



Memorandum

TO: Planning Board
FROM: Mike Elabarger, Senior Planner
DATE: February 24, 2022
RE: Agenda Item 5. - February 28, 2022 Planning Board Meeting
SUP 21-01 - Wait Avenue Subdivision (aka Pulte fka Thales Academy)

Application Request

on an Amendment to the previously Approved SUP 18-01, includes a Planned Unit Development (PUD) Master Plan, Conditions of Approval, and associated exhibits. The development proposes 102 single-family detached lots/dwelling units, 191 townhome lots/dwelling units, and 15.38 acres for non-residential development, on a total area of 93.73 acres. The site is located at the southwest corner of Wait Avenue (NC Highway 98) and Averette Road on the northern extent of the Town's jurisdiction, and is contiguous to the Austin Creek Subdivision to the west, and the Elizabeth Springs subdivision to the south.

NOTE: The process of the Planning Board reviewing applications that will be presented to the Town Board of Commissioners via an Evidentiary Quasi-Judicial hearing is required per UDO Section 6.2.7.(c)(7). This process does not continue under the Land Development Ordinance (LDO).

Background

Summary Information

Acreage: 93.73
Current Zoning: Residential and Planned Unit Development (R&PUD) zoning district per the Unified Development Ordinance (UDO).
Property Owner: Thales Academy – PIN's 1850950449, 1860045778
Developer: Pulte Home Company, LLC / Chris Raughley / Bob Anderson
Project Contacts: Riyad Baroudi/Jeff Oden/Craig Duerr – Stewart

Existing Conditions

The subject properties are currently undeveloped and partially wooded, within Rolesville's Town's corporate limits, and are zoned the Residential and Planned Unit Development (R&PUD) zoning district under the Unified Development Ordinance (UDO). The land to the south is the Elizabeth Springs subdivision, also zoned R&PUD. The land to the west is in the Wake Forest Town limits and is the (developed) Austin Creek residential subdivision. The site is then bound by Wait Avenue (NC Highway 98) to the north, and Averette Road to the east.

Residential Planned Unit Development Requirements (Unified Development Ordinance (UDO) Article 6.2)

The UDO specifies, “The R&PUD is intended to be primarily a pedestrian-oriented residential community that also contains a limited mix of retail, office and professional, civic and government uses. Residential offerings are to be varied and include both detached and attached dwellings.”

The associated PUD Master Plan requires a Special Use Permit (SUP) application be considered by the Town Board of Commissioners under a quasi-judicial public hearing setting. The Applicant shall make presentations demonstrating compliance with the Findings of Fact at the hearing before the Town Board.

Summary of SUP 21-01

The proposed PUD Master Plan proposes 102 single-family detached dwelling units, 191 townhome dwelling units, and 3 distinct tracts (2.46 acres, 4.98 acres, and 7.94 acres) for future non-residential (“commercial”) development and use. The proposed residential density is under 4 units/acre. The 3 non-residential use tracts occupy the three exterior corners of the subdivision adjacent major road corridors, which are preferable locations for non-residential development (as opposed to single family detached or attached housing).

The proposed conditions commit to the maximum dwelling units, maximum non-residential square footage, front-loading of residential development, traffic impact improvements, open space compliance, residential foundation types and architectural feature. Several deviations from the UDO are also requested (see further in this report).

2002 Thoroughfare Plan and Traffic Impact Analysis (TIA)

In the vicinity of this project, the Thoroughfare Plan identifies Wait Avenue as a Minor Arterial with an expected ultimate right of way of 110’, built to 4 lanes Divided with a raised median, curb and gutter, bike lanes, and sidewalk. Averette Road is a Minor Arterial, with variable right of way, built with 4 lanes divided, a raised (narrow) median, curb and gutter, bikes lanes, and sidewalks.

The applicant has submitted a Traffic Impact Study (TIA) as required by the Town’s Unified Development Ordinance. The TIA report was prepared by Stantec; Attachments 9 and 10 are a summary and full report. The summary details projected Peak Hour traffic to be generated, and the graphics detail physical improvements associated with Wait Avenue and Averette Road in the vicinity of the project. The Executive Summary of the Final Report goes into further detail of the specific improvements.

Proposed Condition #3 commits to construction, or payment of fee-in-lieu of, the recommended road improvements from the TIA documents.

Request for deviations of the Residential and Planning Unit Development District (R&PUD) Requirements

UDO Section 6.2, for the R& PUD District:

“The requirements set forth in this section (6.2) are established by the Town Board of Commissioners as standards that presumptively will result in the provision of a village environment contemplated by this section and by the Comprehensive Land Use Plan. The Board recognizes, however, that due to the nature of a tract of land, or the nature of the facilities

proposed for installation, or other factors, the underlying objectives of this section (6.2) may be achieved even though the standards are not adhered to with mathematical precision. Therefore, deviations from these standards may be permitted whenever it is determined that the underlying standards can be met without strict adherence to them and because peculiarities in the developer's tract of land or the facilities proposed would make it unreasonable to require strict adherence to these standards.

Whenever some deviation from the standards set forth in this article pursuant to the paragraph immediately above is authorized, the official record of the action taken on the development application shall contain a statement of the reasons for allowing the deviation."

Proposed Condition #6 requests four (4) deviations:

1. Front facades, covered porches, and balconies of single family detached and townhouses may encroach up to five (5) feet into the front setback.
2. Front facing, single door, garages shall be permitted regardless of lot width. Garages may protrude up to five (5) feet beyond the front building line of residences.
3. Parking shall be permitted in driveways in the front of residences.
4. Townhouses shall have a minimum building separation of 20 feet.

Planning Staff Recommendation

The Technical Review Committee has reviewed the application through four (4) submittals, and all the Staff Comments were resolved. The four (4) deviations from the UDO shall be determined to be consistent with the UDO as part of the Quasi-Judicial hearing process by the Town Board.

Staff recommends the Planning Board recommends the Town Board hold an Evidentiary (Quasi-Judicial) hearing per UDO Section 2.1.2.b. and review, hear, consider and approve, approve with conditions, or disapprove as appropriate SUP 21-01.

Town Board of Commissioners

This application is tentatively scheduled for the April 5th, 2022 Town Board meeting, where an Evidentiary (Quasi-Judicial) hearing will be held.

Suggested Planning Board motion

I move to Recommend Approval of SUP 21-01, Wait Avenue Subdivision (aka Pulte fka Thales Academy) to the Town Board of Commissioners.

Attachments

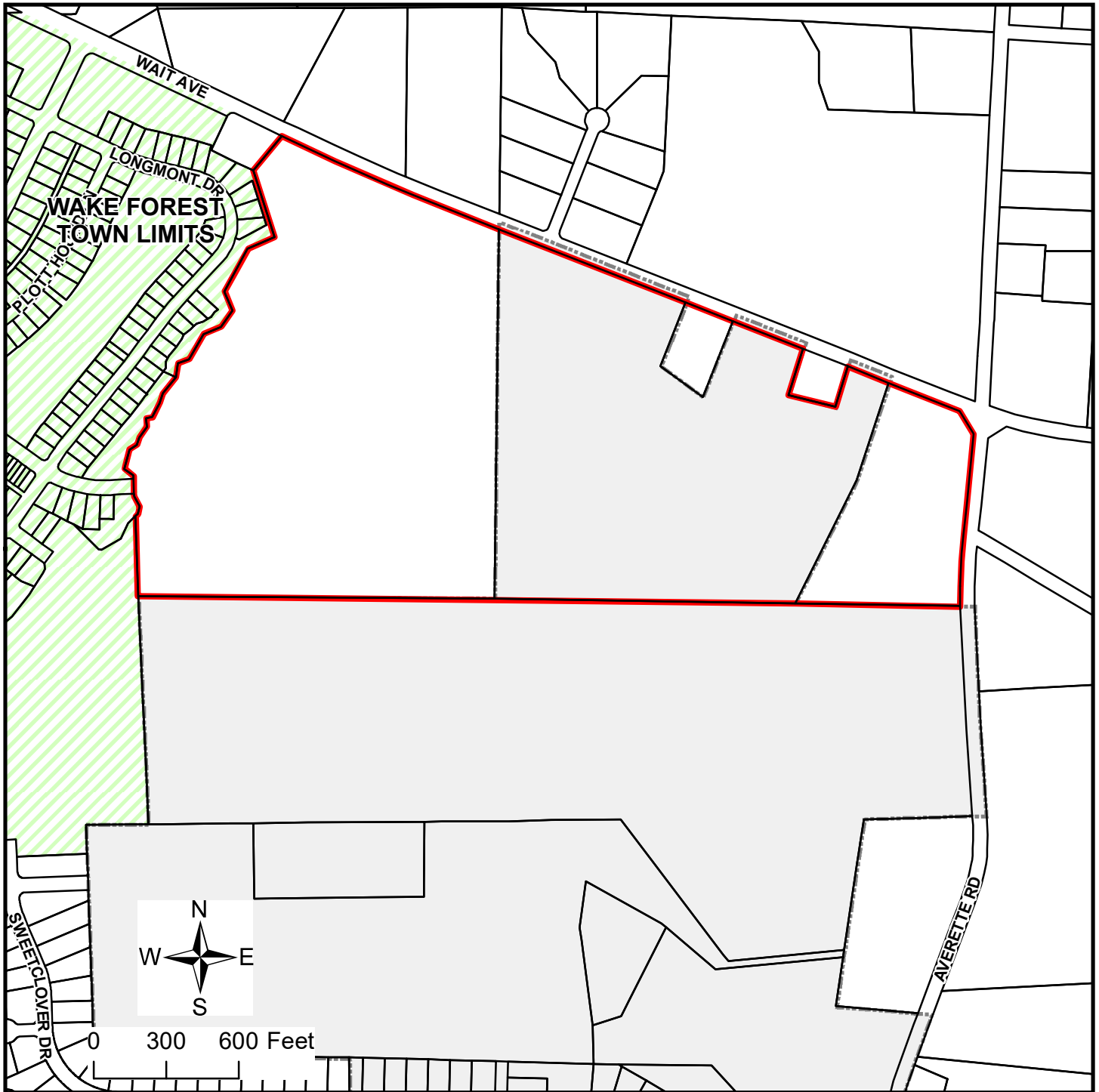
#	Type	Date
1	Location Map	----
2	Special Use Permit Application	12/20/2020
3	PUD Master Plan Amendment	02/23/2022
4	Conditions of Approval	02/23/2022
5	Utility Plan	02/23/2022
6	Slope Analysis	02/23/2022
7	Phasing Plan	02/23/2022
8	Neighborhood Meeting Summary (meeting held 5/12/2021)	
9	Traffic Impact Analysis (TIA) Summary document	06/21/2021
10	Traffic Impact Analysis (TIA) Final Report	05/24/2021

Town of Rolesville

PO Box 250 / Rolesville, North Carolina 27571 / RolesvilleNC.gov / 919.556.3506



Attachment 1 - Location Map

SUP 21-01 Wait Ave Subdivision (aka Pulte fka Thales Academy)



Planning Department

Legend

-  Parcels
-  SUP 21-01 Site



Case No. _____

Date _____

Special Use Permit Application

Contact Information

Property Owner Thales Academy

Address 4641 Paragon Park Rd. City/State/Zip Raleigh, NC 27616

Phone 919-427-1646 Email _____

Developer Pulte Home Company, LLC

Contact Name Chris Raughley

Address 1225 Crescent Green Dr., Suite 250 City/State/Zip Cary, NC 27518

Phone (919) 816-1100 Email Chris.Raughley@PulteGroup.com

Property Information

Address 2028 and 2206 Wait Ave., Rolesville, NC 27571

Wake County PIN(s) 1850950449, 1860045778

Current Zoning District R&PUD Requested Zoning District R&PUD

Total Acreage 92.32 Requested Special Use n/a

Owner Signature

I hereby certify that the information contained herein is true and completed. I understand that if any item is found to be otherwise after evidentiary hearing before the Town Board of Commissioners, that the action of the Board may be invalidated.

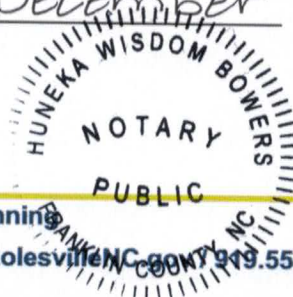
Signature [Handwritten Signature] Date 12-22-2020

STATE OF NORTH CAROLINA
COUNTY OF Franklin

I, a Notary Public, do hereby certify that Brandon Andrew Hafner
personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This
the 21st day of December 20 20

My commission expires Sept. 4, 2022.

Signature [Handwritten Signature] Seal



Town of Rolesville Planning

PO Box 250 / Rolesville, North Carolina 27571 / Rolesville, NC 919.554.6517



Special Use Permit Application

Applicant Statement

Provide justification for each statement. If necessary, attach a separate sheet.

1. The proposed development and/or use will not materially endanger public health or safety.

2. The proposed development and/or use will not substantially injure the value of adjoining property.

3. The proposed development and/or use will be in harmony with the scale, bulk, coverage, density, and character of the surrounding area.

4. The proposed development and/or use will generally conform to Rolesville’s Comprehensive Plan and other adopted plans.

5. The proposed development and /or use is appropriately located with respect to transportation facilities, water and sewer supply, fire and police protection, and similar facilities.

6. The proposed development will not cause undue traffic congestion or create a traffic hazard.

7. The proposed development and/or use comply with all applicable requirements of the Unified Development Ordinance.

SPECIAL USE PERMIT
APPLICATION STATEMENT
FORMER THALES SITE
ROLESVILLE, NORTH CAROLINA

1. The proposed development and/or use will not materially endanger public health or safety.

The proposed development will not materially endanger public health or safety. It introduces well-designed development and outdoor space that will be constructed in the interest of public health and safety by providing safe pedestrian facilities that allow access to commercial services. This encourages an active, yet safe lifestyle. Road improvements in conformity with traffic impact analysis recommendations will also be made to ensure public safety.

2. The proposed development and/or use will not substantially injure the value of adjoining property.

The proposed development will not substantially injure the value of adjoining property, but rather will help raise nearby property values. The addition of high-quality homes, recreation space, and access to commercial space will be assets to adjoining properties and to the larger northern Rolesville area.

3. The proposed development and/or use will be in harmony with the scale, bulk, coverage, density, and character of the surrounding area.

The proposed development will with be harmony with the scale, bulk, coverage, density, and character of the surrounding area. Existing and approved developments surround this one, including Elizabeth Springs and Austin Creek, feature similar residential developments. The proposed development will be in context with these adjacent sites by orienting commercial uses to minimize impact on the surrounding residential uses. It will also be in keeping with the context and character of northern Rolesville overall.

4. The proposed development and/or use will generally conform to Rolesville's Comprehensive Plan and other adopted plans.

The proposed development will conform to Rolesville's Comprehensive Plan and other adopted plans. It will provide high-quality housing options, retail development, and create a community space with recreation amenities, which were all aims of the Comprehensive Plan. It also conforms with the adopted Future Land Use Map, which identifies the site as Medium Density Residential, which allows for a mix of housing types with limited non-residential use, as is proposed.

5. The proposed development and/or use is appropriately located with respect to transportation facilities, water and sewer supply, fire and police protection, and similar facilities.

The proposed development is appropriately located with respect to transportation facilities, water and sewer supply, and fire and police protection. It is located on several existing and planned thoroughfares that allow for access into and out of the development by residents, visitors, and emergency services. These thoroughfares will benefit from any identified upgrades from the Traffic Impact Analysis as well. The development will utilize water and sewer service from that South that is already being extended for other developments.

6. The proposed development and/or use will not cause undue traffic congestion or create a traffic hazard.

The proposed development will be the subject of a Traffic Impact Analysis. The project will include making necessary transportation improvements to mitigate any potential impacts identified in the forthcoming analysis.

7. The proposed development and/or use will comply with all applicable requirements of the Unified Development Ordinance.

The proposed development will comply with all applicable requirements of the Unified Development Ordinance. The applicant will work with Town Staff throughout the site plan and approval process to ensure that all UDO requirements are met.

SPECIAL USE PERMIT
CONDITIONS OF APPROVAL
FORMER THALES SITE
ROLESVILLE, NORTH CAROLINA

These conditions stated below shall be in addition to the previous conditions stated in approved order for SUP 18-01.

1. All single-family detached homes, shall either be "crawl space" or "stem wall" type foundations. Those houses with "stem wall" type foundations shall be made accessible in compliance with the Americans with Disabilities Act (ADA) at the discretion of the homebuilder and/or homebuyer.
2. The following nonresidential uses shall be prohibited:
 - a. Adult entertainment
 - b. Jail/detention facility
 - c. Animal service
 - d. Electronic gaming
 - e. Event Venue
 - f. Bar, nightclub tavern. Lounge, not associated with a restaurant
 - g. Temporary uses
 - h. Major vehicle repair
3. Lighting shall be designed such that light does not spill onto adjacent properties and not exceed ½ foot candles when measured at the property line of adjacent private properties.
4. A minimum of 10% open space is required with minimum 35% of the required open for recreation. Open space and active recreation shall otherwise be developed in accordance UDO Article 15.
5. Non-Residential uses shall be exempt from the ground floor square footage maximum described in UDO 6.2.4.1.
6. Frontage build out for Non-Residential uses shall be exempt from the 70% minimum as described in UDO 6.2.4.2.
7. Non-Residential buildings shall be exempt from the requirement to be clustered toward the center or rear of site as described in UDO 8.3.6.

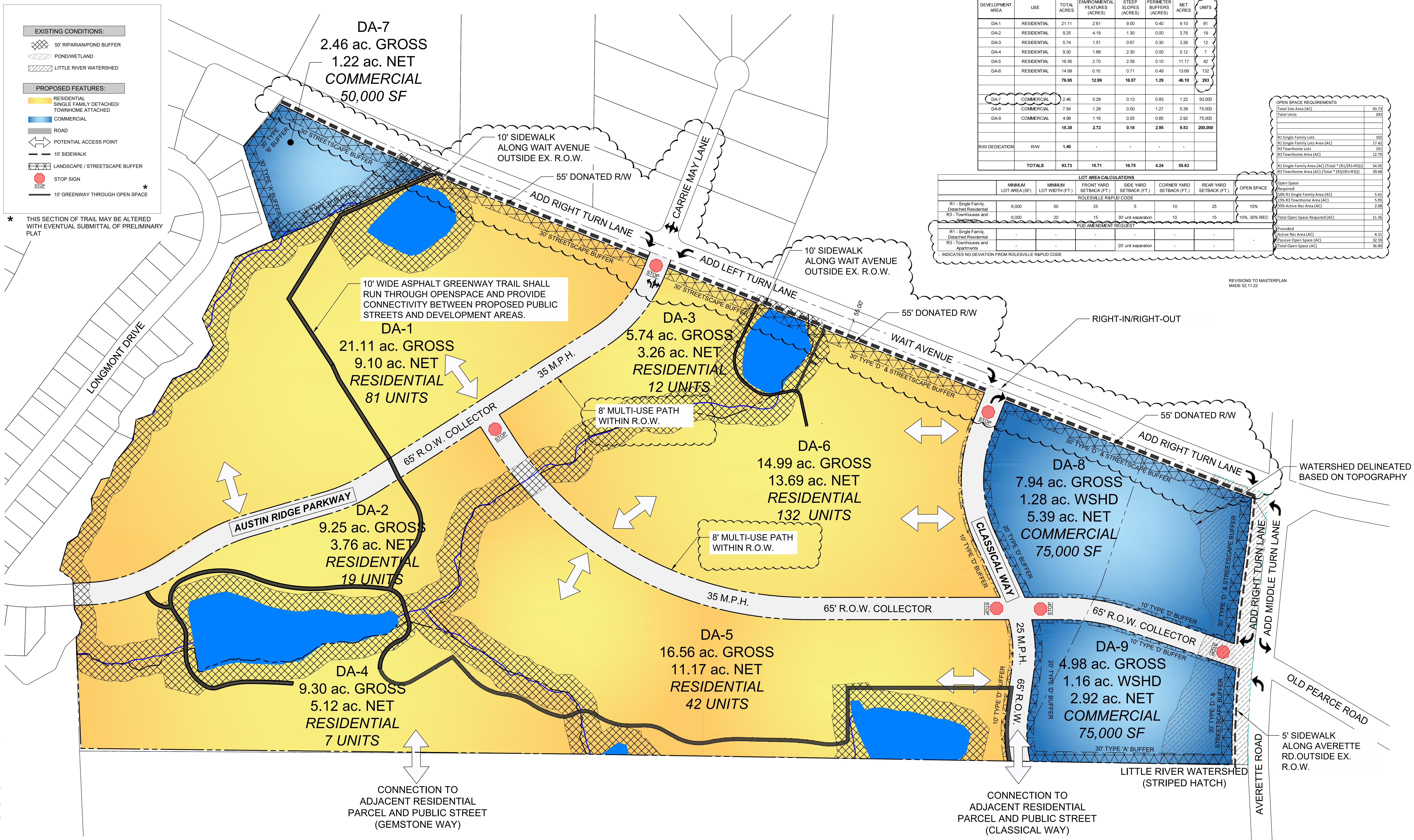
EXISTING CONDITIONS:

- 50' RIPARIAN/POND BUFFER
- POND/WETLAND
- LITTLE RIVER WATERSHED

PROPOSED FEATURES:

- RESIDENTIAL SINGLE FAMILY DETACHED/TOWNHOME ATTACHED
- COMMERCIAL
- ROAD
- POTENTIAL ACCESS POINT
- 10' SIDEWALK
- LANDSCAPE / STREETSCAPE BUFFER
- STOP SIGN
- 10' GREENWAY THROUGH OPEN SPACE

* THIS SECTION OF TRAIL MAY BE ALTERED WITH EVENTUAL SUBMITTAL OF PRELIMINARY PLAT



DEVELOPMENT AREA SUMMARY

DEVELOPMENT AREA	USE	TOTAL ACRES	ENVIRONMENTAL FEATURES (ACRES)	STEEP SLOPES (ACRES)	PERMETER BUFFERS (ACRES)	NET ACRES	UNITS
DA-1	RESIDENTIAL	21.11	2.61	9.00	0.40	9.10	81
DA-2	RESIDENTIAL	9.25	4.19	1.30	0.00	3.76	19
DA-3	RESIDENTIAL	5.74	1.51	0.67	0.30	3.26	12
DA-4	RESIDENTIAL	9.30	1.88	2.30	0.00	5.12	7
DA-5	RESIDENTIAL	16.56	2.70	2.59	0.10	11.17	42
DA-6	RESIDENTIAL	14.99	0.10	0.71	0.49	13.69	132
DA-7	COMMERCIAL	2.46	0.28	0.13	0.83	1.22	50,000 SF
DA-8	COMMERCIAL	7.94	1.28	0.00	1.27	5.39	75,000 SF
DA-9	COMMERCIAL	4.98	1.16	0.05	0.85	2.92	75,000 SF
		16.38	2.72	0.18	2.95	9.53	200,000
TOTALS		93.73	15.71	16.75	4.24	55.63	

LOT AREA CALCULATIONS

	MINIMUM LOT AREA (SF)	MINIMUM LOT WIDTH (FT.)	FRONT YARD SETBACK (FT.)	SIDE YARD SETBACK (FT.)	CORNER YARD SETBACK (FT.)	REAR YARD SETBACK (FT.)	OPEN SPACE
R1 - Single Family Detached Residential	6,000	50	25	5	10	25	10%
R3 - Townhouses and Apartments	6,000	20	15	30' unit separation	10	15	15%, 35% REC

PUD AMENDMENT REQUEST

	MINIMUM LOT AREA (SF)	MINIMUM LOT WIDTH (FT.)	FRONT YARD SETBACK (FT.)	SIDE YARD SETBACK (FT.)	CORNER YARD SETBACK (FT.)	REAR YARD SETBACK (FT.)	OPEN SPACE
R1 - Single Family Detached Residential	-	-	-	-	-	-	-
R3 - Townhouses and Apartments	-	-	-	20' unit separation	-	-	-

