes.



Attachment 1
CZ 2023-02

Background Traffic Volumes

Based on a review of traffic growth patterns and adjacent development information, background traffic volumes were determined by projecting 2022 existing traffic volumes to the 2025 build-out year using a 3% annual growth rate. It should be noted that the balanced 2022 existing traffic volumes were not rebalanced after the growth rate was applied for the 2025 projected traffic volumes, which can result in minor vehicles imbalances due to rounding. Refer to the attachments for an illustration of the 2025 projected peak hour traffic volumes. Through coordination with the Town and NCDOT, the following adjacent developments were identified to be included in this study:

- Weaver’s Pond (Phase 5)
- Weaver’s Ridge
- Taryn Lake & Taryn Creek
- Pearces Road

Refer to the attachments for an illustration of the adjacent development peak hour traffic volumes.

It should be noted that per the completed traffic study for Weaver’s Ridge, it was assumed that a portion of the Weaver’s Pond development site traffic would be rerouted to utilize the future site driveway along NC 96 (Zebulon Road). Refer to the attachments for an illustrations of this rerouted development traffic.

Future Improvements

Through coordination with the Town and NCDOT, it was determined that the future improvements associated with Weaver’s Ridge should be considered in the analysis of future conditions. Geometric improvements are expected at both study intersections along NC 96 by these developments.

2025 No-Build Traffic Volumes

The 2025 no-build traffic volumes were determined by projecting the 2022 existing peak hour traffic to the year 2025, and adding the adjacent development trips. Refer to the attachments for an illustration of the 2025 no-build peak hour traffic volumes.

Trip Generation

Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 11th Edition. Refer to Table 2, for a detailed breakdown of the proposed site trip generation.

Table 2: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single-Family Housing (210)	105 units	1,055	20	58	66	38



It is estimated that the proposed development will generate approximately 1,055 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 78 trips (20 entering and 58 exiting) will occur during the weekday AM peak hour and 104 trips (66 entering and 38 exiting) will occur during the weekday PM peak hour.

Trip Distribution and Assignment

The primary site trips are distributed based on the locations of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. A summary of the overall distributions is below:

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

It should be noted that the regional distributions were based on the approved distributions from the Weaver’s Pond and Weaver’s Ridge traffic studies. Refer to the attachments for illustrations of the site trip distribution and site trip assignment, respectively.

2025 Build Traffic

To estimate the 2025 build traffic conditions with the site fully built-out, the total site trips were added to the 2025 no-build traffic volumes. Refer to the attachments for an illustration of the 2025 build peak hour traffic volumes.

Capacity Analysis

Study intersections were analyzed using the methodology outlined in the Highway Capacity Manual (HCM), 6th Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 10.3), was used to complete the analyses for most of the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.” Level of service (LOS) is a term used to represent different driving conditions and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers.” Level of service varies from Level “A” representing free flow, to Level “F” where breakdown conditions are evident. Refer to Table 3 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay”. An average control delay of 50 seconds at a signalized intersection results in LOS “D” operation at the intersection.

Attachment 1
CZ 2023-02

Table 3 Highway Capacity Manual – Levels-of-Service and Delay

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

The study intersections were analyzed under 2022 existing, 2025 no-build, and 2025 build traffic conditions with lane configurations and traffic control shown in Tables 4-6. Refer to Tables 4-6 for a summary of the analysis results. The Synchro capacity analysis reports are attached to this report.

Attachment 1
CZ 2023-02

Table 4: Analysis Summary of NC 96 (Zebulon Road) and Pippin Road

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing Conditions	WB NB SB	1 LT-RT 1 TH, 1 RT 1 LT, 1 TH	C B B	B (18)	D C B	C (22)
2025 No-Build Conditions	WB NB SB	1 LT-RT 1 TH, 1 RT 1 LT, 1 TH	C B B	C (21)	D C B	C (26)
2025 Build Conditions	WB NB SB	1 LT-RT 1 TH, 1 RT 1 LT, 1 TH	C C B	C (22)	D C B	C (27)

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

Capacity analysis of 2022 existing, 2025 no-build, and 2025 build traffic conditions indicates that this intersection is expected to operate at an overall LOS C or better during the weekday AM and PM peak hours under all analysis scenarios. Additionally, all intersection approaches are expected to operate at LOS D or better during the weekday AM and PM peak hours. Due to the expected acceptable operation of this intersection upon buildout of the proposed development, no improvements are recommended at this intersection by the development.



Table 5: Analysis Summary of NC 96 (Zebulon Road) and Glory Road / Weaver’s Ridge Site Drive

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing Conditions	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	C ² A ¹ -	N/A	C ² A ¹ -	N/A
2025 No-Build Conditions	EB <u>WB</u> NB SB	1 LT- TH -RT <u>1 LT, 1 TH-RT</u> 1 LT-TH, <u>1 RT</u> 1 <u>LT</u> -TH-RT	D ² F ² A ¹ A ¹	N/A	E ² F ² A ¹ A ¹	N/A
2025 Build Conditions	EB <u>WB</u> NB SB	1 LT- TH -RT <u>1 LT, 1 TH-RT</u> 1 LT-TH, <u>1 RT</u> 1 <u>LT</u> -TH-RT	D ² F ² A ¹ A ¹	N/A	F ² F ² A ¹ A ¹	N/A
2025 Build Conditions Signalized to meet UDO	EB <u>WB</u> NB SB	1 LT- TH -RT <u>1 LT, 1 TH-RT</u> 1 LT-TH, <u>1 RT</u> 1 <u>LT</u> -TH-RT	D D B B	B (17)	D D A B	B (13)

Improvements and/or revised lane configurations by Weaver’s Ridge are shown underlined.

Improvements and/or revised lane configurations by the development are shown in **bold**.

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

Capacity analysis of 2022 existing traffic conditions indicates that the major-street left-turn movement on NC 96 (Zebulon Road) are expected to operate at LOS A during the weekday AM and PM peak hours and that the minor-street approach of Glory Road are expected to operate at LOS C during the weekday AM and PM peak hours.

Under future traffic conditions, the Weaver’s Ridge development is expected to construct the westbound approach of this intersection and provide a dedicated northbound right-turn lane on NC 96 (Zebulon Road). Under 2025 no-build and 2025 build traffic conditions, the major-street left-turn movement on NC 96 (Zebulon Road) are expected to operate at LOS A during the weekday AM and PM peak hours. The eastbound minor-street approach of Glory Road is expected to operate at LOS D during the weekday AM peak hour and at LOS E/F during the weekday PM peak hour. The westbound minor-street approach of Weaver’s Ridge Site Drive is expected to operate at LOS F during both the weekday AM and PM peak hours.

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 Pointe development has interconnectivity with the northern section of the Weaver’s Pond development which two (2) 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 NC 96 (Zebulon Road) would be necessary for significant improvement at the intersection. A traffic signal was considered at this intersection and 2025 build peak hour traffic volumes were analyzed utilizing the criteria contained in the *Manual on Uniform Traffic Control Devices* (MUTCD). A traffic signal was warranted during both the weekday AM and PM peak hours under 2025 build traffic conditions; however, it is not expected that this intersection would satisfy the 8-hour and 4-hour warrants, which NCDOT favors for installation of a traffic signal. These longer period warrants are not typically met for residential and school areas due to the distinct peak traffic periods for these types of development. For these reasons, signalization is not recommended at this intersection. 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 D with all approaches operating at LOS D or better during the weekday AM and PM peak hours.

Based on a review of SimTraffic simulations, queues for the westbound minor-street approach are expected to be fairly minor and excessive queueing is not expected on this approach upon buildout of the proposed development without signalization. Therefore, no improvements are recommended at this intersection by the proposed development.

Table 6: Analysis Summary of Pippin Road and Pearces Road

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing Conditions	EB	1 LT-TH-RT	B ²	N/A	C ²	N/A
	WB	1 LT-TH-RT	B ²		C ²	
	NB	1 LT-TH-RT	A ¹		A ¹	
	SB	1 LT-TH-RT	A ¹		A ¹	
2025 No-Build Conditions	EB	1 LT-TH-RT	C ²	N/A	C ²	N/A
	WB	1 LT-TH-RT	C ²		C ²	
	NB	1 LT-TH-RT	A ¹		A ¹	
	SB	1 LT-TH-RT	A ¹		A ¹	
2025 Build Conditions	EB	1 LT-TH-RT	C ²	N/A	D ²	N/A
	WB	1 LT-TH-RT	C ²		C ²	
	NB	1 LT-TH-RT	A ¹		A ¹	
	SB	1 LT-TH-RT	A ¹		A ¹	

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

Capacity analysis of 2022 existing, 2025 no-build, and 2025 build traffic conditions indicates that the major-street left-turn movements on Pearces Road are expected to operate at LOS A during the weekday AM and PM peak hours and that the minor-street approaches of Pippin Road are expected to operate at LOS D or better during the weekday AM and PM peak hours under all analysis scenarios. Due to the expected acceptable operation of this intersection upon buildout of the proposed development, no improvements are recommended at this intersection by the development.

Attachment 1
CZ 2023-02**Recommendations**

Based on the findings of this study, the planned future geometric improvements committed by other developments are expected to accommodate future traffic conditions upon buildout of the proposed development. See a more detailed description of the recommended improvements below. Refer to the attachments for an illustration of the committed roadway improvements by other developments and future lane configurations expected within the study area.

Improvements by Weaver’s Ridge**NC 96 (Zebulon Road) and Glory Road / Weaver’s Ridge Site Drive**

- 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.

Improvements by Weaver’s Pointe**NC 96 (Zebulon Road) and Glory Road / Weaver’s Ridge Site Drive**

- Monitor intersection for signalization.

Attachment 1
CZ 2023-02

Findings and Summary

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions and to mitigate the development’s proportional impact on the surround transportation network.

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

Sincerely,

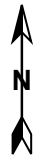
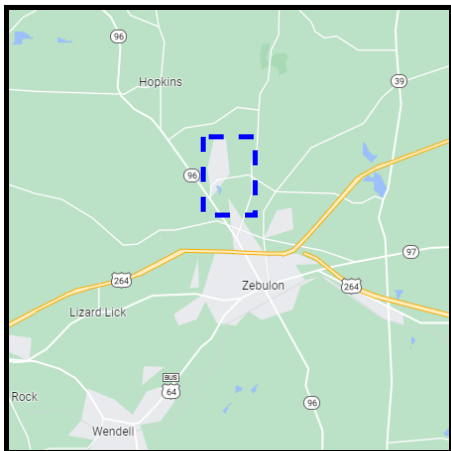
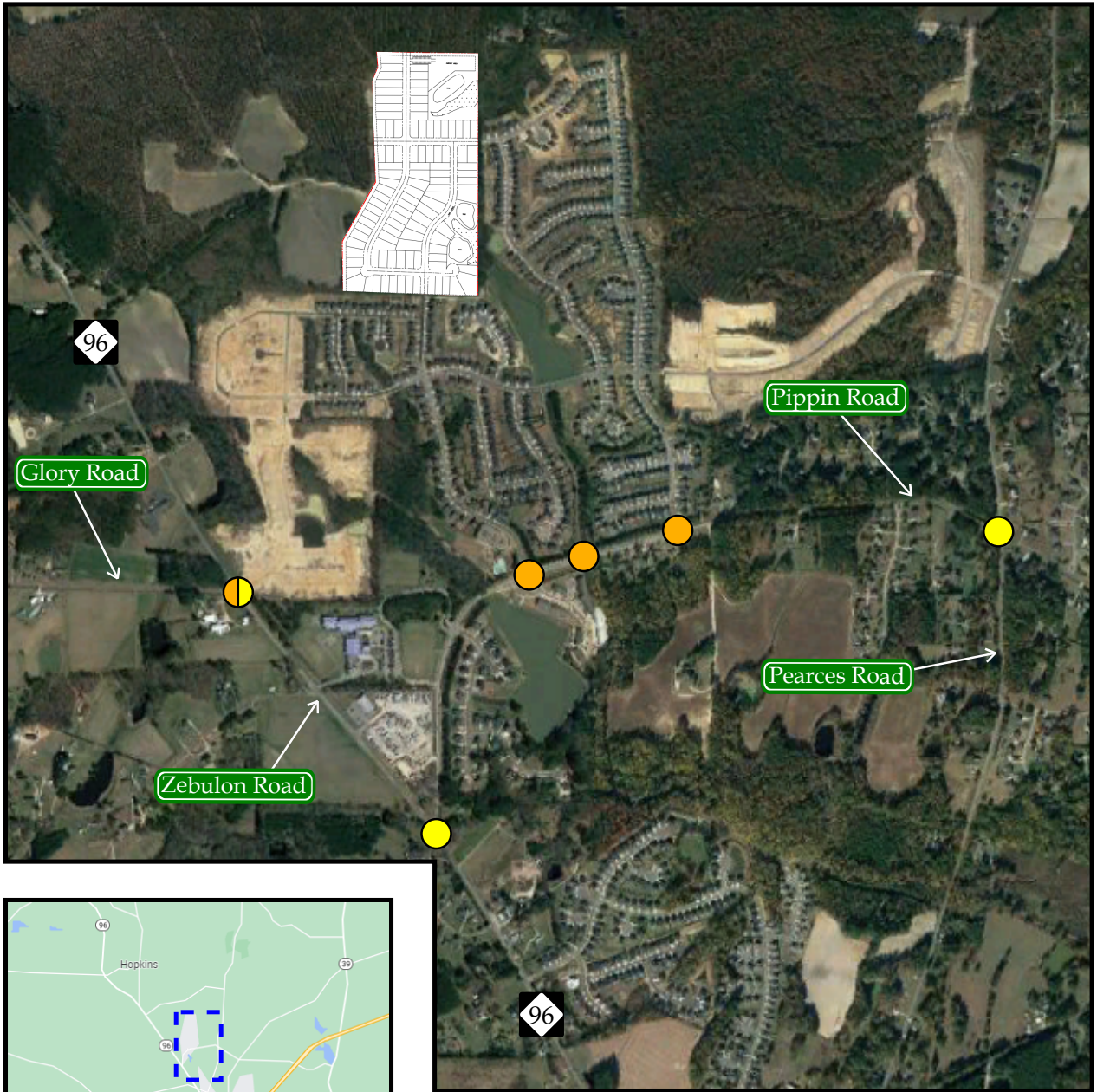


Caroline Cheeves, P.E.
Traffic Engineering Project Manager
Infrastructure Consulting Services, Inc.
dba




Ramey Kemp Associates
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- Attachments: Figures
Traffic Counts
Adjacent Development Information
Synchro Reports
MUTCD Signal Warrant Analysis



LEGEND

-  Study Intersection
-  Proposed Site Access
-  Study Area




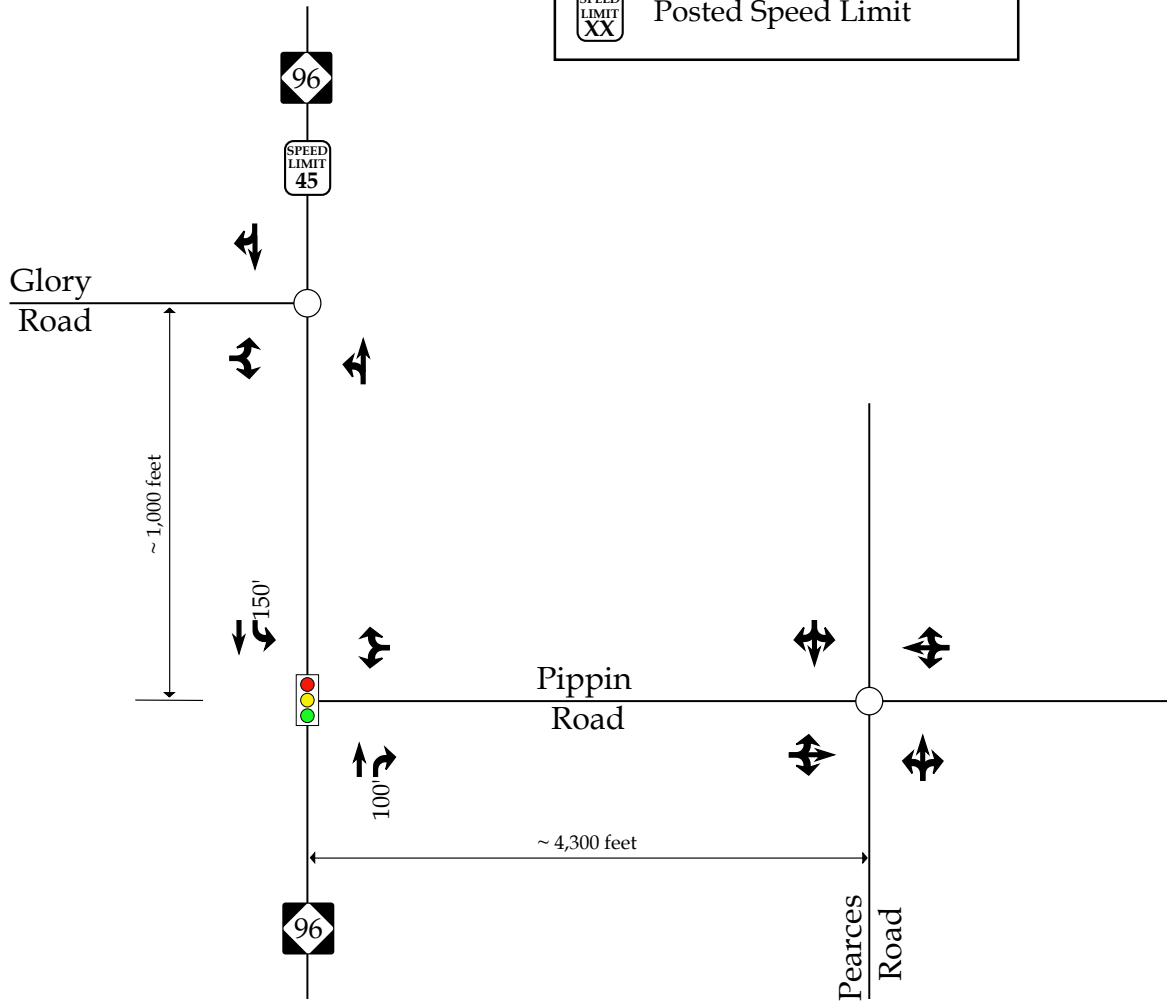
Weaver's Pointe
Zebulon, NC


Site Location Map

Scale: Not to Scale

LEGEND

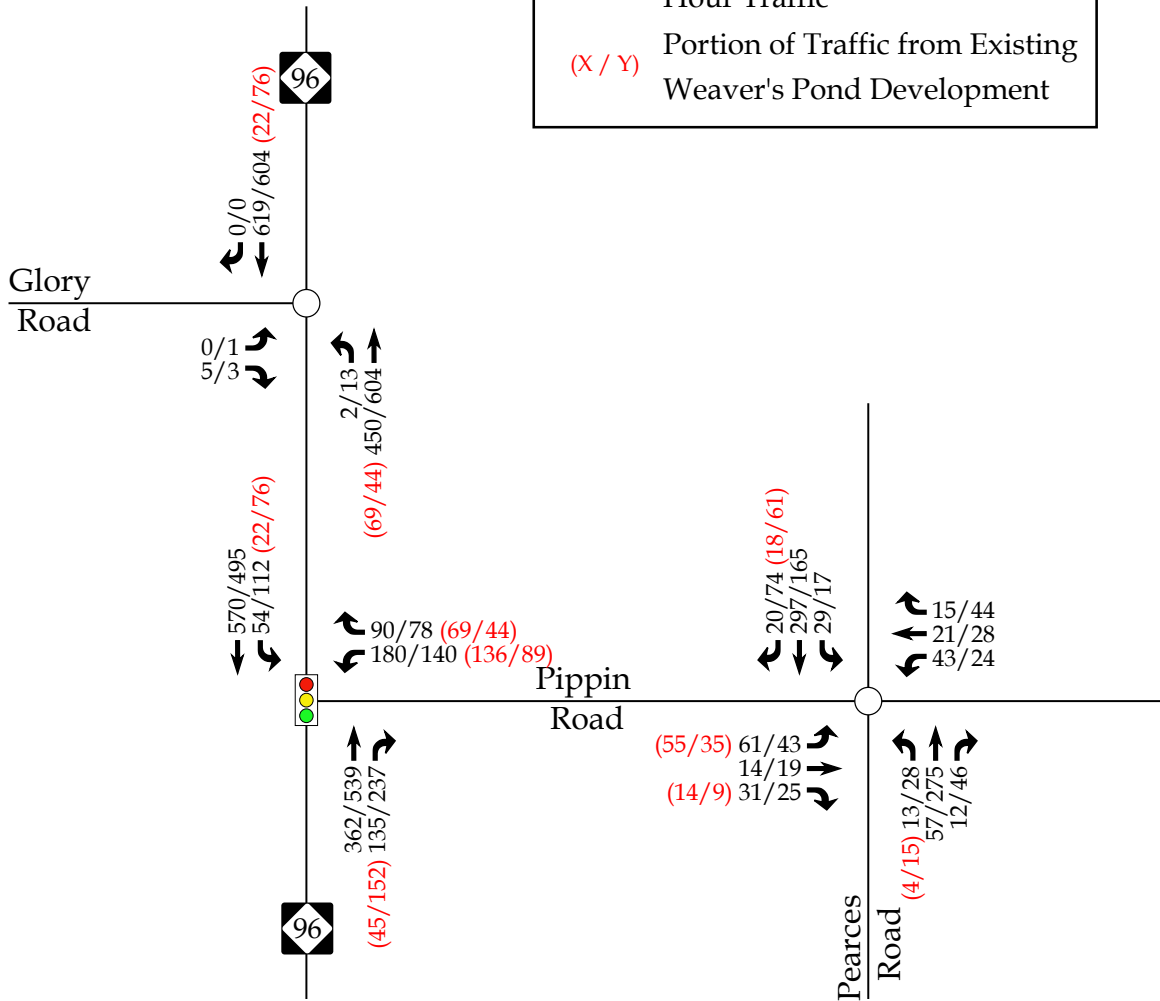
- Unsignalized Intersection
- ➔ Existing Lane
- X' Storage (In Feet)
-  Posted Speed Limit




