



## Memorandum

TO: Mayor and Town Board of Commissioners  
FROM: Danny Johnson, AICP, Planning Director  
DATE: October 30, 2019  
RE: Agenda Item D. 6.

Public Hearing (quasi-judicial) on Case: SUP 19-03, Elizabeth Springs Subdivision 2<sup>nd</sup> Special Use Permit for a PUD Master Plan amendment to the previous Case: SUP 17-02 to consider phasing plan for the development and phasing plan for the road improvements on Averette Road.

### Background

#### Summary Information

Acreage: 81.525

Current Zoning: Residential and Planned Unit Development (R&PUD) zoning district

Owner: ExperienceOne Homes, LLC

Developer: ExperienceOne Homes, LLC

#### Request

A Special Use Permit (quasi-judicial) request for a 2<sup>nd</sup> PUD Master Plan Amendment to consider approval of a phasing plan for the development of Elizabeth Springs that consists of 89 residential townhomes and 98 single-family homes. Previously approved is the entire development is divided into two sections: Tract A consisting of 89 single-family homes and Tract B 98 residential townhomes with a portion in the R40W Zoning District that has to have the site regraded to drain away from Little River Drinking Water Supply Watershed Basin in order for a zoning map amendment to R&PUD and later plans approval for the additional homes. As stated in paragraph 7 of the Finding of Facts order for SUP 17-02 that reads:

7. "According to the applicant's submitted Traffic Impact Analysis, once fully developed, the Property will generate, on average, approximately 1670 vehicular trips per day. NCDOT has identified requisite street improvements at the intersection of Averette Road and Wait Ave, as well as left-turn lanes into the Property from Averette. The proposed Master PUD Plan shows the concept of these street improvements."

Proposed is to divide Tract A into two separate phases and Tract B into two separate phases. Also included is a request to separate the Averette Road street improvement

recommended by the original Traffic Impact Analysis into two separate phases based upon the construction of Phase 1 of Tract A (45 single-family homes) and Phase 1 of Tract B (50 Townhomes) that is requested to construct the Averette Road Improvement shown as Phase 1. When Phases 2 of the two tracts are constructed is when the Phase 2 of the Averette Road improvements would be installed, including NC 98 (Wait Ave) intersection improvements. The applicant has submitted a revised Traffic Impact Analysis base on the proposed phasing plan and recommended the phasing of the Averette Road improvement base on the proposed phasing plan. NCDOT has reviewed the revised TIA study and approved the phasing of the road improvements as requested. This case is to amend the PUD Master Plan and the approved Preliminary Subdivision Plat to allow phasing of the development as proposed and related phasing of the Averette Road street improvements.

#### **Planning Staff Recommendation**

The Technical Review Committee has reviewed the proposed phasing plan for the development, and street improvements for Averette Road based on the revised TIA Report, and the committee recommends approval of the phasing plans. The Planning Staff recommendation is to approve the PhasingPplan for SUP 19-03 based on the TIA report results that the two phases of street improvements will address the traffic impact based on the phasing of the development. All the requirements, provisions, and standards of the Rolesville Unified Development Ordinance have been met for this proposed phasing plan amendment.

#### **Suggested Town Board motion**

I move to approve public hearing Case SUP 19-03, Elizabeth Springs 2nd PUD Master Plan Amendment for phasing the plan of the development and phasing plan for street improvements of Averette Road based on the evidence and testimony received at the hearing to determine the findings of fact.

#### **Attachments**

SUP 19-03 Location Map

SUP 19-03 Special Use Permit Application for a Phasing Plan for Elizabeth Springs PUD Subdivision

