NORTH CAROLINA

# TOWN OF ZEBULON <br> PLANNING BOARD MEETING 

October 9, 2023
Following 6:00 Joint Public Hearing

## I. CALL TO ORDER

## II. APPROVAL OF AGENDA

III. ADOPTION OF MINUTES
a. August 14, 2023 Minutes

## IV. NEW BUSINESS

a. PD 2023-01 Chamblee Lake- The Town has received a Planned Development request to develop 355 residential units (townhomes and single-family detached units) on 136 acres at 1509 Chamblee Road.

## V. OLD BUSINESS

a. Discussion About the Update of the Comprehensive and Future Land Use Plans
VI. DEVELOPMENT UPDATES
VII. ADJOURNMENT

# Zebulon <br> Planning Board <br> Minutes <br> August 14, 2023 

Present: David Lowry, Laura Johnson, Genia Newkirk, Michael Germano, Domenick Schilling, Stephanie Jenkins, Peggy Alexander, Michael Clark-Planning, Stacie Paratore-Deputy Town Clerk, Adam Culpepper-Planning, Cate Farrell-Planning, Kaleb Harmon-Communications, Sam Slater-Town Attorney

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.

## ADOPTION OF MINUTES

Laura Johnson made a motion, second by Domenick Schilling to approve the minutes for February 13, 2023, March 13, 2023, and April 10, 2023. There was no discussion and the motion passed unanimously.

## NEW BUSINESS

A. CZ 2023-03 1106 N. Arendell Avenue

Adam Culpepper stated this was a conditional rezoning request for a 3.51-acre parcel from Heavy Commercial (HC) to Heavy Commercial-Conditional (HC-C) District for the development of a convenience store with gasoline sales.

The standards under section 2.2.6.K for a conditional rezoning were:

1. Health, safety and welfare
2. Appropriate for location
3. Reasonable in the public interest
4. Concept plan consistent with regulations
5. Other relevant factors

The public hearing notification process was detailed. The aerial map, zoning map, future land use plan, timeline, concept plan and proposed elevations were shown. The applicant proposed the following conditions:

- Gasoline pumps between the building and street
- Façade requirements
- Construction of road and traffic improvements

Mr. Culpepper reviewed the façade requirements. The proposed plan showed the south wall with $29 \%$ transparency/glazing, west wall with $33 \%$ transparency/glazing and the east wall with no transparency provided.

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The proposed road improvements included:

- Eastbound right turn lane on Dogwood Dr.
- Westbound left turn lane on Dogwood Dr.
- Left turn lane on the US 64 Hwy off-ramp
- Retiming and signal upgrade at N. Arendell Ave. and Dogwood Dr. recessed behind the front of the home

Staff spoke about the Utility Allocation Policy points for the project. The applicant received a total of 60 points by doing full construction of the Jones Street right of way, wetland style stormwater control measures, and 10 native shade trees which was in addition to the landscaping requirements.

Domenick Schilling asked why the right turn lane off Arendell to Dogwood was tapered. Mr. Culpepper explained it was a deceleration lane to pull the driver out and prevent traffic collisions.

There was discussion about the truck turning radius from questions raised during the Joint Public Hearing. The turn was shown on a map and stated it met the standards required by NCDOT.

Michael Germano wanted to see the radius expanded at Dogwood and Jones because he felt the radius was tight for a regular car and would be a difficult turn for large trucks.

There was discussion about the wall glazing. Adam Culpepper explained that spandrel glass was not permitted in the project and was spelled out in the conditions.

Laura Johnson had concerns about the traffic at the intersection, especially the left turn from Dogwood to Arendell. Mr. Culpepper stated the TIA did have a dedicated left turn lane from Dogwood to Arendell and gave details about the TIA.

There was a question about having the gas pumps behind the building. Michael Clark explained by having the pumps behind the building promoted a more pedestrian oriented development.

David Lowry had concerns about the site being tight making it difficult for tank refills.
There was a question about the signal changes that were being made. Adam Culpepper stated there were additional signals added for the dedicated lanes and the applicant was responsible for those changes.

Michael Germano asked if DOT would allow another intersection that close to an interchange once Jones Street was competed. Michael Clark explained DOT required one mile separation from intersections on any limited access control highway. The closest interchange that could be added would be near Little River.

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There was more discussion about vehicle congestion issues and concerns about trucks having difficulty making a right turn into the fueling area.

Tom Johnson, an attorney at Williams Mullen for the applicant, detailed the improvements the applicant was making to help with trucks turning in and out of the parcel.

Michael Germano asked about the status of the development on the other side of the Jones Street extension. Mr. Culpepper gave details of the development and stated the applicant was working to make sure the driveways lined up.

Michael Germano made a motion, second by Laura Johnson to recommend approval of CZ 2023031106 N. Arendell Avenue. There was no discussion and the motion passed with a vote 6 to 1 with David Lowry, Laura Johnson, Genia Newkirk, Michael Germano, Stephanie Jenkins, and Peggy Alexander voting in favor and Domenick Schilling voting in opposition.
B. TA 2024-01 RV Park

Michael Clark stated this was a text amendment to Section 4.2.3 to allow for consideration of Recreational Vehicle Parks as part of a Planned Development request.

The standards under section 2.2.20.G for a text amendment were:

1. Public's Health, Safety and Welfare
2. Town's Adopted Policy Guidance
3. Not in Conflict
4. Changed Conditions
5. Demonstrated Community Need
6. Matter Not Present - UDO Adoption
7. Consistent with the Purpose and Intent
8. Logical and Orderly Development Pattern
9. Other Factors
10. No Adverse Impacts

Staff recommended approval of TA 2024-01 RV Park.
Domenick Schilling made a motion, second by Peggy Alexander to recommend approval of TA 2024-01 RV Parks. There was no discussion and the motion passed unanimously.
C. TA 2024-02 Drop-in Child Care

Cate Farrell stated this was a text amendment to Section 4.2.3 and Section 94 of the UDO to allow for consideration of a new use, "Child Care, Drop-In." The Town received interest from business owners in providing this this type of use. There was a comparison of child daycare centers and drop-in daycares. The drop-in daycares were to be used on an irregular basis, watch children for shorter periods, for parents running local errands and no outdoor space requirement.

The standards under section 2.2.20.G for a text amendment were:

1. Public's Health, Safety and Welfare
2. Town's Adopted Policy Guidance

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3. Not in Conflict
4. Changed Conditions
5. Demonstrated Community Need
6. Matter Not Present - UDO Adoption
7. Consistent with the Purpose and Intent
8. Logical and Orderly Development Pattern
9. Other Factors
10. No Adverse Impacts

Staff recommended approval of TA 2024-02 Drop-in Child Care.
Michael Germano recommended adding use specific standards to the Text Amendment.
Michael Germano made a motion, second by Peggy Alexander to recommend approval of TA 2024-01 RV Parks as amended. There was no discussion and the motion passed unanimously.
D. TA 2024-03 Contractor Signs

Cate Farrell stated this was a text amendment to Section 5.11 and Section 9.4 of the UDO to allow for consideration of a new sign type "Contractor Signs." The dimensional standards had a maximum height of $8^{\prime}$, maximum sign face area equal to 32 sq . ft. per side, and minimum setback from lot line of $10^{\prime}$. Durational standards were also added where they would be reviewed for all residential districts every two years and non-residential and mixed us district every year. The signs had to be removed once the development was determined to be complete. Cate reviewed the additional standards added to the text amendment.

The standards under section 2.2.20.G for a text amendment were:

1. Public's Health, Safety and Welfare
2. Town's Adopted Policy Guidance
3. Not in Conflict
4. Changed Conditions
5. Demonstrated Community Need
6. Matter Not Present - UDO Adoption
7. Consistent with the Purpose and Intent
8. Logical and Orderly Development Pattern
9. Other Factors
10. No Adverse Impacts

Staff recommended approval of TA 2024-03 Contractor Signs.
Laura Johnson made a motion, second by Michael Germano to recommend approval of TA 202403 Contractor Signs. There was no discussion and the motion passed unanimously.
E. TA 2024-04 Process Change

Adam Culpepper stated this was a text amendment to Article 2 of the UDO to revise and clarify site plan and construction drawing development review. The current plan and proposed plan

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process were reviewed. The proposed plan would match what other area municipalities used and would make it an easier process for staff, TRC and developers.

Staff recommended approval of TA 2024-04 Process Change.
David Lowry asked if the preliminary plans would still include the elevations. Adam Culpepper explained if the applicant was not including a condition that was specific to the architectural standards, then the elevations would not be included.

Peggy Alexander made a motion, second by Stephanie Jenkins to recommend approval of TA 2024-04 Process Change. There was no discussion and the motion passed unanimously.

## DEVELOPMENT UPDATES

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

Adopted this the $9^{\text {th }}$ day of October 2023.

> David Lowry-Chair

SEAL

[^0]NORTH CAROLINA
STAFF REPORT
PLANNED DEVELOPMENT 2023-01
CHAMBLEE LAKE
OCTOBER 9, 2023

Topic: PD 2023-01 Chamblee Lake Project Number 891828
Speaker:
From:
Prepared
Michael J. Clark, AICP, CZO, Planning Director
Appared by: Adam Culpepper, Senior Planner
Approved by: Joseph M. Moore II, PE, Town Manager

## Executive Summary:

The Board of Commissioners will consider a Planned Development / Map Amendment Rezoning for 1509 Chamblee Road (PIN\# 2715101559). This is a legislative case.

## Background:

The Town has received a Planned Development request to develop 355 residential units (townhomes and single-family detached units) on 136 acres at 1509 Chamblee Road. The land is owned by Chamblee, R.M. Heirs, is currently outside the Town's Planning Jurisdiction, and zoned R-30W (Wake County zoning). The applicant is seeking annexation simultaneously with this rezoning request.

## Discussion:

The Board shall consider the following questions to determine whether the rezoning is consistent with the intent of the Unified Development Ordinance (Section 2.2.24.J):

1. Does the request advance the public health, safety, or welfare?
2. Is the request appropriate for its proposed location, and is consistent with the purposes, goals, objectives, and Town's policies?
3. Is the request reasonable and in the public interest?
4. Are there other factors which the Board of Commissioners determines relevant?

## Policy Analysis:

Grow Zebulon: Comprehensive Land Use Plan (Land Use Plan):
The Land Use Plan (adopted June 2021) designated this area "Suburban Residential" which allows planned developments with a mixture of product types with increased open space to preserve an overall suburban character. (Land Use and Development Page 13, Attached).

Suburban Residential characteristics include a greater focus on the home and less on driveways consuming a large percentage of the front lawn. These characteristics are preserved through alley-loaded town homes while reserving front-loaded homes to wider lots. The applicant requests deviation for 12 front-loaded townhomes in exchange for "affordable" deed restrictions placed upon these residences. This exchange is consistent with goals of the Land Use Plan (re. Housing and Neighborhoods Pages 2 and 3, Attached)

## Grow Zebulon: Comprehensive Transportation Plan (Transportation Plan):

The Transportation Plan calls for the construction of a 4-lane median divided arterial road section along Chamblee Road as well as connecting Chamblee Road to Perry Curtis Road via a 4-lane median divided arterial road.

The applicant proposes amending the CTP by reducing the 4-lane median divided road requirements to a modified 2 -lane cross section design with marked on-street parking on both sides and bulb-outs at significant intersections. (re. Nate Bouquin, PE, PTOE letter). A TIA , along with recommendations from the Town's Contract Engineer, includes several recommendations as noted in the attached summary. (re. "Complete Streets, Priority Intersections, and Traffic Calming" CTP pp 36-37)

Play Zebulon: Parks and Recreation Master Plan (Park Master Plan):
The Park Master Plan does not identify public parks or greenways in this general vicinity. The applicant proposes a development with private greenways, dock or similar water activation element, dog park, pocket parks, and similar recreational features throughout the development.

## Unified Development Ordinance (UDO):

The UDO (Section 2.2.13) allows flexibility from some standards in exchange for a higher quality development more aggressively accomplishing other goals, such as amenities and diverse housing. The applicant proposes a highly amenitized mixed-product residential neighborhood with multiple attached, and detached home options providing a broader range of housing values.

## Fiscal Analysis:

When complete, this development will have an estimated taxable value greater than $\$ 102$ Million, producing approximately $\$ 590,000$ per year in property tax revenue. The development also improves the economic development viability of the Stadium Area Mixed Use District (re Land Use Plan Economic Development Section pg. 8)

## Staff Recommendation:

Staff recommends accepting public comment and referring the matter to the Planning Board for consideration.

## Attachments:

1. Application, Site Plan, TIA
2. Future Land Use and Character Map
3. Aerial Map
4. Zoning Map
5. Site Pictures
6. Public Hearing Notice Affidavit
7. UDO Section 3.5.5 Planned Development
8. TIA Review \& Developer Response
9. Comprehensive Land Use Plan (Excerpts)
10. Comprehensive Transportation Plan (Excerpts)

# Town of Zebulon 

# PLANNED DEVELOPMENT APPLICATION 

## GENERAL INFORMATION:

A Planned Development in accordance with Section 2.2.13 and 3.5.5 of the UDO is intended to provide flexibility by establishing site specific regulations including permitted uses, dimensional standards, phasing schedules and additional details to allow for a development that is better than what would otherwise be permitted under the strict interpretation of the UDO. All site-specific standards and conditions must be consistent with the objectives of these regulations, the adopted Comprehensive Land Use Plan, Transportation Plan, and Vision 2030 Strategic Plan. The review process established in this part provides for the accommodation of such uses by a reclassification of property into a Planned Development, subject to site-specific standards and conditions.

## INSTRUCTIONS:

PRE-APPLICATION MEETING: A pre-application meeting with staff in accordance with Section 2.3 .2 of the UDO to verify the application requirements, processes, and procedures regarding a proposed request. To schedule a meeting, applicants must e-mail a pdf map, drawing, model, site or sketch plan to Assistant Planning Director Meade Bradshaw (mbradshaw@TownofZebulon.org) no later than five (5) working days prior to the desired meeting day.

NEIGHBORHOOD MEETING: Neighborhood meetings are required in accordance with Section 2.3.4 of the UDO prior to application submission. The applicant is required to notify property owners and any neighborhood association that represents citizens within that area within 300 feet of the subject property via first class mail a minimum of 10 days in advance of the neighborhood meeting. The applicant shall use their own return address on the envelopes as the meeting is a private meeting between the developer and the neighbors. The applicant shall submit the "Certified List of Property Owners" and "Neighborhood Meeting Packet" forms included in this application packet with their initial submittal.

ANNEXATION REQUIREMENTS: If a property or portion thereof subject to this rezoning is outside the corporate limits and ETJ, an annexation petition is required to be submitted on the same day as this application in accordance with section 2.2.2 of the UDO.

APPLICATION PROCEDURE - The applicant requesting a Planned Development must submit a written application to the Zebulon Planning Department using the forms included in this packet.

- Completed Application Form
- 8 Full Size Plan Sets and 1 PDF set on USB drive. (see site plan checklist)
- Comprehensive Planned Development Document
- Petition Fee (Please See Fee Schedule)
- One (1) Legal Description (metes and bounds) of subject property
- Registered survey of subject property
- Certified List of Property Owners within 150 feet of subject property
- Owner's Consent Form
- Neighborhood Meeting Packet
- Stamped envelopes addressed to Certified List of Property Owners all the homeowners associations of those properties within 150 feet of the outer boundary subject property or properties affixed with the following return address:

Town of Zebulon Planning Department 1003 N. Arendell Ave Zebulon, NC 27597

PUBLIC HEARING PROCEDURE - Upon submittal of a complete application, the Planning Department will schedule the application for a joint public hearing before the Planning Board and the Board of Commissioners. APPLICANTS ARE STRONGLY ENCOURAGED TO CONTACT PLANNING STAFF AS SOON AS POSSIBLE TO ADDRESS ANY QUESTIONS ABOUT THE PUBLIC HEARING. Notices of the public hearing will be mailed to all adjacent property owners of the property being considered for a Planned Development Amendment. At the public hearing, the applicant, proponents, and opponents will be given the opportunity to offer evidence in favor of or against the proposal. After completion of the public hearing, the Planning Board will deliberate and forward its recommendation to the Board of Commissioners for final consideration. Deadline dates and Joint Public Hearing dates can be found on the Town of Zebulon's website.

APPLICATION FOR PLANNED DEVELOPMENT



## PART 3. PROPERTY OWNER INFORMATION

## Name of Property Owner:


(Jim P. Edwards, Tr.)
Street Address of Property Owner:
2711 ROOSTER ST


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.


## LEGISLATIVE CONSIDERATIONS - PLANNED DEVELOPMENT

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 planned development is in the public interest. Therese 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 provide responses to the following standards as outlined in Section 2.2.13 of the Unified Development Ordinance.

1. Please provide details on how the proposed Planned Development advances the public health, safety, or welfare

See attached Exhibit A.
2. Please provide details on how the proposed Planned Development is appropriate for its proposed location, and is consistent with the purposes, goals, objectives, and policies of the Town's adopted policy guidance.

## See attached Exhibit A.

3. Please provide details on how the proposed Planned Development is reasonable and in the public interest.

See attached Exhibit A.
4. Please provide details on how the proposed Planned Unit Development provides for innovative land planning and site design concepts that support a high quality of life and achieve a high quality of development, environmental sensitivity, energy efficiency, and other Town goals and objectives.

## See attached Exhibit A.

5. Please provide details on how the proposed planned unit development provides improved means of access, open space, and design amenities;

See attached Exhibit A.
6. Please provide details on how the proposed Planned Unit Development provides a well-integrated mix of residential and nonresidential land uses in the same development, including a mix of housing types, lot sizes, and densities;

See attached Exhibit A.
7. Please provide details on how the proposed Planned Unit Development creates a system of incentives for redevelopment and infill in order to revitalize established areas;

## See attached Exhibit A.

8. Please provide details on how the proposed Planned Unit Development promotes a vibrant public realm by placing increased emphasis on active ground floor uses, pedestrian-oriented building façade design, intensive use of sidewalks, and establishment of public gathering areas;
See attached Exhibit A.
9. Please provide details on how the proposed Planned Unit Development provides for efficient use of land resulting in smaller networks of utilities and streets and thereby lowering development and housing costs; and

## See attached Exhibit A.

10. Please provide details on how the proposed Planned Unit Development provides quality design and environmentally sensitive development that respects surrounding established land use character and respects and takes advantage of a site's natural and man-made features, such as trees, estuaries, shorelines, special flood hazard area, and historic features.

## See attached Exhibit A.

11. Other factors as the Board of Commissioners may determine to be relevant.

## See attached Exhibit A.

APPLICATION FOR<br>PLANNED DEVELOPMENT

## OWNER'S CONSENT FORM Derv Meadows <br> Name of Project: <br> $\qquad$

Submittal Date:
11-1-22

## OWNER'S AUTHORIZATION

I hereby give CONSENT to D.R. Horton, McAdams (David Bargmakk) and Longlaf Law Partners $\qquad$ (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 applications) 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 2.2.13. of the Town of Zebulon Unified Development Ordinance, that lands subject to a Planned Development 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.


## 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.

*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.

## CONCEPT PLAN REQUIREMENTS

Every applicant requesting Planned Development approval shall submit 8 copies and 1 pdf (email or USB Drive) of a concept plan drawing with the application for a Planned Development.

CHECK IF SUBMITTED The concept plan shall contain sufficient information to adequately determine the type of development being proposed. The concept plan drawing shall include, at a minimum, the following features unless otherwise specified by the Planning Department:

ITEM
1.

Plot plan showing all existing and planned structures, building setback lines, perimeter boundaries, and easements.
2. Elevation drawings of all buildings indicating the proposed exterior finish materials.
3. Landscaping plan, lighting, fencing, screening, and walls, indicating all heights and locations.
4. Location of all ingress and egress.
5. Off-street parking and loading facilities, with calculations showing how the quantities were obtained.
6. All pedestrian walks and open areas for use by residents, tenants, or the public.
7. Proposed land uses indicating areas in square feet.
8. The location and types of all signs, including lighting and heights, with elevation drawings.
9. Existing and/or proposed street names.
10. Proposed potable or reuse water, wastewater connections, and storm sewer line; proposed grading and drainage patterns; proposed water and sewer allocations.
11. Such additional items and conditions, including design standards as the Planning Board and Board of Commissioners deems necessary.
12. Trip generation data and TIA

## APPLICATION FOR PLANNED DEVELOPMENT

## PROPOSED USES

An application has been duly filed requesting that the property described in this application be rezoned from R-30 (Wake County) to Planned Development (PD) . 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 Planned Development 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 Ordinance 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. | Single Family Attached Dwelling | 26. |  |
| 3. | Accessory Dwelling Unit | 27. |  |
| 4. | Cluster Box Unit | 28. |  |
| 5. | Detached Accessory Structure | 29. |  |
| 6. | Guard House, Shelter, or Gatehouse | 30. |  |
| 7. | Home Occupation | 31. |  |
| 8. | Play Equipment | 32. |  |
| 9. | Swimming Pool/Hot Tub | 33. |  |
| 10. | Tool/Storage Shed | 34. |  |
| 11. |  | 35. |  |
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| 24. |  | 48. |  |

## Attachment 1

APPLICATION FOR PLANNED DEVELOPMENT

## PROPOSED DEVELOPMENT CONDITIONS

The applicant hereby requests that the Zebulon Board of Commissioners, pursuant to Section 3.3.5 of the Unified Development Ordinance, approve the Proposed Planned Development with above listed uses), subject to the following conditions), requested deviations, and proposed alternative means of compliance. (Attach additional pages as needed)

See Section 5 of Planned Development Document. Architerfival design commitanats are in Section 3( pg 28).
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APPLICATION FOR PLANNED DEVELOPMENT

## ADJACENT OWNERS

Provide a certified list of property owners subject to this application and all properties owners within 150 -feet feet of the subject property, and any HOA Contacts for developments which fall within 300 -feet of the subject property.

| Parcel Address | Parcel ID Number | Owner's Name |
| :---: | :---: | :---: |
| See Attached List | Zon' Baffer applied. |  |
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## HOA CONTACTS

| Development Name | Contact Person | Address |
| :---: | :---: | :---: |
| $N / A$ | $N / A$ | $N / A$ |
|  |  |  |

Certified List of Property Owners (Wake Co. Real Estate Records) - 200 ft buffer applied (instead of 150) to be conservative. (NOTE: stamped envelopes provided for this full list)
2714081891 STRICKLAND, FRANCES MARIE STRICKLAND, ROGER L 2715115366 LIVERMAN, LORAINE A
1101 FIELD MEADOWS DR

| ZEBULON NC 27597-6852 |
| :--- |
| ZEBULON NC 27597-9668 |
| ZEBULON NC 27597-6844 |

ZEBULON NC 27597-9640
ZEBULON NC 27597-8877 ZEBULON NC 27597-8886 ZEBULON NC 27597-8884 ZEBULON NC 27597-8886 ZEBULON NC 27597-7046

 ZEBULON NC 27597-8155

 ZEBULON NC 27597-6844 ZEBULON NC 27597-6844 ZEBULON NC 27597-6844 ZEBULON NC 27597-2807 RALEIGH NC 27608-1529 ZEBULON NC 27597-9641
 ZEBULON NC 27597-8881 ZEBULON NC 27597-9668 RALEIGH NC 27604-3839
 ZEBULON NC 27597-6842 ZEBULON NC 27597-9669
 ROCKVILLE MD 20850-4018 ZEBULON NC 27597-2626 ZEBULON NC 27597-8881

| 2715213285 | TELLEZ MAGANA, MARIA TERESA | 1508 CARROLL HEIGHTS RD | ZEBULON NC 27597-9640 | 1508 CARROLL HEIGHTS RD |
| :--- | :--- | :--- | :--- | :--- |
| 2715212128 | WALL, JODY C | 133 W 1ST ST | WENDELL NC 27591-7600 | 1417 CHAMBLEE RD |
| 2714189947 | HOAD, RYAN PATRICK HOAD, JAMIE LEIGH | 10421 PERRY RIDGE CT | ZEBULON NC 27597-6844 | 10421 PERRY RIDGE CT |
| 2714085959 | NUNEZ, RICARDO RODRIGUEZ, ANGELICA MARIA | 10301 PERRY RIDGE CT | ZEBULON NC 27597-6842 | 10301 PERRY RIDGE CT |
| 2714091017 | OLVERA, RAMON HERNANDEZ | 1100 FIELD MEADOWS DR | ZEBULON NC 27597-6852 | 1100 FIELD MEADOWS DR |
| 2714495712 | DRSFA LLC | 2099 GAITHER RD STE 600 | ROCKVILLE MD 20850-4018 | 1701 CHAMBLEE RD |

## Dory Meadows Legal Description

Being all of the land described in deed book 1789, page 402 in the Durham County Register of Deeds. Being more particularly described as:

Beginning at a point on the northern right of way line of Chamblee Road (a 60 foot public right of way), being the southwest corner of Tract One as shown on book of maps 2020, page 866 in the Durham County Register of Deeds, the point of beginning; thence across the right of way of Chamblee Road and with the western line of Tract Three, as shown on book of maps 2020, page 866 , South $00^{\circ} 19^{\prime} 14^{\prime \prime}$ East a distance of 541.01 feet to a point on the northern line of lands now or formally owned by Linda W. and Phillip Killette, as described in deed book 8407, page 888; thence with the common line of Killette and others, South $89^{\circ} 11^{\prime} 35^{\prime \prime}$ West a distance of 3101.18 feet to a point on the eastern line of lands now or formally owned by Rebecca H. Hinton, as described in deed book 2244, page 189; thence with the common line of Hinton and others, North $02^{\circ} 37^{\prime} 04^{\prime \prime}$ East a distance of 1937.74 feet to an axle, being the southwest corner of lands now or formally owned by Carolyn P. Chamblee, as described in estate file 2578, page 00-E; thence with the common line of Chamblee and others, North $88^{\circ} 59^{\prime} 09^{\prime \prime}$ East a distance of 3001.95 feet to an iron pipe on the western line of Tract One, as shown on book of maps 2020, page 866; thence with said common line, South $00^{\circ} 19^{\prime} 14^{\prime \prime}$ East a distance of 1404.20 feet to the point and place of beginning; containing an area of 5,918,772 square feet or 135.88 acres.

## Exhibit A: Dory Meadows Planned Development Application Responses

1. Please provide details on how the proposed Planned Development advances the public health, safety, or welfare.

Response: The proposed Planned Development will provide a much-needed supply of housing in a regional market that is chronically undersupplied - resulting in significant housing affordability issues due to skyrocketing home prices. Furthermore, the proposed location of this development will result in a safe and convenient neighborhood within a 5-minute drive to the Zebulon Community Park, shopping in downtown Zebulon, and a local fire station and EMS station. The development will be within a 10-minute drive of the local police station and all levels of grade schools. Finally, with over $1 / 3^{\text {rd }}$ of the gross acreage retained as open space, the proposed Planned Development will help protect environmental health and promote a more active lifestyle.
2. Please provide details on how the proposed Planned Development is appropriate for its proposed location, and is consistent with the purposes, goals, objectives, and policies of the Town's adopted policy guidance.

Response: Though this development would constitute a satellite annexation, it abuts a previously approved satellite annexation known as Sidney Creek. Thus, municipal services are already being extended to this area. Furthermore, as indicated in Response \#1, this site is less than a 10 minute drive to the areas schools, downtown shopping, and public safety facilities.

The adopted Future Land Use Map designates this area as Suburban Residential (SR). and identifies one of the Primary Land Use Types for Suburban Residential as, "Planned developments that integrate other housing types (e.g., attached residential such as patio homes or townhomes) [in addition to Detached residential dwellings], with increased open space to preserve an overall suburban character." Thus, the proposed Planned Development with a mix of SFD detached dwellings, attached dwellings, and over $1 / 3^{\text {rd }}$ of gross acreage as open space precisely fits the intended use and place type within the SR FLU designation.

Furthermore, this Planned Development advances the following goals and policies of the Town's adopted Comprehensive Plan:
a. [Land Use and Development - Goal 1] - "A land use allocation and pattern that advances Zebulon's objectives of achiever greater housing variety $\qquad$ with convenient resident access to schools, recreation, shopping and Services."
i. Supporting Statement(s):

1. The site is located within a 5 -minute drive to Zebulon Community Park, Downtown Zebulon Shopping, Fire Station, and EMS station and less than 10 minutes from Zebulon elementary, middle, and high school.
2. The proposed development includes a mix of rear-loaded homes SFD homes, front-loaded SFD homes, and Townhomes, providing a variety of housing options to suit different needs.
b. [Land Use and Development - Goal 3] - "Ongoing and effective collaboration between land use and transportation planning to ensure a well-connected community with adequate means and capacity to accommodate multiple forms of circulation between local destinations."
i. Supporting Statement(s):
3. The proposed Planned Development incorporates a new E-W collector road free of driveways, which will ultimately form a new connection between Chamblee Road and Perry Curtis road to the west. This new route will form a travel alternative to the current Perry Curtis Road connection to Chamblee road - one with significantly improved access management and which aligns through the Planned Development directly to the Sidney Creek subdivision to the east. This new collector road, through its future westward extension, could be designed as the main E-W throughway to Chamblee road in lieu of the current Perry Curtis Road connection, or it could " $T$ " into Perry Curtis Road. This decision could be made in the future based upon traffic needs at that time and with coordination with NCDOT.
c. [Land Use and Development - Policy C] - "Emphasize compatible intensities and character when evaluating applications involving more intensive and/or nonresidential development near existing homes and neighborhoods.
i. Supporting Statement(s):
4. The proposed Planned Development locates its denser Townhome units closer to Chamblee Road, where existing infrastructure is most capable of serving it. Furthermore, the location of townhomes on the east side of Chamblee Road connects to proposed Townhomes to be established as a future phase of the Sidney Creek development. Detached single family home lots are proposed along most of the project perimeter, where the proposed PD abuts existing subdivisions such as the Perry Creek and Fieldcrest Meadow subdivisions to the south. A riparian buffer and additional undisturbed open
space is left along the site's northern boundary where it abuts the Carroll Heights subdivision.
d. [Land Use and Development - Policy D] - "Promote land use outcomes that further community objectives for preventing traffic congestion, ensuring more pedestrianand cyclist-friendly design, and support expanded and viable public transit options."
i. Supporting Statement(s):
5. As explained under the response for Goal 3 for Land Use and Development, the proposed E-W collector road will be unloaded with driveways and will enhance both vehicular, bicycle, and pedestrian connectivity. Additional trail networks within the site's open space will further support recreational bicycle and pedestrian use.
e. [Land Use and Development - Policy E] - "Ensure development design respects the area's environmental assets and resource base, including waterways and their riparian buffers, unique landscapes, and mature tree stands, especially where there is potential for greenway and/or blueway acquisition."
i. Supporting Statement(s):
6. As proposed the Planned Development retains approximately $1 / 3$ rd of the site as open space (both passive and active). The site design integrates and provides convenient access to several environmental features, including riparian buffers, over 10 acres of wooded wetlands, and a 5+ acre lake. The main amenity for the development is located along this existing lake, letting the natural environment serve as an extension of and backdrop to this active open space. The site's larger residential lots back up to this lake, with a pedestrian trail network providing access along its perimeter.
f. [Land Use and Development - Policy G] - "Ensure that all residential developments have multiple access points for public safety reasons and circulation options."
i. Supporting Statement(s):
7. The proposed Planned Development has multiple access points along Chamblee Road, connects to a future phase of the Sidney Creek approved development to the east, and connects to Perry Curtis Road via an the existing stub of Ridge Valley Way to the south. Roadway stubs will also be provided in 2 locations along the northern property boundary - to be extended at the time of future development.
g. [General Policy - G1] - "Land uses should not detract from the enjoyment or value of neighboring properties."
i. Supporting Statement(s):
8. All proposed uses are residential in nature, abutting existing residential uses or vacant land. A Type B buffer ( $20^{\prime}$ width) is provided along the project perimeter (either as preserved vegetation or new plantings).
h. [General Policy - G3] - "Adequate transportation access and circulation should be provided for uses that generate large numbers of trips. Pedestrian and bicycle access should be addressed where appropriate."
i. Supporting Material:
9. The proposed Planned Development incorporates a new E-W collector road free of driveways, which will ultimately form a new connection between Chamblee Road and Perry Curtis road to the west. This new route will form a travel alternative to the current Perry Curtis Road connection to Chamblee road - one with significantly improved access management and which aligns through the Planned Development directly to the Sidney Creek subdivision to the east.
10. Sidewalks shall be provided along all proposed streets and offstreet pedestrian trails shall be provided to improve access to the site's natural features and active open spaces.
i. [General Policy - G6] - "Environmentally sensitive areas should be protected, including wildlife habitat areas."
i. Supporting Statement(s):
11. The proposed site design avoids any new vehicular crossings of riparian buffers, as well as works around a significant (>10 acre) wetland area in the southeastern portion of the site. Pedestrian access is provided to these areas to allow for community enjoyment and exposure to nature, but otherwise they are left undisturbed.
j. [Residential Policy - R1] - "Residential areas should not be located next to heavy industrial areas."
i. Supporting Statement(s):
12. All adjacent zoning and existing uses are residential or agricultural in nature. No industrial areas are located adjacent to the proposed planned development.
k. [Residential Policy - R3] - "Schools, parks and community facilities should be located close to or within residential neighborhoods.
i. Supporting Statement(s):
13. The site has over 4 acres of private/active open space proposed within the residential neighborhood.
14. The site is within a 5-minute drive to Zebulon Community Park, Downtown Zebulon Shopping, a Fire Station, and an EMS station.
15. The site is less than a 10-minute drive to elementary, middle, and high schools.
I. [Residential Policy - R4] - "Houses should have direct access to local residential streets but not to collector streets or thoroughfares.
i. Supporting Statement(s):
16. No driveways are located along the site's proposed E-W collector road. All dwelling units have direct access to a local residential street or an alley.
m. [Residential Policy - R7] - "New residential developments should include adequate area for parks and recreation facilities, schools and places of worship.
i. Supporting Statement(s):
17. The site has over 40 acres open spaces, including over 4 acres of private, active open space.
n. [Parks and Open space Policy - P5] - "Natural features should be used as buffers or preserved open space between or around developed areas."
i. Supporting Statement(s):
18. The proposed Planned Development utilizes both riparian buffers and wooded woodlands to provide natural buffers between developed areas.
19. Please provide details on how the proposed Planned Development is reasonable and in the public interest.

Response: As indicated in the responses above, the proposed uses and density is aligned with the adopted Future Land Use Map and place types intended for the suburban residential designation. The site is adjacent to an large existing satellite annexation, meaning urban services have already been extended to this area and the extension of those services to this development will not incur any disproportionate ongoing costs to service agencies (police, fire, public works, etc.). Finally, the site protects a significant amount of natural areas, while providing an east-west collector road free of driveways to facilitate connectivity and ease the amount of traffic utilizing a portion of Perry Curtis road which does not have nearly as good access management as the proposed development.
4. Please provide details on how the proposed Planned Unit Development provides for innovative land planning and site design concepts that support a high quality of life

# and achieve a high quality of development, environmental sensitivity, energy efficiency, and other Town goals and objectives. 

Response: The propose Planned Development utilizes the natural features of the site as an asset to be built around, rather than as an obstacle to overcome. The site design integrates and provides convenient access to several environmental features, including riparian buffers, over 10 acres of wooded wetlands, and a 5+ acre lake. The main amenity for the development is located along this existing lake, letting the natural environment serve as an extension of and backdrop to this active open space. The site's larger residential lots back up to this lake, with a pedestrian trail network providing access along its perimeter. Existing wetlands and riparian buffers are preserved and used along the northern and southern property boundaries as natural perimeter buffers.

The proposed E-W collector street provides improved access and connectivity at a scale that does not split the community in terms of pedestrian cross-access. Furthermore, the absence of driveways along this collector street allows for a much more aesthetically pleasing and pedestrian friendly streetscape for the development's primary connecting street.
5. Please provide details on how the proposed planned unit development provides improved means of access, open space, and design amenities.

Response: The proposed layout provides 3 points of access along Chamblee Road, 3 local street stubs to be extended when future development is proposed, a connection which aligns with the proposed Sidney Creek street layout to the east and will provide direct access to Chamblee Road for this adjacent development, and a new collector street that when extended through 1 additional property to the west will provide an improved alternative to a portion of Perry Curtis Road for east-west movement.

Active open spaces are distributed throughout the development for convenient access and are located along the site's major internal roadway. The main amenity utilizes the large existing lake as a significant site feature. Architectural design standards are proffered for the development, as outlined in the Planned Development document.
6. Please provide details on how the proposed Planned Unit Development provides a well-integrated mix of residential and nonresidential land uses in the same development, including a mix of housing types, lot sizes, and densities.

Response: Due to the future land use plan's 'Suburban Residential' designation for this area, non-residential land uses are not included in the overall layout. However, the site does include a mix of housing types, lot sizes, lot orientations, and densities in the form of single family detached dwellings and townhomes. Details on dimensional standards for the sites different residential products are contained in the associated Planned Development document.
7. Please provide details on how the proposed Planned Unit Development creates a system of incentives for redevelopment and infill in order to revitalize established areas.

Response: The proposed development is primarily surrounded by vacant land, creating an incentive for 'development' rather than 'redevelopment', as roadway and utility extensions included as part of this project make adjacent development more viable. Redevelopment opportunities in this area would likely be more limited to potential future pedestrian improvements in an existing adjacent neighborhood.
8. Please provide details on how the proposed Planned Unit Development promotes a vibrant public realm by placing increased emphasis on active ground floor uses, pedestrian-oriented building façade design, intensive use of sidewalks, and establishment of public gathering areas.

Response: The layout for the proposed development is intentional in terms of its creation of public gathering areas in the form of active and passive open spaces. The primary amenity is centrally located within the development along the site's primary internal road and backing up to a large lake. This amenity will serve as the heart of this neighborhood, where both formal and informal events are held.

In addition to the site's active open spaces, the proposed Planned Development will have an extensive pedestrian trail system that facilitates the use of it's public gathering areas. All local new roads shall have sidewalks on both sides.
9. Please provide details on how the proposed Planned Unit Development provides for efficient use of land resulting in smaller networks of utilities and streets and thereby lowering development and housing costs.

Response: The proposed layout preserves approximately $1 / 3^{\text {rd }}$ of its acreage as passive or active open space. The result of this type of layout is a more condensed
development pattern with smaller lots served by less linear feet of infrastructure, surrounded by a significant amount of common open space in lieu of larger individual yards. The interconnected road network is only limited by the numerous environmental features which this site must accommodate.
10. Please provide details on how the proposed Planned Unit Development provides quality design and environmentally sensitive development that respects surrounding established land use character and respects and takes advantage of a site's natural and man-made features, such as trees, estuaries, shorelines, special flood hazard area, and historic features.

Response: As mentioned in previous responses, the site design preserves and provides convenient access to several environmental features, including riparian buffers, over 10 acres of wooded wetlands, and a $5+$ acre lake. The main amenity for the development is located along this existing lake, letting the natural environment serve as an extension of and backdrop to this active open space. The site's larger residential lots back up to this lake, with a pedestrian trail network providing access along its perimeter.

Existing wetlands and riparian buffers are preserved and used along the northern and southern property boundaries in locations as natural perimeter buffers. Where these existing features are not present along the project perimeter, a minimum Type B Buffer is proposed.

To better align with nearby development, the site's Townhomes are clustered on the eastern side of the development, adjacent to approved Townhomes to be built as part of the Sidney Creek development.

## 11. Other factors as the Board of Commissioners may determine to be relevant.

Response: The inclusion of some front-loaded townhomes within the development helps create a more diverse and economically resilient residential offering and supports housing affordability by avoiding rear-loaded alleys within this segment.

Please refer to the associated Planned Development document for more information on proposed architectural conditions.

APPLICATION FOR<br>PLANNED DEVELOPMENT

## OWNER'S CONSENT FORM Derv Meadows <br> Name of Project: <br> $\qquad$

Submittal Date:
11-1-22

## OWNER'S AUTHORIZATION

I hereby give CONSENT to D.R. Horton, McAdams (David Bargmakk) and Longlaf Law Partners $\qquad$ (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 applications) 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 2.2.13. of the Town of Zebulon Unified Development Ordinance, that lands subject to a Planned Development 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.


## 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.

*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.

## CHAMBLEE LAKE

1509 CHAMBLEE ROAD
ZEBULON, NORTH CAROLINA PD 2023-01 / PROJECT NUMBER 891828

## CONCEPT PLAN

PROJECT NUMBER: DRH-22004
DATE: NOVEMBER 1, 2022
REVISED: SEPTEMBER 12, 2023


VICINITY MAP N.T.S.


UDO SUPPLEMENTAL USE STANDAROS


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SHEET
LANDSCAPE
NOTES \& DETAILS
L5.01



## CHAMBLEE LAKE

## PLANNED DEVELOPMENT NARRATIVE DOCUMENT

Town of Zebulon
November 1, 2022


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# Chamblee Lake Planned Development 

Planned Development - Narrative
Document Prepared for The Town of
Zebulon
Submittal Dates
First Submittal:
Second Submittal:
Third Submittal:
Developer
D.R. Horton, INC.

7208 Falls of Neuse Rd, Ste 201
Raleigh, NC 27615

McAdams Company, Design Lead
621 Hillsborough Street, Ste 500
Raleigh, NC 27603

## Attachment



1

## VISION + INTENT

## VISION + INTENT

As referenced in Section 3.5.5 of the Town of Zebulon Unified Development Ordinance, Planned Developments are intended to encourage innovative land planning and site design concepts that support a high quality of life and achieve a high quality of development, environmental sensitivity, energy efficiency, and other Town goals and objectives As shown in the following pages, the Chamblee Lake Planned Development is structured to embody and support excellence in site design, circulation, environmental protection, and compatibility with neighboring properties. The Planned Development process encourages creativity in the design of development, but in return for this flexibility the expectation is for communities to:

- Promote a vibrant public realm by placing increased emphasis on active ground floor uses, pedestrian-oriented building façade design, intensive use of sidewalks, and establishment of public gathering areas.
- Provide for efficient use of land resulting in smaller networks of utilities and streets and thereby lowering development and housing costs.
- Promote quality design and environmentally sensitive development that respects surrounding established land use character and respects and takes advantage of a site's natural and man-made features, such as trees, estuaries, shorelines, special flood hazard area, and historic features.


## THE CHAMBLEE LAKE PLANNED DEVELOPMENT ADHERES TO THE FOLLOWING LEGISLATIVE CONSIDERATIONS:

## How the Planned Development advances the public health, safety, or welfare.

The proposed Planned Development will provide a much-needed supply of housing in a regional market that is chronically undersupplied - resulting in significant housing affordability issues due to skyrocketing home prices. Furthermore, the proposed location of this development will result in a safe and convenient neighborhood within a 5-minute drive to the Zebulon Community Park, and shopping in downtown Zebulon. The development will be within a 10-minute walkable and bikeable drive of Five County stadium, the local police station, and all levels of grade schools. Finally, with over $1 / 3$ rd of the gross acreage retained as open space, over 6 miles walking trails, sidewalks, and multi-use paths, outdoor exercise equipment, pollinator plants located throughout the community, and native and non-invasive plant species in the landscaping, the proposed Planned Development will help protect environmental health and promote a more active lifestyle.

## How the proposed Planned Development is appropriate for its proposed location, and is consistent with the purposes, goals, objectives, and policies of the Town's adopted policy guidance.

This development abuts a previously approved satellite annexation known as Sidney Creek. Thus, municipal services are already being extended to this area. While Chamblee lake will connect to Sidney Creek and both new residential developments will mesh seamlessly, Chamblee Lake will offer a wider variety of housing options and amenities for residents, enhanced architectural commitments, and more environmental preservation, consistent with the Town's current planning policies. Furthermore, as indicated in Response \#1, this site is less than a 10 minute drive to the areas schools and downtown shopping.

The adopted Future Land Use Map designates this area as Suburban Residential (SR) and identifies one of the Primary Land Use Types for Suburban Residential as, "Planned developments that integrate other housing types (e.g., attached residential such as patio homes or townhomes) [in addition to Detached residential dwellings], with increased open space to preserve an overall suburban character." Thus, the proposed Planned Development with a mix of SFD detached dwellings, attached dwellings, and over $1 / 3$ rd of gross acreage as open space precisely fits the intended use and place type within the SR FLU designation.