	Weaver's Pointe Zebulon, NC	2022 Existing Lane Configurations	
		Scale: Not to Scale	

LEGEND



- Unsignalized Intersection
- 🚦 Signalized Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic
- (X / Y) Portion of Traffic from Existing Weaver's Pond Development

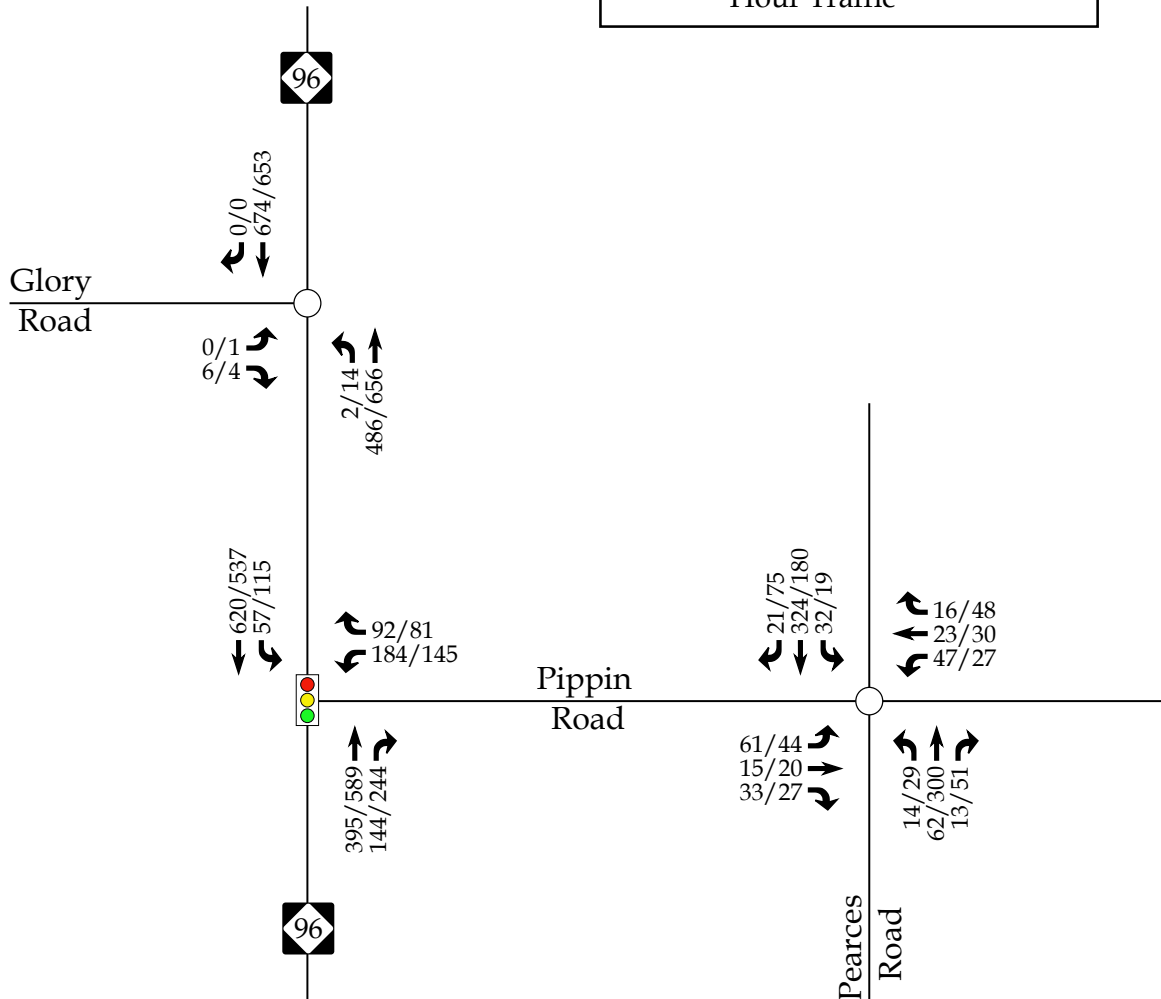


Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.


	Weaver's Pointe Zebulon, NC	2022 Existing Peak Hour Traffic	
		Scale: Not to Scale	

LEGEND



-  Unsignalized Intersection
-  Signalized Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic



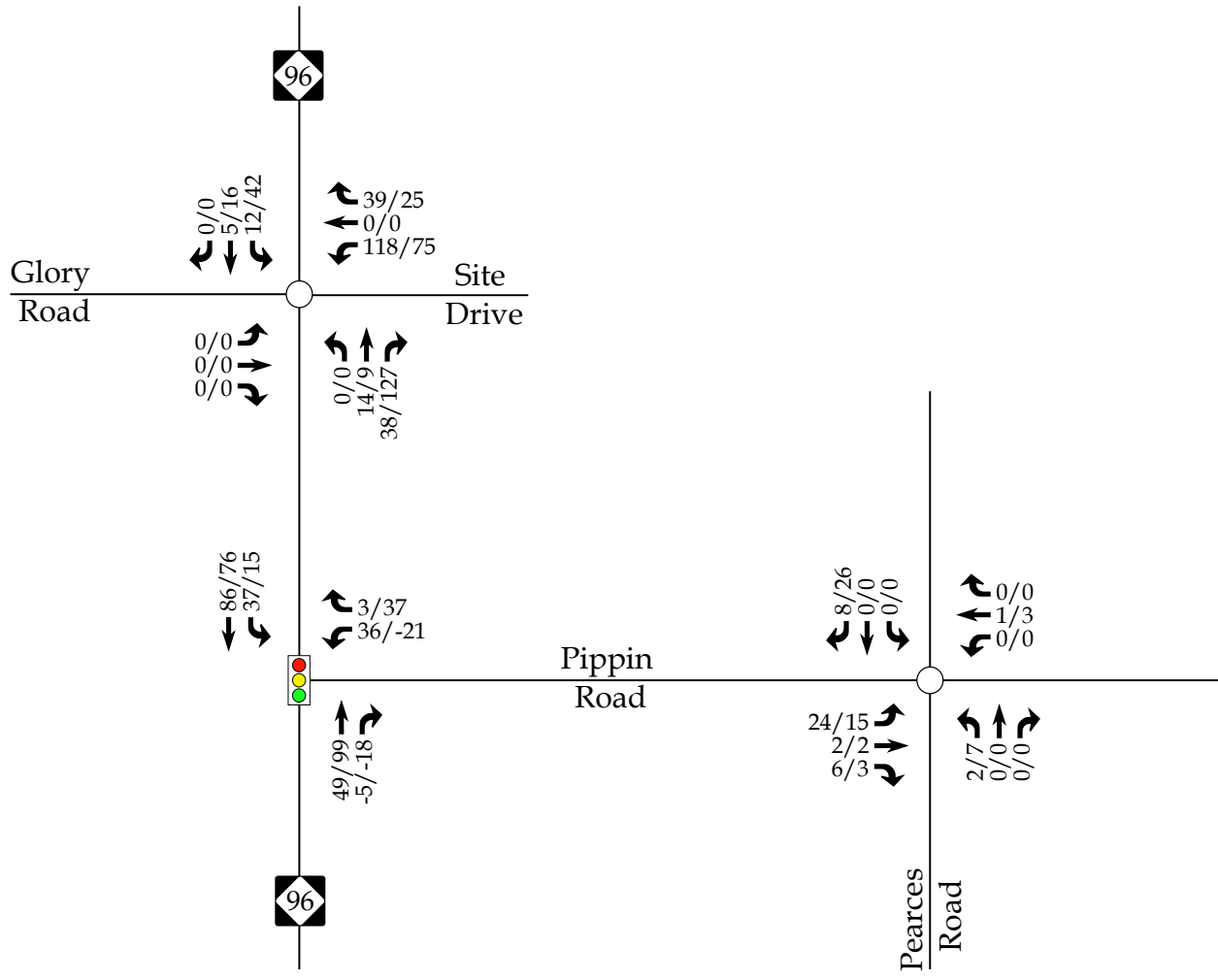
Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

	Weaver's Pointe Zebulon, NC	2025 Projected Peak Hour Traffic
		Scale: Not to Scale

LEGEND

-  Unsignalized Intersection
-  Signalized Intersection
- X / Y → Weekday AM / PM Peak Hour Adjacent Development Trips

*Note: Negative numbers are the result of rerouted Weaver's Pond traffic with the addition of the Weaver's Ridge site driveway on NC 96





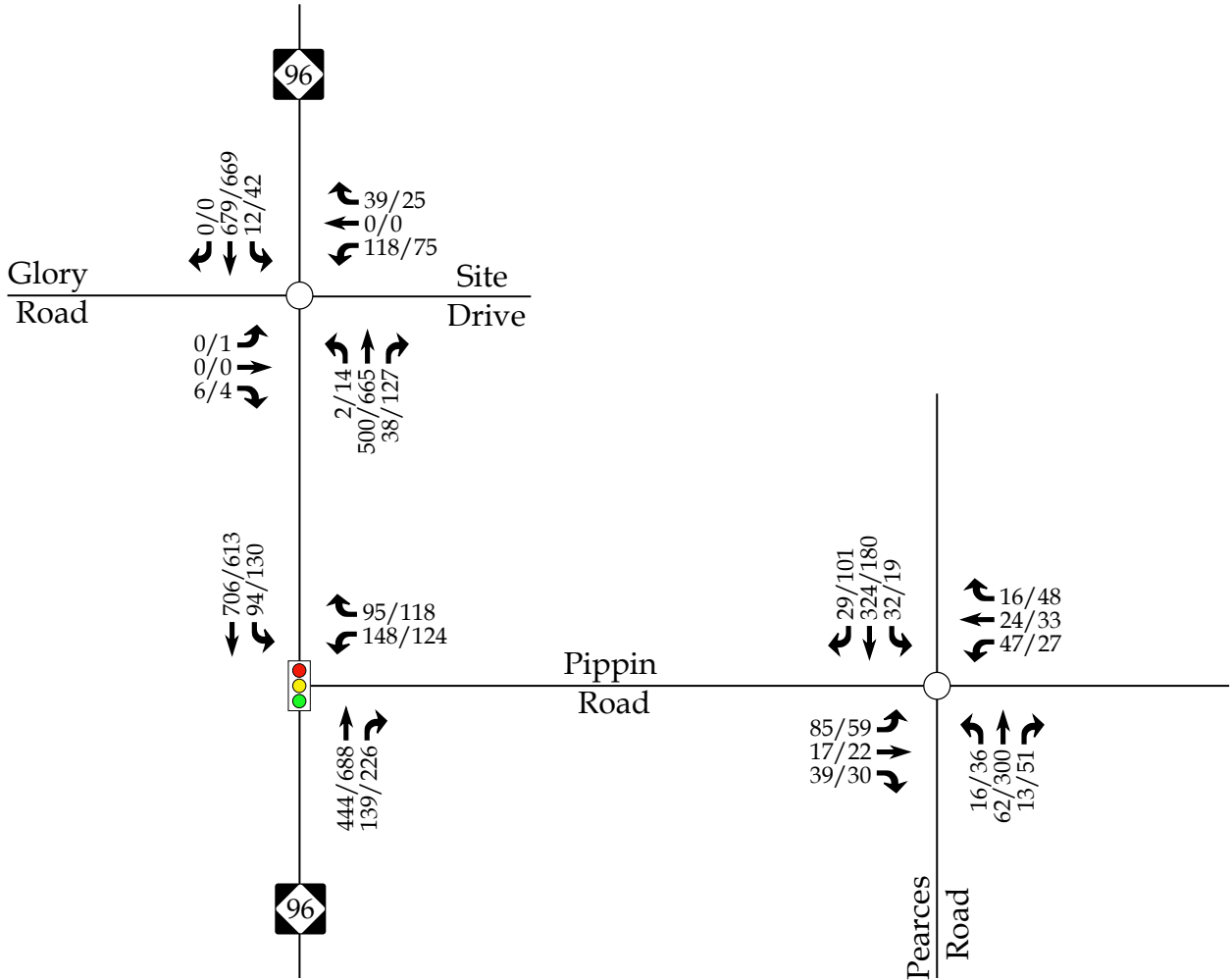
Weaver's Pointe
Zebulon, NC

Peak Hour Adjacent
Development Trips

Scale: Not to Scale

LEGEND

-  Unsignalized Intersection
-  Signalized Intersection
- X/Y → Weekday AM / PM Peak Hour Traffic



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



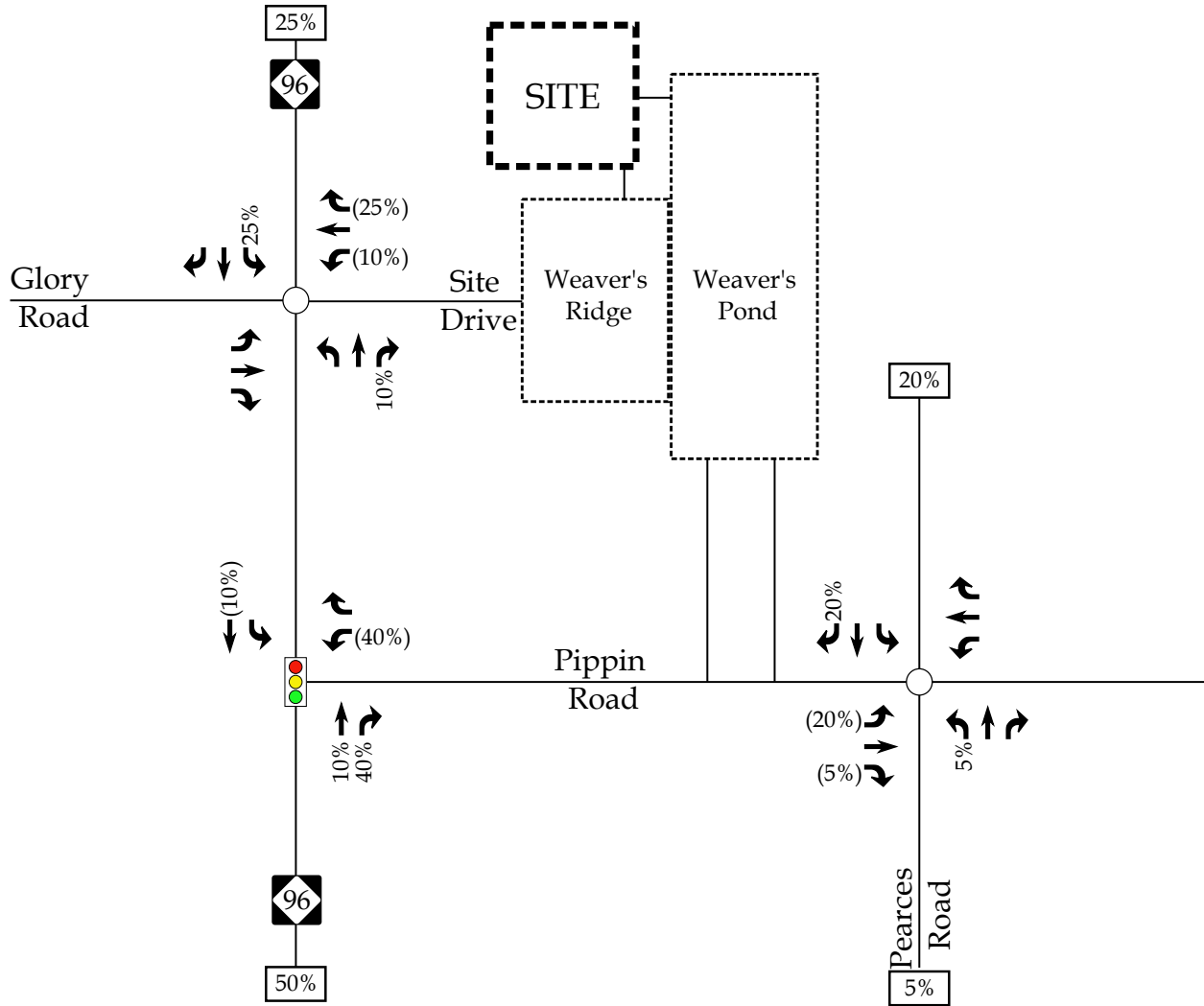
Weaver's Pointe
Zebulon, NC

2025 No-Build
Peak Hour Traffic

Scale: Not to Scale

LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- x% → Entering Trip Distribution
- (Y%) → Exiting Trip Distribution
- ▭XX%▭ Regional Trip Distribution



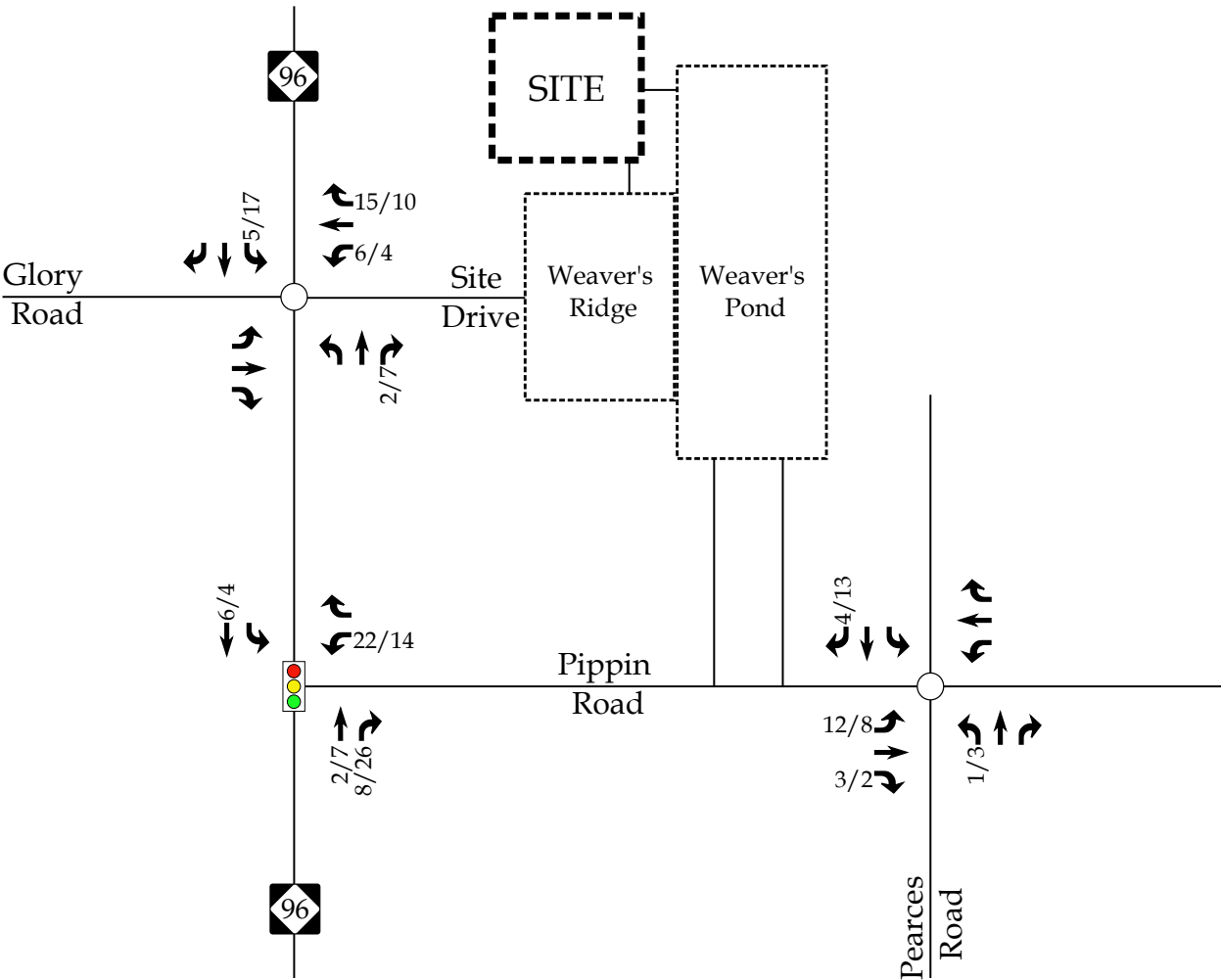
Weaver's Pointe
Zebulon, NC


Site Trip Distribution

Scale: Not to Scale



LEGEND

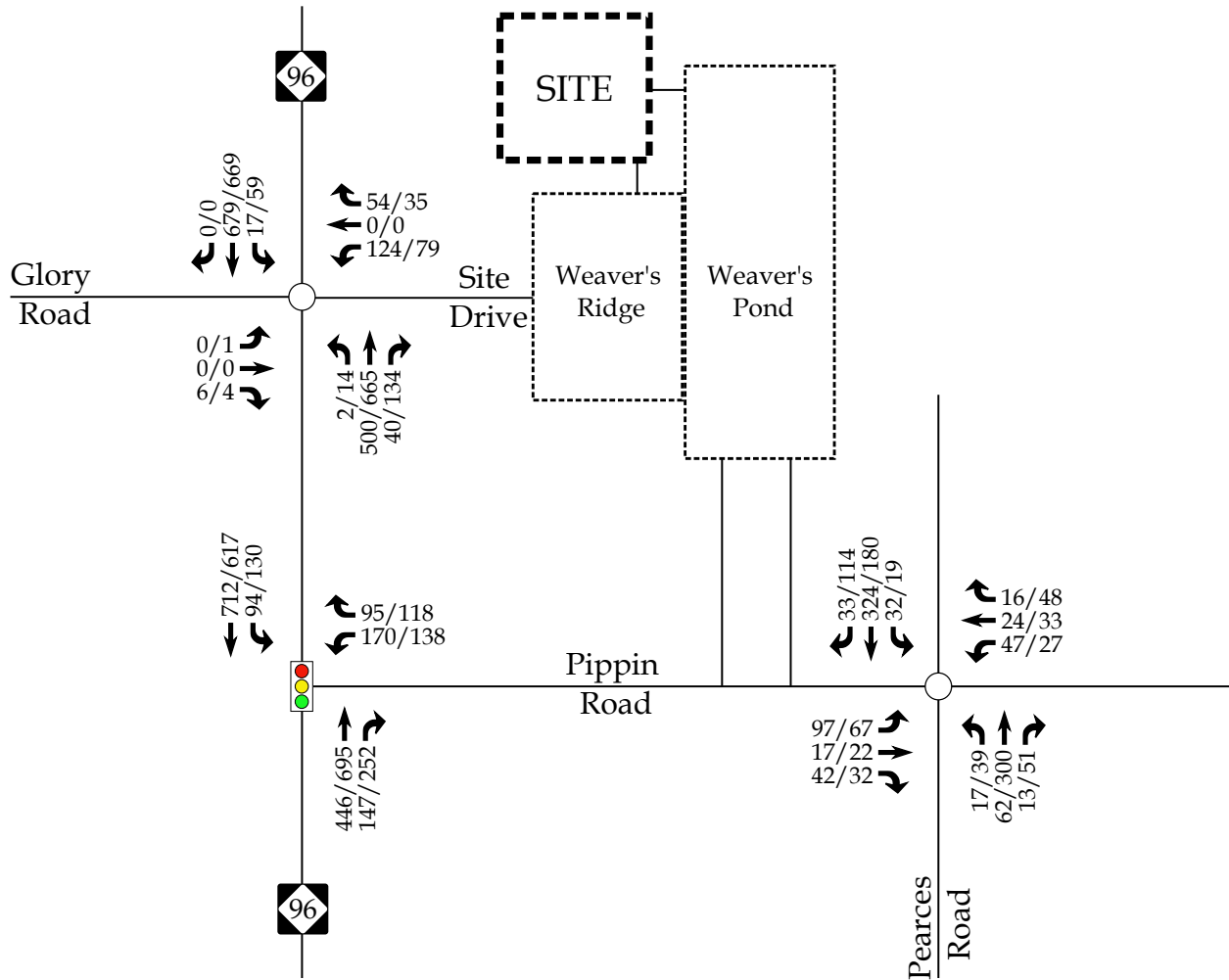
- Unsignalized Intersection
- 🚦 Signalized Intersection
- X/Y → Weekday AM / PM Peak Hour Site Trips