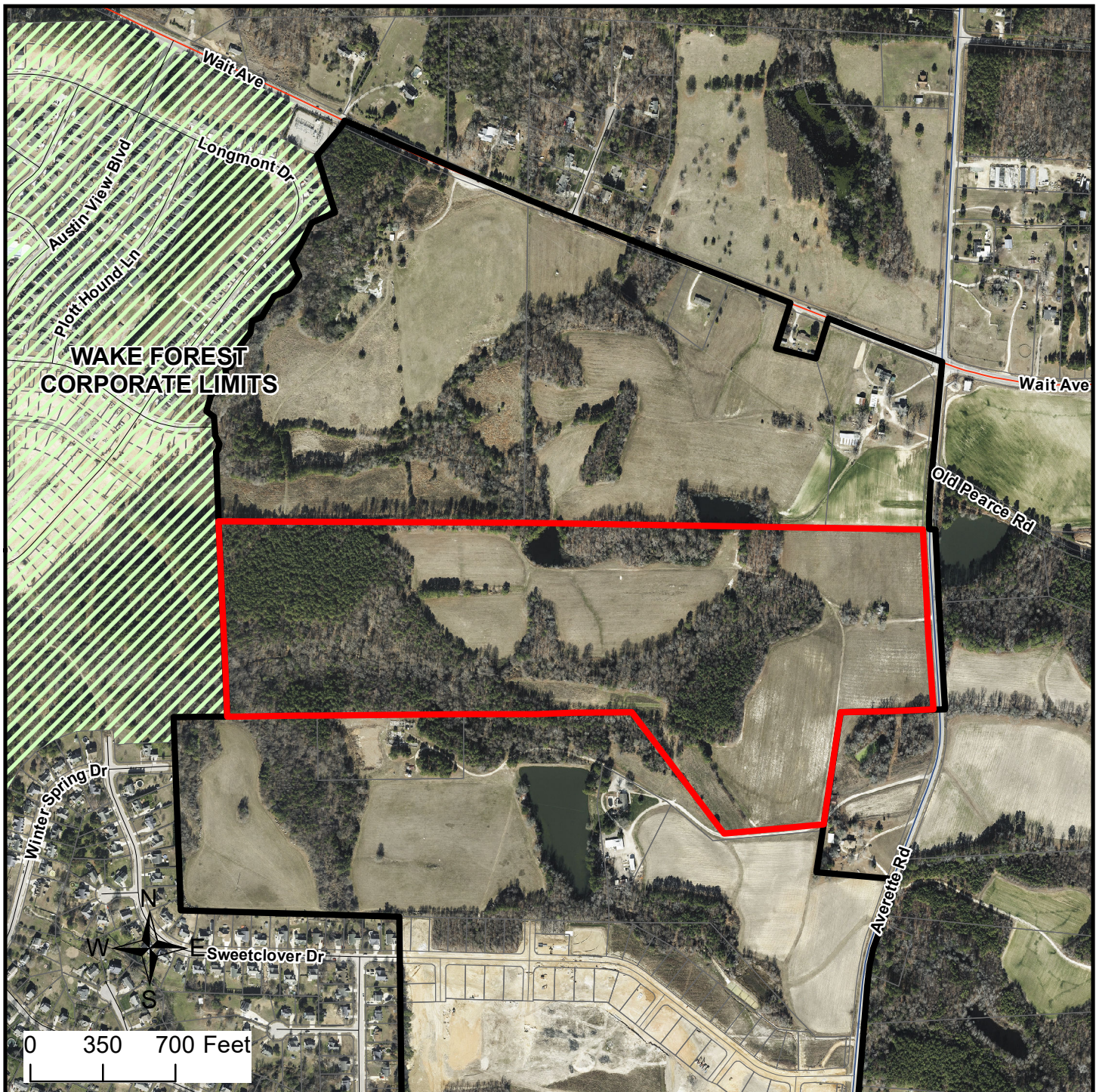
SUP 19-03 Proposed Phasing plan for Elizabeth Spring PUD Subdivision