Furthermore, this Planned Development advances the following goals and policies of the Town's adopted Comprehensive Plan:
[Land Use and Development - Goal 1] - "A land use allocation and pattern that advances Zebulon's objectives of achiever greater housing variety........with convenient resident access to schools, recreation, shopping and Services."

## - Supporting Statement(s):

- The site is located within a 5-minute drive to Zebulon Community Park, Downtown Zebulon Shopping, and less than 10 minutes from Fire/EMS and Zebulon elementary, middle, and high school.
- The proposed development includes a mix of rear-loaded homes SFD homes, front-loaded SFD homes, and Townhomes, providing a variety of housing options to suit different needs.
- The proximity of this site and it's proposed pedestrian improvements will help support Five County stadium.


## THE CHAMBLEE LAKE PLANNED DEVELOPMENT ADHERES TO THE FOLLOWING LEGISLATIVE CONSIDERATIONS:

The Planned Development advances the following goals and policies of the Town's adopted Comprehensive Plan:
[Land Use and Development - Goal 3] - "Ongoing and effective collaboration between land use and transportation planning to ensure a well-connected community with adequate means and capacity to accommodate multiple forms of circulation between local destiSatipperting Statement(s):
$>$ The proposed Planned Development incorporates a new E-W collector road free of driveways, which will form a direct connection between Chamblee Road and Perry Curtis road to the west. This new route will form a travel alternative for residents traveling between Perry Curtis road and Chamblee Road - one with significantly improved access management and which aligns through the Planned Development directly to the Sidney Creek subdivision to the east.
[Land Use and Development - Policy C] - "Emphasize compatible intensities and character when evaluating applications involving more intensive and/or non-residential development near existing homes and neighborhoods.

- Supporting Statement(s):
> The proposed Planned Development locates its denser Townhome units closer to Chamblee Road, where existing infrastructure is most capable of serving it. Furthermore, the location of townhomes on the east side of Chamblee Road connects to proposed Townhomes to be established as a future phase of the Sidney Creek development. Detached single family home lots are proposed along most of the project perimeter, where the proposed PD abuts existing subdivisions such as the Perry Creek and Fieldcrest Meadow subdivisions to the south. A riparian buffer and additional undisturbed open space is left along the site's northern boundary where it abuts the Carroll Heights subdivision.
[Land Use and Development - Policy D] - "Promote land use outcomes that further community objectives for preventing traffic congestion, ensuring more pedestrian- and cyclistfriendly design, and support expanded and viable public transit options."
- Supporting Statement(s):
$>$ As explained under the response for Goal 3 for Land Use and Development, the proposed E-W collector road will be unloaded with driveways and will incorporate on-street parking and a multi-purpose trail/sidepath, enhancing vehicular, bicycle, and pedestrian connectivity. Additional trail networks within the site's open space will further support recreational bicycle and pedestrian use and allow residents to walk or bike to the Five County Stadium through Sidney Creek.


## THE CHAMBLEE LAKE PLANNED DEVELOPMENT ADHERES TO THE FOLLOWING LEGISLATIVE CONSIDERATIONS:

The Planned Development advances the following goals and policies of the Town's adopted Comprehensive Plan:
[Land Use and Development - Policy E] - "Ensure development design respects the area's environmental assets and resource base, including waterways and their riparian buffers, unique landscapes, and mature tree stands, especially where there is potential for greenway and/or blueway acquisition."

- Supporting Statement(s):
$>$ As proposed the Chamblee Lake Planned Development retains approximately $1 / 3$ rd of the site as open space (both passive and active). The site design integrates and provides convenient access to several environmental features, including riparian buffers, over 10 acres of wooded wetlands, and a 5+ acre lake. The main amenity for the development is located along this existing lake, letting the natural environment serve as an extension of and backdrop to this active open space. The site's larger residential lots back up to this lake, with a pedestrian trail network providing access along its perimeter.
[Land Use and Development - Policy G] - "Ensure that all residential developments have multiple access points for public safety reasons and circulation options."
- Supporting Statement(s):
> The proposed Planned Development has multiple access points along Chamblee Road, connects to a future phase of the Sidney Creek approved development to the east, and connects to Perry Curtis Road via a direct connection, as well as an existing stub of Ridge Valley Way to the south. Roadway stubs will also be provided in 3 locations along the northern and western property boundaries - to be extended by future development.
[General Policy - G1] - "Land uses should not detract from the enjoyment or value of neighboring properties."
- Supporting Statement(s):
$>$ All proposed uses are residential in nature, abutting existing residential uses or vacant land. At a minimum, a Type B buffer ( $20^{\prime}$ width) is provided along the project perimeter (either as preserved vegetation or new plantings). Where the site abuts Perry Ridge Ct to the south, enhanced buffers are provided with fencing where existing vegetation is not present. In addition, the project will provide an enhanced Type C Streetscape Buffer (30' wide) on Chamblee Rd to soften views of the neighborhood from the road and maintain a small town feel for passerby.
[General Policy - G3] - "Adequate transportation access and circulation should be provided for uses that generate large numbers of trips. Pedestrian and bicycle access should be addressed where appropriate."
- Supporting Material:
$>$ The proposed Planned Development incorporates a new E-W collector road free of driveways, which will form a direct connection between Chamblee Road and Perry Curtis road to the west. The proposed E-W collector road will incorporate on-street parking and a multi-purpose trail/sidepath, enhancing vehicular, bicycle, and pedestrian connectivity.
> Sidewalks shall be provided along all proposed streets and off-street pedestrian trails shall be provided to improve access to the site's natural features and active open spacergige 44


## THE CHAMBLEE LAKE PLANNED DEVELOPMENT ADHERES TO THE FOLLOWING LEGISLATIVE CONSIDERATIONS:

The Planned Development advances the following goals and policies of the Town's adopted Comprehensive Plan:
[General Policy - G6] - "Environmentally sensitive areas should be protected, including wildlife habitat areas."

- Supporting Statement(s):
$>$ The proposed site design avoids any new vehicular crossings of riparian buffers, as well as works around a significant (>10 acre) wetland area in the southeastern portion of the site. Pedestrian access is provided to these areas to allow for community enjoyment and exposure to nature, but otherwise they are left undisturbed.
[Residential Policy - R1] - "Residential areas should not be located next to heavy industrial areas."
- Supporting Statement(s):
> All adjacent zoning and existing uses are residential or agricultural in nature. No industrial areas are located adjacent to the proposed planned development.
[Residential Policy - R3] - "Schools, parks and community facilities should be located close to or within residential neighborhoods.
- Supporting Statement(s):
$>$ The site has over 4 acres of private/active open space proposed within the residential neighborhood.
> The site is within a 5 -minute drive to Zebulon Community Park, Downtown Zebulon Shopping.
> The site is less than a 10-minute drive to Fire/EMS \& elementary, middle, and high schools.
[Residential Policy - R4] - "Houses should have direct access to local residential streets but not to collector streets or thoroughfares.
- Supporting Statement(s):
$>$ No driveways are located along the site's proposed E-W collector road. All dwelling units have direct access to a local residential street or an alley.
[Residential Policy - R7] - "New residential developments should include adequate area for parks and recreation facilities, schools and places of worship.
- Supporting Statement(s):
$>$ The site has over 40 acres open spaces, including over 3 acres of private, active open space.
[Parks and Open space Policy - P5] - "Natural features should be used as buffers or preserved open space between or around developed areas."
- Supporting Statement(s):
> The proposed Planned Development utilizes both riparian buffers and wooded woodlands to provide natural buffers between developed areas.


## THE CHAMBLEE LAKE PLANNED DEVELOPMENT ADHERES TO THE FOLLOWING LEGISLATIVE CONSIDERATIONS:

How the proposed Planned Development is reasonable and in the public interest. As indicated in the previous response statements, the proposed uses and density is aligned with the adopted Future Land Use Map and place types intended for the suburban residential designation. The site is adjacent to an large existing satellite annexation, meaning urban services have already been extended to this area and the extension of those services to this development will not incur any disproportionate ongoing costs to service agencies (police, fire, public works, etc.). Finally, the site protects a significant amount of natural areas, while providing an east-west collector road free of driveways to facilitate connectivity and ease the amount of traffic utilizing a portion of Perry Curtis road which does not have nearly as good access management as the proposed development.

## How the proposed Planned Unit Development provides for innovative land planning and site design concepts that support a high quality of life and achieve a high quality of development, environmental sensitivity, energy efficiency, and other Town goals and objectives.

The proposed Planned Development utilizes the natural features of the site as an asset to be built around, rather than as an obstacle to overcome. The site design integrates and provides convenient access to several environmental features, including riparian buffers, over 10 acres of wooded wetlands, and a 5+ acre lake. The main amenity for the development is located along this existing lake, letting the natural environment serve as an extension of and backdrop to this active open space. The site's larger residential lots back up to this lake, with a pedestrian trail network providing access along its perimeter. Existing wetlands and riparian buffers are preserved and used along the northern and southern property boundaries as natural perimeter buffers.

The proposed E-W collector street provides improved access and connectivity at a scale that does not split the community in terms of pedestrian cross-access. Furthermore, the absence of driveways along this collector street allows for a much more aesthetically pleasing and pedestrian friendly streetscape for the development's primary connecting street.

## How the how the proposed planned unit development provides improved means of access, open space, and design amenities.

The proposed layout provides 4 points of access along Chamblee Road, 3 local street stubs to be extended when future development is proposed, a connection which aligns with the proposed Sidney Creek street layout to the east and will provide direct access to Chamblee Road for this adjacent development, and a new collector street forming a direct connection between Chamblee Road and Perry Curtis Road.

Active open spaces are distributed throughout the development for convenient access and are located along the site's major internal roadway. The main amenity utilizes the large existing lake as a significant site feature. Architectural design standards are proffered for the development, as outlined in the Planned Development document.

## THE CHAMBLEE LAKE PLANNED DEVELOPMENT ADHERES TO THE FOLLOWING LEGISLATIVE CONSIDERATIONS:

How the proposed Planned Unit Development provides a well-integrated mix of residential and nonresidential land uses in the same development, including a mix of housing types, lot sizes, and densities.
Due to the future land use plan's 'Suburban Residential' designation for this area, non-residential land uses are not included in the overall layout. However, the site does include a mix of housing types, lot sizes, lot orientations, and densities in the form of single family detached dwellings and townhomes. Details on dimensional standards for the sites different residential products are contained in a later section of this document.

## How the proposed Planned Unit Development creates a system of incentives for redevelopment and infill in order to revitalize established areas.

The proposed development is primarily surrounded by vacant land, creating an incentive for 'development' rather than "redevelopment', as roadway and utility extensions included as part of this project make adjacent development more viable, including desired commercial development surrounding the Five County Stadium. Proposed water line extensions to be carried out by the developer from Chamblee Road to NC 96 to the west would support redevelopment opportunities in the future.

How the proposed Planned Unit Development promotes a vibrant public realm by placing increased emphasis on active ground floor uses, pedestrian-oriented building façade design, intensive use of sidewalks, and establishment of public gathering areas.
The layout for the proposed development is intentional in terms of its creation of public gathering areas in the form of active and passive open spaces. The primary amenity is centrally located within the development along the site's primary internal road and backing up to a large lake. This amenity will serve as the heart of this neighborhood, where both formal and informal events are held.

In addition to the site's active open spaces, the proposed Planned Development will have an extensive pedestrian trail system that facilitates the use of it's public gathering areas. All local new roads shall have sidewalks on both sides.

## How the proposed Planned Unit Development provides for efficient use of land resulting in smaller networks of utilities and streets and thereby lowering development and housing costs.

The proposed layout preserves approximately $1 / 3 \mathrm{rd}$ of its acreage as passive or active open space. The result of this type of layout is a more condensed development pattern with smaller lots served by less linear feet of infrastructure, surrounded by a significant amount of common open space in lieu of larger individual yards. The interconnected road network is only limited by the numerous environmental features which this site must accommodate.

## THE CHAMBLEE LAKE PLANNED DEVELOPMENT ADHERES TO THE FOLLOWING LEGISLATIVE CONSIDERATIONS:

How the the proposed Planned Unit Development provides quality design and environmentally sensitive development that respects surrounding established land use character and respects and takes advantage of a site's natural and manmade features, such as trees, estuaries, shorelines, special flood hazard area, and historic features.
As mentioned in previous responses, the site design preserves and provides convenient access to several environmental features, including riparian buffers, over 10 acres of wooded wetlands, and a $5+$ acre lake. The main amenity for the development is located along this existing lake, letting the natural environment serve as an extension of and backdrop to this active open space. The site's larger residential lots back up to this lake, with a pedestrian trail network providing access along its perimeter.

Existing wetlands and riparian buffers are preserved and used along the northern and southern property boundaries in locations as natural perimeter buffers. Where these existing features are not present along the project perimeter, a minimum Type B Buffer is proposed.

To better align with nearby development, the site's Townhomes are clustered on the eastern side of the development, adjacent to approved Townhomes to be built as part of the Sidney Creek development.

## Other factors as the Board of Commissioners may determine to be relevant.

The inclusion of some front-loaded townhomes (all deed restricted to meet affordable housing standards per the associated zoning condition) within the development helps create a more diverse and economically resilient residential offering and supports housing affordability. While the majority of proposed Townhomes are rear loaded, including a smaller percentage of front-loaded homes allows select lots to protect and enjoy riparian buffers to the rear and provides the opportunities for back yard for home buyers prioritizing this feature.

Please refer to Section 4 of this document for more information on proposed architectural conditions.


## EXISTING CONDITIONS SUMMARY

The Chamblee Lake Planned Development is located on a single parcel (+/-136-acres) near the intersection of Chamblee Rd and Perry Curtis Road ,along the southeastern boundary of Zebulon's zoning jurisdiction. The site is currently in Wake County's zoning jurisdiction, but a petition for annexation accompanies this rezoning request. The parcel is divided by Chamblee Road, with the majority of the site located to the west of Chamblee Road. The site is located generally between Snipes Creek to the west and Little Creek (west side) to the east, with both riparian buffers and jurisdcitional wetlands on site. The most prominent environmental features include a $+/-6$ acre pond located on the western side of Chamblee Road and a 10+ acre wetland area located along the southern property line. This project is free of any floodplain. The site generally slopes eastwards towards Little Creek, with some internal variation within the boundary. Two jurisdictional streams will be preserved during development with no vehicular stream crossings proposed. Current land cover includes large stands of trees and cleared fields used for agricultural purposes.

## VICINITY MAP

## 



## CURRENT ZONING MAP




## 3 <br> PLAN CONSISTENGY I LAND USE COMPATIBILITY

## COMPREHENSIVE PLAN CONSISTENCY

As previously stated in the 'legislative considerations' section of this narrative document, this rezoning is consistent with the Future Land Use Map (the "FLUM") and many goals and recommendations of the Town's Comprehensive Plan.

The adopted Future Land Use Map designates this area as Suburban Residential (SR) and identifies one of the Primary Land Use Types for Suburban Residential as, "Planned developments that integrate other housing types (e.g., attached residential such as patio homes or townhomes) [in addition to Detached residential dwellings], with increased open space to preservean overall suburban character."

Thus, the proposed Planned Development with a mix of SFD detached dwellings, attached dwellings, and over one third of gross acreage as open space precisely fits the intended use and place type within the Suburban Residential (SR) Future Land Use designation. It is also worth noting that the proposed site abuts a 'General Residential' (GR) Future Land Use area to the east, which is meant to support even more intense residential uses than Suburban Residential.


## LAND USE COMPATIBILITY

The proposed development is limited to detached single family detached lots and attached single family lots (aka townhouses). These proposed uses, and the development standards restricting those uses, are compatible with the adjacent communities, which are zoned and/or currently used for low to medium density residential uses.

The proposed development standards defined within this document and the associated concept plan will ensure quality of design across the entire development. The overall site layout is designed to create a cohesive environment by positioning the more dense residential uses along Chamblee Rd, adjacent to proposed Townhomes in the approved Sidney Creek subdivision. The site transitions to lower density single family homes along the edges of the community, and utilizes environmental features as natural buffers to adjoining property. The concept plan features a creative integration of residential uses, active open space, and preserved open space to create a cohesive environment. The design guidelines will ensure quality architectural features that are consistent across the community.

## COMPLIANCE WITH ADOPTED TRANSPORTATION PLAN

To better serve the future Chamblee Lake residents and the Town's overall transportation planning goals, the applicant proposes the following amendments to the 2045 Comprehensive Transportation Plan (CTP):

- Modify the proposed cross-section of Chamblee Road from its existing terminus at SR 1727 (Wake County Line Road) to south of SR 2346 (Temple-Johnson Road) from a 4-lane divided to a 2-lane divided roadway.
- Realign the proposed new E-W street section through the proposed development and modify the proposed cross-section to that of a 2-lane undivided roadway with on-street parking (on both sides) and a multi-purpose path (on one side with a sidewalk on the opposite side).

The amendments described above are contained within a separate CTP amendment request and are reflected within the associated Concept Plan.

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## PLANNED DEVELOPMENT MASTER PLAN

## PLANNED DEVELOPMENT CONCEPT PLAN

## DEVELOPMENT DETAILS

Chamblee Lake is planned as a mixed-residential development consisting of a 355 units, designed to the Planned Development standards of the Town of Zebulon Unified Development Ordinance. Due to the site's proposed density of less than 3 DUA, the development shall use the R4 district as the base zoning of it's planned development, except as modified by this document. Chamblee Lake will provide a variety of housing choices for future residents as well as well-designed and multi-functional recreational amenities. The development will establish bicycle and pedestrian connections between proposed site amenities, while preserving a significant amount of natural areas comprised of wetlands, riparian buffers, and a sizable existing pond. Permitted uses shall be limited to single family detached dwellings, attached single family dwellings (townhomes), and customary residential accessory uses.

## DEVELOPMENT MIX

- Single Family Dwellings
- Townhomes

Total \# of Units
232
123

Estimated Percentage of Dev.
65.3\%
34.7\%


## FRONTLOADED SINGLE-FAMILYDWELLINGS

## MODIFICATIONS TO UDO STANDARDS

The Town of Zebulon UDO requires that any lot less than 70' in width be accessed via rear lane access (or side on a corner lot). In order to accommodate a more compact design that supports preservation of environmental sensitive features, this project would permit front-loading of lots 50 ' and larger with a minimum lot size of 6000 sq. ft. The planned development proposes a mix of 50', 60', and 70' wide front-loaded lots, as shown in the associated Concept Plan. The applicant has offered tailored architectural standards for these units as a condition of the zoning approval.

To encourage interaction between the public and private realm, front-loaded single-family dwellings in Chamblee Lake will permit a minimum front setback of 20' feet, rather than the UDO requirement of 30 feet. Side and rear setbacks are also less than typical R4 requirements, as indicated below.

## FRONTLOADED SFD DIMENSIONAL STANDARDS

> Min. Lot Area
> Min. Lot Width
> Front Setback (min)
> Side Setback (min)
> Corner Setback (min)
> Rear Setback (min)
> Maximum Height
> Permitted Front Porch Encroachment

6000 sf
$50 '$

## 20'

5'
15
20'
$35 '$ / 3 stories
5 ' into front setback

## REAR LOADED SINGLE-FAMILY DWELLINGS

## MODIFICATIONS TO UDO STANDARDS

The Town of Zebulon UDO requires that any lot within the R4 district be a minimum of 6000 sq. feet or more in size. In order to accommodate a more compact design that supports preservation of environmental sensitive features, this project would permit rear-loading of lots 35 ' wide and larger with a minimum lot size of 4000 sq . ft. The applicant has offered tailored architectural standards for these units as a condition of the zoning approval.

To encourage interaction between the public and private realm, rear-loaded single-family dwellings in Chamblee Lake will permit a minimum front setback of 10 feet, rather than the UDO requirement of 30 feet. Side and rear setbacks are also reduced compared to typical R4 requirements, as indicated below.

REAR LOADED SFD DIMENSIONAL STANDARDS

| > Min. Lot Area | 4000 sf |
| :--- | :--- |
| > Min. Lot Width | $35^{\prime}$ |
| > Front Setback $(\mathrm{min})$ | $10^{\prime}$ |
| > Side Setback $(\mathrm{min})$ | $3^{\prime}$ |
| > Corner Setback (min) | $10^{\prime}$ |
| > Rear Setback (min) | $20^{\prime}$ |
| > Max Height | $35^{\prime} / 3$ stories |

## TOWNHOUSES

## MODIFICATIONS TO UDO STANDARDS

The Town of Zebulon UDO provides dimensional standards for attached single family development (i.e. Townhomes) based on the entire building unit. Rather than apply dimensional standards based on the entire Townhome building, Dory Meadows shall adhere to the following dimensional standards for each individual townhome lot (and be exempt from the dimensional standards contained in Section 3.3.4 of the UDO). Townhomes within Dory Meadows will be a mix of front-loaded and rear-loaded options. The applicant has offered tailored architectural standards for these units as a condition of the zoning approval, and hereby limits townhome buildings to no more than 6 consecutive townhome lots.

## TOWNHOUSE DWELLING DIMENSIONAL STANDARDS

- Min. Lot Area
- Min. Street Setback (front or corner)
- Min. Side Setback
- Min. Rear Setback
- Min. Building Separation
- Max Building Height
- Min. Lot Width

2000 SF for FL units / 1500 SF for Rear-loaded $5^{\prime}$ (20' for face of garage on front-loaded units)
N/A
$20^{\prime}$
10'
42' / 3 stories
20'

## ARCHITECTURAL DESIGN STANDARDS (Voluntary Commitments)

Chamblee Lake offers the following architectural design standards as they relate to detached and attached single family homes:

## Architectural Conditions for All Homes

1. All single - family homes and townhomes will have a two or more of the following design features on the front facade (not including foundation):
a. stone
b. brick
c. lap siding
d. shakes
e. board and batten
f. window pediments
g. recessed windows
h. side and/or front window box bays
i. roof gables
j. roof dormers
k. roofline cornices
l. metal roofing as accent
m. columns
n. shutters
o. other decorative features approved by the Planning Director
2. The exterior siding material on the side and rear facades will be fiber cement.
3. When two materials are used, the materials shall be different but complementary colors.
4. Vinyl siding shall not be permitted.
5. Vinyl may be used only for soffits, fascia, corner boards, decorative elements, trim and vinyl windows.
6. The use of corrugated metal siding, unpainted plywood, or smooth-face concrete block is prohibited.
7. All single-family attached and detached homes with crawlspaces, stem wall or poured concrete foundations shall have the front of the foundation wrapped in brick or stone; as well as on any foundation adjacent to a public right of way.
8. All street-facing garage doors shall contain window inserts and carriage-style adornments
9. Front and rear eaves shall project a minimum of 12 ". Side eaves shall be a min of 4 ". Eaves will be allowed to encroach into required setbacks.
10. No attached or detached home located adjacent, across the street, or diagonal shall have the same elevation and color combination.
11. Front doors shall be illuminated.
12. Each garage door shall be illuminated.
13. All exterior windows shall have a minimum 3 " trim.

## ARCHITECTURAL DESIGN STANDARDS (Voluntary Commitments)

## Architectural Conditions for All Homes (continued)

14. No venting will be provided on any front facades except that when a bathroom is located on the front of the home, a vent of a similar color to either the siding or the trim may be provided on the front of the home.
15. Trim color shall be distinct from the façade color.
16. Porch railings, if included on homes, shall be a complimentary color of the house and shall be made of either aluminum, or composite material.
17. Windows on front and side elevations shall feature shutters or trim. Shutters, when provided, shall accommodate the width of the corresponding window.
18. Each house will have a min. of 1 story and a maximum of 3 stories.
19. Street-facing garage doors shall not exceed a maximum width of 18 feet per garage door.
20. Vegetative screening for HVAC units shall be provided
21. For all detached and attached lots, the entire yard will be sodded.
22. Accessory buildings, if constructed, shall be of similar materials and colors of the single-family dwelling.
23. The mail kiosk structure(s) shall be covered.
24. All lots shall be served by public water and sanitary sewer.
25. We commit to exceed the architectural requirements in Section 5.2.4 of the UDO. We will work with Town Planning and Building staff to provide additional architectural features with the exception of Section 5.2.4.E.3.e. Garage doors will not be required to be located at least two or more feet behind a front porch or the primary entrance to the dwelling.
26. Each front entrance shall contain a covered stoop or porch.
27. Every home will have either a back deck, porch or patio.
28. Front porches shall extend beyond the front plane of the garage by a minimum of 12 " on $25 \%$ of the homes constructed. Front Porches shall be allowed to extend beyond the minimum front setback a maximum of 10 ".

## Single-Family Attached Architectural Conditions

29. Single-family attached dwellings shall comply with all standards in UDO Section 4.3.3.O, except for 4.3.3.0.7.
30. Townhome main roof pitches (excluding porches) will be at least 6:12.
31. The roofline of each attached building cannot be a single mass; it must be broken up either horizontally and/or vertically between, at a minimum every two homes.
32. The building façade cannot be a single mass; it must be broken up by home articulations of at least 12 inches, at minimum, between every two homes.

## ARCHITECTURAL DESIGN STANDARDS (Voluntary Commitments)

## Single-Family Detached Architectural Conditions

33. Single-family detached dwellings shall comply with all standards in UDO Section 4.3.3.P, except for Section 4.3.3.P.3.
34. UDO 4.3.3.P. 1 - Finished Floor Height, Except for single-family detached dwellings subject to a deed restricting limiting the age of residents to 55 years of age or older, the finished floor elevation shall be at least 18 inches above the finished grade adjacent to the home's primary entrance.
35. UDO 4.3.3.P.2 - Single-family detached dwellings shall be configured so that each side of the dwelling includes some form of ingress or egress capable of allowing emergency exit from or entrance into the dwelling. Windows, doors, or other wall penetrations shall be credited towards these standards. Skylights shall also be credited towards these standards in cases where there is sufficient access to the ground from the room.
36. Single Family main roof pitches (excluding porches) will be at least 6:12.
37. A mail kiosk for the single family detached homes shall be located adjacent to the pool and clubhouse, subject to USPS Approval.

## Example Building Elevations

The following example renderings and building elevations are representative of the type of design features intended for SFD detached and attached homes in Chamblee Lake, in keeping with the architectural standards committed to as part of the zoning approval. However, these example elevations are subject to change within the parameters allowed by the architectural commitments. To the extent which any differences exist between the voluntary architectural commitments and the example elevations contained herein (as well as for review of submitted building permits to follow), the list of Architectural Design Standards (Voluntary Commitments) provided on the previous pages shall control.

## Front-Loaded SFD Example Elevations



## Front－Loaded SFD Example Elevations




ELEVATION 'A'
$3 / 16^{\prime \prime}=1^{\prime}-0 "$


## ELEVATION 'B' <br> $3 / 16^{\prime \prime}=1^{\prime}-0 "$



ELEV 'A' - REAR
1/8" = 1'-0"


ELEV 'A' - LEFT
$18^{\prime \prime}=1 \cdot 0$


ELEV 'A' - RIGHT
$1 / 8^{\prime \prime}=1^{\prime}-0 "$


ELEV 'B' - REAR
1/8" = 1'-0"


ELEV 'B' - LEFT
$1 / 8 "=1$ '- 0


ELEV 'B' - RIGHT
$1 / 8 "=1$ '-0"

Rear－Loaded SFD Example Elevations




ELEVATION 'A'
$3 / 16^{\prime \prime}=1^{\prime}-0 "$


## ELEVATION 'B'

$3 / 16^{\prime \prime}=1^{\prime}-0 "$


ELEV 'A' - REAR
1/8" = 1'-0"


ELEV 'A' - LEFT
$18^{\prime \prime}=1 \cdot 0$


ELEV 'A' - RIGHT
$1 / 8 "=1$ '-0"


ELEV 'B' - REAR
1/8" = 1'-0"


ELEV 'B' - LEFT
$1 / 8 "=1$ '- 0


ELEV 'B' - RIGHT
$1 / 8^{\prime \prime}=1^{\prime}-0 "$
gmd


ELEVATION 'A'
$3 / 16^{\prime \prime}=1^{\prime}-0 "$

$\frac{\text { ELEVATION 'B' }}{3 / 16^{\prime \prime}=1 \cdot 0^{\prime \prime}}$
$\frac{\text { ELEVATION 'B' }}{3 / 16^{\prime \prime}=1-0^{\prime \prime}}$


ELEV 'A' - REAR $1 / 8 "=1^{\prime \prime}-0 "$


ELEV 'A' $\underset{1 / 8^{\prime}=1.100^{\prime \prime}}{\prime 2}$


ELEV 'A' - RIGHT
D.R.HOHION
08.28 .2023
md
design
group
carolinas
carolinas


ELEV 'B' - REAR $1 / 8 "=1^{\prime}-0 "$


ELEV 'B' - LEFT


ELEV 'B' - RIGHT
D.R.HOHITIN

## 

Townhome Example Elevations（Front Load）



ELEVATION＇A＇
$3 / 16 "=1^{\prime}-0 "$

gmd



ELEV 'A' - RIGHT END UNIT



ELEV 'B' - LEFT END UNIT


ELEV 'B' - RIGHT END UNIT

## Attachment 1

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Townhome Example Elevations (Rear Load)




md
design group
carolinas carolinas

08.25 .2023



ELEVATION 'A'
$3 / 16^{\prime \prime}=1$ '-0"

(


## HOMEOWNERS ASSOCIATION

Prior to the issuance of the first certificate of occupancy for the Development, a Homeowners Association ('HOA') shall be formed to govern the affairs of Chamblee Lake. The HOA shall be responsible for maintaining the common areas of the Development including any shared stormwater facilities, landscaping, hardscape structures (such as signage, irrigation, lighting, and fountains), and recreation amenities.

## LANDSCAPING DESIGN STANDARDS

To ensure the proposed development both respects and enhances the natural environment and provides context sensitive landscaping and screening, the applicant hereby commits to adhere to the landscaping design standards contained below. To the extent which these standards differ from those contained with the Town's adopted Unified Development ordinance, the standards contained in this document shall prevail.

## Perimeter Buffers

Per Section 5.6.10 of the UDO, the proposed development will incorporate perimeter buffers along shared property boundaries with other parcels in order to create physical and visual separation between land uses in separate zoning districts. Said buffers will be split between 2 categories as defined below and will be identified on the associated Master Plan.

## - Type B Perimeter Buffer

- Where identified on the Master Plan, the Type B Perimeter Buffer shall adhere to the design and specifications outlined in Table 5.6.10.C of the UDO. This buffer shall have a minimum width of 20 ft , and shall be planted to 2 canopy trees, 4 understory trees, and 15 shrubs per linear feet. Final tree species shall be selected and approved by Town staff at a subsequent phase of development, but shall include fast-growing species.
- Type B Perimeter Buffer (with Privacy Fence requirement)
- To create greater visual separation between the proposed development and the adjacent neighborhood to the south, a 6' privacy fence must be added to any planted Type B Buffer along the applicant's shared boundary with any lot fronting Perry Ridge Ct or Ridge Valley Way. Where existing vegetation is retained which satisfies the requirements of a Type B Buffer, no privacy fence shall be required.


## Street Trees

- All Town-maintained streets shall include street trees along both sides of the street in accordance with Section 5.6.13 of the UDO, with the following exception:
- Along street frontages with front-loaded townhomes, maximum street tree spacing may increase to 60' OC (instead of 50' OC) due to utility and driveway conflicts. The total number of street trees required along a given street segment shall be calculated based on 1 street tree per 50 LF.


## LANDSCAPING DESIGN STANDARDS

## Streetscape Buffers

The proposed planned development includes Streetscape Buffers along Chamblee Road and Perry Curtis Road to soften the view of development from the Town's or NCDOT's street rights-of-way and maintain a more 'rural' feel along these scenic viewsheds. Streetscape buffers shall not apply to the proposed Collector Road linking Perry Curtis and Chamblee road (internal to the development), as the majority of this road is fronted by rear-loaded units.

- The proposed development shall provide Streetscape Buffers which exceed the width requirements of Section 5.6.12 of the UDO. Streetscape Buffers shall maintain a minimum width of 30 feet and shall adhere to the following planting rates and spacing requirements (or use existing vegetation which meets or exceeds these standards):
- Along Chamblee Rd (Enhanced Type C Streetscape Buffer)
- 3 canopy trees per every 100 linear feet (maximum of 33 ft on-center spacing)
- 12 understory trees per every 100 linear feet (4 evergreen)
- 35 shrubs per every 100 linear feet (maximum of 5 feet on center spacing)
- Along Perry Curtis Rd:
- 3 canopy trees per every 100 linear feet (maximum of 33 ft on-center spacing)
- 6 understory trees per every 100 linear feet (maximum of 16 ft on center spacing)
- 20 shrubs per every 100 linear feet (maximum of 5 feet on center spacing)


## Minimum Landscaping for Residential Lots

- Foundation Plantings:
- All residential lots shall contain foundation plantings in accordance with Section 5.6.11.D. 1 of the UDO.


## - Site Landscaping:

- All residential lots shall require minimum tree plantings based on the following rates. These trees may be located anywhere on the lot, or within adjacent open spaces where specified below.
$>$ Front loaded SFD lots: 1 canopy tree and 1 understory tree
$>$ Rear loaded SFD lots: 2 understory trees
$>$ Townhome lot: 1 tree (understory or canopy) or 2 ornamental trees per lot
- To avoid utility and driveway conflicts within Townhome areas, required residential site landscaping may be located either on the Townhome lot itself or within nearby HOA owned common areas.


## Median Planting Requirements

- Medians proposed on divided roadways will be subject to the following planting standard, subject to NCDOT review and approval.
- Median Planting Rate: 4 understory trees and 15 shrubs per 100 LF



## RECREATIONAL OPEN SPACE + AMENITIES

## RECREATIONAL OPEN SPACE AND AMENITIES

Dory Meadows will provide a diverse offering of active and passive recreation areas within the development. In total, over $33 \%$ of the gross acreage will be set aside as some form of open space.

## Open Space Standards

- Total open space required:
- Total open space provided:
- Active open space required:
- Active open space provided:
- Passive open space provided:
13.6 acres ( $10 \%$ gross site area)
+/- 50 acres
3.4 acres
+/- 4.7 acres
+/- 45 acres

Chamblee Lake's recreational open space will be anchored by a primary amenity site centrally located along a new E-W collector road, utilizing a large existing pond as the backdrop to this active open space. A pedestrian trail network will circle the existing pond, and supporting park spaces will be provided to the east and west for convenient access for all neighborhood residents (including the portion on the east side of Chamblee Road. The primary amenity site will incorporate a pool and clubhouse, while the site's other active open spaces shall incorporate such elements as trails, playgrounds, a dog park, and outdoor living space as further detailed on the following page and within the Master Plan set. While the exact design and layout shown on the Character Board on the following page and Master Plan set is conceptual in nature, the applicant commits to providing the list of open space amenities included.




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## INFRASTRUCTURE

## STREETS + SIDEWALKS

All streets within Chamblee Lake shall be designed to meet the standards of the Town of Zebulon, except as otherwise modified by this document or its associated concept plan set (subject to NCDOT review and approval along NCDOT maintained roadways).

- Frontage along Chamblee Road shall be improved to a modified 2-lane divided cross-section along the project's half of the centerline (widened from the Town's typical 2-lane divided roadway to accommodate fire access and NCDOT clearance zones for the median).
- Perry Curtis Road will be widened to the ultimate cross-section, with a fee in lieu applied for the median due to the site's limited frontage.
- All proposed roads shall be public right-of-way.
- All proposed roads shall have pedestrian facilities on both sides of the road.


## STORMWATER

The proposed development will require stormwater management measures for quality and quantity treatment in accordance with the Town of Zebulon's adopted stomwater ordinance (enforced by Wake County). A network of storm drainage conveyances will transport storm drainage from impervious areas to the proposed Stormwater Control Measures (SCM). Preliminary locations of these SCMS are provided in the Concept Plan which accompanies this planned development request, based on existing drainage basins. The majority of the site drains internally towards the existing lake. Location and adequate sizing for the proposed stormwater devices will be verified during final design. All stormwater management will be required to meet North Carolina Department of Environmental Quality and Town of Zebulon design requirements at the time of site construction drawing submittal.

## WATER \& SEWER

There are two existing waterline stubs to the south side of the Town of Zebulon. Each stub is a 6 " main, one being on the south side of the Zebulon Community Park of South Arendell Avenue (HWY 96) and the other is stubbed 500 ' south of the intersection of East Horton Street and the Norfolk Southern Rail right of way. In either case, a 12 " water main would tie to the 6 " stub and extend to the property from the south side of the Town of Zebulon. The preferred alignment would be to utilize the HWY 96 NCDOT right of way and extend the watermain on the north side of Perry Curtis Road to the subject property. That water main would pass through the subject site and connect to an existing 12" water main stub that was placed within the Sidney Creek Subdivision east of the subject development. The Sidney Creek site pulls water from the CORPUD water network existing off Old US HWY 264. Through it's waterline extensions, the proposed development will create an interconnected grid network with two feeds, providing a much greater resiliency in this southern side of Zebulon on the very outer reach of CORPUD's distribution system.

There is an existing waste water treatment facility that the Town of Zebulon built along the Little Creek system (Little Creek WWTP) that CORPUD assumed control/ownership over when the merger happened in the early 2000's. From the existing WWTP, there is a sewer main that runs west of the little creek WWTP to serve the Sidney Creek subdivision. This 8 " sewer main ties to the upstream receiving SSMH for the WWTP, and then runs over the creek to serve the wester side of this creek. The Chamblee Road site can gravity sewer to an existing 8 " stub that is proposed with the Sidney Creek Phase 2 development approved by CORPUD. A sewer analysis is being performed to validate the capacity of this existing 8 " sewer system. It is envisioned that the entirety of the proposed development will be served by the 8 " sewer stub and any ensuing upsizing of that receiving gravity line that ties directly to the Little Creek WWTP.

## 7 <br> TRANSPORTATION ANALYSIS

## TRANSPORTATION IMPACT ANALYSIS SUMMARY

A Traffic Impact Analysis (TIA) was conducted by McAdams for the proposed development in accordance with the Zebulon (Town) Unified Development Ordinance (UDO) and North Carolina Department of Transportation (NCDOT) capacity analysis guidelines. A full copy of the TIA was submitted for review and approval with the PD submittal. A summary of the preliminary recommended traffic improvements is provided below for reference. The listed recommended improvements are subject to additional DOT review and revision.

## STUDY AREA

The study area for the TIA was determined through coordination with the Town and NCDOT and consists of the following existing intersections:

> Chamblee Road/ E. Horton Street and Temple-Johnson Road<br>> NC 96 and Temple-Johnson Road<br>> NC 96 and Perry Curtis Road<br>> Perry Curtis Road and Perry Ridge Court<br>> Perry Ridge Court and Ridge Valley Way<br>> Perry Curtis Road / Wake County Line Road and Chamblee Road<br>> NC 39 and Wake County Line Road<br>> NC 39 and Old US 264<br>> Chamblee Road and Site Drive \#1<br>> Chamblee Road and Site Drive \#2<br>> Chamblee Road and Site Drive \#3

## RECOMMENDED IMPROVEMENTS

Based on the analysis of the TIA (including improvements to be installed by the adjacent Sidney Creek development), the following improvements have been recommended to be constructed by the developer to mitigate traffic impacts by the proposed development.

## Chamblee Road and Site Drive \#1

- Construct Site Drive \#1 as the westbound approach with one (1) ingress lane and one (1) egress lane.
- Note: This intersection will be restricted to right-in/right-out operations.
- Provide stop control on the westbound approach of the site drive.


## Chamblee Road and Site Drive \#2

- Construct Site Drive \#2 with a full movement eastbound and westbound approach with one (1) ingress lane and one (1) egress lane each, respectively.
- Provide stop control on the eastbound and westbound approaches of the site drives.
- Construct a northbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
- Construct a southbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.


## RECOMMENDED IMPROVEMENTS (continued)

## Chamblee Road and Site Drive \#3

- Construct Site Drive \#3 as a full movement eastbound approach with one (1) ingress lane and one (1) egress lane.
- Provide stop control on the eastbound approach of the site drive.
- Construct a northbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.


## Perry Curtis Road and Site Drive \#4

- Construct Site Drive \#4 as a full movement southbound approach with one (1) ingress lane and one (1) egress lane.
- Provide stop control on the southbound approach of the site drive.
- Construct an eastbound left turn lane on Perry Curtis Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.


## Perry Curtis Road and NC 96 (Arendell Avenue)

- Construct a southbound left-turn lane on NC 96 (Arendell Avenue) with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
- Restripe the westbound approach of Perry Curtis Road to provide an improved alignment.


## Wake County Line Road and NC 39

- Construct a southbound right-turn lane on NC 39 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
- Restripe the eastbound approach of Wake County Line Road to provide an improved alignment.


## Perry Curtis Road / Wake County Line Road and Chamblee Road

- Monitor for all-way stop-control warrants and convert to an all-way stop-control intersection when warranted and approved by NCDOT.

Attachment 1
PD 2023-01


## ZONING CONDITIONS

## UNIFIED DEVELOPMENT ORDINANCE (UDO) CONSISTENCY

Chamblee Lake has been designed to meet the requirements of the Unified Development Ordinance where practical and achievable. There are some instances where due to site constraints or desires to maximize open space preservation through more compact design, it is reasonable to deviate from the typical requirements of the Ordinance through customized dimensional standards. Furthermore, to enhance the design and quality of the development, there are instances where the applicant proposes to surpass code requirements through committed site elements and standards. The section below summarizes the project's customized dimensional standards and zoning conditions.

## 1. DRIVEWAY ORIENTATION / ACCESS

In order to accommodate a more compact design that supports preservation of environmental sensitive features, this project would permit front-loading of SFD detached lots 50' and larger (rather than 70'). The applicant has offered tailored architectural standards for these units as a condition of the zoning approval.

## 2.SFD DETACHED LOT DIMENSIONAL STANDARDS

To facilitate a more compact design and support preservation of open space and environmental sensitive features, Chamblee Lake proposes the following permitted dimensional standards. The applicant has offered tailored architectural standards for all SFD as a condition of the zoning approval.

|  | Proposed Standard | Notes |
| :--- | :---: | :---: |
| Min Lot Area | 4000 SF Rear Load / 6000 SF Front-Load |  |
| Min Lot Width | $35^{\prime}$ Rear Load /50' Front Load |  |
| Front Setback (min) | $20^{\prime}\left(10^{\prime}\right.$ for Rear-Load SFD) | $20^{\prime}$ normally allowed by UDO for porch |
| Rear Setback (min) | $20{ }^{\prime}$ |  |
| Side Setback (min) | $3^{\prime}$ or $5^{\prime}$ (based on lot width) |  |
| Front Porch Encroachment | $5^{\prime}$ into front setback | ONLY permitted for front-loaded lots |

## 3. TOWNHOME DIMENSIONAL STANDARDS

To facilitate a more compact design and support preservation of open space and environmental sensitive features, Chamblee Lake proposes custom Townhome dimensional standards, based on individual townhome lots, rather than townhome buildings. These custom Townhome dimensional standards are contained within Section 3 of this document, and copied below for reference.

- Min. Lot Area
- Min. Street Setback (front or corner)
- Min. Side Setback
- Min. Rear Setback
- Min. Building Separation
- Max Building Height
- Min. Lot Width

2000 SF for FL / 1500 SF for Rear-Loaded
5 ' (20' for face of garage on front-loaded units)
N/A
$20^{\prime}$
10'
42' / 3 stories
20'

## UNIFIED DEVELOPMENT ORDINANCE (UDO) CONSISTENCY

## 4. COMPREHENSIVE TRANSPORTATION PLAN (CTP) MODIFICATION

The adopted Comprehensive Transportation Plan (CTP) calls for a 4-lane divided roadway to traverse the northern portion of this property, west of Chamblee Road. As explained in the applicant's CTP amendment request, there is strong justification for a different road section to be applied. As such, this planned development shows a proposed 2-lane collector road with on-street parking connecting directly to Perry Curtis Road (in lieu of the CTP's proposed 4lane divided E-W roadway). This plan also incorporates a 2-lane divided section with a multi-purpose path on one side for Chamblee Road.

## 5. MAX LOT COVERAGE

Chamblee Lake will applya 35\% maximum impervious requirement for the development as a whole (based on total acreage).