	Weaver's Pointe Zebulon, NC	Site Trip Assignment	
		Scale: Not to Scale	

LEGEND

-  Unsignalized Intersection
-  Signalized Intersection
- X/Y → Weekday AM / PM Peak Hour Traffic



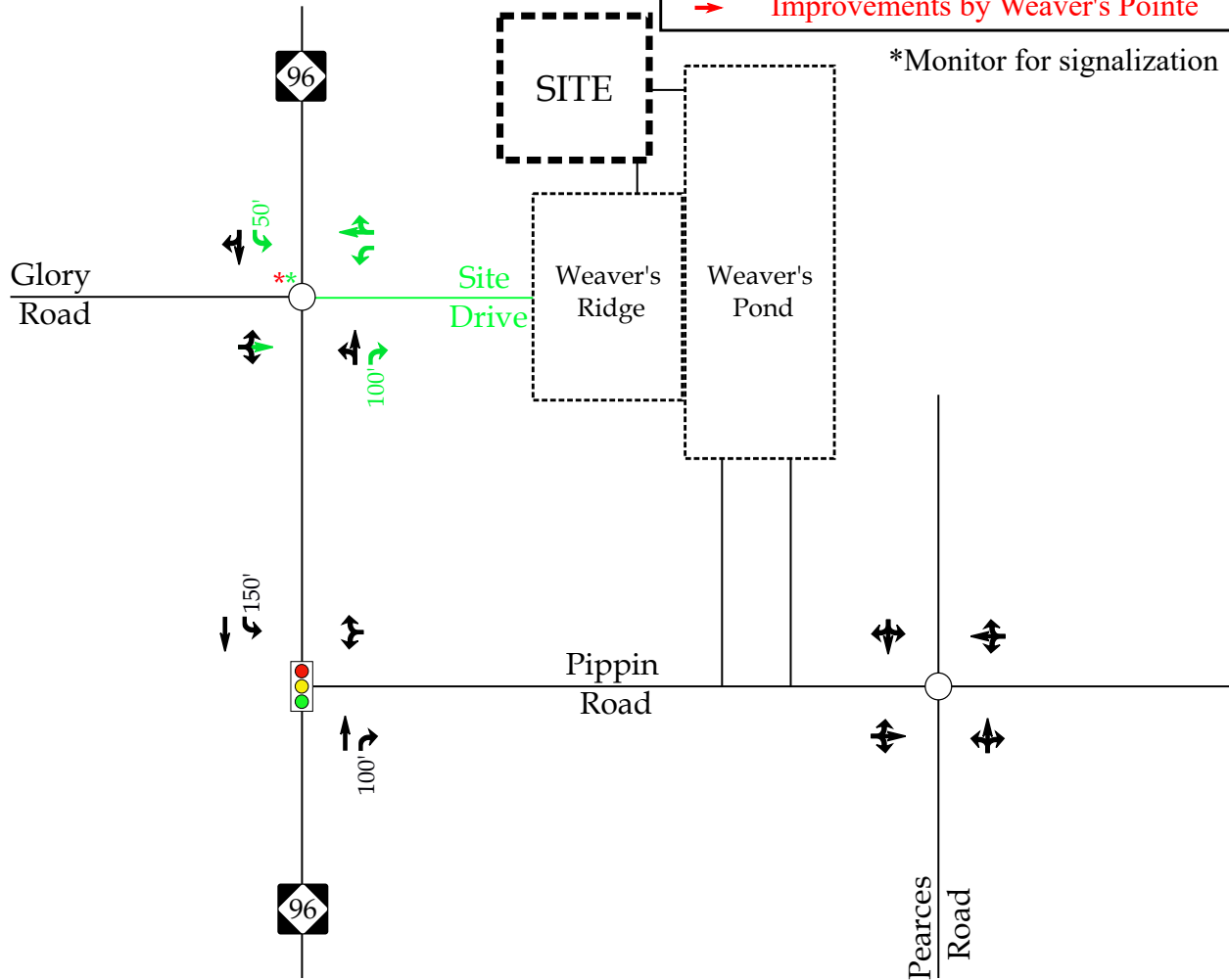
Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

	Weaver's Pointe Zebulon, NC	2025 Build Peak Hour Traffic
		Scale: Not to Scale



LEGEND

- Unsignalized Intersection
- ⬆️⬆️⬆️ Signalized Intersection
- ➡️ Existing Lane
- x' Storage (In Feet)
- ➡️ Improvements by Weaver's Ridge
- ➡️ Improvements by Weaver's Pointe



Weaver's Pointe
Zebulon, NC

Recommended Lane Configurations	
Scale: Not to Scale	



5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : NC 96 and Pippin Road
Site Code : 00083017
Start Date : 8/30/2017
Page No : 1

Groups Printed- Cars & Trucks

Start Time	Pippin Road From North					NC 96 From East					From South					NC 96 From West					Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total			
06:00 AM	3	0	4	0	7	1	50	0	2	51	0	0	0	0	0	0	41	1	8	42	10	100	110
06:15 AM	3	0	3	0	6	5	55	0	0	60	0	0	0	0	0	0	52	0	2	52	2	118	120
06:30 AM	1	0	12	0	13	3	84	0	3	87	0	0	0	0	0	0	82	2	1	84	4	184	188
06:45 AM	6	2	17	1	25	6	90	0	3	96	0	0	0	0	0	0	91	1	4	92	8	213	221
Total	13	2	36	1	51	15	279	0	8	294	0	0	0	0	0	0	266	4	15	270	24	615	639
07:00 AM	9	0	22	0	31	16	70	3	1	89	0	0	0	0	0	0	81	8	6	89	7	209	216
07:15 AM	11	0	21	0	32	6	75	0	0	81	0	0	0	0	0	0	71	4	2	75	2	188	190
07:30 AM	5	0	14	0	19	22	89	1	3	112	0	0	0	0	0	0	121	6	1	127	4	258	262
07:45 AM	5	0	7	0	12	9	62	0	3	71	0	0	0	0	0	0	152	6	5	158	8	241	249
Total	30	0	64	0	94	53	296	4	7	353	0	0	0	0	0	0	425	24	14	449	21	896	917
08:00 AM	4	0	8	0	12	20	86	0	5	106	0	0	0	0	0	0	107	8	8	115	13	233	246
08:15 AM	4	0	9	0	13	27	70	0	2	97	0	0	0	0	0	0	89	8	5	97	7	207	214
08:30 AM	4	0	9	0	13	27	57	0	2	84	0	0	0	0	0	0	86	16	5	102	7	199	206
08:45 AM	4	0	16	1	20	38	62	0	4	100	0	0	0	0	0	0	72	11	4	83	9	203	212
Total	16	0	42	1	58	112	275	0	13	387	0	0	0	0	0	0	354	43	22	397	36	842	878
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09:30 AM	5	0	13	0	18	13	64	0	4	77	0	0	0	0	0	0	56	3	4	59	8	154	162
09:45 AM	3	0	4	0	7	7	45	0	6	52	0	0	0	0	0	0	72	1	5	73	11	132	143
Total	25	1	121	0	147	87	208	0	20	295	0	0	0	0	0	0	285	27	19	312	39	754	793
10:00 AM	4	0	6	1	10	10	40	0	3	50	0	0	0	0	0	0	55	4	4	59	8	119	127
10:15 AM	4	0	6	0	10	4	54	0	3	58	0	0	0	0	0	0	36	2	4	38	7	106	113
10:30 AM	7	0	13	0	20	4	48	0	3	52	0	0	0	0	0	0	56	4	1	60	4	132	136
10:45 AM	6	0	6	0	12	6	45	0	6	51	0	0	0	0	0	0	54	5	2	59	8	122	130
Total	21	0	31	1	52	24	187	0	15	211	0	0	0	0	0	0	201	15	11	216	27	479	506
11:00 AM	0	0	9	0	9	9	43	0	3	52	0	0	0	0	0	0	54	6	5	60	8	121	129
11:15 AM	2	0	7	1	9	7	43	0	4	50	0	0	0	0	0	0	52	6	3	58	8	117	125
11:30 AM	5	0	12	1	17	9	45	0	2	54	0	0	0	0	0	0	49	3	2	52	5	123	128
11:45 AM	4	0	10	0	14	10	45	0	4	55	0	0	0	0	0	0	42	3	6	45	10	114	124
Total	11	0	38	2	49	35	176	0	13	211	0	0	0	0	0	0	197	18	16	215	31	475	506
12:00 PM	3	0	10	2	13	12	52	0	5	64	0	0	0	0	0	0	50	1	3	51	10	128	138
12:15 PM	6	0	10	1	16	9	65	0	5	74	0	0	0	0	0	0	48	3	2	51	8	141	149
12:30 PM	3	0	12	0	15	13	50	0	3	63	0	0	0	0	0	0	44	4	3	48	6	126	132
12:45 PM	3	0	12	0	15	11	46	0	3	57	0	0	0	0	0	0	43	0	3	43	6	115	121
Total	15	0	44	3	59	45	213	0	16	258	0	0	0	0	0	0	185	8	11	193	30	510	540



5808 Faringdon Place, Suite 100
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File Name : NC 96 and Pippin Road
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Groups Printed- Cars & Trucks

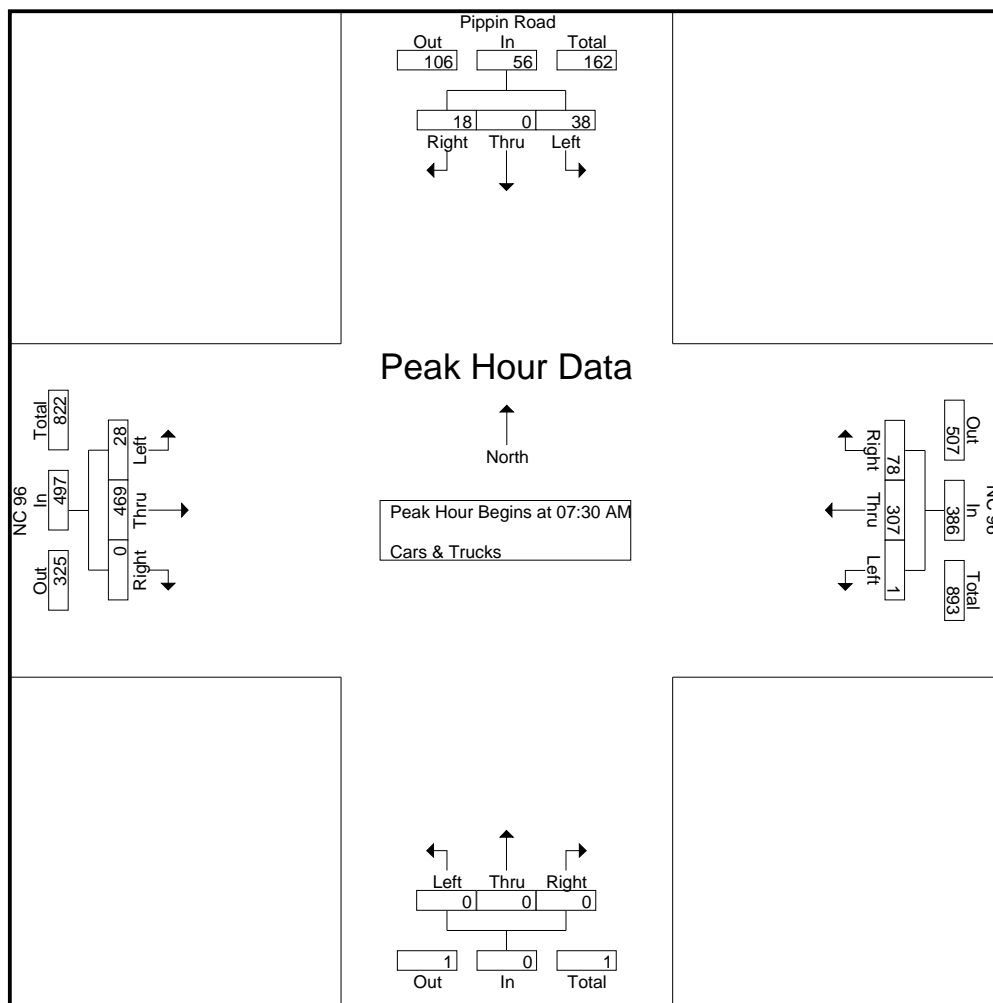
Start Time	Pippin Road From North					NC 96 From East					From South					NC 96 From West					Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total			
01:00 PM	5	0	2	0	7	3	59	0	4	62	0	0	0	0	0	0	54	3	5	57	9	126	135
01:15 PM	3	0	5	1	8	3	62	0	2	65	0	0	0	0	0	0	48	5	6	53	9	126	135
01:30 PM	1	0	5	1	6	16	73	0	12	89	0	0	0	0	0	0	56	3	2	59	15	154	169
01:45 PM	3	0	5	0	8	6	61	0	6	67	0	0	0	0	0	0	36	5	5	41	11	116	127
Total	12	0	17	2	29	28	255	0	24	283	0	0	0	0	0	0	194	16	18	210	44	522	566
02:00 PM	3	0	11	1	14	9	78	0	6	87	0	0	0	0	0	0	65	4	4	69	11	170	181
02:15 PM	6	0	8	0	14	7	63	0	5	70	0	0	0	0	0	0	72	3	6	75	11	159	170
02:30 PM	6	0	6	1	12	5	71	0	3	76	0	0	0	0	0	0	67	3	8	70	12	158	170
02:45 PM	8	0	8	1	16	12	79	0	2	91	0	0	0	0	0	0	89	3	7	92	10	199	209
Total	23	0	33	3	56	33	291	0	16	324	0	0	0	0	0	0	293	13	25	306	44	686	730
03:00 PM	5	0	10	0	15	15	82	0	1	97	0	0	0	0	0	0	68	7	3	75	4	187	191
03:15 PM	2	0	12	1	14	31	93	0	4	124	0	0	0	0	0	0	79	5	6	84	11	222	233
03:30 PM	6	0	9	0	15	26	77	0	3	103	0	0	0	0	0	0	79	6	7	85	10	203	213
03:45 PM	6	0	25	1	31	20	75	0	1	95	0	0	0	0	0	0	72	6	0	78	2	204	206
Total	19	0	56	2	75	92	327	0	9	419	0	0	0	0	0	0	298	24	16	322	27	816	843
04:00 PM	12	0	48	1	60	17	90	0	4	107	0	0	0	0	0	0	97	9	7	106	12	273	285
04:15 PM	4	0	11	0	15	12	114	0	2	126	0	0	0	0	0	0	90	4	5	94	7	235	242
04:30 PM	11	0	18	1	29	9	119	0	4	128	0	0	0	0	0	0	81	6	2	87	7	244	251
04:45 PM	8	0	20	0	28	11	123	0	2	134	0	0	0	0	0	0	73	10	3	83	5	245	250
Total	35	0	97	2	132	49	446	0	12	495	0	0	0	0	0	0	341	29	17	370	31	997	1028
05:00 PM	4	0	4	0	8	13	94	0	4	107	0	0	0	0	0	0	83	6	2	89	6	204	210
*** BREAK ***																							
05:30 PM	4	0	7	1	11	18	125	0	1	143	0	0	0	0	0	0	95	6	1	101	3	255	258
05:45 PM	12	0	14	0	26	24	125	0	3	149	0	0	0	0	0	0	127	9	1	136	4	311	315
Total	20	0	25	1	45	55	344	0	8	399	0	0	0	0	0	0	305	21	4	326	13	770	783
06:00 PM	7	0	10	0	17	18	107	0	0	125	0	0	0	0	0	0	95	8	3	103	3	245	248
06:15 PM	6	0	13	2	19	13	108	0	3	121	0	0	0	0	0	0	76	8	2	84	7	224	231
06:30 PM	7	0	7	0	14	9	86	0	2	95	0	0	0	0	0	0	104	4	1	108	3	217	220
*** BREAK ***																							
Total	20	0	30	2	50	40	301	0	5	341	0	0	0	0	0	0	275	20	6	295	13	686	699
Grand Total	260	3	634	20	897	668	3598	4	166	4270	0	0	0	0	0	0	3619	262	194	3881	380	9048	9428
Apprch %	29	0.3	70.7			15.6	84.3	0.1			0	0	0			0	93.2	6.8					
Total %	2.9	0	7		9.9	7.4	39.8	0		47.2	0	0	0		0	0	40	2.9		42.9	4	96	



5808 Faringdon Place, Suite 100
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PH: 919 872-5115

File Name : NC 96 and Pippin Road
Site Code : 00083017
Start Date : 8/30/2017
Page No : 3

Start Time	Pippin Road From North				NC 96 From East				From South				NC 96 From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	0	14	19	22	89	1	112	0	0	0	0	0	121	6	127	258
07:45 AM	5	0	7	12	9	62	0	71	0	0	0	0	0	152	6	158	241
08:00 AM	4	0	8	12	20	86	0	106	0	0	0	0	0	107	8	115	233
08:15 AM	4	0	9	13	27	70	0	97	0	0	0	0	0	89	8	97	207
Total Volume	18	0	38	56	78	307	1	386	0	0	0	0	0	469	28	497	939
% App. Total	32.1	0	67.9		20.2	79.5	0.3		0	0	0		0	94.4	5.6		
PHF	.900	.000	.679	.737	.722	.862	.250	.862	.000	.000	.000	.000	.000	.771	.875	.786	.910

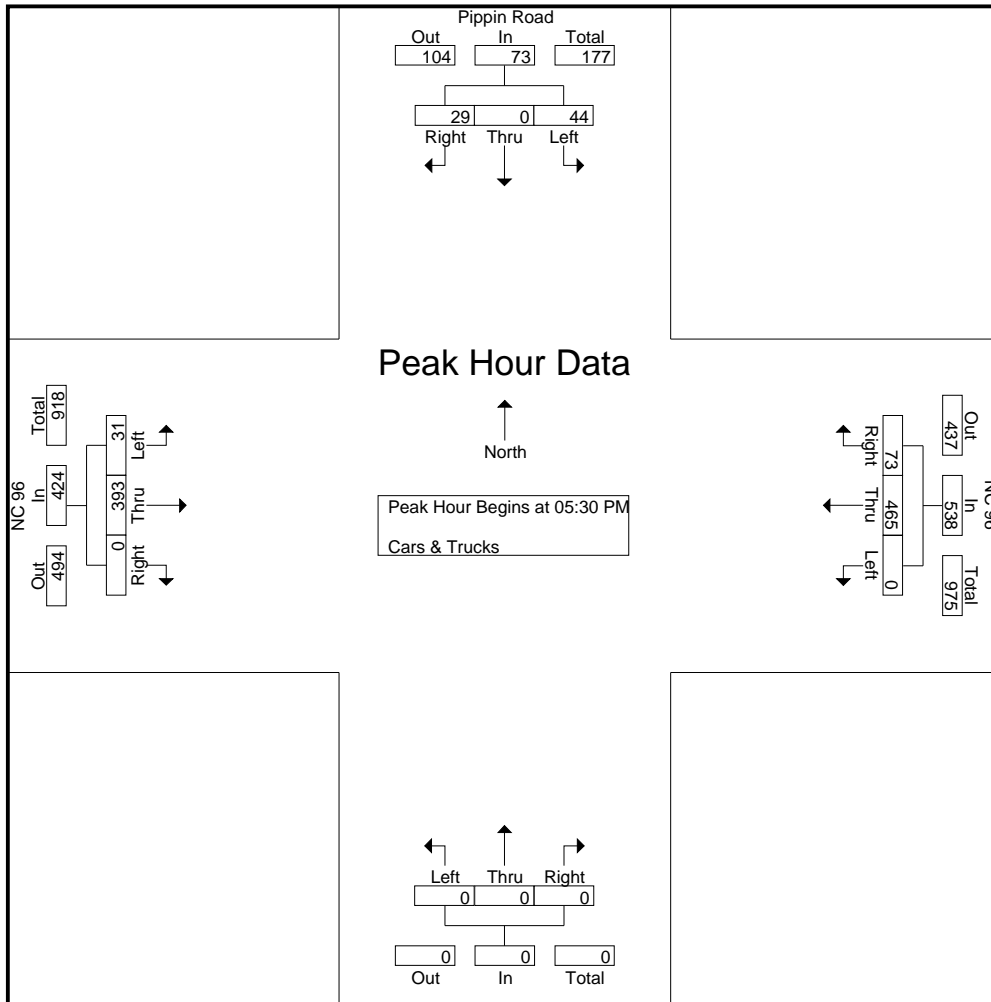




5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : NC 96 and Pippin Road
Site Code : 00083017
Start Date : 8/30/2017
Page No : 4