SUP 19-03 Elizabeth Springs RevisedTraffic Impact Analysis- Phasing Plan

NCDOT Review of the Revised TIA Report – Elizabeth Springs Phasing Plan





# SUP 19-03 Elizabeth Springs (Phasing Plan) Site Location



Planning Department

Data provided in part by Wake County GIS

## Legend

-  SUP 19-03 Site
-  Rolesville Town Limits





Case No. \_\_\_\_\_

Date \_\_\_\_\_

## Special Use Permit Application

### Contact Information

Property Owner \_\_\_\_\_

Address \_\_\_\_\_ City/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

Developer \_\_\_\_\_

Contact Name \_\_\_\_\_

Address \_\_\_\_\_ City/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

### Property Information

Address \_\_\_\_\_

Wake County PIN(s) \_\_\_\_\_

Current Zoning District \_\_\_\_\_ Requested Zoning District \_\_\_\_\_

Total Acreage \_\_\_\_\_ Requested Special Use \_\_\_\_\_

### 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 \_\_\_\_\_ Date \_\_\_\_\_

STATE OF NORTH CAROLINA

COUNTY OF \_\_\_\_\_

*I, a Notary Public, do hereby certify that \_\_\_\_\_*

*personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This*

*the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_ .*

*My commission expires \_\_\_\_\_ .*

Signature \_\_\_\_\_ Seal \_\_\_\_\_

**Town of Rolesville Planning**

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

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

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

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

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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.

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

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

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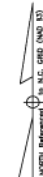


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## Property Owner Information

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## This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

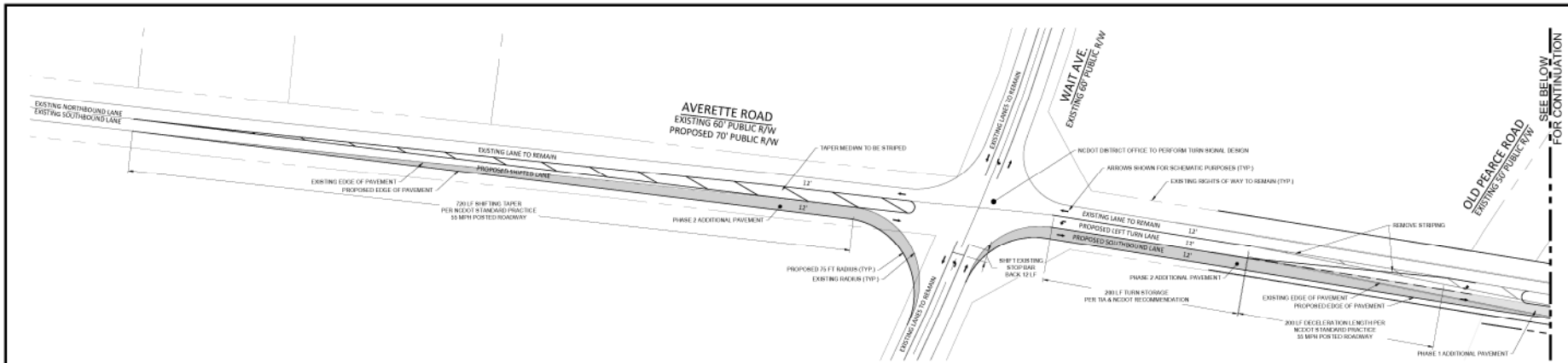


SHEET  
**C304**

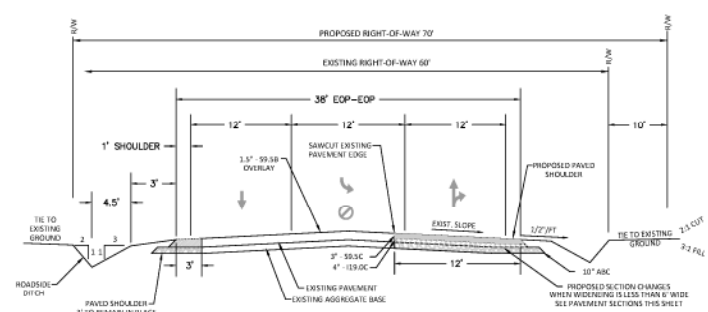
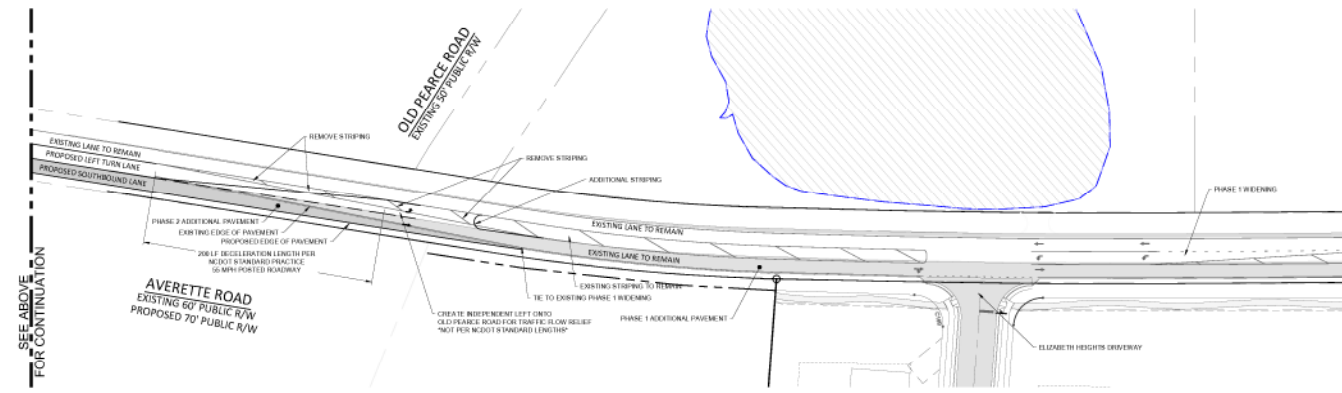