INDICATES NO DEVIATION FROM ROLESVILLE RAPUD CODE

OPEN SPACE REQUIREMENTS

	Total Site Area (AC)	Total Units
	93.73	293
R1 Single Family Lots	102	
R1 Single Family Lots Area (AC)	17.42	
R3 Townhome Lots	391	
R3 Townhome Area (AC)	12.79	
R1 Single Family Area (AC) (Total * (R1/(R1+R3)))	54.05	
R3 Townhome Area (AC) (Total * (R3/(R1+R3)))	39.68	

Open Space Required:

	Required
10% R1 Single Family Area (AC)	5.41
15% R3 Townhome Area (AC)	5.95
35% Active Rec Area (AC)	2.08
Total Open Space Required (AC)	13.36

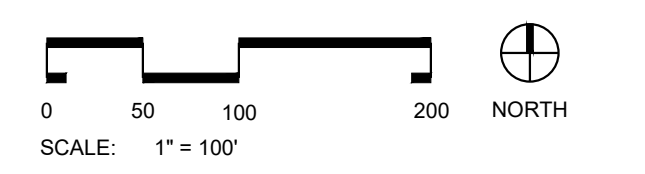
Provided:

	Active Rec Area (AC)	Passive Open Space (AC)	Total Open Space (AC)
	4.31	33.59	37.90

REVISIONS TO MASTERPLAN MADE 02.11.22

FORMER THALES SITE

WAIT AVE. & AVERETTE RD.
P.U.D. MASTERPLAN



FEBRUARY 23, 2022



L:\Projects\2019\C19003 - Wait Road\DWGS\Exhibits\PUD MasterPlan\C19003_PUD_MP.dwg, Feb 23, 2022 - 1:57pm

SPECIAL USE PERMIT
CONDITIONS OF APPROVAL
FORMER THALES SITE
ROLESVILLE, NORTH CAROLINA

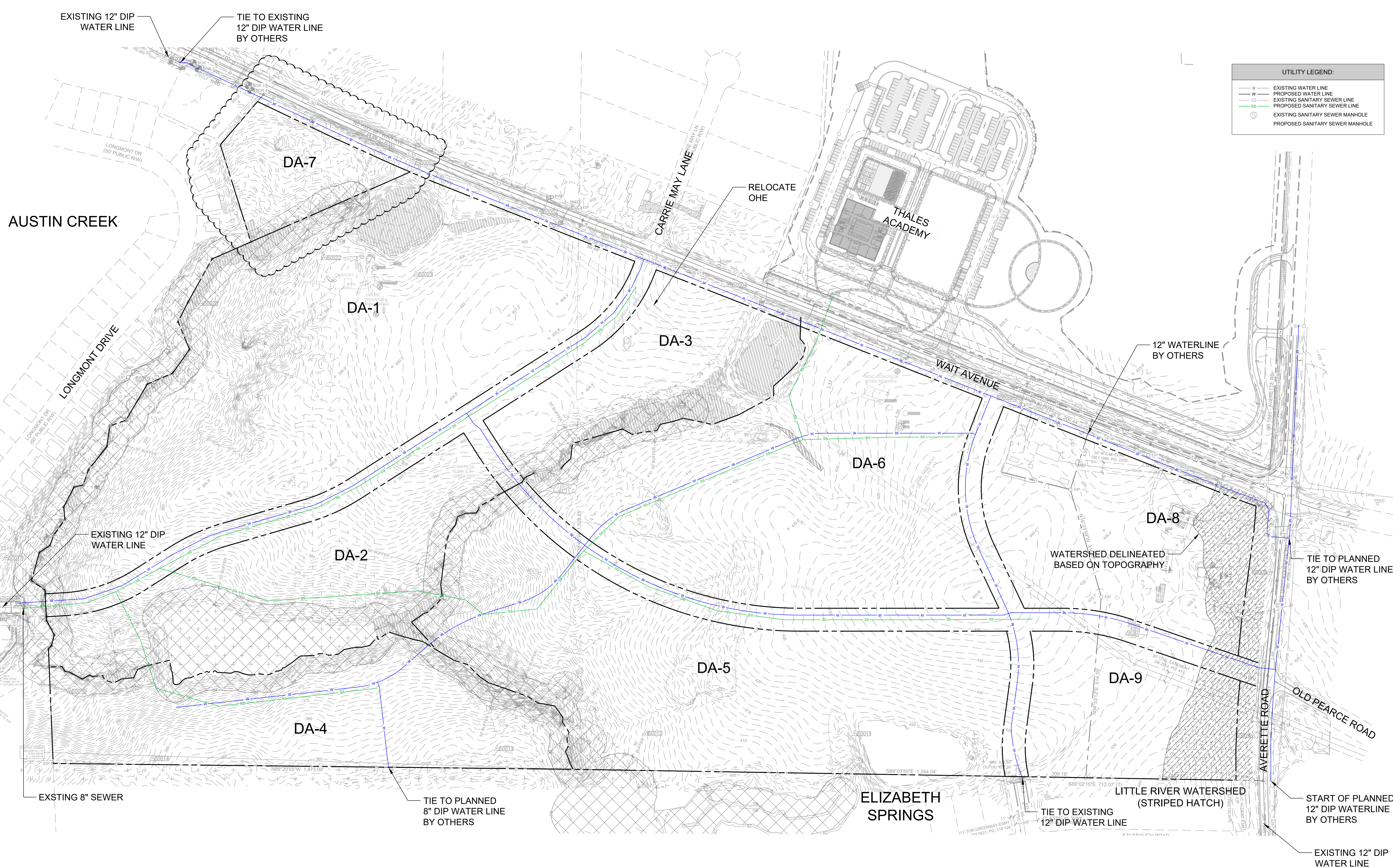
SUP 21-01 (the “SUP”) shall include the following conditions:

1. The proposed development includes a mix of single family detached homes, townhouses, and non-residential uses (the “Project”). Single family attached and townhouse housing types shall be permitted in those areas designated for “Residential Single Family Detached/Townhome Attached” (the “Residential Portion”) on the Planned Unit Development Master Plan (the “Master Plan”) prepared by Stewart dated February, 23, 2022. Residential development shall have a maximum overall density of 4 units per gross acre. All of those uses permitted in UDO Section 6.2.4 shall be permitted in the Commercial Area (the “Non-Residential Portion”) shown on the Master Plan. Non-residential uses shall be limited to a maximum of 200,000 square feet.
2. The Residential Portion shall be developed prior to the Non-Residential Portion. Accordingly, applicant has filed a preliminary plat application (the “Preliminary Plat”) together with this SUP. The Preliminary Plat shall be reviewed and approved with this SUP consistent with UDO Section 6.2.7(c).11. Development of the Non-Residential Portion shall not occur until the Town Board of Commissioners has approved a detailed site plan for the Non-Residential Portion.
3. Development of the property shall include construction of, or payment of a fee-in-lieu for, road improvements recommended by the Traffic Impact Analysis prepared by Stantech dated May 24, 2021 (the “TIA”) and the TIA Review Report from NCDOT Congestion Management dated June 21, 2021.
4. A minimum of 30% of the gross acreage of the Residential Portion shall be open space
5. To improve community aesthetics, the Project shall be subject to the following architectural and design criteria (the “Design Commitments”):
 - (a) Single-family detached homes shall have either “crawl space” or “stem wall” type foundations with a minimum rise of 20 inches from average grade across the front of the house to finished floor level at the front door. To accommodate ADA accessibility, ranch or zero-entry homes may be constructed with slab on grade foundations with 1st floor owner suites.

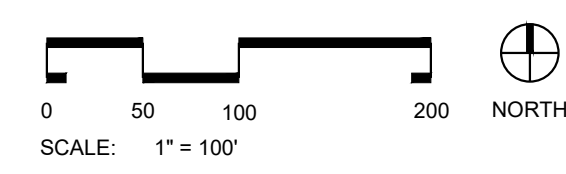
- (b) The front façade of each single-family detached home and townhouse shall include at least two of the following:
 - Covered porch or stoop
 - Two or more building materials
 - Decorative gable, shake, trim, or cornice
 - Balcony, column, or dormer
- (c) The overall residential development shall include a minimum of three (3) color families of siding and varied trim, shutter, and accent colors.
- (d) Single-family detached home and townhouse garage doors shall have windows, decorative details, or carriage-style adornments.

6. As permitted by UDO Section 6.2, and as a result of the nature of the property and the proposed housing types, the Project shall be permitted the following deviations from the standards in UDO Section 6.2 which will result in a more efficient development pattern and a mix of housing types.

- (a) Front facades, covered porches, and balconies of single family detached and townhouses may encroach up to five (5) feet into the front setback.
- (b) Front facing, single door, garages shall be permitted regardless of lot width. Garages may protrude up to five (5) feet beyond the front building line of residences.
- (c) Parking shall be permitted in driveways in the front of residences.
- (d) Townhouses shall have a minimum building separation of 20 feet.



UTILITY LEGEND:	
— W —	EXISTING WATER LINE
— W —	PROPOSED WATER LINE
— SS —	EXISTING SANITARY SEWER LINE
— SS —	PROPOSED SANITARY SEWER LINE
⊕	EXISTING SANITARY SEWER MANHOLE
⊕	PROPOSED SANITARY SEWER MANHOLE



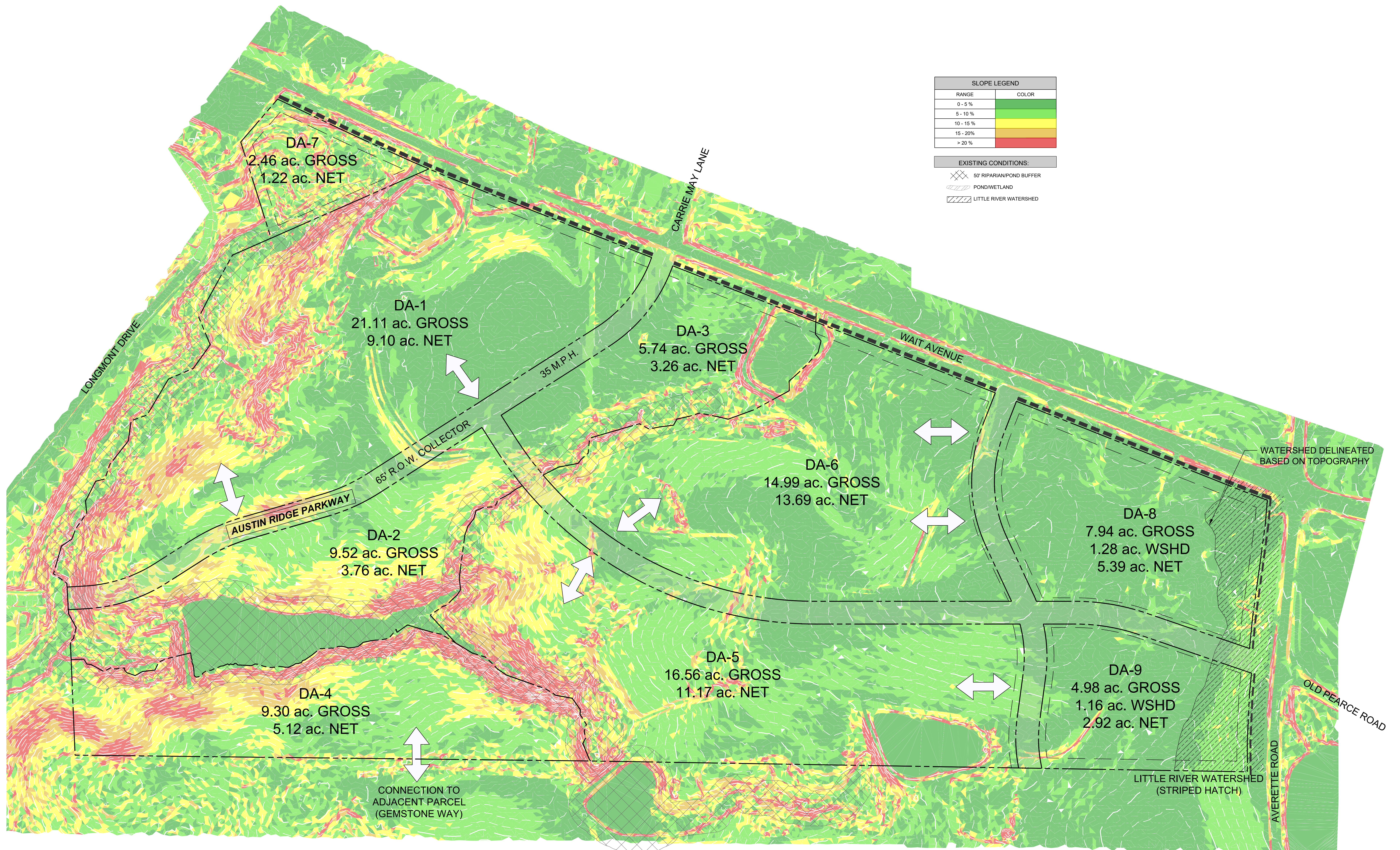
FORMER THALES SITE

WAIT AVE. & AVERETTE RD.
UTILITY PLAN

FEBRUARY 23, 2022

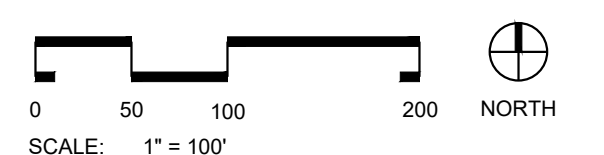


L:\Projects\2019\C19003 - War Road\DWGS\Exhibits\PUID MasterPlan\C19003_PUID_UTIL.dwg Feb 11, 2022 3:54pm



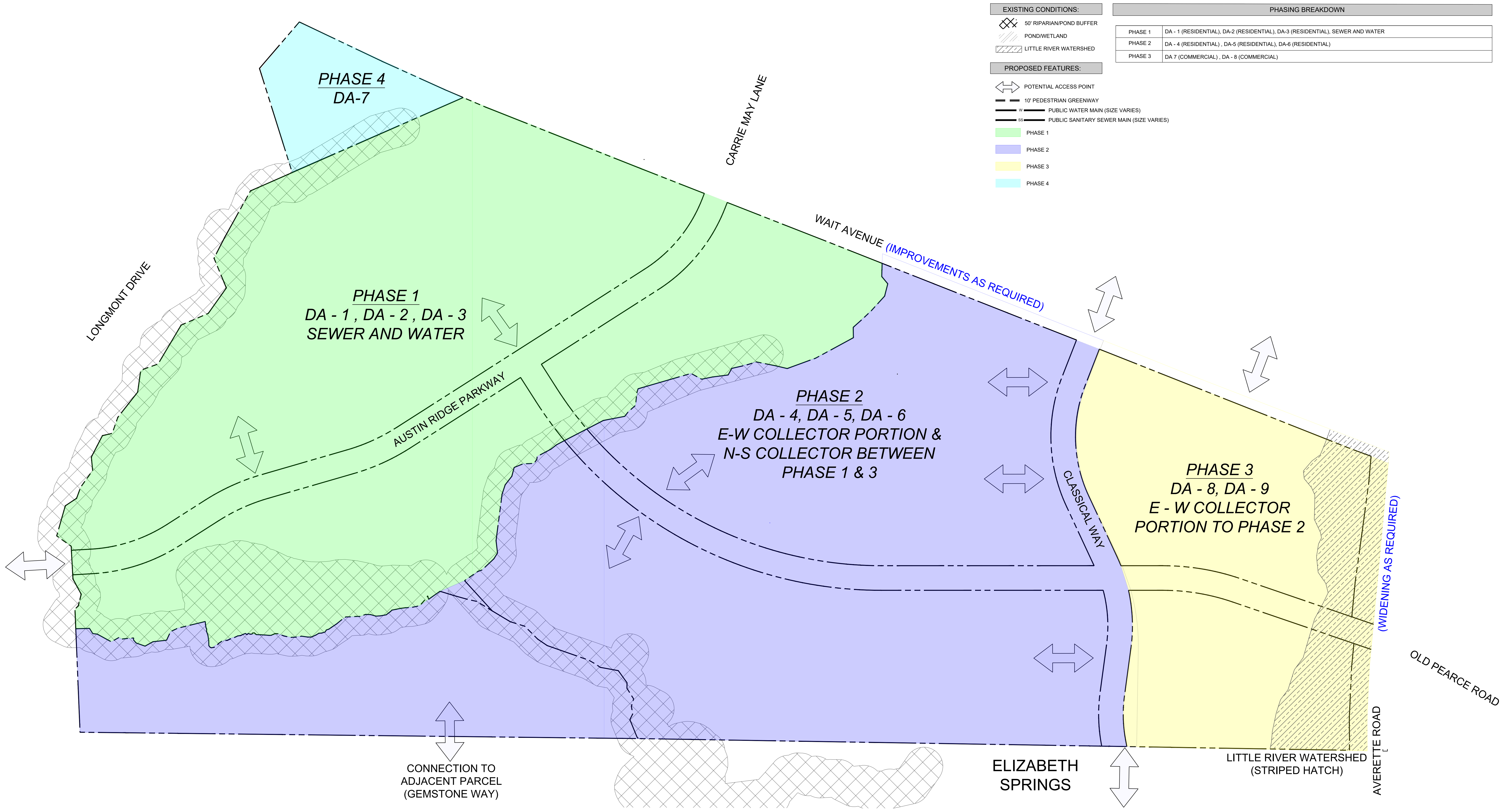
FORMER THALES SITE

WAIT AVE. & AVERETTE RD.
P.U.D. SLOPE ANALYSIS

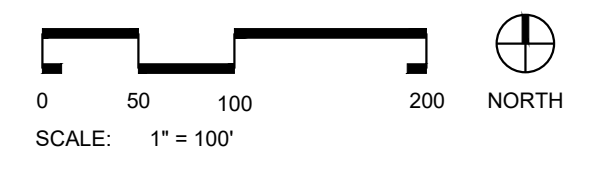


FEBRUARY 23, 2022





NOTE: LOCATION OF GREENWAYS AND UTILITES ARE APPROXIMATE AND POSITIONED FOR CLARITY



FORMER THALES SITE

WAIT AVE. & AVERETTE RD.
P.U.D. PHASING PLAN



NEIGHBORHOOD MEETING SUMMARY

SUBJECT: Former Thales Site
DATE: Wednesday, May 12, 2021
TIME: 6:00pm – 8:30pm
LOCATION: Virtual on Zoom

ATTENDEES:

Stewart Team

Craig Duerr
Caroline Richardson
Allison Evans

Development Team

Bob Anderson
Chris Raleigh

Neighbors

Marian Kirkoff (Carrie May Lane)
Max & Jane Steele (2001 Wait Ave)
Elizabeth Henley (Carrie May Lane)
Ellen
Joe Haggerty (Carrie May Lane)

Craig Duerr opened the meeting with introductions and provided an overview of the project

- Initial submittal 12/23/20 with re-submittal on 4/1/21 for 2nd review
- PUD / SUP Amendment for up to 320 single family attached and detached dwellings on ±80-acres and up to 150,000 SF of future commercial on ±14 acres
- Preliminary Plat for 298 total dwelling units including 107 Lots and 191 THs
- Off-site improvements for waterline and site access along Wait Avenue

Caroline Richardson provided an overview of the rezoning process

- Amendment to previously approved Residential Planned Unit Development (R-PUD) subject to a quasi-judicial review and approval
- Consistent with the Town of Rolesville's Comprehensive Plan that advocates for a variety of types and accessible commercial uses.
- Several zoning conditions related to residential architecture and commercial uses
- Tentative Planning Board Meeting on Monday, June 28th subject to NCDOT review of the TIA
- Tentative Council Meeting on Monday, July 20th

Craig Duerr provided an overview of the Preliminary Plat

- Phase 1 generally the same as previous submittal with added mix of Townhomes
- Phase 2 expanded to include the Former Thales Site with added rear load Townhomes with an additional right-in / right-out driveway connection to Wait Avenue
- Phase 3 excluded for future commercial on Averette Road and future residential to NW by others
- Collector Streets provided with required connectivity to Austin Creek and Elizabeth Springs
- Active Recreation Spaces provided including an Amenity Site and preservation of the existing pond to the southwest with trail connections



After the presentations, the Zoom meeting was opened for neighbor questions:

What about the grey area on Northwest Corner?

- Future residential subject to a Preliminary Plat by others.

What about the wet areas?

- Wetlands to remain, except for < 0.50 acres of impacts. Existing pond to southwest to remain

What about sidewalk?

- Continuation of the 10' multi-use path along Wait Avenue will be part of future development by others. Sidewalk connectivity will be project to adjacent communities and future commercial.

What will the commercial be?

- At this time, the property owner has not committed to any specific type of commercial. PUD/SUP has allocated up to 150,000 SF of neighborhood scale commercial including a zoning condition to allow for up to 50,000 SF for a grocery store anchor.

Has anything changed from the notification letter?

- Assuming the layout that the neighbors obtained from the Town of Rolesville was part of the Preliminary Plat re-submitted on 4/1/21, the layout has not changed. Colors were added to the Exhibit for presentation purposes. A copy of the Exhibit has been distributed to attendees.

Is the project in context with the existing surroundings?

- Proposed development is in context with the Town of Rolesville's Future Land Use Plan designation of medium density residential for area across Wait Avenue from Carrie May Lane. The proposed development is scale with the Austin Creek and Elizabeth Springs communities.

Will the northern access point have a stop sign or a stop light?

- Access across from Carrie May Lane is anticipated to be a stop sign controlled with turn lanes subject to NCDOT review and approval.

How many units are in each category of residential?

- 107 Single Family Lots, 54 THs @ 28', 40 THs @ 22', and 97 Rear Loaded THs @ 24'

Will all residential units will have garages?

- Yes

Has the safety of the driveway across from Carrie May Lane been reviewed?

- Study of the vertical sight distance will be required for NCDOT approval of the Driveway Site Access Permit. It is understood that residents have concerns with the hill and traffic speeds.

What is the proposed density for each phase?

- Density is calculated based on # of dwelling units divided by # of gross acres
- Density for Phase 1 is 3.95 DU/AC based on 114 TH Lots on 28.86 acres.
- Density for Phase 2 is 3.33 DU/AC based on 184 TH Lots on 55.17 acres.



- Overall Density is 3.55 DU/AC for the Phases 1 & 2 of the Preliminary Plat which is less than the Max. 4.0 DU/AC
- Future adjacent lots for development total 17.76 acres (2.45 acres along Wait Ave and 15.31 along Averette Road)



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

June 21, 2021

**Wait Avenue Mixed-Use
Development
Traffic Impact Analysis Review Report
Congestion Management Section**

TIA Project: SC-2021-140
Division: 5
County: Wake



Doumit Y. Ishak, Regional Engineer
Clarence B. Bunting, IV, P.E. Project Engineer
Braden M. Walker, P.E. Project Design Engineer

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION MOBILITY & SAFETY DIVISION
1561 MAIL SERVICE CENTER
RALEIGH, NC 27699-1561

Telephone: (919) 814-5000
Fax: (919) 771-2745
Customer Service: 1-877-368-4968

Location:
750 N. GREENFIELD PARKWAY
GARNER, NC 27529

Website: www.ncdot.gov

Wait Avenue Mixed-Use Development

SC-2021-140

Raleigh

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	05/24/21	Date of Site Plan	NA
Date of Complete Information	05/24/21	Date of Sealed TIA	05/24/21

Proposed Development

The TIA assumes the development is to be completed by 2026 and consist of the following:

Land Use	Land Use Code	Size
Single Family Housing	210	120 d.u
Multifamily Housing (Low-Rise)	220	200 d.u
General Office	710	30,000 sq.ft.
Shopping Center	820	230,000 sq.ft.