Start Time	Pippin Road From North				NC 96 From East				From South				NC 96 From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	4	0	7	11	18	125	0	143	0	0	0	0	0	95	6	101	255
05:45 PM	12	0	14	26	24	125	0	149	0	0	0	0	0	127	9	136	311
06:00 PM	7	0	10	17	18	107	0	125	0	0	0	0	0	95	8	103	245
06:15 PM	6	0	13	19	13	108	0	121	0	0	0	0	0	76	8	84	224
Total Volume	29	0	44	73	73	465	0	538	0	0	0	0	0	393	31	424	1035
% App. Total	39.7	0	60.3		13.6	86.4	0		0	0	0		0	92.7	7.3		
PHF	.604	.000	.786	.702	.760	.930	.000	.903	.000	.000	.000	.000	.000	.774	.861	.779	.832





5808 Faringdon Place, Suite 100
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PH: 919 872-5115

File Name : NC 96 and Glory Road
Site Code : 00041019
Start Date : 4/10/2019
Page No : 1

Groups Printed- Cars & Trucks

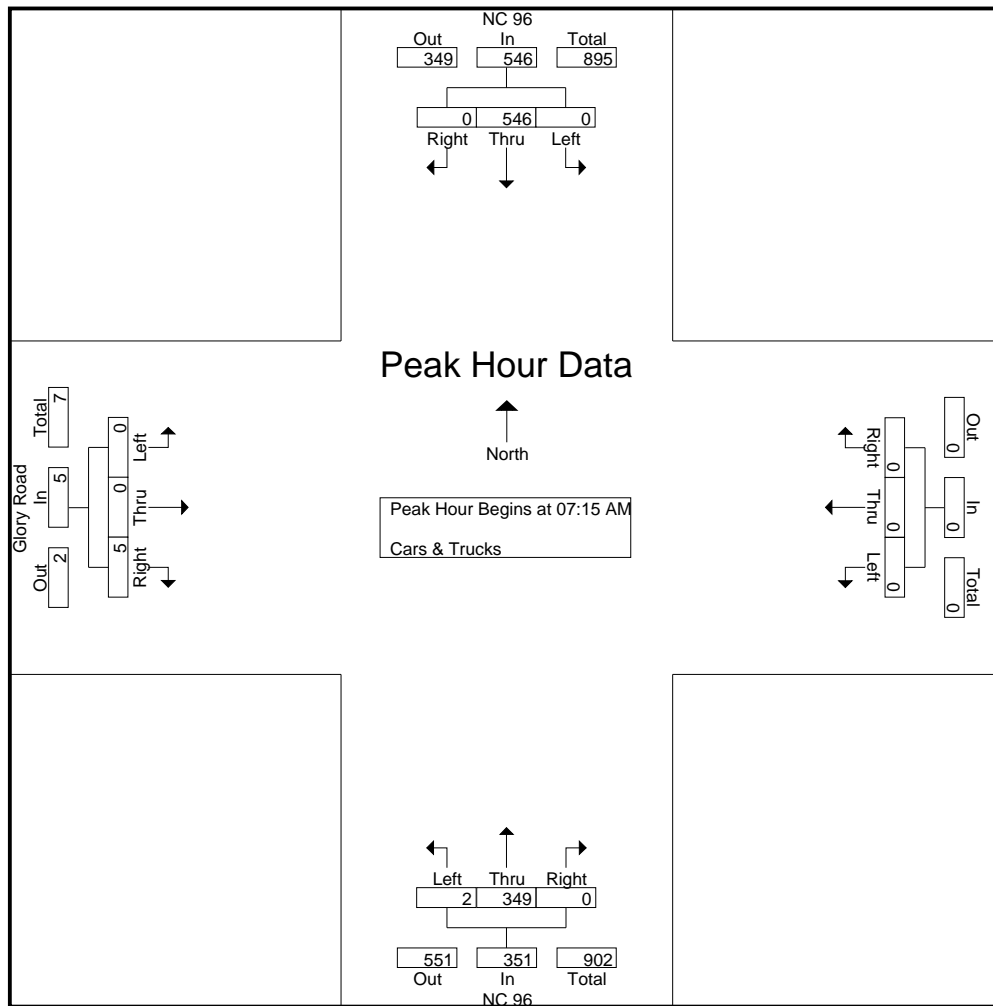
Start Time	NC 96 From North					From East					NC 96 From South					Glory Road From West					Exclu. Total	Inclu. Total	Int. Total
	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total	Right	Thru	Left	TRKS	App. Total			
07:00 AM	0	92	0	3	92	0	0	0	0	0	0	90	2	4	92	0	0	1	0	1	7	185	192
07:15 AM	0	114	0	5	114	0	0	0	0	0	0	107	0	2	107	1	0	0	0	1	7	222	229
07:30 AM	0	153	0	1	153	0	0	0	0	0	0	82	1	3	83	1	0	0	0	1	4	237	241
07:45 AM	0	151	0	6	151	0	0	0	0	0	0	83	0	4	83	2	0	0	0	2	10	236	246
Total	0	510	0	15	510	0	0	0	0	0	0	362	3	13	365	4	0	1	0	5	28	880	908
08:00 AM	0	128	0	4	128	0	0	0	0	0	0	77	1	1	78	1	0	0	0	1	5	207	212
08:15 AM	0	110	0	7	110	0	0	0	0	0	0	78	1	4	79	2	0	1	0	3	11	192	203
08:30 AM	1	78	0	5	79	0	0	0	0	0	0	85	1	4	86	2	0	0	0	2	9	167	176
*** BREAK ***																							
Total	1	316	0	16	317	0	0	0	0	0	0	240	3	9	243	5	0	1	0	6	25	566	591
*** BREAK ***																							
04:00 PM	0	89	0	1	89	0	0	0	0	0	0	98	0	1	98	2	0	0	0	2	2	189	191
04:15 PM	0	90	0	1	90	0	0	0	0	0	0	98	0	0	98	1	0	0	0	1	1	189	190
04:30 PM	0	95	0	4	95	0	0	0	0	0	0	117	1	1	118	2	0	0	0	2	5	215	220
04:45 PM	0	106	0	5	106	0	0	0	0	0	0	104	1	2	105	2	0	0	0	2	7	213	220
Total	0	380	0	11	380	0	0	0	0	0	0	417	2	4	419	7	0	0	0	7	15	806	821
05:00 PM	0	107	0	4	107	0	0	0	0	0	0	129	3	6	132	1	0	0	0	1	10	240	250
05:15 PM	0	119	0	3	119	0	0	0	0	0	0	100	1	1	101	1	0	0	0	1	4	221	225
05:30 PM	0	140	0	3	140	0	0	0	0	0	0	160	4	5	164	1	0	1	0	2	8	306	314
05:45 PM	0	117	0	2	117	0	0	0	0	0	0	121	4	0	125	0	0	0	0	0	2	242	244
Total	0	483	0	12	483	0	0	0	0	0	0	510	12	12	522	3	0	1	0	4	24	1009	1033
Grand Total	1	1689	0	54	1690	0	0	0	0	0	0	1529	20	38	1549	19	0	3	0	22	92	3261	3353
Apprch %	0.1	99.9	0			0	0	0			0	98.7	1.3			86.4	0	13.6					
Total %	0	51.8	0		51.8	0	0	0			0	46.9	0.6		47.5	0.6	0	0.1		0.7	2.7	97.3	



5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : NC 96 and Glory Road
Site Code : 00041019
Start Date : 4/10/2019
Page No : 2

Start Time	NC 96 From North				From East				NC 96 From South				Glory Road From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	114	0	114	0	0	0	0	0	107	0	107	1	0	0	1	222
07:30 AM	0	153	0	153	0	0	0	0	0	82	1	83	1	0	0	1	237
07:45 AM	0	151	0	151	0	0	0	0	0	83	0	83	2	0	0	2	236
08:00 AM	0	128	0	128	0	0	0	0	0	77	1	78	1	0	0	1	207
Total Volume	0	546	0	546	0	0	0	0	0	349	2	351	5	0	0	5	902
% App. Total	0	100	0		0	0	0		0	99.4	0.6		100	0	0		
PHF	.000	.892	.000	.892	.000	.000	.000	.000	.000	.815	.500	.820	.625	.000	.000	.625	.951

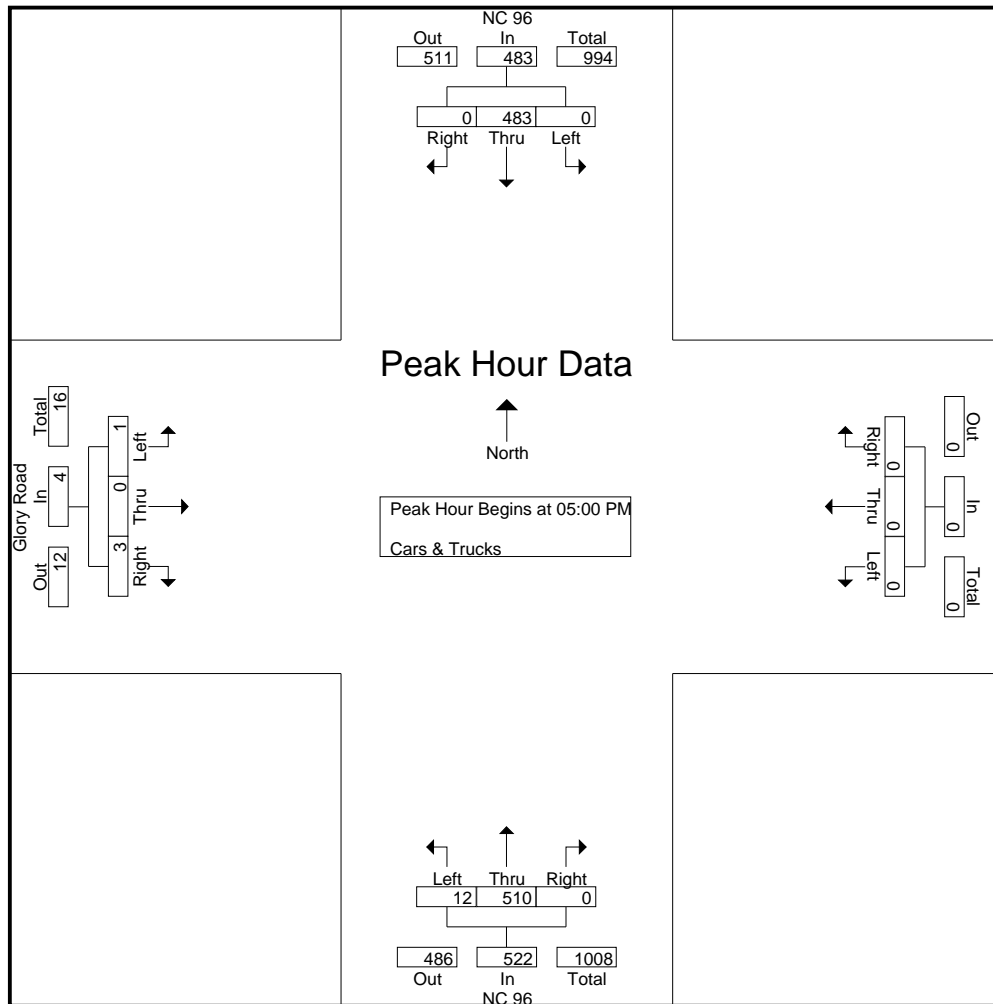




5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : NC 96 and Glory Road
Site Code : 00041019
Start Date : 4/10/2019
Page No : 3

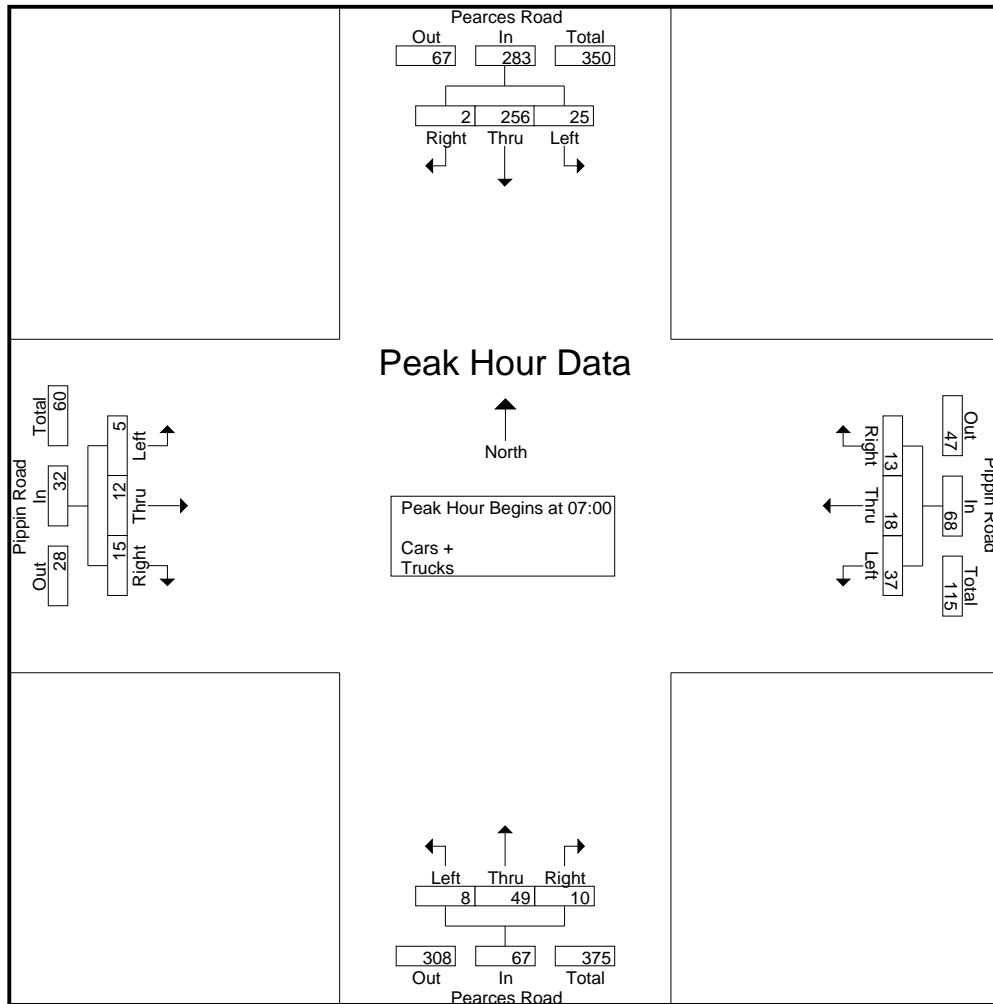
Start Time	NC 96 From North				From East				NC 96 From South				Glory Road From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	107	0	107	0	0	0	0	0	129	3	132	1	0	0	1	240
05:15 PM	0	119	0	119	0	0	0	0	0	100	1	101	1	0	0	1	221
05:30 PM	0	140	0	140	0	0	0	0	0	160	4	164	1	0	1	2	306
05:45 PM	0	117	0	117	0	0	0	0	0	121	4	125	0	0	0	0	242
Total Volume	0	483	0	483	0	0	0	0	0	510	12	522	3	0	1	4	1009
% App. Total	0	100	0		0	0	0		0	97.7	2.3		75	0	25		
PHF	.000	.863	.000	.863	.000	.000	.000	.000	.000	.797	.750	.796	.750	.000	.250	.500	.824



Burns Service Inc.
1202 Langdon Terrace Drive
Indian Trail, NC, 28079

File Name : Zebulon(Pearces and Pippin) AM Peak
Site Code :
Start Date : 10/3/2017
Page No : 2

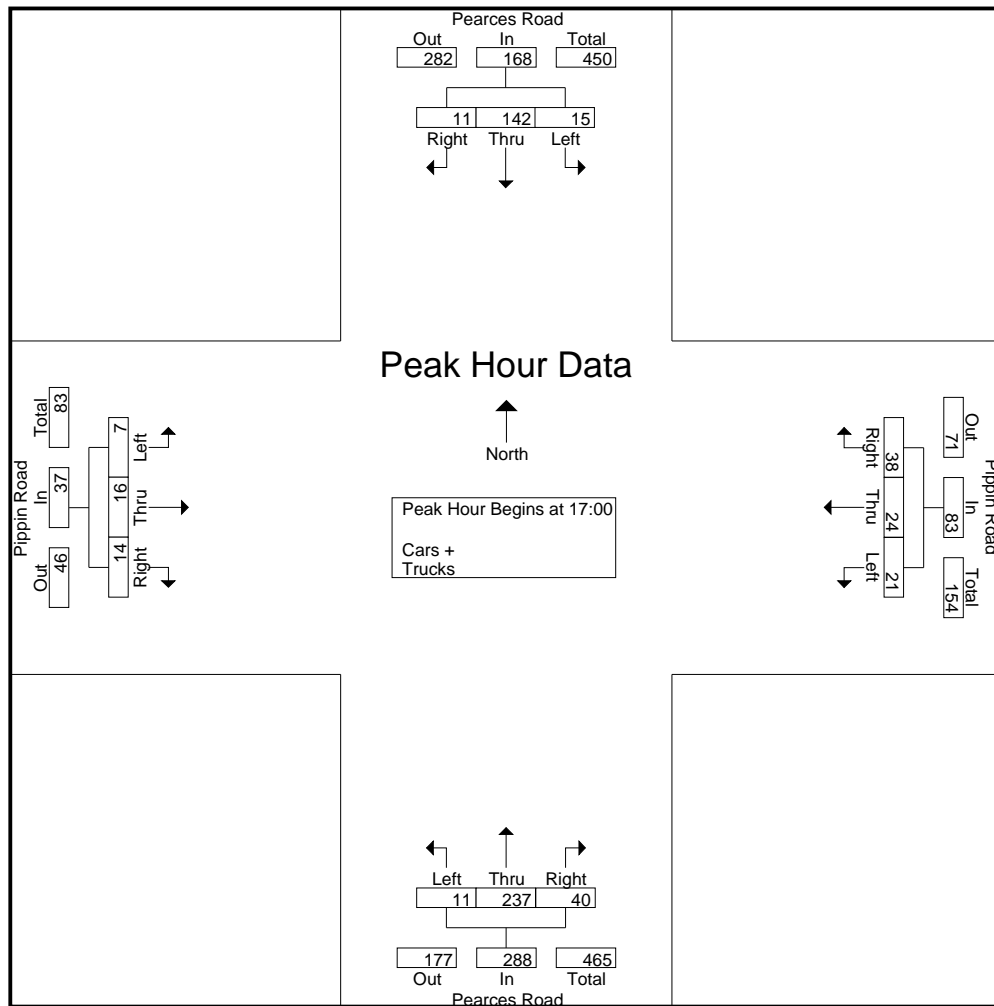
Start Time	Pearces Road Southbound				Pippin Road Westbound				Pearces Road Northbound				Pippin Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	0	73	5	78	2	3	11	16	0	10	4	14	1	0	0	1	109
07:15	1	62	6	69	1	7	12	20	4	11	3	18	5	4	3	12	119
07:30	1	50	9	60	4	2	8	14	2	19	1	22	6	3	1	10	106
07:45	0	71	5	76	6	6	6	18	4	9	0	13	3	5	1	9	116
Total Volume	2	256	25	283	13	18	37	68	10	49	8	67	15	12	5	32	450
% App. Total	0.7	90.5	8.8		19.1	26.5	54.4		14.9	73.1	11.9		46.9	37.5	15.6		
PHF	.500	.877	.694	.907	.542	.643	.771	.850	.625	.645	.500	.761	.625	.600	.417	.667	.945



Burns Service Inc.
1202 Langdon Terrace Drive
Indian Trail, NC, 28079

File Name : Zebulon(Pearces and Pippin) PM Peak
Site Code :
Start Date : 10/3/2017
Page No : 2

Start Time	Pearces Road Southbound				Pippin Road Westbound				Pearces Road Northbound				Pippin Road Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	1	31	7	39	12	3	1	16	9	53	3	65	3	5	1	9	129
17:15	1	35	3	39	8	8	6	22	8	49	1	58	0	3	2	5	124
17:30	2	31	2	35	7	4	6	17	12	69	4	85	3	4	4	11	148
17:45	7	45	3	55	11	9	8	28	11	66	3	80	8	4	0	12	175
Total Volume	11	142	15	168	38	24	21	83	40	237	11	288	14	16	7	37	576
% App. Total	6.5	84.5	8.9		45.8	28.9	25.3		13.9	82.3	3.8		37.8	43.2	18.9		
PHF	.393	.789	.536	.764	.792	.667	.656	.741	.833	.859	.688	.847	.438	.800	.438	.771	.823



TRAFFIC IMPACT ANALYSIS

FOR

WEAVER'S POND UPDATE

LOCATED

IN

ZEBULON, NORTH CAROLINA

Prepared For:
Weavers Pond Development Co., LLC
9407 Bartons Creek Road
Raleigh, NC 27615