## 6. PRELIMINARY SITE PLAN APPROVAL

Pursuant to UDO Section 3.5.5.B.4, the applicant requests an exemption from subsequent site plan review. This PD includes a master plan that is detailed and meets the requirements for a site plan, as demonstrated by the included Zebulon Site Plan Checklist. Therefore, upon approval of this PD, the applicant shall be exempt from subsequent site plan review.

## 7. ENHANCED STREETSCAPE, PERIMETER BUFFER, AND MEDIAN STANDARDS

- The applicant commits to providing 30' wide streetscape buffers (exceeding the UDO required 15'). Along Chamblee Road, enhanced planting rates shall be used to screen the rear of homes.
- The applicant commits to providing a 20' wide TypeB buffer along it's shared southern boundary with Perry Ridge Ct (exceeding the UDO required 10' Type A buffer). Where existing vegetation is not used to satisfy the Type B buffer requirement, a 6' privacy fence will also be provided.
- The applicant commits (subject to NCDOT review and approval) to providing 13' wide planted areas within medians (exceeding the UDO required 11')
- Perimeter and streetscape buffers shall be comprised of native or adaptive species.


## 8. ENHANCEDOPEN SPACE DEDICATOIN AND TREE SAVE

Based on the site's acreage, the UDO would require a minimum of 13.6 acres of dedicated open space ( $10 \%$ of the site) and 6.8 acres of Tree Save ( $5 \%$ of the site). The applicant hereby commits to providing a minimum of 41 acres of open space ( $30 \%$ of the site) and 13.6 acres of Tree Save ( $10 \%$ of the site).

## 9. ACTIVE BY DESIGN / FOOD TRUCK ACCOMODATION

To support community gatherings and active neighborhoods, the development's main amenity site and 2 pocket parks will incorporate off-street parking or marked on-street parking to accommodate visitors without impeding travel lanes. Said parking provides a safe and convenient location for food trucks to locate in support of community functions. Furthermore, the applicant commits to providing a minimum of 2 larger parking spaces within the main amenity site designed for food trucks or delivery vehicles, with an electrical outlet available.

## UNIFIED DEVELOPMENT ORDINANCE (UDO) CONSISTENCY

## 10. ENHANCED BIKE / PEDESTRIAN ACCESS

In addition to providing (at a minimum) sidewalks on both sides of all roads ( subject to NCDOT approval along DOT maintained roadways ), the proposed development will further support pedestrian and bicycle access through the incorporation of a multi-use path along Chamblee Road and the site's proposed East-West collector road. Furthermore, Chamblee Lake will provide an off-street pedestrian trail network (both paved and unpaved) of a least 1 mile in length, with a minimum of 4 exercise stations along the trail. This pedestrian network, in connection with Sidney Creek's committed improvements, will provide a direct connection to Five County Stadium.

## 11. SITE IMRPOVEMENTS AND NCDOT APPROVAL

All planned improvements to roadways and right-of-way owned and maintained by the NC Department of Transportation (NCDOT), including improvements that require off-site property acquisition and/or easements, are subject to NCDOT approval during subsequent phases of development. If any improvements are not approved by NCDOT, alternative designs may be administratively approved by Town staff.

## 12. POOL/CLUBHOUSE

Construction of a pool and clubhouse structure shall be completed at the earlier of either 24 months from recordation of the Phase 1 plat, or prior to issuance of the 150th Certificate of Occupancy.

## 13. CONSTRUCTION TRAFFIC ACCESS

In order to protect adjacent neighborhoods, no construction traffic will utilize Perry Ridge Court or Ridge Valley Way as a means of access.

## 14. ENTRY FEATURES

Chamblee Lake shall include a prominent entry feature at the primary entrances on Chamblee Road.

## 15. STORMWATER CONTROL PONDS

At least one stormwater control pond shall contain a fountain. At least seventy-five percent (75\%) of any required plants in the Stormwater Control Measure ponds, excluding grasses, shall be pollinator plants such as native milkweeds and other nectar-rich flowers.

## 16. BUS STOP

If a bus pickup location is approved by Wake County Public Schools in the neighborhood, one bust stop area, including a shelter, a bench, a trash can, and at least 5 bicycle spaces shall be provided with the second phase of development.

## 17. PET WASTE STATIONS

A minimum of four (4) pet waste stations shall be provided along the site's sidewalks, paths, or trails.

## 18. MAX BLOCK LENGTH

Due to existing environmental features which prevent additional road connectivity, a maximum block length of 950 LF shall apply to Street A, Street B, and Street H.

## UNIFIED DEVELOPMENT ORDINANCE (UDO) CONSISTENCY

## 19. FISHING DOCK

In order to further activate the existing pond, a fishing dock will be provided, accessible from the pedestrian trail surrounding Chamblee Mill Pond. The exact location of this fishing dock will be provided in the construction drawings, pending further coordination with environmental agencies.

## 20. AFFORDABLE HOUSING

All front-loaded single-family attached units in the Development (12 units, 10\% of all single-family attached units) shall be deed-restricted affordable housing single-family median-income ownership units (the "Affordable Units"). The Affordable Units shall be sold to and occupied by low or median-income households earning no more than $80 \%$ of the Area Median Income, for a period of at least seven (7) years. A restrictive covenant memorializing this zoning condition shall be recorded in the Wake County Registry against each of the Affordable Units upon the sale of the Affordable Units, and a covenant between the Town and applicant shall be recorded in the Wake County Registry against each of the lots for the Affordable Units prior to the issuance of a building permit for such lots. Town staff will assist with the administrative duties of the Affordable Units during the affordability period.

## 21. RIDGE VALLEY WAY BARRIERS

Prior to issuance of the final plat for the phase of development that completes the Ridge Valley Way extension, any temporary barriers installed by the builder impeding vehicular circulation on Ridge Valley Way shall be removed.

## 22. STORMWATER PROTECTION

Along the southern property boundary where adjoining PINS (2714191047, 2714193007, 2714194057, 2714195099,2714197170 ) developer will install a stormwater drainage swale to collect the existing rear lot runoff and direct it through the swale to the proposed SCM Management system, where the stormwater runoff will be treated onsite prior to discharge to the Neuse Riparian system. The swale shall be designed to handle a 25 -year intensity storm.

## 23. EROSION CONTROL MEASURE

Erosion control containment devices (sucha s riser basins or sediment traips) shall be sized to accommodate the 25 -year peak flow of runoff coming from disturbed acreage. Denuded areas, if left exposed and not being worked on shall receive ground cover within 7 days. All denuded areas shall have double silt fence installed where adjacent to riparian buffers and/or wetlands located on the subject property.

# Dory Meadows Utility Allocation Worksheet 

Base Points Provided: 10

Bonus Points Required: 50

## BASE POINTS: List of Preferred Land Uses and Required Characteristics:

The uses listed below have been determined to be the most desirable and important uses for the Town of Zebulon to promote and maintain economic and housing diversity. Only projects that completely meet the stated performance characteristics will be considered for utility allocation. Please select one of the following Base Point classifications.

| 60 Base Points | Single Family Homes (Expedited Subdivision or Recombination) <br> Newly constructed Single Family Homes built upon new lots created via the minor <br> subdivision, exempt subdivision, expedited subdivision (3 or fewer lots) or <br> recombination process. |
| :--- | :--- |
| 60 Base Points | Change of Use <br> This category captures renovation, rehabilitation, up-fit or retrofit of existing <br> buildings or portions of buildings that pre-date this policy and require a code <br> summary sheet, change in building occupancy, certificate of occupancy, building <br> permit and/or building inspections and do not increase the utility demand from <br> the previous use of the building. |
| 45 Base Points | Business Office/Finance/ Insurance / Professional Services Center - Large <br> Qualifying projects must exceed 100,000 square feet of heated floor space and <br> create at least 150 employment positions that exceed the average annual Wake <br> County salary according to Wake County Economic Development or the |
| Employment Security Commission. Employees perform professional, scientific, |  |
| and technical services for others. Such services require a high degree of expertise |  |
| and training and provide high salaried employment opportunities. Examples |  |
| include software engineering, legal, medical, accounting, consulting, |  |
| architectural, biomedical, chemical, research and development, and |  |
| administrative services. Finance or Insurance Centers shall also pool financial risks |  |
| by underwriting insurance and annuities. Some establishments support employee |  |
| benefit programs. Examples include bank or credit union headquarters, |  |
| brokerages, investments, insurance, financing, and data processing |  |
| establishments. |  |


|  | driven machines and materials-handling equipment. They may also employ workers who assemble or create new products by hand, without the characteristic machinery-intensive enterprise. Many manufacturing establishments process products of agriculture, forestry, fishing, mining, or quarrying as well as products of other manufacturing establishments. Most manufacturing establishments have some form of captive services (e.g., research and development, and administrative operations, such as accounting, payroll, or management) in conjunction on-site. |
| :---: | :---: |
| 45 Base Points | Governmental Uses/Public Administration <br> This category encompasses centers for all government functions; it includes federal, state, and local government agencies that administer, oversee, and manage public programs and budgets and have executive, legislative, or judicial authority. Establishments develop policy, create laws, adjudicate civil and criminal legal cases, and provide for public safety and national defense. |
| 40 Base Points | Single Use Retail <br> Newly constructed single use, stand-alone building used primarily for retail, restaurant, or similar commercial use. |
| 40 Base Points | Hotels, Motels, or other Accommodation Service Establishments <br> This category serves lodging and short-term accommodations for travelers. They may offer a wide range of services, from overnight sleeping space to full-service hotel suites. They may offer these services in conjunction with other activities, such as entertainment or recreation. Stays in these establishments are generally less than one month. This classification does not include boarding or rooming houses. |
| 40 Base Points | Arts/Entertainment/Museums <br> These establishments operate facilities or provide services for a variety of cultural, entertainment, and performing art functions. Establishments include those that produce, promote, or participate in live performances, events, or exhibits intended for public viewing; those that preserve and exhibit objects and sites of historical, cultural, or educational interest; and those that operate facilities or provide services to serve activities associated with the aforementioned. |
| 40 Base Points | Amusement, Sports or Recreational Establishment <br> Establishments in this category operate either indoor or outdoor facilities offering family activities (i.e. sports, recreation, or amusement) and provide services, such as facilitating amusement in places operated by others, operating recreational sports groups and leagues. Examples include golf courses, indoor sports venues, bowling alleys, miniature golf courses, athletic clubs, skating rinks and arcades. This category may be used in conjunction with a commercial or residential development as a mixed use development. |
| 40 Base Points | Mixed Use Development (Transit Oriented) <br> Newly constructed or substantially rehabilitated collection of vertically mixed retail, office and residential uses in multi-story buildings centered within a onehalf mile radius of an existing rail or bus transit station or the intersection of |


|  | Horton Street and North Arendell Avenue in Downtown Zebulon. In order to qualify as mixed use, developments must dedicate at least one-third of the total heated square footage to residential use and the remainder to a mix of retail and office uses. All three use types must be represented and at least $10 \%$ of the heated square footage must be dedicated to street level, storefront retail uses. |
| :---: | :---: |
| 40 Base Points | Mixed Use Development (Urban Infill) <br> Newly constructed or substantially rehabilitated collection of mixed retail, office and residential uses in a multi-story building on a previously developed parcel within the corporate limits. In order to qualify as mixed use, developments must dedicate at least one-third of the total heated square footage to residential use and the remainder to a mix of retail and office uses. All three use types must be represented and at least $10 \%$ of the heated square footage must be dedicated to street level, storefront retail uses. |
| 40 Base Points | Mixed Use Development (Greenfield) <br> Newly constructed collection of mixed retail, office and residential uses in a multistory building or buildings on a previously undeveloped parcel. In order to qualify as mixed use, developments must dedicate at least one-third of the total heated square footage to residential use and the remainder to a mix of retail and office uses. All three use types must be represented and at least $10 \%$ of the heated square footage must be dedicated to street level, storefront retail uses. |
| 35 Base Points | Housing Services for the Elderly Establishments <br> This category offers housing services for the aged, not requiring a license from the North Carolina Department of Health and Human Services, such as independent retirement housing, multi-unit assisted housing with services (MAHS), and continuing care retirement centers. All facilities must provide, but not necessarily be limited to, the following services/facilities: On-site laundry facilities, on site management, guaranteed transportation services at least four days per week, on-site exercise facilities, on-site computer access, and a clubhouse/common lounge area for all residents. |
| 35 Base Points | Mixture of Use Development (Retail/Office-Institutional/Commercial) Newly constructed collection of horizontally arranged uses including retail, officeinstitutional and commercial within a master planned project on a previously undeveloped parcel or parcels totaling at least 10 acres. Mixture of use projects must include at least two (2) use types with at least $25 \%$ of the space devoted to each use type included in the development. |
| 30 Base Points | Retail/Commercial Center <br> Newly constructed center of at least 50,000 square feet, typically containing an anchor such as a grocery store and other smaller spaces and/or outparcels for subordinate uses. Uses are entirely consumer-driven and include all manner of retail, service and office possibilities. |
| 30 Base Points | Business Office/Finance/ Insurance / Professional Services Center - Medium Qualifying projects must exceed 50,000 square feet of heated floor space and create at least 75 employment positions that exceed the average annual Wake County salary according to Wake County Economic Development or the |


|  | Employment Security Commission. Employees perform professional, scientific, and technical services for others. Such services require a high degree of expertise and training and provide high salaried employment opportunities. Examples include software engineering, legal, medical, accounting, consulting, architectural, biomedical, chemical, research and development, and administrative services. Finance or Insurance Centers shall also pool financial risks by underwriting insurance and annuities. Some establishments support employee benefit programs. Examples include bank or credit union headquarters, brokerages, investments, insurance, financing, and data processing establishments. |
| :---: | :---: |
| 30 Base Points | Business Office/Finance/ Insurance / Professional Services Center - Small Qualifying projects 50,000 square feet of heated floor space or less. Employees perform professional, scientific, and technical services for others. Such services require a high degree of expertise and training and provide high salaried employment opportunities. Examples include software engineering, legal, medical, accounting, consulting, architectural, biomedical, chemical, research and development, and administrative services. Finance or Insurance Centers shall also pool financial risks by underwriting insurance and annuities. Some establishments support employee benefit programs. Examples include bank or credit union headquarters, brokerages, investments, insurance, financing, and data processing establishments. |
| 30 Base Points | Multi-Tenant Retail Center <br> Newly constructed center 50,000 square feet or less, typically containing a more than one tenant space within a single structure. Uses are entirely consumerdriven and include all manner of retail, service and office possibilities. |
| 30 Base Points | Single Use Office <br> Newly constructed single use, stand-alone building used primarily for office and professional. |
| 30 Base Points | Bungalow Court or Pocket Neighborhood <br> Newly constructed Bungalow Court or Pocket Neighborhood per the standards of the Unified Development Ordinance. |
| 30 Base Points | Distribution/Trucking Center <br> Newly constructed center of at least 500,000 square feet where products and resources are transported to and delivered from via truck or rail. |
| 25 Base Points | Warehouse <br> Newly constructed center of at least 500,000 square feet where products and resources are stored. |
| 25 Base Points | Religious Institutions <br> Any facility such as a church, temple, synagogue, mosque or monastery used for worship by a non-profit organization and their customarily related uses. |
| 20 Base Points | Intensive Industrial Uses: <br> Uses classified as Special Land Uses within the Industrial Classification. |


| 20 Base Points | Multi-Family Residential \& Condo Units |
| :--- | :--- |
| 20 Base Points | Major Subdivision 4-25 Lots <br> Any subdivision of land of four (4) - 25 Lots. |
| 10 Base Points | Major Subdivision 26 lots or more <br> Any subdivision of land of 26 or more lots. |
|  | All Other Uses Not Categorized <br> This category of use captures all other uses not categorized elsewhere. <br> Allocations for such uses are left to the discretion of the Town's Board of <br> Determination <br> Commissioners upon recommendation of the Planning Board and acted on a case- <br> by-case basis. |

## BONUS POINTS

Proposed projects can gain BONUS POINTS by agreeing to provide any of the following items over and above the UDO or Standard Specification requirements for their development proposal.

NOTE: No bonus points are given for UDO requirements.
CATEGORY 1 - Non-Conformity Abatement and Public Infrastructure Improvements

| Section 1A - Abatement of Nonconformities |  | (Max-3 points) |
| :--- | :--- | :--- |
|  | Abatement of any existing non-conforming structures | 3 |
|  | Abatement of any existing non-conforming use of land | 2 |
|  | Abatement of any existing non-conforming lots | 1 |


| Section 1B - Roadway Infrastructure Not Warranted by TIA/UDO/CTP |  | (Max - 10 points) |
| :--- | :--- | :--- |
|  | Construction of full cross section of existing off-site public street | 5 |
|  | Nearby intersection improvements | 5 |
|  | Traffic signal improvements | 4 |
|  | Signage or striping improvements | 1 |


| Section 1C - Off-Site Public Greenway Improvements |  | (Max - 10 points) |
| :--- | :--- | :--- |
|  | Construct more than 4000 linear feet of 10-foot-wide path | 10 |
|  | Construct more than 3000 linear feet of 10-foot-wide path | 8 |
|  | Construct more than 2000 linear feet of 10-foot-wide path | 6 |
|  | Construct more than 1000 linear feet of 10-foot-wide path | 4 |
|  | Construct 500 to 1000 linear feet of 10-foot-wide path | 2 |


| Section 1D - Off-Site Bike-Ped Improvements |  | (Max-5 points) |
| :--- | :--- | :--- |
|  | Construction of off-site sidewalk improvements (Subject to TRC <br> Approval) | 2 |
|  | Construction of off-site bike lane improvements (Subject to TRC <br> Approval) | 3 |

CATEGORY 2. Green Development Standards/ Building \& Site Design

| Section 2A - Conservation of Natural Habitat Meeting Active Open Space <br> Requirements as Defined in the UDO | (Max-10 points) | Points <br> Earned |
| :--- | :--- | :--- |
|  | One point per acre up to 10 acres (fishing dock included per zoning) | $1-10$ |


| Section 2B - Parking |  | (Max-15 points) | Points <br> Earned |
| :--- | :--- | :--- | :--- |
|  | Structured Parking Facilities - must reduce footprint by 20\% | 10 |  |
|  | EV Charging Stations (two-port) | 5 |  |
|  | Provision of on-street public parking (1 point per stall up to 10 Max) | $1-10$ | 10 |


| Section 2C - Stormwater SCM's |  | (Max-10 points) | Points Earned |
| :--- | :--- | :--- | :--- |
|  | Construct a fountain or other stormwater amenity within the <br> BMP/SCM <br> (as approved by Staff) | 10 | 4 |
|  | Stormwater - Landscaped Green Roof | 4 |  |
|  | Stormwater - Underground capture system for on-site irrigation | 5 |  |
|  | Stormwater - Bioretention | 5 |  |
|  | Stormwater - Wetland | 5 |  |
|  | Exclusive use of porous pavement in parking areas where suitable | 2 |  |


| Section 2D - Building/Site Design |  | (Max-20 points) | Points <br> Earned |
| :--- | :--- | :--- | :--- |
|  | Compliance with residential design guidelines per Section 5.2 of the <br> UDO | 10 | 10 |
|  | Non-Residential building design that incorporates an active upper <br> story. | 5 |  |
|  | Pedestrian oriented and walkable site design which promotes <br> alternatives to vehicular travel within the development. (Subject to <br> TRC Approval) | 5 |  |


| Section 2E Infill/Redevelopment |  | (Max-16 points) |
| :--- | :--- | :--- |
|  | Development or Redevelopment within DTC | 10 |
|  | Development or Redevelopment within DTP | 6 |
|  | Redevelopment of previously vacant building space over 20,000 <br> square feet | 6 |
|  | Redevelopment of previously vacant building space under 20,000 <br> square feet | 5 |


| Section 2F - Historic Preservation |  |  |
| :--- | :--- | :--- |
|  | Historic Structure Preservation via Deed Restriction (Determined by <br> TRC) | 10 |
|  | Restoration of Historic Structure (Must be approved by TRC) | 5 |


| Section 2G - LEED Certification |  | (Max -10 points) |
| :--- | :--- | :--- |
|  | LEED Certification for Neighborhood Development (LEED ND) | 10 |
|  | Platinum LEED Certification | 10 |
|  | Gold LEED Certification | 8 |
|  | Silver LEED Certification | 6 |
|  | Bronze LEED Certification | 4 |
|  | LEED Certified Certification | 2 |

CATEGORY 3 - Outdoor Enhancement and Transit Improvements

| Section 3A - Outdoor Enhancement |  | (Max-12 points) |
| :---: | :--- | :--- |
|  | Construction of a Parkway Street Section on a Collector level street | 5 |


|  | Construction or Preservation of Gateway Landscaping or Structure <br> (Subject to Comprehensive Plan Consistency and TRC approval) | 5 | points <br> Earred |
| :--- | :--- | :--- | :---: |
|  | Outdoor Display of Public Art (Subject to TRC Approval) | 4 |  |
|  | Public Facing Outdoor Mural (Subject to TRC Approval) | 4 |  |
|  | Maintenance of Roadside Gateway Plant Bed (requires maintenance <br> agreement) | 3 |  |
|  | Planting Pollinator Garden (225 Square Foot Minimum) | 3 | 3 |
|  | Exclusive use of xeriscaping techniques and drought tolerant species | 3 |  |
|  | Enhanced Roadside Landscaping (Subject to TRC Approval) | 2 |  |
|  | Enhanced Buffer Landscaping (Subject to TRC Approval) | 2 |  |
|  | Construction of a Parkway Street Section on a Local level street | 2 |  |
|  | Installation of Native Shade Tree Species (per Tree up to 10 Trees) | 1 | 9 |

(Shade tree planting locations to be specified in Construction Drawings)

| Section 3B - Transit (Pursuant to location being adjacent to a planned or <br> active transit route) | (Max - 8 points) |  |
| :--- | :--- | :--- |
|  | Provision of more than 50 designated Park \& Ride Stalls | 8 |
|  | Provision of 25 designated Park \& Ride Stalls | 5 |
|  | Provision of 10 designated Park \& Ride Stalls | 3 |
|  | Provision of mass transit easement w/ structure (bus stop with <br> shelter \& bench) | 2 |

## CATEGORY 4 - Amenities

| Section 4A - Private Greenway | (Max -3 points) |  |
| :--- | :--- | :--- |
|  | Construction of more than 3000 linear feet private greenway <br> meeting Town of Zebulon standards | 3 |
|  | Construction of more than 2000 linear feet of private greenway <br> meeting Town of Zebulon standards | 2 |
|  | Construction of more than 1000 linear feet of private greenway <br> meeting Town of Zebulon standards | 1 |


| Section 4B $\boldsymbol{\text { P Pool (Combinations may be approved by TRC) }}$ | (Max-8 points) | Points <br> Earned |  |
| :--- | :--- | :--- | :--- |
|  | Olympic Pool and Aquatic Center | 8 |  |
|  | Junior Olympic Pool | 5 |  |
|  | Lap Pool (four lane minimum) | 3 |  |
|  | Resort Style Pool | 2 | 2 |
|  | Any Other Pool | 1 |  |


| Section 4C - Outdoor Deck/Patio |  | (Max -3 points) | Points |
| :--- | :--- | :--- | :--- |
|  | Eeck/Patio - More than 3000 square feet | 3 |  |
|  | Deck/Patio - More than 2000 square feet | 2 |  |
|  | Deck/Patio - More than 1000 square feet | 1 | 1 |

Section 4D - Pool Amenities


| Section 4E - Clubhouse | (Max -10 points) | Points <br> Earned |  |
| :--- | :--- | :--- | :--- |
|  | Commercial Coffee Shop with at least 10 designated public seating <br> spaces. | 10 |  |
|  | With full kitchen and over 4000 square feet of meeting space | 10 |  |
|  | With full kitchen and less than 4000 square feet of meeting space | 9 |  |
|  | Meeting space without kitchen more than 3500 square feet | 8 |  |
|  | Meeting space without kitchen $2500-3499$ square feet | 7 |  |
|  | Meeting Space without kitchen $1500-2499$ square feet | 5 |  |
|  | Meeting Space without kitchen less than 1500 square feet | 4 | 3 |
|  | No meeting space, bathrooms and changing rooms only | 3 |  |
|  | Outdoor Kitchen or Grills | 2 |  |


| Section 4F - Additional Active Recreation | (Max -10 points) | Points <br> Earned |  |
| :--- | :--- | :--- | :--- |
|  | Gymnasium (regulation size indoor basketball court) | 10 |  |
|  | Baseball/Softball Field (regulation size) | 5 |  |
|  | Football/Soccer Field (regulation size) | 5 |  |
|  | Skate Park | 5 |  |
|  | Tennis Courts (two regulation courts, fenced) | 5 |  |
|  | Multi-Use Hardcourt (two regulation basketball courts, street <br> hockey, fenced) | 5 |  |
|  | Pickleball Court (three regulation courts, fenced) | 5 |  |
|  | Pocket Park -5,000 square feet | 3 | 3 |
|  | IPEMA Certified Playground Equipment | 4 | 4 |
|  | Lighted Field of Play for nighttime use | 3 |  |
|  | Electronic Scoreboard or Covered Dugouts or Bleachers | 3 |  |
|  | Community Garden -15-foot by 15-foot, with water access and <br> potting shed. | 3 |  |


| Section 4G - Additional Urban Open Space Enhancements (Within Non <br> Residential Zoning Districts) | (Max-10 points) |  |
| :--- | :--- | :--- |
|  | Fountain | 2 |
|  | Canopy Including Fixed Permanent Seating | 2 |
|  | Drinking Fountain with Pet Fountain | 2 |
|  | Permanent Game Tables | 1 |
|  | Permanent Tables with Shade Cover | 1 |
|  | All Weather Bulletin Board | 1 |
|  | Covered or Internal Bicycle Parking | 1 |
|  | Artist-Design Bicycle Racks | 1 |
|  | Little Free Library | 1 |
|  | Drinking Fountain | 1 |
|  | Public Work Bike Stand With Tools | 1 |

CATEGORY 5 - Affordable Housing

| Inclusion of a percentage of the provided housing stock of a proposed <br> development cost no more than 30\% of a household income not exceeding <br> 80\% of the Area Median Income (AMI) | (Max-10 Points | Points <br> Earned |
| :--- | :--- | :--- |
|  | $15 \%$ Affordable Housing | 10 |
|  | $10 \%$ Affordable Housing (10\% of THs are deed restricted affordable) | 5 |

CATEGORY 6 - Other
(Max 5 Points)

|  | Integrated public safety operation systems (EX. Flock Safety or others <br> as approved by the Police Department) | 3 |
| :--- | :--- | :--- |
|  | Smart Waste and Recycling Stations | 2 |


| Total Points <br> Earned |
| :---: |
| 73 |
| $(10+63$ Bonus $)$ |



## CHAMBLEE PROPERTY

Traffic Impact Analysis, Zebulon, NC / November 2022

Prepared by:
McAdams

# OHAMBLEI PROPERTY 

ZEBULON, NORTHCAROUNA

## TRAFFICIMPACTANALYSIS

Project Number:
Prepared By:
Revewed Br:

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Tyer Huggins
Nate Bouquin, PE, PTOE

November 2022


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NCLC. \#C-0293

## EXEOTIVESUMMARY

The proposed residential development will be located along Chamblee Road north of Perry Curtis Road in Zebulon, North Carolina. Site access will be served via one (1) right-in/right-out driveway and two (2) full movement driveways on Chamblee Road as well as via a connection to the existing Ridge Valley Way which is stubbed to the southern border of the property. The middle site driveway along Chamblee Road is proposed to be aligned across Chamblee Road, providing access to both sides of the development. The site is currently undeveloped and is expected to consist of a maximum of 211 single family homes and 119 townhomes. The proposed site is expected to be built-out by the year 2027. The purpose of this Traffic Impact Analysis (TIA) is to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to mitigate the impacts on the roadway network.

A Memorandum of Understanding ( MOU ) was reviewed and approved by the North Carolina Department of Transportation (NCDOT) and the Town of Zebulon (Town), outlining the TIA scope and assumptions. The M OU and approval correspondence is provided in the appendix of this study. Based on the approved scoping, the following intersections are included in this TIA study area:
> Chamblee Road/ E. Horton Street and Temple-Johnson Road
> NC 96 and Temple-Johnson Road
> NC 96 and Perry Curtis Road
> Perry Curtis Road and Perry Ridge Court
> Perry Ridge Court and Ridge Valley Way
> Perry Curtis Road / Wake County Line Road and Chamblee Road
> NC 39 and Wake County Line Road
> NC 39 and Old US 264
> Chamblee Road and Site Drive \#1
> Chamblee Road and Site Drive \#2
> Chamblee Road and Site Drive \#3
To determine the traffic impacts of the proposed development, the following analysis scenarios are included in this study:
> Existing (2022) Traffic Conditions
> No-Build (2027) Traffic Conditions
> Build (2027) Traffic Conditions
Peak hour traffic counts were conducted at the existing study intersections in June and October 2022 and balanced between study intersections, as appropriate, to determine Existing (2022) traffic volumes. To account for background development growth, a $3 \%$ annual growth rate was applied to the existing traffic volumes and the adjacent development traffic from one approved nearby development, Sidney Creek, was added to determine the No-Build (2027) traffic volumes.

Based on the Institute for Transportation Engineers (ITE) Trip Generation Manual, $11^{\text {th }}$ Edition, and the suggested method of trip calculations provided in NCDOT's Rate vs. Equation spreadsheet trips for the proposed development were calculated for weekday daily, weekday AM peak hour, and weekday PM peak hour. A summary of this trip generation is provided in Table ES-1.

TABLEES-1: TRIP GENERATION

| Land Use (ITE Code) | Density | Calculation Methodology | Daily <br> Trips | AM Peak Hour |  |  | PM PeakHour |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Enter | Exit | Total | Enter | Exit | Total |
| Single-Family Detached Housing (210) | 211 Units | Adjacent/ <br> Equation | 2,006 | 38 | 109 | 147 | 126 | 74 | 200 |
| Single-Family Attached Housing (215) | 119 Units | Adjacent/ Equation | 856 | 17 | 39 | 56 | 38 | 29 | 67 |
| TOTAL |  |  | 2,862 | 55 | 148 | 203 | 164 | 103 | 267 |

The peak hour site traffic was distributed throughout the network according to the site trip distribution approved by NCDOT and Town staff within the MOU. This site traffic was added onto the No-Build (2027) traffic volumes to determine the Build (2027) traffic volumes for the capacity analysis.

Capacity analysis was conducted at all study intersections according to NCDOT and Town guidelines utilizing the methodology contained in the Institute of Transportation Engineers (ITE) Highway Capacity Manual. Refer to Table ES-2 for a summary of the capacity analysis results.

## TABLE ES-2: CAPACITY ANALYSIS SUMMARY

| Intersection | Conditions | $\begin{aligned} & \mathbf{A} \\ & \mathbf{P} \\ & \mathbf{P} \\ & \mathbf{R} \\ & \mathbf{O} \\ & \mathbf{A} \\ & \mathbf{C} \\ & \mathbf{H} \end{aligned}$ | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | LOS and <br> Approach <br> Delay <br> (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Chamblee Road/ E. Horton Street and Temple-Johnson Road | Existing (2022) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & A(9) \\ & A(7) \end{aligned}$ | N/A | A (9) <br> A (7) | N/A |
|  | No-Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | A (9) <br> A (7) | N/A | A (9) <br> A (7) | N/A |
|  | Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | A (9) <br> A (7) <br> -- | N/A | A (9) <br> A (8) <br> -- | N/A |
| Temple-Johnson Road and NC 96 | Existing (2022) | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & \text { B (11) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & B(11) \\ & -- \\ & A(8) \end{aligned}$ | N/A |
|  | No-Build (2027) | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & \text { B (11) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (11) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |
|  | Build (2027) | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & \text { B (12) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (12) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |
| Perry Curtis Road and NC 96 | Existing (2022) | $\begin{aligned} & W B^{2} \\ & \mathrm{NB} \\ & \mathrm{SB}^{1} \end{aligned}$ | $\begin{aligned} & \text { B (10) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (10) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |
|  | No-Build (2027) | $\begin{aligned} & W B^{2} \\ & \mathrm{NB} \\ & \mathrm{SB}^{1} \end{aligned}$ | $\begin{aligned} & \text { B (11) } \\ & -- \\ & A(8) \end{aligned}$ | N/A | $\begin{aligned} & B(12) \\ & -- \\ & A(8) \end{aligned}$ | N/A |
|  | Build (2027) | $\begin{aligned} & \text { WB }{ }^{2} \\ & \text { NB } \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & \text { B (12) } \\ & -- \\ & A(8) \end{aligned}$ | N/A | $\begin{aligned} & B(13) \\ & -- \\ & A(8) \end{aligned}$ | N/A |
| Perry Curtis Road and Perry Ridge Court | Existing (2022) | $\begin{aligned} & W^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & A(9) \\ & -- \\ & A(7) \end{aligned}$ | N/A | A (9) $A(7)$ | N/A |
|  | No-Build (2027) | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & \text { A (9) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & A(9) \\ & -- \\ & A(7) \end{aligned}$ | N/A |
|  | Build (2027) | $\begin{aligned} & W^{2} \\ & N B \\ & \mathrm{SB}^{1} \end{aligned}$ | $\begin{aligned} & \text { A (9) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | A (9) A (8) | N/A |
| Perry Ridge Court and Ridge Valley Way | Existing (2022) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & A(7) \\ & -- \\ & \text { A }(9) \end{aligned}$ | N/A | A (7) A (9) | N/A |
|  | No-Build (2027) | $\begin{aligned} & E B^{1} \\ & W B \\ & S B B^{2} \end{aligned}$ | $\begin{aligned} & A(7) \\ & -- \\ & A(9) \end{aligned}$ | N/A | A (7) $A(9)$ | N/A |


| - | Build (2027) | $\begin{aligned} & E B^{1} \\ & W B \\ & S B^{2} \end{aligned}$ | A (7) A (9) | N/A | A (7) A (9) | N/A |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Perry Curtis Road / Wake County Line Road and Chamblee Road | Existing (2022) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A |
|  | No-Build (2027) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | A (7) A (9) | N/A | $\begin{aligned} & \text { A (8) } \\ & -- \\ & \text { A (10) } \end{aligned}$ | N/A |
|  | Build (2027) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & A(7) \\ & -- \\ & A(10) \end{aligned}$ | N/A | $\begin{aligned} & \text { A (8) } \\ & -- \\ & B(11) \end{aligned}$ | N/A |
| Wake County Line Road and NC 39 | Existing (2022) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & \text { B (12) } \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (13) } \\ & \text { A (8) } \end{aligned}$ | N/A |
|  | No-Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & \text { B (12) } \\ & \text { A (8) } \end{aligned}$ -- | N/A | $\begin{aligned} & \text { B (14) } \\ & \text { A (8) } \end{aligned}$ | N/A |
|  | Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & \text { C (17) } \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { C (20) } \\ & \text { A (9) } \end{aligned}$ | N/A |
| NC 39 and Old US 264 | Existing (2022) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{WB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB}^{1} \end{aligned}$ | $\begin{aligned} & C(16) \\ & C(21) \\ & A(8) \\ & A(8) \end{aligned}$ | N/A | $\begin{aligned} & F(76) \\ & D(32) \\ & A(8) \\ & A(8) \end{aligned}$ | N/A |
|  | No-Build (2027) | $\begin{aligned} & \text { EB } \\ & \text { WB } \\ & \text { NB } \\ & \text { SB } \end{aligned}$ | $\begin{aligned} & D(38) \\ & D(38) \\ & C(29) \\ & C(25) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (30) \end{aligned}$ | $\begin{aligned} & D(43) \\ & D(40) \\ & C(32) \\ & C(29) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (33) \end{aligned}$ |
|  | Build (2027) | $\begin{aligned} & \text { EB } \\ & \text { WB } \\ & \text { NB } \\ & \text { SB } \end{aligned}$ | $\begin{aligned} & D(39) \\ & D(40) \\ & C(29) \\ & C(25) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (31) \end{aligned}$ | $\begin{aligned} & D(47) \\ & D(47) \\ & C(32) \\ & C(30) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (35) \end{aligned}$ |
| Chamblee Road and Site Drive \#1 | Build (2027) | $\begin{aligned} & W B^{1} \\ & \text { NB } \\ & \text { SB } \end{aligned}$ | A (9) | N/A | A (9) | N/A |
| Chamblee Road and Site Drive \#2 | Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{WB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB}^{1} \end{aligned}$ | $\begin{aligned} & A(9) \\ & A(10) \\ & A(7) \\ & A(7) \end{aligned}$ | N/A | $\begin{aligned} & \mathrm{B}(10) \\ & \mathrm{B}(10) \\ & \mathrm{A}(8) \\ & \mathrm{A}(7) \end{aligned}$ | N/A |
| Chamblee Road and Site Drive \#3 | Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | A (9) <br> A (7) <br> -- | N/A | A (9) <br> A (8) <br> -- | N/A |

Based on review of adjacent development and background information provided by NCDOT and the Town, the following improvements are expected to be constructed by Sidney Creek and were included in the future year analyses:

## NC 39 and Old US 264

$>$ Monitor for signalization and install once warranted and approved by NCDOT.
$>$ Construct an exclusive eastbound right-turn lane on Old US 264 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive eastbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound right-turn lane on Old US 264 with a minimum of 125 feet of full width storage and appropriate deceleration and taper.
$>$ Construct an exclusive westbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
$>\quad$ Extend the existing southbound left-turn lane on NC 39 to provide a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Based on the findings in the TIA, the improvements below have been recommended to be constructed by the developer to mitigate traffic impacts by the proposed development:

## Chamblee Road and Site Drive \#1

> Construct Site Drive \#1 as the westbound approach with one (1) ingress lane and one (1) egress lane.

- Note: This intersection will be restricted to right-in/right-out operations.
$>$ Provide stop control on the westbound approach of the site drive.


## Chamblee Road and Site Drive \#2

> Construct Site Drive \#2 with a full movement eastbound and westbound approach with one (1) ingress lane and one (1) egress lane each, respectively.
> Provide stop control on the eastbound and westbound approaches of the site drives.

## Chamblee Road and Site Drive \#3

> Construct Site Drive \#3 as a full movement eastbound approach with one (1) ingress lane and one (1) egress lane.
> Provide stop control on the eastbound approach of the site drive.
Figure ES-1, on the following page, provides a graphical representation of recommended improvements at the study intersections.


## ! $]_{\text {McADAMS }}$

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# TRAFFIC IMPACT ANALYSIS CHAMBLEE PROPERTY 

Zebulon, NC

## INTRODUCTION

The proposed residential development will be located along Chamblee Road north of Perry Curtis Road in Zebulon, North Carolina. Site access will be served via one (1) right-in/right-in driveway and two (2) full movement driveways along Chamblee Road as well as via connection to the existing Ridge Valley Way stubbed to the southern border of the property. The middle site driveway along Chamblee Road is proposed to be aligned across Chamblee Road, providing access to both sides of the development. The purpose of this Traffic Impact Analysis (TIA) is to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to mitigate the impacts on the roadway network. The site is currently undeveloped and is expected to consist of the following land uses at full buildout:
$>\quad 211$ single family homes
$>119$ townhomes

The proposed site is to be built-out by the year 2027. A Memorandum of Understanding (MOU) was reviewed and approved by the North Carolina Department of Transportation (NCDOT) and the Town of Zebulon (Town), outlining the TIA scope and assumptions. The MOU and approval correspondence is provided in Appendix A. Based on the approved scoping; the following intersections are included in this TIA study area:
> Chamblee Road/E. Horton Street and Temple-Johnson Road
> NC 96 and Temple-Johnson Road
> NC 96 and Perry Curtis Road
> Perry Curtis Road and Perry Ridge Court
> Perry Ridge Court and Ridge Valley Way
> Perry Curtis Road / Wake County Line Road and Chamblee Road
> NC 39 and Wake County Line Road
> NC 39 and Old US 264
> Chamblee Road and Site Drive \#1
> Chamblee Road and Site Drive \#2
> Chamblee Road and Site Drive \#3
Refer to Figure 1 for a map of the study area. Figure 2 provides the most up to date preliminary site plan available at time of preparation of this study.

To determine the traffic impacts of the proposed development, the following analysis scenarios are included in this study:
$>$ Existing (2022) Traffic Conditions
> No-Build (2027) Traffic Conditions
> Build (2027) Traffic Conditions



## EXISTING CONDITIONS

The proposed development is located in an area primarily consisting of residential development and undeveloped land. Figure 3 provides a graphical representation of the existing lane configuration, storage capacity, traffic control type, and intersection spacing within the study area. Roadway characteristics within the study area is shown in Table 1. Average Annual Daily Traffic (AADT) data is provided based on the most recent count data provided by NCDOT. This AADT data provides the average Vehicles Per Day (vpd) for the subject facility based on typical operations. This AADT data is provided for informational purposes only and is not utilized for capacity analysis calculations within this study.

| TABLE 1: ROADWAY CHARACTERISTICS |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Road Name | Route \# | Maintained By | Typical Cross Section | Speed <br> Limit | AADT (year of data) |
| NC 39 |  | NCDOT | 2-lane undivided | 55 mph | 8,500 vpd (2019) |
| NC 96 |  | NCDOT | 2-lane undivided | 45 mph | 5,600 vpd (2019) |
| Old US 264 | US 264 ALT | NCDOT | 2-lane undivided | 55 mph | 3,800 vpd (2017) |
| Perry Curtis Road | SR 2347 | NCDOT | 2-lane undivided | 55 mph | 1,300 vpd (2015) |
| Wake County Line Road | SR 1727 | NCDOT | 2-lane undivided | 55 mph | 970 vpd (2016) |
| Chamblee Road | SR 2345 | NCDOT | 2-lane undivided | 35 mph | 830 vpd (2022)* |
| Temple-Johnson Road | SR 2346 | NCDOT | 2-lane undivided | 55 mph | 220 vpd (2022)* |
| Perry Ridge Court | SR 5417 | NCDOT | 2-lane undivided | 25 mph | 100 vpd (2022)* |
| Ridge Valley Way | N/A | Public | 2-lane undivided | 25 mph | N/A** |

*AADT determined based on Existing (2022) traffic volumes assuming that the weekday PM peak hour accounts for approximately $10 \%$ of the daily traffic on the roadway.
**No AADT data was available or could be determined based on the assumptions outlined in the MOU.
Existing peak hour turning movement counts were conducted in June and October 2022 during a typical weekday AM (7:00-9:00 AM) and weekday PM (4:00-6:00 PM) peak hours while local public schools were in session. This data was collected at the following existing study intersections:
> Chamblee Road/E. Horton Street and Temple-Johnson Road
> NC 96 and Temple-Johnson Road
> NC 96 and Perry Curtis Road
> Perry Curtis Road and Perry Ridge Court
> Perry Ridge Court and Ridge Valley Way
> Perry Curtis Road / Wake County Line Road and Chamblee Road
> NC 39 and Wake County Line Road
> NC 39 and Old US 264
> Chamblee Road and Site Drive \#1
> Chamblee Road and Site Drive \#2
> Chamblee Road and Site Drive \#3
Peak hour traffic volumes were determined from these traffic counts and balanced between study intersections, where appropriate. Per the approved MOU, existing volumes at the intersection of Perry Ridge Court at Ridge Valley Way were pulled through from the adjacent intersection of Perry Curtis Road at Perry Ridge Court. Traffic count data is provided in Appendix B. Refer to Figure 4 for the Existing (2022) peak hour traffic volumes.

The Existing (2022) traffic volumes were analyzed utilizing the current lane configurations to determine existing operations for the study area.



## NO-BUILD CONDITIONS

In order to account for background growth in the study area prior to the proposed developments buildout year of 2022, the existing traffic count volumes were grown at a set growth rate and nearby approved adjacent development traffic was added to the study area based on their approved TIA's. Per the approved MOU, the existing traffic counts were grown at a $3 \%$ annual growth rate to determine projected traffic volumes. Refer to Figure 5 for the Projected (2027) traffic volumes.