Trip Generation - Unadjusted Volumes During a Typical Weekday

	IN	OUT	TOTAL
AM Peak Hour	225	227	452
PM Peak Hour	462	488	950
Daily Trips			9,838

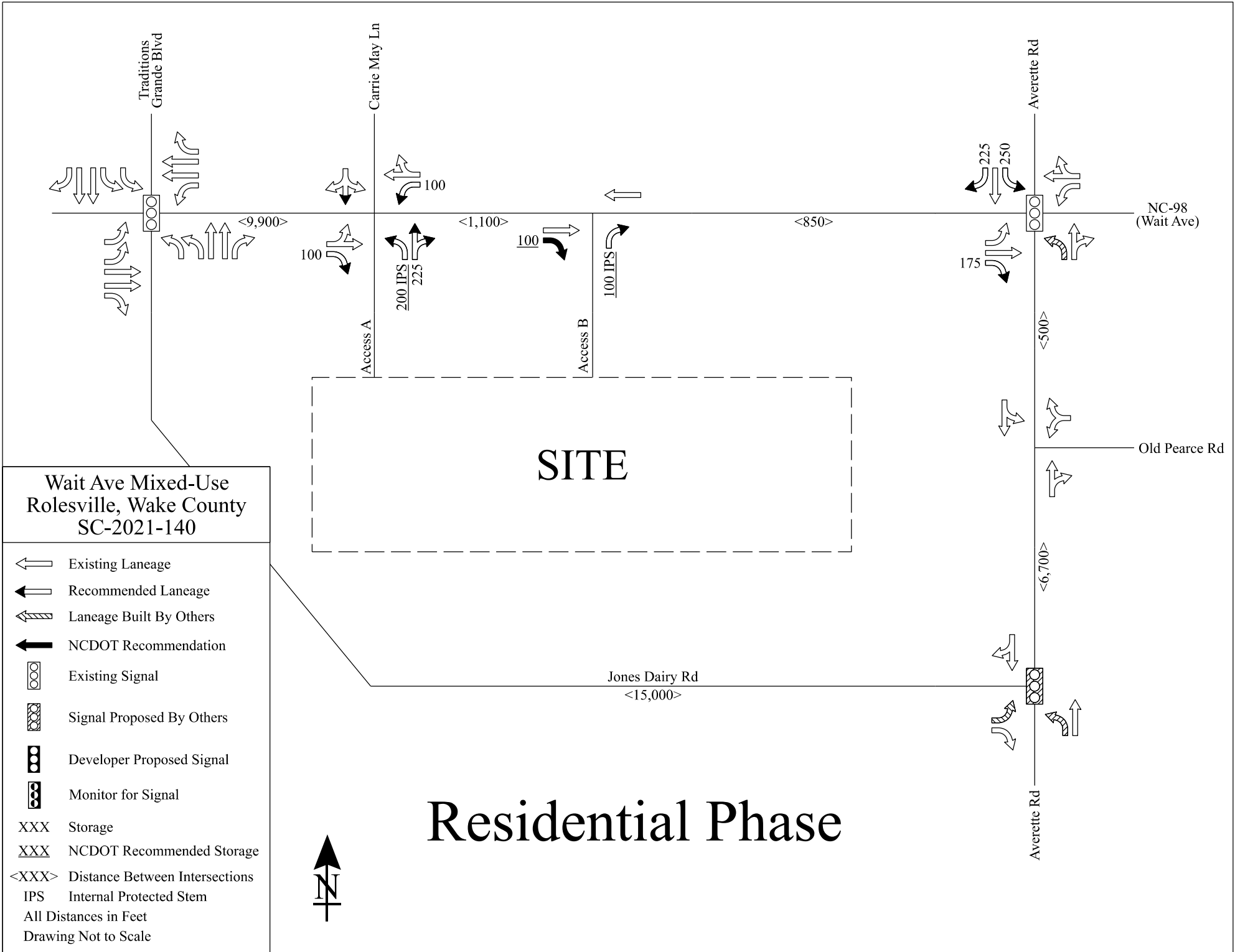
General Reference

For reference to various documents applicable to this review please reference the following link: <http://www.ncdot.org/doh/preconstruct/traffic/tepp/Topics/C-37/C-37.html>









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.



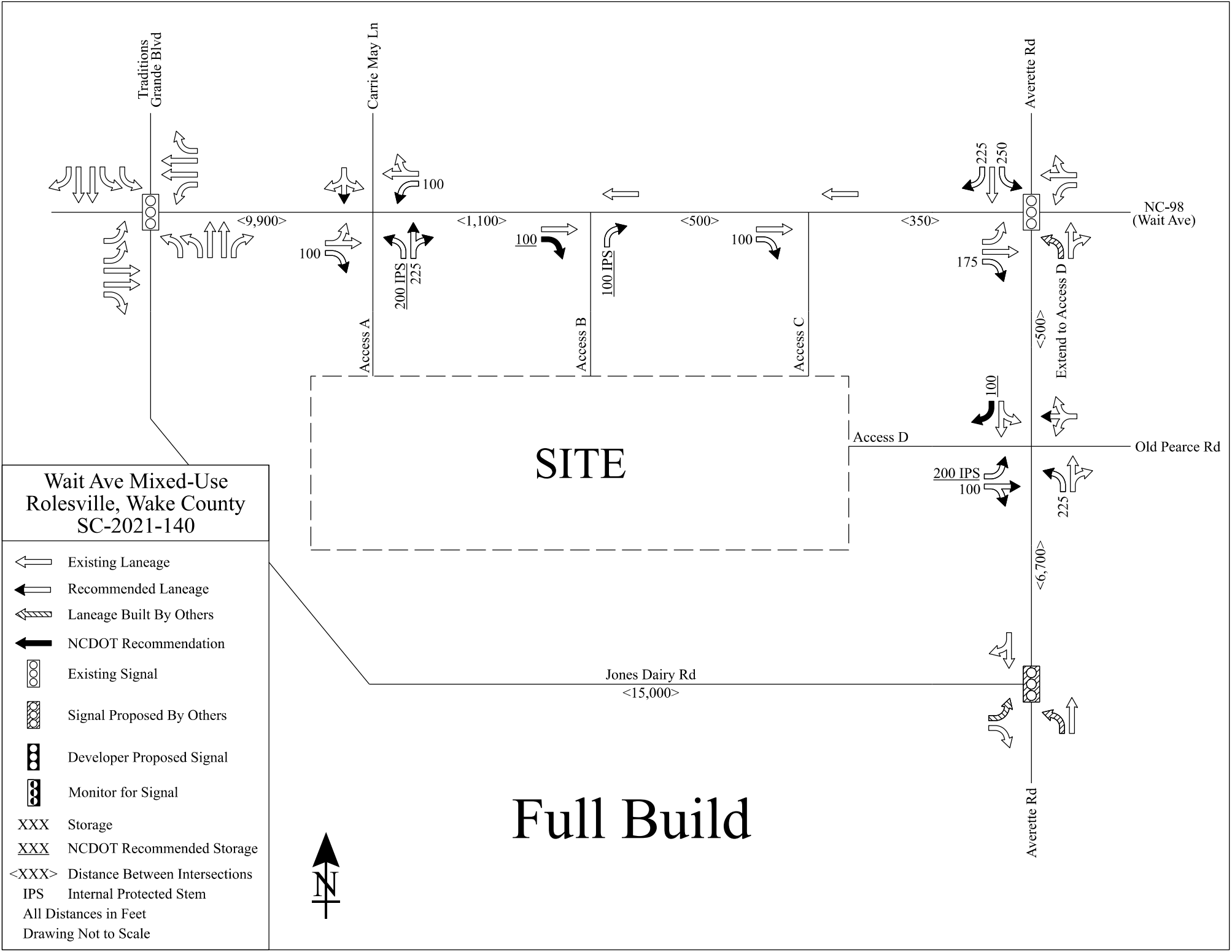
**Wait Ave Mixed-Use
Rolesville, Wake County
SC-2021-140**

-  Existing Laneage
-  Recommended Laneage
-  Laneage Built By Others
-  NCDOT Recommendation
-  Existing Signal
-  Signal Proposed By Others
-  Developer Proposed Signal
-  Monitor for Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- <XXX> Distance Between Intersections
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale











SITE

Residential Phase



Wait Ave Mixed-Use
Rolesville, Wake County
SC-2021-140

-  Existing Laneage
-  Recommended Laneage
-  Laneage Built By Others
-  NCDOT Recommendation
-  Existing Signal
-  Signal Proposed By Others
-  Developer Proposed Signal
-  Monitor for Signal
- XXX Storage
- XXX NCDOT Recommended Storage
- <XXX> Distance Between Intersections
- IPS Internal Protected Stem
- All Distances in Feet
- Drawing Not to Scale



Full Build

SITE

NC-98
(Wait Ave)

Old Pearce Rd

Jones Dairy Rd

Averette Rd

Averette Rd

Traditions
Grande Blvd

Carrie May Ln

Access A

Access B

Access C

Access D

Extend to Access D

<9,900>

<1,100>

<500>

<350>

<500>

<6,700>

<15,000>

200 IPS
225

100 IPS

200 IPS
100

225

175

100

100

100

225
250



**Wait Avenue Mixed-Use
Development**

Traffic Impact Analysis

May 24, 2021

Prepared for:

Town of Rolesville, North Carolina
502 Southtown Circle
Rolesville, NC 27571

Applicant:

Pulte Home Company LLC
1225 Crescent Green Drive, Suite 250
Cary, NC 27518

Prepared by:

Stantec Consulting Services Inc.
801 Jones Franklin Road, Suite 300
Raleigh, NC 27606

Sign-off Sheet

This document entitled Wait Avenue Mixed-Use Development Traffic Impact Analysis was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of the Town of Rolesville (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule, and other limitations stated in the document and the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify the information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such a third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by *Pierre Tong*

(signature)

Pierre Tong, PE

Reviewed by *Jeff A Weller*

(signature)

Jeff A. Weller, PE

Approved by *Matt Peach*

(signature)

Matt Peach, PE, PTOE



Table of Contents

EXECUTIVE SUMMARY	I
1.0 INTRODUCTION	1
2.0 INVENTORY OF TRAFFIC CONDITIONS	5
2.1 STUDY AREA	5
2.2 PROPOSED ACCESS	5
2.3 EXISTING ROADWAY CONDITIONS	6
2.4 FUTURE NO-BUILD ROADWAY CONDITIONS	6
3.0 TRIP GENERATION	9
3.1 RESIDENTIAL PHASE TRIP GENERATION.....	9
3.2 FULL-BUILD TRIP GENERATION	9
4.0 TRAFFIC DISTRIBUTION	11
4.1 SITE TRIP DISTRIBUTION	11
4.2 PASS-BY TRIPS	11
5.0 TRAFFIC VOLUMES	19
5.1 AVAILABLE DATA.....	19
5.2 VOLUME BALANCING.....	19
5.3 FUTURE TRAFFIC GROWTH.....	19
5.4 APPROVED DEVELOPMENT TRAFFIC.....	19
5.5 NO-BUILD TRAFFIC VOLUMES	20
5.6 RESIDENTIAL-BUILD TRAFFIC VOLUMES	20
5.7 FULL-BUILD TRAFFIC VOLUMES.....	20
6.0 TRAFFIC ANALYSIS	25
6.1 2021 EXISTING ANALYSIS	27
6.2 2026 NO-BUILD ANALYSIS	28
6.3 2026 RESIDENTIAL-BUILD ANALYSIS	30
6.4 2026 RESIDENTIAL-BUILD WITH IMPROVEMENTS ANALYSIS.....	31
6.5 2026 FULL-BUILD ANALYSIS.....	33
6.6 2026 FULL-BUILD WITH IMPROVEMENTS ANALYSIS	34
8.0 RECOMMENDATIONS	38
8.1 RESIDENTIAL-BUILD RECOMMENDATIONS.....	38
8.2 FULL-BUILD RECOMMENDATIONS	40
9.0 CONCLUSIONS	42
10.0 REFERENCES	42
APPENDIX	42

LIST OF TABLES

Table ES-1: Level of Service & Delay Summaryv
Table 1: Existing Conditions..... 6
Table 2: Residential Phase Trip Generation..... 9
Table 3: Full-Build Trip Generation.....10
Table 4: Level of Service Criteria25
Table 5: Level of Service and Delay for 2021 Existing Conditions.....27
Table 6: Level of Service and Delay for 2026 No-Build Conditions.....29
Table 7: Level of Service and Delay for 2026 Residential-Build Conditions.....30
Table 8: Level of Service and Delay for 2026 Residential-Build with Improvements.....32
Table 9: Level of Service and Delay for 2026 Full-Build Conditions.....33
Table 10: Level of Service and Delay for 2026 Full-Build with Improvements.....35
Table 11: Maximum Queues: Unsignalized36
Table 12: Maximum Queues: Signalized.....37

LIST OF FIGURES

Figure ES-1: Site Plan..... iv
Figure ES-2: Residential-Build Recommended Improvements..... vi
Figure ES-3: Full-Build Recommended Improvements..... vii
Figure 1: Site Location and Study Area Map 3
Figure 2: Proposed Site Plan 4
Figure 3: 2021 Existing Lane Configurations and Traffic Control..... 7
Figure 4: 2026 No-Build Lane Configurations and Traffic Control..... 8
Figure 5: Residential Build Trip Distribution.....12
Figure 6: Commercial Trip Distribution13
Figure 7: Residential-Build Trip Assignment.....14
Figure 8: Commercial Trip Assignment15
Figure 9: Pass-by Trip Distribution16
Figure 10: Pass-by Trip Assignment17
Figure 11: 2021 Existing Traffic Volumes.....21
Figure 12: 2026 No-Build Traffic Volumes.....22
Figure 13: 2026 Residential-Build Traffic Volumes.....23
Figure 14: 2026 Full-Build Traffic Volumes.....24
Figure 15: Residential-Build Recommended Lane Configurations.....39
Figure 16: Full-Build Recommended Lane Configurations41

Executive Summary

The proposed Wait Avenue Mixed-Use Development is located along NC 98 (Wait Avenue) in Rolesville, NC. In general, the 42-acre site is located in the southwest corner of the NC 98 intersection with SR 1945 (Averette Road). The site is envisioned to consist of 120 single-family detached housing units, 200 multi-family housing units, 30,000 square feet of office, and 120,000 square feet of retail. The development is anticipated to be completed in 2026.

At full build-out, the development is anticipated to generate 9,838 new trips per average weekday. In the AM and PM peak hours, the development will generate approximately 434 trips (216 entering and 218 exiting) and 671 (326 entering and 345 exiting), respectively.

Residential units are envisioned to be constructed before the commercial uses; therefore, the site is analyzed in two phases. The first phase is residential-only and the second phases consists of the ultimate build-out (i.e. full-build). As no development schedule is known at this time for the commercial uses, both phases of development are analyzed in 2026.

Four (4) access points are proposed for the development. Access points A, B, and C will connect to NC 98, Access point D will be connected to Averette Road. The site plan is shown in Figure ES-1.

This study evaluates the ability of the adjacent roadways to accommodate the additional traffic and to recommend transportation improvements needed to mitigate congestion that may result from the site traffic. This report presents trip generation, trip distribution, traffic analyses, and recommendations for improvements needed to meet anticipated traffic demands. This report examines the following scenarios for the AM and PM peak hours:

- Existing (2021)
- Future Year (2026) No-Build
- Future Year (2026) Residential-Build
- Future Year (2026) Residential-Build with Improvements
- Future Year (2026) Full-Build
- Future Year (2026) Full-Build with Improvements

Capacity analyses for the AM and PM peak hours in each scenario were performed for the following intersections:

- NC 98 at Jones Dairy Road / Traditions Grande Boulevard
- NC 98 at Carrie May Lane / Access A
- NC 98 at Averette Road
- Averette Road at Old Pearce Road / Access D
- Averette Road at Jones Dairy Road
- NC 98 at Access B
- NC 98 at Access C

Table ES-1 shows a summary of the delays and levels of service for the study area intersections.

The study shows that intersections within the study area are anticipated to operate with long delays and queues in the future year of 2026 without the proposed development in-place. Delays are anticipated to continue to be present with construction of the proposed development. However, the results presented herein show that the recommended improvements associated with this development will mitigate the traffic it generates.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Based on the findings of this study, specific improvements have been identified and are recommended to be completed as part of the proposed development. These improvements are listed below.

Recommendations:

NC 98 (Wait Avenue) at Averette Road

The below improvements are recommended to be constructed during the residential phase of the development:

- Construct an eastbound right-turn lane with 175 feet of full-width storage and appropriate taper
- Construct a southbound right-turn lane with 225 feet of full-width storage and appropriate taper
- Modify the traffic signal with respect to the recommended geometric improvements

The below improvements are recommended to be constructed with the full-build phase of the development:

- Construct a southbound left-turn lane with 250 feet of full-width storage and appropriate taper
- Extend the northbound left-turn lane from the storage intended to be constructed by the Elizabeth Heights development to full-width between NC 98 (Wait Avenue) and Old Pearce Road / Access D
- Modify the traffic signal with respect to the recommended geometric improvements

NC 98 (Wait Avenue) at Jones Dairy Road / Traditions Grande Boulevard

No improvements are recommended at this intersection

Averette Road at Old Pearce Road / Site Access D

No improvements are recommended at this intersection during the residential phase of the development. The below improvements are recommended to be constructed with the full-build phase of the development:

- Construct Access D as a full-movement access point
- Construct Access D with one ingress and one egress lane
- Construct an eastbound shared thru/right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a northbound left-turn lane with 225 feet of full-width storage and appropriate taper

Averette Road at Jones Dairy Road

No improvements are recommended at this intersection

NC 98 (Wait Avenue) at Carrie May Lane / Access A

The below improvements are recommended to be constructed during the residential phase of the development:

- Construct Access A as a full-movement access point
- Construct Access A with one ingress and one egress lane
- Construct an eastbound right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a westbound left-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a northbound shared thru/right-turn lane with 225 feet of full-width storage and appropriate taper

It should be noted that the construction of the eastbound right-turn lane may be limited due to available right-of-way. If so, the amount of full-width storage may be reduced. Coordination should occur between the applicant, their representatives, and NCDOT to determine whether the amount of full-width storage should be reduced.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

NC 98 (Wait Avenue) at Access B

The below improvements are recommended to be constructed during the residential phase of the development:

- Construct Access B as a right-in / right-out only access point
- Restrict access with the installation of appropriate channelization along NC 98 (Wait Avenue)
- Construct Access B with one ingress and one egress lane

NC 98 (Wait Avenue) at Access C

The below improvements are recommended to be constructed with the full-build phase of the development:

- Construct Access C as a right-in only access point
- Restrict access with the installation of appropriate channelization along NC 98 (Wait Avenue)
- Construct Access C with one ingress lane
- Construct an eastbound right-turn lane with 100 feet of full-width storage and appropriate taper

Recommended improvements associated with the residential phase of the development are shown in Figure ES-2.

Recommended improvements associated with the full-build phase of the development are shown in Figure ES-3.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Figure ES-1: Site Plan