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910



MARCH 2018

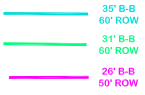
RKA Project No. 17162

Prepared By: CAB

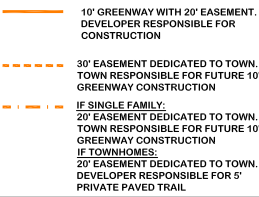
Reviewed By: JTR

WEAVER'S POND

ROADWAY LEGEND



GREENWAY LEGEND



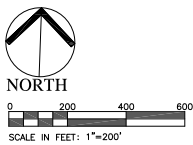
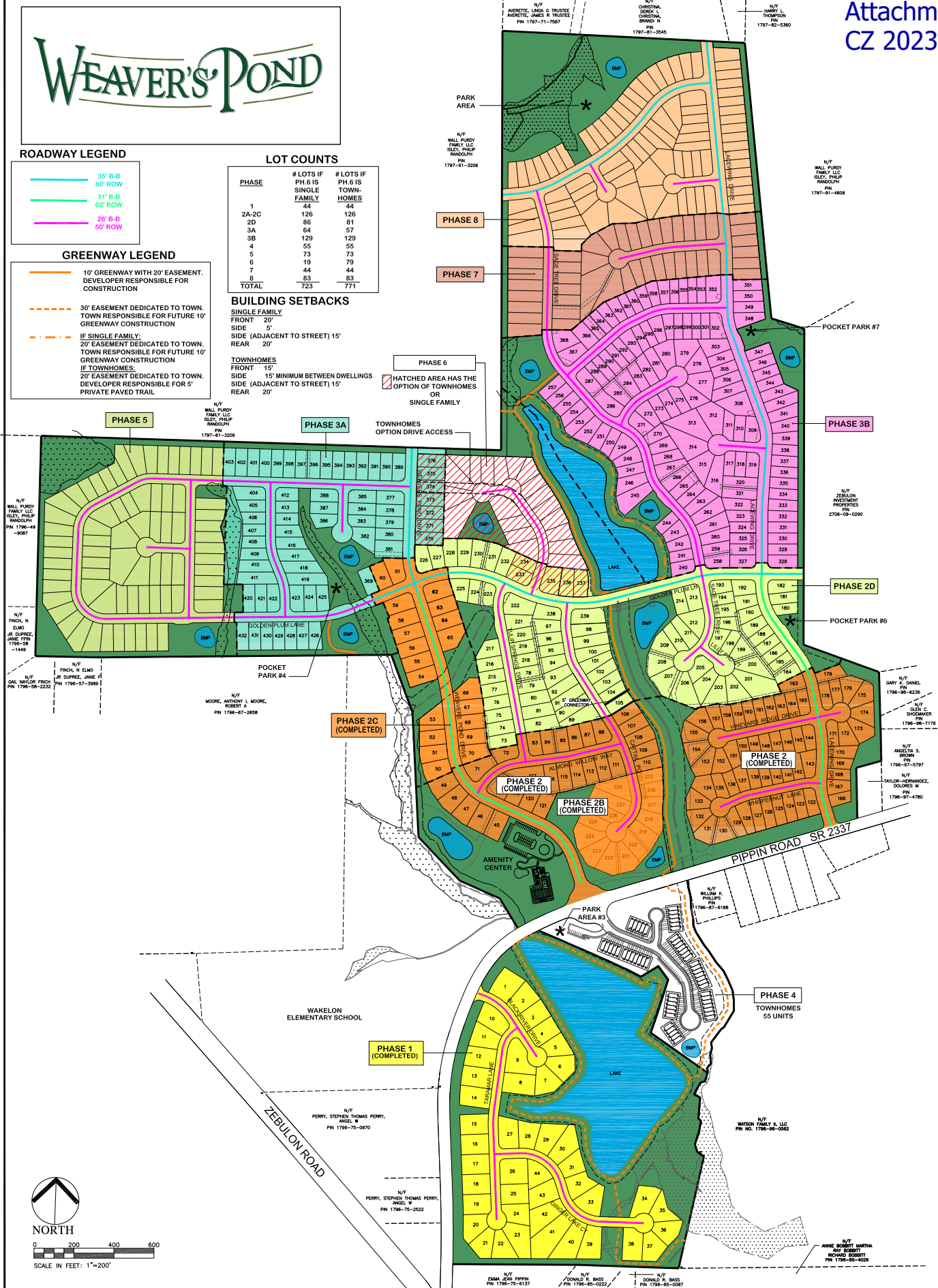
LOT COUNTS

PHASE	# LOTS IF PHASE IS SINGLE FAMILY	# LOTS IF PHASE IS TOWN-HOMES
1	44	44
2A-2C	126	126
2D	86	81
3A	64	57
3B	129	129
4	55	55
5	73	73
6	19	79
7	44	44
8	83	83
TOTAL	723	771

BUILDING SETBACKS

SINGLE FAMILY	TOWNHOMES
FRONT 20'	FRONT 15'
SIDE 5'	SIDE (ADJACENT TO STREET) 15'
REAR 20'	REAR 20'

HATCHED AREA HAS THE OPTION OF TOWNHOMES OR SINGLE FAMILY

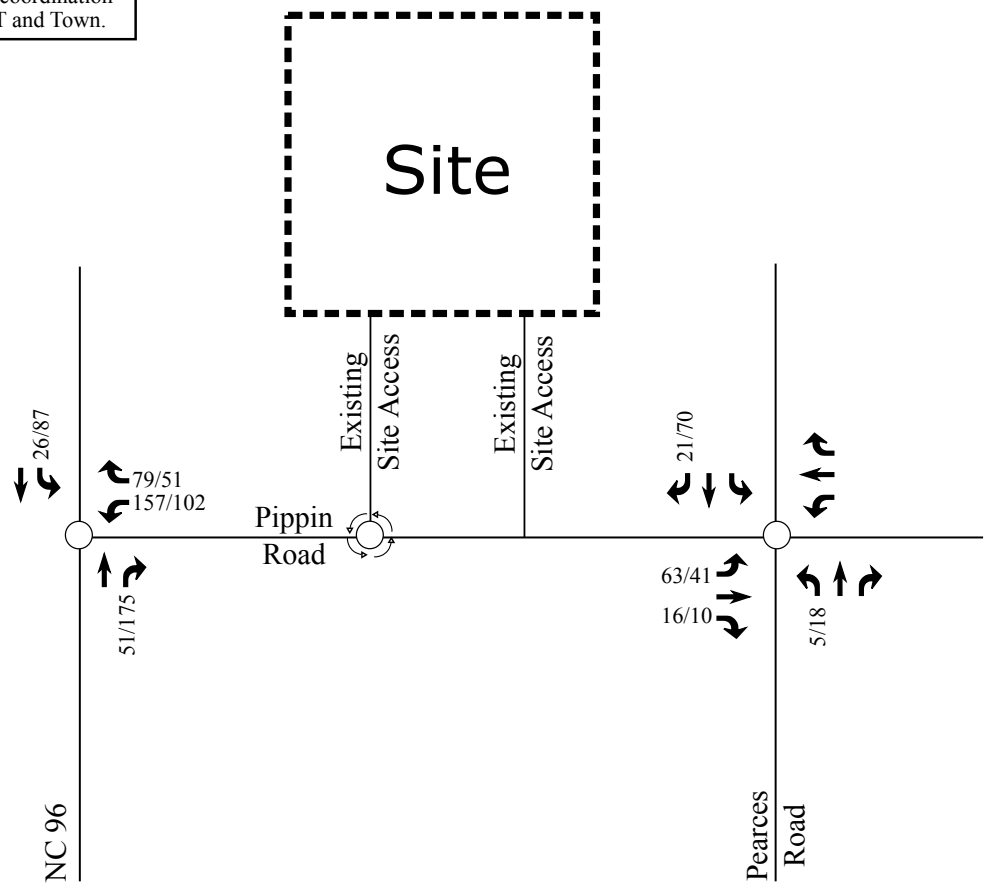





LEGEND

- Unsignalized Intersection
- X/Y → AM / PM Peak Hour Site Trips
- ⊙ Roundabout

* The existing site drives were not included in the study area for this TIA through coordination with the NCDOT and Town.




	Weaver's Pond Development Zebulon, NC	Primary Site Trip Assignment - Option 1	
		Scale: Not to Scale	Figure 9A

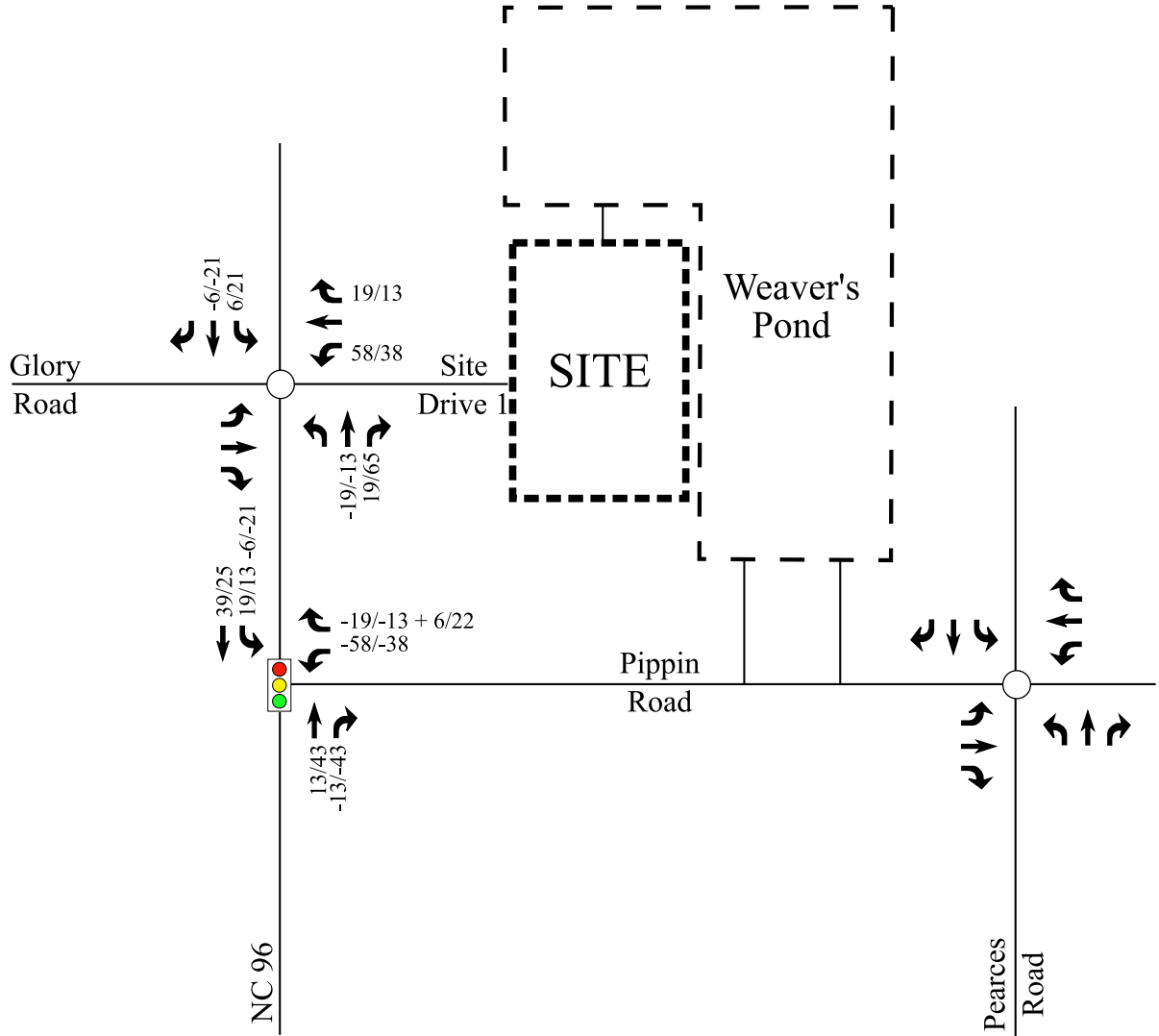


LEGEND

○ Unsignalized Intersection

 Signalized Intersection

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



Weaver's Ridge
Zebulon, NC

Rerouted Weaver's Pond
Phases 3A and 5 Site Traffic

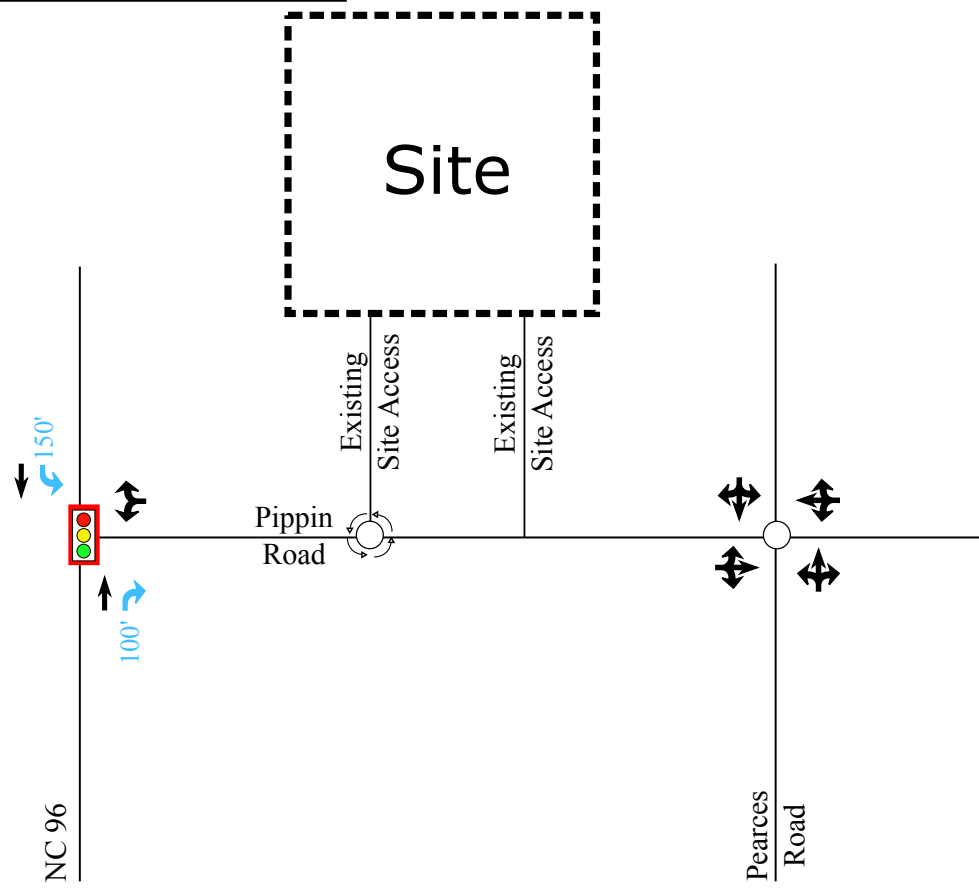
Scale: Not to Scale


Figure 10



LEGEND

- Unsignalized Intersection
- ➔ Existing Lane
- ⦿ Roundabout
- Recommended Signal Installation by Developer
- ➔ Improvements That Will Reduce Traffic Queues



	Weaver's Pond Development Zebulon, NC	Recommended Lane Configuration	
		Scale: Not to Scale	Figure 11

Traffic Impact Analysis Taryn Lake & Taryn Creek Zebulon, NC

Prepared for:
DR Horton Inc.
2000 Aerial Center Parkway
Suite 110
Morrisville, NC 27560

Prepared by:
Accelerate Engineering, PLLC
July 3, 2017



Accelerate Engineering, PLLC
License No. P-1442



Proposed Site Entrance
Full-Movement T-Intersection
1,400' +/- North of Proctor Street
500' +/- South of Bobbfield Way

Proposed Connector
to the Existing Taryn Meadows Subdivision

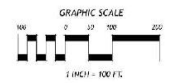
Figure 2
Site Plan

DRAFT
DO NOT RELY ON THIS DOCUMENT



Taryn Lake and Taryn Creek
Overall Development

ESP Job # DK42 June 6, 2017





**Not to Scale



Legend	
—	Existing Roadway
- -	Proposed Roadway
	Signalized Intersection
	Unsignalized Intersection
XX	AM Peak Hour Traffic Volume
(XX)	PM Peak Hour Traffic Volume

Table 1: Trip Generation Summary

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

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 should be noted that based on the layout of the site and the surrounding roadways it was determined that 100% of the new site trips will exit the site using the full movement site driveway to be located along Zebulon Road (NC 96) as the majority (75%) of the Weaver’s Pond development was assigned to Zebulon Road (NC 96).

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

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 (2023) Traffic Conditions
- Combined (2023) Traffic Conditions
- Combined (2023) 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.

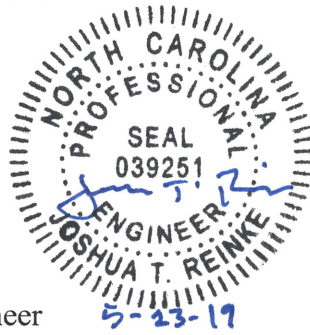
Recommended Improvements by Developer

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.

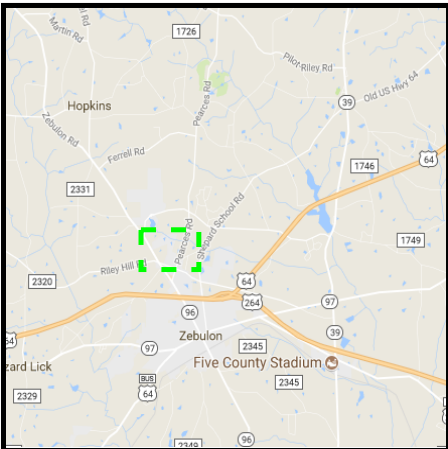
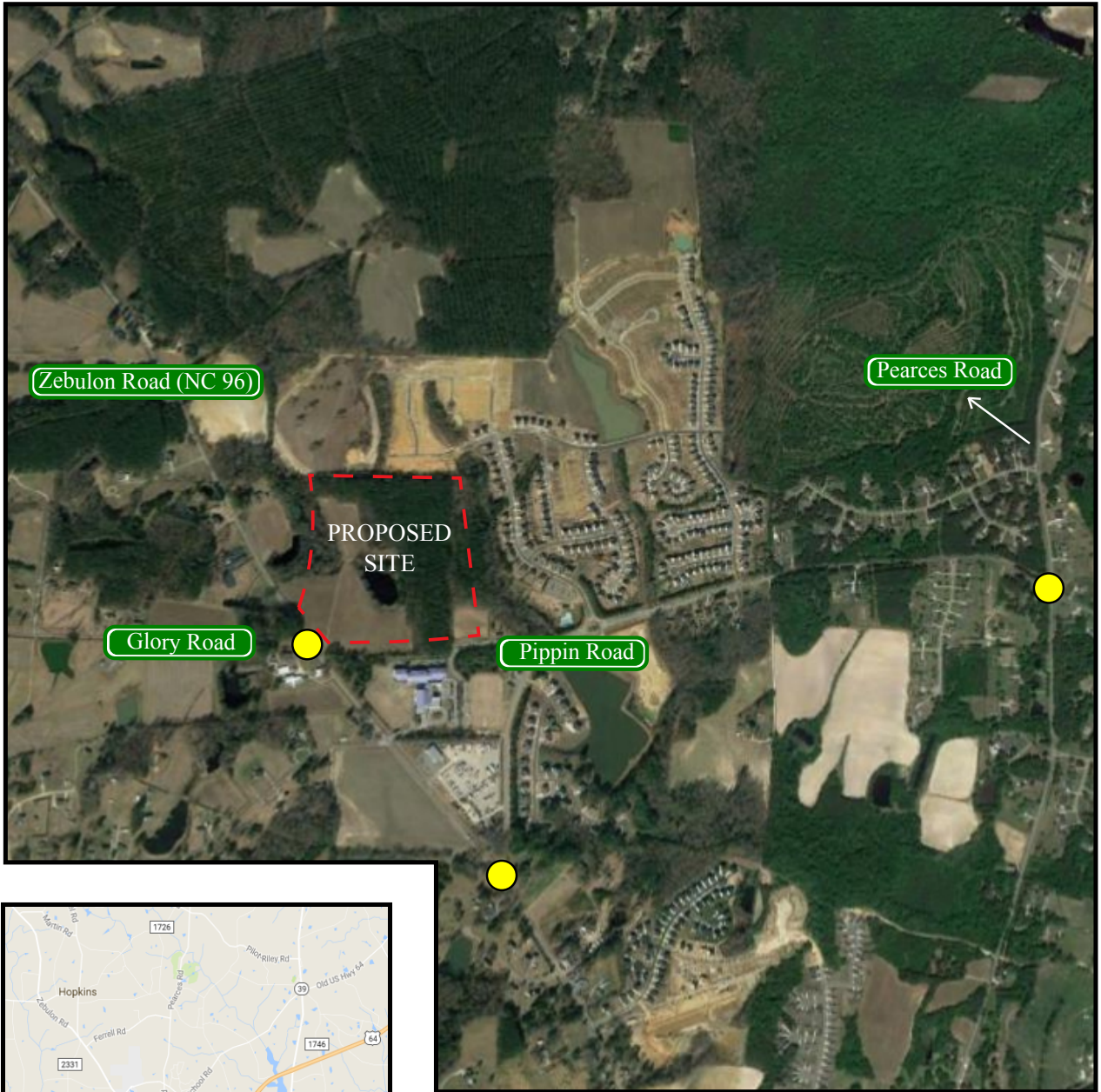
Sincerely,