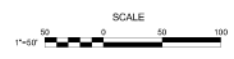




- NOTES:
1. ALL CONSTRUCTION IN THE RIGHT OF WAY SHALL BE IN ACCORDANCE TO NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
  2. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THEIR ACTIVITIES. CONTRACTOR SHALL CALL UTILITY LOCATOR SERVICE 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. NC ONE CALL: 1-800-632-4388 PER NCOS 87-102.
  3. NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DRIVEWAY PERMIT IS REQUIRED BEFORE STARTING CONSTRUCTION.
  4. THE DEVELOPER IS RESPONSIBLE FOR THE FABRICATION AND INSTALLATION OF ALL REQUIRED SIGNS AND PAVEMENT MARKINGS WITHIN THE PUBLIC RIGHT OF WAY.
  5. CONTRACTOR IS RESPONSIBLE FOR PREPARING AND SUBMITTING A TRAFFIC MAINTENANCE PLAN FOR REVIEW AND APPROVAL BY DOT PRIOR TO BEGINNING WORK WITHIN THE RIGHT OF WAY.
  6. CONTRACTOR SHALL MAINTAIN ACCESS DURING ALL TIMES OF CONSTRUCTION.
  7. CONTRACTOR SHALL CONTACT WAKE COUNTY SCHOOLS TO COORDINATE ROAD WORK SO IT WILL NOT ADVERSELY AFFECT THE SCHOOLS TRANSPORTATION SCHEDULE AND OR OPERATIONS.
  8. THERMOPLASTIC PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS SHALL BE INSTALLED WITHIN THE TURN LANE CONSTRUCTION LIMITS IN ACCORDANCE WITH THE STANDARD NCDOT STANDARDS AND SPECIFICATIONS.
  9. THE CONTRACTOR SHALL RESURFACE THE ENTIRE WIDTH OF THE ROADWAY FOR THE ENTIRE LENGTH OF THE CONSTRUCTION LIMITS WITH 1.5 INCHES OF 5.5-8.9. BOTH ENDS OF THE TURN LANE SHALL BE MILLED 10" TO 1.0" A MINIMUM OF 50 FEET SO THAT THERE WILL BE A SMOOTH TRANSITION BACK TO THE EXISTING PAVEMENT.



REV	DESCRIPTION



PRELIMINARY  
NOT RELEASED  
FOR CONSTRUCTION  
03/11/2018



**Bateman Civil Survey Company**  
Engineers • Surveyors • Planners  
2533 Redwood Avenue, North Carolina 27209  
Phone: (919) 486-1100  
FAX: (919) 486-1101  
WAKE COUNTY, NC 27709



**ELIZABETH HEIGHTS**  
CONSTRUCTION DRAWINGS  
1025 AVERETTE ROAD  
ELIZABETH HEIGHTS, NC 27707  
WAKE COUNTY, NC

**AVERETTE RD. / WAIT AVE.**  
INTERSECTION IMPROVEMENTS

Project Engineer	TBB
Designed By	LRB
Drawn By	LRB
Checked By	TBB
Scale	1"=40'
Date	03/11/2018