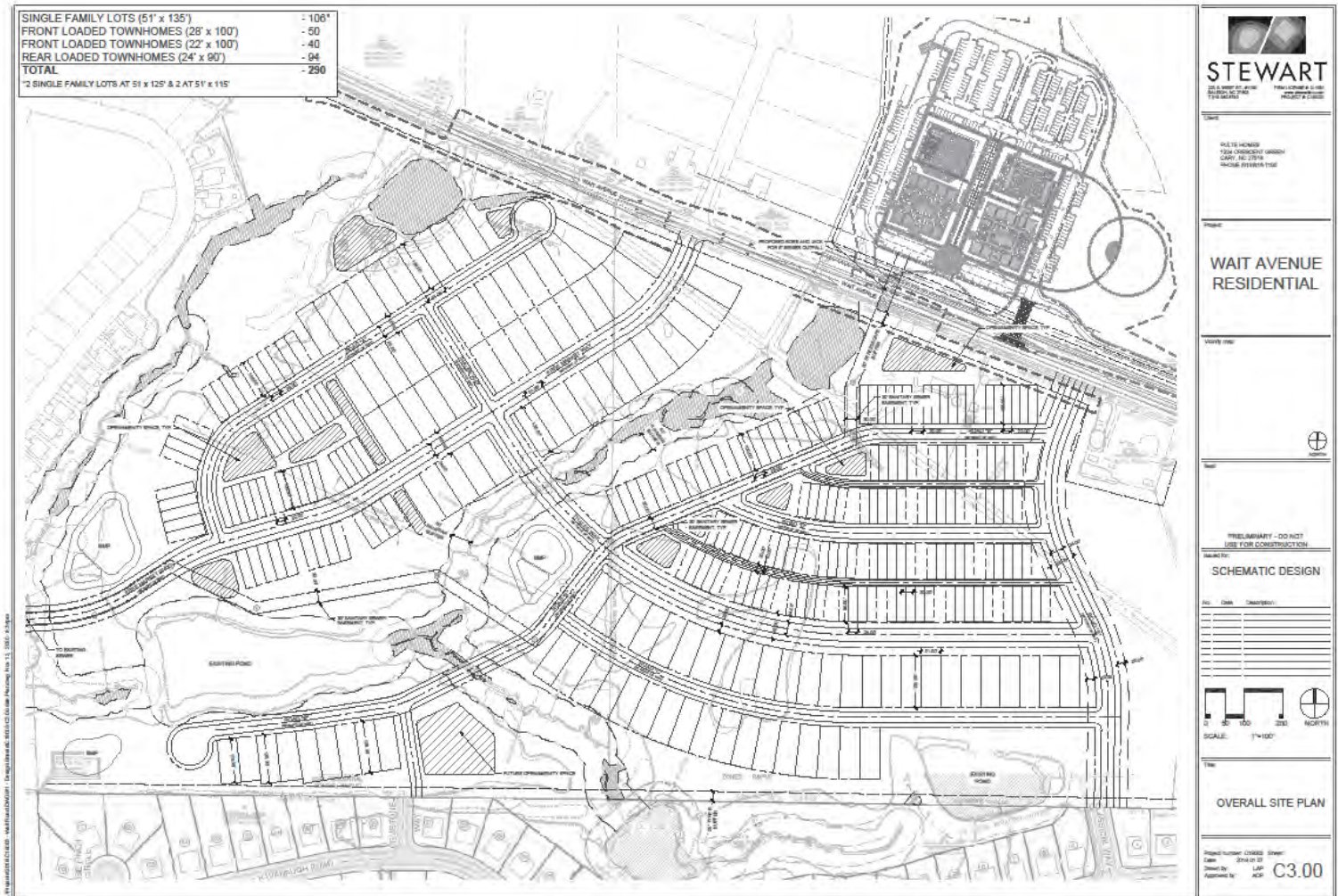


Table ES-1: Level of Service & Delay Summary

LOS/Delay		2021		2026		2026							
		Existing		No-Build		Residential-Build		Residential-Build Improved		Full-Build		Full-Build Improved	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	Overall	D (41.2)	C (32.7)	D (54.0)	D (44.1)	E (56.6)	D (44.0)	D (53.7)	D (40.3)	E (55.9)	D (50.5)	D (49.1)	C (33.3)
	EB	D (35.5)	C (26.3)	D (49.4)	D (35.7)	D (49.3)	D (35.8)	D (47.2)	C (34.6)	D (49.4)	D (38.8)	D (41.8)	C (30.0)
	WB	D (38.2)	C (25.5)	C (31.4)	C (23.1)	D (40.1)	C (24.3)	D (36.5)	C (22.5)	D (37.1)	C (31.7)	D (36.0)	C (23.6)
	NB	D (46.6)	D (49.6)	E (67.6)	E (74.7)	E (69.3)	E (74.7)	E (66.8)	E (71.1)	E (70.4)	F (88.2)	E (63.3)	D (52.7)
	SB	D (45.8)	D (43.0)	E (70.7)	E (71.0)	E (73.2)	E (71.1)	E (69.5)	E (58.8)	E (73.2)	F (84.4)	E (60.8)	D (43.8)
NC 98 & Carrie May Lane/Access A	Overall	# (0.3)	# (0.3)	# (0.1)	# (8.7)	# (1.5)	# (1.5)	# (0.3)	# (0.3)	# (0.3)	# (0.4)	# (0.3)	# (0.4)
	EB	B (11.0)	A (9.2)	C (18.1)	B (11.8)	C (18.1)	B (11.8)	C (18.0)	B (11.7)	C (21.0)	B (14.5)	C (19.5)	B (14.0)
	WB	# (0.0)	# (0.0)	# (0.0)	# (0.0)	A (9.9)	B (12.8)	A (9.9)	B (12.8)	B (10.3)	B (13.4)	B (10.3)	B (13.4)
	NB	- (-)	- (-)	- (-)	- (-)	C (21.9)	D (34.0)	C (16.7)	F (##)	C (18.1)	D (26.6)	C (18.1)	D (26.6)
	SB	F (51.6)	E (46.8)	D (25.2)	F (##)	D (25.7)	C (15.5)	D (25.6)	F (##)	D (30.8)	C (19.8)	D (28.1)	C (19.0)
NC 98 & Access B	Overall	- (-)	- (-)	- (-)	- (-)	# (0.2)	# (0.2)	# (0.2)	# (0.2)	# (0.3)	# (0.2)	# (0.3)	# (0.2)
	EB	- (-)	- (-)	- (-)	- (-)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)
	WB	- (-)	- (-)	- (-)	- (-)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)
	NB	- (-)	- (-)	- (-)	- (-)	C (17.0)	C (23.9)	C (17.0)	C (23.9)	C (18.5)	D (26.3)	C (18.5)	D (26.3)
	SB	- (-)	- (-)	- (-)	- (-)	C (17.0)	C (23.9)	C (17.0)	C (23.9)	C (18.5)	D (26.3)	C (18.5)	D (26.3)
NC 98 & Averette Road	Overall	B (16.5)	C (21.6)	F (169.4)	F (162.3)	F (130.8)	F (181.0)	F (116.2)	F (90.0)	F (127.5)	F (181.3)	E (73.1)	E (72.2)
	EB	B (11.8)	C (23.0)	F (103.5)	F (189.9)	F (87.8)	F (216.5)	D (53.1)	E (72.4)	E (77.0)	F (94.0)	C (32.1)	E (58.9)
	WB	B (13.2)	A (8.5)	F (212.0)	F (91.6)	F (150.3)	F (99.2)	F (159.3)	F (94.7)	F (168.5)	F (110.6)	F (80.1)	E (73.5)
	NB	C (34.8)	D (44.8)	F (115.4)	F (118.4)	F (114.8)	F (143.3)	F (107.7)	F (99.6)	F (110.4)	F (97.5)	F (103.7)	F (82.3)
	SB	B (18.8)	C (20.0)	F (257.3)	F (259.6)	F (187.3)	F (273.0)	F (156.4)	F (117.3)	F (158.2)	F (##)	F (94.3)	F (86.4)
Averette Road & Old Pearce Road/Access D	Overall	# (4.3)	# (4.0)	# (5.6)	# (4.6)	# (5.6)	# (4.7)	# (5.8)	# (5.1)	# (26.2)	# (##)	# (5.7)	# (93.7)
	EB	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	F (254.2)	F (##)	C (16.9)	F (##)
	WB	B (10.7)	B (11.4)	C (18.3)	C (20.2)	C (19.4)	C (22.9)	C (20.4)	D (26.0)	E (42.3)	F (165.8)	C (16.0)	D (34.9)
	NB	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	# (0.0)	A (8.5)	A (8.5)	A (8.3)	A (8.2)
	SB	A (7.7)	A (4.0)	A (8.4)	A (9.0)	A (8.4)	A (9.2)	A (8.4)	A (9.2)	A (8.4)	A (9.0)	A (8.4)	A (9.1)
Averette Road & Jones Dairy Road	Overall	# (8.0)	# (6.6)	C (23.7)	C (20.1)	C (23.4)	B (19.9)	D (38.6)	C (31.9)	D (37.7)	D (37.8)	C (32.0)	C (25.2)
	EB	C (15.0)	B (13.4)	C (28.9)	C (20.7)	C (31.2)	C (21.3)	D (51.9)	D (41.7)	E (56.7)	E (57.6)	D (53.8)	C (31.3)
	NB	A (8.2)	A (8.2)	B (17.3)	B (19.4)	B (17.7)	B (19.1)	C (26.9)	C (29.7)	C (26.2)	D (36.9)	C (23.5)	C (23.1)
	SB	# (0.0)	# (0.0)	C (25.1)	C (21.1)	C (21.7)	C (20.7)	D (37.3)	C (27.8)	C (32.5)	C (24.4)	C (20.9)	C (24.8)

Legend:

- X (X) LOS (Delay)
- Unsignalized Intersection
- Signalized Intersection
- # No level of service or delay provided
- ## Delay exceeds 300 seconds
- (-) No movement

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Figure ES-2: Residential-Build Recommended Improvements

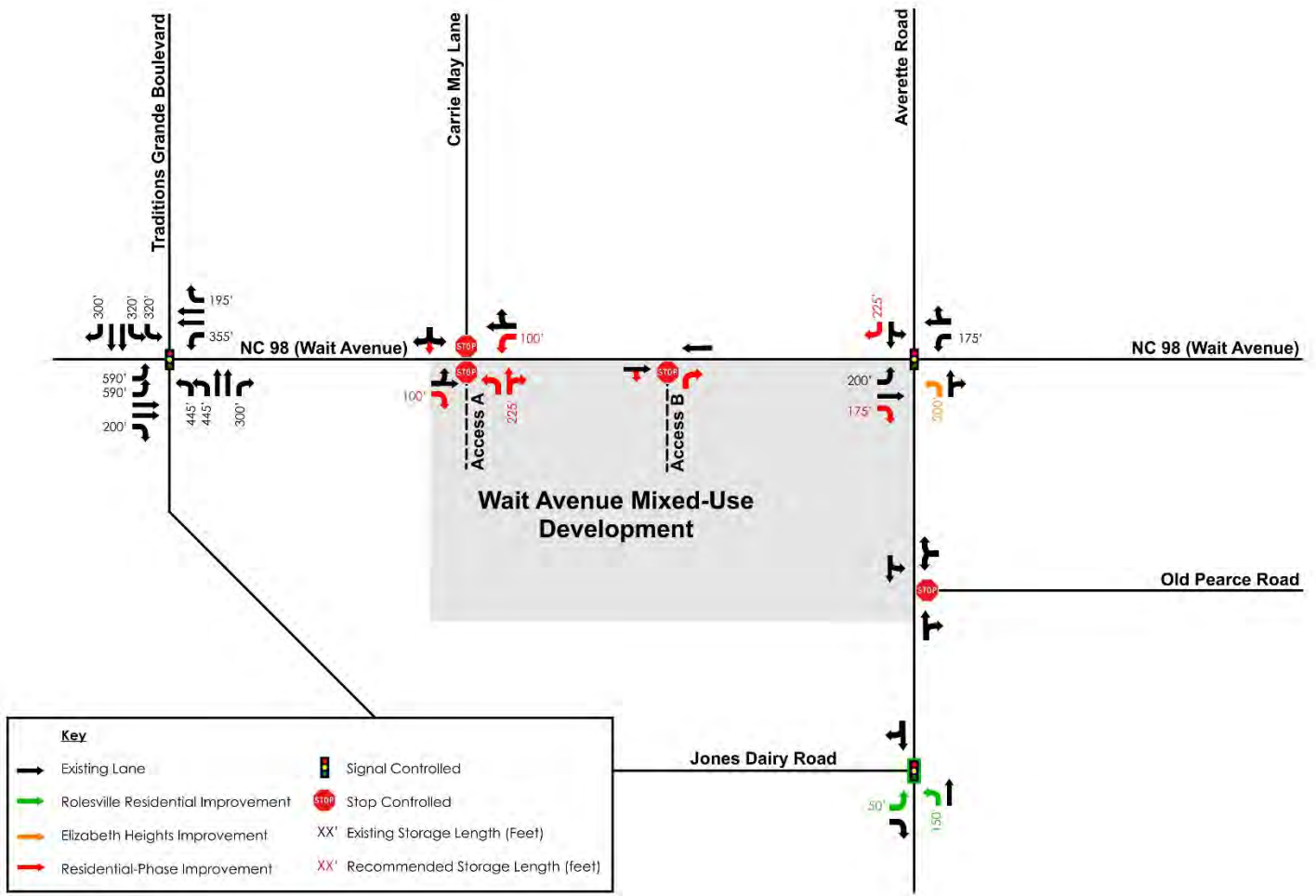
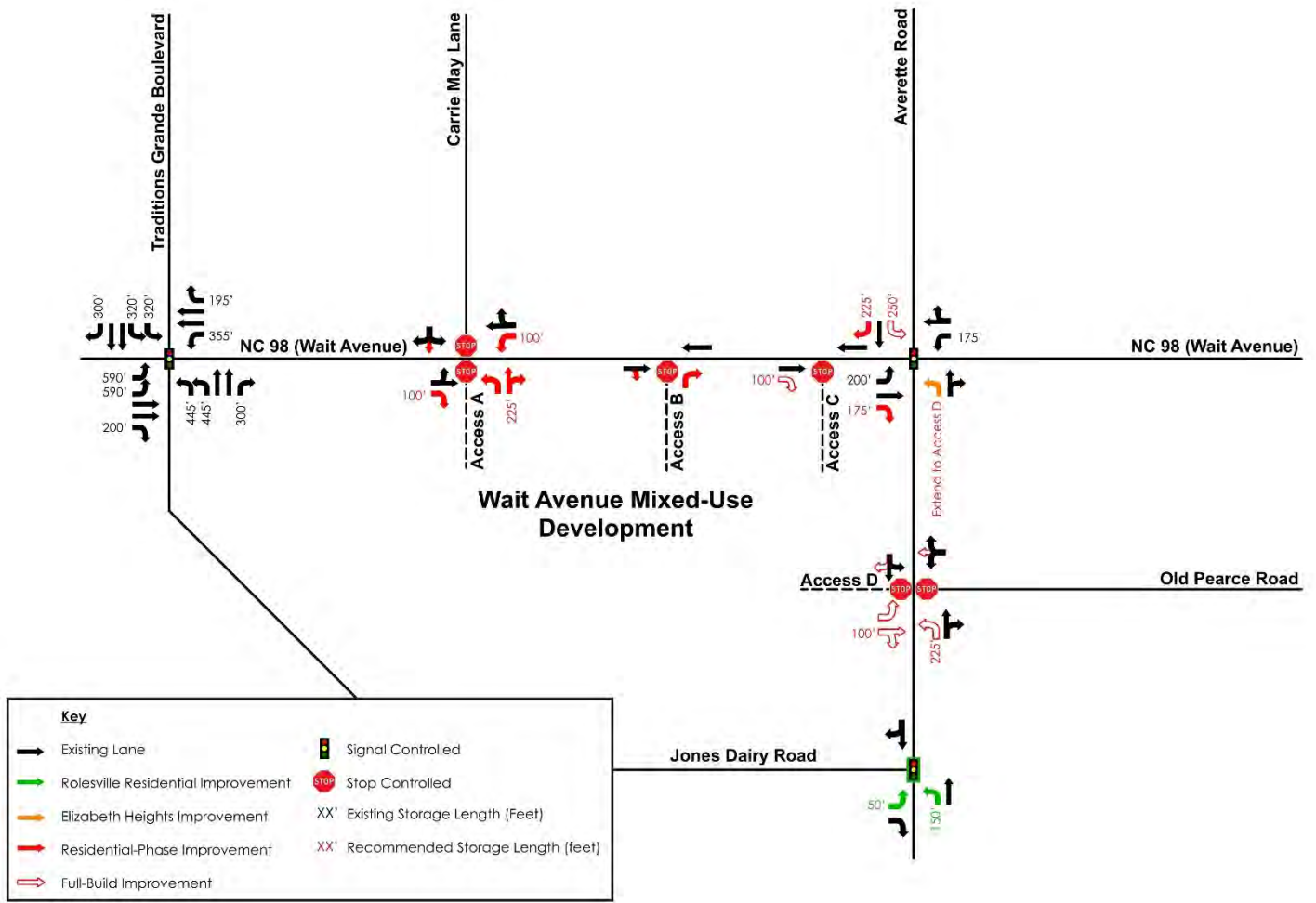


Figure is Not To Scale

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Figure ES-3: Full-Build Recommended Improvements



Key	
	Existing Lane
	Rolesville Residential Improvement
	Elizabeth Heights Improvement
	Residential-Phase Improvement
	Full-Build Improvement
	Signal Controlled
	Stop Controlled
XX'	Existing Storage Length (Feet)
XX'	Recommended Storage Length (feet)

Figure is Not To Scale

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Introduction
May 24, 2021

1.0 INTRODUCTION

The purpose of this report is to evaluate the traffic impacts of the proposed Wait Avenue Mixed-Use Development located in Rolesville, NC. This development is located along NC 98 (Wait Avenue), generally in the southwest quadrant of the NC 98 intersection with SR 1945 (Averette Road). The development's location and study area are shown in Figure 1.

Currently, the 42-acre site consists of a combination of undeveloped farmland and forested land. Construction of the site is anticipated to be completed in 2026. At full build-out the site is envisioned to provide the following land uses and densities:

- 120 single-family detached housing units
- 200 multi-family housing units
- 30,000 square feet of office
- 120,000 square feet of retail

The Wait Avenue Mixed-Use Development is expected to be constructed in two phases: Phase 1 is planned to incorporate the entirety of the residential component; and Phase 2 is expected to add the commercial (i.e. retail and office) uses.

Figure 2 shows the conceptual site plan prepared by Stewart, Inc. for the residential phase. A site plan has not been produced for the commercial phase.

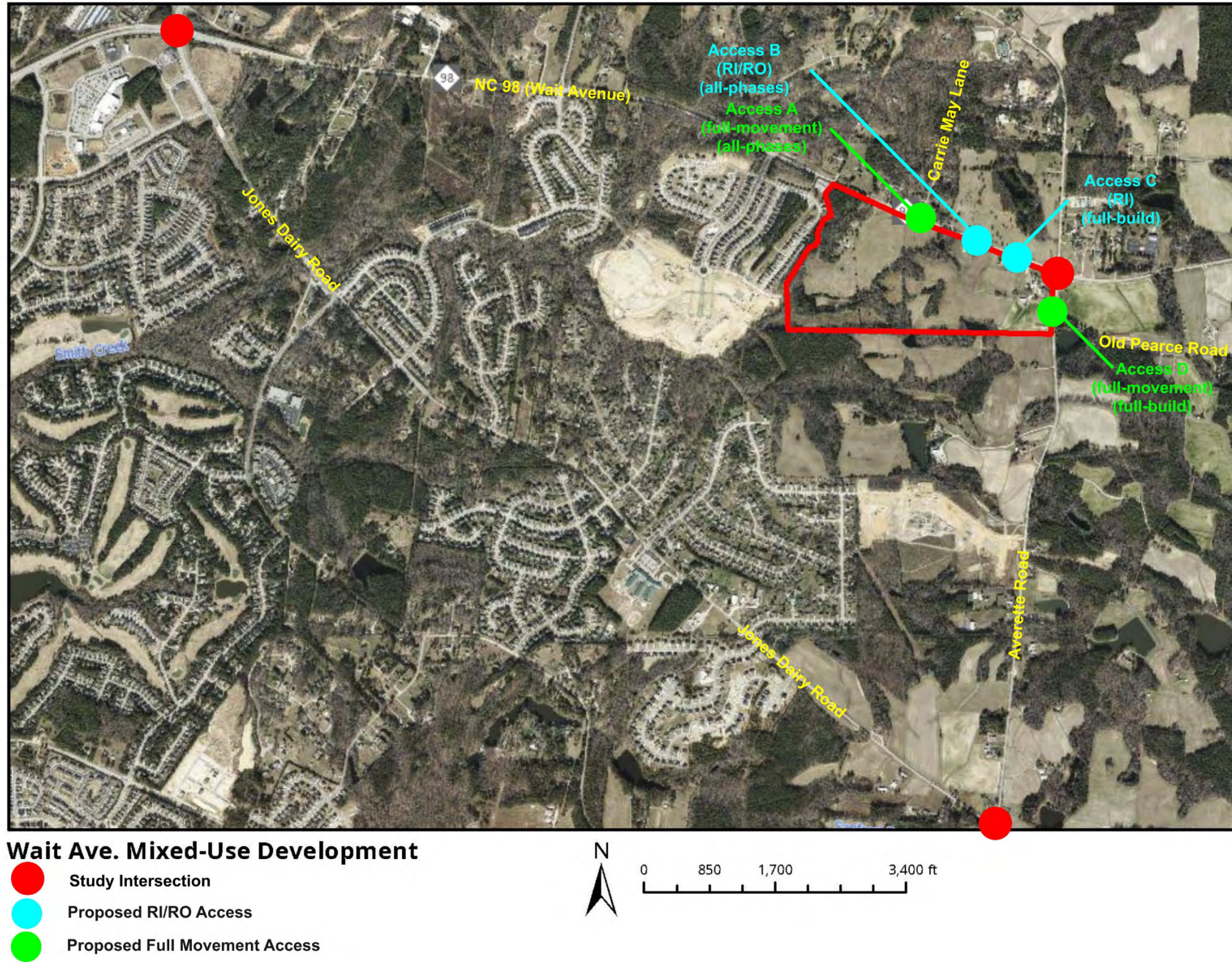
The purpose of this report is to evaluate the development in terms of projected vehicular traffic conditions, evaluate the ability of the adjacent roadways to accommodate the additional traffic, and to recommend transportation improvements needed to mitigate congestion that may result from additional site traffic. This report presents trip generation, trip distribution, traffic analyses, and recommendations for improvements needed to meet anticipated traffic demands. The analysis examines the AM and PM peak hours for the 2021 existing, 2026 no-build, 2026 residential-build, 2026 residential-build with improvements, 2026 full-build, and 2026 full-build with improvements.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Introduction
May 24, 2021

This page is intentionally left blank

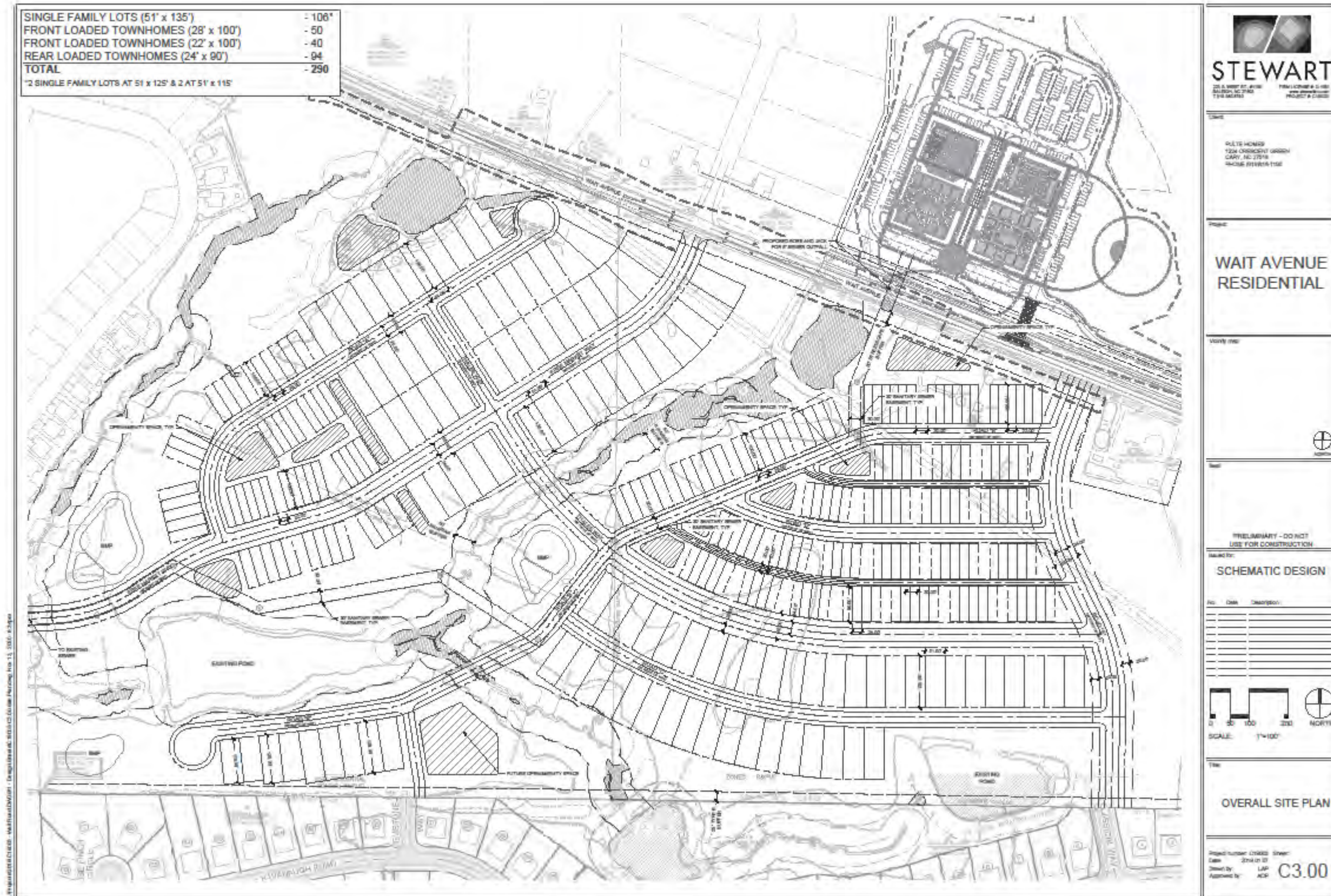
Figure 1: Site Location and Study Area Map



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Introduction
 May 24, 2021

Figure 2: Proposed Site Plan



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Inventory of Traffic Conditions
May 24, 2021

2.0 INVENTORY OF TRAFFIC CONDITIONS

2.1 STUDY AREA

Stantec coordinated with the Town of Rolesville and the North Carolina Department of Transportation (NCDOT) Division 5, District 1 to determine the appropriate study area and assumptions for this study. The final scoping document is included in the appendix. The following intersections were agreed upon to be analyzed to determine the associated impacts of the proposed development.

- NC 98 (Wait Avenue) at Jones Dairy Road *existing signalized intersection*
- NC 98 (Wait Avenue) at Carrie May Lane *existing two-way stop-controlled intersection*
- NC 98 (Wait Avenue) at Averette Road *existing signalized intersection*
- Averette Road at Jones Dairy Road *existing two-way stop-controlled intersection*
- Averette Road at Old Pearce Road *existing two-way stop-controlled intersection*

2.2 PROPOSED ACCESS

Figure 3 shows a diagram of the existing lane configurations, geometry, and traffic control features in the study area.

2.2.1 Residential Phase Access

Access to the residential phase is envisioned to be provided by two access points.

- NC 98 (Wait Avenue) at Access A
- NC 98 (Wait Avenue) at Access B

Access A is proposed to be a full-movement driveway located along Wait Avenue at Carrie May Lane. This will add a fourth leg to the existing three-legged intersection. Intersection control will be provided by stop signs on Carrie May Lane and Access A. Access B is proposed to accommodate right-turns in and right-turns out (RIRO) of the proposed development. It is anticipated to be located approximately 850 feet west of the signalized intersection of Wait Avenue at Averette Road.

2.2.2 Commercial Phase Access

Access to the commercial phase is envisioned to be provided by two access points:

- NC 98 (Wait Avenue) at Access C
- Averette Road at Access D

Access C is proposed to accommodate right-turns in only (RI) of the proposed development. Right-turns out are not recommended at this access point as analysis shows that queues from the signalized intersection of Wait Avenue at Averette Road often extend past this driveway. Access C is located approximately 350 feet west of Averette Road. Access D is proposed to be a full-movement driveway located along Averette Road at Old Pearce Road. This will add a fourth leg to the existing three-legged intersection. Intersection control will be provided by stop signs on Old Pearce Road and Access D.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Inventory of Traffic Conditions
May 24, 2021

2.3 EXISTING ROADWAY CONDITIONS

Table 1 provides a detailed description of the existing study area roadway network. All functional classification and average annual daily traffic (AADT) information, where available, was obtained from NCDOT via the NCDOT.gov website.