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

NC Corporate License # C-0910

Attachments: Appendix



- LEGEND**
- - - Proposed Site Location
 - Study Intersection
 - - - Study Area

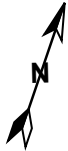


Weaver's Ridge
Zebulon, NC

Site Location Map

Scale: Not to Scale

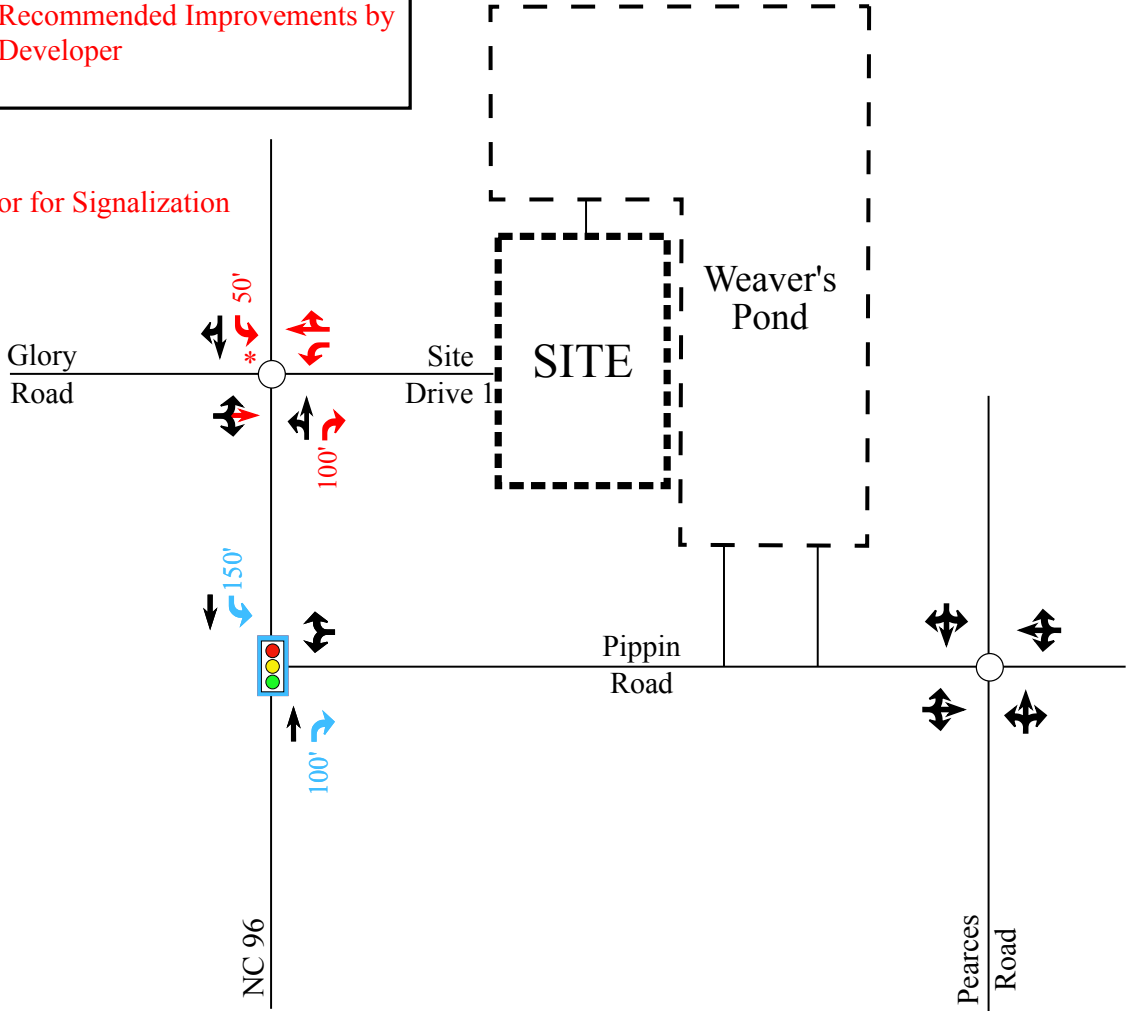
Figure 1




LEGEND

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

* Monitor for Signalization



	<p>Weaver's Ridge Zebulon, NC</p>	<p>Recommended Lane Configuration</p>	
			<p>Scale: Not to Scale</p>

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings

1: Zebulon Road (NC 96) & Pippin Road

07/28/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	180	90	362	135	54	570
Future Volume (vph)	180	90	362	135	54	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	150	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.955			0.850		
Flt Protected	0.968				0.950	
Satd. Flow (prot)	1722	0	1863	1583	1770	1863
Flt Permitted	0.968				0.950	
Satd. Flow (perm)	1722	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1250		1120			2533
Travel Time (s)	24.4		17.0			38.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	200	100	402	150	60	633
Shared Lane Traffic (%)						
Lane Group Flow (vph)	300	0	402	150	60	633
Turn Type	Prot		NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases				2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	14.0	19.0
Total Split (s)	45.0		59.0	45.0	16.0	75.0
Total Split (%)	37.5%		49.2%	37.5%	13.3%	62.5%
Maximum Green (s)	38.0		52.0	38.0	9.0	68.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		Min	Min	None	Min
Act Effct Green (s)	20.0		25.9	54.2	10.6	33.8
Actuated g/C Ratio	0.31		0.40	0.84	0.16	0.52
v/c Ratio	0.56		0.54	0.11	0.21	0.65
Control Delay	25.9		21.1	2.9	32.2	14.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	25.9		21.1	2.9	32.2	14.9
LOS	C		C	A	C	B
Approach Delay	25.9		16.1			16.4
Approach LOS	C		B			B

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings

1: Zebulon Road (NC 96) & Pippin Road

07/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	106		137	16	22	157
Queue Length 95th (ft)	218		267	31	69	328
Internal Link Dist (ft)	1170		1040			2453
Turn Bay Length (ft)				100	150	
Base Capacity (vph)	1156		1533	1530	327	1752
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.26		0.26	0.10	0.18	0.36

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	64.6
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	18.1
Intersection LOS:	B
Intersection Capacity Utilization	53.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 1: Zebulon Road (NC 96) & Pippin Road

Ø1 16 s	Ø2 59 s	Ø4 45 s
Ø6 75 s		

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings 1: Zebulon Road (NC 96) & Pippin Road

07/28/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	95	444	139	94	706
Future Volume (vph)	148	95	444	139	94	706
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	150	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.947			0.850		
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1713	0	1863	1583	1770	1863
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1713	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1250		1120			2533
Travel Time (s)	24.4		17.0			38.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	164	106	493	154	104	784
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	0	493	154	104	784
Turn Type	Prot		NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases				2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	14.0	19.0
Total Split (s)	39.0		61.0	39.0	20.0	81.0
Total Split (%)	32.5%		50.8%	32.5%	16.7%	67.5%
Maximum Green (s)	32.0		54.0	32.0	13.0	74.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		Min	Min	None	Min
Act Effct Green (s)	20.5		31.2	58.9	12.6	44.5
Actuated g/C Ratio	0.27		0.41	0.78	0.17	0.59
v/c Ratio	0.58		0.64	0.13	0.36	0.72
Control Delay	32.6		24.9	3.8	38.0	15.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	32.6		24.9	3.8	38.0	15.8
LOS	C		C	A	D	B
Approach Delay	32.6		19.9			18.4
Approach LOS	C		B			B

Lanes, Volumes, Timings
1: Zebulon Road (NC 96) & Pippin Road

07/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	111		191	19	44	224
Queue Length 95th (ft)	238		365	38	119	463
Internal Link Dist (ft)	1170		1040			2453
Turn Bay Length (ft)				100	150	
Base Capacity (vph)	832		1404	1420	379	1707
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.32		0.35	0.11	0.27	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	75.9
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	21.0
Intersection LOS:	C
Intersection Capacity Utilization	59.5%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1: Zebulon Road (NC 96) & Pippin Road

Ø1	Ø2	Ø4
20 s	61 s	39 s
Ø6		
81 s		

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings 1: Zebulon Road (NC 96) & Pippin Road

07/28/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	170	95	446	147	94	712
Future Volume (vph)	170	95	446	147	94	712
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	150	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.951			0.850		
Flt Protected	0.969				0.950	
Satd. Flow (prot)	1717	0	1863	1583	1770	1863
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1717	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1250		1120			2533
Travel Time (s)	24.4		17.0			38.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	189	106	496	163	104	791
Shared Lane Traffic (%)						
Lane Group Flow (vph)	295	0	496	163	104	791
Turn Type	Prot		NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases				2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	14.0	19.0
Total Split (s)	40.0		61.0	40.0	19.0	80.0
Total Split (%)	33.3%		50.8%	33.3%	15.8%	66.7%
Maximum Green (s)	33.0		54.0	33.0	12.0	73.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		Min	Min	None	Min
Act Effct Green (s)	21.9		32.2	61.2	12.4	45.3
Actuated g/C Ratio	0.28		0.41	0.78	0.16	0.58
v/c Ratio	0.61		0.65	0.13	0.37	0.73
Control Delay	33.2		25.5	3.6	40.2	17.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	33.2		25.5	3.6	40.2	17.0
LOS	C		C	A	D	B
Approach Delay	33.2		20.0			19.7
Approach LOS	C		C			B

Lanes, Volumes, Timings
1: Zebulon Road (NC 96) & Pippin Road

07/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	125		199	21	45	240
Queue Length 95th (ft)	264		377	38	125	503
Internal Link Dist (ft)	1170		1040			2453
Turn Bay Length (ft)				100	150	
Base Capacity (vph)	835		1376	1419	344	1671
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.35		0.36	0.11	0.30	0.47

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	78.1
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	22.0
Intersection LOS:	C
Intersection Capacity Utilization	61.0%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1: Zebulon Road (NC 96) & Pippin Road

Ø1	Ø2	Ø4
19 s	61 s	40 s
Ø6		
80 s		

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings 1: Zebulon Road (NC 96) & Pippin Road

07/28/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	140	78	539	237	112	495
Future Volume (vph)	140	78	539	237	112	495
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	150	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.952			0.850		
Flt Protected	0.969				0.950	
Satd. Flow (prot)	1718	0	1863	1583	1770	1863
Flt Permitted	0.969				0.950	
Satd. Flow (perm)	1718	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1250		1120			2533
Travel Time (s)	24.4		17.0			38.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	156	87	599	263	124	550
Shared Lane Traffic (%)						
Lane Group Flow (vph)	243	0	599	263	124	550
Turn Type	Prot		NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases				2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	14.0	19.0
Total Split (s)	34.0		65.0	34.0	21.0	86.0
Total Split (%)	28.3%		54.2%	28.3%	17.5%	71.7%
Maximum Green (s)	27.0		58.0	27.0	14.0	79.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		Min	Min	None	Min
Act Effct Green (s)	19.8		36.0	61.1	13.3	54.6
Actuated g/C Ratio	0.23		0.42	0.72	0.16	0.64
v/c Ratio	0.61		0.76	0.23	0.45	0.46
Control Delay	38.8		28.5	4.4	43.3	9.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	38.8		28.5	4.4	43.3	9.4
LOS	D		C	A	D	A
Approach Delay	38.8		21.1			15.7
Approach LOS	D		C			B

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings 1: Zebulon Road (NC 96) & Pippin Road

07/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	115		259	39	60	129
Queue Length 95th (ft)	242		463	67	148	250
Internal Link Dist (ft)	1170		1040			2453
Turn Bay Length (ft)				100	150	
Base Capacity (vph)	621		1376	1137	353	1673
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.39		0.44	0.23	0.35	0.33

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	85.1
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	21.5
Intersection LOS:	C
Intersection Capacity Utilization	59.6%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1: Zebulon Road (NC 96) & Pippin Road

↑ Ø2	↘ Ø1	↙ Ø4
65 s	21 s	34 s
↓ Ø6		
86 s		

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings 1: Zebulon Road (NC 96) & Pippin Road

07/28/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	124	118	688	226	130	613
Future Volume (vph)	124	118	688	226	130	613
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	150	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.934			0.850		
Flt Protected	0.975				0.950	
Satd. Flow (prot)	1696	0	1863	1583	1770	1863
Flt Permitted	0.975				0.950	
Satd. Flow (perm)	1696	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1250		1120			2533
Travel Time (s)	24.4		17.0			38.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	138	131	764	251	144	681
Shared Lane Traffic (%)						
Lane Group Flow (vph)	269	0	764	251	144	681
Turn Type	Prot		NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases				2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	14.0	19.0
Total Split (s)	32.0		68.0	32.0	20.0	88.0
Total Split (%)	26.7%		56.7%	26.7%	16.7%	73.3%
Maximum Green (s)	25.0		61.0	25.0	13.0	81.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		Min	Min	None	Min
Act Effct Green (s)	22.1		48.5	75.8	13.8	67.6
Actuated g/C Ratio	0.22		0.48	0.76	0.14	0.68
v/c Ratio	0.72		0.85	0.21	0.59	0.54
Control Delay	50.4		32.9	3.8	55.6	10.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	50.4		32.9	3.8	55.6	10.4
LOS	D		C	A	E	B
Approach Delay	50.4		25.7			18.3
Approach LOS	D		C			B

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings 1: Zebulon Road (NC 96) & Pippin Road

07/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	168		431	40	92	208
Queue Length 95th (ft)	291		633	61	#188	318
Internal Link Dist (ft)	1170		1040			2453
Turn Bay Length (ft)				100	150	
Base Capacity (vph)	477		1223	1193	276	1536
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.56		0.62	0.21	0.52	0.44

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	100.1
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	26.0
Intersection LOS:	C
Intersection Capacity Utilization	70.0%
ICU Level of Service	C
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Zebulon Road (NC 96) & Pippin Road



Attachment 1 CZ 2023-02

Lanes, Volumes, Timings 1: Zebulon Road (NC 96) & Pippin Road

07/28/2022

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	138	118	695	252	130	617
Future Volume (vph)	138	118	695	252	130	617
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	150	
Storage Lanes	1	0		1	1	
Taper Length (ft)	25				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.938			0.850		
Flt Protected	0.974				0.950	
Satd. Flow (prot)	1702	0	1863	1583	1770	1863
Flt Permitted	0.974				0.950	
Satd. Flow (perm)	1702	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	1250		1120			2533
Travel Time (s)	24.4		17.0			38.4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	153	131	772	280	144	686
Shared Lane Traffic (%)						
Lane Group Flow (vph)	284	0	772	280	144	686
Turn Type	Prot		NA	pm+ov	Prot	NA
Protected Phases	4		2	4	1	6
Permitted Phases				2		
Detector Phase	4		2	4	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	14.0	19.0
Total Split (s)	32.0		68.0	32.0	20.0	88.0
Total Split (%)	26.7%		56.7%	26.7%	16.7%	73.3%
Maximum Green (s)	25.0		61.0	25.0	13.0	81.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Min		Min	Min	None	Min
Act Effct Green (s)	22.9		49.5	77.6	13.8	68.5
Actuated g/C Ratio	0.22		0.49	0.76	0.14	0.67
v/c Ratio	0.74		0.85	0.23	0.60	0.55
Control Delay	52.0		33.7	3.9	56.9	10.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	52.0		33.7	3.9	56.9	10.7
LOS	D		C	A	E	B
Approach Delay	52.0		25.7			18.7
Approach LOS	D		C			B

Lanes, Volumes, Timings
1: Zebulon Road (NC 96) & Pippin Road

07/28/2022



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	182		453	45	95	222
Queue Length 95th (ft)	#323		644	68	#188	323
Internal Link Dist (ft)	1170		1040			2453
Turn Bay Length (ft)				100	150	
Base Capacity (vph)	468		1198	1196	270	1514
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.61		0.64	0.23	0.53	0.45

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	101.8
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	26.5
Intersection LOS:	C
Intersection Capacity Utilization	71.2%
ICU Level of Service	C
Analysis Period (min)	15
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 1: Zebulon Road (NC 96) & Pippin Road



HCM 6th TWSC
2: Zebulon Road (NC 96) & Glory Road

07/28/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	5	4	450	619	4
Future Vol, veh/h	4	5	4	450	619	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	6	4	500	688	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1198	690	692	0	-	0
Stage 1	690	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	205	445	903	-	-	-
Stage 1	498	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	204	445	903	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	604	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	903	-	292	-	-
HCM Lane V/C Ratio	0.005	-	0.034	-	-
HCM Control Delay (s)	9	0	17.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Attachment 1 CZ 2023-02

HCM 6th TWSC

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive

07/28/2022

Intersection												
Int Delay, s/veh	15.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕	↕	↕	
Traffic Vol, veh/h	4	4	6	118	4	39	4	500	38	12	679	4
Future Vol, veh/h	4	4	6	118	4	39	4	500	38	12	679	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	100	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	7	131	4	43	4	556	42	13	754	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1391	1388	756	1352	1348	556	758	0	0	598	0	0
Stage 1	782	782	-	564	564	-	-	-	-	-	-	-
Stage 2	609	606	-	788	784	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	120	143	408	~ 127	151	531	853	-	-	979	-	-
Stage 1	387	405	-	510	508	-	-	-	-	-	-	-
Stage 2	482	487	-	384	404	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	106	140	408	~ 120	148	531	853	-	-	979	-	-
Mov Cap-2 Maneuver	106	140	-	~ 120	148	-	-	-	-	-	-	-
Stage 1	384	400	-	506	504	-	-	-	-	-	-	-
Stage 2	436	484	-	369	399	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.9	135.1	0.1	0.2
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	853	-	-	173	120	428	979	-	-
HCM Lane V/C Ratio	0.005	-	-	0.09	1.093	0.112	0.014	-	-
HCM Control Delay (s)	9.2	0	-	27.9	179.1	14.5	8.7	-	-
HCM Lane LOS	A	A	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	7.7	0.4	0	-	-

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

Attachment 1 CZ 2023-02

HCM 6th TWSC

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive

07/28/2022

Intersection												
Int Delay, s/veh	18.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↘			↖	↗	↘	↖	↘
Traffic Vol, veh/h	4	4	6	124	4	54	4	500	40	17	679	4
Future Vol, veh/h	4	4	6	124	4	54	4	500	40	17	679	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	100	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	7	138	4	60	4	556	44	19	754	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1412	1402	756	1364	1360	556	758	0	0	600	0	0
Stage 1	794	794	-	564	564	-	-	-	-	-	-	-
Stage 2	618	608	-	800	796	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	116	140	408	~ 125	148	531	853	-	-	977	-	-
Stage 1	381	400	-	510	508	-	-	-	-	-	-	-
Stage 2	477	486	-	379	399	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	98	136	408	~ 118	144	531	853	-	-	977	-	-
Mov Cap-2 Maneuver	98	136	-	~ 118	144	-	-	-	-	-	-	-
Stage 1	378	392	-	506	504	-	-	-	-	-	-	-
Stage 2	416	483	-	361	391	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.1	144.5	0.1	0.2
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	853	-	-	165	118	448	977	-	-
HCM Lane V/C Ratio	0.005	-	-	0.094	1.168	0.144	0.019	-	-
HCM Control Delay (s)	9.2	0	-	29.1	205.3	14.4	8.8	-	-
HCM Lane LOS	A	A	-	D	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	8.5	0.5	0.1	-	-

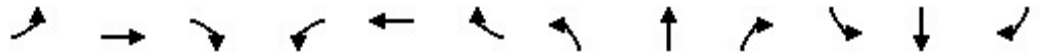
Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive

07/28/2022

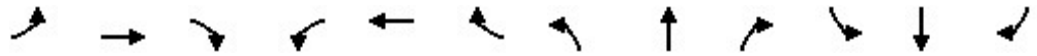


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↖	↗	↖	↗	
Traffic Volume (vph)	4	4	6	124	4	54	4	500	40	17	679	4
Future Volume (vph)	4	4	6	124	4	54	4	500	40	17	679	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	50		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.937			0.859				0.850		0.999	
Flt Protected		0.987		0.950						0.950		
Satd. Flow (prot)	0	1723	0	1770	1600	0	0	1863	1583	1770	1861	0
Flt Permitted		0.987		0.950				0.996		0.950		
Satd. Flow (perm)	0	1723	0	1770	1600	0	0	1855	1583	1770	1861	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			30			45			45	
Link Distance (ft)		1719			1308			2533			1115	
Travel Time (s)		21.3			29.7			38.4			16.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	4	7	138	4	60	4	556	44	19	754	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	138	64	0	0	560	44	19	758	0
Turn Type	Split	NA		Split	NA		Perm	NA	pm+ov	Prot	NA	
Protected Phases	4	4		8	8			2	8	1	6	
Permitted Phases							2		2			
Detector Phase	4	4		8	8		2	2	8	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	14.0		23.0	23.0		69.0	69.0	23.0	14.0	83.0	
Total Split (%)	11.7%	11.7%		19.2%	19.2%		57.5%	57.5%	19.2%	11.7%	69.2%	
Maximum Green (s)	7.0	7.0		16.0	16.0		62.0	62.0	16.0	7.0	76.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		5.0	5.0			5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lead		Lag		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min	None	None	C-Min	
Act Effct Green (s)		9.3		16.6	16.6			81.5	106.0	9.5	87.5	
Actuated g/C Ratio		0.08		0.14	0.14			0.68	0.88	0.08	0.73	
v/c Ratio		0.11		0.57	0.29			0.44	0.03	0.14	0.56	
Control Delay		53.3		56.8	48.4			11.0	0.4	53.5	11.6	
Queue Delay		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay		53.3		56.8	48.4			11.0	0.4	53.5	11.6	
LOS		D		E	D			B	A	D	B	
Approach Delay		53.3			54.2			10.2			12.6	
Approach LOS		D			D			B			B	

Lanes, Volumes, Timings

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive

07/28/2022

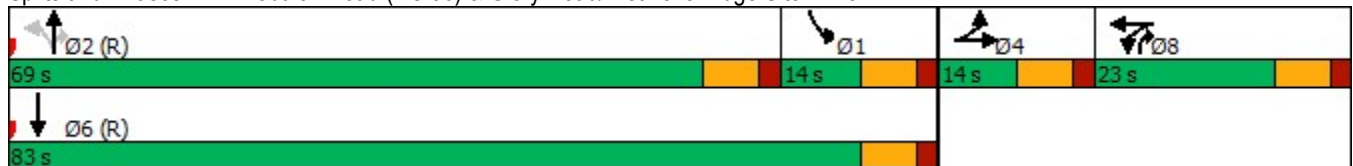


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		11		101	45			3	0	14	183	
Queue Length 95th (ft)		33		161	84			494	m1	38	504	
Internal Link Dist (ft)		1639			1228			2453			1035	
Turn Bay Length (ft)									100	50		
Base Capacity (vph)		133		279	252			1285	1385	139	1376	
Starvation Cap Reductn		0		0	0			0	0	0	0	
Spillback Cap Reductn		0		0	0			0	0	0	0	
Storage Cap Reductn		0		0	0			0	0	0	0	
Reduced v/c Ratio		0.11		0.49	0.25			0.44	0.03	0.14	0.55	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	17.4
Intersection LOS:	B
Intersection Capacity Utilization:	60.1%
ICU Level of Service:	B
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive



HCM 6th TWSC
2: Zebulon Road (NC 96) & Glory Road

07/28/2022

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	4	4	13	604	604	4
Future Vol, veh/h	4	4	13	604	604	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	4	14	671	671	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1372	673	675	0	-	0
Stage 1	673	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	161	455	916	-	-	-
Stage 1	507	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	455	916	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.1	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	916	-	233	-	-
HCM Lane V/C Ratio	0.016	-	0.038	-	-
HCM Control Delay (s)	9	0	21.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive

07/28/2022

Intersection												
Int Delay, s/veh	12.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔	↔	↔	↔	
Traffic Vol, veh/h	4	4	4	75	4	25	14	665	127	42	669	4
Future Vol, veh/h	4	4	4	75	4	25	14	665	127	42	669	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	100	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	4	83	4	28	16	739	141	47	743	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1697	1751	745	1614	1612	739	747	0	0	880	0	0
Stage 1	839	839	-	771	771	-	-	-	-	-	-	-
Stage 2	858	912	-	843	841	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	73	86	414	84	104	417	861	-	-	768	-	-
Stage 1	360	381	-	393	410	-	-	-	-	-	-	-
Stage 2	352	353	-	358	380	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	61	78	414	~ 74	94	417	861	-	-	768	-	-
Mov Cap-2 Maneuver	61	78	-	~ 74	94	-	-	-	-	-	-	-
Stage 1	346	358	-	378	394	-	-	-	-	-	-	-
Stage 2	313	340	-	328	357	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	49		179.6		0.2		0.6	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	861	-	-	95	74	283	768	-	-
HCM Lane V/C Ratio	0.018	-	-	0.14	1.126	0.114	0.061	-	-
HCM Control Delay (s)	9.3	0	-	49	241.6	19.3	10	-	-
HCM Lane LOS	A	A	-	E	F	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	6.2	0.4	0.2	-	-

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

HCM 6th TWSC

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Stie Drive

07/28/2022

Intersection												
Int Delay, s/veh	15.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔	↔	↔	↔	
Traffic Vol, veh/h	4	4	4	79	4	35	14	665	134	59	669	4
Future Vol, veh/h	4	4	4	79	4	35	14	665	134	59	669	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	-	-	100	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	4	4	88	4	39	16	739	149	66	743	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1744	1797	745	1652	1650	739	747	0	0	888	0	0
Stage 1	877	877	-	771	771	-	-	-	-	-	-	-
Stage 2	867	920	-	881	879	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	68	80	414	~ 79	99	417	861	-	-	763	-	-
Stage 1	343	366	-	393	410	-	-	-	-	-	-	-
Stage 2	348	350	-	341	365	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	54	70	414	~ 68	87	417	861	-	-	763	-	-
Mov Cap-2 Maneuver	54	70	-	~ 68	87	-	-	-	-	-	-	-
Stage 1	330	334	-	378	394	-	-	-	-	-	-	-
Stage 2	300	337	-	304	333	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	55.1		214.2		0.2		0.8	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	861	-	-	85	68	300	763	-	-
HCM Lane V/C Ratio	0.018	-	-	0.157	1.291	0.144	0.086	-	-
HCM Control Delay (s)	9.3	0	-	55.1	310.6	19	10.2	-	-
HCM Lane LOS	A	A	-	F	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	7.1	0.5	0.3	-	-

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

Attachment 1 CZ 2023-02

Lanes, Volumes, Timings

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive

07/28/2022

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔	↔	↔	↔	
Traffic Volume (vph)	4	4	4	79	4	35	14	665	134	59	669	4
Future Volume (vph)	4	4	4	79	4	35	14	665	134	59	669	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		100	50		0
Storage Lanes	0		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955			0.864				0.850		0.999	
Flt Protected		0.984		0.950				0.999		0.950		
Satd. Flow (prot)	0	1750	0	1770	1609	0	0	1861	1583	1770	1861	0
Flt Permitted		0.984		0.950				0.979		0.950		
Satd. Flow (perm)	0	1750	0	1770	1609	0	0	1824	1583	1770	1861	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			30			45				45
Link Distance (ft)		1719			1404			2533				1320
Travel Time (s)		21.3			31.9			38.4				20.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	4	4	88	4	39	16	739	149	66	743	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	12	0	88	43	0	0	755	149	66	747	0
Turn Type	Split	NA		Split	NA		Perm	NA	pm+ov	Prot	NA	
Protected Phases	4	4		8	8			2	8	1	6	
Permitted Phases							2		2			
Detector Phase	4	4		8	8		2	2	8	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	7.0	7.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0	14.0	14.0	19.0	
Total Split (s)	14.0	14.0		23.0	23.0		69.0	69.0	23.0	14.0	83.0	
Total Split (%)	11.7%	11.7%		19.2%	19.2%		57.5%	57.5%	19.2%	11.7%	69.2%	
Maximum Green (s)	7.0	7.0		16.0	16.0		62.0	62.0	16.0	7.0	76.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		5.0	5.0			5.0	5.0	5.0	5.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min	None	None	C-Min	
Act Effct Green (s)		9.0		13.4	13.4			78.1	95.5	10.7	91.0	
Actuated g/C Ratio		0.08		0.11	0.11			0.65	0.80	0.09	0.76	
v/c Ratio		0.09		0.45	0.24			0.64	0.12	0.42	0.53	
Control Delay		53.5		56.2	50.5			6.2	1.0	60.3	9.3	
Queue Delay		0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay		53.5		56.2	50.5			6.2	1.0	60.3	9.3	
LOS		D		E	D			A	A	E	A	
Approach Delay		53.5			54.4			5.4			13.4	
Approach LOS		D			D			A			B	

Lanes, Volumes, Timings

2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive

07/28/2022

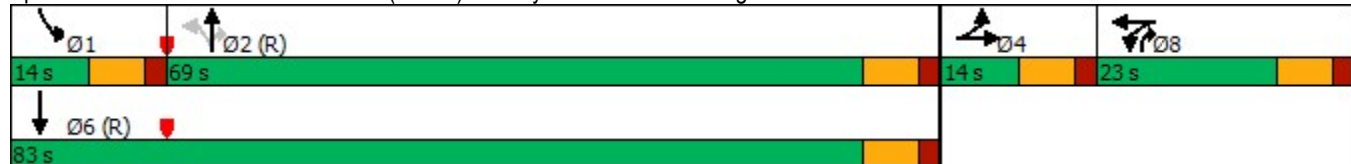


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		9		65	31			74	0	49	150	
Queue Length 95th (ft)		29		114	65			169	m13	98	431	
Internal Link Dist (ft)		1639			1324			2453			1240	
Turn Bay Length (ft)									100	50		
Base Capacity (vph)		131		265	241			1191	1297	157	1411	
Starvation Cap Reductn		0		0	0			0	0	0	0	
Spillback Cap Reductn		0		0	0			0	0	0	0	
Storage Cap Reductn		0		0	0			0	0	0	0	
Reduced v/c Ratio		0.09		0.33	0.18			0.63	0.11	0.42	0.53	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	12.7
Intersection LOS:	B
Intersection Capacity Utilization	68.3%
ICU Level of Service	C
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 2: Zebulon Road (NC 96) & Glory Road/Weaver's Ridge Site Drive



HCM 6th TWSC
3: Pearces Road & Pippin Road

07/28/2022

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	61	14	31	43	21	15	13	57	12	29	297	20
Future Vol, veh/h	61	14	31	43	21	15	13	57	12	29	297	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	300	2	2	2	2
Mvmt Flow	68	16	34	48	23	17	14	63	13	32	330	22

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	523	509	341	528	514	70	352	0	0	76	0	0
Stage 1	405	405	-	98	98	-	-	-	-	-	-	-
Stage 2	118	104	-	430	416	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	465	467	701	461	464	993	1207	-	-	1523	-	-
Stage 1	622	598	-	908	814	-	-	-	-	-	-	-
Stage 2	887	809	-	603	592	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	426	449	701	414	446	993	1207	-	-	1523	-	-
Mov Cap-2 Maneuver	426	449	-	414	446	-	-	-	-	-	-	-
Stage 1	615	582	-	897	804	-	-	-	-	-	-	-
Stage 2	837	799	-	544	577	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.8		14.3		1.3		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1207	-	-	485	476	1523	-	-
HCM Lane V/C Ratio	0.012	-	-	0.243	0.184	0.021	-	-
HCM Control Delay (s)	8	0	-	14.8	14.3	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.9	0.7	0.1	-	-

HCM 6th TWSC
3: Pearces Road & Pippin Road

07/28/2022

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	17	39	47	24	16	16	62	13	32	324	29
Future Vol, veh/h	85	17	39	47	24	16	16	62	13	32	324	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	94	19	43	52	27	18	18	69	14	36	360	32

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	583	567	376	591	576	76	392	0	0	83	0	0
Stage 1	448	448	-	112	112	-	-	-	-	-	-	-
Stage 2	135	119	-	479	464	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	424	433	670	419	428	985	1167	-	-	1514	-	-
Stage 1	590	573	-	893	803	-	-	-	-	-	-	-
Stage 2	868	797	-	568	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	382	413	670	365	408	985	1167	-	-	1514	-	-
Mov Cap-2 Maneuver	382	413	-	365	408	-	-	-	-	-	-	-
Stage 1	581	555	-	879	790	-	-	-	-	-	-	-
Stage 2	810	784	-	497	547	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	15.9	1.4	0.6
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1167	-	-	438	427	1514	-
HCM Lane V/C Ratio	0.015	-	-	0.358	0.226	0.023	-
HCM Control Delay (s)	8.1	0	-	17.7	15.9	7.4	0
HCM Lane LOS	A	A	-	C	C	A	A
HCM 95th %tile Q(veh)	0	-	-	1.6	0.9	0.1	-

HCM 6th TWSC
3: Pearces Road & Pippin Road

07/28/2022

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	97	17	42	47	24	16	17	62	13	32	324	33
Future Vol, veh/h	97	17	42	47	24	16	17	62	13	32	324	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	108	19	47	52	27	18	19	69	14	36	360	37

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	588	572	379	598	583	76	397	0	0	83	0	0
Stage 1	451	451	-	114	114	-	-	-	-	-	-	-
Stage 2	137	121	-	484	469	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	421	430	668	414	424	985	1162	-	-	1514	-	-
Stage 1	588	571	-	891	801	-	-	-	-	-	-	-
Stage 2	866	796	-	564	561	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	378	410	668	358	404	985	1162	-	-	1514	-	-
Mov Cap-2 Maneuver	378	410	-	358	404	-	-	-	-	-	-	-
Stage 1	578	553	-	876	787	-	-	-	-	-	-	-
Stage 2	808	782	-	491	544	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	18.8		16.1		1.5		0.6			
HCM LOS	C		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1162	-	-	432	420	1514	-
HCM Lane V/C Ratio	0.016	-	-	0.401	0.23	0.023	-
HCM Control Delay (s)	8.1	0	-	18.8	16.1	7.4	0
HCM Lane LOS	A	A	-	C	C	A	A
HCM 95th %tile Q(veh)	0.1	-	-	1.9	0.9	0.1	-

HCM 6th TWSC
3: Pearces Road & Pippin Road

07/28/2022

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	43	19	25	24	28	44	28	275	46	17	165	74
Future Vol, veh/h	43	19	25	24	28	44	28	275	46	17	165	74
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	21	28	27	31	49	31	306	51	19	183	82

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	696	681	224	681	697	332	265	0	0	357	0	0
Stage 1	262	262	-	394	394	-	-	-	-	-	-	-
Stage 2	434	419	-	287	303	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	356	373	815	364	365	710	1299	-	-	1202	-	-
Stage 1	743	691	-	631	605	-	-	-	-	-	-	-
Stage 2	600	590	-	720	664	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	298	355	815	323	347	710	1299	-	-	1202	-	-
Mov Cap-2 Maneuver	298	355	-	323	347	-	-	-	-	-	-	-
Stage 1	721	678	-	612	587	-	-	-	-	-	-	-
Stage 2	513	572	-	661	651	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	17.6		15.7		0.6		0.5	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1299	-	-	381	442	1202	-	-
HCM Lane V/C Ratio	0.024	-	-	0.254	0.241	0.016	-	-
HCM Control Delay (s)	7.8	0	-	17.6	15.7	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1	0.9	0	-	-

HCM 6th TWSC
3: Pearces Road & Pippin Road

07/28/2022

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	59	22	30	27	33	48	36	300	51	19	180	101
Future Vol, veh/h	59	22	30	27	33	48	36	300	51	19	180	101
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	66	24	33	30	37	53	40	333	57	21	200	112

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	785	768	256	769	796	362	312	0	0	390	0	0
Stage 1	298	298	-	442	442	-	-	-	-	-	-	-
Stage 2	487	470	-	327	354	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	310	332	783	318	320	683	1248	-	-	1169	-	-
Stage 1	711	667	-	594	576	-	-	-	-	-	-	-
Stage 2	562	560	-	686	630	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	247	311	783	273	300	683	1248	-	-	1169	-	-
Mov Cap-2 Maneuver	247	311	-	273	300	-	-	-	-	-	-	-
Stage 1	682	652	-	570	552	-	-	-	-	-	-	-
Stage 2	464	537	-	618	616	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.2		18.4		0.7		0.5	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1248	-	-	319	387	1169	-	-
HCM Lane V/C Ratio	0.032	-	-	0.387	0.31	0.018	-	-
HCM Control Delay (s)	8	0	-	23.2	18.4	8.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	1.3	0.1	-	-

HCM 6th TWSC
3: Pearces Road & Pippin Road

07/28/2022

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	67	22	32	27	33	48	39	300	51	19	180	114
Future Vol, veh/h	67	22	32	27	33	48	39	300	51	19	180	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	74	24	36	30	37	53	43	333	57	21	200	127

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	799	782	264	784	817	362	327	0	0	390	0	0
Stage 1	306	306	-	448	448	-	-	-	-	-	-	-
Stage 2	493	476	-	336	369	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	304	326	775	311	311	683	1233	-	-	1169	-	-
Stage 1	704	662	-	590	573	-	-	-	-	-	-	-
Stage 2	558	557	-	678	621	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	240	304	775	265	290	683	1233	-	-	1169	-	-
Mov Cap-2 Maneuver	240	304	-	265	290	-	-	-	-	-	-	-
Stage 1	672	647	-	563	547	-	-	-	-	-	-	-
Stage 2	458	532	-	609	607	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	25.4		18.9		0.8		0.5	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1233	-	-	308	378	1169	-	-
HCM Lane V/C Ratio	0.035	-	-	0.437	0.317	0.018	-	-
HCM Control Delay (s)	8	0	-	25.4	18.9	8.1	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.1	1.3	0.1	-	-

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Weaver's Pointe
Project/File #	22390
Scenario	2025 Build

Intersection Information			
Major Street (N/S Road)	NC 96 (Zebulon Road)	Minor Street (E/W Road)	Glory Road / Site Access
Analyzed with	1 approach lane	Analyzed with	2 or more approach lanes
Total Approach Volume	2779 vehicles	Total Approach Volume	303 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	100 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

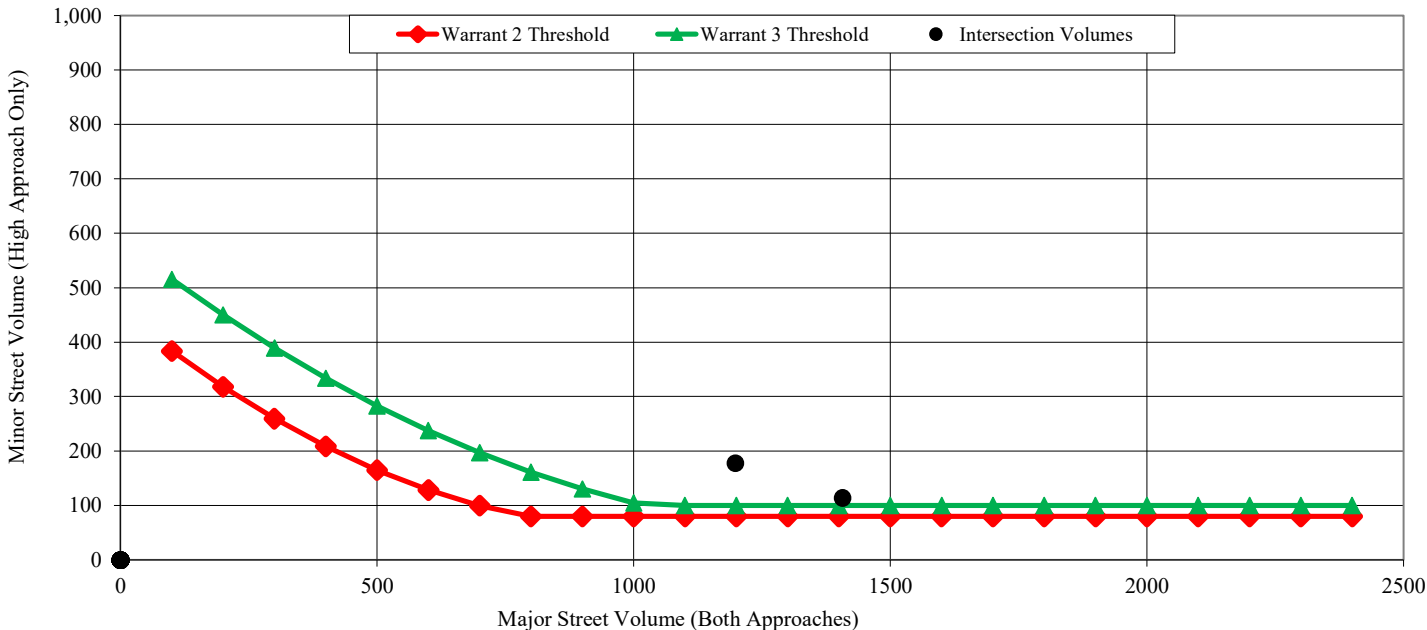
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	1 hour	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor Street (veh/hr)	140	70	112 (Cond. A) & 56 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

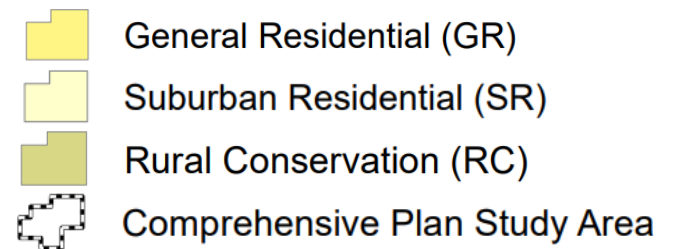
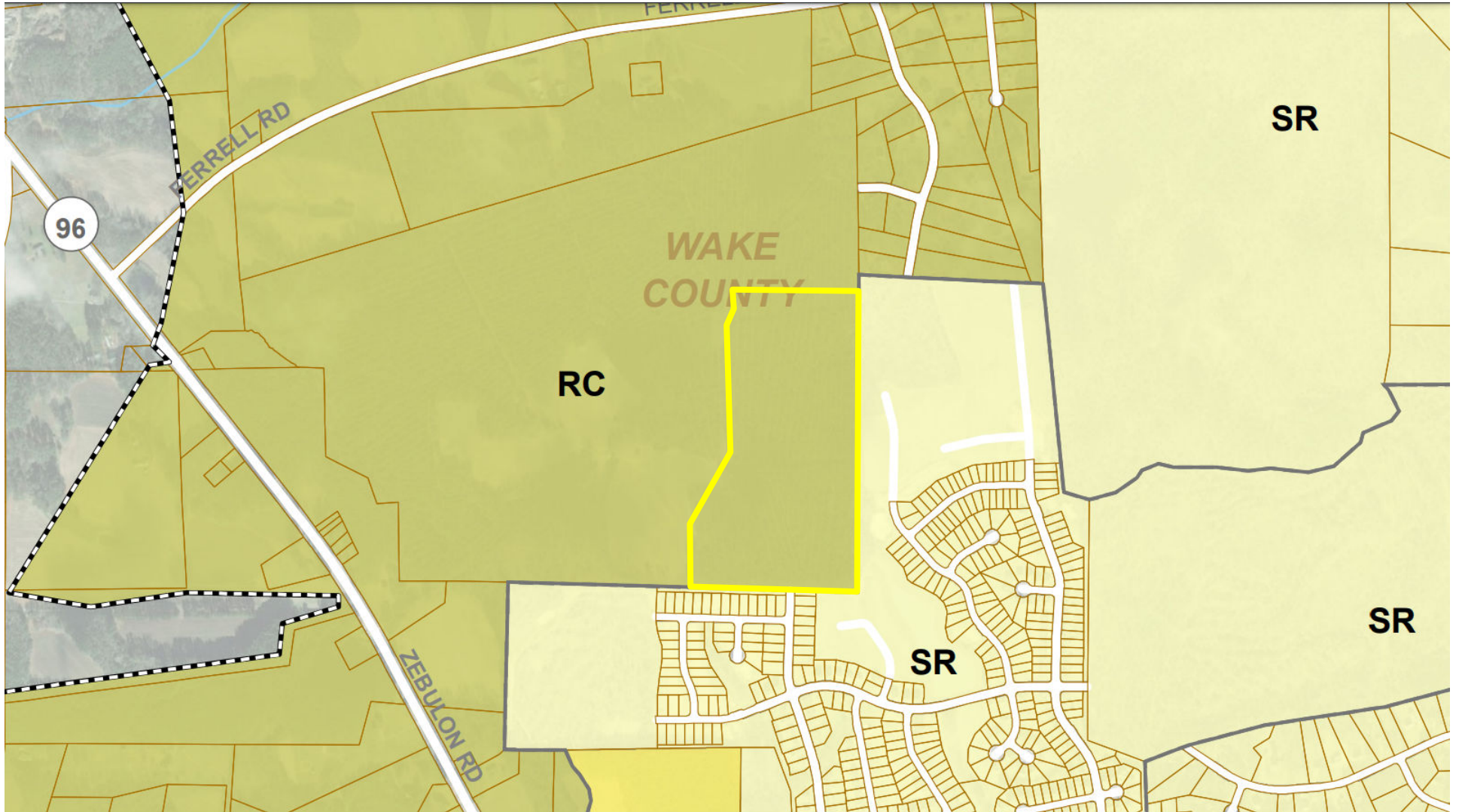
Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	1422 total, 178 minor, 0 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