To account for the traffic volumes of the adjacent developments approved in the area, the traffic from those developments were also compiled and added to the analysis. The adjacent development traffic volumes are provided on Figure 6. Based on the approved MOU, the following development was included:

| TABLE 2: ADJACENT DEVELOPMENTS |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| Development Name | Location | Land Use / Density | Build-out Year | Firm Completing |
| TIA |  |  |  |  |

According to the Town and NCDOT, the following roadway improvements at the are expected at the intersection of NC 39 and Old US 264 by the Sidney Creek adjacent development:
> Monitor for signalization and install once warranted and approved by NCDOT
> Construct an exclusive eastbound right-turn lane on Old US 264 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive eastbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound right-turn lane on Old US 264 with a minimum of 125 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Extend the existing southbound left-turn lane on NC 39 to provide a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Appendix C provides a full summary of the adjacent developments included in this analysis. In order to account for future year analysis without the proposed development, the Projected (2027) traffic volumes were added to the adjacent development trips to determine the No-Build (2027) traffic volumes. Figure 7 provides the No-Build (2027) volumes.




## 凹MCADAMS

## BUILD CONDITIONS

The proposed development is expected to consist of 211 single-family homes and 119 townhomes. Based on the Institute for Transportation Engineers (ITE) Trip Generation Manual, $11^{\text {th }}$ Edition, and the suggested method of trip calculations provided in NCDOT's Rate vs. Equation spreadsheet, trips for the proposed development were calculated for weekday daily, weekday AM peak hour, and weekday PM peak hour. A summary of this trip generation is provided in Table 3.

| TABLE 3: TRIP GENERATION |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Land Use (ITE Code) | Density | Calculation Methodology | Daily Trips | AM Peak Hour |  |  | PM Peak Hour |  |  |
|  |  |  |  | Enter | Exit | Total | Enter | Exit | Total |
| Single-Family Detached Housing (210) | 211 Units | Adjacent / Equation | 2,006 | 38 | 109 | 147 | 126 | 74 | 200 |
| Single-Family Attached Housing (215) | 119 Units | Adjacent / Equation | 856 | 17 | 39 | 56 | 38 | 29 | 67 |
|  |  | Total | 2,862 | 55 | 148 | 203 | 164 | 103 | 267 |

Based on the existing traffic patterns, population centers surrounding the development, and engineering judgment the site trips were distributed according to the regional distributions listed as follows:
> $40 \%$ to/from the north via NC 96
$>40 \%$ to/from the north via NC 39
$>15 \%$ to/from the south via Chamblee Road
$>5 \%$ to/from the north via NC 96
Refer to Figure 8 for the detailed trip distribution percentages within the study area. The trip generation and distribution were approved by NCDOT and the Town within the MOU provided in Appendix A.

The trip distribution was applied to the trip generation to determine the trip assignment for the proposed development site trips at all study intersections. Refer to Figure 9 for the site trip assignment. To determine the future traffic volumes at the study intersections with buildout of the proposed site, the No-Build (2027) traffic volumes were added to the site trip assignment to determine Build (2027) traffic volumes. Refer to Figure 10 for the Build (2027) traffic volumes.




## CAPACITY ANALYSIS

The intersections and analysis scenarios included in this study were analyzed to determine the potential impact by the proposed development and to recommend improvements to mitigate any potential impacts. The capacity analysis reviews the level of service (LOS), delay, and vehicle queues expected under each analysis scenario utilizing the methodology contained in the Highway Capacity Manual (HCM), $6^{\text {th }}$ Edition, published by the Transportation Research Board.

LOS is a qualitative measurement of traffic operations based on the average total vehicle delay of the movement, approach, or intersection. The HCM includes six levels of service, ranging from level " A " (free flow conditions) to level " F " (where over-saturated conditions are evident). Table 4 provides a summary of the thresholds for each LOS under both unsignalized (stop-control) and signalized operations.

| TABLE 4: HIGHWAY CAPACITY MANUAL - LEVELS OF SERVICE + DELAY CRITERIA |  |  |
| :--- | :--- | :--- |
|  | Unsignalized |  |
| Level of Service (LOS) | Average Control Delay (Seconds per vehicle) | Average Control Delay (Seconds per vehicle) |
| A | $\leq 10$ | $\leq 10$ |
| B | $>10$ and $\leq 15$ | $>10$ and $\leq 20$ |
| C | $>15$ and $\leq 25$ | $>20$ and $\leq 35$ |
| D | $>25$ and $\leq 35$ | $>35$ and $\leq 55$ |
| E | $>35$ and $\leq 50$ | $>55$ and $\leq 80$ |
| F | $>50$ | $>80$ |

A computer software package, Synchro (version 11.1), was utilized for the analysis of operations within this study. Within this software package, SimTraffic was also used to review queue lengths and the operations of intersections within the context of location and spacing in the study area. The capacity analysis summary table for each study intersection provides the delay and LOS for each approach and overall intersection, when appropriate. More detailed queues and delay information is provided in the appendix.

Per the NCDOT Congestion Management Capacity Analysis Guidelines, several assumptions were applied to the full study. A summary of these assumptions is provided below:
> A Peak Hour Factor (PHF) of 0.90 was used for all analysis scenarios and intersections.
> A heavy vehicle percentage of $2 \%$ was applied to all analysis scenarios and intersections.
$>$ For allowable movements with volumes less than four (4), a volume of four (4) was applied in the capacity analysis. In order to present accurate information within the traffic volume figures, this was not applied to those conditions.

## CHAMBLEE ROAD / E. HORTON STREET + TEMPLE-JOHNSON ROAD

The intersection of Chamblee Road / E. Horton Street and Temple-Johnson Road is currently an unsignalized, threeleg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions.

Table 5 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix D for the Synchro capacity analysis reports.

| Conditions | AP$\mathbf{P}$ROACH | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ |  | A (9) $A(7)$ -- | N/A | A (9) <br> A (7) <br> -- | N/A |
| No-Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | 1 LT-RT 1 LT-TH <br> 1 TH-RT | A (9) <br> A (7) <br> -- | N/A | A (9) <br> A (7) <br> -- | N/A |
| Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | 1 LT-RT <br> 1 LT-TH <br> 1 TH-RT | A (9) <br> A (7) <br> -- | N/A | $\begin{aligned} & \text { A (9) } \\ & \text { A (8) } \\ & -- \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the intersection of Chamblee Road / E. Horton Street and Temple-Johnson Road is expected to operate at LOS A for both the major-street left-turn movement and minor-street approach during the weekday AM and PM peak hours.

## NC 96 + TEMPLE-JOHNSON ROAD

The intersection of NC 96 and Temple-Johnson Road is currently an unsignalized, three-leg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions.

Table 6 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix E for the Synchro capacity analysis reports.

| TABLE 6: CAPACITY ANALYSIS SUMMARY OF NC 96 + TEMPLE-JOHNSON ROAD |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | AP$\mathbf{P}$ROACH | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ |  | $\begin{aligned} & B(11) \\ & -- \\ & A(8) \end{aligned}$ | N/A | $\begin{aligned} & B(11) \\ & -- \\ & A(8) \end{aligned}$ | N/A |
| No-Build (2027) | $\begin{aligned} & \text { WB } \\ & \text { NB } \\ & \mathrm{SB}^{1} \end{aligned}$ |  | $\begin{aligned} & B(11) \\ & - \\ & A(8) \end{aligned}$ | N/A | $\begin{aligned} & B(11) \\ & -- \\ & A(8) \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & \text { WB } \\ & \text { NB } \\ & S B^{1} \end{aligned}$ | 1 LT-RT 1 TH-RT <br> 1 LT-TH | $\begin{aligned} & \text { B (12) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \mathrm{B}(12) \\ & -- \\ & \mathrm{A}(8) \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the intersection of NC 96 and Temple-Johnson Road is expected to operate at LOS B or better for both the major-street left-turn movement and minor-street approach during the weekday AM and PM peak hours.

## NC 96 + PERRY CURTIS ROAD

The intersection of NC 96 and Perry Curtis Road is currently an unsignalized, three-leg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions.

Table 7 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix F for the Synchro capacity analysis reports.

| TABLE 7: CAPACITY ANALYSIS SUMMARY OF NC 96 + PERRY CURTIS ROAD |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & \text { A } \\ & \mathbf{P} \\ & \mathbf{P} \\ & \mathbf{R} \\ & \mathbf{O} \\ & \mathbf{A} \\ & \mathbf{C} \\ & \mathbf{H} \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) | $W B^{2}$ $N B$ $S B^{1}$ | 1 LT-RT <br> 1 TH-RT <br> 1 LT-TH | B (10) <br> A (8) | N/A | $\begin{aligned} & \text { B (10) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |
| No-Build (2027) | $\begin{aligned} & \text { WB }{ }^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | 1 LT-RT <br> 1 TH-RT <br> 1 LT-TH | $\begin{aligned} & \text { B (11) } \\ & -- \\ & A(8) \end{aligned}$ | N/A | $\begin{aligned} & \text { B (12) } \\ & -- \\ & A(8) \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | 1 LT-RT <br> 1 TH-RT <br> 1 LT-TH | $\begin{aligned} & \mathrm{B}(12) \\ & -- \\ & \mathrm{A}(8) \\ & \hline \end{aligned}$ | N/A | $\begin{aligned} & B(13) \\ & -- \\ & A(8) \\ & \hline \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the intersection of NC 96 and Perry Curtis Road is expected to operate at LOS B or better for both the major-street left-turn movement and minor-street approach during the weekday AM and PM peak hours.

## PERRY CURTIS ROAD + PERRY RIDGE COURT

The intersection of Perry Curtis Road and Perry Ridge Court is currently an unsignalized, three-leg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions.

Table 8 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix G for the Synchro capacity analysis reports.

| TABLE 8: CAPACITY ANALYSIS SUMMARY OF PERRY CURTIS ROAD + PERRY RIDGE COURT |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & O \\ & \text { A } \\ & C \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | 1 LT-RT <br> 1 TH-RT <br> 1 LT-TH | $\begin{aligned} & \text { A (9) } \\ & -- \\ & \text { A (7) } \end{aligned}$ | N/A | A (9) <br> A (7) | N/A |
| No-Build (2027) | $\begin{aligned} & W^{2} \\ & N B \\ & \text { SB }^{1} \end{aligned}$ | 1 LT-RT <br> 1 TH-RT <br> 1 LT-TH | $\begin{aligned} & \text { A (9) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | A (9) <br> A (7) | N/A |
| Build (2027) | $\begin{aligned} & \mathrm{WB}{ }^{2} \\ & \mathrm{NB} \\ & \mathrm{SB}^{1} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-TH } \end{aligned}$ | A (9) <br> A (8) | N/A | A (9) <br> A (8) | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the intersection of Perry Curtis Road and Perry Ridge Court is expected to operate at LOS A for both the major-street left-turn movement and minor-street approach during the weekday AM and PM peak hours.

This intersection was analyzed with the assumption that site trips from the proposed development may utilize this roadway for access in order to present a conservative analysis. With this assumption, the proposed development is expected to have a negligible impact in delay on the subject intersection.

## PERRY RIDGE COURT + RIDGE VALLEY WAY

The intersection of Perry Ridge Court and Ridge Valley Way is currently an unsignalized, three-leg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions.

Table 9 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix H for the Synchro capacity analysis reports.

| TABLE 9: CAPACITY ANALYSIS SUMMARY OF PERRY RIDGE COURT + RIDGE VALLEY WAY |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & O \\ & \text { A } \\ & C \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | 1 LT-TH 1 TH-RT <br> 1 LT-RT | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A |
| No-Build (2027) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | 1 LT-TH 1 TH-RT <br> 1 LT-RT | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ |  | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the intersection of Perry Ridge Court and Ridge Valley Way is expected to operate at LOS A for both the major-street left-turn movement and minor-street approach during the weekday AM and PM peak hours.

Ridge Valley Way is currently stubbed to the property line for future connection. As such, this intersection was analyzed with the assumption that site trips from the proposed development may utilize this roadway for access in order to present a conservative analysis. With this assumption, the proposed development is expected to have a negligible impact in delay on the subject intersection.

## PERRY CURTIS ROAD / WAKE COUNTY LINE ROAD + CHAMBLEE ROAD

The intersection of Perry Curtis Road / Wake County Line Road and Chamblee Road is currently an unsignalized, threeleg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions.

Table 10 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix I for the Synchro capacity analysis reports.

| TABLE 10: CAPACITY ANALYSIS SUMMARY OF PERRY CURTIS ROAD / WAKE COUNTY LINE ROAD + CHAMBLEE ROAD |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | AP$\mathbf{P}$ROACH | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and <br> Approach <br> Delay <br> (seconds) | Overall Delay (seconds) | LOS and <br> Approach <br> Delay <br> (seconds) | Overall Delay (seconds) |
| Existing (2022) | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-RT } \end{aligned}$ | $\begin{aligned} & A(7) \\ & -- \\ & A(9) \end{aligned}$ | N/A | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A |
| No-Build (2027) | $\begin{aligned} & E B^{1} \\ & W B \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & 1 \mathrm{LT}-\mathrm{TH} \\ & 1 \mathrm{TH}-\mathrm{RT} \\ & 1 \mathrm{LT}-\mathrm{RT} \end{aligned}$ | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A | $\begin{aligned} & \text { A (8) } \\ & -- \\ & \text { A (10) } \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & E B^{1} \\ & W B \\ & S B^{2} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-RT } \end{aligned}$ | $\begin{aligned} & A(7) \\ & -- \\ & A(10) \end{aligned}$ | N/A | $\begin{aligned} & A(8) \\ & -- \\ & B(11) \end{aligned}$ | N/A |

[^1]Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the intersection of Perry Curtis Road / Wake County Line Road and Chamblee Road is expected to operate at LOS B or better for both the majorstreet left-turn movement and minor-street approach during the weekday AM and PM peak hours.

## NC 39 + WAKE COUNTY LINE ROAD

The intersection of NC 39 and Wake County Line Road is currently an unsignalized, three-leg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions.

Table 11 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix J for the Synchro capacity analysis reports.

| TABLE 11: CAPACITY ANALYSIS SUMMARY OF NC 39 + WAKE COUNTY LINE ROAD |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & O \\ & A \\ & C \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & 1 \mathrm{LT}-\mathrm{TH} \\ & 1 \mathrm{LT}-\mathrm{TH} \\ & 1 \mathrm{TH}-\mathrm{RT} \end{aligned}$ | $\begin{aligned} & \text { B (12) } \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (13) } \\ & \text { A (8) } \end{aligned}$ | N/A |
| No-Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ |  | $\begin{aligned} & \text { B (12) } \\ & \text { A (8) } \\ & -- \end{aligned}$ | N/A | $\begin{aligned} & \text { B (14) } \\ & \text { A (8) } \\ & --\quad \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \text { C (17) } \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & C(20) \\ & \text { A (9) } \\ & -- \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the intersection of NC 39 and Wake County Line Road is expected is to operate at LOS C or better for both the major-street left-turn movement and minor-street approach during the weekday AM and PM peak hours.

## NC 39 + OLD US 264

The intersection of NC 39 and Old US 264 is currently an unsignalized, four-leg intersection. This intersection was analyzed under Existing (2022), No-Build (2027), and Build (2027) conditions. Based on coordination with Town and NCDOT staff, Sidney Creek is expected to construct improvements at the subject intersection prior to the 2027 buildout of the proposed development. These improvements were included under all future year analyses (No-Build and Build conditions). The improvements included as adjacent development improvements are:
> Monitor for signalization and install once warranted and approved by NCDOT.
> Construct an exclusive eastbound right-turn lane on Old US 264 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive eastbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound right-turn lane on Old US 264 with a minimum of 125 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Extend the existing southbound left-turn lane on NC 39 to provide a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Table 12 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix K for the Synchro capacity analysis reports.

TABLE 12: CAPACITY ANALYSIS SUMMARY OF NC 39 + OLD US 264

| Conditions | A$\mathbf{P}$$\mathbf{P}$ROACH | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{WB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB}^{1} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH-RT } \\ & 1 \text { LT-TH-RT } \\ & 1 \text { LT, } 1 \text { TH-RT } \\ & 1 \text { LT, } 1 \text { TH-RT } \end{aligned}$ | $\begin{aligned} & C(16) \\ & C(21) \\ & \text { A (8) } \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & F(76) \\ & D(32) \\ & A(8) \\ & A(8) \end{aligned}$ | N/A |
| No-Build (2027) | $\begin{aligned} & \text { EB } \\ & \text { WB } \\ & \text { NB } \\ & \text { SB } \end{aligned}$ | $\begin{aligned} & \frac{1 \mathrm{LT}}{1}, 1 \mathrm{TH}, \frac{1 \mathrm{RT}}{1 \mathrm{LT}}, 1 \mathrm{TH}, \frac{1 \mathrm{RT}}{} \\ & \frac{1 \mathrm{LT}}{}, 1 \mathrm{TH}-\mathrm{RT} \\ & 1 \mathrm{LT}, 1 \mathrm{TH}-\mathrm{RT} \end{aligned}$ | $\begin{aligned} & D(38) \\ & D(38) \\ & C(29) \\ & C(25) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (30) \end{aligned}$ | $\begin{aligned} & D(43) \\ & D(40) \\ & C(32) \\ & C(29) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (33) \end{aligned}$ |
| Build (2027) | EB <br> WB <br> NB <br> SB | $\begin{aligned} & \frac{1 \mathrm{LT}}{}, 1 \mathrm{TH}, \frac{1 \mathrm{RT}}{1 \mathrm{l}} \\ & \frac{1 \mathrm{LT}}{}, 1 \mathrm{TH}, \underline{1 \mathrm{RT}} \\ & 1 \mathrm{LT}, 1 \mathrm{TH}-\mathrm{RT} \\ & 1 \mathrm{LT}, 1 \mathrm{TH}-\mathrm{RT} \end{aligned}$ | $\begin{aligned} & D(39) \\ & D(40) \\ & C(30) \\ & C(25) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (31) \end{aligned}$ | $\begin{aligned} & D(46) \\ & D(46) \\ & C(33) \\ & C(30) \end{aligned}$ | $\begin{aligned} & D \\ & (35) \end{aligned}$ |

[^2]Capacity analysis of Existing (2022) conditions indicate that the intersection of NC 39 and Old US 264 currently operates at LOS A for the major-street left-turn movement and at LOS D or better for the minor-street approach during the weekday AM and PM peak hour, with the exception of the eastbound approach (LOS F) during the PM peak hour.

Under future 2027 conditions, the Sidney Creek adjacent development is expected to install a traffic signal in addition to constructing geometric improvements at this intersection. Capacity analysis of No-Build (2027) and Build (2027) conditions indicates that this intersection is expected to operate at an overall LOS C during both the weekday AM and PM peak hours. Additionally, all approaches are expected to operate at LOS D or better during the weekday AM and PM peak hours.

The proposed development is expected to account for less than $7 \%$ of the total trips at the intersection during the weekday AM and PM peak hours under Build (2027) conditions. It should also be noted that the subject intersection is approximately 3 miles from the proposed site's property line. Due to the expected acceptable operation of this intersection upon buildout of the proposed development, no improvements are recommended by the development.

## CHAMBLEE ROAD + SITE DRIVE \#1

The future intersection of Chamblee Road and Site Drive \#1 is expected to operate as an unsignalized, three-leg, right turn in/right turn out intersection. This intersection was analyzed under Build (2027) conditions.

Table 13 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix L for the Synchro capacity analysis reports.

| TABLE 13: CAPACITY ANALYSIS SUMMARY OF CHAMBLEE ROAD + SITE DRIVE \#1 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | A$\mathbf{P}$$\mathbf{P}$$\mathbf{R}$$\mathbf{O}$$\mathbf{A}$$\mathbf{C}$$\mathbf{H}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Build (2027) | $\begin{aligned} & \text { WB }{ }^{11} \\ & \text { NB } \\ & \text { SB } \end{aligned}$ | 1 RT <br> 1 TH-RT <br> 1 TH | A (9) -- -- | N/A | A (9) | N/A |

Improvements recommended by the Developer are shown in bold.

1. Level of service for minor-street approach.

Capacity analysis of Build (2027) conditions indicates that the intersection of Chamblee Road and Site Drive \#1 is expected to operate at LOS A for the minor-street approach during the weekday AM and PM peak hours.

An exclusive northbound right-turn lane was considered at this intersection based on the methodology outlined in the Policy on Street and Driveway Access to North Carolina Highways (published by the NCDOT). Based on the findings from the turn lane warrant analysis, the intersection does not meet the criteria to warrant an exclusive turn lane. Additionally, Chamblee Road is expected to have an AADT of less than 4,000 vpd upon buildout year 2027, which is the typical threshold for considering designated turn lanes at unsignalized intersections; therefore, no exclusive turn lanes are recommended at the site drive. Appendix P provides the Turn Lane Warrant analysis.

## CHAMBLEE ROAD + SITE DRIVE \#2

The future intersection of Chamblee Road and Site Drive \#2 is expected to operate as an unsignalized, four-leg intersection. This intersection was analyzed under Build (2027) conditions.

Table 14 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix $M$ for the Synchro capacity analysis reports.

| TABLE 14: CAPACITY ANALYSIS SUMMARY OF CHAMBLEE ROAD + SITE DRIVE \#2 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & O \\ & A \\ & C \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Build (2027) | $\begin{aligned} & \mathbf{E B}^{2} \\ & \mathbf{W B}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB}^{1} \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH-RT } \\ & 1 \text { LT-TH-RT } \\ & 1 \text { LT-TH-RT } \\ & 1 \text { LT-TH-RT } \end{aligned}$ | $\begin{aligned} & \text { A (9) } \\ & \text { A (10) } \\ & \text { A (7) } \\ & \text { A (7) } \\ & \hline \end{aligned}$ | N/A | $\begin{aligned} & \mathrm{B}(10) \\ & \mathrm{B}(10) \\ & \mathrm{A}(8) \\ & \mathrm{A}(7) \\ & \hline \end{aligned}$ | N/A |

Improvements recommended by the Developer 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 Build (2027) conditions indicates that the intersection of Chamblee Road and Site Drive \#2 is expected to operate at LOS B or better for the major-street left-turn movements and minor-street approaches during the weekday AM and PM peak hours.

An exclusive northbound right-turn lane was considered at this intersection based on the methodology outlined in the Policy on Street and Driveway Access to North Carolina Highways (published by the NCDOT). Based on the findings from the turn lane warrant analysis, the intersection does not meet the criteria to warrant an exclusive turn lane. Additionally, Chamblee Road is expected to have an AADT of less than 4,000 vpd upon buildout year 2027, which is the typical threshold for considering designated turn lanes at unsignalized intersections; therefore, no exclusive turn lanes are recommended at the site drive. Appendix P provides the Turn Lane Warrant analysis.

## CHAMBLEE ROAD + SITE DRIVE \#3

The future intersection of Chamblee Road and Site Drive \#3 is expected to operate as an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions.

Table 15 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to Appendix N for the Synchro capacity analysis reports.

| TABLE 15: CAPACITY ANALYSIS SUMMARY OF CHAMBLEE ROAD + SITE DRIVE \#3 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & O \\ & A \\ & C \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Build (2027) | $\begin{aligned} & \text { EB }^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | 1 LT-RT <br> 1 LT-TH <br> 1 TH-RT | $\begin{aligned} & \text { A (9) } \\ & \text { A (7) } \end{aligned}$ -- | N/A | A (9) <br> A (8) <br> -- | N/A |

Improvements recommended by the Developer 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 Build (2027) conditions indicates that the intersection of Chamblee Road and Site Drive \#3 is expected to operate at LOS A for the major-street left-turn movement and minor-street approach during the weekday AM and PM peak hours.

An exclusive northbound right-turn lane was considered at this intersection based on the methodology outlined in the Policy on Street and Driveway Access to North Carolina Highways (published by the NCDOT). Based on the findings from the turn lane warrant analysis, the intersection does not meet the criteria to warrant an exclusive turn lane. Additionally, Chamblee Road is expected to have an AADT of less than 4,000 vpd upon buildout year 2027, which is the typical threshold for considering designated turn lanes at unsignalized intersections; therefore, no exclusive turn lanes are recommended at the site drive. Appendix P provides the Turn Lane Warrant analysis.

## CONCLUSION / RECOMMENDATIONS

The purpose of this Traffic Impact Analysis is to determine the potential traffic impacts of this development and to identify transportation improvements that may be required to mitigate the impacts on the roadway network. The proposed residential development will be located along Chamblee Road, north of Perry Curtis Road in Zebulon, NC. Site access will be served via one (1) right-in/right-out driveway and two (2) full movement driveways on Chamblee Road as well as via a connection to the existing Ridge Valley Way which is stubbed to the southern border of the property. The site is currently undeveloped and is expected to consist of a maximum of 211 single family homes and 199 townhomes and is expected to be built-out by the year 2027.

Based on the approved scoping, the following intersections were included in this TIA study area:
> Chamblee Road/ E. Horton Street and Temple-Johnson Road
> NC 96 and Temple-Johnson Road
> NC 96 and Perry Curtis Road
> Perry Curtis Road and Perry Ridge Court
> Perry Ridge Court and Ridge Valley Way
> Perry Curtis Road / Wake County Line Road and Chamblee Road
> NC 39 and Wake County Line Road
> NC 39 and OId US 264
> Chamblee Road and Site Drive \#1
> Chamblee Road and Site Drive \#2
> Chamblee Road and Site Drive \#3
Capacity analysis was conducted at all study intersections according to NCDOT and Town guidelines utilizing the methodology contained in the Institute of Transportation Engineers (ITE) Highway Capacity Manual. Based on review of adjacent development and background information provided by NCDOT and the Town, the following improvements have been identified or are recommended to accommodate future traffic conditions. Figure 11 provides a graphical representation of recommended improvements at the study intersections.

## Improvements by Sidney Creek

## NC 39 and Old US 264

> M onitor for signalization and install once warranted and approved by NCDOT.
> Construct an exclusive eastbound right-turn lane on Old US 264 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive eastbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound right-turn lane on Old US 264 with a minimum of 125 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Extend the existing southbound left-turn lane on NC 39 to provide a minimum of 100 feet of full width storage and appropriate deceleration and taper.

## Recommended Improvements by Developer

Chamblee Road and Site Drive \#1
$>$ Construct Site Drive \#l as the westbound approach with one (1) ingress lane and one (1) egress lane.

- Note: This intersection will be restricted to right-in/right-out operations.
> Provide stop control on the westbound approach of the site drive.

Chamblee Road and Site Drive \#2
> Construct Site Drive \#2 with a full movement eastbound and westbound approach with one (1) ingress lane and one (1) egress lane each, respectively.
> Provide stop control on the eastbound and westbound approaches of the site drives.
Chamblee Road and Site Drive \#3
$>$ Construct Site Drive \#3 as a full movement eastbound approach with one (1) ingress lane and one (1) egress lane.
> Provide stop control on the eastbound approach of the site drive.


## APPENDIX

# APPENDIX A: MEMORANDUM OF UNDERSTANDING (MOU) 

## 凹MCADAMS

## M EM ORANDUM OF UNDERSTANDING >CHAMBLE PROPERTY

October 12, 2022
M ichael J. Clark, AICP, CZO
Town of Zebulon
1003 North Arendell Avenue
Zebulon, NC 27597
919.823.1808

RE: Chamblee Property - Zebulon, NC - Traffic Impact Analysis

Dear M r. Clark,

## MEMORANDUM OFUNDERSTANDING

This letter provides a M emorandum of Understanding (MOU) outlining the proposed scope and assumptions related to the Traffic Impact Analysis (TIA) for the proposed Chamblee Property development, to be located along Chamblee Road, north of Perry Curtis Road in Zebulon, North Carolina. A preliminary site plan is attached. The following TIA scope is based on preliminary scoping email coordination with the Town of Zebulon (Town) and the North Carolina Department of Transportation (NCDOT) and a scoping meeting held on 9/27/2022 with Town and NCDOT staff.

The proposed development is anticipated to be completed in 2027 and is expected to include the following uses:
> 211 Single family homes
> 119 townhomes

The proposed development is expected to be served by one (1) right-in/right-out driveway on Chamblee Road, three (3) full movement driveways on Chamblee Road (two on the western side of Chamblee Road and one on the eastern side) and connection to the existing Ridge Valley Way stubbed to the properties southern border.

## STUDY AREA

Based on coordination with NCDOT and Town staff, the study area consists of the following intersections:
> Temple-Johnson Road at NC 96
> Perry Curtis Road at NC 96
> Chamblee Road at Temple-Johnson Road
> Perry Curtis Road at Perry Ridge Court
> Perry Ridge Court at Ridge Valley Way
> Perry Curtis Road / Wake County Line Road at Chamblee Road
> Wake County Line Road at NC 39
> NC 39 at Old US 264

## M EM ORANDUM OF UNDERSTANDING >CHAMBLEE PROPERIY

## EXSTINGTRATACVOLUMES

Peak hour turning movement counts will be conducted during weekday AM (7:00 to 9:00 AM ) and weekday PM (4:00 to 6:00 PM ) peak hours in June and October 2022 at the existing study intersections while local public schools are in session. The existing volumes at the intersection of Perry Ridge Court at Ridge Valley Way will be pulled through from the adjacent intersection of Perry Curtis Road at Perry Ridge Court.

Traffic volumes will be balanced between study intersections, where appropriate.

## NO-BUIDTRAFACVOLUMES

No-Build (2027) traffic volumes are proposed to be determined by projecting existing (2022) traffic volumes to the buildout year (2027) using a $3 \%$ annually compounded growth rate, as determined based on coordination with the Town.

Based on coordination with the Town and NCDOT, the Sidney Creek Residential development will be included as an adjacent development according to the 2019 Traffic Impact Analysis

## TRIP GENERATION

Based on the Institute for Transportation Engineers (ITE) Trip Generation Manual, $11^{\text {th }}$ Edition, and the suggested method of trip calculations provided in NCDOT's Rate vs. Equation spreadsheet, trips for the proposed development were calculated for weekday daily, weekday AM peak hour, and weekday PM peak hour. Refer to Table 1 for the trip generation for the proposed development.

| Land Use (IE Code) | Density | Calculation Methodology | Daily Trips | AM Peak Hour |  |  | PM Peak Hour |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Enter | Exit | Total | Enter | Exit | Total |
| Single-Family Detached Housing (210) | 211 units | Adjacent / Equation | 2,006 | 38 | 109 | 147 | 126 | 74 | 200 |
| Single-Family Attached Housing (215) | 119 units | Adjacent / Equation | 856 | 17 | 39 | 56 | 38 | 29 | 67 |
|  |  | Total Trips | 2,862 | 55 | 148 | 203 | 164 | 103 | 267 |

## TRIP DISTRIBUTION/ ASSGNMENT

The primary site trip distribution was determined based on the locations of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. A summary of the regional residential distributions is below:
$>40 \%$ to/from the north via NC 96
> 40\% to/from the north via NC 39
$>15 \%$ to/from the north via Chamblee Road
$>5 \%$ to/from the south via NC 96

## II MCADAMS

## M EM ORANDUM OF UNDERSTANDING >GAMBLE PROPERTY

To account for the traffic of the proposed development, the trip generation will be applied to the trip distribution and added to the no-build traffic volumes to determine build conditions. Refer to the attached figure for the trip distributions at the study intersections.

## ANALYSSSSCEARIOS

Study intersections will be analyzed during the weekday AM and PM peak hours under the following traffic scenarios:
$>$ Existing (2022) Conditions
$>$ No-Build (2027) Conditions
> Build (2027) Conditions

## STUDY DOCUMENT

All capacity analysis will be performed utilizing Synchro (Version 11.1). The traffic study report will be prepared based on Town and NCDOT requirements and will be summarized in a letter format.

If you find this memorandum of understanding acceptable, please let me know so that we may include it in the attachments. If you should have any questions or comments, please feel free to contact me at 919.287.0741.

Sincerely,
MCADAM


Nate Bouquin, PE, PTOE
Traffic Engineering Lead, Transportation

## Attachments: Preliminary Site Plan

 Site Trip Distribution FigureCC: Jeremy Warren, NCDOT<br>Matthew Nolfo, NCDOT<br>Clarence Bunting, NCDOT<br>Aaron Chalker, Town of Zebulon

Attachment 1
PD 2023-01



Thanks!

凹
Nate Bouquin PE PTOE
traffic engineering lead, transportation
McADAMS
direct 919.287.0741 mobile 919.961.4065
bouquin@mcadamsco.com
621 Hillsborough Street, Suite 500, Raleigh, NC 27603
www.mcadamsco.com
Join Our Team
(ii) 9 아
*Our Raleigh office has moved! We can't wait to see you there soon.
From: W arren, Jeremy L [ilwarren@ncdot.gov](mailto:ilwarren@ncdot.gov)
Sent: M onday, October 17, 2022 3:02 PM
To: Nate Bouquin [bouquin@mcadamsco.com](mailto:bouquin@mcadamsco.com); Aaron Chalker [achalker@townofzebulon.org](mailto:achalker@townofzebulon.org); Michael Clark [mclark@townofzebulon.org](mailto:mclark@townofzebulon.org); Nolfo, Matthew J <mjnolfo@ ncdot.gov>
Cc: Bunting, Clarence B[cbunting@ncdot.gov](mailto:cbunting@ncdot.gov); Lineberger, Nicholas C[nclineberger@ncdot.gov](mailto:nclineberger@ncdot.gov); Tyler Huggins [huggins@mcadamsco.com](mailto:huggins@mcadamsco.com)
Subject: RE: [External] Chamblee Rd Residential - TIA Scoping

CAUTION: This email is NOT from McAdams. DO NOT click links or open attachments unless you verify the sender and content.
The Department has no comments for the MOU.
Jeremy Warren, P.E.
District Engineer
Division 5, District 1
North Carolina Department of Transportation
9198146115 office NEW
ilwarren@ncdot.gov
4009 District Drive
Raleigh, NC 27607


Email correspondence to and from this address is subject to the
North Carolina Public Records Law and may be disclosed to third parties.
From: Nate Bouquin [bouquin@mcadamsco.com](mailto:bouquin@mcadamsco.com)
Sent: Wednesday, October 12, 2022 3:13 PM
To: Aaron Chalker <achalker@ townofzebulon.org>; Michael Clark [mclark@townofzebulon.org](mailto:mclark@townofzebulon.org); Warren, Jeremy L <lwarren@ ncdot.gov>; Nolfo, M atthew J [minolfo@ncdot.gov](mailto:minolfo@ncdot.gov)
Cc: Bunting, Clarence B[cbunting@ncdot.gov](mailto:cbunting@ncdot.gov); Lineberger, Nicholas C [nclineberger@ncdot.gov](mailto:nclineberger@ncdot.gov); Tyler Huggins [huggins@mcadamsco.com](mailto:huggins@mcadamsco.com)
Subject: RE: [External] Chamblee Rd Residential - TIA Scoping

Tyler Huggins

| From: | Michael Clark [mclark@townofzebulon.org](mailto:mclark@townofzebulon.org) |
| :--- | :--- |
| Sent: | Monday, October 24, 2022 3:51 PM |
| To: | Nate Bouquin; Aaron Chalker |
| Cc: | Tyler Huggins |
| Subject: | RE: [External] Chamblee Rd Residential - TIA Scoping |

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CAUTION: This email is NOT from M cAdams. DO NOT click links or open attachments unless you verify the sender and content. Good Afternoon,

The Town is good with these assumptions.
Thank you,
Mike
Michael J. Clark, AICP, CZO
Planning Director
Town of Zebulon
(919) 823-1808 (direct)

1003 North Arendell Avenue
Zebulon, N.C. 27597

## ZEBULON

NORTH CABOLINA
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From: Nate Bouquin [bouquin@mcadamsco.com](mailto:bouquin@mcadamsco.com)
Sent: M onday, October 24, 2022 9:42 AM
To: Aaron Chalker [achalker@townofzebulon.org](mailto:achalker@townofzebulon.org); M ichael Clark [mclark@townofzebulon.org](mailto:mclark@townofzebulon.org)
Cc: Tyler Huggins <huggins@ mcadamsco.com>
Subject: RE: [External] Chamblee Rd Residential - TIA Scoping
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Michael / Aaron,
Does the Town have any additional comments on this M OU or are we clear to proceed with these assumptions?

## APPENDIX B: COUNT DATA



Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM


| 15-Min Count Period Beginning At | Perry Ridge Ct (Northbound) |  |  |  | Perry Ridge Ct (Southbound) |  |  |  | Perry Curtis Rd (Eastbound) |  |  |  | Perry Curtis Rd (Westbound) |  |  |  | Total | Hourly Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 9 | 0 | 0 | 11 |  |
| 7:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 15 | 0 | 0 | 18 |  |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 23 | 0 | 0 | 27 |  |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 11 | 0 | 0 | 14 | 70 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 9 | 0 | 0 | 17 | 76 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 11 | 0 | 0 | 16 | 74 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 | 0 | 0 | 11 | 58 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 11 | 0 | 0 | 18 | 62 |
| Peak 15-Min Flowrates | Northbound |  |  |  | Southbound |  |  |  | Eastbound |  |  |  | Westbound |  |  |  | Total |  |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |  |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 12 | 0 | 0 | 0 | 92 | 0 | 0 |  | 8 |
| Heavy Trucks Buses | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 4 | 0 |  |  | 4 |
| Pedestrians |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |
| Bicycles Scooters | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 0 |
| Comments: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 4:45 PM -- 5:00 PM


| 15-Min Count Period Beginning At | Perry Ridge Ct (Northbound) |  |  |  | Perry Ridge Ct (Southbound) |  |  |  | Perry Curtis Rd (Eastbound) |  |  |  | Perry Curtis Rd (Westbound) |  |  |  | Total | Hourly Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 6 | 0 | 0 | 26 |  |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 8 | 0 | 0 | 0 | 9 | 0 | 0 | 23 |  |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 11 | 0 | 0 | 0 | 3 | 1 | 0 | 17 |  |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 17 | 0 | 0 | 0 | 9 | 0 | 0 | 30 | 96 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 14 | 0 | 0 | 0 | 8 | 0 | 0 | 24 | 94 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 17 | 0 | 0 | 0 | 11 | 0 | 0 | 30 | 101 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 16 | 0 | 0 | 0 | 11 | 0 | 0 | 29 | 113 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 23 | 0 | 0 | 0 | 5 | 0 | 0 | 30 | 113 |
| Peak 15-Min Flowrates | Northbound |  |  |  | Southbound |  |  |  | Eastbound |  |  |  | Westbound |  |  |  | Total |  |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |  |
| All Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 68 | 0 | 0 | 0 | 36 | 0 | 0 |  | 0 |
| Heavy Trucks Buses | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  |  |
| Pedestrians |  | 0 |  |  |  | $0$ |  |  |  | $0$ |  |  |  | 0 |  |  |  |  |
| Bicycles Scooters | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  |  |

Comments:


Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM


| 15-Min Count Period Beginning At | NC 39(Northbound) |  |  |  | NC 39(Southbound) |  |  |  | Old US Hwy 264 (Eastbound) |  |  |  | Old US Hwy 264 (Westbound) |  |  |  | Total | Hourly Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |
| 4:00 PM | 8 | 39 | 3 | 0 | 39 | 65 | 1 | 0 | 1 | 14 | 14 | 0 | 6 | 16 | 32 | 0 | 238 |  |
| 4:15 PM | 10 | 29 | 2 | 0 | 32 | 65 | 1 | 0 | 3 | 26 | 12 | 0 | 5 | 16 | 27 | 0 | 228 |  |
| 4:30 PM | 14 | 43 | 1 | 0 | 37 | 61 | 3 | 0 | 2 | 20 | 15 | 0 | 6 | 21 | 25 | 0 | 248 |  |
| 4:45 PM | 6 | 32 | 2 | 0 | 36 | 76 | 2 | 0 | 3 | 20 | 17 | 0 | 2 | 20 | 24 | 0 | 240 | 954 |
| 5:00 PM | 15 | 32 | 3 | 0 | 27 | 88 | 4 | 0 | 10 | 31 | 18 | 0 | 5 | 15 | 26 | 0 | 274 | 990 |
| 5:15 PM | 7 | 43 | 7 | 0 | 57 | 71 | 5 | 0 | 3 | 24 | 11 | 0 | 1 | 23 | 26 | 0 | 278 | 1040 |
| 5:30 PM | 14 | 46 | 1 | 0 | 39 | 68 | 6 | 0 | 2 | 24 | 18 | 0 | 2 | 10 | 22 | 0 | 252 | 1044 |
| 5:45 PM | 11 | 43 | 4 | 0 | 38 | 64 | 1 | 0 | 6 | 26 | 22 | 0 | 1 | 16 | 20 | 0 | 252 | 1056 |
| Peak 15-Min Flowrates | Northbound |  |  |  | Southbound |  |  |  | Eastbound |  |  |  | Westbound |  |  |  | Total |  |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |  |
| All Vehicles | 28 | 172 | 28 | 0 | 228 | 284 | 20 | 0 | 12 | 96 | 44 | 0 | 4 | 92 | 104 | 0 |  | 12 |
| Heavy Trucks Buses | 0 | 16 | 0 |  | 8 | 24 | 4 |  | 0 | 0 | 0 |  | 0 | 4 | 4 |  |  | 0 |
| Pedestrians |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |
| Bicycles Scooters | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 0 |
| Comments: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |





Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM


| 15-Min Count Period Beginning At | Chamblee Rd (Northbound) |  |  |  | Chamblee Rd (Southbound) |  |  |  | Perry Curtis Rd (Eastbound) |  |  |  | Perry Curtis Rd (Westbound) |  |  |  | Total | Hourly Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |
| 7:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 1 | 0 | 9 |  |
| 7:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 7 | 1 | 0 | 13 |  |
| 7:30 AM | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 5 | 0 | 0 | 0 | 13 | 5 | 0 | 28 |  |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 7 | 4 | 0 | 13 | 63 |
| 8:00 AM | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 8 | 0 | 0 | 19 | 73 |
| 8:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 7 | 3 | 0 | 13 | 73 |
| 8:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 3 | 0 | 12 | 57 |
| 8:45 AM | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 7 | 4 | 0 | 21 | 65 |
| Peak 15-Min Flowrates | Northbound |  |  |  | Southbound |  |  |  | Eastbound |  |  |  | Westbound |  |  |  | Total |  |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |  |
| All Vehicles | 0 | 0 | 0 | 0 | 12 | 0 | 4 | 0 | 4 | 20 | 0 | 0 | 0 | 52 | 20 | 0 |  | 12 |
| Heavy Trucks Buses | 0 | 0 | 0 |  | 4 | 0 | 4 |  | 0 | 0 | 0 |  | 0 | 0 | 4 |  |  | 2 |
| Pedestrians |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |
| Bicycles Scooters | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 0 |
| Comments: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM


| 15-Min Count Period Beginning At | Chamblee Rd (Northbound) |  |  |  | Chamblee Rd (Southbound) |  |  |  | Perry Curtis Rd (Eastbound) |  |  |  | Perry Curtis Rd (Westbound) |  |  |  | Total | Hourly Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |
| 4:00 PM | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 9 | 0 | 0 | 0 | 4 | 0 | 1 | 21 |  |
| 4:15 PM | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 8 | 4 | 0 | 21 |  |
| 4:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 3 | 0 | 0 | 11 | 0 | 1 | 0 | 2 | 2 | 0 | 23 |  |
| 4:45 PM | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 15 | 0 | 0 | 0 | 6 | 3 | 0 | 27 | 92 |
| 5:00 PM | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 1 | 1 | 9 | 0 | 0 | 0 | 5 | 3 | 0 | 26 | 97 |
| 5:15 PM | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 10 | 4 | 0 | 31 | 107 |
| 5:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 0 | 6 | 8 | 0 | 30 | 114 |
| 5:45 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 4 | 2 | 0 | 24 | 111 |
| Peak 15-Min Flowrates | Northbound |  |  |  | Southbound |  |  |  | Eastbound |  |  |  | Westbound |  |  |  | Total |  |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |  |
| All Vehicles | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 40 | 16 | 0 |  | 4 |
| Heavy Trucks Buses | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 0 |
| Pedestrians |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |
| Bicycles Scooters | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 0 |

Comments:


Report generated on 6/17/2022 11:49 AM
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212


Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 8:30 AM -- 8:45 AM


| $\begin{array}{\|l} \text { 15-Min Count } \\ \text { Peginiod } \\ \text { Beginning At } \end{array}$ | Chamblee Rd (Northbound) |  |  |  | Chamblee Rd (Southbound) |  |  |  | Temple-Johnson Rd (Eastbound) |  |  |  | Temple-Johnson Rd (Westbound) |  |  |  | Total | Hourly Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |
| 7:00 AM | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |  |
| 7:15 AM | 1 | 5 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 |  |
| 7:30 AM | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |  |
| 7:45 AM | 1 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 27 |
| 8:00 AM | 0 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 31 |
| 8:15 AM | 1 | 4 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 29 |
| 8:30 AM | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 9 | 33 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 28 |
| Peak 15-Min |  | North | ound |  |  | South | ound |  |  | East | und |  |  | West | ound |  |  |  |
| Flowrates | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  | al |
| All Vehicles | 4 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |  | 6 |
| Heavy Trucks Buses | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  |  |
| Pedestrians |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |
| Bicycles Scooters | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 0 |



Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:45 PM -- 5:00 PM


| $\begin{gathered} \text { 15-Min Count } \\ \text { Period } \\ \text { Beginning At } \end{gathered}$ | Chamblee Rd (Northbound) |  |  |  | Chamblee Rd (Southbound) |  |  |  | Temple-Johnson Rd (Eastbound) |  |  |  | Temple-Johnson Rd (Westbound) |  |  |  | Total | Hourly Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |
| 4:00 PM | 1 | 5 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 17 |  |
| 4:15 PM | 0 | 2 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 13 |  |
| 4:30 PM | 0 | 2 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 8 |  |
| 4:45 PM | 2 | 2 | 0 | 0 | 0 | 9 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 19 | 57 |
| 5:00 PM | 0 | 4 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 11 | 51 |
| 5:15 PM | 2 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 14 | 52 |
| 5:30 PM | 0 | 5 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 51 |
| 5:45 PM | 0 | 4 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 39 |
| Peak 15-Min Flowrates | Northbound |  |  |  | Southbound |  |  |  | Eastbound |  |  |  | Westbound |  |  |  | Total |  |
|  | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U | Left | Thru | Right | U |  |  |  |
| All Vehicles | 8 | 8 | 0 | 0 | 0 | 36 | 8 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 |  | 6 |
| Heavy Trucks Buses | 4 | 0 | 0 |  | 0 | 0 | 4 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 8 |
| Pedestrians |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |  |  |  | 0 |
| Bicycles Scooters | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |  |  | 0 |
| Comments: |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |






# APPENDIX C : ADJACENT DEVELOPMENT INFORMATION 

# TRAFFIC IMPACT ANALYSIS 

FOR

## SIDNEY CREEK

LOCATED

## IN

# ZEBULON, NORTH CAROLINA 

Prepared For:<br>Stocks Engineering, PA<br>801 East Washington Street<br>Nashville, NC 27856<br>and<br>Dan Ryan Builders<br>3000 RDU Center Dr., Suite 202<br>Morrisville, NC 27560

Prepared By:
Ramey Kemp \& Associates, Inc. 5808 Faringdon Place, Suite 100

Raleigh, NC 27609
License \#C-0910

July 2019


Reviewed By: JTR

## 6. Recommendations

Based on the findings of this study, specific geometric and traffic control improvements have been identified at study intersections. The improvements are summarized below and are illustrated in Figure E-1.