Table 1: Existing Conditions

Road Name	Road Number	Primary Cross-Section	Functional Classification ¹	2019 AADT ² (vpd)	Speed Limit (mph)	Maintenance Agency
Wait Avenue	NC 98	2-lane/2-way	Minor Arterial	17,500	55	NCDOT
Jones Dairy Road	SR 2053	2-lane/2-way	Major Collector	4,700	45	NCDOT
Averette Road	SR 1945	2-lane/2-way	Minor Arterial	3,600	55	NCDOT
Carrie May Lane	-	2-lane/2-way	Local Road	Unknown	Unposted	Unknown
Old Pearce Road	SR 2055	2-lane/2-way	Local Road	900	45	NCDOT

2.4 FUTURE NO-BUILD ROADWAY CONDITIONS

Nearby developments have committed to specific improvements to the study intersections. While the schedule of each individual development is unknown, the improvements are assumed to be completed in 2026 before the Wait Avenue Mixed-Use Development is constructed. Those improvements are described in the following subsections. The future no-build roadway conditions are shown on Figure 4.

NC 98 (Wait Avenue) at Averette Road

The Elizabeth Heights (a.k.a. Averette Farms) development has committed to constructing one improvement at this intersection: construct an exclusive northbound left-turn lane on Averette Road with 200 feet of storage. This improvement is documented in the Thales Academy – Wake Forest TIA (Kimley-Horn and Associates, Inc., April 2020). A copy of this TIA is included in the appendix.

Averette Road at Jones Dairy Road

The Preserve for Jones Dairy (a.k.a. Jones Dairy Road Residential) development has committed to constructing the following improvements at this intersection:

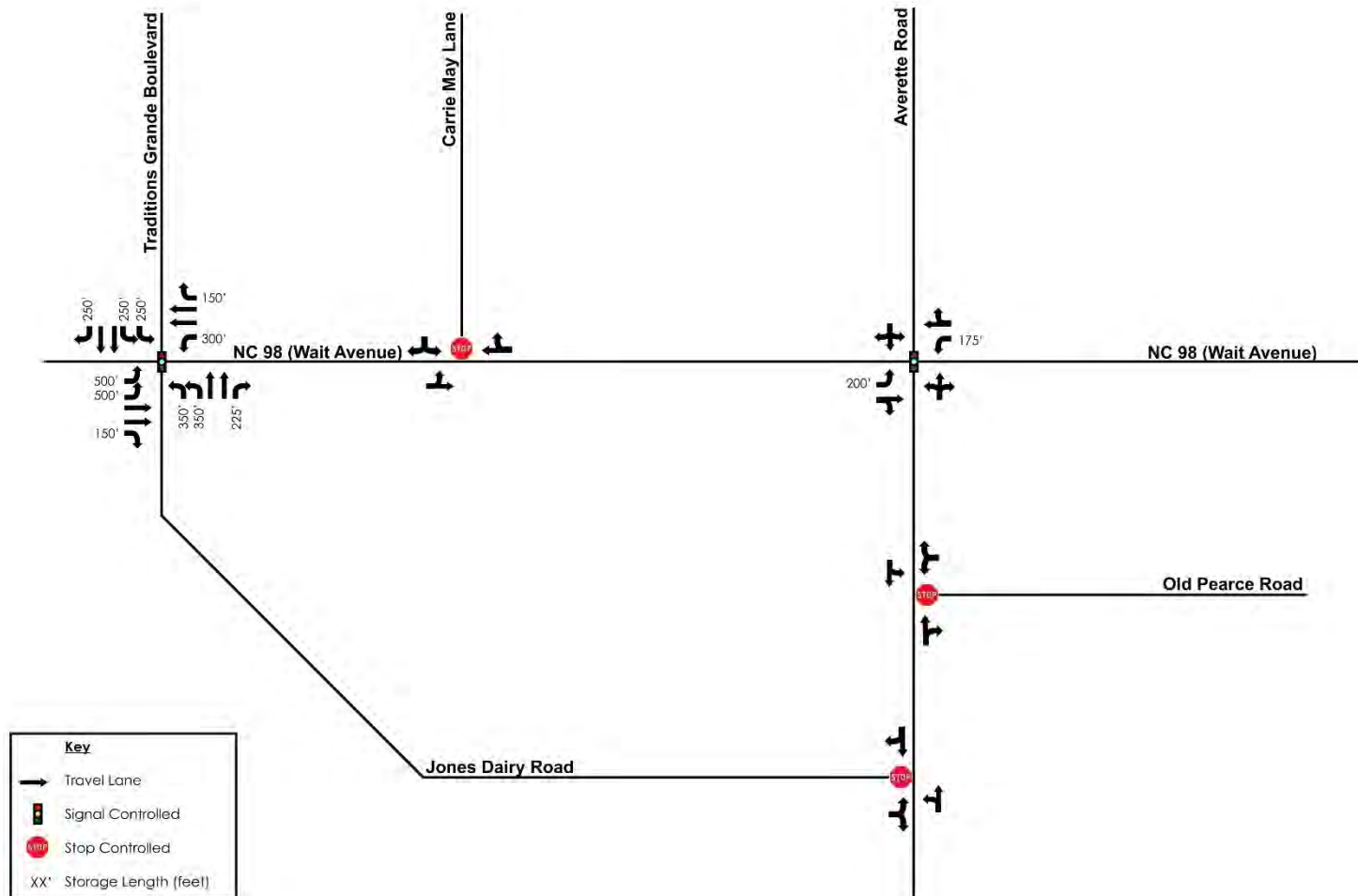
- Construct an exclusive eastbound left-turn lane on Jones Dairy Road with a minimum 50 feet of storage and appropriate deceleration and taper length.
- Construct an exclusive northbound left-turn lane on Averette Road with a minimum 150 feet of storage and appropriate deceleration and taper length.
- Monitor for signalization and install a traffic signal if and when warranted.

These improvements are documented in the Jones Dairy Road Residential TIA (Ramey Kemp & Associates, Inc., October 2018). A copy of this TIA is included in the appendix.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Inventory of Traffic Conditions
May 24, 2021

Figure 3: 2021 Existing Lane Configurations and Traffic Control



Key

- Travel Lane
- 🚦 Signal Controlled
- 🛑 Stop Controlled
- XX' Storage Length (feet)

Figure is Not To Scale



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Inventory of Traffic Conditions
 May 24, 2021

Figure 4: 2026 No-Build Lane Configurations and Traffic Control

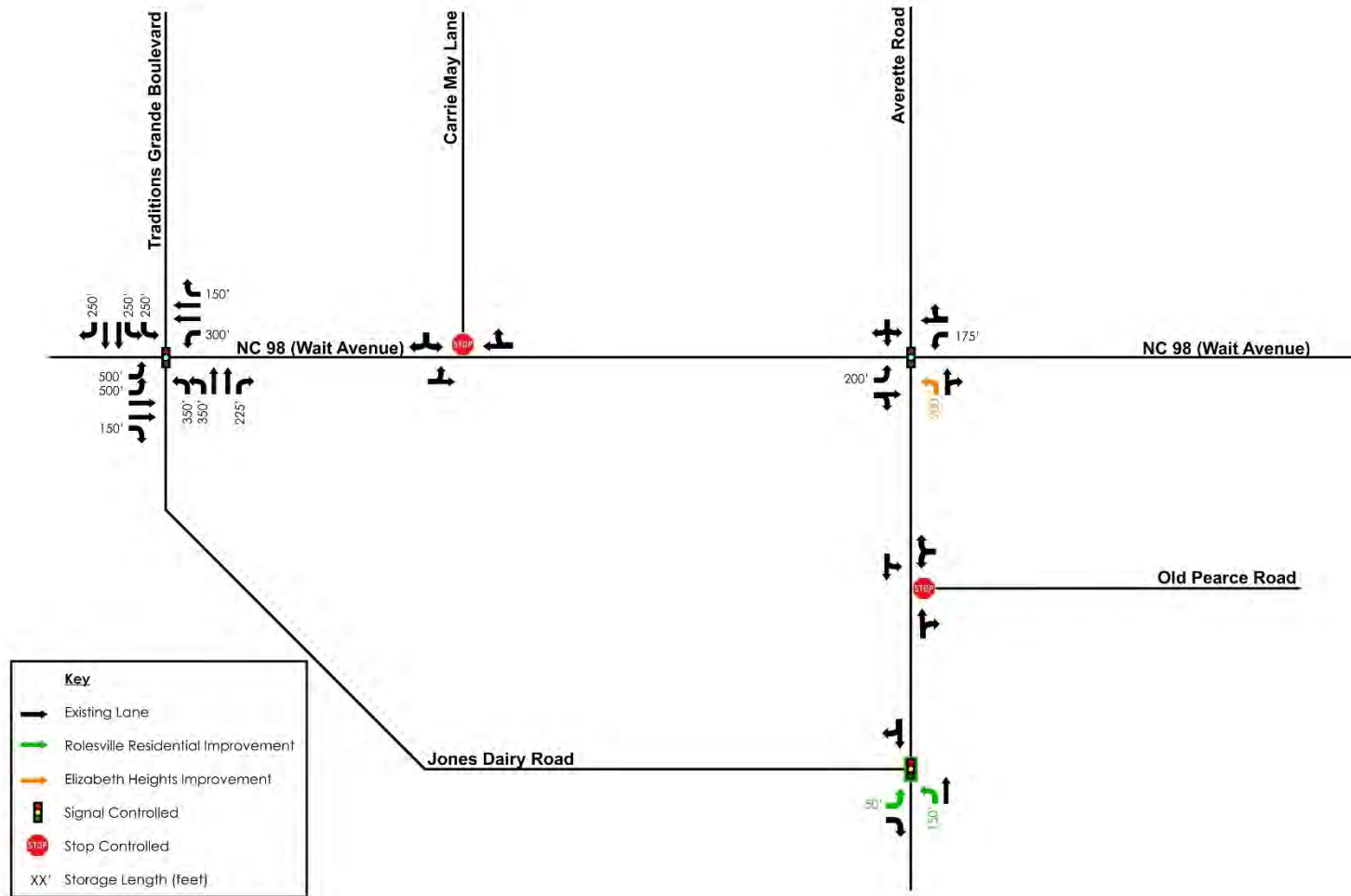


Figure is Not To Scale



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Trip Generation
May 24, 2021

3.0 TRIP GENERATION

Trip generation was performed for the proposed development in two phases. Trips were estimated using the 10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual³. The manual provides means for calculating trips across four setting-types. That is, city center core, dense multi-use urban, general urban/suburban, and rural. Internal capture was also performed using the National Cooperative Highway Research Program (NCHRP) Report 684 spreadsheet model⁴. The calculated internal capture was only applied to the full-build (i.e. Phase 2) as this is when a mix of uses is introduced. This trip generation, submitted to the Town and NCDOT for review, and including internal capture and trip generation methodology, is located in the appendix.

3.1 RESIDENTIAL PHASE TRIP GENERATION

Phase 1 of the Wait Avenue Mixed-Use Development will comprise the residential uses for the proposed site. These densities are expected to be 120 single-family detached housing units and 200 multi-family housing units. Table 2 shows the number of anticipated trips that will be generated by the North site of the proposed development (Daily, AM Peak, and PM Peak entering and exiting).

Table 2: Residential Phase Trip Generation

Land Use	ITE LUC	Size	Daily			AM Peak			PM Peak		
			Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Single Family Homes	210	120 Units	1,230	615	615	90	22	68	121	76	45
Multifamily Homes (Low-Rise)	220	200 Units	1,472	736	736	92	21	71	109	69	40
Total Trips Generated			2,702	1,351	1,351	182	43	139	230	145	85

3.2 FULL-BUILD TRIP GENERATION

The full-build scenario for this site adds 30,000 square feet of office and 120,000 square feet of retail to the uses from the initial (i.e. residential) phase. As stated earlier, the full-build includes internal capture due to the mix of uses and pass-by trips in the PM Peak associated with the retail use. Table 3 shows the number of anticipated trips that will be generated by the ultimate build-out of the site as currently proposed.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Trip Generation
May 24, 2021

Table 3: Full-Build Trip Generation

Land Use	ITE LUC	Size		Daily			AM Peak			PM Peak		
				Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Single-Family Homes	210	120	Units	1,230	615	615	90	22	68	121	76	45
Multifamily Housing (Low-Rise)	220	200	Units	1,472	736	736	92	21	71	109	69	40
General Office	710	30	1,000 GFA	330	165	165	58	51	7	98	18	80
Shopping Center	820	230	1,000 GFA	6,806	3,403	3,403	212	131	81	622	299	323
Subtotal				9,838	4,919	4,919	452	225	227	950	462	488
Internal Capture	ITE LUC	Size		Daily			AM Peak			PM Peak		
				Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Single-Family Homes	210	120	Units				-3	-1	-2	-11	-8	-3
Multifamily Housing (Low-Rise)	220	200	Units				-2	0	-2	-10	-7	-3
General Office	710	30	1,000 GFA				-6	-4	-2	-22	-9	-13
Shopping Center	820	230	1,000 GFA				-7	-4	-3	-36	-15	-21
Pass-Bys	ITE LUC	Size		Daily			AM Peak			PM Peak		
				Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Shopping Center	820	230	1,000 GFA							-200	-97	-103
Adjusted Trip Generation	ITE LUC	Size		Daily			AM Peak			PM Peak		
				Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Single-Family Homes	210	120	Units	1,230	615	615	87	21	66	110	68	42
Multifamily Housing (Low-Rise)	220	200	Units	1,472	736	736	90	21	69	99	62	37
General Office	710	30	1,000 GFA	330	165	165	52	47	5	76	9	67
Shopping Center	820	230	1,000 GFA	6,806	3,403	3,403	205	127	78	386	187	199
Total Trips Generated				9,838	4,919	4,919	434	216	218	671	326	345

4.0 TRAFFIC DISTRIBUTION

4.1 SITE TRIP DISTRIBUTION

To accurately determine the effect of the proposed development on the surrounding roadway network, an estimate of the expected distribution of traffic entering and exiting the site is needed. Separate distributions were developed for the residential uses and the commercial uses. The following percentages were used in the AM and PM peak hours for the proposed site:

Residential Uses

- 60% to/from the west via NC 98 (Wait Avenue)
- 10% to/from the east via NC 98 (Wait Avenue)
- 30% to/from the south via Averette Road

Commercial Uses

- 40% to/from the west via NC 98 (Wait Avenue)
- 20% to/from the east via NC 98 (Wait Avenue)
- 40% to/from the south via Averette Road

These percentages were developed using a combination of existing traffic volume counts, historic AADTs provided by NCDOT, and engineering judgment. This trip distribution was submitted to the Town and NCDOT for review as part of NCDOT's TIA Scoping Checklist contained in the appendix. Trip distribution for the residential uses and commercial (i.e. office/retail) uses are shown in Figure 5 and Figure 6, respectively. Trip assignment for the residential phase and commercial are shown in Figure 7 and Figure 8, respectively. All traffic volume calculations can be found in the appendix.

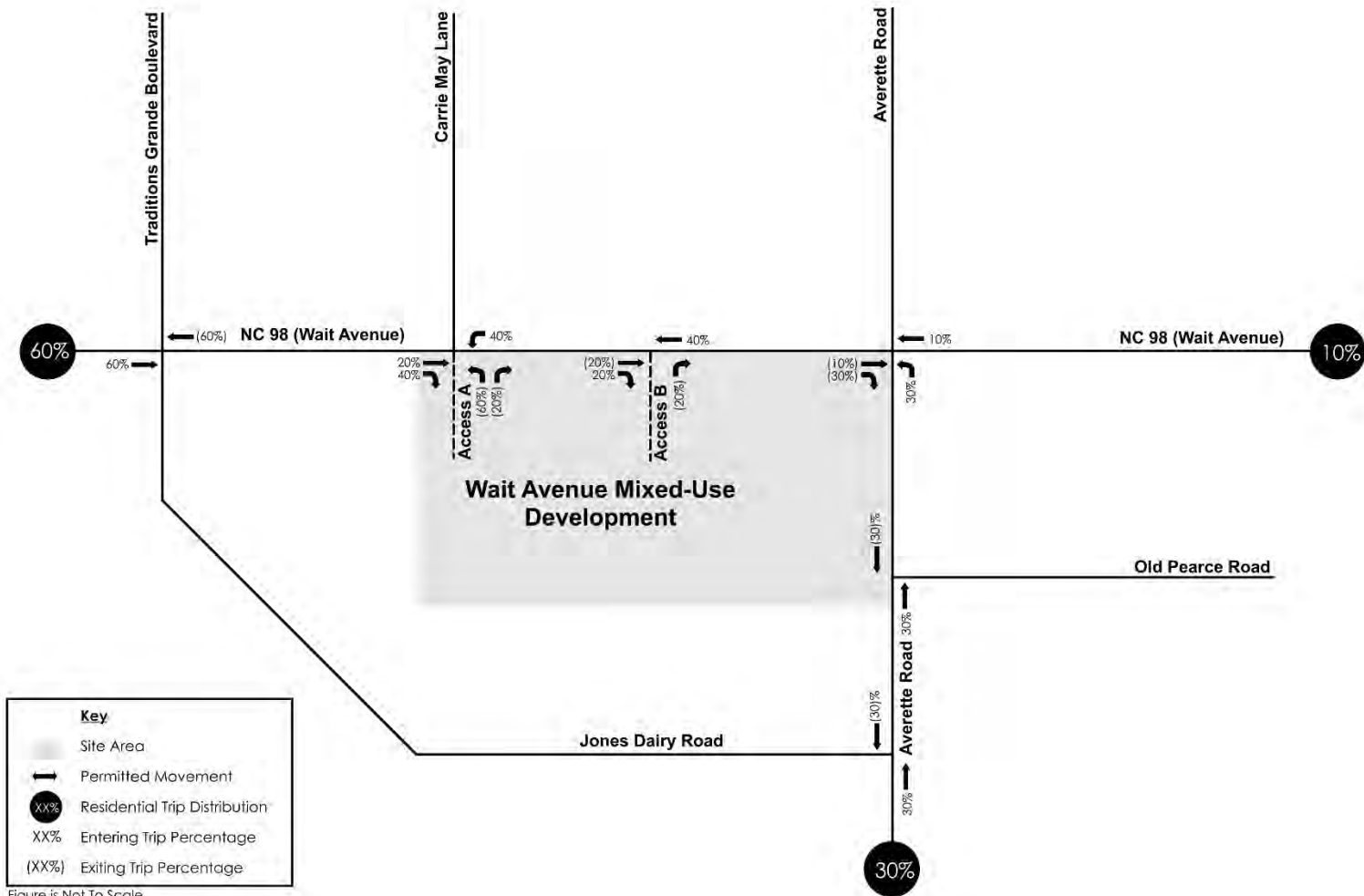
4.2 PASS-BY TRIPS

According to the NCDOT Rate versus Equation spreadsheet, the retail shopping center (land use code 820) allows for the use of 34% pass-by trips in the PM peak hour. These trips were calculated after internal capture trips were subtracted and were verified to be less than ten percent (10%) of the volumes on NC 98 (Wait Avenue) and Averette Road. Pass-by trip distribution is shown in Figure 9 whereas pass-by trip assignment is shown in Figure 10.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Distribution
 May 24, 2021

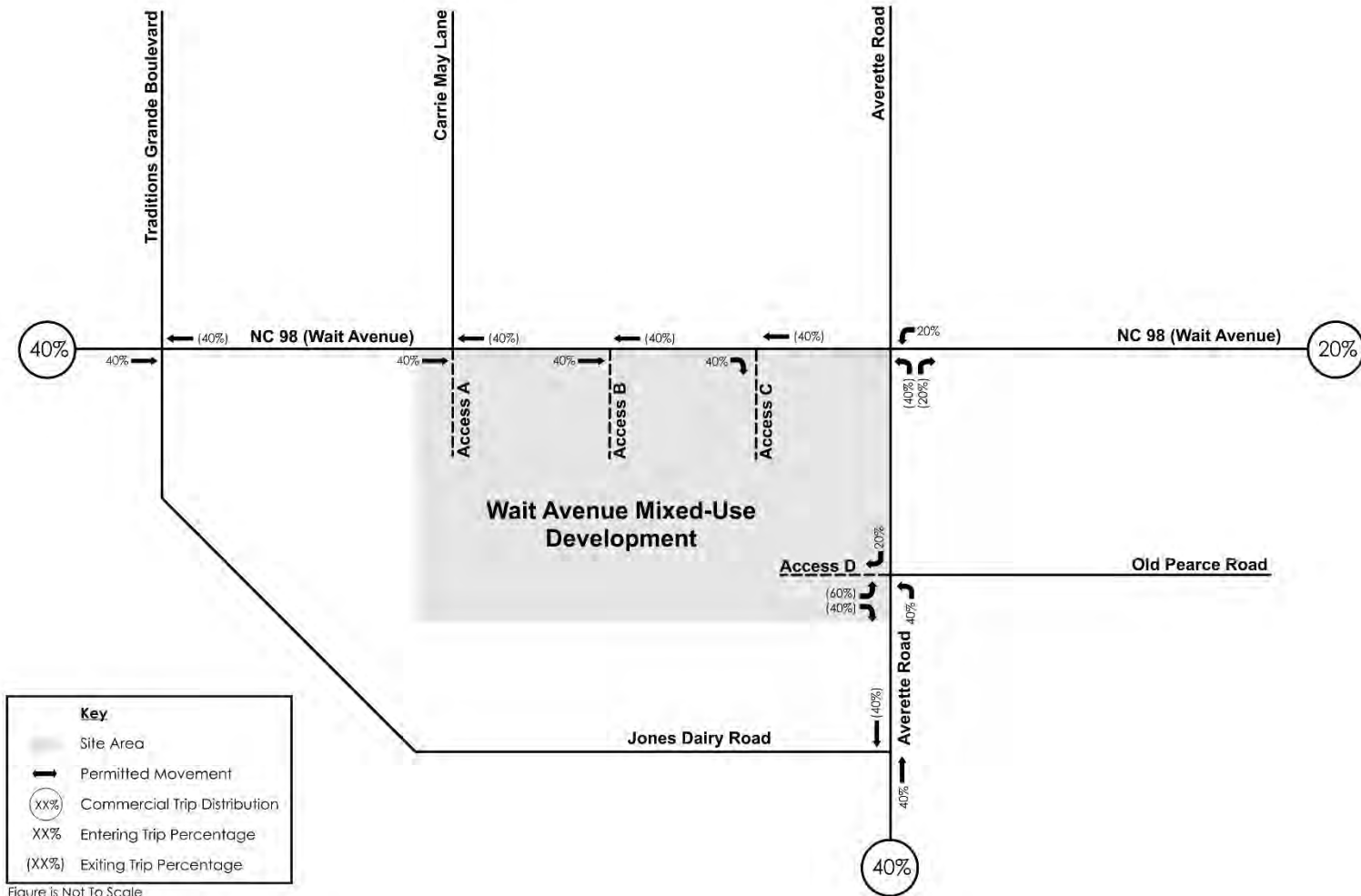
Figure 5: Residential Build Trip Distribution



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Distribution
May 24, 2021

Figure 6: Commercial Trip Distribution



Key

- Site Area
- Permitted Movement
- Commercial Trip Distribution
- XX% Entering Trip Percentage
- (XX%) Exiting Trip Percentage