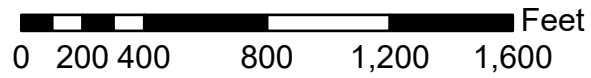
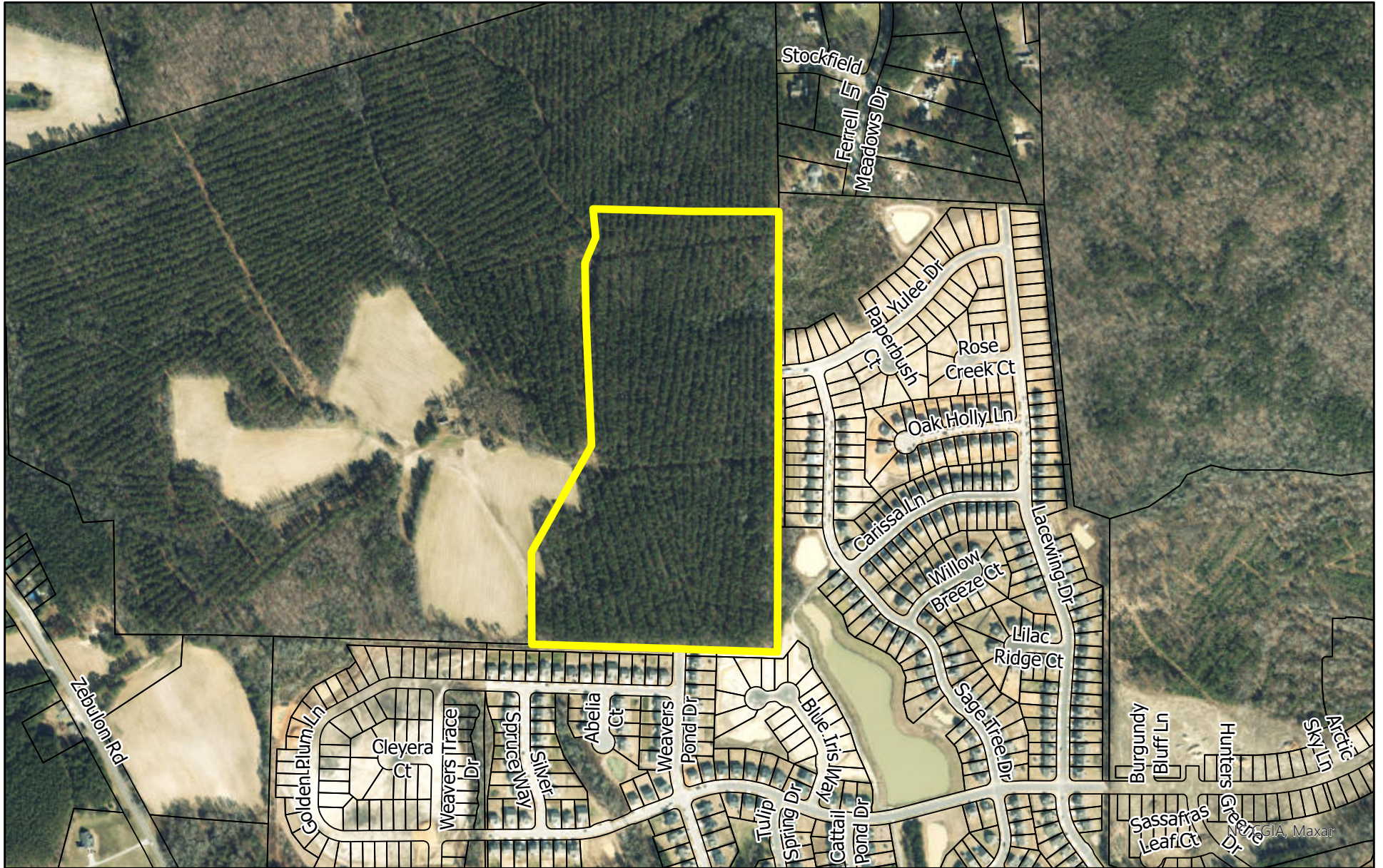
Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)





Attachment 2 - Future Land Use and Character Map

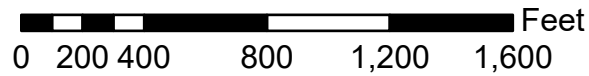
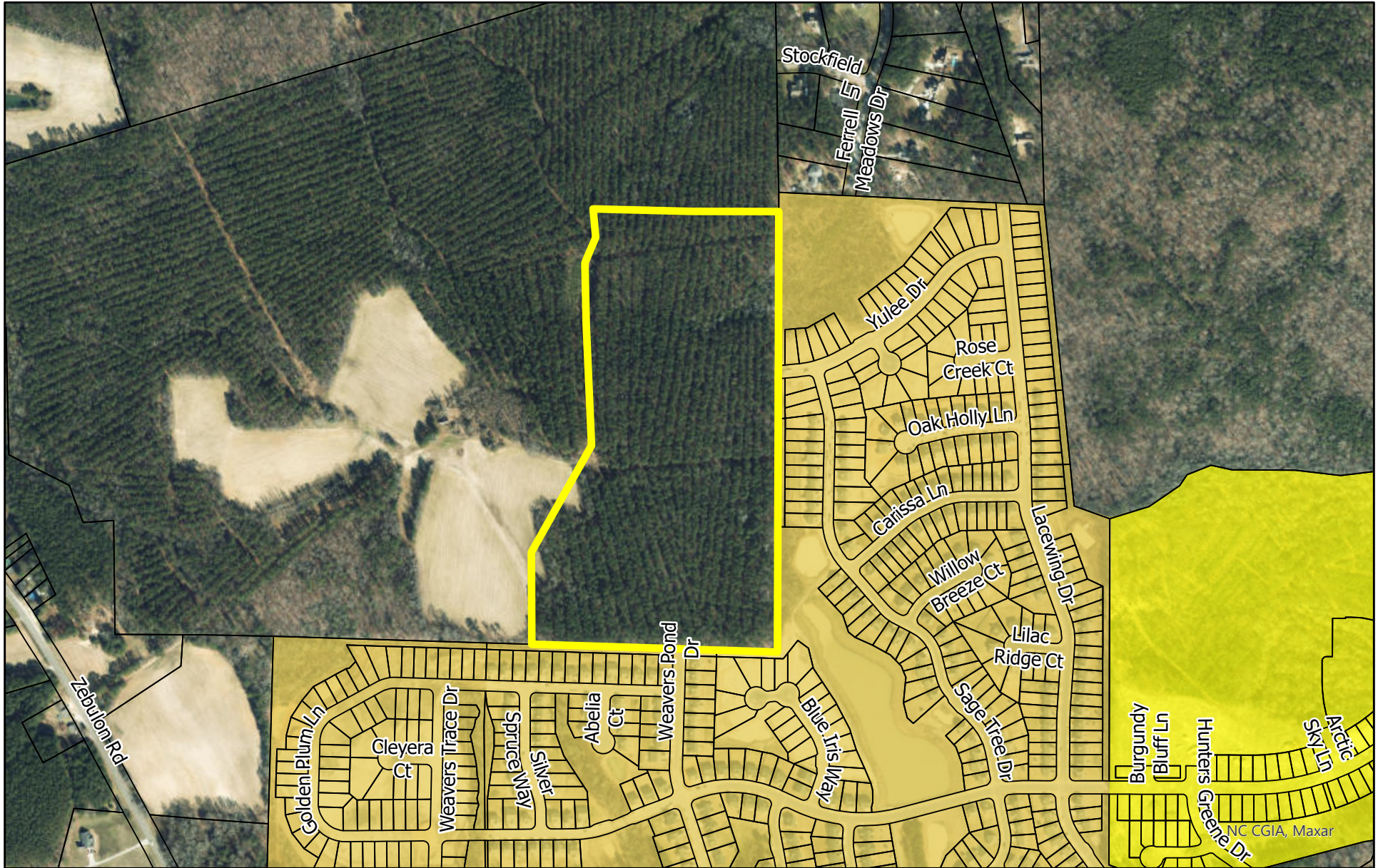






Attachment 3 - Aerial Map



-  Subject Property (0 Weavers Pond Dr)
-  Parcels

Attachment 4 - Zoning Map



-  Subject Property (0 Weavers Pond Dr)
-  Parcels
- Zoning Districts**
-  R4, Residential Neighborhood
-  R-13 SUD, Residential 13 - Special Use Districts

NC CGIA, Maxar

Activity Center Land Use Little River Watershed Area

This Map: S:\GIS\LittleRiver\LittleRiverLandUseAC.mxd
Created by Wake County
Wake County Planning Department
March 9, 2016



Legend

Activity Centers

TYPE

- REGIONAL
- COMMUNITY
- NEIGHBORHOOD

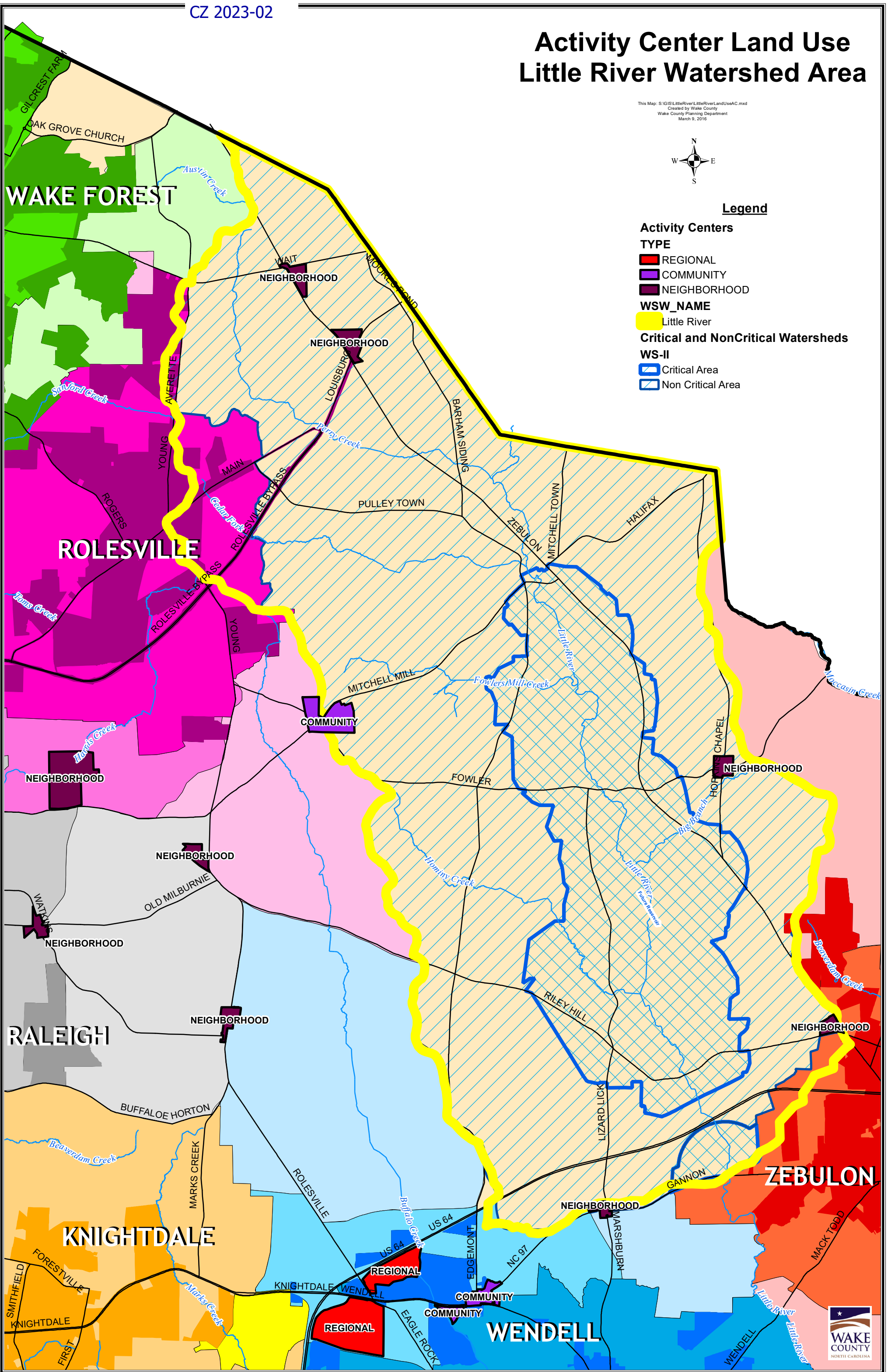
WSW_NAME

- Little River

Critical and NonCritical Watersheds

WS-II

- Critical Area
- Non Critical Area



Attachment 6 - Site Pictures



View of property at the end of Yulee Dr

Attachment 6 - Site Pictures



View north on property near Yulee Dr

Attachment 6 - Site Pictures



View west on property

Attachment 6 - Site Pictures



View south on property (remaining trees on the left)

Attachment 6 - Site Pictures



Existing buffer between Weaver's Pond and Subject Property

ZEBULON

NORTH CAROLINA

CASE # CZ 2023-02 IDT# 825909 – The Wall Purdy Tract Conditional Rezoning

PROJECT ADDRESS 0 Weavers Pond Dr

PIN NUMBER: 1797701367

HEARING DATE: March 13, 2023

State of North Carolina

County of Wake

BEFORE ME, the undersigned Notary, Stacie Paratore on this 7th day of March 2023, personally appeared Michael J. Clark, known to me to be a credible person and of lawful age, who being by me first duly sworn, on his oath, deposes and says:

I Michael J. Clark, acting as the Planning Director for the Town of Zebulon, affirm that the following Public Notice Procedures have been completed in accordance with applicable North Carolina General Statute and Town of Zebulon Unified Development Ordinance Section 2.3.6 have been satisfied for the above referenced hearing.

- First Class Mailing Sent on **2/22/2023** (see attached mailing list and copy of mailing)
- Advertisement in a Paper of General Circulation sent on **2/27/2023** (Wake weekly, publication dates **3/3 & 3/10/2023**)
- Posting Public Hearing Signage on Property on **2/22/2023** (pictures attached)
- Posted to Planning Department Website **2/22/2023**
- Sent to E-Mail Distribution List on **2/27/2023**

[Signature]

3/7/2023

Michael J. Clark, AICP, CZO

Date

Subscribed and sworn to before me, this 7th day of March 2023.

[Notary Seal:]

<p>STACIE PARATORE NOTARY PUBLIC WAKE COUNTY, N.C.</p>
--

Stacie Paratore

Stacie Paratore

[signature of Notary]

[printed name of Notary]

NOTARY PUBLIC

My commission expires: 12/27, 2025.

Notice of Public Hearing

Notice is hereby given pursuant to the provisions of Article 2.2.6 of the Town of Zebulon Unified Development Ordinance that a public hearing will be held on **March 13, 2023 at 6:00 PM** at the **Zebulon Municipal Complex, 1003 N. Arendell Avenue**, and will be conducted by the Board of Commissioners and Planning Board of the Town of Zebulon for the purpose of considering the following items:

IDT Project Number 825909 - CZ 2023-02 - The Wall Purdy Tract (0 Weavers Pond Dr)

PIN # 1797701367. A request by Jason Barron of Morningstar Law Group on behalf of Weaver's Pond Development Company, LLC and property owners Wall Purdy Family LLC and Philip Randolph Isley, for a Conditional Rezoning to the Residential Neighborhood Conditional (R4-C) zoning district for the development of 87 single-family residential lots.

Public comments may be submitted to Deputy Town Clerk Stacie Paratore at SParatore@TownofZebulon.org no later than 12:00 Noon on the day of the hearing to be read into the record. Links will be provided along with the full application packet and documentation on the Planning Department web page at <https://www.townofzebulon.org/departments/planning/public-hearing-information> For questions or additional information, please contact us at (919) 823-1816.

*Posted in Wake Weekly March 3 and March 10, 2023
Mailed 150-foot Radius February 22, 2023
Planning E-mail Distribution List February 27, 2023
Posted to Planning Website February 22, 2023*

PIN_NUM	OWNER	ADDR1	ADDR2
1796797336	CEESAY, DAM JAW CEESAY, AWA	2140 BLUE IRIS WAY	ZEBULON NC 27597-9270
1797717587	AVERETTE, LINDA G TRUSTEE AVERETTE, JAMES R TRUSTEE	1701 FERRELL MEADOWS DR	ZEBULON NC 27597-9512
1797708812	SCOTT, NATHANIEL LOVELACE-SCOTT, YAKIMA	564 YULEE DR	ZEBULON NC 27597-3308
1796794229	SHUSTER, STEVEN M	2156 BLUE IRIS WAY	ZEBULON NC 27597-9270
1796796352	REAMS, SHERITA WITHERSPOON REAMS, REGINALD L.	2144 BLUE IRIS WAY	ZEBULON NC 27597-9270
1797707547	SELLERS, TIARA DENEEN BRYANT, TRAVIS LEE	1653 SAGE TREE DR	ZEBULON NC 27597-6083
1797707800	ROBINSON, DAVID L III	604 YULEE DR	ZEBULON NC 27597-3309
1796697432	WEAVERS POND DEVELOPMENT CO LLC	9407 BARTONS CREEK RD	RALEIGH NC 27615-9707
1796792490	WEAVERS POND DEVELOPMENT CO LLC	9407 BARTONS CREEK RD	RALEIGH NC 27615-9707
1797516090	WALL PURDY FAMILY LLC ISLEY, PHILIP RANDOLPH	3309 FELTON PL	RALEIGH NC 27612-5001
1797701367	WALL PURDY FAMILY LLC ISLEY, PHILIP RANDOLPH	3309 FELTON PL	RALEIGH NC 27612-5001
1796791323	BEZERRA, LUCILENE TORRES JAILLET, ZACHARY AARON	937 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796790363	KNOLL, ERICA RUTH, LILLIAN	933 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796697364	OOGA, ISAAC M OOGA, MARY N	913 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796698323	RORIE, BRETTE NICOLE	917 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1797719253	WEAVERS POND DEVELOPMENT CO LLC	9407 BARTONS CREEK RD	RALEIGH NC 27615-9707
1797706557	WEAVERS POND DEVELOPMENT CO LLC	9407 BARTONS CREEK RD	RALEIGH NC 27615-9707
1796695384	LOVE, RALPH EDWARD JR LOVE, TIA T	901 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796790303	PELZER, VICTORIA	929 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1797706253	WEAVERS POND DEVELOPMENT CO LLC	9407 BARTONS CREEK RD	RALEIGH NC 27615-9707
1796699343	MCKOY, DAVID KENYATTA	925 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796697304	YOUNG, LOUIS ANTHONY YOUNG, KIMBERLY DEWON	909 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796792289	KILKUSKIE, INELL M STANTON	4176 WEAVERS POND DR	ZEBULON NC 27597-6271
1796694305	OCHOA TORRES, SUSANA IRENE RAMIREZ TORRES, LUIS ALEXIS	889 GOLDEN PLUM LN	ZEBULON NC 27597-9724
1796694365	HILLS, TASHA CALHOUN	893 GOLDEN PLUM LN	ZEBULON NC 27597-9724
1796693345	RICHARDSON, CHRYSTAL	885 GOLDEN PLUM LN	ZEBULON NC 27597-9724
1796698383	TUCK, SARAH	921 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796792386	BRYAN, ALICIA	4180 WEAVERS POND DR	ZEBULON NC 27597-6271
1796695324	NEWKIRK, GENIA LARESE	897 GOLDEN PLUM LN	ZEBULON NC 27597-9724
1796696334	FIGUEROA, ARMANDO ODOM, KAYLEIGH	905 GOLDEN PLUM LN	ZEBULON NC 27597-9725
1796890217	WEAVERS POND DEVELOPMENT CO LLC	9407 BARTONS CREEK RD	RALEIGH NC 27615-9707
1797707269	WITHROW, KENNETH W WITHROW, REBECCA	1629 SAGE TREE DR	ZEBULON NC 27597-6083
1797707562	VIERA, MELANIE G LANGLEY, TEHREL M	1649 SAGE TREE DR	ZEBULON NC 27597-6083

1797707158 MCCLARY, SHANTELE HAWKINS, TIFFANY
1797707850 PARKER-MINCEY, JEREMY
1796795391 HILL, DIEVA SESSOMS, KELVIN JR
1797707263 THOMPSON, ASHLEY JOLANE
1797707051 LONIE, COURTNEY DUHAMEL, JUSTIN
1797707460 CUTTINO, GRACE
1797707466 HOSKINSON, CHRISTOPHER MICHAEL HOSKINSON, LAURA
1797707057 LOPEZ, ALDO ALFREDO TEYTUD DE, SANTIAGO ISAMAR
1797707152 MOORE, RON STEVAN MOORE, LEZEL K
1797707633 MENDOZA, CARLA
1797707364 MONTANEZ, KAROL ILEANA BRUNO COLLAZO, GIAN CARLO CUSTODIO
1796795313 WATKINS, DONTE BELL, DONNIECE

1621 SAGE TREE DR	ZEBULON NC 27597-6083
600 YULEE DR	ZEBULON NC 27597-3309
2148 BLUE IRIS WAY	ZEBULON NC 27597-9270
1625 SAGE TREE DR	ZEBULON NC 27597-6083
1609 SAGE TREE DR	ZEBULON NC 27597-6083
1637 SAGE TREE DR	ZEBULON NC 27597-6083
1641 SAGE TREE DR	ZEBULON NC 27597-6083
1613 SAGE TREE DR	ZEBULON NC 27597-6083
1617 SAGE TREE DR	ZEBULON NC 27597-6083
1657 SAGE TREE DR	ZEBULON NC 27597-6083
1633 SAGE TREE DR	ZEBULON NC 27597-6083
2152 BLUE IRIS WAY	ZEBULON NC 27597-9270