## Recommended Improvements by Developer

Based on previous coordination with the Town consultant, offsite improvements should be considered for a cost-share agreement (proportional share fee-in-lieu) with the Town.

## NC 39 and US 264 Westbound Ramps

- Monitor the intersection for signalization and conduct a signal warrant analysis prior to the build-out of the proposed Sidney Creek development.


## NC 39 and Old US 264

- Utilizing the existing pavement width, provide an exclusive westbound left-turn lane with maximized (approximately 50 feet) storage and appropriate taper and an exclusive westbound right-turn lane with maximized (approximately 125 feet) storage and appropriate taper and deceleration length.
- Utilizing the existing pavement width, provide an exclusive eastbound left-turn lane with maximized (approximately 50 feet) storage and appropriate taper and an exclusive eastbound right-turn lane with maximized (approximately 100 feet) storage and appropriate taper and deceleration length.
- Monitor the intersection for signalization and conduct a signal warrant analysis prior to the build-out of the proposed Sidney Creek development.
- Extend the existing southbound right-turn lane with a minimum of 100 feet of storage and appropriate taper and deceleration length.


## Chamblee Road and Site Drive 1

- Construct the westbound approach (Site Drive 1) with one ingress lane and one egress lane.
- Provide stop-control for the westbound approach.

NC 39 and Site Drive 2

- Construct the eastbound approach (Site Drive 2) with one ingress lane and two egress lanes.
- Provide stop-control for the eastbound approach.
- Provide an exclusive northbound left-turn lane with a minimum of 50 feet of storage and appropriate taper and deceleration length.
- Provide an exclusive southbound right-turn lane with a minimum of 150 feet of storage and appropriate taper and deceleration length.


## Attachment 1



Sidney Creek
Zebulon, NC

Site Location Map

Scale: Not to Scale


# APPENDIX D: CAPACITY ANALYSIS RESULTS CHAMBLEE ROAD/E. HORTON STREET + TEMPLEJOHNSON ROAD 






1: Chamblee Road /E. Horton Street \& Temple-Johnston Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



1: Chamblee Road /E. Horton Street \& Temple-Johnston Road



1: Chamblee Road \& Temple-Johnston Road



HCM 6th TWSC
1: Chamblee Road \& Temple-Johnston Road



# APPENDIX E: CAPACITY ANALYSIS RESULTS - NC 96 + TEMPLE-JOHNSON ROAD 

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\uparrow$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 4 | 4 | 285 | 4 | 4 | 104 |
| Future Vol, veh/h | 4 | 4 | 285 | 4 | 4 | 104 |
| 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 | 317 | 4 | 4 | 116 |


| Major/Minor M | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 443 | 319 | 0 | 0 | 321 | 0 |
| Stage 1 | 319 | - | - | - | - | - |
| Stage 2 | 124 | - | - | - | - | - |
| 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 | 572 | 722 | - | - | 1239 | - |
| Stage 1 | 737 | - | - | - | - | - |
| Stage 2 | 902 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 570 | 722 | - | - | 1239 | - |
| Mov Cap-2 Maneuver | 570 | - | - | - | - | - |
| Stage 1 | 737 | - | - | - | - | - |
| Stage 2 | 899 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 10.7 |  | 0 |  | 0.3 |  |
| HCM LOS | B |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 637 | 1239 | - |
| HCM Lane V/C Ratio |  | - | - | 0.014 | 0.004 | - |
| HCM Control Delay (s) |  | - | - | 10.7 | 7.9 | 0 |
| HCM Lane LOS |  | - | - | B | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0 | 0 | - |


|  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



2: NC 96 \& Temple-Johnston Road



HCM 6th TWSC
2: NC 96 \& Temple-Johnston Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.7 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | F |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 4 | 23 | 286 | 4 | 37 | 437 |
| Future Vol, veh/h | 4 | 23 | 286 | 4 | 37 | 437 |
| 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 | 26 | 318 | 4 | 41 | 486 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 888 | 320 | 0 | 0 | 322 | 0 |
| Stage 1 | 320 | - | - | - | - | - |
| Stage 2 | 568 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 314 | 721 | - | - | 1238 | - |
| Stage 1 | 736 | - | - | - | - | - |
| Stage 2 | 567 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 300 | 721 | - | - | 1238 | - |
| Mov Cap-2 Maneuver | 300 | - | - | - | - | - |
| Stage 1 | 736 | - | - | - | - | - |
| Stage 2 | 541 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 11.3 |  | 0 |  | 0.6 |  |
| HCM LOS | B |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 597 | 1238 | - |
| HCM Lane V/C Ratio |  | - | - | 0.05 | 0.033 | - |
| HCM Control Delay (s) |  | - | - | 11.3 | 8 | 0 |
| HCM Lane LOS |  | - | - | B | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0.2 | 0.1 | - |

2: NC 96 \& Temple-Johnston Road



HCM 6th TWSC
2: NC 96 \& Temple-Johnston Road


| Major/Minor | Minor1 | Major1 |  |  | Major2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 1025 | 338 | 0 | 0 | 340 | 0 |  |
| Stage 1 | 338 | - | - | - | - | - |  |
| Stage 2 | 687 | - | - | - | - | - |  |
| 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 | 260 | 704 | - | - | 1219 | - |  |
| Stage 1 | 722 | - | - | - | - | - |  |
| Stage 2 | 499 | - | - | - | - | - |  |
| Platoon blocked, \% |  |  | - | - |  | - |  |
| Mov Cap-1 Maneuver | 234 | 704 | - | - | 1219 | - |  |
| Mov Cap-2 Maneuver | 234 | - | - | - | - | - |  |
| Stage 1 | 722 | - | - | - | - | - |  |
| Stage 2 | 449 | - | - | - | - | - |  |
|  |  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |  |
| HCM Control Delay, s | 11.5 |  | 0 |  | 1.2 |  |  |
| HCM LOS | B |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvm |  | NBT | NBRL | VBLn1 | SBL | SBT |  |
| Capacity (veh/h) |  | - | - | 613 | 1219 | - |  |
| HCM Lane V/C Ratio |  | - | - | 0.098 | 0.071 | - |  |
| HCM Control Delay (s) |  | - | - | 11.5 | 8.2 | - |  |
| HCM Lane LOS |  | - | - | B | A | A |  |
| HCM 95th \%tile Q(veh) |  | - | - | 0.3 | 0.2 | - |  |

## APPENDIX F: CAPACITY ANALYSIS RESULTS - NC 96 + PERRY CURTIS ROAD





| Major/Minor | Minor1 | Major1 | Major2 |  |  |
| :--- | ---: | ---: | ---: | ---: | :--- |
| Conflicting Flow All | 672 | 194 | 0 | 0 | 197 |
| $\quad$ Stage 1 | 194 | - | - | - | - |
| Stage 2 | 478 | - | - | - | - |
| $\quad$ | - |  |  |  |  |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 |

HCM LOS B

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT |
| :--- | ---: | ---: | ---: | :---: |
| Capacity (veh/h) | - | -769 | 1376 | - |
| HCM Lane V/C Ratio | - | -0.085 | 0.072 | - |
| HCM Control Delay (s) | - | - | 10.1 | 7.8 |
| HCM Lane LOS | - | - | B | A |
| HCM 95th \%ttile Q(veh) | - | - | 0.3 | 0.2 |
| H. |  |  |  |  |

3: NC 96 \& Perry Curtis Road







| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |


| Major/Minor | Minor1 | Major1 |  | Major2 |  |
| :--- | ---: | ---: | ---: | ---: | :--- |
| Conflicting Flow All | 943 | 237 | 0 | 0 | 253 |
| $\quad$ Stage 1 | 237 | - | - | - | - |
| Stage 2 | 706 | - | - | - | - |

HCMLOS B

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | - | -582 | 1312 | - |
| HCM Lane V/C Ratio | - | -0.239 | 0.146 | - |
| HCM Control Delay (s) | - | -13.1 | 8.2 | 0 |
| HCM Lane LOS | - | - | B | A |
| HCM 95th \%tile Q(veh) | - | - | 0.9 | 0.5 |
| H. |  |  |  |  |

## APPENDIX G: CAPACITY ANALYSIS RESULTS - PERRY CURTIS ROAD + PERRY RIDGE COURT

4: Perry Curtis Road \& Perry Ridge Court





HCM 6th TWSC
4: Perry Curtis Road \& Perry Ridge Court


| Major/Minor | Minor1 | Major1 |  |  | Major2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 180 | 135 | 0 | 0 | 137 | 0 |  |
| Stage 1 | 135 | - | - | - | - | - |  |
| Stage 2 | 45 | - | - | - | - | - |  |
| 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 | 810 | 914 | - | - | 1447 | - |  |
| Stage 1 | 891 | - | - | - | - | - |  |
| Stage 2 | 977 | - | - | - | - | - |  |
| Platoon blocked, \% |  |  | - | - |  | - |  |
| Mov Cap-1 Maneuver | 808 | 914 | - | - | 1447 | - |  |
| Mov Cap-2 Maneuver | 808 | - | - | - | - | - |  |
| Stage 1 | 891 | - | - | - | - | - |  |
| Stage 2 | 974 | - | - | - | - | - |  |
|  |  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |  |
| HCM Control Delay, s | 9.2 |  | 0 |  | 0.8 |  |  |
| HCM LOS | A |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvm |  | NBT | NBRL | BLn1 | SBL | SBT |  |
| Capacity (veh/h) |  | - | - | 858 | 1447 | - |  |
| HCM Lane V/C Ratio |  | - | - | 0.01 | 0.003 | - |  |
| HCM Control Delay (s) |  | - | - | 9.2 | 7.5 | - |  |
| HCM Lane LOS |  | - | - | A | A | A |  |
| HCM 95th \%tile Q(veh) |  | - | - | 0 | 0 | - |  |

HCM 6th TWSC
4: Perry Curtis Road \& Perry Ridge Court


| Major/Minor | Minor1 | Major1 |  |  | Major2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 253 | 91 | 0 | 0 | 93 | 0 |  |
| Stage 1 | 91 | - | - | - | - | - |  |
| Stage 2 | 162 | - | - | - | - | - |  |
| 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 | 736 | 967 | - | - | 1501 | - |  |
| Stage 1 | 933 | - | - | - | - | - |  |
| Stage 2 | 867 | - | - | - | - | - |  |
| Platoon blocked, \% |  |  | - | - |  | - |  |
| Mov Cap-1 Maneuver | 732 | 967 | - | - | 1501 | - |  |
| Mov Cap-2 Maneuver | 732 | - | - | - | - | - |  |
| Stage 1 | 933 | - | - | - | - | - |  |
| Stage 2 | 863 | - | - | - | - | - |  |
|  |  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |  |
| HCM Control Delay, s | 9.3 |  | 0 |  | 0.3 |  |  |
| HCM LOS | A |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvm |  | NBT | NBR1 | VBLn1 | SBL | SBT |  |
| Capacity (veh/h) |  | - | - | 857 | 1501 | - |  |
| HCM Lane V/C Ratio |  | - | - | 0.013 | 0.004 | - |  |
| HCM Control Delay (s) |  | - | - | 9.3 | 7.4 | - |  |
| HCM Lane LOS |  | - | - | A | A | A |  |
| HCM 95th \%tile Q(veh) |  | - | - | 0 | 0 | - |  |

HCM 6th TWSC
4: Perry Curtis Road \& Perry Ridge Court


| Major/Minor | Minor1 | Major1 |  |  | Major2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 198 | 135 | 0 | 0 | 137 | 0 |  |
| Stage 1 | 135 | - | - | - | - | - |  |
| Stage 2 | 63 | - | - | - | - | - |  |
| 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 | 791 | 914 | - | - | 1447 | - |  |
| Stage 1 | 891 | - | - | - | - | - |  |
| Stage 2 | 960 | - | - | - | - | - |  |
| Platoon blocked, \% |  |  | - | - |  | - |  |
| Mov Cap-1 Maneuver | 784 | 914 | - | - | 1447 | - |  |
| Mov Cap-2 Maneuver | 784 | - | - | - | - | - |  |
| Stage 1 | 891 | - | - | - | - | - |  |
| Stage 2 | 951 | - | - | - | - | - |  |
|  |  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |  |
| HCM Control Delay, s | 9.3 |  | 0 |  | 2 |  |  |
| HCM LOS | A |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvm |  | NBT | NBRL | BLn1 | SBL | SBT |  |
| Capacity (veh/h) |  | - | - | 885 | 1447 | - |  |
| HCM Lane V/C Ratio |  | - | - | 0.05 | 0.009 | - |  |
| HCM Control Delay (s) |  | - | - | 9.3 | 7.5 | - |  |
| HCM Lane LOS |  | - | - | A | A | A |  |
| HCM 95th \%tile Q(veh) |  | - | - | 0.2 | 0 | - |  |

HCM 6th TWSC
4: Perry Curtis Road \& Perry Ridge Court



# APPENDIX H: CAPACITY ANALYSIS RESULTS - PERRY RIDGE COURT + RIDGE VALLEY WAY 

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  | F |  | MF |  |
| Traffic Vol, veh/h | 4 |  | 4 | 4 | 4 | 4 |
| Future Vol, veh/h | 4 | 4 | 4 | 4 | 4 | 4 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, $\#$ | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 4 | 4 | 4 | 4 | 4 |


| Major/Minor | Major1 | Major2 |  | Minor2 |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Conflicting Flow All | 8 | 0 | - | 0 | 18 |
| $\quad$ Stage 1 | - | - | - | - | 6 |
| $\quad$ Stage 2 | - | - | - | - | 12 |


| Approach | EB | WB | SB |
| :--- | :---: | :---: | :---: |
| HCM Control Delay, S | 3.6 | 0 | 8.5 |

HCMLOS A

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1612 | - | - | -1036 |
| HCM Lane V/C Ratio | 0.003 | - | - | -0.009 |
| HCM Control Delay (s) | 7.2 | 0 | - | -8.5 |
| HCM Lane LOS | A | A | - | - |
| HCM 95th \%tile Q(veh) | 0 | - | - | - |
| H | 0 |  |  |  |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.7 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  | F |  | MF |  |
| Traffic Vol, veh/h | 4 |  | 5 | 4 | 4 | 4 |
| Future Vol, veh/h | 4 | 5 | 5 | 4 | 4 | 4 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, $\#$ | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 6 | 6 | 4 | 4 | 4 |


| Major/Minor M | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 10 | 0 | - | 0 | 22 | 8 |
| Stage 1 | - |  | - | - | 8 | - |
| Stage 2 | - | - | - | - | 14 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1610 | - | - | - | 995 | 1074 |
| Stage 1 | - | - | - | - | 1015 | - |
| Stage 2 | - | - | - | - | 1009 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1610 | - | - | - | 993 | 1074 |
| Mov Cap-2 Maneuver | - | - | - | - | 993 | - |
| Stage 1 | - | - | - | - | 1013 | - |
| Stage 2 | - | - | - | - | 1009 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 3.2 |  | 0 |  | 8.5 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1610 | - | - | - | 1032 |
| HCM Lane V/C Ratio |  | 0.003 | - | - | - | 0.009 |
| HCM Control Delay (s) |  | 7.2 | 0 | - | - | 8.5 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0 | - | - | - | 0 |

5: Perry Ridge Court \& Ridge Valley Way

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | F |  | Mr |  |
| Traffic Vol, veh/h | 4 | 4 | 4 | 4 | 4 | 4 |
| Future Vol, veh/h | 4 | 4 | 4 | 4 | 4 | 4 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 4 | 4 | 4 | 4 | 4 |


| Major/Minor | Major1 | Major2 |  | Minor2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | :--- |
| Conflicting Flow All | 8 | 0 | - | 0 | 18 | 6 |
| $\quad$ Stage 1 | - | - | - | - | 6 | - |
| $\quad$ Stage 2 | - | - | - | - | 12 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | -5.42 | - |  |
| Follow-up Hdwy | 2.218 | - | - | -3.518 | 3.318 |  |
| Pot Cap-1 Maneuver | 1612 | - | - | -1000 | 1077 |  |
| $\quad$ Stage 1 | - | - | - | -1017 | - |  |
| $\quad$ Stage 2 | - | - | - | -1011 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1612 | - | - | - | 998 | 1077 |
| Mov Cap-2 Maneuver | - | - | - | - | 998 | - |
| $\quad$ Stage 1 | - | - | - | -1015 | - |  |
| $\quad$ Stage 2 | - | - | - | -1011 | - |  |
|  |  |  |  |  |  |  |


| Approach | EB | WB | SB |
| :--- | :---: | :---: | :---: |
| HCM Control Delay, s | 3.6 | 0 | 8.5 |

HCM LOS A

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1612 | - | - | -1036 |
| HCM Lane V/C Ratio | 0.003 | - | - | -0.009 |
| HCM Control Delay (s) | 7.2 | 0 | - | -8.5 |
| HCM Lane LOS | A | A | - | - |
| HCM 95th \%tile Q(veh) | 0 | - | - | - |

5: Perry Ridge Court \& Ridge Valley Way

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.5 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | $\mathbf{T}$ |  | Mr |  |
| Traffic Vol, veh/h | 4 | 6 | 6 | 4 | 4 | 4 |
| Future Vol, veh/h | 4 | 6 | 6 | 4 | 4 | 4 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 7 | 7 | 4 | 4 | 4 |



5: Perry Ridge Court \& Ridge Valley Way



5: Perry Ridge Court \& Ridge Valley Way



# APPENDIX I: CAPACITY ANALYSIS RESULTS - PERRY CURTIS ROAD/WAKE COUNTY LINE ROAD + CHAMBLEE ROAD 

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.7 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\uparrow$ | F |  | Mr |  |
| Traffic Vol, veh/h | 4 | 16 | 28 | 9 | 6 | 4 |
| Future Vol, veh/h | 4 | 16 | 28 | 9 | 6 | 4 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, $\%$ | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 18 | 31 | 10 | 7 | 4 |



6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.8 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  | F |  | Mr |  |
| Traffic Vol, veh/h | 4 |  | 26 | 12 | 15 | 5 |
| Future Vol, veh/h | 4 | 51 | 26 | 12 | 15 | 5 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, $\%$ | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 57 | 29 | 13 | 17 | 6 |


| Major/Minor M | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 42 | 0 | - | 0 | 101 | 36 |
| Stage 1 | - |  | - | - | 36 | - |
| Stage 2 | - | - | - | - | 65 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1567 | - | - | - | 898 | 1037 |
| Stage 1 | - | - | - | - | 986 | - |
| Stage 2 | - | - | - | - | 958 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1567 | - | - | - | 895 | 1037 |
| Mov Cap-2 Maneuver | - | - | - | - | 895 | - |
| Stage 1 | - | - | - | - | 983 | - |
| Stage 2 | - | - | - | - | 958 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 0.5 |  | 0 |  | 9 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1567 | - | - | - | 927 |
| HCM Lane V/C Ratio |  | 0.003 | - | - | - | 0.024 |
| HCM Control Delay (s) |  | 7.3 | 0 | - | - | 9 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0 | A | - |  | 0.1 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.2 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\uparrow$ | F |  | Mr |  |
| Traffic Vol, veh/h | 22 | 19 | 32 | 16 | 25 | 54 |
| Future Vol, veh/h | 22 | 19 | 32 | 16 | 25 | 54 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 24 | 21 | 36 | 18 | 28 | 60 |



6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.8 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  | F |  | Mr |  |
| Traffic Vol, veh/h | 22 |  | 35 | 35 | 77 | 54 |
| Future Vol, veh/h | 22 | 26 | 35 | 35 | 77 | 54 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 24 | 29 | 39 | 39 | 86 | 60 |



6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  | F |  | Mr |  |
| Traffic Vol, veh/h | 64 |  | 38 | 90 | 63 | 41 |
| Future Vol, veh/h | 64 | 64 | 38 | 90 | 63 | 41 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 71 | 71 | 42 | 100 | 70 | 46 |



## APPENDIX J: CAPACITY ANALYSIS RESULTS - NC 39 + WAKE COUNTY LINE ROAD

7: NC 39 \& Wake County Line Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | A. | 个 |  |
| Traffic Vol, veh/h | 12 | 8 | 32 | 363 | 123 | 6 |
| Future Vol, veh/h | 12 | 8 | 32 | 363 | 123 | 6 |
| 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 | 13 | 9 | 36 | 403 | 137 | 7 |



7: NC 39 \& Wake County Line Road



7: NC 39 \& Wake County Line Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.2 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | F |  |  | A | F |  |
| Traffic Vol, veh/h | 14 | 27 | 43 | 427 | 161 | 7 |
| Future Vol, veh/h | 14 | 27 | 43 | 427 | 161 | 7 |
| 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 | 16 | 30 | 48 | 474 | 179 | 8 |



7: NC 39 \& Wake County Line Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | - | $\uparrow$ |  |
| Traffic Vol, veh/h | 23 | 57 | 50 | 331 | 369 | 19 |
| Future Vol, veh/h | 23 | 57 | 50 | 331 | 369 | 19 |
| 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 | 26 | 63 | 56 | 368 | 410 | 21 |



7: NC 39 \& Wake County Line Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



7: NC 39 \& Wake County Line Road



# APPENDIX K: CAPACITY ANALYSIS RESULTS - NC 39 + OLD US 264 

| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 7.8 |  |  |  |  |  |  |  |  |  |  |  |
| Movement E | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  | \& |  |  | \& |  | ${ }^{*}$ | $\hat{\dagger}$ |  | ${ }^{*}$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 4 | 26 | 22 | 9 | 75 | 148 | 33 | 293 | 15 | 81 | 120 | 9 |
| Future Vol, veh/h | 4 | 26 | 22 | 9 | 75 | 148 | 33 | 293 | 15 | 81 | 120 | 9 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control Stop | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 150 | - | - | 100 | - | - |
| 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 | 29 | 24 | 10 | 83 | 164 | 37 | 326 | 17 | 90 | 133 | 10 |



| Minor Lane/Major Mvmt | NBL | NBT | NBR EBLn1WBLn1 | SBL | SBT | SBR |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- |
| Capacity (veh/h) | 1440 | - | - | 393 | 482 | 1216 | - | - |
| HCM Lane V/C Ratio | 0.025 | - | -0.147 | 0.535 | 0.074 | - | - |  |
| HCM Control Delay (s) | 7.6 | - | - | 15.7 | 20.7 | 8.2 | - | - |
| HCM Lane LOS | A | - | - | C | C | A | - | - |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | 0.5 | 3.1 | 0.2 | - | - |


| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 20.7 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  | \& |  |  | \& |  | ${ }^{*}$ | $\hat{\beta}$ |  | ${ }^{*}$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 21 | 105 | 69 | 9 | 64 | 94 | 47 | 164 | 15 | 161 | 291 | 16 |
| Future Vol, veh/h | 21 | 105 | 69 | 9 | 64 | 94 | 47 | 164 | 15 | 161 | 291 | 16 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control Star | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | 150 | - | - | 100 | - | - |
| 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 | 23 | 117 | 77 | 10 | 71 | 104 | 52 | 182 | 17 | 179 | 323 | 18 |



|  | 4 |  |  |  |  |  | 4 | $\dagger$ | $p$ |  | $\downarrow$ | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | $\uparrow$ | 7 | \% | $\uparrow$ | F | \% | $\uparrow$ |  | \% | F |  |
| Traffic Volume (vph) | 5 | 30 | 32 | 16 | 87 | 172 | 56 | 535 | 35 | 94 | 203 | 10 |
| Future Volume (vph) | 5 | 30 | 32 | 16 | 87 | 172 | 56 | 535 | 35 | 94 | 203 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (t) | 50 |  | 125 | 50 |  | 125 | 100 |  | 0 | 50 |  | 0 |
| Storage Lanes | 1 |  | 1 | 1 |  | 1 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (ft) | 100 |  |  | 100 |  |  | 100 |  |  | 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 |  |  | 0.850 |  |  | 0.850 |  | 0.991 |  |  | 0.993 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1846 | 0 | 1770 | 1850 | 0 |
| Flt Permitted | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (perm) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1846 | 0 | 1770 | 1850 | 0 |
| Right Turn on Red |  |  | No |  |  | No |  |  | No |  |  | No |
| Satd. Flow (RTOR) |  |  |  |  |  |  |  |  |  |  |  |  |
| Link Speed (mph) |  | 55 |  |  | 55 |  |  | 55 |  |  | 55 |  |
| Link Distance (t) |  | 1272 |  |  | 1346 |  |  | 8116 |  |  | 1238 |  |
| Travel Time (s) |  | 15.8 |  |  | 16.7 |  |  | 100.6 |  |  | 15.3 |  |
| 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) | 6 | 33 | 36 | 18 | 97 | 191 | 62 | 594 | 39 | 104 | 226 | 11 |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 6 | 33 | 36 | 18 | 97 | 191 | 62 | 633 | 0 | 104 | 237 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(t) |  | 12 |  |  | 12 |  |  | 12 |  |  | 12 |  |
| Link Offset(ft) |  | 0 |  |  | 0 |  |  | 0 |  |  | 0 |  |
| Crosswalk Width(t) |  | 16 |  |  | 16 |  |  | 16 |  |  | 16 |  |
| Two way Left Turn Lane |  |  |  |  |  |  |  |  |  |  |  |  |
| Headway 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 |
| Turning Speed (mph) | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 |  | 1 | 2 |  |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru |  | Left | Thru |  |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 |  | 20 | 100 |  |
| Trailing Detector (tt) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Size(tt) | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 |  | 20 | 6 |  |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |  | Cl+Ex | Cl+Ex |  |
| Detector 1 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 2 Position(ft) |  | 94 |  |  | 94 |  |  | 94 |  |  | 94 |  |
| Detector 2 Size(t) |  | 6 |  |  | 6 |  |  | 6 |  |  | 6 |  |
| Detector 2 Type |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |  | $\mathrm{Cl}+\mathrm{Ex}$ |  |
| Detector 2 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 2 Extend (s) |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |  | Prot | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases |  |  | 4 |  |  | 8 |  |  |  |  |  |  |

Lanes, Volumes, Timings
No-BuildAM.syn
8: NC 39 \& Old US 264

|  |  |  |  |  |  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |

Splits and Phases: 8: NC 39 \& Old US 264


Lanes, Volumes, Timings
No-BuildPM.syn
8: NC 39 \& Old US 264
10/27/2022

|  | 4 |  |  |  |  |  | 4 | $\dagger$ | $p$ |  | $\downarrow$ | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{*}$ | $\uparrow$ | F | \% | $\uparrow$ | F | ${ }^{7}$ | $\uparrow$ |  | \% | $\uparrow$ |  |
| Traffic Volume (vph) | 24 | 122 | 99 | 29 | 74 | 109 | 65 | 315 | 29 | 187 | 551 | 19 |
| Future Volume (vph) | 24 | 122 | 99 | 29 | 74 | 109 | 65 | 315 | 29 | 187 | 551 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (t) | 50 |  | 125 | 50 |  | 125 | 150 |  | 0 | 100 |  | 0 |
| Storage Lanes | 1 |  | 1 | 1 |  | 1 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (ft) | 100 |  |  | 100 |  |  | 100 |  |  | 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 |  |  | 0.850 |  |  | 0.850 |  | 0.987 |  |  | 0.995 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1839 | 0 | 1770 | 1853 | 0 |
| Flt Permitted | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (perm) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1839 | 0 | 1770 | 1853 | 0 |
| Right Turn on Red |  |  | No |  |  | No |  |  | No |  |  | No |
| Satd. Flow (RTOR) |  |  |  |  |  |  |  |  |  |  |  |  |
| Link Speed (mph) |  | 55 |  |  | 55 |  |  | 55 |  |  | 55 |  |
| Link Distance (t) |  | 1272 |  |  | 1346 |  |  | 8116 |  |  | 1238 |  |
| Travel Time (s) |  | 15.8 |  |  | 16.7 |  |  | 100.6 |  |  | 15.3 |  |
| 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) | 27 | 136 | 110 | 32 | 82 | 121 | 72 | 350 | 32 | 208 | 612 | 21 |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 27 | 136 | 110 | 32 | 82 | 121 | 72 | 382 | 0 | 208 | 633 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(t) |  | 12 |  |  | 12 |  |  | 12 |  |  | 12 |  |
| Link Offset(ft) |  | 0 |  |  | 0 |  |  | 0 |  |  | 0 |  |
| Crosswalk Width(t) |  | 16 |  |  | 16 |  |  | 16 |  |  | 16 |  |
| Two way Left Turn Lane |  |  |  |  |  |  |  |  |  |  |  |  |
| Headway 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 |
| Turning Speed (mph) | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 |  | 1 | 2 |  |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru |  | Left | Thru |  |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 |  | 20 | 100 |  |
| Trailing Detector (t) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Position(ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Size(tt) | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 |  | 20 | 6 |  |
| Detector 1 Type | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |  | Cl+Ex | Cl+Ex |  |
| Detector 1 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 2 Position(ft) |  | 94 |  |  | 94 |  |  | 94 |  |  | 94 |  |
| Detector 2 Size(t) |  | 6 |  |  | 6 |  |  | 6 |  |  | 6 |  |
| Detector 2 Type |  | Cl+Ex |  |  | Cl+Ex |  |  | Cl+Ex |  |  | Cl+Ex |  |
| Detector 2 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 2 Extend (s) |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |  | Prot | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases |  |  | 4 |  |  | 8 |  |  |  |  |  |  |

Lanes, Volumes, Timings
No-BuildPM.syn
8: NC 39 \& Old US 264
10/27/2022

|  | 4 |  |  | $\checkmark$ |  |  | 4 | $\uparrow$ | $p$ |  | $\downarrow$ | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | 8 | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial ( s ) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 14.0 |  | 7.0 | 14.0 |  |
| Minimum Split (s) | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 21.0 |  | 14.0 | 21.0 |  |
| Total Split (s) | 14.0 | 23.0 | 23.0 | 14.0 | 23.0 | 23.0 | 15.0 | 53.0 |  | 30.0 | 68.0 |  |
| Total Split (\%) | 11.7\% | 19.2\% | 19.2\% | 11.7\% | 19.2\% | 19.2\% | 12.5\% | 44.2\% |  | 25.0\% | 56.7\% |  |
| Maximum Green (s) | 7.0 | 16.0 | 16.0 | 7.0 | 16.0 | 16.0 | 8.0 | 46.0 |  | 23.0 | 61.0 |  |
| Yellow Time (s) | 5.0 | 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 | 2.0 |  |
| Lost Time Adjust (s) | -2.0 | -2.0 | -2.0 | -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 | 5.0 |  | 5.0 | 5.0 |  |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  | Yes | Yes |  |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |  | 3.0 | 3.0 |  |
| Recall Mode | None | None | None | None | None | None | None | Min |  | None | Min |  |
| Act Effct Green (s) | 9.9 | 14.1 | 14.1 | 9.9 | 16.6 | 16.6 | 10.5 | 29.0 |  | 17.7 | 41.0 |  |
| Actuated g/C Ratio | 0.12 | 0.17 | 0.17 | 0.12 | 0.20 | 0.20 | 0.12 | 0.34 |  | 0.21 | 0.49 |  |
| $\mathrm{v} / \mathrm{C}$ Ratio | 0.13 | 0.44 | 0.42 | 0.15 | 0.22 | 0.39 | 0.33 | 0.60 |  | 0.56 | 0.70 |  |
| Control Delay | 46.0 | 42.4 | 43.3 | 46.1 | 36.5 | 39.7 | 47.3 | 29.5 |  | 40.5 | 25.0 |  |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 46.0 | 42.4 | 43.3 | 46.1 | 36.5 | 39.7 | 47.3 | 29.5 |  | 40.5 | 25.0 |  |
| LOS | D | D | D | D | D | D | D | C |  | D | C |  |
| Approach Delay |  | 43.1 |  |  | 39.5 |  |  | 32.3 |  |  | 28.8 |  |
| Approach LOS |  | D |  |  | D |  |  | C |  |  | C |  |
| Queue Length 50th (tt) | 15 | 74 | 60 | 18 | 35 | 53 | 40 | 185 |  | 112 | 315 |  |
| Queue Length 95th (t) | 49 | 156 | 132 | 55 | 101 | 144 | 100 | 321 |  | 215 | 476 |  |
| Internal Link Dist (ft) |  | 1192 |  |  | 1266 |  |  | 8036 |  |  | 1158 |  |
| Turn Bay Length (tt) | 50 |  | 125 | 50 |  | 125 | 150 |  |  | 100 |  |  |
| Base Capacity (vph) | 207 | 437 | 372 | 207 | 478 | 406 | 231 | 1152 |  | 577 | 1426 |  |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Reduced v/c Ratio | 0.13 | 0.31 | 0.30 | 0.15 | 0.17 | 0.30 | 0.31 | 0.33 |  | 0.36 | 0.44 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type: Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length: 120 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length: 84.3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle: 75 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type: Actuated-Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v/c Ratio: 0.70 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay: 33.2 |  |  |  | Intersection LOS: C |  |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 64.9\% |  |  |  | ICU Level of Service C |  |  |  |  |  |  |  |  |
| Analysis Period (min) 15 |  |  |  |  |  |  |  |  |  |  |  |  |

Splits and Phases: 8: NC 39 \& Old US 264


McAdams
Page 2

|  | 4 |  |  |  |  |  | 4 | $\uparrow$ |  |  | $\dagger$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | $\uparrow$ | 「 | \% | $\uparrow$ | 「 | ${ }^{*}$ | $\hat{\beta}$ |  | \% | $\uparrow$ |  |
| Traffic Volume (vph) | 5 | 30 | 32 | 16 | 87 | 172 | 56 | 594 | 35 | 94 | 225 | 10 |
| Future Volume (vph) | 5 | 30 | 32 | 16 | 87 | 172 | 56 | 594 | 35 | 94 | 225 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 0 | 100 |  | 0 |
| Storage Lanes | 1 |  | 1 | 1 |  | 1 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (tt) | 100 |  |  | 100 |  |  | 100 |  |  | 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 |  |  | 0.850 |  |  | 0.850 |  | 0.992 |  |  | 0.994 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1848 | 0 | 1770 | 1852 | 0 |
| Flt Permitted | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (perm) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1848 | 0 | 1770 | 1852 | 0 |
| Right Turn on Red |  |  | No |  |  | No |  |  | No |  |  | No |
| Satd. Flow (RTOR) |  |  |  |  |  |  |  |  |  |  |  |  |
| Link Speed (mph) |  | 55 |  |  | 55 |  |  | 55 |  |  | 55 |  |
| Link Distance (tt) |  | 1272 |  |  | 1346 |  |  | 8116 |  |  | 1238 |  |
| Travel Time (s) |  | 15.8 |  |  | 16.7 |  |  | 100.6 |  |  | 15.3 |  |
| 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) | 6 | 33 | 36 | 18 | 97 | 191 | 62 | 660 | 39 | 104 | 250 | 11 |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 6 | 33 | 36 | 18 | 97 | 191 | 62 | 699 | 0 | 104 | 261 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(t) |  | 12 |  |  | 12 |  |  | 12 |  |  | 12 |  |
| Link Offset(t) |  | 0 |  |  | 0 |  |  | 0 |  |  | 0 |  |
| Crosswalk Width(tt) |  | 16 |  |  | 16 |  |  | 16 |  |  | 16 |  |
| Two way Left Turn Lane |  |  |  |  |  |  |  |  |  |  |  |  |
| Headway 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 |
| Turning Speed (mph) | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 |  | 1 | 2 |  |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru |  | Left | Thru |  |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 |  | 20 | 100 |  |
| Trailing Detector ( t ) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Position(t) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Size(t) | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 |  | 20 | 6 |  |
| Detector 1 Type | Cl+Ex | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ |  | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ |  |
| Detector 1 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 2 Position(tt) |  | 94 |  |  | 94 |  |  | 94 |  |  | 94 |  |
| Detector 2 Size(tt) |  | 6 |  |  | 6 |  |  | 6 |  |  | 6 |  |
| Detector 2 Type |  | Cl+Ex |  |  | Cl+Ex |  |  | Cl+Ex |  |  | Cl+Ex |  |
| Detector 2 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 2 Extend (s) |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |  | Prot | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases |  |  | 4 |  |  | 8 |  |  |  |  |  |  |

Lanes, Volumes, Timings
BuildAM.syn
8: NC 39 \& Old US 264


|  | 4 |  |  |  |  |  | 4 | $\dagger$ |  |  | $\downarrow$ | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | \% | $\uparrow$ | $\stackrel{7}{ }$ | \% | $\uparrow$ | 「 | \% | $\uparrow$ |  | \% | $\uparrow$ |  |
| Traffic Volume (vph) | 24 | 122 | 99 | 29 | 74 | 109 | 65 | 355 | 29 | 187 | 616 | 19 |
| Future Volume (vph) | 24 | 122 | 99 | 29 | 74 | 109 | 65 | 355 | 29 | 187 | 616 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 0 | 100 |  | 0 |
| Storage Lanes | 1 |  | 1 | 1 |  | 1 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (ft) | 100 |  |  | 100 |  |  | 100 |  |  | 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 |  |  | 0.850 |  |  | 0.850 |  | 0.989 |  |  | 0.996 |  |
| FIt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1842 | 0 | 1770 | 1855 | 0 |
| Flt Permitted | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (perm) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1842 | 0 | 1770 | 1855 | 0 |
| Right Turn on Red |  |  | No |  |  | No |  |  | No |  |  | No |
| Satd. Flow (RTOR) |  |  |  |  |  |  |  |  |  |  |  |  |
| Link Speed (mph) |  | 55 |  |  | 55 |  |  | 55 |  |  | 55 |  |
| Link Distance (t) |  | 1272 |  |  | 1346 |  |  | 8116 |  |  | 1238 |  |
| Travel Time (s) |  | 15.8 |  |  | 16.7 |  |  | 100.6 |  |  | 15.3 |  |
| 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) | 27 | 136 | 110 | 32 | 82 | 121 | 72 | 394 | 32 | 208 | 684 | 21 |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 27 | 136 | 110 | 32 | 82 | 121 | 72 | 426 | 0 | 208 | 705 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(t) |  | 12 |  |  | 12 |  |  | 12 |  |  | 12 |  |
| Link Offset(ft) |  | 0 |  |  | 0 |  |  | 0 |  |  | 0 |  |
| Crosswalk Width(tt) |  | 16 |  |  | 16 |  |  | 16 |  |  | 16 |  |
| Two way Left Turn Lane |  |  |  |  |  |  |  |  |  |  |  |  |
| Headway 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 |
| Turning Speed (mph) | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 | 15 |  | 9 |
| Number of Detectors | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 |  | 1 | 2 |  |
| Detector Template | Left | Thru | Right | Left | Thru | Right | Left | Thru |  | Left | Thru |  |
| Leading Detector (ft) | 20 | 100 | 20 | 20 | 100 | 20 | 20 | 100 |  | 20 | 100 |  |
| Trailing Detector (tt) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Position(t) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Detector 1 Size(tt) | 20 | 6 | 20 | 20 | 6 | 20 | 20 | 6 |  | 20 | 6 |  |
| Detector 1 Type | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ |  | $\mathrm{Cl}+\mathrm{Ex}$ | $\mathrm{Cl}+\mathrm{Ex}$ |  |
| Detector 1 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 1 Extend (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Queue (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 1 Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Detector 2 Position(tt) |  | 94 |  |  | 94 |  |  | 94 |  |  | 94 |  |
| Detector 2 Size(t) |  | 6 |  |  | 6 |  |  | 6 |  |  | 6 |  |
| Detector 2 Type |  | Cl+Ex |  |  | Cl+Ex |  |  | Cl+Ex |  |  | Cl+Ex |  |
| Detector 2 Channel |  |  |  |  |  |  |  |  |  |  |  |  |
| Detector 2 Extend (s) |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |  | 0.0 |  |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |  | Prot | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases |  |  | 4 |  |  | 8 |  |  |  |  |  |  |


|  | 4 |  |  | $\checkmark$ |  |  | 4 | $\uparrow$ | $p$ |  | $\downarrow$ | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | 8 | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial ( s ) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 14.0 |  | 7.0 | 14.0 |  |
| Minimum Split (s) | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 21.0 |  | 14.0 | 21.0 |  |
| Total Split (s) | 14.0 | 23.0 | 23.0 | 14.0 | 23.0 | 23.0 | 15.0 | 53.0 |  | 30.0 | 68.0 |  |
| Total Split (\%) | 11.7\% | 19.2\% | 19.2\% | 11.7\% | 19.2\% | 19.2\% | 12.5\% | 44.2\% |  | 25.0\% | 56.7\% |  |
| Maximum Green (s) | 7.0 | 16.0 | 16.0 | 7.0 | 16.0 | 16.0 | 8.0 | 46.0 |  | 23.0 | 61.0 |  |
| Yellow Time (s) | 5.0 | 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 | 2.0 |  |
| Lost Time Adjust (s) | -2.0 | -2.0 | -2.0 | -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 | 5.0 |  | 5.0 | 5.0 |  |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  | Yes | Yes |  |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |  | 3.0 | 3.0 |  |
| Recall Mode | None | None | None | None | None | None | None | Min |  | None | Min |  |
| Act Effct Green (s) | 10.0 | 14.6 | 14.6 | 10.0 | 14.6 | 14.6 | 10.6 | 32.9 |  | 18.3 | 45.5 |  |
| Actuated g/C Ratio | 0.11 | 0.16 | 0.16 | 0.11 | 0.16 | 0.16 | 0.12 | 0.37 |  | 0.20 | 0.51 |  |
| $\mathrm{v} / \mathrm{C}$ Ratio | 0.14 | 0.45 | 0.43 | 0.16 | 0.27 | 0.47 | 0.34 | 0.63 |  | 0.57 | 0.75 |  |
| Control Delay | 49.2 | 45.6 | 46.5 | 49.4 | 42.5 | 47.6 | 51.0 | 29.6 |  | 43.7 | 26.0 |  |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 49.2 | 45.6 | 46.5 | 49.4 | 42.5 | 47.6 | 51.0 | 29.6 |  | 43.7 | 26.0 |  |
| LOS | D | D | D | D | D | D | D | C |  | D | C |  |
| Approach Delay |  | 46.3 |  |  | 46.1 |  |  | 32.7 |  |  | 30.1 |  |
| Approach LOS |  | D |  |  | D |  |  | C |  |  | C |  |
| Queue Length 50th (tt) | 16 | 80 | 64 | 19 | 47 | 71 | 43 | 218 |  | 121 | 378 |  |
| Queue Length 95th (t) | 51 | 164 | 139 | 57 | 107 | 151 | 104 | 361 |  | 227 | 556 |  |
| Internal Link Dist (ft) |  | 1192 |  |  | 1266 |  |  | 8036 |  |  | 1158 |  |
| Turn Bay Length (tt) | 50 |  | 125 | 50 |  | 125 | 150 |  |  | 100 |  |  |
| Base Capacity (vph) | 197 | 416 | 354 | 197 | 416 | 354 | 219 | 1098 |  | 549 | 1364 |  |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Reduced v/c Ratio | 0.14 | 0.33 | 0.31 | 0.16 | 0.20 | 0.34 | 0.33 | 0.39 |  | 0.38 | 0.52 |  |
| Intersection Summary |  |  |  |  |  |  |  |  |  |  |  |  |
| Area Type: <br> Other |  |  |  |  |  |  |  |  |  |  |  |  |
| Cycle Length: 120 |  |  |  |  |  |  |  |  |  |  |  |  |
| Actuated Cycle Length: 89.3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Natural Cycle: 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| Control Type: Actuated-Uncoordinated |  |  |  |  |  |  |  |  |  |  |  |  |
| Maximum v/c Ratio: 0.75 |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection Signal Delay: 35.0 |  |  |  | Intersection LOS: D |  |  |  |  |  |  |  |  |
| Intersection Capacity Utilization 68.3\% |  |  |  | ICU Level of Service C |  |  |  |  |  |  |  |  |
| Analysis Period (min) 15 |  |  |  |  |  |  |  |  |  |  |  |  |