Project Number: 07046  
SHEET  
**C705**  
OF: —

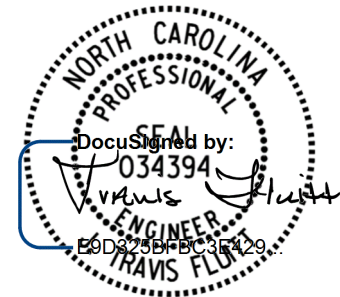
## MEMORANDUM

To: Amy Neidringhaus, NCDOT  
Danny Johnson, Town of Rolesville

From: Travis Fluitt, P.E.  
Kimley-Horn and Associates, Inc.

Date: October 29, 2019

Subject: Elizabeth Heights – Phasing of Improvements



10/29/2019

Kimley-Horn has performed an analysis to evaluate the phasing of improvements for the Elizabeth Heights (a.k.a. Averette Farms) residential development located on the west side of Averette Road south of Old Pearce Road in Rolesville, North Carolina. The traffic analysis memorandum dated December 6, 2017 assumed a total build-out density of 94 single family homes and 108 townhomes. As currently envisioned, Phase 1 of the development will include 58 single-family homes and 53 townhomes.

The improvements required by the North Carolina Department of Transportation (NCDOT) included an exclusive northbound left-turn lane on Averette Road at NC 98 (Wait Ave.) and northbound left-turn lanes on Averette Road at the site driveways. While the turn lanes at the site driveways will be constructed initially, the construction of the turn lane at NC 98 is proposed to be delayed until Phase 2.

The trip generation potential of the first phase of the development was determined using the traffic generation rates published in the *ITE Trip Generation Handbook* (Institute of Transportation Engineers, Ninth Edition, 2012). The trip generation for Phase 1 of the development is summarized in Table 1, and detailed trip generation calculations are attached.

Table 1 ITE Traffic Generation (Vehicles)							
Land Use Code	Land Use	Intensity		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
210	Single-Family Detached Housing	58	d.u.	12	34	38	22
230	Townhomes	53	d.u.	5	26	24	12
<b>Total Net External Trips – Phase 1</b>				<b>17</b>	<b>60</b>	<b>62</b>	<b>34</b>
<b>Total New External Trips – TIA</b>				<b>27</b>	<b>100</b>	<b>103</b>	<b>57</b>

Phase 1 of the development project is expected to generate 77 new trips during the AM peak hour and 96 new trips during the PM peak hour. This represents only about 60% of the total development trip generation from the TIA. It should be noted that the traffic generation for Phase 1 alone is below the thresholds for requiring a TIA.

Capacity analyses were performed for Phase 1 using Synchro and SimTraffic Version 9 software. To be conservative, the build-out year was not changed for the Phase 1 analysis. Synchro intersection level-of-service (LOS) reports are attached. The LOS for the study intersections are summarized in Table 2.

<b>Table 2 Level-of-Service Summary</b>		
<b>Condition</b>	<b>AM Peak Hour LOS (Delay)</b>	<b>PM Peak Hour LOS (Delay)</b>
<b>NC 98 at Averette Road (Signalized)</b>		
Background Traffic (From TIA)	B (17.2)	C (21.6)
Phase 1 Traffic	C (21.1)	C (23.9)
Total Build-out Traffic	C (21.7)	C (25.1)

Analysis indicates that the intersection of NC 98 at Averette Road is expected to operate at an acceptable level-of-service at build-out of Phase 1 with minor modifications to the signal timings, and all approaches are also expected to operate at an acceptable level-of-service. Both Synchro 95% queues and SimTraffic simulations show no queuing issues as queues on northbound Averette Road are not expected to extend back to Old Pearce Road in either peak hour. It should also be noted that Phase 1 site traffic is expected to account less than 3% of the total traffic at this intersection.