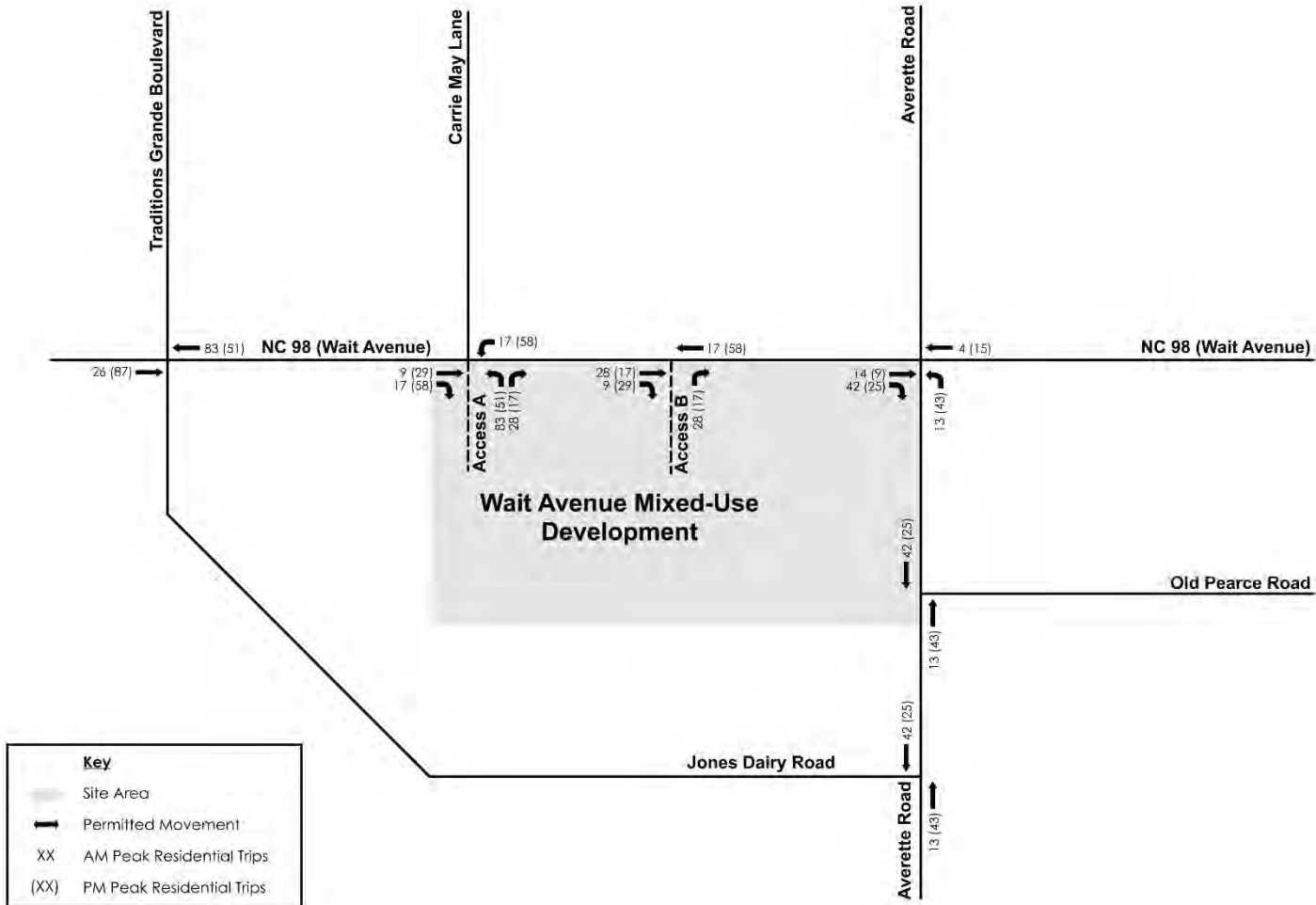
Figure is Not To Scale



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Distribution
 May 24, 2021

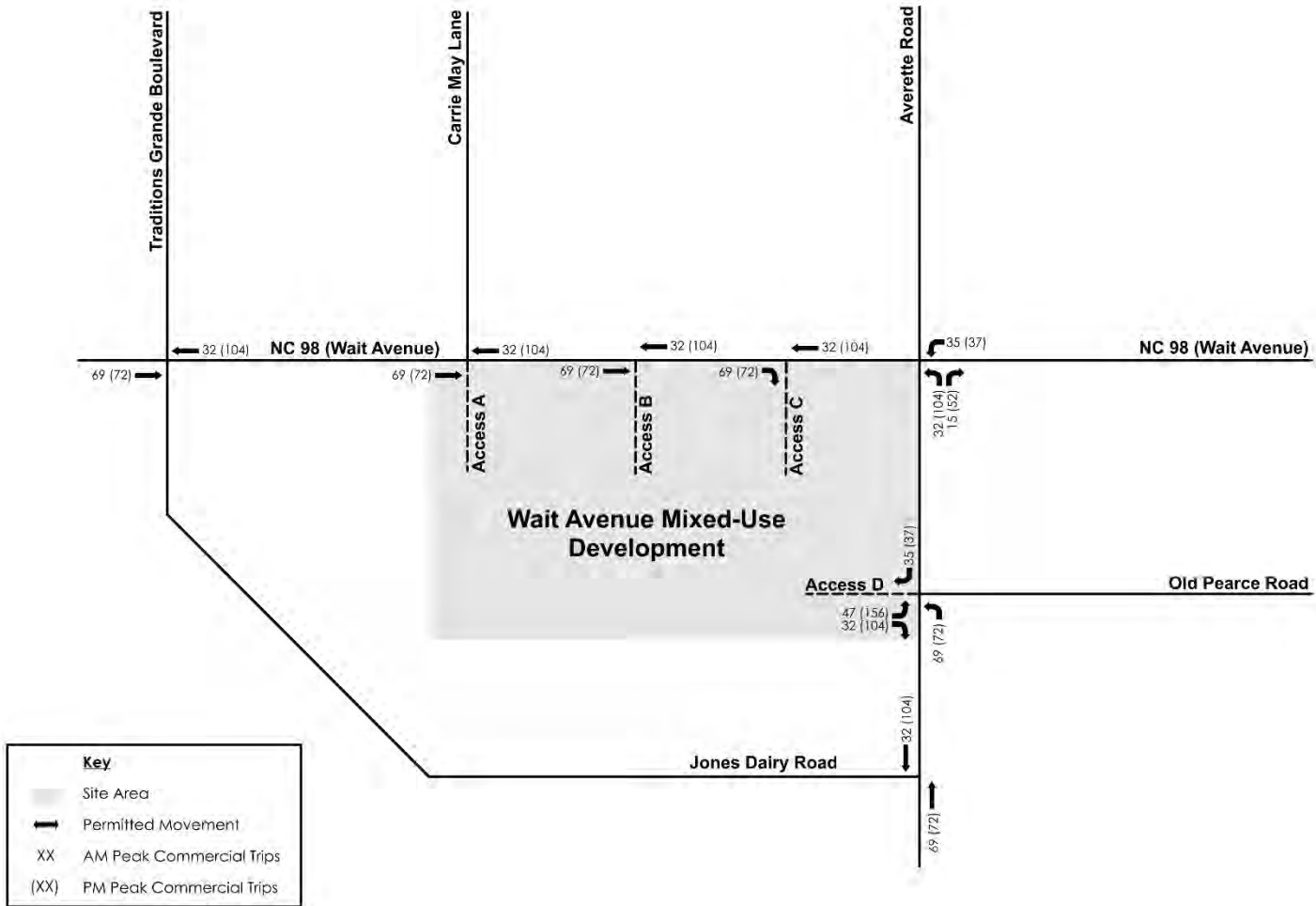
Figure 7: Residential-Build Trip Assignment



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Distribution
May 24, 2021

Figure 8: Commercial Trip Assignment



Key

- Site Area
- Permitted Movement
- XX AM Peak Commercial Trips
- (XX) PM Peak Commercial Trips

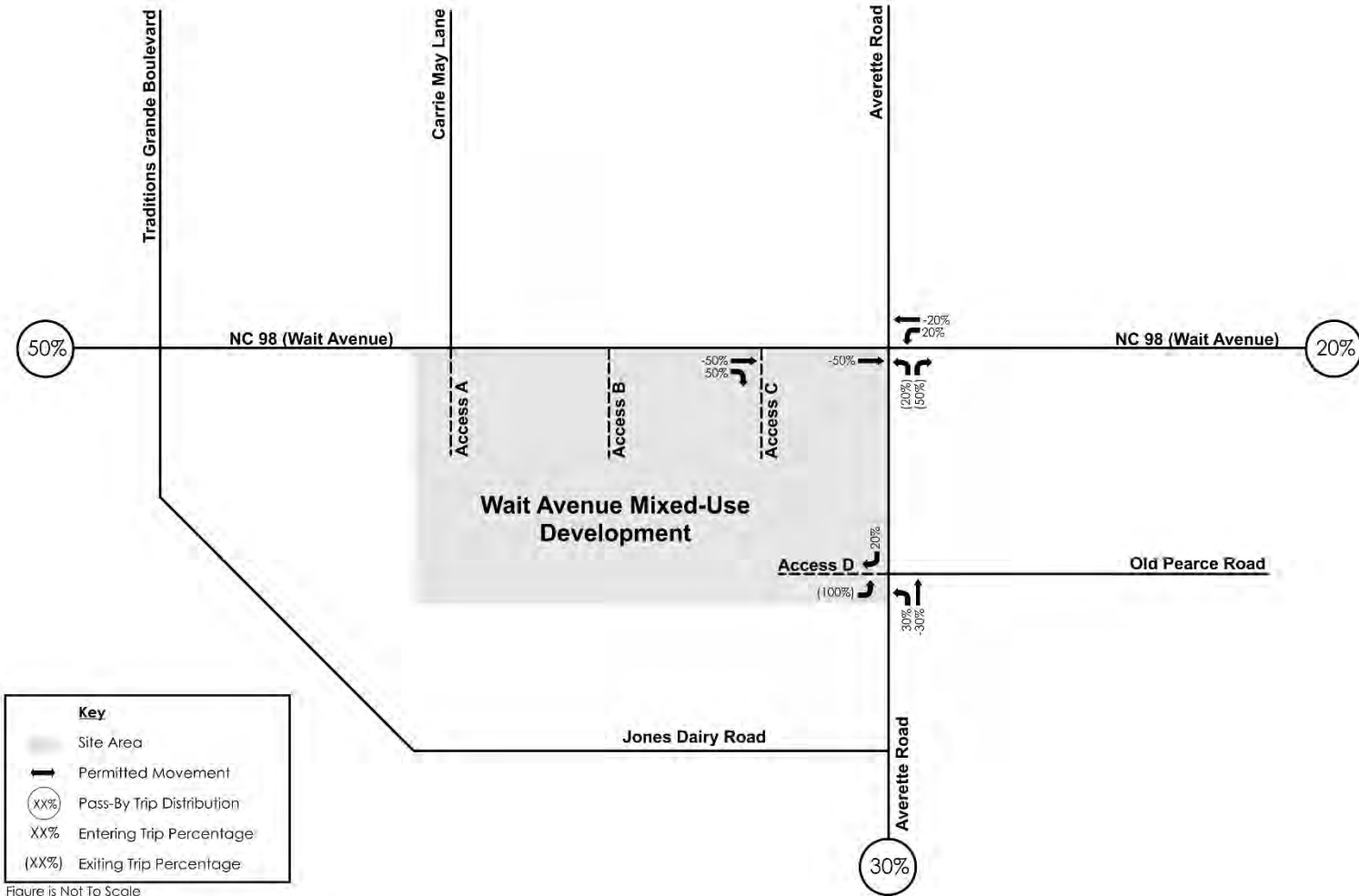
Figure is Not To Scale



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Distribution
May 24, 2021

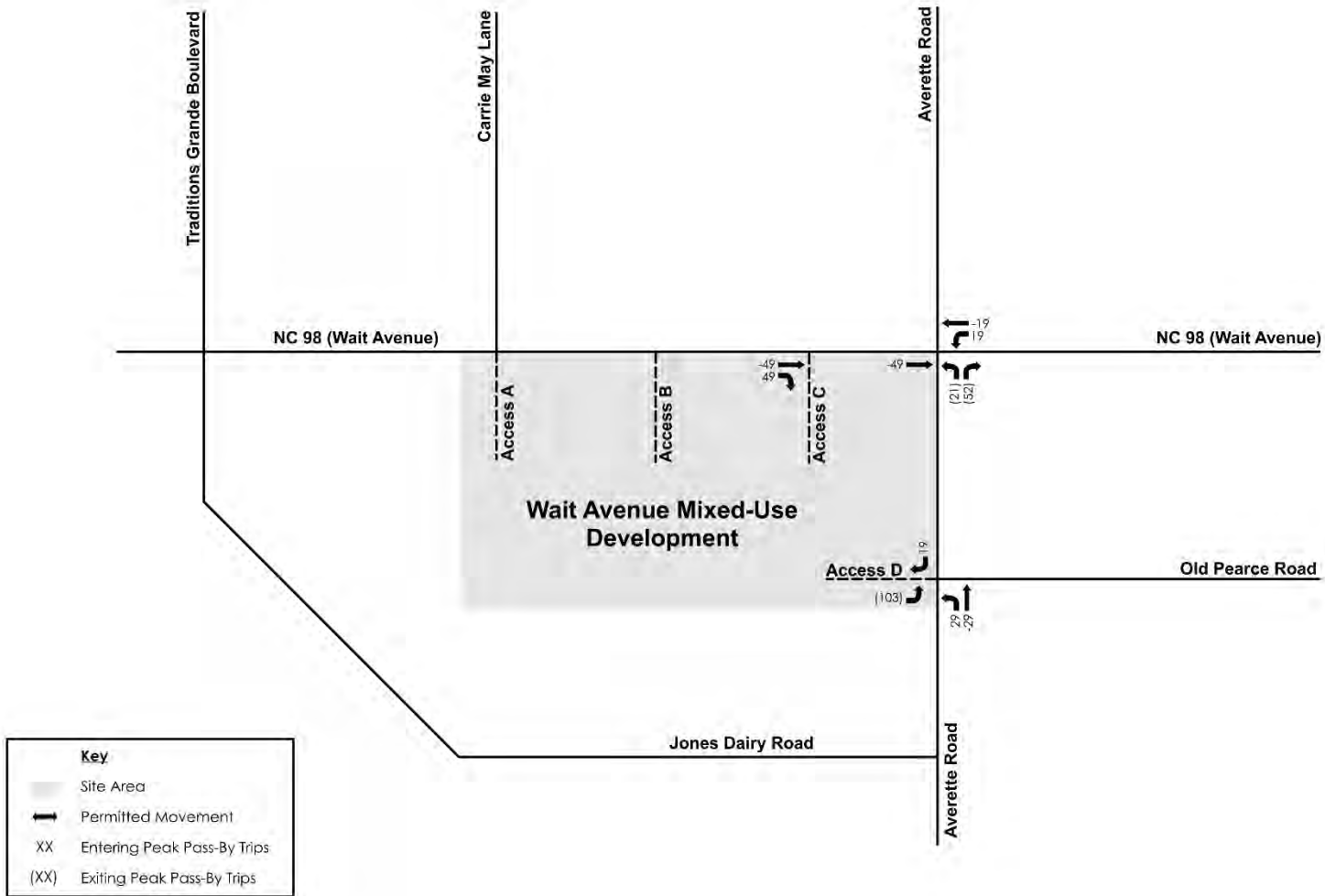
Figure 9: Pass-by Trip Distribution



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Distribution
 May 24, 2021

Figure 10: Pass-by Trip Assignment



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Distribution
May 24, 2021

This page is intentionally left blank

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Volumes
May 24, 2021

5.0 TRAFFIC VOLUMES

All traffic volume calculations can be found in the appendix.

5.1 AVAILABLE DATA

Morning (7:00 – 9:00 am) and evening (4:00 – 6:00 pm) turning movement counts were taken from prior studies as follows:

- NC 98 (Wait Avenue) at Jones Dairy Road / Traditions Grande Boulevard Jan. 31, 2018
- NC 98 (Wait Avenue) at Averette Road Nov. 7, 2017
- Averette Road at Old Pearce Road Nov. 7, 2017
- Averette Road at Jones Dairy Road Sept. 5, 2018

Traffic counts were not collected at the intersection of NC 98 (Wait Avenue) at Carrie May Lane. The Thales Academy – Rolesville, NC TIA (Kimley-Horn and Associates, Inc., April 2018) provided the following discussion:

“Since ITE indicates that the 9 single-family homes along Carrie May Lane generate fewer than 8 entering and 8 exiting trips in the peak hours, traffic counts were not collected at the intersection of NC 98 at Carrie May Lane. As a minimum 4 peak-hour trips were analyzed for each turning movement in the study area.”

These traffic counts were grown by a 2% annual rate to the existing year of 2021. All traffic count data can be found in the appendix.

5.2 VOLUME BALANCING

Having been grown to 2021, traffic volumes for the AM and PM peak hours were balanced between all study intersections along both NC 98 (Wait Avenue) and Averette Road. The balanced existing (2021) volumes are shown in Figure 11.

5.3 FUTURE TRAFFIC GROWTH

Future traffic growth is the increase in traffic volumes due to usage increases and non-specific growth throughout the area. The 2021 existing volumes were grown by a 2% annual rate to estimate the 2026 volumes. A figure showing the future traffic growth can be found in the appendix.

5.4 APPROVED DEVELOPMENT TRAFFIC

There are five (5) approved developments within the study area and details are as follows:

1. The Austin Creek subdivision is located along Austin View Boulevard to the west of the proposed Wait Avenue Mixed-Use Development. It is expected to consist of 396 single-family homes and 65 townhomes and be complete prior to the full build-out of the subject development.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Volumes
May 24, 2021

2. Tryon Residential development is a proposed project consisting of 281 single-family homes and 134 townhomes. This site is located in the southwest quadrant of Averette Road and Oak Grove Church Road and is expected to be complete prior to the full build-out of the subject development.
3. Perry Farms is a proposed residential development located along Averette Road north of Edgefield Drive. It is anticipated to consist of 116 single-family homes and also to be completed prior to the full build-out of the subject project.
4. The Preserve for Jones Dairy, also known as Jones Dairy Road Residential, is a proposed residential development located in the northwest quadrant of Averette Road and Jones Dairy Road consisting of 250 townhomes and 600 single-family homes and is expected to be completed in 2024.
5. Thales Academy Wake Forest is a proposed private school development located in the northwest quadrant of NC 98 (Wait Avenue) and Averette Road. This school is anticipated to have a maximum enrollment of 1,100 students (550 in K-5 and 550 in 6-12) and be completed by 2028.

Figures detailing trips associated with each of the approved developments are included in the appendix. Pertinent info related to each of these approved developments is included in the appendix.

5.5 NO-BUILD TRAFFIC VOLUMES

The future traffic growth and approved development traffic volumes were added to the existing volumes to determine the no-build traffic volumes. The 2026 no-build traffic volumes are shown in Figure 12.

5.6 RESIDENTIAL-BUILD TRAFFIC VOLUMES

To obtain the total 2026 residential build traffic volumes, the distributed site traffic shown in Figure 7 was added to the respective no-build traffic volumes shown in Figure 12. The total AM and PM peak hour turning movement volumes for the study intersections were then calculated and analyzed for the 2026 residential-build scenario. The 2026 residential build-out traffic volumes are shown in Figure 13.

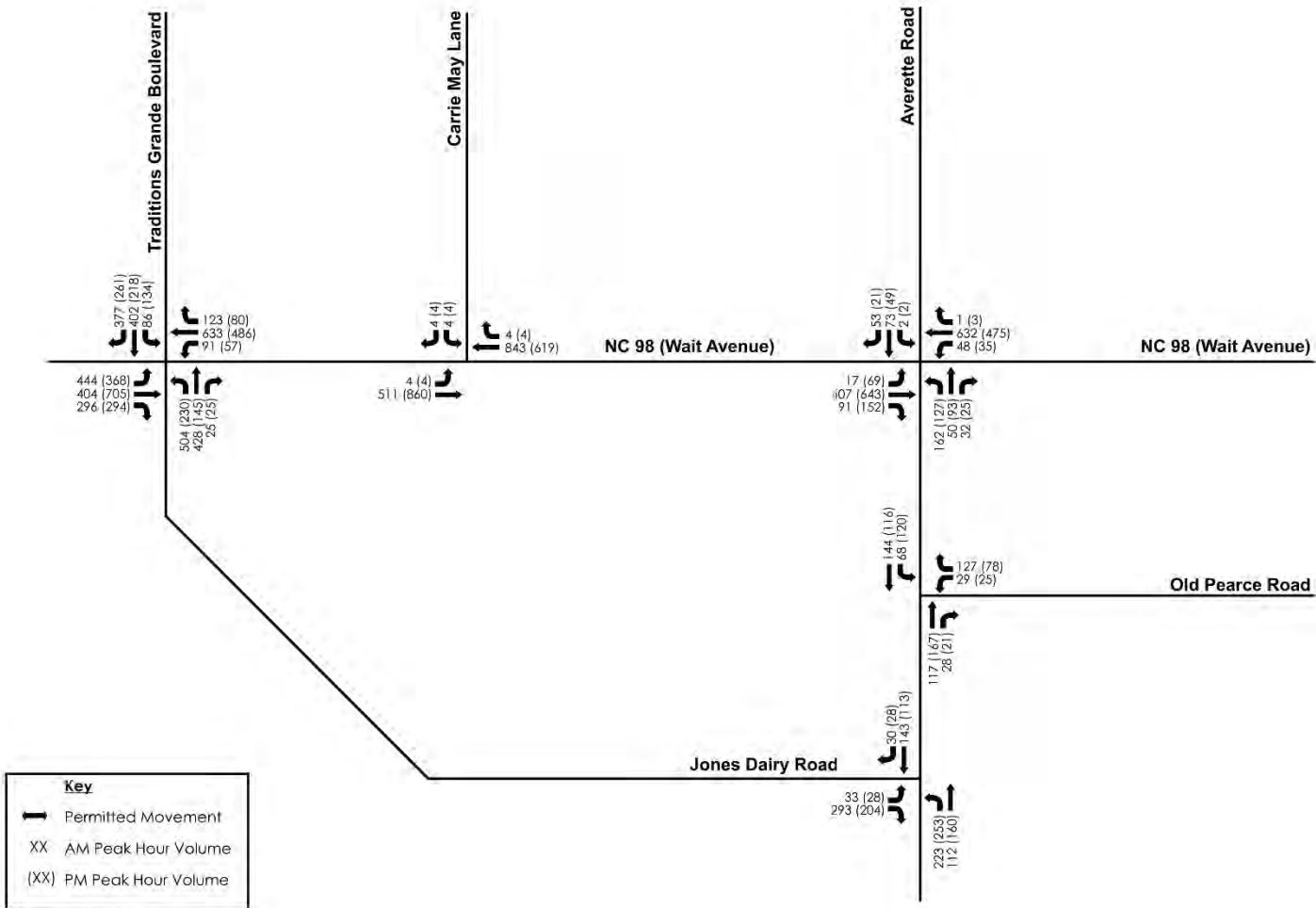
5.7 FULL-BUILD TRAFFIC VOLUMES

To obtain the total 2026 full-build traffic volumes, the distributed site traffic shown in Figure 8 and pass-by traffic shown in Figure 10 were added to the respective no-build traffic volumes shown in Figure 12. The total AM and PM peak hour turning movement volumes for the study intersections were then calculated and analyzed for the 2026 full-build traffic scenario. The 2026 full-build traffic volumes are shown in Figure 14.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Volumes
May 24, 2021