Splits and Phases: 8: NC 39 \& Old US 264


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# APPENDIX L: CAPACITY ANALYSIS RESULTS CHAMBLEE ROAD + SITE DRIVE \#1 

HCM 6th TWSC
9: Chamblee Road \& Site Drive \#1

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |


| Major/Minor | Minor1 |  | Major1 | Major2 |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Conflicting Flow All | - | 104 | 0 | 0 | - |


| Conflicting Flow All | - | 104 | 0 | 0 | - | - |
| :--- | :--- | ---: | :--- | :--- | :--- | :--- |
| $\quad$ Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 6.22 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | -3.318 | - | - | - | - |  |
| Pot Cap-1 Maneuver | 0 | 951 | - | - | 0 | - |
| $\quad$ Stage 1 | 0 | - | - | - | 0 | - |
| $\quad$ Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, \% |  | - | - |  | - |  |
| Mov Cap-1 Maneuver | - | 951 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| $\quad$ Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |



HCM 6th TWSC
9: Chamblee Road \& Site Drive \#1

|  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |


| Major/Minor | Minor1 | Major1 | Major2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Conflicting Flow All | - | 81 | 0 | 0 | - |


| Conflicting Flow All | - | 81 | 0 | 0 | - | - |
| :--- | ---: | ---: | ---: | ---: | :--- | :--- |
| $\quad$ Stage 1 | - | - | - | - | - | - |
| $\quad$ Stage 2 | - | - | - | - | - | - |
| Criticat Hdwy | - | 6.22 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | -3.318 | - | - | - | - |  |
| Pot Cap-1 Maneuver | 0 | 979 | - | - | 0 | - |
| $\quad$ Stage 1 | 0 | - | - | - | 0 | - |
| $\quad$ Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, \% |  | - | - |  | - |  |
| Mov Cap-1 Maneuver | - | 979 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| $\quad$ Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |



# APPENDIX M: CAPACITY ANALYSIS RESULTS CHAMBLEE ROAD + SITE DRIVE \#2 






# APPENDIX N: CAPACITY ANALYSIS RESULTS CHAMBLEE ROAD + SITE DRIVE \#3 

HCM 6th TWSC
11: Chamblee Road \& Site Drive \#3

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



HCM 6th TWSC
11: Chamblee Road \& Site Drive \#3



## APPENDIX O: SIMTRAFFIC REPORTS

SimTraffic Performance Report
Chamblee Property

## 1: Chamblee Road /E. Horton Street \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 1.6 | 0.7 | 0.1 | 2.2 | 0.0 | 0.0 | 1.3 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 1.8 | 2.6 | 0.7 | 0.2 | 1.5 | 0.3 | 0.6 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 1.4 | 2.5 | 0.8 | 0.2 | 4.2 | 0.4 | 1.1 |

4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 3.7 | 2.7 | 0.6 | 0.0 | 0.1 | 0.0 | 0.6 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 1.6 | 0.1 | 0.0 | 0.0 | 2.7 | 0.6 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 0.1 | 0.3 | 0.2 | 0.0 | 1.5 | 0.0 | 0.7 | 0.3 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.2 |
| Total Del/Veh (s) | 3.6 | 0.0 | 0.6 | 1.1 | 1.4 | 2.1 | 10.4 | 1.6 |

8: NC 39 \& Old US 264 Performance by movement

|  |  | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | SBR

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | :---: |
| Denied Del/Veh (s) | 0.5 |
| Total Del/Veh (s) | 6.7 |

Total Network Performance

|  |  |
| :--- | :--- |
| Denied Del/Veh (s) | 0.5 |
| Total Del/Veh (s) | 7.1 |

## Intersection: 1: Chamblee Road /E. Horton Street \& Temple-Johnston Road

| Movement | EB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 22 |
| Average Queue (ft) | 5 |
| 95th Queue (ft) | 20 |
| Link Distance (ft) | 1057 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 30 | 27 |
| Average Queue (ft) | 5 | 1 |
| 95th Queue ( ft ) | 21 | 9 |
| Link Distance (ft) | 1194 | 1680 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist ( ft ) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 20 | 51 |
| Average Queue (ft) | 1 | 6 |
| 95th Queue (ft) | 9 | 27 |
| Link Distance (ft) | 1102 | 1554 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (tt) | 30 |
| Average Queue (ft) | 5 |
| 95th Queue (ft) | 23 |
| Link Distance (tt) | 410 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (tt) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (tt) | 30 |
| Average Queue (tt) | 2 |
| 95th Queue (ft) | 15 |
| Link Distance (tt) | 998 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (tt) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (tt) | 23 |
| Average Queue (tt) | 3 |
| 95th Queue (ft) | 15 |
| Link Distance (tt) | 931 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (tt) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 7: NC 39 \& Wake County Line Road

| Movement | NB |
| :--- | ---: |
| Directions Served | LT |
| Maximum Queue (ft) | 31 |
| Average Queue (ft) | 5 |
| 95th Queue (ft) | 21 |
| Link Distance (ft) | 1470 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | WB | NB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | LTR | LTR | L | L |
| Maximum Queue (tt) | 55 | 64 | 10 | 17 |
| Average Queue (ft) | 12 | 36 | 0 | 9 |
| 95th Queue (ft) | 31 | 65 | 3 | 18 |
| Link Distance (tt) | 1213 | 1287 |  |  |
| Upstream Blk Time (\%) |  |  |  |  |
| Queuing Penalty (veh) |  |  | 150 | 100 |
| Storage Bay Dist (tt) |  |  |  |  |
| Storage Blk Time (\%) |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |
| Network Summary |  |  |  |  |
| Network wide Queuing Penalty: 0 |  |  |  |  |

SimTraffic Performance Report
Chamblee Property

## 1: Chamblee Road /E. Horton Street \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.1 |
| Total Del/Veh (s) | 1.6 | 0.0 | 0.8 | 0.1 | 2.3 | 0.0 | 0.0 | 0.7 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.2 |
| Total Del/Veh (s) | 6.5 | 3.0 | 0.7 | 0.1 | 1.4 | 0.8 | 0.8 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 2.4 | 2.6 | 0.6 | 0.4 | 2.5 | 2.2 | 1.8 |

4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 4.0 | 2.5 | 0.4 | 0.0 | 0.4 | 0.5 | 0.7 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |  |
| Total Del/Veh (s) | 1.5 | 0.1 | 0.0 | 0.0 | 3.6 | 2.7 | 1.3 |  |
|  |  |  |  |  |  |  |  |  |
| 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBT | SBR | All |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 1.4 | 0.7 | 0.2 | 0.0 | 2.4 | 0.1 | 1.4 | 0.6 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 7.2 | 0.0 | 4.7 | 3.9 | 1.3 | 5.6 | 2.0 | 3.9 |

8: NC 39 \& Old US 264 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 3.2 | 0.6 | 0.8 |
| Total Del/Veh (s) | 13.3 | 18.5 | 8.2 | 8.4 | 17.5 | 7.1 | 5.1 | 4.9 | 4.6 | 2.9 | 3.5 | 0.5 |

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | :---: |
| Denied Del/Veh (s) | 0.7 |
| Total Del/Veh (s) | 6.6 |

Total Network Performance

|  |  |
| :--- | :---: |
| Denied Del/Veh (s) | 0.6 |
| Total Del/Veh (s) | 8.3 |

## Intersection: 1: Chamblee Road /E. Horton Street \& Temple-Johnston Road

| Movement | EB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 22 |
| Average Queue (ft) | 7 |
| 95th Queue (ft) | 24 |
| Link Distance (ft) | 1057 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 24 | 27 |
| Average Queue (ft) | 3 | 3 |
| 95th Queue ( ft ) | 17 | 15 |
| Link Distance (ft) | 1194 | 1680 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist ( ft ) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 28 | 72 |
| Average Queue (ft) | 4 | 13 |
| 95th Queue (ft) | 16 | 46 |
| Link Distance (ft) | 1102 | 1554 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB |
| :--- | :---: |
| Directions Served | LR |
| Maximum Queue (tt) | 30 |
| Average Queue (ft) | 10 |
| 95th Queue (ft) | 33 |
| Link Distance (tt) | 410 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (tt) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | SB |
| :--- | :---: |
| Directions Served | LR |
| Maximum Queue (tt) | 31 |
| Average Queue (tt) | 10 |
| 95th Queue (ft) | 33 |
| Link Distance (tt) | 998 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (tt) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (tt) | 29 |
| Average Queue (tt) | 8 |
| 95th Queue (ft) | 26 |
| Link Distance (tt) | 931 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (tt) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 7: NC 39 \& Wake County Line Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 19 | 93 |
| Average Queue (ft) | 3 | 11 |
| 95th Queue (ft) | 15 | 50 |
| Link Distance (ft) | 2460 | 1470 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | WB | NB | NB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Directions Served | LTR | LTR | L | TR | L |
| Maximum Queue (ft) | 101 | 100 | 30 | 17 | 38 |
| Average Queue (ft) | 39 | 32 | 7 | 1 | 11 |
| 95th Queue (ft) | 77 | 66 | 20 | 6 | 32 |
| Link Distance (ft) | 1213 | 1287 |  | 7984 |  |
| Upstream Blk Time (\%) |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |
| Storage Bay Dist (ft) |  |  |  |  |  |
| Storage Blk Time (\%) |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |
|  |  |  |  |  |  |

1: Chamblee Road /E. Horton Street \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 2.1 | 0.7 | 0.4 | 2.6 | 0.0 | 0.0 | 1.5 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 |
| Total Del/Veh (s) | 3.3 | 2.6 | 1.1 | 0.2 | 1.2 | 0.3 | 1.0 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 7.6 | 3.4 | 1.1 | 0.4 | 2.1 | 0.9 | 1.9 |

## 4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 4.1 | 3.3 | 0.4 | 0.0 | 0.6 | 0.1 | 0.6 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 1.7 | 0.2 | 0.0 | 0.0 | 4.0 | 2.7 | 1.8 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/ $\operatorname{Veh}(\mathrm{s})$ | 0.8 | 0.1 | 0.2 | 0.0 | 2.6 | 1.5 | 1.0 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.5 | 0.4 | 0.0 | 0.0 | 0.2 |
| Total Del/Veh (s) | 6.1 | 0.0 | 1.9 | 2.6 | 1.8 | 5.9 | 6.0 | 3.3 |

SimTraffic Performance Report

8: NC 39 \& Old US 264 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| SBR |  |  |  |  |  |  |  |  |  |  |  |
| Denied Del/Veh (s) | 4.2 | 0.2 | 4.1 | 3.9 | 0.7 | 3.6 | 0.3 | 0.2 | 0.1 | 3.3 | 0.5 |
| Total Del/Veh (s) | 36.9 | 34.6 | 27.6 | 43.8 | 28.0 | 29.9 | 41.9 | 27.1 | 23.1 | 35.2 | 15.5 |

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | ---: |
| Denied Del $/$ Veh (s) | 1.2 |
| Total Del/Veh (s) | 27.3 |

Total Network Performance

|  |  |
| :--- | :---: |
| Denied Del/Veh (s) | 1.0 |
| Total Del/Veh (s) | 23.3 |

Intersection: 1: Chamblee Road /E. Horton Street \& Temple-Johnston Road

| Movement | EB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 26 |
| Average Queue (ft) | 7 |
| 95th Queue (ft) | 23 |
| Link Distance (ft) | 1057 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 30 | 26 |
| Average Queue (ft) | 13 | 3 |
| 95th Queue (ft) | 32 | 15 |
| Link Distance (ft) | 1194 | 1680 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 40 | 27 |
| Average Queue (ft) | 8 | 7 |
| 95th Queue (ft) | 26 | 26 |
| Link Distance (ft) | 1102 | 1554 |
| Upstream BIk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 30 | 24 |
| Average Queue (ft) | 11 | 1 |
| 95th Queue (ft) | 34 | 8 |
| Link Distance (ft) | 410 | 2304 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 31 |
| Average Queue (ft) | 10 |
| 95th Queue (ft) | 33 |
| Link Distance (ft) | 998 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | EB | SB |
| :--- | ---: | ---: |
| Directions Served | LT | LR |
| Maximum Queue (ft) | 21 | 60 |
| Average Queue (ft) | 1 | 27 |
| 95th Queue (ft) | 7 | 46 |
| Link Distance (ft) | 2550 | 931 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 7: NC 39 \& Wake County Line Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 18 | 55 |
| Average Queue (ft) | 1 | 7 |
| 95th Queue (ft) | 8 | 33 |
| Link Distance (ft) | 2460 | 1470 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| irections Served | L | T | R | L | T | R | L | TR | L | TR |
| Maximum Queue (ft) | 17 | 30 | 21 | 35 | 231 | 213 | 199 | 366 | 109 | 160 |
| Average Queue (ft) | 4 | 3 | 5 | 8 | 41 | 69 | 37 | 179 | 53 | 68 |
| 95th Queue (ft) | 13 | 13 | 17 | 24 | 122 | 138 | 93 | 307 | 100 | 145 |
| Link Distance (ft) |  | 1212 |  |  | 1286 |  |  | 7981 | 1181 |  |
| Upstream Blk Time (\%) |  |  |  |  |  |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  | 125 | 50 |  | 125 | 100 |  | 50 |  |
| Storage Blk Time (\%) |  |  |  | 0 | 4 | 2 |  | 19 | 15 | 13 |
| Queuing Penalty (veh) |  |  |  | 0 | 8 | 3 |  | 11 | 33 | 12 |

## Network Summary

## Network wide Queuing Penalty: 67

1: Chamblee Road /E. Horton Street \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 2.2 | 0.2 | 1.3 | 1.2 | 1.0 | 0.1 | 0.0 | 0.8 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.2 |
| Total Del/Veh (s) | 4.3 | 1.4 | 0.8 | 0.4 | 2.3 | 1.5 | 1.3 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 8.8 | 2.9 | 1.1 | 0.3 | 4.5 | 3.8 | 3.1 |

## 4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 3.8 | 2.5 | 0.3 | 0.0 | 0.2 | 0.7 | 0.7 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 1.0 | 0.1 | 0.0 | 0.0 | 3.8 | 2.7 | 1.1 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/ $\operatorname{seh}(\mathrm{s})$ | 1.6 | 1.9 | 0.7 | 0.0 | 2.9 | 0.2 | 1.2 | 1.3 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.4 | 0.3 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 7.6 | 0.0 | 5.3 | 4.6 | 2.8 | 11.3 | 12.8 | 8.2 |

SimTraffic Performance Report

8: NC 39 \& Old US 264 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | SBR

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | ---: |
| Denied $\operatorname{Del} /$ Veh $(\mathrm{s})$ | 1.4 |
| Total $\operatorname{Del} /$ Veh $(\mathrm{s})$ | 32.4 |

Total Network Performance

|  |  |
| :--- | :---: |
| Denied Del/Veh (s) | 1.0 |
| Total Del/Veh (s) | 28.8 |

Intersection: 1: Chamblee Road /E. Horton Street \& Temple-Johnston Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 27 | 25 |
| Average Queue (ft) | 16 | 3 |
| 95th Queue (ft) | 32 | 15 |
| Link Distance (ft) | 1057 | 1661 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 29 | 76 |
| Average Queue (ft) | 12 | 10 |
| 95th Queue (ft) | 31 | 43 |
| Link Distance (ft) | 1194 | 1680 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | NB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | LR | TR | LT |
| Maximum Queue (ft) | 22 | 22 | 97 |
| Average Queue (ft) | 4 | 0 | 35 |
| 95th Queue (ft) | 18 | 0 | 78 |
| Link Distance (ft) | 1102 | 1141 | 1554 |
| Upstream BIk Time (\%) |  |  |  |
| Queuing Penalty (veh) |  |  |  |
| Storage Bay Dist (ft) |  |  |  |
| Storage Blk Time (\%) |  |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB |
| :--- | :---: |
| Directions Served | LR |
| Maximum Queue (ft) | 30 |
| Average Queue (ft) | 13 |
| 95th Queue (ft) | 36 |
| Link Distance (ft) | 410 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 31 |
| Average Queue (ft) | 9 |
| 95th Queue (ft) | 31 |
| Link Distance (ft) | 998 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | EB | SB |
| :--- | ---: | ---: |
| Directions Served | LT | LR |
| Maximum Queue (ft) | 29 | 47 |
| Average Queue (ft) | 3 | 21 |
| 95th Queue (ft) | 15 | 39 |
| Link Distance (ft) | 2550 | 931 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 7: NC 39 \& Wake County Line Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 40 | 74 |
| Average Queue (ft) | 6 | 23 |
| 95th Queue (ft) | 25 | 67 |
| Link Distance (ft) | 2460 | 1470 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | R | L | T | R | L | TR | L | TR |
| Maximum Queue (ft) | 40 | 137 | 109 | 39 | 106 | 89 | 250 | 261 | 200 | 492 |
| Average Queue (ft) | 10 | 56 | 31 | 11 | 22 | 47 | 54 | 130 | 119 | 218 |
| 95th Queue (ft) | 32 | 114 | 74 | 30 | 63 | 90 | 129 | 214 | 205 | 387 |
| Link Distance (ft) |  | 1212 |  |  | 1286 |  |  | 7981 |  | 1181 |
| Upstream Blk Time (\%) |  |  |  |  |  |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |  |  |  |  | 100 |
| Storage Bay Dist (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 12 | 25 |
| Storage Blk Time (\%) | 0 | 17 | 0 | 0 | 1 |  |  | 7 | 5 | 68 |
| Queuing Penalty (veh) | 0 | 22 | 0 | 0 | 2 |  |  | 48 |  |  |
| Network Summary |  |  |  |  |  |  |  |  |  |  |

Network wide Queuing Penalty: 144

1: Chamblee Road \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 2.8 | 1.0 | 0.6 | 0.7 | 0.1 | 0.0 | 0.7 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 |
| Total Del/Veh (s) | 3.7 | 2.2 | 1.2 | 1.1 | 2.2 | 1.2 | 1.4 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 7.1 | 3.7 | 1.0 | 0.0 | 3.5 | 1.8 | 2.3 |

## 4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBT | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 4.1 | 0.3 | 3.2 | 0.7 | 0.0 | 0.8 | 0.1 | 1.1 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 1.8 | 0.3 | 0.0 | 0.0 | 4.5 | 2.8 | 2.3 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 0.5 | 1.0 | 0.8 | 0.0 | 3.8 | 2.1 | 1.9 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.0 | 0.0 | 0.2 |
| Total Del/Veh (s) | 9.8 | 0.1 | 3.4 | 2.6 | 2.2 | 6.5 | 6.1 | 4.4 |

8: NC 39 \& Old US 264 Performance by movement

|  |  | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Movement | 4.1 | 0.1 | 4.1 | 3.6 | 0.7 | 3.7 | 0.5 | 0.2 | 0.1 | 3.6 | 0.5 |
| Denied Del/Veh (s) | 34.1 | 30.8 | 28.1 | 43.8 | 26.2 | 29.6 | 43.9 | 32.1 | 30.1 | 39.8 | 13.0 |
| Total Del/Veh (s) |  |  | 10.1 |  |  |  |  |  |  |  |  |

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | ---: |
| Denied $\operatorname{Del} /$ Veh (s) | 1.2 |
| Total $\operatorname{Del} /$ Veh $(\mathrm{s})$ | 29.0 |

9: Chamblee Road \& Site Drive \#1 Performance by movement

| Movement | WBR | NBT | NBR | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 2.2 | 0.4 | 0.0 | 0.2 | 0.4 |

10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| SBR |  |  |  |  |  |  |  |  |  |  |  |
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 4.0 | 4.1 | 2.7 | 4.6 | 7.8 | 3.3 | 0.1 | 0.4 | 0.0 | 0.2 | 0.2 |

10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | All |
| :--- | :---: |
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s) | 1.7 |

11: Chamblee Road \& Site Drive \#3 Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.1 | 0.1 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 |
| Total Del/ $\operatorname{Veh}(\mathrm{s})$ | 3.6 | 2.3 | 0.6 | 0.3 | 0.4 | 0.0 | 0.5 |

Total Network Performance

|  |  |
| :--- | ---: |
| Denied $\operatorname{Del} /$ Veh (s) | 0.9 |
| Total $\operatorname{Del} /$ Veh $(\mathrm{s})$ | 25.3 |

## Intersection: 1: Chamblee Road \& Temple-Johnston Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 52 | 24 |
| Average Queue (ft) | 17 | 2 |
| 95th Queue (ft) | 40 | 12 |
| Link Distance (ft) | 1057 | 1661 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 51 | 53 |
| Average Queue (ft) | 25 | 11 |
| 95th Queue (ft) | 38 | 38 |
| Link Distance (ft) | 1194 | 1680 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 83 | 53 |
| Average Queue (ft) | 11 | 13 |
| 95th Queue (ft) | 43 | 43 |
| Link Distance (ft) | 1102 | 1554 |
| Upstream BIk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 53 | 24 |
| Average Queue (ft) | 25 | 1 |
| 95th Queue (ft) | 47 | 8 |
| Link Distance (ft) | 410 | 2304 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | EB | SB |
| :--- | ---: | ---: |
| Directions Served | LT | LR |
| Maximum Queue (ft) | 29 | 74 |
| Average Queue (ft) | 1 | 27 |
| 95th Queue (ft) | 10 | 53 |
| Link Distance (ft) | 410 | 998 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | EB | SB |
| :--- | ---: | ---: |
| Directions Served | LT | LR |
| Maximum Queue (ft) | 22 | 73 |
| Average Queue (ft) | 1 | 29 |
| 95th Queue (ft) | 7 | 46 |
| Link Distance (ft) | 2552 | 1499 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 7: NC 39 \& Wake County Line Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 38 | 72 |
| Average Queue (ft) | 8 | 10 |
| 95th Queue (ft) | 26 | 44 |
| Link Distance (ft) | 2460 | 1470 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | R | L | T | R | L | TR | L | TR |
| Maximum Queue (ft) | 35 | 30 | 45 | 56 | 224 | 208 | 250 | 534 | 117 | 130 |
| Average Queue (ft) | 2 | 8 | 7 | 5 | 31 | 69 | 41 | 205 | 64 | 61 |
| 95th Queue (ft) | 13 | 25 | 31 | 23 | 106 | 145 | 113 | 348 | 115 | 111 |
| Link Distance (ft) |  | 1212 |  |  | 1286 |  |  | 7981 | 1181 |  |
| Upstream Blk Time (\%) |  |  |  |  |  |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 100 |  |
| Storage Blk Time (\%) | 0 |  |  | 0 | 3 | 2 |  | 17 | 4 | 1 |
| Queuing Penalty (veh) | 0 |  |  | 1 | 5 | 2 |  | 9 | 10 | 1 |

Intersection: 9: Chamblee Road \& Site Drive \#1

| Movement | WB |
| :--- | ---: |
| Directions Served | R |
| Maximum Queue (ft) | 19 |
| Average Queue (ft) | 5 |
| 95th Queue (ft) | 18 |
| Link Distance (ft) | 1016 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

Intersection: 10: Chamblee Road \& Site Drive \#2

| Movement | EB | WB |
| :--- | ---: | ---: |
| Directions Served | LTR | LTR |
| Maximum Queue (ft) | 43 | 60 |
| Average Queue (ft) | 18 | 12 |
| 95th Queue (ft) | 32 | 31 |
| Link Distance (ft) | 1073 | 1388 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 11: Chamblee Road \& Site Drive \#3

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 15 | 23 |
| Average Queue (ft) | 7 | 1 |
| 95th Queue (ft) | 19 | 8 |
| Link Distance (ft) | 864 | 1499 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Network Summary |  |  |
| Network wide Queuing Penalty: 28 |  |  |

1: Chamblee Road \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 3.7 | 0.0 | 1.7 | 0.9 | 1.0 | 0.8 | 0.0 | 1.2 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 0.3 |
| Total Del/Veh (s) | 4.7 | 2.0 | 1.3 | 1.3 | 3.5 | 2.5 | 2.2 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBT | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 10.6 | 0.0 | 3.0 | 1.6 | 0.4 | 5.2 | 4.2 | 3.7 |

## 4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 5.2 | 3.1 | 0.6 | 0.0 | 1.1 | 1.3 | 1.2 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 |
| Total DelVeh (s) | 1.6 | 0.1 | 0.0 | 0.0 | 3.7 | 2.7 | 1.7 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/ $\operatorname{seh}(\mathrm{s})$ | 1.5 | 2.6 | 0.8 | 0.1 | 3.7 | 0.2 | 2.0 | 1.6 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 14.2 | 0.7 | 9.0 | 7.9 | 4.1 | 13.6 | 13.3 | 10.7 |

8: NC 39 \& Old US 264 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | SBR

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | ---: |
| Denied Del $/$ Veh (s) | 1.4 |
| Total Del/Veh (s) | 36.5 |

9: Chamblee Road \& Site Drive \#1 Performance by movement

| Movement | WBR | NBT | NBR | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 2.4 | 0.4 | 0.4 | 0.9 | 0.7 |

10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| SBR |  |  |  |  |  |  |  |  |  |  |  |
| Denied Del/Veh (s) | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 5.5 | 4.6 | 2.5 | 5.1 | 5.5 | 1.6 | 1.2 | 0.6 | 0.0 | 1.2 | 1.1 |

10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | All |
| :--- | :---: |
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s) | 1.6 |

11: Chamblee Road \& Site Drive \#3 Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 9.9 | 2.3 | 1.6 | 0.5 | 1.0 | 0.2 | 0.9 |

Total Network Performance

|  |  |
| :--- | ---: |
| Denied $\operatorname{Del} /$ Veh $(\mathrm{s})$ | 1.0 |
| Total $\operatorname{Del} / \mathrm{Veh}(\mathrm{s})$ | 32.5 |

Intersection: 1: Chamblee Road \& Temple-Johnston Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 51 | 25 |
| Average Queue (ft) | 23 | 4 |
| 95th Queue (ft) | 40 | 18 |
| Link Distance (ft) | 1057 | 1661 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 46 | 96 |
| Average Queue (ft) | 22 | 25 |
| 95th Queue (ft) | 40 | 70 |
| Link Distance (ft) | 1194 | 1680 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 42 | 116 |
| Average Queue (ft) | 6 | 34 |
| 95th Queue (ft) | 25 | 83 |
| Link Distance (ft) | 1102 | 1554 |
| Upstream BIk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 77 | 26 |
| Average Queue (ft) | 19 | 2 |
| 95th Queue (ft) | 52 | 13 |
| Link Distance (ft) | 410 | 2304 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 79 |
| Average Queue (ft) | 21 |
| 95th Queue (ft) | 55 |
| Link Distance (ft) | 998 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | EB | SB |
| :--- | ---: | ---: |
| Directions Served | LT | LR |
| Maximum Queue (ft) | 28 | 52 |
| Average Queue (ft) | 7 | 29 |
| 95th Queue (ft) | 25 | 42 |
| Link Distance (ft) | 2552 | 1499 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 7: NC 39 \& Wake County Line Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 60 | 162 |
| Average Queue (ft) | 14 | 34 |
| 95th Queue (ft) | 42 | 98 |
| Link Distance (ft) | 2460 | 1470 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | R | L | T | R | L | TR | L | TR |
| Maximum Queue (ft) | 137 | 229 | 150 | 58 | 96 | 148 | 249 | 330 | 200 | 581 |
| Average Queue (ft) | 21 | 56 | 44 | 17 | 25 | 50 | 49 | 155 | 134 | 283 |
| 95th Queue (ft) | 63 | 136 | 110 | 43 | 70 | 119 | 122 | 263 | 221 | 516 |
| Link Distance (ft) |  | 1212 |  |  | 1286 |  |  | 7981 | 1181 |  |
| Upstream Blk Time (\%) |  |  |  |  |  |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 100 |  |
| Storage Blk Time (\%) | 0 | 15 | 1 | 0 | 4 | 1 |  | 9 | 17 | 30 |
| Queuing Penalty (veh) | 0 | 19 | 1 | 1 | 6 | 1 |  | 6 | 109 | 56 |

Intersection: 9: Chamblee Road \& Site Drive \#1

| Movement | WB |
| :--- | ---: |
| Directions Served | R |
| Maximum Queue (ft) | 19 |
| Average Queue (ft) | 3 |
| 95th Queue (ft) | 13 |
| Link Distance (ft) | 1016 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

Intersection: 10: Chamblee Road \& Site Drive \#2

| Movement | EB | WB | NB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (ft) | 44 | 39 | 20 | 24 |
| Average Queue (ft) | 19 | 11 | 3 | 3 |
| 95th Queue (ft) | 36 | 26 | 14 | 15 |
| Link Distance (ft) | 1073 | 1388 | 701 | 235 |
| Upstream Blk Time (\%) |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |
| Storage Bay Dist (ft) |  |  |  |  |
| Storage Blk Time (\%) |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |

Intersection: 11: Chamblee Road \& Site Drive \#3

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 38 | 28 |
| Average Queue (ft) | 5 | 4 |
| 95th Queue (ft) | 22 | 18 |
| Link Distance (ft) | 864 | 1499 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
|  |  |  |
| Network Summary |  |  |
| Network wide Queuing Penalty: |  |  |

Network wide Queuing Penalty: 198

## APPENDIX P: TURN LANE WARRANTS



| Peak Hour | Lane | Turn Lane | Turning <br> Volume | Approach/ <br> Opposing <br> Volume | Symbol | Length <br> Warranted |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weekday AM | NBR | Right | 1 | 100 | $\bigcirc$ | N/A |
| Weekday PM | NBR | Right | 3 | 100 | $\bigcirc$ | N/A |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  | $\bigcirc$ |  |  |

Chamblee Property
Zebulon, NC


| Peak Hour | Lane | Turn Lane | Turning <br> Volume | Approach/ <br> Opposing <br> Volume | Symbol | Length <br> Warranted |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weekday AM | NBR | Right | 6 | 100 | $\bigcirc$ | N/A |
| Weekday PM | NBR | Right | 16 | 100 | $\bigcirc$ | N/A |
| Weekday AM | NBL | Left | 7 | 49 | $\bigcirc$ | N/A |
| Weekday PM | NBL | Left | 23 | 159 | $\bigcirc$ | N/A |
| Weekday AM | SBR | Right | 17 | 100 | $\bigcirc$ | N/A |
| Weekday PM | SBR | Right | 50 | 100 | $\bigcirc$ | N/A |
| Weekday AM | SBL | Left | 4 | 87 | $\bigcirc$ | N/A |
| Weekday PM | SBL | Left | 13 | 79 | $\bigcirc$ | N/A |

## Chamblee Property

Zebulon, NC


| Peak Hour | Lane | Turn Lane | Turning <br> Volume | Approach/ <br> Opposing <br> Volume | Symbol | Length <br> Warranted |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weekday AM | SBR | Right | 1 | 100 | $\bigcirc$ | N/A |
| Weekday PM | SBR | Right | 3 | 100 | $\bigcirc$ | N/A |
| Weekday AM | NBL | Left | 5 | 71 | $\bigcirc$ | N/A |
| Weekday PM | NBL | Left | 15 | 135 | $\bigcirc$ | N/A |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  | $\bigcirc$ |  |  |

## Chamblee Property

Zebulon, NC

Future Land Use Map


$\qquad$ 0.4 Miles


(
(1)
$\square$


Attachment 5
PD 2023-01


Attachment 5
PD 2023-01


NORTH CAROLINA
CASE \# PD 2023-01 IDT\# 891828 - Shamble Lake
PROJECT ADDRESS 1509 Chamblee Road
PIN NUMBER: 2715101559
HEARING DATE: OCTOBER 9, 2023

## State of North Carolina

County of wake
BEFORE ME, the undersigned Notary, Stacie Parcatore on this $\qquad$ day of OCtober 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 9/25/2023 (see attached mailing list and copy of mailing)
- Advertisement in a Paper of General Circulation sent on 9/25/2023 (Wake weekly, publication dates 9/29 \& 9/6/2023)
- Posting Public Hearing Signage on Property on 9/25/2023 (pictures attached)
- Posted to Planning Department Website 9/25/2023
- Sent to E-Mail Distribution List on 10/1/2023


Michael J. Clark, AICP, CZO
Subscribed and sworn to before me, this 3 rd $\qquad$ [Notary Seal:]

[signature of Notary]

## NOTARY PUBLIC

My commission expires: $6 / 27,2025$.
$\qquad$

[printed name of Notary]


## 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 October 9, 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 891828 - PD 2023-01 - Chamblee Lake (1509 <br> Chamblee Road)

PIN \# 2715101559. A request by D.R. Horton Inc on behalf of the property owner Chamblee, R.M. Heirs, for a Rezoning to the Planned Development (PD) zoning district for the development of 355 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.

Wake Weekly September $29^{\text {th }} \&$ October $6^{\text {th }}$




### 3.5.5. PLANNED DEVELOPMENT (PD) DISTRICT

## A. PURPOSE AND INTENT

The Planned Development (PD) districts are established and intended to encourage innovative land planning and site design concepts that support a high quality of life and achieve a high quality of development, environmental sensitivity, energy efficiency, and other Town goals and objectives by:
a. Reducing or diminishing the inflexibility or uniform design that sometimes results from strict application of zoning and development standards designed primarily for individual lots;
b. Allowing greater freedom in selecting the means of providing access, open space, and design amenities;
C. Allowing greater freedom in providing a well-integrated mix of residential and nonresidential land uses in the same development, including a mix of housing types, lot sizes, and densities;
d. Creating a system of incentives for redevelopment and infill in order to revitalize established areas;
e. Promoting a vibrant public realm by placing increased emphasis on active ground floor uses, pedestrian-oriented building façade design, intensive use of sidewalks, and establishment of public gathering areas;
f. Providing for efficient use of land resulting in smaller networks of utilities and streets and thereby lowering development and housing costs; and
g. Promoting quality design and environmentally sensitive development that respects surrounding established land use character and respects and takes advantage of a site's natural and man-made features, such as trees, estuaries, shorelines, special flood hazard area, and historic features.

## B. GENERAL STANDARDS FOR ALL PLANNED DEVELOPMENTS

## 1. HOW ESTABLISHED

A planned development is established in a manner similar to the establishment of a conditional zoning district in accordance with the procedures and requirements in Section 2.2.13, Planned Development.

## 2. MASTER PLAN REQUIRED

All development configured as a PD shall be subject to a master plan submitted and approved as part of the application to establish the district. The master plan shall:
a. Include a statement of planning objectives for the district;
b. Describe the specific ways in which any modifications to the generally applicable standards in this Ordinance will result in a development of higher quality than would have otherwise resulted if the development was established without any proposed modifications to the standards in this Ordinance.
C. Identify the general location of individual development areas, identified by land use(s) and/or development density or intensity;
d. Depict the general configuration and relationship of the principal elements of the proposed development, including general building types;
e. Identify for the entire district and each development area the acreage, types and mix of land uses, number of residential units (by use type), nonresidential floor area (by use type), residential density, and nonresidential intensity;
f. Identify the general location, amount, and type (whether designated for active, passive, or urban) of open space;
g. Identify the location of environmentally sensitive lands, wildlife habitat, and resource protection lands;
h. Identify the on-site transportation circulation system, including the general location of all public and private streets, existing or projected transit service, pedestrian and vehicular circulation features, and how they will connect with existing and planned systems;
i. Identify the general location of on-site potable water and wastewater facilities, and how they will connect to existing systems;
j. Identify the general location of on-site stormwater management facilities, and how they will connect to existing public systems; and
k. Identify the general location of all other on-site public facilities serving the development, including but not limited to parks, schools, bus shelters, and facilities for fire protection, police protection, EMS, and solid waste management.

## 3. COMPLIANCE WITH SUBDIVISION STANDARDS

Planned developments that include the division of land into two or more lots shall be subject to the subdivision standards in Article 6: Subdivisions, and shall be subject to the requirements of Section 2.2.14, Preliminary Plat, and Section 2.2.10, Final Plat, prior to the issuance of a building permit.

## 4. SITE PLAN REVIEW

a. The planned development master plan may take the form of a generalized concept plan for development that provides a general indication of building and site feature location, or may it may be configured to the level of detail associated with site plans and construction drawings depicting exact building placement, location and profile of public infrastructure, and configuration of site features like parking, landscaping, and similar elements.
b. In cases where the master plan is more general or conceptual in nature, the development proposed in the planned development designation shall also undergo site plan review in accordance with Section 2.2.17, Site Plan.
C. In cases where the master plan is detailed and meets the minimum requirements for a site plan in the opinion of the Board of Commissioners, the applicant shall request, and the Board of Commissioners may grant an exemption from subsequent site plan review.
d. If a site plan review exemption is granted by the Board of Commissioners, the proposed development shall fully comply with the development configuration depicted in the planned development master plan. Failure to comply with the approved master plan configuration shall require an amendment of the planned development application in accordance with Section 2.2.17.1, Amendment.

## 5. DENSITIES/INTENSITIES

The densities for residential development and the intensities for nonresidential development applicable in each development area of a PD district shall be as established in the master plan, and shall be consistent with adopted policy guidance.

## 6. DIMENSIONAL STANDARDS

The dimensional standards applicable in each development area of a PD district shall be as established in the master plan. The master plan shall include at least the following types of dimensional standards:
a. Minimum lot area;
b. Minimum lot width;
c. Minimum and maximum setbacks;
d. Maximum lot coverage;
e. Maximum building height;
f. Maximum individual building size;
g. Floor area ratio; and
h. Minimum setbacks from adjoining residential development or residential zoning districts.

## 7. DEVELOPMENT STANDARDS

a. All development in a PD district shall comply with the development standards of Article 5: Development Standards, and the subdivision and infrastructure design standards of Article 6: Subdivisions, unless modified in accordance with this section.
b. In no instance shall a planned development district seek to modify, waive, or reduce any of the following standards:
i. Section 3.8, Overlay Zoning Districts; or
ii. Section 6.5, Owners' Associations.
C. In cases where a planned development district is proposed as part of redevelopment of an existing site and the existing site does not comply with the standards in subsection (b) above, the development contemplated in the planned development shall not be required to achieve full
compliance, but shall not increase the degree to which the development fails to comply with the standards in subsection (b) above.

## 8. CONSISTENCY WITH ADOPTED POLICY GUIDANCE

The PD zoning district designation, the master plan, and the terms and conditions document should be consistent with the Comprehensive Plan, and any applicable functional plans and small area plans adopted by the Town.

## 9. COMPATIBILITY WITH SURROUNDING AREAS

Development along the perimeter of a PD district shall be compatible with adjacent existing or proposed development. Where there are issues of compatibility, the master plan shall provide for transition areas at the edges of the PD district that provide for appropriate buffering and/or ensure a complementary character of uses. Determination of complementary character shall be based on densities/intensities, lot size and dimensions, building height, building mass and scale, hours of operation, exterior lighting, siting of service areas, or other aspects identified by the Board of Commissioners.

## 10. DEVELOPMENT PHASING PLAN

If development in the PD district is proposed to be phased, the master plan shall include a development phasing plan that identifies the general sequence or phases in which the district is proposed to be developed, including how residential and nonresidential development will be timed, how infrastructure (public and private) and open space will be provided and timed, and how development will be coordinated with the Town's capital improvements program.

## 11. CONVERSION SCHEDULE

a. The planned development application may include a conversion schedule that identifies the extent to which one type of residential use may be converted to another type of residential use or one type of nonresidential use may be converted to another type of nonresidential use (i.e., residential to residential, or nonresidential to nonresidential). These conversions may occur within development areas and between development areas, as long as they occur within the same development phase, as identified by the approved development phasing plan, and are consistent with established extents of conversion set down in the conversion schedule.
b. In the event an applicant seeks to revise the development in accordance with an approved conversion schedule, the applicant shall provide a revised site plan depicting the proposed conversions to the TRC for review and approval prior to commencing any conversions.

## 12. ON-SITE PUBLIC FACILITIES

## a. DESIGN AND CONSTRUCTION

The master plan shall establish the responsibility of the developer/landowner to design and construct or install required and proposed on-site public facilities in compliance with applicable Town, state, and federal regulations.

## b. DEDICATION

The master plan shall establish the responsibility of the developer/landowner to dedicate to the public the right-of-way and easements necessary for the construction or installation of required and proposed on-site public facilities in compliance with applicable Town, state, and federal regulations.

## c. MODIFICATIONS TO STREET STANDARDS

In approving a master plan, the Board of Commissioners may approve modifications or reductions of street design standards-including those for right-of-way widths, pavement widths, required materials, provision of public transit amenities, and turning radii, with NCDOT approval, on finding that:
i. The master plan provides for adequate separation/integration of vehicular, pedestrian, and bicycle traffic;
ii. Access for emergency service vehicles is not substantially impaired;
iii. Adequate parking is provided for the uses proposed; and
iv. Adequate space for public utilities is provided within the street right-of-way.

## 13. USES

The uses allowed in a PD district are identified in Table 4.2.3, Principal Use Table, as allowed subject to a master plan. Allowed uses shall be established in the master plan. Allowed uses shall be consistent with adopted policy guidance, the purpose of the particular PD district, and subject to any additional limitations or requirements set forth in Section 4.3, Use-Specific Standards, for the PD district. Nothing shall limit an applicant from seeking to modify an otherwise applicable use-specific standard in accordance with the standards in Section 3.5.5.B.2, Master Plan Required.

## C. PLANNED DEVELOPMENT TERMS AND CONDITIONS

The terms and conditions document shall incorporate by reference or include, but not be limited to:

1. Conditions related to approval of the application for the PD zoning district classification;
2. The master plan, including any density/intensity standards, dimensional standards, and development standards established in the master plan;
3. Conditions related to the approval of the master plan, including any conditions related to the form and design of development shown in the master plan;
4. Provisions addressing how transportation, potable water, wastewater, stormwater management, and other infrastructure will be provided to accommodate the proposed development;
5. Provisions related to environmental protection and monitoring; and
6. Any other provisions the Board of Commissioners determines are relevant and necessary to the development of the PD in accordance with applicable standards and regulations.
D. AMENDMENTS TO APPROVED MASTER PLAN

Amendments or modifications to a master plan shall be considered in accordance with the standards in Section 2.2.13, Planned Development.