## Recommendations

The intersection of NC 98 at Averette Road is expected to operate at LOS C at build-out of Phase 1 with acceptable levels-of-service on all 4 approaches and no queuing issues. Phase 1 site traffic results in only minor increases in overall intersection delay and queuing above the background traffic condition and will account for less than 3% of the total traffic at the intersection. By itself, Phase 1 site traffic would also not meet the threshold to require a TIA. For these reasons, it is my professional opinion that delaying the construction of the required northbound left-turn lane on Averette Road at NC 98 until Phase 2 of the development will not have a detrimental impact to the operation of this intersection.

Should you have any questions or comments, please do not hesitate to contact me at (919) 653-2948 or [travis.fluitt@kimley-horn.com](mailto:travis.fluitt@kimley-horn.com).



**Averette Farms**  
**Phase 1 Trip Generation**

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
210 Single Family Detached Housing	58 d.u.	630	315	315	46	12	34	60	38	22
230 Residential Condominium/Townhouse	53 d.u.	370	185	185	31	5	26	36	24	12
<b>Total Net New External Trips - Phase 1</b>		<b>1,000</b>	<b>500</b>	<b>500</b>	<b>77</b>	<b>17</b>	<b>60</b>	<b>96</b>	<b>62</b>	<b>34</b>
<b>Total Net New External Trips - From TIA</b>		<b>1,670</b>	<b>835</b>	<b>835</b>	<b>127</b>	<b>27</b>	<b>100</b>	<b>160</b>	<b>103</b>	<b>57</b>

# INTERSECTION ANALYSIS SHEET

Project: **Averette Farms**  
 Location: **Rolesville, NC**  
 Ct. Date: **11/7/2017**  
 N/S Street: **Averette Road**  
 E/W Street: **NC 98**

Net New Trips: 

AM In	AM Out	PM In	PM Out
17	60	62	34

Annual Growth Rate: 

2.0%
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 Existing Year: 

2017
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 Growth Factor: 

0.082432
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 Buildout Year: 

2021
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## AM PEAK HOUR AM PHF = 0.9

Description		NC 98 Eastbound			NC 98 Westbound			Averette Road Northbound			Averette Road Southbound		
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017	Traffic Count	16	336	84	44	520	1	150	51	30	2	56	49
	Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2017	Existing Traffic	16	336	84	44	520	1	150	51	30	2	56	49
Growth Factor (0.02 per year)		0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082
2021	Background Growth	1	28	7	4	43	0	12	4	2	0	5	4
Committed Projects													
	Austin Creek	0	14	41	0	4	0	13	0	0	0	0	0
	Tryon Development	0	10	21	0	3	0	6	0	0	0	0	0
	Perry Farms	0	0	5	2	0	0	13	0	7	0	0	0
Total Committed Traffic		0	24	67	2	7	0	32	0	7	0	0	0
2021	Background Traffic	17	388	158	50	570	1	194	55	39	2	61	53
Phase 1 Project Traffic													
	Percent Assignment Inbound	0%	0%	40%	10%	0%	0%	0%	0%	0%	0%	0%	0%
	Inbound Project Traffic	0	0	7	2	0	0	0	0	0	0	0	0
	Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	40%	0%	10%	0%	0%	0%
	Outbound Project Traffic	0	0	0	0	0	0	24	0	6	0	0	0
Phase 1 Traffic		0	0	7	2	0	0	24	0	6	0	0	0
2021	Phase 1 Build-out Total	17	388	165	52	570	1	218	55	45	2	61	53
Percent Impact (Approach)		1.2%			0.3%			9.4%			0.0%		
Overall Percent Impact		2.4%											




