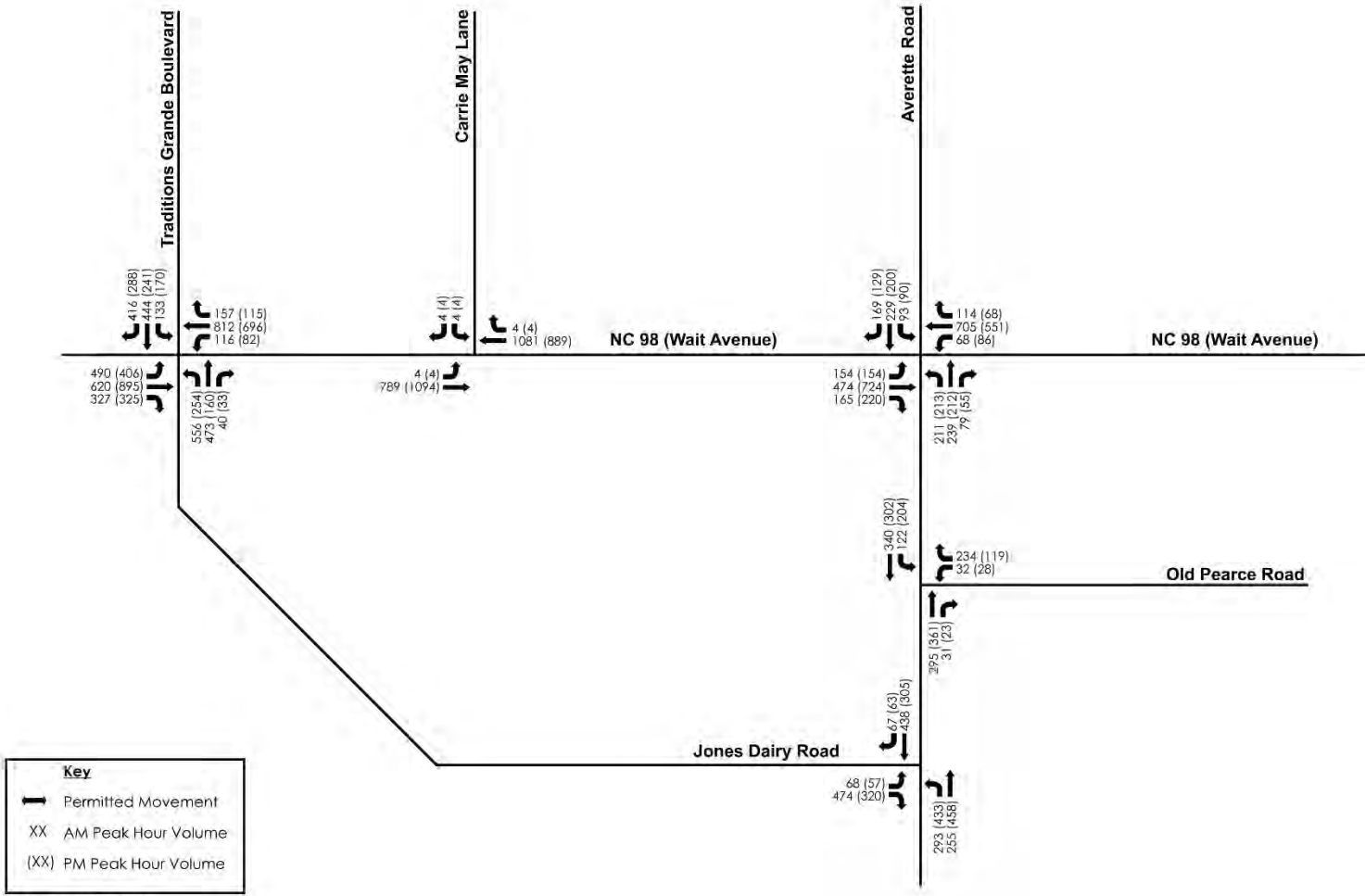
Figure 11: 2021 Existing Traffic Volumes



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Volumes
May 24, 2021

Figure 12: 2026 No-Build Traffic Volumes



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Volumes
May 24, 2021

Figure 13: 2026 Residential-Build Traffic Volumes

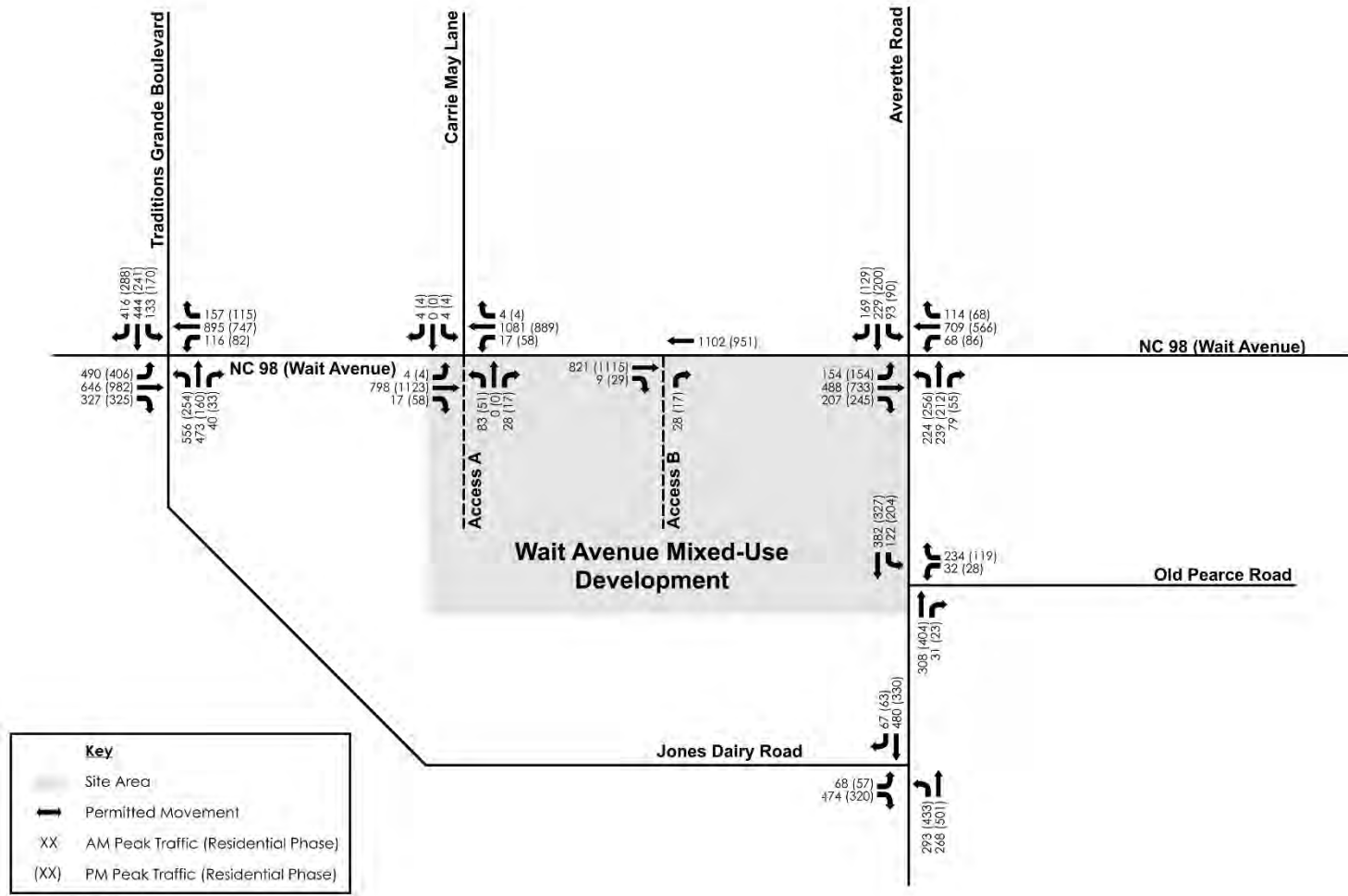


Figure is Not To Scale



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Volumes
May 24, 2021

Figure 14: 2026 Full-Build Traffic Volumes

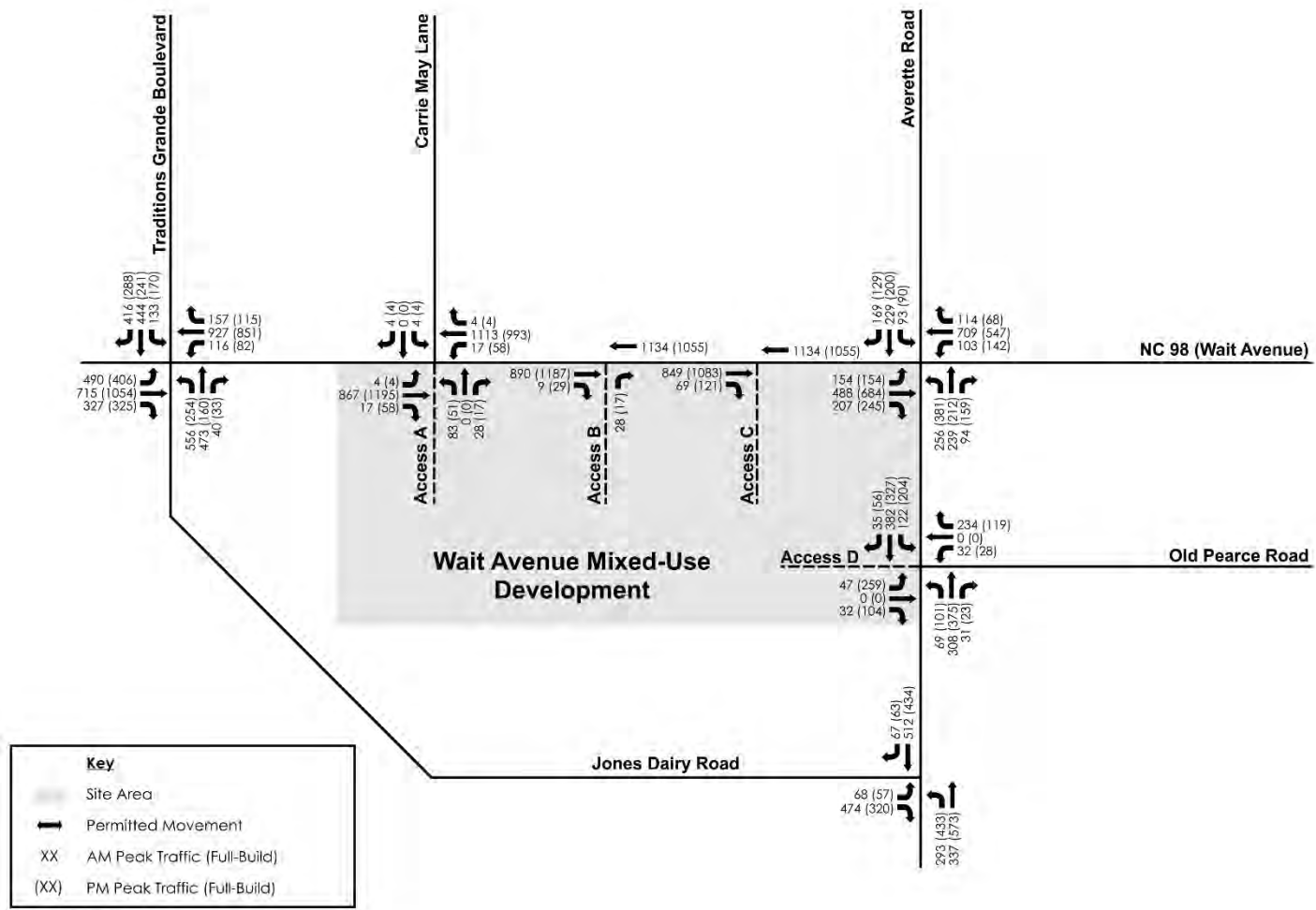


Figure is Not To Scale



6.0 TRAFFIC ANALYSIS

Capacity analyses were performed for the roadway network in the project study area. The traffic analysis program Synchro Version 10 was used to analyze all signalized and stop-controlled intersections according to methods put forth by the Transportation Research Board's Highway Capacity Manual (HCM)⁵. The Highway Capacity Manual defines capacity as "the maximum rate of flow at which persons or vehicles can be reasonably expected to traverse a point or uniform section of a lane or roadway during a specified period under the prevailing roadway, traffic, and control conditions, usually expressed as vehicles per lane per hour."

Level of service (LOS) is a term used to describe different traffic conditions and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists/ or passengers." LOS varies from Level A, representing free flow, to Level F where traffic breakdown conditions are evident. At an unsignalized intersection, the primary traffic on the main roadway is virtually uninterrupted. Therefore, the overall delay for the intersection is usually less than what is calculated for the minor street movements. The overall intersection delay and the delay for the intersection's minor movement(s) are reported in the summary tables of this report. Generally, LOS D is acceptable for signalized intersections in suburban areas during peak periods.

Capacity analyses were completed following *NCDOT Congestion Management Capacity Analysis Guidelines*⁶. Table 4 presents the criteria of each LOS as indicated in the *HCM*⁵.

Table 4: Level of Service Criteria

Level of Service (LOS)	Signalized Intersection Control Delay (seconds / vehicle)	Unsignalized Intersection Control Delay (seconds / vehicle)
A	≤ 10	≤ 10
B	>10 and ≤ 20	>10 and ≤ 15
C	>20 and ≤ 35	>15 and ≤ 25
D	>35 and ≤ 55	>25 and ≤ 35
E	>55 and ≤ 80	>35 and ≤ 50
F	>80	>50

The Town of Rolesville's Unified Development Ordinance⁷, section 9.11.3, establishes the following Level of Service Standards:

(A) The traffic impact analysis must demonstrate that the proposed development would not cause build-out-year, peak-hour levels of service on any arterial or collector road or intersection within the study area to fall below Level of Service (LOS) "D," as defined by the latest edition of the highway capacity manual, or, where the existing level of service is already LOS "E" that the proposed development would not cause the LOS to fall to the next lower letter grade.

(B) If the road segment or intersection is already LOS "F," the traffic impact analysis must demonstrate that the proposed development, with any proposed improvements, would not cause build-out year peak-hour operation to degrade more than five percent of the total delay on any intersection approach.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
May 24, 2021

Capacity analyses were performed for the following conditions.

- Existing (2021)
- Future Year (2026) No-Build
- Future Year (2026) Residential Build
- Future Year (2026) Residential Build with Improvements
- Future Year (2026) Full-Build
- Future Year (2026) Full-Build with Improvements

The following intersections were included in the capacity analysis for the above scenarios; where applicable:

- NC 98 (Wait Avenue) at Jones Dairy Road / Traditions Grande Boulevard
- NC 98 (Wait Avenue) at Carrie May Lane / Access A
- NC 98 (Wait Avenue) at Access B
- NC 98 (Wait Avenue) at Access C
- NC 98 (Wait Avenue) at Averette Road
- Averette Road at Old Pearce Road / Access D
- Averette Road at Jones Dairy Road

SimTraffic runs were completed for all scenarios to observe the predicted traffic operations throughout the study area during each of the peak hours. As is standard practice, ten (10) SimTraffic analysis runs were performed for each scenario. Detailed SimTraffic queuing and blocking reports can be found in the appendix. Queues for the exclusive turn lanes are summarized in tables for each study intersection. Queues are not reported for intersections that do not have exclusive turn lanes. For simplicity, the greater of the 95th percentile queue as reported by Synchro or the maximum observed queue as reported by SimTraffic are shown in the tables.

All Synchro files and detailed printouts can be found in the appendix. A summary of the results of the analyses is provided in the following sub-sections.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
 May 24, 2021

6.1 2021 EXISTING ANALYSIS

The 2021 existing scenario results show that all intersections and approaches currently operate at LOS D or better in both peak periods with the exception of the southbound approach of Carrie May Lane at NC 98 (Wait Avenue). The level of service and delay for the existing traffic conditions are listed below in Table 5.

Table 5: Level of Service and Delay for 2021 Existing Conditions

LOS/Delay		2021 Existing				
		Overall	EB	WB	NB	SB
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	AM	D (41.2)	D (35.5)	D (38.2)	D (46.6)	D (45.8)
	PM	C (32.7)	C (26.3)	C (25.5)	D (49.6)	D (43.0)
NC 98 & Carrie May Lane	AM	# (0.3)	B (11.0)	# (0.0)	- (-)	F (51.6)
	PM	# (0.3)	A (9.2)	# (0.0)	- (-)	E (46.8)
NC 98 & Averette Road	AM	B (16.5)	B (11.8)	B (13.2)	C (34.8)	B (18.8)
	PM	C (21.6)	C (23.0)	A (8.5)	D (44.8)	C (20.0)
Averette Road & Old Pearce Road	AM	# (4.3)	- (-)	B (10.7)	# (0.0)	A (7.7)
	PM	# (4.0)	- (-)	B (11.4)	# (0.0)	A (4.0)
Averette Road & Jones Dairy Road	AM	# (8.0)	C (15.0)	- (-)	A (8.2)	# (0.0)
	PM	# (6.6)	B (13.4)	- (-)	A (8.2)	# (0.0)

Legend:

- X (X) LOS (Delay)
- Unsignalized Intersection
- Signalized Intersection
- # No level of service or delay provided
- (-) No movement

Traffic Analysis
May 24, 2021

6.2 2026 NO-BUILD ANALYSIS

In the 2026 no-build conditions, the future traffic growth paired with the number of approved developments in the area attribute to higher delays at the study intersections. This analysis assumes the improvements associated with the approved developments are constructed. These improvements were discussed in Section 2.4, but are also listed below:

NC 98 (Wait Avenue) at Averette Road

Construct an exclusive northbound left-turn lane on Averette Road with 200 feet of storage.

Averette Road at Jones Dairy Road

- Construct an exclusive eastbound left-turn lane on Jones Dairy Road with a minimum 50 feet of storage and appropriate deceleration and taper length.
- Construct an exclusive northbound left-turn lane on Averette Road with a minimum 150 feet of storage and appropriate deceleration and taper length.
- Monitor for signalization and install a traffic signal if and when warranted.

The following observations are noteworthy:

- The overall level of service at the intersection of NC 98 (Wait Avenue) at Jones Dairy Road / Traditions Grande Boulevard is D in both the AM and PM peak hours. However, the northbound and southbound approaches operate at LOS E.
- The southbound approach of Carrie May Lane at NC 98 (Wait Avenue) operates with high delays.
- The intersection and all approaches to the intersection of NC 98 (Wait Avenue) at Averette Road operate at LOS F during both peak hours.

The no-build level of service and delay are listed in Table 6.

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
 May 24, 2021

Table 6: Level of Service and Delay for 2026 No-Build Conditions

LOS/Delay		2026 No-Build				
		Overall	EB	WB	NB	SB
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	AM	D (54.0)	D (49.4)	C (31.4)	E (67.6)	E (70.7)
	PM	D (44.1)	D (35.7)	C (23.1)	E (74.7)	E (71.0)
NC 98 & Carrie May Lane	AM	# (0.1)	C (18.1)	# (0.0)	- (-)	D (25.2)
	PM	# (8.7)	B (11.8)	# (0.0)	- (-)	F (##)
NC 98 & Averette Road	AM	F (169.4)	F (103.5)	F (212.0)	F (115.4)	F (257.3)
	PM	F (162.3)	F (189.9)	F (91.6)	F (118.4)	F (259.6)
Averette Road & Old Pearce Road	AM	# (5.6)	- (-)	C (18.3)	# (0.0)	A (8.4)
	PM	# (4.6)	- (-)	C (20.2)	# (0.0)	A (9.0)
Averette Road & Jones Dairy Road	AM	C (23.7)	C (28.9)	- (-)	B (17.3)	C (25.1)
	PM	C (20.1)	C (20.7)	- (-)	B (19.4)	C (21.1)

Legend:

- X (X) LOS (Delay)
- | |
|--|
| |
|--|

 Unsignalized Intersection
- | |
|--|
| |
|--|

 Signalized Intersection
- # No level of service or delay provided
- ## Delay exceeds 300 seconds
- (-) No movement

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
May 24, 2021

6.3 2026 RESIDENTIAL-BUILD ANALYSIS



In the 2026 residential-build scenario, observations are similar to those provided in the no-build analysis. The residential-build level of service and delay are listed in Table 7. The following observations are noteworthy:

- The overall level of service at the intersection of NC 98 (Wait Avenue) at Jones Dairy Road / Traditions Grande Boulevard increases slightly, causing the AM peak hour to operate just beyond the threshold of LOS E.
- Synchro is reporting acceptable delays on the stop-controlled approaches of Carrie May Lane and Access A. However, these approaches are anticipated to operate with long delays due to high traffic volumes on NC 98 (Wait Avenue).
- The intersection and all approaches to the intersection of NC 98 (Wait Avenue) at Averette Road operate at LOS F during both peak hours.

Table 7: Level of Service and Delay for 2026 Residential-Build Conditions

LOS/Delay		2026 Residential-Build				
		Overall	EB	WB	NB	SB
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	AM	E (56.6)	D (49.3)	D (40.1)	E (69.3)	E (73.2)
	PM	D (44.0)	D (35.8)	C (24.3)	E (74.7)	E (71.1)
NC 98 & Carrie May Lane/Access A	AM	# (1.5)	C (18.1)	A (9.9)	C (21.9)	D (25.7)
	PM	# (1.5)	B (11.8)	B (12.8)	D (34.0)	C (15.5)
NC 98 & Access B	AM	# (0.2)	# (0.0)	# (0.0)	C (17.0)	- (-)
	PM	# (0.2)	# (0.0)	# (0.0)	C (23.9)	- (-)
NC 98 & Averette Road	AM	F (130.8)	F (87.8)	F (150.3)	F (114.8)	F (187.3)
	PM	F (181.0)	F (216.5)	F (99.2)	F (143.3)	F (273.0)
Averette Road & Old Pearce Road	AM	# (5.6)	- (-)	C (19.4)	# (0.0)	A (8.4)
	PM	# (4.7)	- (-)	C (22.9)	# (0.0)	A (9.2)
Averette Road & Jones Dairy Road	AM	C (23.4)	C (31.2)	- (-)	B (17.7)	C (21.7)
	PM	B (19.9)	C (21.3)	- (-)	B (19.1)	C (20.7)

Legend:

- X (X) LOS (Delay)
-  Unsignalized Intersection
-  Signalized Intersection
- # No level of service or delay provided
- (-) No movement

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
May 24, 2021

6.4 2026 RESIDENTIAL-BUILD WITH IMPROVEMENTS ANALYSIS

Based on the findings of this study, specific improvements have been identified and should be completed as part of the residential phase of this development. The recommendations are illustrated in Figure 15. The specific improvements are listed below and detailed in Section 8.1.

NC 98 (Wait Avenue) at Averette Road

- Construct an eastbound right-turn lane with 175 feet of full-width storage and appropriate taper
- Construct a southbound right-turn lane with 225 feet of full-width storage and appropriate taper
- Modify the traffic signal with respect to the recommended geometric improvements

NC 98 (Wait Avenue) at Carrie May Lane / Access A

- Construct Access A as a full-movement access point
- Construct Access A with one ingress and one egress lane
- Construct an eastbound right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a westbound left-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a northbound shared thru/right-turn lane with 225 feet of full-width storage and appropriate taper

NC 98 (Wait Avenue) at Access B

- Construct Access B as a right-in / right-out only access point
- Restrict access with the installation of appropriate channelization along NC 98 (Wait Avenue)
- Construct Access B with one ingress and one egress lane

The residential-build with improvements level of service and delay are listed in Table 8. The following observations are noteworthy:

With the recommended improvements in-place, the intersection of NC 98 (Wait Avenue) at Averette Road continues to operate at LOS F. However, overall delay at the intersection is reduced. Delay increases on the westbound approach to the intersection in the PM peak hour, but this represents less than a five-percent increase in delay on the approach. This increase is acceptable according to the Town Unified Development Ordinance⁷.

Both the northbound and southbound approaches to the intersection of NC 98 (Wait Avenue) at Carrie May Lane / Access A operate at LOS F. This is consistent with the no-build scenario and can be attributed to high traffic volumes on NC 98 (Wait Avenue).

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
 May 24, 2021

Table 8: Level of Service and Delay for 2026 Residential-Build with Improvements

LOS/Delay		2026 Residential-Build Improved				
		Overall	EB	WB	NB	SB
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	AM	D (53.7)	D (47.2)	D (36.5)	E (66.8)	E (69.5)
	PM	D (40.3)	C (34.6)	C (22.5)	E (71.1)	E (58.8)
NC 98 & Carrie May Lane/Access A	AM	# (0.3)	C (18.0)	A (9.9)	C (16.7)	D (25.6)
	PM	# (0.3)	B (11.7)	B (12.8)	F (##)	F (##)
NC 98 & Access B	AM	# (0.2)	# (0.0)	# (0.0)	C (17.0)	- (-)
	PM	# (0.2)	# (0.0)	# (0.0)	C (23.9)	- (-)
NC 98 & Averette Road	AM	F (116.2)	D (53.1)	F (159.3)	F (107.7)	F (156.4)
	PM	F (90.0)	E (72.4)	F (94.7)	F (99.6)	F (117.3)
Averette Road & Old Pearce Road	AM	# (5.8)	- (-)	C (20.4)	# (0.0)	A (8.4)
	PM	# (5.1)	- (-)	D (26.0)	# (0.0)	A (9.2)
Averette Road & Jones Dairy Road	AM	D (38.6)	D (51.9)	- (-)	C (26.9)	D (37.3)
	PM	C (31.9)	D (41.7)	- (-)	C (29.7)	C (27.8)

Legend:

- X (X) LOS (Delay)
- Unsignalized Intersection
- Signalized Intersection
- # No level of service or delay provided
- (-) No movement

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
May 24, 2021

6.5 2026 FULL-BUILD ANALYSIS

The 2026 full-build analysis includes traffic associated with the ultimate build-out of the development and assumes the improvements recommended as part of the residential phase are constructed. The full-build level of service and delay are listed in Table 9.