# Chamblee Property 

# Traffic Impact Analysis Review Report Congestion Management Section 

| TIA Project: | SC-2023-329R1 |
| :--- | :--- |
| Division: | 5 |
| County: | Wake |



Nicholas C. Lineberger, P.E. Regional Engineer Daniel W. Collins, Project Design Engineer

| Chamblee Property |  |  |
| :---: | :---: | :---: |
| SC-2023-329R1 | Zebulon | Wake County |

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

| Date Initially Received by CMS | $08 / 04 / 23$ | Date of Site Plan | $07 / 28 / 23$ |
| :--- | :---: | :--- | :---: |
| Date of Complete Information | $08 / 04 / 23$ | Date of Sealed TIA | N/A |

## Proposed Development

The TIA assumes the development is completed by 2027 and consists of the following:

| Land Use | Land Use Code | Size |
| :--- | :---: | :---: |
| Single-Family Detached Housing | 210 | 232 d.u. |
| Single-Family Attached Housing | 215 | 128 d.u. |


| Trip Generation - Unadjusted Volumes During a Typical Weekday |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | IN | OUT | TOTAL |  |
| AM Peak Hour | 55 | 166 | 221 |  |
| PM Peak Hour | 181 | 111 | 292 |  |
| Daily Trips |  |  |  |  |

General Reference

For reference to various documents applicable to this review please reference the following link: https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.

## Improvements By Others

The analysis includes background improvements by others. If these improvements are not in place at the time of construction, the site should provide these improvements or analysis demonstrating mitigation is not necessary.

## TIA Not Sealed

The TIA submitted was not sealed by a professional engineer. This review serves as a preliminary review of the draft TIA. A sealed TIA should be submitted before final approval


| Chamblee Property SC-2022-329R1 |  |
| :---: | :---: |
|  | Existing Laneage |
|  | Recommended Laneage |
|  | Laneage Built By Others |
| 世6886 | CDOT Recommendatio |
|  | Existing Signal |
|  | Monitor for Signal |
|  | Developer Proposed Signal |
| xxx | Storage |
| xxx | NCDOT Recommended Storage |
| <xXX> | Distance Between Intersections |
| IPS | Internal Protected Stem |
| All Distances in Feet |  |
| Drawin | g Not to Scale Page 315 |

August 4, 2023

Michael J. Clark, AICP, CZO
Town of Zebulon
1003 North Arendell Avenue
Zebulon, NC 27597
919.823.1808

RE: Chamblee Lake - Zebulon, North Carolina - Traffic Impact Analysis Addendum

Dear Mr. Clark,

## TIA ADDENDUM

This letter presents updated analysis as an addendum to the previously completed Traffic Impact Analysis (TIA) for the proposed Chamblee Lake development that was completed in November of 2022 by McAdams. The Town of Zebulon (Town) TIA reviewer issued comments dated January 9, 2023, and North Carolina Department of Transportation (NCDOT) approved the TIA on November 29, 2022. These comments and approvals are provided in the attachments. The proposed residential development will be located along Chamblee Road north of Perry Curtis Road in Zebulon, North Carolina. The purpose of this TIA Addendum is to determine the potential traffic impacts of the proposed development as it relates to the change in development density and site access from the previously completed TIA, as well as to identify transportation improvements that may be required to mitigate the development's impact on the surrounding roadway network. This addendum reviews the operations at all study intersections from the original TIA under revised Build (2027) traffic conditions. Since background assumptions are not expected to change within this addendum, capacity analysis results from Existing (2022) and No-Build (2027) conditions from the original TIA are utilized. Refer to the previously completed TIA for a breakdown of the assumed methodology and depiction of Existing (2022) and No-Build (2027) traffic volumes.

## BUILD TRAFFIC

The original TIA considered a density of 211 single family detached homes and 119 townhomes. The revised analysis in this addendum considers an updated buildout density of 232 single family detached homes and 128 townhomes, as well as a proposed site driveway on Perry Curtis Road that was not previously considered at the time of preparation of the original TIA. Based on the Institute for Transportation Engineers (ITE) Trip Generation Manual, 11 ${ }^{\text {th }}$ Edition, and the suggested method of trip calculations provided in NCDOT's Rate vs. Equation spreadsheet, trips for the proposed development were calculated for weekday daily, weekday AM peak hour, and weekday PM peak hour. Refer to Table 1, on the following page, for the trip generation for the proposed land uses.

| TABLE 1: TRIP GENERATION |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Land Use (ITE Code) | Density | Calculation Methodology | Daily <br> Trips | AM Peak Hour |  |  | PM Peak Hour |  |  |
|  |  |  |  | Enter | Exit | Total | Enter | Exit | Total |
| Single family detached (210) | 232 units | Adjacent / Equation | 2,189 | 40 | 120 | 160 | 138 | 81 | 219 |
| Townhomes (215) | 128 units | Adjacent / Equation | 925 | 15 | 46 | 61 | 43 | 30 | 73 |
|  |  |  | 3,114 | 55 | 166 | 221 | 181 | 111 | 292 |

Site trips were distributed according to the approved regional distributions in the original TIA with modifications made to the way traffic was assumed to enter and exit the site due to the change in the site access for the proposed site. Refer to Figure 1 in the attachments for the detailed trip distribution percentages within the study area.

The trip distribution was applied to the updated trip generation to determine the trip assignment for the proposed development at all study intersections. Refer to Figure 2 in the attachments for the site trip assignment. To determine the future traffic volumes at the study intersections with buildout of the proposed site, the No-Build (2027) traffic volumes from the original TIA were added to the updated site trip assignment to determine Build (2027) traffic volumes. Refer to Figure 3 in the attachments for the Build (2027) traffic volumes.

## CAPACITY ANALYSIS

The intersections and analysis scenarios included in this study were analyzed to determine the potential impact by the proposed development and to recommend improvements to mitigate any potential impacts. The capacity analysis reviews the level of service (LOS), delay, and vehicle queues expected under each analysis scenario utilizing the methodology contained in the Highway Capacity Manual (HCM), $6^{\text {th }}$ Edition, published by the Transportation Research Board.

LOS is a qualitative measurement of traffic operations based on the average total vehicle delay of the movement, approach, or intersection. The HCM includes six levels of service, ranging from level " A " (free flow conditions) to level " F " (where over-saturated conditions are evident).

A computer software package, Synchro (version 11.1), was utilized for the analysis of operations within this study. Within this software package, SimTraffic was also used to review queue lengths and the operations of intersections within the context of location and spacing in the study area. The capacity analysis summary table for each study intersection provides the delay and LOS for each approach and overall intersection, when appropriate. More detailed queues and delay information is provided in the attachments.

CHAMBLEE ROAD / E. HORTON STREET + TEMPLE-JOHNSTON ROAD
The intersection of Chamblee Road / E. Horton Street and Temple-Johnston Road is an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA.

Table 2 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| Conditions | $\begin{aligned} & \mathbf{A} \\ & \mathbf{P} \\ & \mathbf{P} \\ & \mathbf{R} \\ & \mathbf{O} \\ & \mathbf{A} \\ & \mathbf{C} \\ & \mathbf{H} \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \end{aligned}$ | A (9) <br> A (7) | N/A | A (9) <br> A (7) | N/A |
| No-Build (2027) <br> From Original TIA | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \end{aligned}$ | A (9) <br> A (7) <br> -- | N/A | A (9) <br> A (7) <br> -- | N/A |
| Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \end{aligned}$ | A (9) <br> A (7) | N/A | A (9) <br> A (7) <br> -- | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the minor-street approach and major-street left-turn movement at the intersection of Chamblee Road / E. Horton Street and TempleJohnston Road are expected to operate at LOS A during the weekday AM and PM peak hours. Due to the minor impacts at this intersection by the proposed development and expected acceptable future operations, no improvements are recommended.

## TEMPLE-JOHNSTON ROAD + NC 96

The intersection of Temple-Johnston Road and NC 96 is an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA.

Table 3 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 3: CAPACITY ANALYSIS SUMMARY OF TEMPLE-JOHNSTON ROAD + NC 96 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & \text { A } \\ & \text { P } \\ & \mathbf{P} \\ & \text { R } \\ & \text { O } \\ & \text { C } \\ & \text { H } \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and <br> Approach <br> Delay <br> (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & \text { WB }{ }^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | 1 LT-RT 1 TH-RT 1 LT-TH | $\begin{aligned} & \text { B (11) } \\ & --\quad \text { ( } 8 \text { ) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (11) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |
| No-Build (2027) <br> From Original TIA | $\begin{aligned} & \text { WB }{ }^{2} \\ & N B \\ & \text { SB }^{1} \end{aligned}$ | 1 LT-RT 1 TH-RT 1 LT-TH | $\begin{aligned} & \text { B (11) } \\ & -- \text { ( } 8 \text { ) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (11) } \\ & --(8) \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & W^{2}{ }^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | 1 LT-RT 1 TH-RT 1 LT-TH | $\begin{aligned} & \mathrm{B}(12) \\ & -\mathrm{A}(8) \\ & \hline \end{aligned}$ | N/A | $\begin{aligned} & \text { B (12) } \\ & --(8) \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the major-street leftturn movement and minor-street approach at the intersection of Temple-Johnston Road and NC 96 are expected to operate at LOS B or better during the weekday AM and PM peak hours. Based on comparison of No-Build (2027) and Build (2027) conditions, the proposed development is expected to account for a negligible increase in delay to the major-street left-turn movement and minor-street approach. Additionally, the site trips from the proposed development are not expected to have a high level of utilization for Temple-Johnston Road due to the more direct access on Perry Curtis Road. Under Build (2027) conditions, the proposed development is expected to add approximately three (3) southbound left-turns during the weekday AM peak hour and nine (9) southbound left-turns during the PM peak hour. Due to the minor impacts at this intersection by the proposed development and expected acceptable future operations, no improvements are recommended.

## PERRY CURTIS ROAD + NC 96

The intersection of Perry Curtis Road and NC 96 is an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA. Based on NCDOT comments on the previously completed TIA, the following improvement is required to be constructed by the developer:
> Construct an exclusive southbound left-turn lane on NC 96 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Table 4 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 4: CAPACITY ANALYSIS SUMMARY OF PERRY CURTIS ROAD + NC 96 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | A$\mathbf{P}$$\mathbf{P}$R$\mathbf{O}$$\mathbf{A}$$\mathbf{C}$$\mathbf{H}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & W B B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ |  | $\begin{aligned} & \text { B (10) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (10) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |
| No-Build (2027) <br> From Original TIA | $\begin{aligned} & W^{2} \\ & N B \\ & \text { SB }^{1} \end{aligned}$ | 1 LT-RT <br> 1 TH-RT <br> 1 LT-TH | $\begin{aligned} & \text { B (11) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (12) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & W^{2}{ }^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { TH-RT } \\ & 1 \text { LT, } 1 \text { TH } \end{aligned}$ | $\begin{aligned} & \mathrm{B}(12) \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \text { B (14) } \\ & -- \\ & \text { A (8) } \end{aligned}$ | N/A |

Improvements by Developer 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 Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the major-street leftturn movement and minor-street approach at the intersection of Perry Curtis Road and NC 96 are expected to operate at LOS B or better during the weekday AM and PM peak hours. Based on comparison of No-Build (2027) and Build (2027) conditions, the proposed development is expected to account for a minor increase in delay to the major-street left-turn movement and minor-street approach. Based on coordination with NCDOT, the developer is expected to construct a southbound left-turn lane on NC 96.

## PERRY CURTIS ROAD + PERRY RIDGE COURT

The intersection of Perry Curtis Road and Perry Ridge Court is an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA.

Table 5 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 5: CAPACITY ANALYSIS SUMMARY OF PERRY CURTIS ROAD + PERRY RIDGE COURT |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | APPROACCH | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and <br> Approach <br> Delay <br> (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-TH } \end{aligned}$ | $\begin{aligned} & \text { A (9) } \\ & --(7) \end{aligned}$ | N/A | $\begin{aligned} & \text { A (9) } \\ & --(7) \end{aligned}$ | N/A |
| No-Build (2027) From Original TIA | $\begin{aligned} & W B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-TH } \end{aligned}$ | A (9) $A(8)$ | N/A | $\begin{aligned} & \text { A (9) } \\ & --\mathrm{A}(7) \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & \mathrm{WB} B^{2} \\ & N B \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-TH } \end{aligned}$ | $\begin{aligned} & \text { A (9) } \\ & -- \text { ( } 8 \text { ) } \end{aligned}$ | N/A | $\begin{aligned} & \text { A (9) } \\ & --\mathrm{A}(7) \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the major-street leftturn movement and minor-street approach at the intersection of Perry Curtis Road and Perry Ridge Court are expected to operate at LOS A during the weekday AM and PM peak hours. Based on comparison of No-Build (2027) and Build (2027) conditions, the proposed development is expected to account for a negligible increase in delay to the minorstreet approach and major-street left-turn movement. Due to the minor impacts at this intersection by the proposed development and expected acceptable future operations, no improvements are recommended.

## PERRY RIDGE COURT + RIDGE VALLEY WAY

The intersection of Perry Ridge Court and Ridge Valley Way is an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA.

Table 6 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 6: CAPACITY ANALYSIS SUMMARY OF PERRY RIDGE COURT + RIDGE VALLEY WAY |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | A$\mathbf{P}$$\mathbf{P}$ROACH | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-RT } \end{aligned}$ | A (7) A (9) | N/A | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A |
| No-Build (2027) <br> From Original TIA | $\begin{aligned} & \mathrm{EB}^{1} \\ & \mathrm{WB} \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \\ & 1 \text { LT-RT } \end{aligned}$ | A (7) <br> A (9) | N/A | A (7) <br> A (9) | N/A |
| Build (2027) | $E B^{1}$ <br> WB <br> $S^{2}{ }^{2}$ | 1 LT-TH <br> 1 TH-RT <br> 1 LT-RT | A (7) A (9) | N/A | $\begin{aligned} & \text { A (7) } \\ & -- \\ & \text { A (9) } \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the major-street leftturn movement and minor-street approach at the intersection of Perry Ridge Court and Ridge Valley Way are expected to operate at LOS A during the weekday AM and PM peak hours. Due to the minor impacts at this intersection by the proposed development and expected acceptable future operations, no improvements are recommended.

## PERRY CURTIS ROAD / WAKE COUNTY LINE ROAD + CHAMBLEE ROAD

The intersection of Perry Curtis Road / Wake County Line Road and Chamblee Road is an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA.

Table 7 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 7: CAPACITY ANALYSIS SUMMARY OF PERRY CURTIS ROAD / WAKE COUNTY LINE ROAD + CHAMBLEE ROAD |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & \text { A } \\ & \text { P } \\ & \text { P } \\ & \text { R } \\ & \text { A } \\ & \text { C } \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and <br> Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & E B^{1} \\ & W B \\ & \mathrm{SB}^{2} \end{aligned}$ | $\begin{aligned} & 1 \mathrm{LT}, 1 \mathrm{RT} \\ & 1 \mathrm{LT}, 1 \mathrm{TH} \\ & 1 \mathrm{TH}, 1 \mathrm{RT} \end{aligned}$ | $\begin{aligned} & A(7) \\ & --(9) \end{aligned}$ | N/A | $\begin{aligned} & A(7) \\ & --A(9) \end{aligned}$ | N/A |
| No-Build (2027) From Original TIA | $\begin{aligned} & E B^{1} \\ & W B \\ & S B^{2} \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 \mathrm{LT}, 1 \mathrm{RT} \\ & 1 \mathrm{LT}, 1 \mathrm{TH} \\ & 1 \mathrm{TH}, 1 \mathrm{RT} \end{aligned}$ | A (7) <br> A (9) | N/A | $\begin{aligned} & A(8) \\ & --(10) \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & E B^{1} \\ & W B \\ & \mathrm{SB}^{2} \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 \mathrm{LT}-\mathrm{TH} \\ & 1 \mathrm{TH}-\mathrm{RT} \\ & 1 \mathrm{LT}-\mathrm{RT} \\ & \hline \end{aligned}$ | $\begin{aligned} & A(7) \\ & --(10) \\ & \hline \end{aligned}$ | N/A | $\begin{aligned} & A(8) \\ & --(11) \end{aligned}$ | N/A |

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

Capacity analysis of Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the major-street leftturn movement and minor-street approach at the intersection of Perry Curtis Road / Wake County Line Road and Chamblee Road are expected to operate at LOS B or better during the weekday AM and PM peak hours. Due to the minor impacts at this intersection by the proposed development and expected acceptable future operations, no improvements are recommended.

The potential need for a multi-way stop control was evaluated based on the guidelines contained within the Manual on Uniform Control Devices (MUTCD) due to previous comments provided by the Town TIA reviewer. Weekday AM and PM peak hour traffic volumes analyzed under Build (2027) conditions were utilized to evaluate the potential need for multi-way stop control based on the vehicular volume thresholds outlined in the MUTCD. Based on the results, this intersection is not expected to satisfy the minimum volume thresholds during either the weekday AM or PM peak hours and as such, is not expected to satisfy these thresholds for the extended 8 -hour period required for consideration of conversion to multi-way stop control. Based on the low expected traffic volumes at this intersection upon buildout of the development, conversion of this intersection to a multi-way stop control is not recommended. Refer to Table 14 for a summary of the multi-way stop control warrant analysis.

## WAKE COUNTY LINE ROAD + NC 39

The intersection of Wake County Line Road and NC 39 is an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA. Based on NCDOT comments on the previously completed TIA, the following improvement is required to be constructed by the developer:
> Construct an exclusive southbound right-turn lane on NC 39 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Table 8 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

TABLE 8: CAPACITY ANALYSIS SUMMARY OF WAKE COUNTY LINE ROAD + NC 39

| Conditions | APPROACH | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ |  | $\begin{aligned} & \text { B (12) } \\ & \text { A (8) } \\ & --\quad \end{aligned}$ | N/A | $\begin{aligned} & \text { B (13) } \\ & \text { A (8) } \end{aligned}$ | N/A |
| No-Build (2027) From Original TIA | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH } \\ & 1 \text { LT-TH } \\ & 1 \text { TH-RT } \end{aligned}$ | $\begin{aligned} & \text { B (12) } \\ & \text { A (8) } \end{aligned}$ | N/A | $\begin{aligned} & \mathrm{B}(14) \\ & \mathrm{A}(8) \end{aligned}$ | N/A |
| Build (2027) | $\begin{aligned} & \mathrm{EB}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & 1 \mathrm{LT}-\mathrm{TH} \\ & 1 \mathrm{LT}-\mathrm{TH} \\ & 1 \mathrm{TH}, 1 \mathrm{RT} \end{aligned}$ | $\begin{aligned} & \text { C (17) } \\ & \text { A (8) } \\ & \text {--- } \end{aligned}$ | N/A | $\begin{aligned} & \text { C (19) } \\ & \text { A (9) } \\ & -- \end{aligned}$ | N/A |

Improvements by Developer 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 Existing (2022), No-Build (2027), and Build (2027) conditions indicate that the major-street leftturn movement and minor-street approach at the intersection of Wake County Line Road and NC 39 are expected to operate at LOS C or better during the weekday AM and PM peak hours. Based on comparison of No-Build (2027) and Build (2027) conditions, the proposed development is expected to account for a minor increase in delay to the majorstreet left-turn movement and minor-street approach. Based on coordination with NCDOT, the developer is expected to construct a southbound right-turn lane on NC 39.

## 凹MCADAMS

## NC 39 + OLD US 264

The intersection of NC 39 and Old US 264 is currently an unsignalized, four-leg intersection. This intersection was analyzed under Build (2027) conditions in this addendum, with analysis of Existing (2022) and No-Build (2027) conditions provided from the previously completed TIA. Based on coordination with City and NCDOT staff, Sidney Creek is expected to construct improvements at the subject intersection prior to the 2027 buildout of the proposed development. These improvements were included under all future year analyses (No-Build and Build conditions). The improvements included as adjacent development improvements are:
> Monitor for signalization and install once warranted and approved by NCDOT.
> Construct an exclusive eastbound right-turn lane on Old US 264 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
$>$ Construct an exclusive eastbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Construct and exclusive westbound right-turn lane on Old US 264 with a minimum of 125 feet of full width storage and appropriate deceleration and taper.
$>$ Construct an exclusive westbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
$>$ Extend the existing southbound left-turn lane on NC 39 to provide a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Table 9 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

## TABLE 9: CAPACITY ANALYSIS SUMMARY OF NC 39 + OLD US 264

| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & \text { O } \\ & \text { C } \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Existing (2022) <br> From Original TIA | $\begin{aligned} & E B^{2} \\ & W^{2} \\ & N B^{1} \\ & S B^{1} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-TH-RT } \\ & 1 \text { LT-TH-RT } \\ & 1 \text { LT, } 1 \text { TH-RT } \\ & 1 \text { LT, } 1 \text { TH-RT } \end{aligned}$ | $\begin{aligned} & C(16) \\ & C(21) \\ & A(8) \\ & A(8) \end{aligned}$ | N/A | $\begin{aligned} & F(76) \\ & D(32) \\ & A(8) \\ & A(8) \end{aligned}$ | N/A |
| No-Build (2027) <br> From Original TIA | $\begin{aligned} & \text { EB } \\ & \text { WB } \\ & \text { NB } \\ & \text { SB } \end{aligned}$ | $\begin{aligned} & \frac{1 \mathrm{LT}}{1 \mathrm{LT}} 1 \mathrm{TH}, \frac{1 \mathrm{RT}}{1 \mathrm{TH}, \frac{1 \mathrm{RT}}{}} \frac{1 \mathrm{LT}, 1 \mathrm{TH}-\mathrm{RT}}{1 \mathrm{LT}, 1 \mathrm{TH}-\mathrm{RT}} \end{aligned}$ | $\begin{aligned} & D(38) \\ & D(38) \\ & C(29) \\ & C(25) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (30) \end{aligned}$ | $\begin{aligned} & D(43) \\ & D(40) \\ & C(32) \\ & C(29) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (33) \end{aligned}$ |
| Build (2027) | EB <br> WB <br> NB <br> SB | $\begin{aligned} & \frac{1 \mathrm{LT}}{1 \mathrm{LT}} 1 \mathrm{TH}, 1 \mathrm{1RT} \\ & \frac{1 \mathrm{RT}}{1 \mathrm{LT}}, 1 \mathrm{TH}-\mathrm{RT} \\ & 1 \mathrm{LT}, 1 \mathrm{TH}-\mathrm{RT} \end{aligned}$ | $\begin{aligned} & D(39) \\ & D(40) \\ & C(30) \\ & C(25) \end{aligned}$ | $\begin{aligned} & \text { C } \\ & (31) \end{aligned}$ | $\begin{aligned} & D(47) \\ & D(46) \\ & C(33) \\ & C(30) \end{aligned}$ | $\begin{aligned} & D \\ & (35) \end{aligned}$ |

[^3]Capacity analysis of Existing (2022) conditions indicate that the intersection of NC 39 and Old US 264 currently operates at LOS A for the major-street left-turn movement and at LOS D or better for the minor-street approach during the weekday AM and PM peak hours, with the exception of the eastbound approach (LOS F) during the PM peak hour. Under future 2027 conditions, the Sidney Creek adjacent development is expected to install a traffic signal in addition to constructing geometric improvements at this intersection. Capacity analysis of No-Build (2027) and Build (2027) conditions indicate that this intersection is expected to operate at an overall LOS D or better during the weekday AM and PM peak hours. The proposed development is expected to add 1 second of delay during the weekday AM peak hour and 2 seconds of delay during the weekday PM peak hour. Due to the minor impacts at this intersection by the proposed development and expected acceptable future operations, no improvements are recommended.

## CHAMBLEE ROAD + SITE DRIVE \#1

The proposed intersection of Chamblee Road and Site Drive \#1 is expected to operate as an unsignalized, three-leg intersection. This intersection was analyzed under Build (2027) conditions. The driveway is expected to be restricted to right-in/right-out (RIRO) operations. Based on review of the capacity analysis, the following improvements are recommended to be constructed by the developer:
> Construct Site Drive \#1 as the westbound approach with one (1) ingress lane and one (1) egress lane.
> Provide stop-control for the westbound approach of the site drive.

Table 10 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 10: CAPACITY ANALYSIS SUMMARY OF CHAMBLEE ROAD + SITE DRIVE \#1 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & O \\ & A \\ & C \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Build (2027) | $\begin{aligned} & W^{1} \\ & \text { NB } \\ & \text { SB } \end{aligned}$ | $\begin{aligned} & 1 \text { RT } \\ & 1 \text { TH-RT } \\ & 1 \text { TH } \end{aligned}$ |  | N/A | A (9) -- -- | N/A |

Improvements by Developer are shown in BOLD.

1. Level of service for minor-street approach.

Capacity analysis of Build (2027) conditions indicate that the minor street approach of the intersection of Chamblee Road and Site Drive \#1 is expected to operate at LOS A during the weekday AM and PM peak hours.

## CHAMBLEE ROAD + SITE DRIVE \#2

The proposed intersection of Chamblee Road and Site Drive \#2 is expected to be an unsignalized, four-leg intersection. This intersection was analyzed under Build (2027) conditions. Based on coordination with NCDOT, exclusive left-turn lanes are expected to be required along Chamblee Road for the northbound and southbound approaches. These improvements were included under Build (2027) conditions. The improvements included as developer improvements are:
> Construct Site Drive \#2 with a full movement eastbound and westbound approach with one (1) ingress lane and one (1) egress lane for each approach.
> Provide stop-control on the eastbound and westbound approaches of the site drives.
> Construct an exclusive southbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive northbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Table 11 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 11: CAPACITY ANALYSIS SUMMARY OF CHAMBLEE ROAD + SITE DRIVE \#2 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & \mathbf{A} \\ & \mathbf{P} \\ & \mathbf{P} \\ & \mathbf{R} \\ & \mathbf{O} \\ & \mathbf{A} \\ & \mathbf{C} \\ & \mathbf{H} \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Build (2027) | $\begin{aligned} & \mathbf{E B}^{2} \\ & \mathbf{W B}^{2} \\ & \mathrm{NB}^{1} \\ & \mathrm{SB}^{1} \end{aligned}$ | 1 LT-TH-RT <br> 1 LT-TH-RT <br> 1 LT, 1 TH-RT <br> 1 LT, 1 TH-RT | $\begin{aligned} & \text { A (9) } \\ & \text { A (10) } \\ & \text { A (7) } \\ & \text { A (7) } \end{aligned}$ | N/A | $\begin{aligned} & A(10) \\ & B(10) \\ & A(8) \\ & A(7) \end{aligned}$ | N/A |

Improvements by Developer 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 Build (2027) conditions indicate the major-street left-turn movements at the intersection of Chamblee Road and Site Drive \#2 are expected to operate at LOS A during the weekday AM and PM peak hours. The minor-street approaches are expected to operate at LOS B or better during the weekday AM and PM peak hours. Based on coordination with NCDOT, the developer is expected to construct northbound and southbound left-turn lanes on Chamblee Road.

## CHAMBLEE ROAD + SITE DRIVE \#3

The proposed intersection of Chamblee Road and Site Drive \#3 is expected to be an unsignalized three-leg intersection. This intersection was analyzed under Build (2027) conditions. Based on coordination with NCDOT, an exclusive leftturn lane is expected to be required along Chamblee Road for the northbound approach. This improvement was included under Build (2027) conditions. The improvement included as a developer improvement is:
> Construct Site Drive \#3 as the eastbound approach with one (1) ingress lane and one (1) egress lane.
$>$ Provide stop-control for the eastbound approach of the site drive.
> Construct an exclusive northbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Table 12 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 12: CAPACITY ANALYSIS SUMMARY OF CHAMBLEE ROAD + SITE DRIVE \#3 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | $\begin{aligned} & A \\ & P \\ & P \\ & R \\ & O \\ & A \\ & C \\ & H \end{aligned}$ | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and Approach Delay (seconds) | Overall Delay (seconds) | LOS and Approach Delay (seconds) | Overall Delay (seconds) |
| Build (2027) | $\begin{aligned} & \text { EB }^{2} \\ & \text { NB }^{1} \\ & \mathrm{SB} \end{aligned}$ | $\begin{aligned} & 1 \text { LT-RT } \\ & 1 \text { LT, } 1 \text { TH } \\ & 1 \text { TH-RT } \end{aligned}$ | $\begin{aligned} & \text { A (9) } \\ & \text { A (7) } \\ & \text {-- } \end{aligned}$ | N/A | A (9) <br> A (8) <br> -- | N/A |

Improvements by Developer 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 Build (2027) conditions indicate that the major-street left-turn movement and minor-street approach at the intersection of Chamblee Road and Site Drive \#3 are expected to operate at LOS A during the weekday AM and PM peak hours. Based on coordination with NCDOT, the developer is expected to construct a northbound left-turn lane on Chamblee Road.

## PERRY CURTIS ROAD + SITE DRIVE \#4

The proposed intersection of Perry Curtis Road and Site Drive \#4 is expected to be an unsignalized three-leg intersection. This intersection was analyzed under Build (2027) conditions. Based on coordination with NCDOT, a turn lane is expected to be required along Perry Curtis Road for the southbound approach. This improvement was included under Build (2027) conditions. The improvement included as a developer improvement is:
> Construct Site Drive \#4 as the westbound approach with one (1) ingress lane and one (1) egress lane.
> Provide stop-control for the westbound approach of the site drive.
$>$ Construct an exclusive southbound left-turn lane on Perry Curtis Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

Table 13 provides the capacity analysis for the subject intersection with the lane configurations and traffic control shown in the table. Refer to the attachments for the Synchro capacity analysis reports.

| TABLE 13: CAPACITY ANALYSIS SUMMARY OF PERRY CURTIS ROAD + SITE DRIVE \#4 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conditions | APPROACC | Lane Configurations | Weekday AM Peak Hour |  | Weekday PM Peak Hour |  |
|  |  |  | LOS and <br> Approach <br> Delay <br> (seconds) | Overall Delay (seconds) | LOS and <br> Approach Delay (seconds) | Overall Delay (seconds) |
| Build (2027) | $\begin{aligned} & \text { WB } \\ & N B \\ & N B \\ & S B^{1} \end{aligned}$ | 1 LT-RT <br> 1 TH-RT <br> $1 \mathrm{LT}, 1 \mathrm{TH}$ | $\begin{aligned} & \text { A (10) } \\ & -- \\ & \text { A }(8) \\ & \hline \end{aligned}$ | N/A | $\begin{aligned} & \text { A (9) } \\ & --1(8) \end{aligned}$ | N/A |

Improvements by Developer 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 Build (2027) conditions indicate that the major-street left-turn movement and minor-street approach at the intersection of Perry Curtis Road and Site Drive \#4 are expected to operate at LOS A during the weekday AM and PM peak hours. According to the NCDOT warrant for left and right-turn lanes at unsignalized driveways chart contained within the NCDOT Driveway Manual, a southbound left-turn lane on Perry Curtis Road is recommended. Based on coordination with NCDOT, the developer is expected to construct a 100 -foot left-turn lane on Perry Curtis Road.

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## MULTI-WAY STOP CONTROL WARRANT ANALYSIS

Per coordination with Town staff on the recommendations of the November 2022 TIA, analysis of the potential need for multi-way stop control at the intersection of Perry Curtis Road / Wake County Line Road and Chamblee Road was performed to determine the potential need for conversion upon buildout of the proposed development. Weekday AM and PM peak hour traffic volumes analyzed under Build (2027) conditions were evaluated based on the vehicular volume thresholds outlined in Criteria C within the Manual on Uniform Traffic Control Devices (MUTCD). Refer to the Table 14 for a summary of the multi-way stop control warrant analysis under Build (2027) conditions.

| TABLE 14: MULTI-WAY STOP CONTROL WARRANT ANALYSIS SUMMARY |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
|  | Volumes (vph) |  | Criteria |  |  |
|  | Major-Street | Minor-Street | C1 + C2 |  | C3 |
|  |  |  | Major (300 vph) | Minor (200 vph) | 70\% of Threshold |
| AM Peak Hour | 119 | 138 | N | N | N |
| PM Peak Hour | 264 | 108 | N | N | Y |
| Criteria Met | NO | NO |  |  |  |

Based on a review of the volume-based criteria for the intersection of Perry Curtis Road / Wake County Line Road and Chamblee Road, this intersection is not expected to satisfy these thresholds during either the weekday AM or PM peak hours and as such, is not expected to satisfy these thresholds for the extended 8 -hour period required for consideration of conversion to multi-way stop control. Based on a review of the capacity analysis results of this intersection, this intersection is expected to operate at acceptable levels-of service under Build (2027) conditions. Based on the low expected traffic volumes at this intersection upon buildout of the development, conversion of this intersection to a multi-way stop control is not a recommended improvement by the proposed development.

## SUMMARY / RECOMMENDATIONS

This letter presents the results of the capacity analysis of the TIA Addendum for the proposed Chamblee Lake development in Zebulon, NC. This addendum serves to provide an updated analysis of buildout conditions surrounding the proposed Chamblee Lake development as a result of a change in density and site access compared to the original TIA prepared in November of 2022 by McAdams. Based on the findings of this study and coordination during the review of the original TIA, the following improvements summarized below have been identified or are recommended to accommodate future traffic conditions. Refer to Figure 4 in the attachments for a graphical representation of the recommended improvements at the study intersections.

## Improvements by Sidney Creek

## NC 39 and Old US 264

> Monitor for signalization and install once warranted and approved by NCDOT.
> Construct an exclusive eastbound right-turn lane on OId US 264 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive eastbound left-turn lane on OId US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
> Construct and exclusive westbound right-turn lane on Old US 264 with a minimum of 125 feet of full width storage and appropriate deceleration and taper.
> Construct an exclusive westbound left-turn lane on Old US 264 with a minimum of 50 feet of full width storage and appropriate deceleration and taper.
$>$ Extend the existing southbound left-turn lane on NC 39 to provide a minimum of 100 feet of full width storage and appropriate deceleration and taper.

## Recommended Improvements by Developer

## Perry Curtis Road and NC 96

> Construct an exclusive southbound left-turn lane on NC 96 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

## Wake County Line Road and NC 39

> Construct an exclusive southbound right-turn lane on NC 39 with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

## Chamblee Road and Site Drive \#1

> Construct Site Drive \#1 as the westbound approach with one (1) ingress lane and one (1) egress lane.
> Provide stop-control for the westbound approach of the site drive.

## Chamblee Road and Site Drive \#2

> Construct Site Drive \#2 with a full movement eastbound and westbound approach with one (1) ingress lane and one (1) egress lane for each approach.
> Provide stop-control on the eastbound and westbound approaches of the site drives.
> Construct an exclusive southbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.
$>$ Construct an exclusive northbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

## Chamblee Road and Site Drive \#3

> Construct Site Drive \#3 as the eastbound approach with one (1) ingress lane and one (1) egress lane.
> Provide stop-control for the eastbound approach of the site drive.
$>$ Construct an exclusive northbound left-turn lane on Chamblee Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

## Perry Curtis Road and Site Drive \#4

> Construct Site Drive \#4 as the westbound approach with one (1) ingress lane and one (1) egress lane.
> Provide stop-control for the westbound approach of the site drive.
> Construct an exclusive southbound left-turn lane on Perry Curtis Road with a minimum of 100 feet of full width storage and appropriate deceleration and taper.

If you should have any questions or comments relative to this study, please feel free to contact me at 919.287.0741.

## Sincerely,

## MCADAMS



## CC: NCDOT District Office <br> NCDOT Congestion Management

Attachments: Town TIA Review
NCDOT TIA Review
Site Plan
Figures
Capacity Analysis Reports

Date: January 9, 2023
To: $\quad$ Michael Clark, AICP, CZO, Planning Director, Town of Zebulon
Nate Bouquin, PE, PTOE, Traffic Engineering Lead, McAdams
From: $\quad$ Sravya Suryadevara, PE, Traffic Engineering Director, WSP USA Inc.
Subject: Chamblee Property Traffic Impact Analysis Review \#2

Per your request, WSP has performed a review of the Chamblee property traffic impact study submitted by M cAdams, dated November 1, 2022, and the additional information provide via email on December 7, 2022. We have the following comments:

## Site Plan and Site Access:

- The site plan provided with the TIA does not include the following and hence could not be reviewed:
a. Right-of-way lines, easements and restrictions, if any, and property lines.
b. Driveway approaches and roadway alignment.
c. Interior drives, channelization, traffic flow pattern, traffic control devices, pavement markings, internal truck, service and delivery routing, emergency vehicle access, etc.
d. Distance of intersecting roads, streets, driveways within the study area
e. Width of rights-of-way and sight distance areas
f. Width and type of adjacent road surface
g. Width, radii, and lane use of the proposed driveways or streets
h. Existing/proposed speed limits
i. Width of property frontage.
j. Distance between driveways being requested.
k. Location of sidewalks and crosswalks
- The access to/from Perry Curtis Road is provided through the Perry Ridge neighborhood via Perry Ridge Court and Ridge Valley Road although the site has frontage along Perry Curtis Road. Consider providing access directly to Perry Curtis Road to avoid traffic through an existing neighborhood.


## Traffic Volumes:

- The revised Build (2027) Peak Hour Traffic Volumes along Chamblee Road are accurate. There is no need for additional analysis to reflect this change.


## Conclusions/Recommendations:

- As per the Town's 2045 Comprehensive Transportation Plan (CTP), Chamblee Road, Perry Curtis Road, and Future Collector Street within the proposed development, are planned to be four-lane divided roadways. The Town expects this development to construct the collector street within the property as well as widen Perry Curtis Road and Chamblee Road along the property's frontage to provide the future cross-sections as per the Town's 2045 CTP.
- Perry Curtis Road and Chamblee Road Intersection
- Convert this stop-controlled intersection to an all-way stop-controlled intersection.
- NC 39 and Wake County Line Road Intersection
- A significant portion of the site traffic (40\%) is anticipated to travel through this skewed-angle intersection making a sharp left and right-turning movements between eastbound Wake County Line Road and southbound NC 39. A Google Streetview of this intersection shows tire marks of cars making these maneuvers and indicates safety concerns. The intersection is recommended to be realigned such that Wake County Line Road intersects NC 39 as close to perpendicular as possible.
- NC 96 (S Arendell Avenue) and Perry Curtis Road Intersection
- This intersection is also a skewed angle and is recommended to be realigned such that Perry Curtis Road intersects NC 96 as close to perpendicular as possible.

The attached figure shows the recommended lane configuration. If you have any questions about this review, please do not hesitate to contact me at 984-389-2944 or sravya.suryadevara@wsp.com.



# State of North Carolina <br> DEPARTMENT OF TRANSPORTATION 

Roy Cooper
J. ERIC Boyette

SECRETARY

November 29, 2022

## Chamblee Property

## Traffic Impact Analysis Review Report Congestion Management Section

TIA Project: SC-2022-329
Division:
County: Wake


Clarence B. Bunting, IV, P.E. Regional Engineer Charles Sorrell, Project Design Engineer

| Chamblee Property TIA |  |  |
| :---: | :---: | :---: |
| SC-2022-329 | Zebulon | Wake County |

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

| Date Initially Received by CMS | $11 / 1 / 22$ | Date of Site Plan | N/A |
| :--- | :---: | :--- | :---: |
| Date of Complete Information | $11 / 14 / 22$ | Date of Sealed TIA | $11 / 1 / 22$ |

## Proposed Development

The TIA assumes the development is to be completed by 2027 and consist of the following:

| Land Use | Land Use Code | Size |
| :--- | :---: | :---: |
| Single-Family Detached Housing | 210 | 211 units |
| Single-Family Attached Housing | 215 | 119 units |


| Trip Generation - Unadjusted Volumes During a Typical Weekday |  |  |  |
| :---: | :---: | :---: | :---: |
|  | IN | OUT | TOTAL |
| AM Peak Hour | 55 | 148 | 203 |
| PM Peak Hour | 164 | 103 | 267 |
| Daily Trips |  |  |  |

## General Reference

For reference to various documents applicable to this review please reference the following link: https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.