## PM PEAK HOUR PM PHF = 0.92

Description		NC 98 Eastbound			NC 98 Westbound			Averette Road Northbound			Averette Road Southbound		
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017	Traffic Count	64	495	140	32	366	3	117	79	23	2	38	19
	Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0
2017	Existing Traffic	64	495	140	32	366	3	117	79	23	2	38	19
Growth Factor (0.02 per year)		0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.082
2021	Background Growth	5	41	12	3	30	0	10	7	2	0	3	2
Committed Projects													
	Austin Creek	0	8	25	0	15	0	44	0	0	0	0	0
	Tryon Development	0	6	12	0	11	0	22	0	0	0	0	0
	Perry Farms	0	0	15	8	0	0	9	0	4	0	0	0
Total Committed Traffic		0	14	52	8	26	0	75	0	4	0	0	0
2021	Background Traffic	69	550	204	43	422	3	202	86	29	2	41	21
Phase 1 Project Traffic													
Percent Assignment Inbound		0%	0%	40%	10%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic		0	0	25	6	0	0	0	0	0	0	0	0
Percent Assignment Outbound		0%	0%	0%	0%	0%	0%	40%	0%	10%	0%	0%	0%
Outbound Project Traffic		0	0	0	0	0	0	14	0	3	0	0	0
Phase 1 Traffic		0	0	25	6	0	0	14	0	3	0	0	0
2021	Phase 1 Build-out Total	69	550	229	49	422	3	216	86	32	2	41	21
Percent Impact (Approach)		2.9%			1.3%			5.1%			0.0%		
Overall Percent Impact		2.8%											

Averette Farms  
1: Averette Road & NC 98













Build-out AM - Phase 1

10/29/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	388	165	52	570	4	218	55	45	4	61	53
Future Volume (vph)	17	388	165	52	570	4	218	55	45	4	61	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			-2%			3%			1%	
Storage Length (ft)	200		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	150			175			25			25		
Satd. Flow (prot)	1770	1779	0	1787	1879	0	0	1741	0	0	1737	0
Flt Permitted	0.201			0.222				0.737			0.989	
Satd. Flow (perm)	374	1779	0	418	1879	0	0	1327	0	0	1721	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			1			7			35	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		959			1205			528			1267	
Travel Time (s)		11.9			14.9			6.5			15.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	614	0	58	637	0	0	353	0	0	131	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	14.0	14.0		14.0	14.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	80.0	80.0		80.0	80.0		30.0	30.0		30.0	30.0	
Total Split (%)	72.7%	72.7%		72.7%	72.7%		27.3%	27.3%		27.3%	27.3%	
Yellow Time (s)	5.2	5.2		5.4	5.4		4.9	4.9		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.2	1.2		1.5	1.5		1.1	1.1	
Lost Time Adjust (s)	-1.2	-1.2		-1.6	-1.6			-1.4			-1.1	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effect Green (s)	27.3	27.3		27.3	27.3			25.3			25.3	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.40			0.40	
v/c Ratio	0.12	0.77		0.32	0.78			0.66			0.18	
Control Delay	11.6	20.7		16.3	22.2			24.7			11.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.6	20.7		16.3	22.2			24.7			11.7	

Averette Farms  
1: Averette Road & NC 98

Build-out AM - Phase 1  
10/29/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	C		B	C			C			B	
Approach Delay		20.5			21.7			24.7			11.7	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	4	173		14	194			102			22	
Queue Length 95th (ft)	15	281		38	303			#269			67	
Internal Link Dist (ft)		879			1125			448			1187	
Turn Bay Length (ft)	200			175								
Base Capacity (vph)	374	1779		418	1879			538			714	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.05	0.35		0.14	0.34			0.66			0.18	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 62.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 21.1

Intersection LOS: C

Intersection Capacity Utilization 75.9%

ICU Level of Service D

Analysis Period (min) 15

Description: 05-1935

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

Queue shown is maximum after two cycles.