As shown in the table, the addition of development traffic adds to delay at the study area intersections. It should be noted that Access C is not shown. This is due to Access C serving right-turns in only. High delays are observed at the intersection of NC 98 (Wait Avenue) at Averette Road as well as the unsignalized approaches of Old Pearce Road and Access D at Averette Road.

Synchro is reporting acceptable delays on the stop-controlled approaches of Carrie May Lane and Access A. However, these approaches are anticipated to operate with long delays due to high traffic volumes on NC 98 (Wait Avenue).

Table 9: Level of Service and Delay for 2026 Full-Build Conditions

LOS/Delay		2026 Full-Build				
		Overall	EB	WB	NB	SB
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	AM	E (55.9)	D (49.4)	D (37.1)	E (70.4)	E (73.2)
	PM	D (50.5)	D (38.8)	C (31.7)	F (88.2)	F (84.4)
NC 98 & Carrie May Lane/Access A	AM	# (0.3)	C (21.0)	B (10.3)	C (18.1)	D (30.8)
	PM	# (0.4)	B (14.5)	B (13.4)	D (26.6)	C (19.8)
NC 98 & Access B	AM	# (0.3)	# (0.0)	# (0.0)	C (18.5)	- (-)
	PM	# (0.2)	# (0.0)	# (0.0)	D (26.3)	- (-)
NC 98 & Averette Road	AM	F (127.5)	E (77.0)	F (168.5)	F (110.4)	F (158.2)
	PM	F (181.3)	F (94.0)	F (110.6)	F (97.5)	F (##)
Averette Road & Old Pearce Road/Access D	AM	# (26.2)	F (254.2)	E (42.3)	A (8.5)	A (8.4)
	PM	# (##)	F (##)	F (165.8)	A (8.5)	A (9.0)
Averette Road & Jones Dairy Road	AM	D (37.7)	E (56.7)	- (-)	C (26.2)	C (32.5)
	PM	D (37.8)	E (57.6)	- (-)	D (36.9)	C (24.4)

Legend:

- X (X) LOS (Delay)
- | |
|--|
| |
|--|

 Unsignalized Intersection
- | |
|--|
| |
|--|

 Signalized Intersection
- # No level of service or delay provided
- ## Delay exceeds 300 seconds
- (-) No movement

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
May 24, 2021

6.6 2026 FULL-BUILD WITH IMPROVEMENTS ANALYSIS

Based on the findings of this study, specific improvements have been identified and should be completed as part of full-build of this development. The recommendations are illustrated in Figure 16. The specific improvements are listed below and detailed in section 8.2.

NC 98 (Wait Avenue) at Averette Road

- Construct a southbound left-turn lane with 250 feet of full-width storage and appropriate taper
- Extend the northbound left-turn lane from the storage intended to be constructed by the Elizabeth Heights development to full-width between NC 98 (Wait Avenue) and Old Pearce Road / Access D
- Modify the traffic signal with respect to the recommended geometric improvements

Averette Road at Old Pearce Road / Site Access D

- Construct Access D as a full-movement access point
- Construct Access D with one ingress and one egress lane
- Construct an eastbound shared thru/right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a northbound left-turn lane with 225 feet of full-width storage and appropriate taper

NC 98 (Wait Avenue) at Access C

- Construct Access C as a right-in only access point
- Restrict access with the installation of appropriate channelization along NC 98 (Wait Avenue)
- Construct Access C with one ingress lane
- Construct an eastbound right-turn lane with 100 feet of full-width storage and appropriate taper

The full-build with improvements level of service and delay are listed in Table 10. The following observations are noteworthy:

- The overall LOS of NC 98 (Wait Avenue) at Averette Road is E. The recommended improvements mitigate the development's impact on the intersection, but due to large increases in traffic, longer delays are anticipated at this intersection.
- The eastbound approach of Access D at Averette Road operates at LOS F in the PM peak hour. The installation of a traffic signal would reduce side-street delays. However, a signal is not recommended at this location due to the close-spacing of Old Pearce Road / Access D from NC 98 (Wait Avenue).

Synchro is reporting acceptable delays on the stop-controlled approaches of Carrie May Lane and Access A. However, these approaches are anticipated to operate with long delays due to high traffic volumes on NC 98 (Wait Avenue).

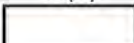

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
 May 24, 2021

Table 10: Level of Service and Delay for 2026 Full-Build with Improvements

LOS/Delay		2026 Full-Build Improved				
		Overall	EB	WB	NB	SB
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	AM	D (49.1)	D (41.8)	D (36.0)	E (63.3)	E (60.8)
	PM	C (33.3)	C (30.0)	C (23.6)	D (52.7)	D (43.8)
NC 98 & Carrie May Lane/Access A	AM	# (0.3)	C (19.5)	B (10.3)	C (18.1)	D (28.1)
	PM	# (0.4)	B (14.0)	B (13.4)	D (26.6)	C (19.0)
NC 98 & Access B	AM	# (0.3)	# (0.0)	# (0.0)	C (18.5)	- (-)
	PM	# (0.2)	# (0.0)	# (0.0)	D (26.3)	- (-)
NC 98 & Averette Road	AM	E (73.1)	C (32.1)	F (80.1)	F (103.7)	F (94.3)
	PM	E (72.2)	E (58.9)	E (73.5)	F (82.3)	F (86.4)
Averette Road & Old Pearce Road/Access D	AM	# (5.7)	C (16.9)	C (16.0)	A (8.3)	A (8.4)
	PM	# (93.7)	F (##)	D (34.9)	A (8.2)	A (9.1)
Averette Road & Jones Dairy Road	AM	C (32.0)	D (53.8)	- (-)	C (23.5)	C (20.9)
	PM	C (25.2)	C (31.3)	- (-)	C (23.1)	C (24.8)

Legend:

- X (X) LOS (Delay)
-  Unsignalized Intersection
-  Signalized Intersection
- # No level of service or delay provided
- ## Delay exceeds 300 seconds
- (-) No movement

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
May 24, 2021

7.0 SIMTRAFFIC OPERATIONS

SimTraffic runs were completed for all analysis scenarios to observe the predicted traffic operations throughout the study area during each of the peak hours. As is standard practice, ten (10) SimTraffic analysis runs were performed for each scenario to get an average. Detailed SimTraffic Queuing and Blocking reports can be found in the appendix.

Long queues are observed along NC 98 (Wait Avenue) and Averette Road. These are evident in 2026 no-build analysis as well as the build scenarios. This can be attributed to large increases in traffic volume due to background growth as well as traffic generated by several approved developments in the area. These queues extend past the driveways of the proposed development, causing queues internal to the development. This can be alleviated by widening NC 98 (Wait Avenue) to a four-lane divided section. However, such an expansive improvement would not be reasonable for this scale of development to perform such an improvement.

A summary of the maximum queue lengths observed during the simulation is provided in Table 11 and Table 12.

Table 11: Maximum Queues: Unsignalized

Maximum Queues - Unsignalized Intersections		Existing		No-Build		Residential-Build		Residential-Build Improved		Full-Build		Full-Build Improved	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NC 98 & Carrie May Lane/Access A	SBLR	30	32	91	162								
	SBLTR					158	256	80	153	156	262	46	114
	NBLTR					1325+	1427+						
	NBL							542	1061	1191+	1393	391	746
	NBTR							208	194	178	185	120	248
	EBR							145	183	167	200	54	104
NC 98 & Access B	WBL							57	189	117	188	41	154
	NBR					488	376	332	308	559	419	153	281
NC 98 & Access C	EBR											164	200
	WBLR	63	53	1449+	1334+	1466+	1464+	1452+	1335+				
Averette Road & Old Pearce Road	WBLTR									1540+	1500+	833	336
	EBLTR									389+	491+		
	EBL											101	508+
	EBTR											56	200
Averette Road & Jones Dairy Road	NBLT											81	132
	EBLR	136	114										

Legend:

- No Movement
- XX Maximum Queue Length (feet)
- + Queue Extends Off Network

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Traffic Analysis
May 24, 2021

Table 12: Maximum Queues: Signalized

Maximum Queues - Signalized Intersections		Existing		No-Build		Residential-Build		Residential-Build Improved		Full-Build		Full-Build Improved	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
NC 98 & Jones Dairy Road/Traditions Grande Boulevard	EBL	244	215	399	662	400	529	393	560	496	454	424	600
	EBT	236	353	479	2742+	644	2898+	504	2043	622	2898+	519	1582
	EBR	201	193	269	250	244	233	255	250	264	249	250	250
	WBL	389	110	359	306	267	141	372	228	385	213	270	242
	WBT	504	217	533	435	470	313	576	372	668	581	460	467
	WBR	250	82	250	250	250	178	250	234	250	217	250	234
	NBL	280	167	442	287	448	232	441	235	464	273	384	205
	NBT	210	106	438	241	380	430	354	173	546	354	367	147
	NBR	0	0	30	108	58	181	0	32	59	191	30	17
	SBL	121	151	188	385	188	391	290	272	315	333	275	183
NC 98 & Averette Road	SBT	288	192	397	940	386	1459+	461	425	472	1260	387	241
	SBR	248	213	363	317	388	320	363	298	392	354	402	198
	EBL	38	176	459	374	408	377	398	349	443	430	286+	286
	EBTR	251	538	5982	12026	5928	11954						
	EBT							3060	10860	5091	12000	1864	2859
	EBR							275	275	275	275	275	275
	WBL	69	66	275	275	255	273	275	274	275	423	275	275
	WBTR	254	154	1678+	1443+	1514+	1485+	1529+	1496+	1539+	1507+	1540+	1308+
	NBLTR	207	219										
	NBL			554	539	571	643	543	544	617	908	571	554
NBTR			929	1175	3437	7270	932	5002	1005	7011	582	486	
SBLTR	127	92	1678+	1671+	1718+	1689+							
SBLT							1719+	1694+	1639+	1695+			
SBL											329	249	
SBT											1062+	634	
SBR							325	325	325	325	325	279	
Averette Road & Jones Dairy Road	EBL			149	121	149	148	149	149	150	149	149	149
	EBR			365	248	385	1440	594	435	651	588	510	316
	NBL			248	339	257	346	381	546	414	718	324	441
	NBT			238	427	242	1729+	497	1017	511	1766+	408	816
	SBTR			540	324	423	217	609	395	696	559	485	427

Legend:

- No Movement
- XX. Maximum Queue Length (feet)
- +
- Queue Extends Off Network

Recommendations
May 24, 2021

8.0 RECOMMENDATIONS

Based on the findings of this study, specific improvements have been identified and should be completed as part of the proposed development. Except where noted, all intersections are recommended to operate under two-way stop control (TWSC), with the site accesses serving as the minor movement(s).

8.1 RESIDENTIAL-BUILD RECOMMENDATIONS

The following improvements are recommended to be constructed as part of the residential phase of the development. These improvements are illustrated in Figure 15.

NC 98 (Wait Avenue) at Averette Road

- Construct an eastbound right-turn lane with 175 feet of full-width storage and appropriate taper
- Construct a southbound right-turn lane with 225 feet of full-width storage and appropriate taper
- Modify the traffic signal with respect to the recommended geometric improvements

NC 98 (Wait Avenue) at Jones Dairy Road / Traditions Grande Boulevard

- No improvements are recommended at this intersection

Averette Road at Old Pearce Road

- No improvements are recommended at this intersection

Averette Road at Jones Dairy Road

- No improvements are recommended at this intersection

NC 98 (Wait Avenue) at Carrie May Lane / Access A

- Construct Access A as a full-movement access point
- Construct Access A with one ingress and one egress lane
- Construct an eastbound right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a westbound left-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a northbound shared thru/right-turn lane with 225 feet of full-width storage and appropriate taper

It should be noted that the construction of the eastbound right-turn lane may be limited due to available right-of way. If so, the amount of full-width storage may be reduced. Coordination should occur between the applicant, their representatives, and NCDOT to determine whether the amount of full-width storage should be reduced.

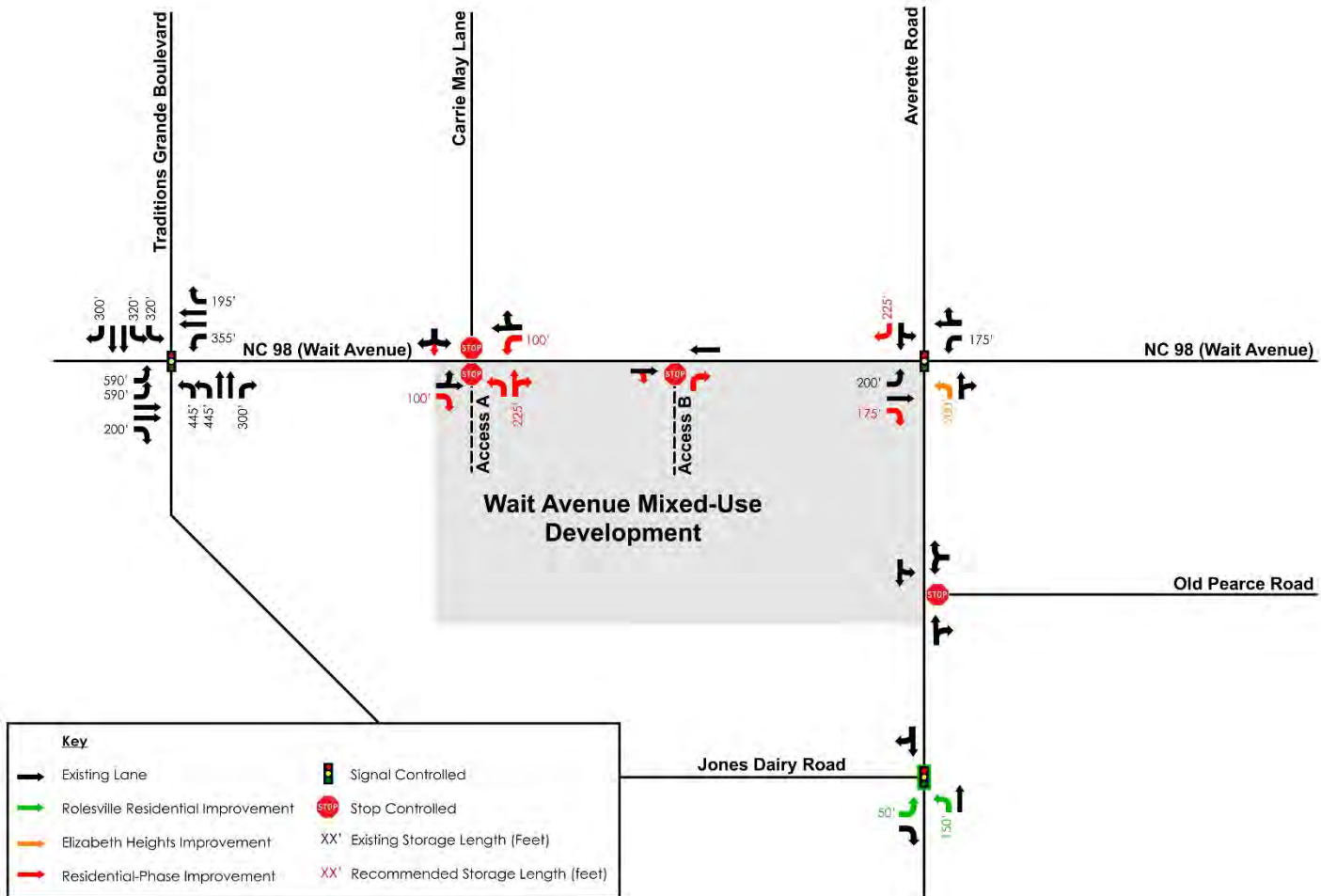
NC 98 (Wait Avenue) at Access B

- Construct Access B as a right-in / right-out only access point
- Restrict access with the installation of appropriate channelization along NC 98 (Wait Avenue)
- Construct Access B with one ingress and one egress lane

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Recommendations
 May 24, 2021

Figure 15: Residential-Build Recommended Lane Configurations



WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Recommendations

May 24, 2021

8.2 FULL-BUILD RECOMMENDATIONS

Following the construction of the residential phase and associated improvements, the following improvements are recommended to be constructed as part of the full build-out of the development. These improvements are illustrated in Figure 16.

NC 98 (Wait Avenue) at Averette Road

- Construct a southbound left-turn lane with 250 feet of full-width storage and appropriate taper
- Extend the northbound left-turn lane from the storage intended to be constructed by the Elizabeth Heights development to full-width between NC 98 (Wait Avenue) and Old Pearce Road / Access D
- Modify the traffic signal with respect to the recommended geometric improvements

NC 98 (Wait Avenue) at Jones Dairy Road / Traditions Grande Boulevard

No improvements are recommended at this intersection

Averette Road at Old Pearce Road / Access D

- Construct Access D as a full-movement access point
- Construct Access D with one ingress and one egress lane
- Construct an eastbound shared thru/right-turn lane with 100 feet of full-width storage and appropriate taper
- Construct a northbound left-turn lane with 225 feet of full-width storage and appropriate taper

Averette Road at Jones Dairy Road

No improvements are recommended at this intersection

NC 98 (Wait Avenue) at Carrie May Lane / Access A

No improvements are recommended at this intersection beyond those recommended as part of the residential phase.

NC 98 (Wait Avenue) at Access B

No improvements are recommended at this intersection beyond those recommended as part of the residential phase.

NC 98 (Wait Avenue) at Access C

- Construct Access C as a right-in only access point
- Restrict access with the installation of appropriate channelization along NC 98 (Wait Avenue)
- Construct Access C with one ingress lane
- Construct an eastbound right-turn lane with 100 feet of full-width storage and appropriate taper

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Recommendations
May 24, 2021

Figure 16: Full-Build Recommended Lane Configurations

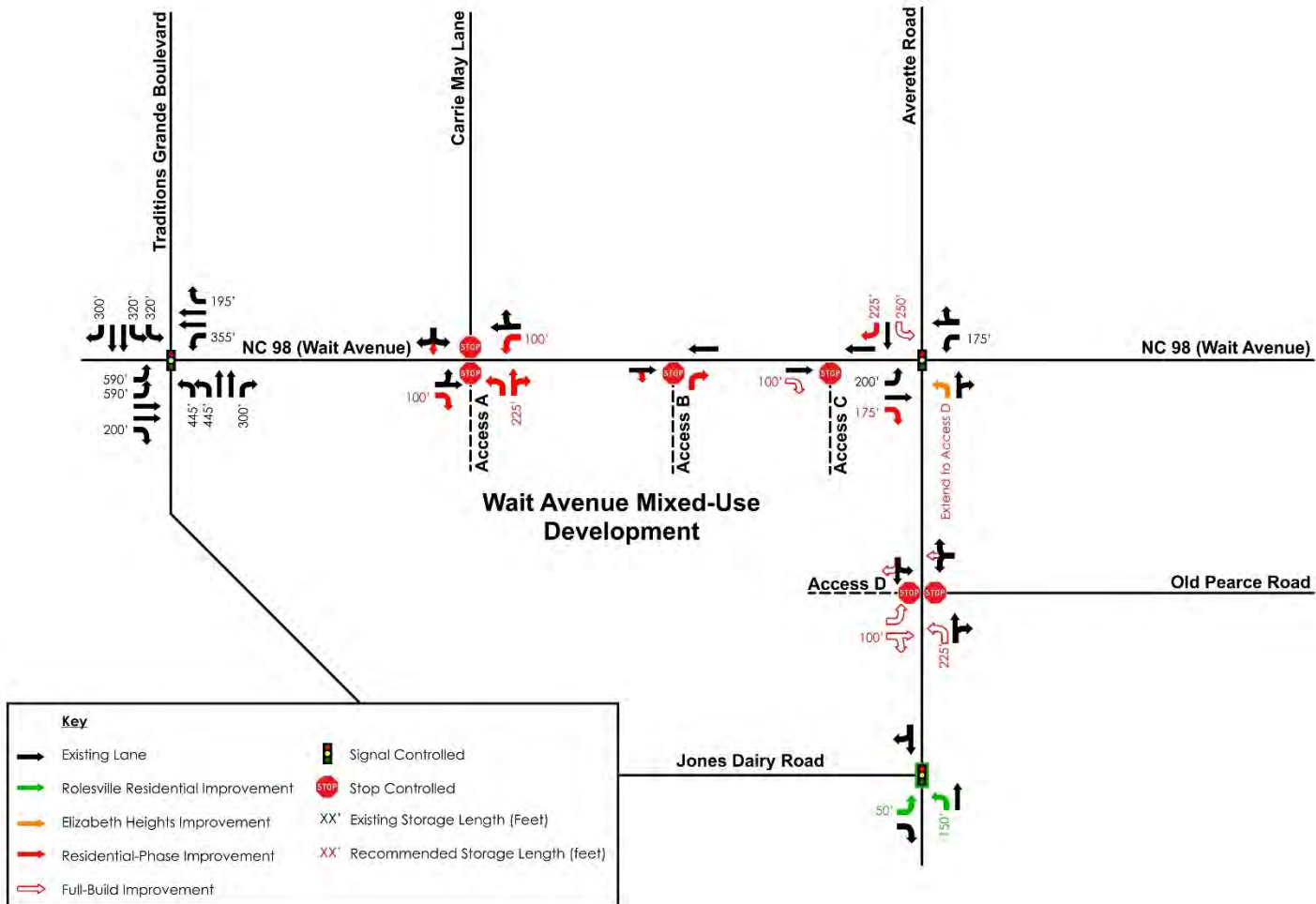


Figure is Not To Scale

WAIT AVENUE MIXED-USE DEVELOPMENT TRAFFIC IMPACT ANALYSIS

Conclusions
May 24, 2021

9.0 CONCLUSIONS

The study shows that intersections within the study area are anticipated to operate with long delays and queues in the future year of 2026 without the proposed development in-place. Delays are anticipated to continue to be present with the proposed development in-place. However, the results presented herein show that the recommended improvements associated with this development will mitigate the traffic it generates.

10.0 REFERENCES

¹ **NCDOT Functional Classification Map,**

<http://ncdot.maps.arcgis.com/home/webmap/viewer.html?layers=029a9a9fe26e43d687d30cd3c08b1792>

² **2019 NCDOT Average Daily Traffic Volumes,**

<https://ncdot.maps.arcgis.com/home/webmap/viewer.html?webmap=b7a26d6d8abd419f8c27f58a607b25a1>

³ **Trip Generation (10th Edition),** Institute of Transportation Engineers (ITE), September 2017.

⁴ **NCHRP Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.** Washington, D.C.: Transportation Research Board, 20151.

⁵ **Highway Capacity Manual 6th Edition: A Guide for Multimodal Mobility Analysis.** Washington D.C.: Transportation Research Board, 2016.

⁶ **NCDOT Congestion Management Capacity Analysis Guidelines.** North Carolina Department of Transportation (NCDOT), July 2015,
<https://connect.ncdot.gov/resources/safety/Congestion%20Mngmt%20and%20Signing/Congestion%20Management/Capacity%20Analysis%20Guidelines.pdf>

⁷ **Unified Development Ordinance.** Town of Rolesville, November 14, 2019,
https://library.municode.com/nc/rolesville/codes/unified_development_ordinance

APPENDIX

A link containing all relevant files is electronically sent with this report:

- NCDOT Scoping Checklist
- Site Plan
- Traffic Count Data
- Approved Development Information
- Traffic Volume Calculatoins
- Synchro and SimTraffic Files
- Traffic Signal Plans