## Improvements By Others

The analysis includes background improvements by others. If these improvements are not in place at the time of construction, the site should provide these improvements or analysis demonstrating mitigation is not necessary.






```
\begin{array} { l } { \text { Attachment } } \\ { \text { PD 2023-01} } \end{array}
```



1: Chamblee Road/E. Horton Street \& Temple-Johnston Road



1: Chamblee Road/E. Horton Street \& Temple-Johnston Road

Timing Plan: Default



| Major/Minor $\quad$ N | Minor2 | Major1 Major2 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 179 | 85 | 87 | 0 | - | 0 |  |
| Stage 1 | 85 | - | - | - | - | - |  |
| Stage 2 | 94 | - | - | - | - | - |  |
| 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 | 811 | 974 | 1509 | - | - | - |  |
| Stage 1 | 938 | - | - | - | - | - |  |
| Stage 2 | 930 | - | - | - | - | - |  |
| Platoon blocked, \% |  |  |  | - | - | - |  |
| Mov Cap-1 Maneuver | 796 | 974 | 1509 | - | - | - |  |
| Mov Cap-2 Maneuver | 796 | - | - | - | - | - |  |
| Stage 1 | 921 | - | - | - | - | - |  |
| Stage 2 | 930 | - | - | - | - | - |  |
|  |  |  |  |  |  |  |  |
| Approach | EB |  | NB |  | SB |  |  |
| HCM Control Delay, s | 9 |  | 2.8 |  | 0 |  |  |
| HCM LOS | A |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBL | NBT | BLn1 | SBT | SBR |  |
| Capacity (veh/h) |  | 1509 | - | 957 | - | - |  |
| HCM Lane V/C Ratio |  | 0.017 | - | 0.057 | - | - |  |
| HCM Control Delay (s) |  | 7.4 | 0 | 9 | - | - |  |
| HCM Lane LOS |  | A | A | A | - | - |  |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | 0.2 | - | - |  |

2: NC 96 \& Temple-Johnston Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | r |  | $\uparrow$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 4 | 33 | 428 | 4 | 11 | 153 |
| Future Vol, veh/h | 4 | 33 | 428 | 4 | 11 | 153 |
| 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 | 37 | 476 | 4 | 12 | 170 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 672 | 478 | 0 | 0 | 480 | 0 |
| Stage 1 | 478 | - | - | - | - | - |
| Stage 2 | 194 | - | - | - | - | - |
| 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 | 421 | 587 | - | - | 1082 | - |
| Stage 1 | 624 | - | - | - | - | - |
| Stage 2 | 839 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 416 | 587 | - | - | 1082 | - |
| Mov Cap-2 Maneuver | 416 | - | - | - | - | - |
| Stage 1 | 624 | - | - | - | - | - |
| Stage 2 | 829 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 11.9 |  | 0 |  | 0.6 |  |
| HCM LOS | B |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 562 | 1082 | - |
| HCM Lane V/C Ratio |  | - | - | 0.073 | 0.011 | - |
| HCM Control Delay (s) |  | - | - | 11.9 | 8.4 | 0 |
| HCM Lane LOS |  | - | - | B | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0.2 | 0 | - |

2: NC 96 \& Temple-Johnston Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mi |  | $\boldsymbol{\beta}$ |  |  | -1 |
| Traffic Vol, veh/h | 4 | 29 | 325 | 4 | 46 | 500 |
| Future Vol, veh/h | 4 | 29 | 325 | 4 | 46 | 500 |
| 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 | 32 | 361 | 4 | 51 | 556 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 1021 | 363 | 0 | 0 | 365 | 0 |
| Stage 1 | 363 | - | - | - | - | - |
| Stage 2 | 658 | - | - | - | - | - |
| 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 | 262 | 682 | - | - | 1194 | - |
| Stage 1 | 704 | - | - | - | - | - |
| Stage 2 | 515 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 246 | 682 | - | - | 1194 | - |
| Mov Cap-2 Maneuver | 246 | - | - | - | - | - |
| Stage 1 | 704 | - | - | - | - | - |
| Stage 2 | 483 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 11.9 |  | 0 |  | 0.7 |  |
| HCM LOS | B |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 561 | 1194 | - |
| HCM Lane V/C Ratio |  | - | - | 0.065 | 0.043 | - |
| HCM Control Delay (s) |  | - | - | 11.9 | 8.2 | 0 |
| HCM Lane LOS |  | - | - | B | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0.2 | 0.1 | - |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.7 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\uparrow$ |  | 7 | 4 |
| Traffic Vol, veh/h | 24 | 181 | 248 | 9 | 45 | 108 |
| Future Vol, veh/h | 24 | 181 | 248 | 9 | 45 | 108 |
| 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 | - | - | - | 100 | - |
| 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 | 27 | 201 | 276 | 10 | 50 | 120 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 501 | 281 | 0 | 0 | 286 | 0 |
| Stage 1 | 281 | - | - | - | - | - |
| Stage 2 | 220 | - | - | - | - | - |
| 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 | 530 | 758 | - | - | 1276 | - |
| Stage 1 | 767 | - | - | - | - | - |
| Stage 2 | 817 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 509 | 758 | - | - | 1276 | - |
| Mov Cap-2 Maneuver | 509 | - | - | - | - | - |
| Stage 1 | 767 | - | - | - | - | - |
| Stage 2 | 785 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 12.3 |  | 0 |  | 2.3 |  |
| HCM LOS | B |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 717 | 1276 | - |
| HCM Lane V/C Ratio |  | - | - | 0.318 | 0.039 | - |
| HCM Control Delay (s) |  | - | - | 12.3 | 7.9 | - |
| HCM Lane LOS |  | - | - | B | A | - |
| HCM 95th \%tile Q(veh) |  | - | - | 1.4 | 0.1 | - |



| Major/Minor | Minor1 |  | ajor1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 1027 | 237 | 0 | 0 | 254 | 0 |
| Stage 1 | 237 | - | - | - | - | - |
| Stage 2 | 790 | - | - | - | - | - |
| 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 | 260 | 802 | - | - | 1311 | - |
| Stage 1 | 802 | - | - | - | - | - |
| Stage 2 | 447 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 214 | 802 | - | - | 1311 | - |
| Mov Cap-2 Maneuver | 214 | - | - | - | - | - |
| Stage 1 | 802 | - | - | - | - | - |
| Stage 2 | 367 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 13.5 |  | 0 |  | 3.5 |  |
| HCM LOS | B |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 585 | 1311 | - |
| HCM Lane V/C Ratio |  | - | - | 0.281 | 0.178 | - |
| HCM Control Delay (s) |  | - | - | 13.5 | 8.3 | - |
| HCM Lane LOS |  | - | - | B | A | - |
| HCM 95th \%tile Q(veh) |  | - | - | 1.1 | 0.6 | - |

4: Perry Curtis Road \& Perry Ridge Court

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.6 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | F |  |  | - |
| Traffic Vol, veh/h | 4 | 4 | 123 | 4 | 4 | 41 |
| Future Vol, veh/h | 4 | 4 | 123 | 4 | 4 | 41 |
| 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 | 137 | 4 | 4 | 46 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 193 | 139 | 0 | 0 | 141 | 0 |
| Stage 1 | 139 | - | - | - | - | - |
| Stage 2 | 54 | - | - | - | - | - |
| 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 | 796 | 909 | - | - | 1442 | - |
| Stage 1 | 888 | - | - | - | - | - |
| Stage 2 | 969 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 794 | 909 | - | - | 1442 | - |
| Mov Cap-2 Maneuver | 794 | - | - | - | - | - |
| Stage 1 | 888 | - | - | - | - | - |
| Stage 2 | 966 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 9.3 |  | 0 |  | 0.7 |  |
| HCM LOS | A |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 848 | 1442 | - |
| HCM Lane V/C Ratio |  | - | - | 0.01 | 0.003 | - |
| HCM Control Delay (s) |  | - | - | 9.3 | 7.5 | 0 |
| HCM Lane LOS |  | - | - | A | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0 | 0 | - |

HCM 6th TWSC
4: Perry Curtis Road \& Perry Ridge Court

Timing Plan: Default

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.6 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | F |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 4 | 6 | 89 | 4 | 6 | 139 |
| Future Vol, veh/h | 4 | 6 | 89 | 4 | 6 | 139 |
| 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 | 7 | 99 | 4 | 7 | 154 |



5: Perry Ridge Court \& Ridge Valley Way

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | -1 | F |  | Tr |  |
| Traffic Vol, veh/h | 4 | 4 | 4 | 4 | 4 | 4 |
| Future Vol, veh/h | 4 | 4 | 4 | 4 | 4 | 4 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 4 | 4 | 4 | 4 | 4 |




5: Perry Ridge Court \& Ridge Valley Way

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.5 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | -1 | F |  | F |  |
| Traffic Vol, veh/h | 4 | 6 | 6 | 4 | 4 | 4 |
| Future Vol, veh/h | 4 | 6 | 6 | 4 | 4 | 4 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 7 | 7 | 4 | 4 | 4 |




6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |


| Major/Minor $\quad$ N | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 78 | 0 | - | 0 | 137 | 59 |
| Stage 1 | - | - | - | - | 59 | - |
| Stage 2 | - | - | - | - | 78 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1520 | - | - | - | 856 | 1007 |
| Stage 1 | - | - | - | - | 964 | - |
| Stage 2 | - | - | - | - | 945 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1520 | - | - | - | 842 | 1007 |
| Mov Cap-2 Maneuver | - | - | - | - | 842 | - |
| Stage 1 | - | - | - | - | 949 | - |
| Stage 2 | - | - | - | - | 945 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 3.3 |  | 0 |  | 9.8 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1520 | - | - | - | 900 |
| HCM Lane V/C Ratio |  | 0.016 | - | - | - | 0.17 |
| HCM Control Delay (s) |  | 7.4 | 0 | - | - | 9.8 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0 | - | - | - | 0.6 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

Timing Plan: Default



| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 150 | 0 | - | 0 | 311 | 97 |
| Stage 1 | - | - | - | - | 97 | - |
| Stage 2 | - | - | - | - | 214 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1431 | - | - | - | 681 | 959 |
| Stage 1 | - | - | - | - | 927 | - |
| Stage 2 | - | - | - | - | 822 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1431 | - | - | - | 646 | 959 |
| Mov Cap-2 Maneuver | - | - | - | - | 646 | - |
| Stage 1 | - | - | - | - | 879 | - |
| Stage 2 | - | - | - | - | 822 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 3.8 |  | 0 |  | 10.8 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1431 | - | - | - | 737 |
| HCM Lane V/C Ratio |  | 0.05 | - | - | - | 0.163 |
| HCM Control Delay (s) |  | 7.6 | 0 | - | - | 10.8 |
| HCM Lane LOS |  | A | A | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.2 | - | - | - | 0.6 |

7: NC 39 \& Wake County Line Road

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



7: NC 39 \& Wake County Line Road

Timing Plan: Default

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | $\mathbf{M}$ |  |  | $\uparrow$ | $\uparrow$ | $\mathbf{F}$ |
| Traffic Vol, veh/h | 68 | 57 | 50 | 331 | 369 | 91 |
| Future Vol, veh/h | 68 | 57 | 50 | 331 | 369 | 91 |
| 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 | - | - | - | - | 100 |
| 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 | 76 | 63 | 56 | 368 | 410 | 101 |



|  | 4 |  | $\uparrow$ | 1 |  |  |  | $\dagger$ | $p$ | ( |  | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{*}$ | 4 | F | ${ }^{7}$ | 4 | 「 | ${ }^{7}$ | 个 |  | ${ }^{7}$ | F |  |
| Traffic Volume (vph) | 5 | 30 | 32 | 16 | 87 | 172 | 56 | 602 | 35 | 94 | 225 | 10 |
| Future Volume (vph) | 5 | 30 | 32 | 16 | 87 | 172 | 56 | 602 | 35 | 94 | 225 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 0 | 100 |  | 0 |
| Storage Lanes | 1 |  | 1 | 1 |  | 1 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (ft) | 100 |  |  | 100 |  |  | 100 |  |  | 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 |  |  | 0.850 |  |  | 0.850 |  | 0.992 |  |  | 0.994 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1848 | 0 | 1770 | 1852 | 0 |
| Flt Permitted | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (perm) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1848 | 0 | 1770 | 1852 | 0 |
| Right Turn on Red |  |  | No |  |  | No |  |  | No |  |  | No |
| Satd. Flow (RTOR) |  |  |  |  |  |  |  |  |  |  |  |  |
| Link Speed (mph) |  | 55 |  |  | 55 |  |  | 55 |  |  | 55 |  |
| Link Distance (ft) |  | 1272 |  |  | 1346 |  |  | 8116 |  |  | 1238 |  |
| Travel Time (s) |  | 15.8 |  |  | 16.7 |  |  | 100.6 |  |  | 15.3 |  |
| 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) | 6 | 33 | 36 | 18 | 97 | 191 | 62 | 669 | 39 | 104 | 250 | 11 |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 6 | 33 | 36 | 18 | 97 | 191 | 62 | 708 | 0 | 104 | 261 | 0 |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |  | Prot | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases |  |  | 4 |  |  | 8 |  |  |  |  |  |  |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | 8 | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 14.0 |  | 7.0 | 14.0 |  |
| Minimum Split (s) | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 21.0 |  | 14.0 | 21.0 |  |
| Total Split (s) | 14.0 | 28.0 | 28.0 | 14.0 | 28.0 | 28.0 | 14.0 | 61.0 |  | 17.0 | 64.0 |  |
| Total Split (\%) | 11.7\% | 23.3\% | 23.3\% | 11.7\% | 23.3\% | 23.3\% | 11.7\% | 50.8\% |  | 14.2\% | 53.3\% |  |
| Maximum Green (s) | 7.0 | 21.0 | 21.0 | 7.0 | 21.0 | 21.0 | 7.0 | 54.0 |  | 10.0 | 57.0 |  |
| Yellow Time (s) | 5.0 | 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 | 2.0 |  |
| Lost Time Adjust (s) | -2.0 | -2.0 | -2.0 | -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 | 5.0 |  | 5.0 | 5.0 |  |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  | Yes | Yes |  |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |  | 3.0 | 3.0 |  |
| Recall Mode | None | None | None | None | None | None | None | Min |  | None | Min |  |
| Act Effct Green (s) | 10.0 | 15.8 | 15.8 | 10.0 | 19.1 | 19.1 | 10.0 | 42.3 |  | 12.0 | 44.3 |  |
| Actuated g/C Ratio | 0.12 | 0.18 | 0.18 | 0.12 | 0.22 | 0.22 | 0.12 | 0.49 |  | 0.14 | 0.51 |  |
| v/c Ratio | 0.03 | 0.10 | 0.13 | 0.09 | 0.24 | 0.55 | 0.31 | 0.79 |  | 0.43 | 0.28 |  |
| Control Delay | 47.2 | 38.1 | 38.6 | 47.1 | 35.7 | 42.2 | 49.4 | 28.7 |  | 48.8 | 15.0 |  |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 47.2 | 38.1 | 38.6 | 47.1 | 35.7 | 42.2 | 49.4 | 28.7 |  | 48.8 | 15.0 |  |
| LOS | D | D | D | D | D | D | D | C |  | D | B |  |
| Approach Delay |  | 39.1 |  |  | 40.4 |  |  | 30.3 |  |  | 24.6 |  |
| Approach LOS |  | D |  |  | D |  |  | C |  |  | C |  |

Lanes, Volumes, Timings
8: NC 39 \& Old US 264


Lanes, Volumes, Timings
8: NC 39 \& Old US 264

Timing Plan: Default

|  | 4 |  | 7 | 7 |  |  |  | $\dagger$ | \% | ( |  | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{*}$ | 4 | F | ${ }^{7}$ | 4 | 「 | ${ }^{7}$ | 个 |  | ${ }^{7}$ | $\uparrow$ |  |
| Traffic Volume (vph) | 24 | 122 | 99 | 29 | 74 | 109 | 65 | 360 | 29 | 187 | 623 | 19 |
| Future Volume (vph) | 24 | 122 | 99 | 29 | 74 | 109 | 65 | 360 | 29 | 187 | 623 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 0 | 100 |  | 0 |
| Storage Lanes | 1 |  | 1 | 1 |  | 1 | 1 |  | 0 | 1 |  | 0 |
| Taper Length (ft) | 100 |  |  | 100 |  |  | 100 |  |  | 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 |  |  | 0.850 |  |  | 0.850 |  | 0.989 |  |  | 0.996 |  |
| Flt Protected | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (prot) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1842 | 0 | 1770 | 1855 | 0 |
| Flt Permitted | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  | 0.950 |  |  |
| Satd. Flow (perm) | 1770 | 1863 | 1583 | 1770 | 1863 | 1583 | 1770 | 1842 | 0 | 1770 | 1855 | 0 |
| Right Turn on Red |  |  | No |  |  | No |  |  | No |  |  | No |
| Satd. Flow (RTOR) |  |  |  |  |  |  |  |  |  |  |  |  |
| Link Speed (mph) |  | 55 |  |  | 55 |  |  | 55 |  |  | 55 |  |
| Link Distance (ft) |  | 1272 |  |  | 1346 |  |  | 8116 |  |  | 1238 |  |
| Travel Time (s) |  | 15.8 |  |  | 16.7 |  |  | 100.6 |  |  | 15.3 |  |
| 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) | 27 | 136 | 110 | 32 | 82 | 121 | 72 | 400 | 32 | 208 | 692 | 21 |
| Shared Lane Traffic (\%) |  |  |  |  |  |  |  |  |  |  |  |  |
| Lane Group Flow (vph) | 27 | 136 | 110 | 32 | 82 | 121 | 72 | 432 | 0 | 208 | 713 | 0 |
| Turn Type | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |  | Prot | NA |  |
| Protected Phases | 7 | 4 |  | 3 | 8 |  | 5 | 2 |  | 1 | 6 |  |
| Permitted Phases |  |  | 4 |  |  | 8 |  |  |  |  |  |  |
| Detector Phase | 7 | 4 | 4 | 3 | 8 | 8 | 5 | 2 |  | 1 | 6 |  |
| Switch Phase |  |  |  |  |  |  |  |  |  |  |  |  |
| Minimum Initial (s) | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 14.0 |  | 7.0 | 14.0 |  |
| Minimum Split (s) | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 14.0 | 21.0 |  | 14.0 | 21.0 |  |
| Total Split (s) | 14.0 | 23.0 | 23.0 | 14.0 | 23.0 | 23.0 | 15.0 | 53.0 |  | 30.0 | 68.0 |  |
| Total Split (\%) | 11.7\% | 19.2\% | 19.2\% | 11.7\% | 19.2\% | 19.2\% | 12.5\% | 44.2\% |  | 25.0\% | 56.7\% |  |
| Maximum Green (s) | 7.0 | 16.0 | 16.0 | 7.0 | 16.0 | 16.0 | 8.0 | 46.0 |  | 23.0 | 61.0 |  |
| Yellow Time (s) | 5.0 | 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 | 2.0 |  |
| Lost Time Adjust (s) | -2.0 | -2.0 | -2.0 | -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 | 5.0 |  | 5.0 | 5.0 |  |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag |  | Lead | Lag |  |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  | Yes | Yes |  |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |  | 3.0 | 3.0 |  |
| Recall Mode | None | None | None | None | None | None | None | Min |  | None | Min |  |
| Act Effct Green (s) | 10.0 | 14.6 | 14.6 | 10.0 | 14.6 | 14.6 | 10.6 | 33.2 |  | 18.4 | 45.9 |  |
| Actuated g/C Ratio | 0.11 | 0.16 | 0.16 | 0.11 | 0.16 | 0.16 | 0.12 | 0.37 |  | 0.21 | 0.51 |  |
| v/c Ratio | 0.14 | 0.45 | 0.43 | 0.16 | 0.27 | 0.47 | 0.34 | 0.63 |  | 0.57 | 0.75 |  |
| Control Delay | 49.5 | 45.8 | 46.7 | 49.7 | 42.8 | 47.8 | 51.3 | 29.8 |  | 43.9 | 26.2 |  |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |  | 0.0 | 0.0 |  |
| Total Delay | 49.5 | 45.8 | 46.7 | 49.7 | 42.8 | 47.8 | 51.3 | 29.8 |  | 43.9 | 26.2 |  |
| LOS | D | D | D | D | D | D | D | C |  | D | C |  |
| Approach Delay |  | 46.6 |  |  | 46.3 |  |  | 32.8 |  |  | 30.2 |  |
| Approach LOS |  | D |  |  | D |  |  | C |  |  | C |  |

Lanes, Volumes, Timings
8: NC 39 \& Old US 264
Timing Plan: Default

|  | 4 | $\rightarrow$ | 7 | $\checkmark$ | - | 4 | 4 | $\uparrow$ | $p$ | $\checkmark$ | $\downarrow$ | $\downarrow$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Queue Length 50th (ft) | 16 | 80 | 65 | 19 | 47 | 72 | 44 | 223 |  | 122 | 385 |  |
| Queue Length 95th (ft) | 51 | 164 | 139 | 57 | 107 | 151 | 104 | 366 |  | 227 | 567 |  |
| Internal Link Dist (ft) |  | 1192 |  |  | 1266 |  |  | 8036 |  |  | 1158 |  |
| Turn Bay Length (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  |  | 100 |  |  |
| Base Capacity (vph) | 197 | 415 | 352 | 197 | 415 | 352 | 219 | 1094 |  | 547 | 1359 |  |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | 0 | 0 |  |
| Reduced v/c Ratio | 0.14 | 0.33 | 0.31 | 0.16 | 0.20 | 0.34 | 0.33 | 0.39 |  | 0.38 | 0.52 |  |

## Intersection Summary

Area Type: Other

Cycle Length: 120
Actuated Cycle Length: 89.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.75

| Intersection Signal Delay: 35.2 | Intersection LOS: D |
| :--- | :--- |
| Intersection Capacity Utilization $68.7 \%$ | ICU Level of Service C |
| Analysis Period (min) 15 |  |

Splits and Phases: 8: NC 39 \& Old US 264


9: Chamblee Road \& Site Drive \#1

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |




HCM 6th TWSC
9: Chamblee Road \& Site Drive \#1

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | $\mathbf{7}$ | $\mathbf{F}$ |  |  | 4 |
| Traffic Vol, veh/h | 0 | 7 | 54 | 4 | 0 | 120 |
| Future Vol, veh/h | 0 | 7 | 54 | 4 | 0 | 120 |
| 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 | 0 | 8 | 60 | 4 | 0 | 133 |



| Approach | WB | NB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 8.6 | 0 | 0 |
| HCM LOS | A |  |  |
|  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |
| SBT |  |  |  |
| Capacity (veh/h) | - | -1003 | - |
| HCM Lane V/C Ratio | - | -0.008 | - |
| HCM Control Delay (s) | - | -8.6 | - |
| HCM Lane LOS | - | - | A |
| HCM 95th \%tile Q(veh) | - | - | - |


| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 4.1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |  |
| Lane Configurations |  | $\uparrow$ |  |  | ¢ |  | 7 | $\uparrow$ |  | \% | F |  |  |
| Traffic Vol, veh/h | 17 | 4 | 24 | 20 |  | 4 | 7 | 66 | 6 | 4 | 23 | 6 |  |
| Future Vol, veh/h | 17 | 4 | 24 | 20 | 4 | 4 | 7 | 66 | 6 | 4 | 23 | 6 |  |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Sign Control Stor | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |  |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |  |
| Storage Length | - | - | - | - | - | - | 100 | - | - | 100 | - | - |  |
| 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 |  |
| Mumt Flow | 19 | 4 | 27 | 22 | 4 | 4 | 8 | 73 | 7 | 4 | 26 | 7 |  |



| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 3.1 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  | 4 |  |  | * |  | ${ }^{1}$ | 个 |  | ${ }^{1}$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 11 | 4 | 16 | 13 | 4 | 4 | 25 | 45 | 18 | 14 | 88 | 18 |
| Future Vol, veh/h | 11 | 4 | 16 | 13 | 4 | 4 | 25 | 45 | 18 | 14 | 88 | 18 |
| 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 | - | - | - | - | - | - | 100 | - | - | 100 | - | - |
| 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 | 12 | 4 | 18 | 14 | 4 | 4 | 28 | 50 | 20 | 16 | 98 | 20 |



11: Chamblee Road \& Site Drive \#3



11: Chamblee Road \& Site Drive \#3



12: Perry Curtis Road \& Site Drive \#4



12: Perry Curtis Road \& Site Drive \#4

| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.9 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Y |  | $\uparrow$ |  | 7 | 4 |
| Traffic Vol, veh/h | 6 | 44 | 86 | 9 | 72 | 139 |
| Future Vol, veh/h | 6 | 44 | 86 | 9 | 72 | 139 |
| 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 | - | - | - | 100 | - |
| 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 | 7 | 49 | 96 | 10 | 80 | 154 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 415 | 101 | 0 | 0 | 106 | 0 |
| Stage 1 | 101 | - | - | - | - | - |
| Stage 2 | 314 | - | - | - | - | - |
| 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 | 594 | 954 | - | - | 1485 | - |
| Stage 1 | 923 | - | - | - | - | - |
| Stage 2 | 741 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 562 | 954 | - | - | 1485 | - |
| Mov Cap-2 Maneuver | 562 | - | - | - | - | - |
| Stage 1 | 923 | - | - | - | - | - |
| Stage 2 | 701 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 9.4 |  | 0 |  | 2.6 |  |
| HCM LOS | A |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 880 | 1485 | - |
| HCM Lane V/C Ratio |  | - | - | 0.063 | 0.054 | - |
| HCM Control Delay (s) |  | - | - | 9.4 | 7.6 | - |
| HCM Lane LOS |  | - | - | A | A | - |
| HCM 95th \%tile Q(veh) |  | - | - | 0.2 | 0.2 | - |

1: Chamblee Road/E. Horton Street \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/Veh (s) | 3.3 | 0.6 | 0.4 | 0.6 | 0.0 | 0.0 | 0.5 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 |
| Total Del/Veh (s) | 8.1 | 2.0 | 1.2 | 0.5 | 2.4 | 0.2 | 1.0 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 9.4 | 5.3 | 1.3 | 0.7 | 3.4 | 0.5 | 3.0 |

## 4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 3.8 | 2.5 | 0.4 | 0.0 | 7.3 | 0.4 | 0.5 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 1.6 | 0.1 | 0.0 | 0.0 | 3.5 | 2.5 | 1.6 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Total Del/Veh (s) | 0.9 | 1.0 | 0.5 | 0.0 | 3.5 | 2.3 | 1.7 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.4 | 0.3 | 0.0 | 0.0 | 0.2 |
| Total Del/Veh (s) | 10.3 | 0.0 | 1.9 | 2.1 | 2.1 | 6.2 | 5.2 | 4.0 |

8: NC 39 \& Old US 264 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | SBR

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | ---: |
| Denied $\operatorname{Del} /$ Veh (s) | 1.1 |
| Total $\operatorname{Del} /$ Veh $(\mathrm{s})$ | 28.2 |

9: Chamblee Road \& Site Drive \#1 Performance by movement

| Movement | WBR | NBT | NBR | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 2.2 | 0.4 | 0.0 | 0.0 | 0.4 |

10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| SBR |  |  |  |  |  |  |  |  |  |  |  |
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 3.9 | 4.2 | 2.5 | 3.8 | 4.6 | 2.9 | 0.3 | 0.3 | 0.0 | 0.2 | 0.2 |

## 10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | All |
| :--- | :---: |
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s) | 1.5 |

11: Chamblee Road \& Site Drive \#3 Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 3.3 | 2.2 | 0.2 | 0.2 | 0.6 | 0.3 | 0.6 |

12: Perry Curtis Road \& Site Drive \#4 Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 5.9 | 3.4 | 0.5 | 0.0 | 0.8 | 0.9 | 1.5 |

Total Network Performance

|  |  |
| :--- | ---: |
| Denied Del/Veh (s) | 0.8 |
| Total Del/Veh (s) | 24.0 |

Intersection: 1: Chamblee Road/E. Horton Street \& Temple-Johnston Road

| Movement | EB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 25 |
| Average Queue (ft) | 7 |
| 95th Queue (ft) | 24 |
| Link Distance (ft) | 1058 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 30 | 27 |
| Average Queue (ft) | 16 | 4 |
| 95th Queue (ft) | 34 | 19 |
| Link Distance (ft) | 1187 | 1196 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | L |
| Maximum Queue (ft) | 103 | 52 |
| Average Queue (ft) | 21 | 10 |
| 95th Queue (ft) | 59 | 35 |
| Link Distance (ft) | 1072 |  |
| Upstream BIk Time (\%) |  |  |
| Queuing Penalty (veh) |  | 100 |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 30 | 23 |
| Average Queue (ft) | 10 | 1 |
| 95th Queue (ft) | 34 | 8 |
| Link Distance (ft) | 410 | 695 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 31 |
| Average Queue (ft) | 9 |
| 95th Queue (ft) | 31 |
| Link Distance (ft) | 998 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | EB | SB |
| :--- | ---: | ---: |
| Directions Served | LT | LR |
| Maximum Queue (ft) | 28 | 66 |
| Average Queue (ft) | 3 | 31 |
| 95th Queue (ft) | 16 | 49 |
| Link Distance (ft) | 2528 | 1499 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 7: NC 39 \& Wake County Line Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 31 | 91 |
| Average Queue (ft) | 6 | 11 |
| 95th Queue (ft) | 21 | 47 |
| Link Distance (ft) | 2444 | 1184 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | R | L | T | R | L | TR | L | TR |
| Maximum Queue (ft) | 11 | 52 | 42 | 38 | 124 | 166 | 250 | 395 | 136 | 160 |
| Average Queue (ft) | 1 | 8 | 7 | 5 | 33 | 63 | 47 | 206 | 54 | 74 |
| 95th Queue (ft) | 6 | 28 | 27 | 19 | 82 | 139 | 146 | 372 | 111 | 136 |
| Link Distance (ft) |  | 1212 |  |  | 1286 |  |  | 7962 | 1181 |  |
| Upstream Blk Time (\%) |  |  |  |  |  |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |  |  |  |  | 100 |
| Storage Bay Dist (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  |  |  |
| Storage Blk Time (\%) |  | 0 |  | 0 | 5 | 1 |  | 18 | 3 | 3 |
| Queuing Penalty (veh) |  | 0 |  | 0 | 9 | 1 |  | 10 | 8 | 3 |

Intersection: 9: Chamblee Road \& Site Drive \#1

| Movement | WB |
| :--- | ---: |
| Directions Served | R |
| Maximum Queue (ft) | 18 |
| Average Queue (ft) | 4 |
| 95th Queue (ft) | 16 |
| Link Distance (ft) | 1010 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

Intersection: 10: Chamblee Road \& Site Drive \#2

| Movement | EB | WB | NB |
| :--- | ---: | ---: | ---: |
| Directions Served | LTR | LTR | L |
| Maximum Queue (ft) | 20 | 35 | 8 |
| Average Queue (ft) | 13 | 10 | 0 |
| 95th Queue (ft) | 28 | 24 | 3 |
| Link Distance (ft) | 1066 | 1072 |  |
| Upstream Blk Time (\%) |  |  |  |
| Queuing Penalty (veh) |  |  | 100 |
| Storage Bay Dist (ft) |  |  |  |
| Storage Blk Time (\%) |  |  |  |
| Queuing Penalty (veh) |  |  |  |

Intersection: 11: Chamblee Road \& Site Drive \#3

| Movement | EB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 16 |
| Average Queue (ft) | 8 |
| 95th Queue (ft) | 20 |
| Link Distance (ft) | 972 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

Intersection: 12: Perry Curtis Road \& Site Drive \#4

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | L |
| Maximum Queue (ft) | 53 | 26 |
| Average Queue (ft) | 31 | 3 |
| 95th Queue (ft) | 49 | 18 |
| Link Distance (ft) | 1021 |  |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Bk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Network Summary |  |  |
| Network wide Queuing Penalty: 32 |  |  |

1: Chamblee Road/E. Horton Street \& Temple-Johnston Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/ \operatorname{Veh}(\mathrm{s})$ | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Total Del/ $\operatorname{Veh}(\mathrm{s})$ | 3.6 | 0.0 | 1.3 | 0.6 | 0.3 | 0.4 | 0.6 | 0.6 |

2: NC 96 \& Temple-Johnston Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 | 0.3 |
| Total Del/Veh (s) | 8.5 | 2.0 | 0.9 | 0.5 | 2.3 | 1.6 | 1.5 |

3: NC 96 \& Perry Curtis Road Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 13.4 | 4.1 | 1.3 | 0.3 | 4.5 | 2.1 | 3.0 |

## 4: Perry Curtis Road \& Perry Ridge Court Performance by movement

| Movement | WBL | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 4.4 | 2.7 | 0.6 | 0.0 | 0.1 | 0.3 | 0.5 |

5: Perry Ridge Court \& Ridge Valley Way Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del $/$ Veh (s) | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Del/Veh (s) | 1.9 | 0.1 | 0.0 | 0.0 | 3.9 | 2.6 | 1.3 |

6: Perry Curtis Road/Wake County Line Road \& Chamblee Road Performance by movement

| Movement | EBL | EBT | WBT | WBR | SBL | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 1.9 | 1.7 | 1.4 | 0.4 | 4.4 | 0.3 | 2.0 | 1.8 |

7: NC 39 \& Wake County Line Road Performance by movement

| Movement | EBL | EBT | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 0.1 |
| Total Del/Veh (s) | 24.0 | 0.2 | 13.6 | 9.1 | 4.0 | 11.3 | 11.1 | 10.0 |

8: NC 39 \& Old US 264 Performance by movement

|  |  | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Movement | 3.6 | 0.5 | 3.6 | 3.9 | 0.4 | 3.8 | 0.1 | 0.1 | 0.0 | 3.2 | 1.0 |
| Denied Del/Veh (s) | 52.2 | 30.9 | 34.8 | 45.2 | 34.4 | 36.9 | 53.5 | 30.1 | 24.9 | 49.0 | 30.7 |
| Total Del/Veh (s) |  | 23.0 |  |  |  |  |  |  |  |  |  |

8: NC 39 \& Old US 264 Performance by movement

| Movement | All |
| :--- | ---: |
| Denied $\operatorname{Del} /$ Veh (s) | 1.3 |
| Total $\operatorname{Del} /$ Veh $(\mathrm{s})$ | 34.4 |

9: Chamblee Road \& Site Drive \#1 Performance by movement

| Movement | WBR | NBT | NBR | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 1.9 | 0.1 | 0.5 | 0.6 | 0.5 |

10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| SBR |  |  |  |  |  |  |  |  |  |  |  |
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 4.9 | 6.6 | 3.6 | 5.4 | 4.2 | 2.4 | 0.8 | 0.3 | 0.0 | 0.6 | 0.5 |

## 10: Chamblee Road \& Site Drive \#2 Performance by movement

| Movement | All |
| :--- | :---: |
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s) | 1.3 |

11: Chamblee Road \& Site Drive \#3 Performance by movement

| Movement | EBL | EBR | NBL | NBT | SBT | SBR | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 3.8 | 2.6 | 0.6 | 0.3 | 0.7 | 0.5 | 0.6 |

12: Perry Curtis Road \& Site Drive \#4 Performance by movement

| Movement | WBR | NBT | NBR | SBL | SBT | All |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Denied Del/Veh (s) | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s) | 2.7 | 0.6 | 0.0 | 1.4 | 0.7 | 1.0 |

Total Network Performance

|  |  |
| :--- | ---: |
| Denied Del/Veh (s) | 1.0 |
| Total Del/Veh (s) | 29.9 |

Intersection: 1: Chamblee Road/E. Horton Street \& Temple-Johnston Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 28 | 27 |
| Average Queue (ft) | 16 | 4 |
| 95th Queue (ft) | 33 | 18 |
| Link Distance (ft) | 1058 | 1661 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 2: NC 96 \& Temple-Johnston Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 30 | 71 |
| Average Queue (ft) | 18 | 10 |
| 95th Queue (ft) | 34 | 41 |
| Link Distance (ft) | 1188 | 1189 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 3: NC 96 \& Perry Curtis Road

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | L |
| Maximum Queue (ft) | 64 | 75 |
| Average Queue (ft) | 7 | 38 |
| 95th Queue (ft) | 35 | 64 |
| Link Distance (ft) | 1068 |  |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  | 100 |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

## Intersection: 4: Perry Curtis Road \& Perry Ridge Court

| Movement | WB |
| :--- | :---: |
| Directions Served | LR |
| Maximum Queue (ft) | 30 |
| Average Queue (ft) | 11 |
| 95th Queue (ft) | 34 |
| Link Distance (ft) | 410 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 5: Perry Ridge Court \& Ridge Valley Way

| Movement | SB |
| :--- | ---: |
| Directions Served | LR |
| Maximum Queue (ft) | 31 |
| Average Queue (ft) | 6 |
| 95th Queue (ft) | 27 |
| Link Distance (ft) | 998 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

## Intersection: 6: Perry Curtis Road/Wake County Line Road \& Chamblee Road

| Movement | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| Directions Served | LT | TR | LR |
| Maximum Queue (ft) | 48 | 18 | 51 |
| Average Queue (ft) | 7 | 1 | 27 |
| 95th Queue (ft) | 27 | 6 | 41 |
| Link Distance (ft) | 2535 | 1202 | 1500 |
| Upstream BIk Time (\%) |  |  |  |
| Queuing Penalty (veh) |  |  |  |
| Storage Bay Dist (ft) |  |  |  |
| Storage Blk Time (\%) |  |  |  |
| Queuing Penalty (veh) |  |  |  |

Intersection: 7: NC 39 \& Wake County Line Road

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | LT |
| Maximum Queue (ft) | 124 | 178 |
| Average Queue (ft) | 26 | 44 |
| 95th Queue (ft) | 81 | 117 |
| Link Distance (ft) | 2449 | 1186 |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 8: NC 39 \& Old US 264

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Directions Served | L | T | R | L | T | R | L | TR | L | TR |
| Maximum Queue (ft) | 61 | 134 | 83 | 55 | 74 | 106 | 250 | 382 | 200 | 523 |
| Average Queue (ft) | 25 | 41 | 33 | 11 | 22 | 30 | 68 | 176 | 125 | 281 |
| 95th Queue (ft) | 56 | 96 | 75 | 34 | 63 | 77 | 178 | 306 | 223 | 475 |
| Link Distance (ft) |  | 1212 |  |  | 1286 |  |  | 7962 |  | 1181 |
| Upstream Blk Time (\%) |  |  |  |  |  |  |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |  |  |  |  |  |  |
| Storage Bay Dist (ft) | 50 |  | 125 | 50 |  | 125 | 150 |  | 100 |  |
| Storage Blk Time (\%) | 4 | 8 |  | 0 | 6 | 0 |  | 11 | 13 | 26 |
| Queuing Penalty (veh) | 9 | 10 |  | 1 | 9 | 0 |  | 7 | 86 | 49 |

Intersection: 9: Chamblee Road \& Site Drive \#1

| Movement | WB |
| :--- | ---: |
| Directions Served | R |
| Maximum Queue (ft) | 19 |
| Average Queue (ft) | 2 |
| 95th Queue (ft) | 11 |
| Link Distance (ft) | 1010 |
| Upstream Blk Time (\%) |  |
| Queuing Penalty (veh) |  |
| Storage Bay Dist (ft) |  |
| Storage Blk Time (\%) |  |
| Queuing Penalty (veh) |  |

Intersection: 10: Chamblee Road \& Site Drive \#2

| Movement | EB | WB | NB | SB |
| :--- | ---: | ---: | ---: | ---: |
| Directions Served | LTR | LTR | L | L |
| Maximum Queue (ft) | 43 | 38 | 17 | 16 |
| Average Queue (ft) | 14 | 10 | 2 | 1 |
| 95th Queue (ft) | 34 | 27 | 9 | 8 |
| Link Distance (ft) | 1066 | 1062 |  |  |
| Upstream Blk Time (\%) |  |  |  |  |
| Queuing Penalty (veh) |  |  | 100 | 100 |
| Storage Bay Dist (ft) |  |  |  |  |
| Storage Blk Time (\%) |  |  |  |  |
| Queuing Penalty (veh) |  |  |  |  |

Intersection: 11: Chamblee Road \& Site Drive \#3

| Movement | EB | NB |
| :--- | ---: | ---: |
| Directions Served | LR | L |
| Maximum Queue (ft) | 16 | 23 |
| Average Queue (ft) | 6 | 1 |
| 95th Queue (ft) | 19 | 8 |
| Link Distance (ft) | 962 |  |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  | 100 |
| Storage Bay Dist (ft) |  |  |
| Storage Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |

Intersection: 12: Perry Curtis Road \& Site Drive \#4

| Movement | WB | SB |
| :--- | ---: | ---: |
| Directions Served | LR | L |
| Maximum Queue (ft) | 30 | 50 |
| Average Queue (ft) | 25 | 7 |
| 95th Queue (ft) | 44 | 29 |
| Link Distance (ft) | 1022 |  |
| Upstream Blk Time (\%) |  |  |
| Queuing Penalty (veh) |  | 100 |
| Storage Bay Dist (ft) |  |  |
| Storage Bk Time (\%) |  |  |
| Queuing Penalty (veh) |  |  |
| Network Summary |  |  |
| Network wide Queuing Penalty: 171 |  |  |



| Peak Hour | Lane | Turn Lane | Turning <br> Volume | Approach / <br> Opposing <br> Volume | Symbol | Length <br> Warranted |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Weekday AM | SBL | Left | 22 | 125 | $\bigcirc$ | N/A |
| Weekday PM | SBL | Left | 72 | 95 | $\bigcirc$ | Yes $-50^{\prime}$ |
| Weekday AM | NBR | Right | 3 | 100 | $\bigcirc$ | N/A |
| Weekday PM | NBR | Right | 9 | 100 | $\bigcirc$ | N/A |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |
|  |  |  |  |  | $\bigcirc$ |  |

Zebulon, NC

## Suburban Residential

This designation is for residential areas where suburban character is established and preserved by achieving a balance between buildings and other site improvements relative to the degree of open space maintained within the neighborhood. The openness may be found in relatively large yard areas on individual lots and between homes and/or in common green spaces or water features. This distinguishes suburban character areas from more auto-oriented areas where site coverage in the form of dwellings, driveways and other paved surfaces predominates over open space.

## Primary Land Use Types

- Detached residential dwellings.
- Planned developments that integrate other housing types (e.g., attached residential such as patio homes or townhomes), with increased open space to preserve an overall suburban character.
- Golf course subdivisions.



## Characteristics

- Less noticeable accommodation of the automobile compared to more intensive autooriented areas, especially where driveways are on the side of homes rather than occupying a portion of the front yard and where garages are situated to the side or rear of the dwelling.
- A larger baseline minimum lot size in a Suburban Residential zoning district allows for deeper front yards and building setbacks and greater side separation between homes.
- Character-based zoning and development standards can also discourage overly standardized subdivision designs and promote conservation design by allowing for smaller lot sizes than the baseline in exchange for greater open space set-aside. This approach enables some viable use of sites partially constrained by topography or other factors. It also provides flexibility for additional housing forms that blend with the area's suburban residential character through additional on-site open space and perimeter buffering where differing housing types and densities are adjacent.
- More opportunity for natural and/or swale drainage (and storm water retention/absorption) relative to concentrated storm water conveyance in auto-oriented areas.

Subdivisions around Pippin Road in north Zebulon.

## Where on the Map

Extensive coverage on the map, surrounding much of the core area of Zebulon in most directions, and all the way to the edge of the larger planning area in some locations.

## Key Planning Issues and Considerations

Through the Zebulon Today and Plan Direction phases of the comprehensive planning effort, a set of 10 Plan Priorities was identified based on input from the Town's Board of Commissioners, Planning Board, other community stakeholders, the results of varied public engagement activities, and Town staff and the consultant team. Six of the 10 strategic items are most relevant to the Housing and Neighborhoods portion of the CLUP:

- Connect, connect, connect the Zebulon community - in all ways.
- Fortify a resilient economic (and tax) base.
- Secure new and renewed partnerships.
- Protect and reinforce community character.
- Build community - ONE community.
- Think BIG but share costs wisely.


## Framework for Action

This Framework for Action section builds off of the Plan Priorities highlighted above. The actions below involve tangible steps that will, in the long run, lead to achievement of the goals in this Housing and Neighborhoods section in line with the plan's Guiding Principles.

## Goals for Housing and Neighborhoods

1. A quantity and diversity of housing options that makes living in Zebulon attainable for a wide range of age groups and income levels.
2. Appealing housing and neighborhood choices for families drawn by Zebulon's employment opportunities, small town charm, recreational assets and other amenities.
3. Neighborhoods that are safe and comfortable for all residents.
4. Preserved and enhanced integrity and value of existing neighborhoods, and quality design of newer residential areas to ensure their livability and long-term sustainability.


## Policies for Housing and Neighborhoods

In making decisions that involve public resource allocation, regulatory matters and physical improvements, among others, Zebulon will:
A. Continue to apply development regulations and standards which ensure that new and redeveloped residential properties are compatible with the character of their surrounding area.
B. Maintain a regulatory framework that encourages an array of residential options - through new development, redevelopment, adaptive re-use of structures and maintenance of existing housing stock - to respond to the need for varied housing types, sizes and price points that are attainable for prospective owners and renters at all levels of income.

C. In cooperation with public and private partners, consider the entire spectrum of tools for assisting people in attaining their ownership or rental goals and methods for spurring and guiding the supply side of the market to pursue projects that will address local needs.
D. Evaluate and improve any permitting processes that could hinder desired and compatible housing construction, renovation and preservation within the Town's jurisdiction.
E. Continue to promote developments that mix rather than isolate varied housing types, with common amenities to be enjoyed by all residents.
F. Support development of assisted living and higher-level care facilities and other residential options intended specifically for those hoping to age in place rather than leave Zebulon during life transitions.
G. Encourage mixed-use development proposals that include a residential component, especially where this will support retail viability and transit ridership, place residents near education and local employment options, and provide living options for seniors and others close to transit, parks and shopping, medical and other services.

Attached housing option in the Wakelon Townhomes development along Pearces Road.

Importance of the interface between natural areas and suburban development as in the Shepards Park development along Old Bunn Road.
H. Promote quality design of residential developments near greenways, parks, trails and preserved open spaces that capitalizes on this proximity.
I. Support the ongoing appeal of Zebulon's neighborhoods through effective code compliance and by using public investments in streets, sidewalks, infrastructure, parks and trails, and pedestrian/bicycle safety measures,
 along with routine maintenance practices for all of the above.

Expressways
These roadways represent a multi-lane divided facility with a high level of access control (interchanges, limited at-grade intersections, right-in/right-out access, and no traffic signals). Design Classification: Arterial.

## Boulevards

These roadways represent a typically divided facility with moderate access control (at-grade intersections, right-in/right-out access, and traffic signals at major intersections). Design classification: Arterial or Collector.

Thoroughfares (Major and Minor)
These roadways are a minimum of 2 lanes and have no medians. This includes all facilities with a two-way left-turn lane. These facilities typically have low access control (at-grade intersections, access to development, and traffic signals at major and some minor intersections). Design Classification: Collector or Local.

Refer to Map 6 for the Federal Functional Classification of roadways within the study. Map 7 depicts the NCDOT CTP facility classifications.


Map 6: Federal Functional Classifications


Map 7: NCDOT CTP Facility Classifications
The Zebulon UDO defines the Street Classifications for Interstate, Principal Arterial, Minor Arterial, Major Collector, Minor Collector, Local, Cul-de-Sac, and Alley in Section 6.10.2.

## Existing Conditions

## Capacity Analysis

Roadway segments were analyzed using the methodology outlined in the 2010 Highway Capacity Manual (HCM) published by the Transportation Research Board.

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 daily traffic (ADT) volume. Although roadway capacity is typically associated with an hourly traffic


[^0]:    Stacie Paratore, CMC—Deputy Town Clerk

[^1]:    1. Level of service for major-street left-turn movement.
    2. Level of service for minor-street approach.
[^2]:    Background Improvements by Sidney Creek are shown underlined.

    1. Level of service for major-street left-turn movement.
    2. Level of service for minor-street approach.
[^3]:    Background Improvements by Sidney Creek are shown underlined.
    1.Level of service for major-street left-turn movement.
    2.Level of service for minor-street approach.