Splits and Phases: 1: Averette Road & NC 98





Averette Farms  
1: Averette Road & NC 98

Build-out PM - Phase 1  
10/29/2019

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	550	229	49	422	4	216	86	32	4	41	21
Future Volume (vph)	69	550	229	49	422	4	216	86	32	4	41	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			-2%			3%			1%	
Storage Length (ft)	200		0	175		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	150			175			25			25		
Satd. Flow (prot)	1770	1781	0	1787	1879	0	0	1755	0	0	1768	0
Flt Permitted	0.408			0.122				0.761			0.979	
Satd. Flow (perm)	760	1781	0	230	1879	0	0	1378	0	0	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			1			5			20	
Link Speed (mph)		55			55			55			55	
Link Distance (ft)		959			1205			531			1267	
Travel Time (s)		11.9			14.9			6.6			15.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	847	0	53	463	0	0	363	0	0	72	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	14.0	14.0		14.0	14.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		14.0	14.0		14.0	14.0	
Total Split (s)	80.0	80.0		80.0	80.0		30.0	30.0		30.0	30.0	
Total Split (%)	72.7%	72.7%		72.7%	72.7%		27.3%	27.3%		27.3%	27.3%	
Yellow Time (s)	5.2	5.2		5.4	5.4		4.9	4.9		5.0	5.0	
All-Red Time (s)	1.0	1.0		1.2	1.2		1.5	1.5		1.1	1.1	
Lost Time Adjust (s)	-1.2	-1.2		-1.6	-1.6			-1.4			-1.1	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effect Green (s)	41.1	41.1		41.1	41.1			25.6			25.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.33			0.33	
v/c Ratio	0.19	0.87		0.43	0.46			0.79			0.12	
Control Delay	9.5	25.0		22.1	12.0			40.7			18.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	9.5	25.0		22.1	12.0			40.7			18.3	

Averette Farms  
1: Averette Road & NC 98

Build-out PM - Phase 1  
10/29/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	A	C		C	B			D			B	
Approach Delay		23.8			13.0			40.7			18.3	
Approach LOS		C			B			D			B	
Queue Length 50th (ft)	17	306		14	124			149			17	
Queue Length 95th (ft)	36	461		45	182			#417			60	
Internal Link Dist (ft)		879			1125			451			1187	
Turn Bay Length (ft)	200			175								
Base Capacity (vph)	710	1668		215	1757			461			591	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.51		0.25	0.26			0.79			0.12	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 90.8%

ICU Level of Service E

Analysis Period (min) 15

Description: 05-1935

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Averette Road & NC 98



Averette Farms  
Queuing and Blocking Report

Build-out AM - Phase 1  
10/29/2019

Intersection: 1: Averette Road & NC 98

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	44	219	75	212	294	103
Average Queue (ft)	9	102	25	104	146	46
95th Queue (ft)	31	185	57	189	260	90
Link Distance (ft)		917		1167	467	1220
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)	200		175			
Storage Blk Time (%)		0		1		
Queuing Penalty (veh)		0		1		

Averette Farms  
Queuing and Blocking Report

Build-out PM - Phase 1  
10/29/2019

Intersection: 1: Averette Road & NC 98

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	71	385	102	165	401	89
Average Queue (ft)	27	187	36	71	189	29
95th Queue (ft)	59	332	82	139	336	67
Link Distance (ft)		917		1167	470	1220
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					2	
Storage Bay Dist (ft)	200		175			
Storage Blk Time (%)		7	0	0		
Queuing Penalty (veh)		5	1	0		





STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

January 10, 2018

**Averette Farms**

**Traffic Impact Analysis Review Report  
Congestion Management Section**

TIA Project: SC-2017-147  
Division: 5  
County: Wake



**Clarence B. Bunting, IV, P.E. Project Engineer**  
**Braden M. Walker**

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*Website:* [www.ncdot.gov](http://www.ncdot.gov)

*Location:*  
750 N. GREENFIELD PARKWAY  
GARNER, NC 27529

## Averette Farms Development

SC-2017-147

Wake

January 10, 2017

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 sealed 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	12/8/17	Date of Site Plan	11/21/17
Date of Complete Information	1/2/18	Date of Sealed TIA	12/6/17

### Proposed Development

According to the TIA, the proposed Averette Farms Development is to be located on Averette Road in Rolesville in Wake County. The TIA states the development is to be constructed by 2021 and is to consist of the following:

Land Use	Land Use Code	Size
Single-Family Detached Housing	210	94 d.u.
Townhomes	230	108 d.u.

### Trip Generation - Unadjusted Volumes During a Typical Weekday








	IN	OUT	TOTAL
AM Peak Hour	27	100	127
PM Peak Hour	103	57	160
Daily Trips			1670

### General Reference

For reference to various documents applicable to this review please reference the following link: <http://www.ncdot.org/doh/preconstruct/traffic/teppl/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.

# Averette Farms SC-2017-147

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

