



## **CURRITUCK COUNTY NORTH CAROLINA**

September 21, 2020

Minutes – Regular Meeting of the Board of Commissioners

### **WORK SESSION**

#### **1. 5:00 PM Mainland Sewer Utilities Discussion**

The Currituck County Board of Commissioners met in a work session at 5:00 PM in the Board Meeting Room to discuss mainland sewer utilities. A powerpoint was used by County Manager, Ben Stikeleather, to present an overview of wastewater utility services in Moyock. Mr. Stikeleather reviewed a history of design and operational challenges at the Moyock Regional Wastewater facility that resulted in the issuance of multiple violations and fines from the North Carolina Department of Environmental Quality. Results of an independent engineering design analysis of the plant was reviewed with Commissioners, which also included options for plant upgrades or replacement and cost estimates.

Pros and cons of selling the system were presented. Costs for replacement, debt options, and estimated utility rates based on modeling of the current customer base were discussed. Utility rates and debt service related to anticipated commercial and residential growth in the Moyock area were considered.

Commissioners asked that the engineering documents be forwarded for review and the County Attorney, Ike McRee, was authorized to reach out to experienced legal counsel to determine what, if any, liability may lie with the original design contractors.

Will Rumsey, Utilities Director, and Eric Weatherly, County Engineer, attended and provided additional information related to the history and operation of the plant. Mr. Stikeleather said he will need direction fairly quickly as to how the Board would like to proceed.

The work session concluded at 5:48 PM.

#### **6:00 PM CALL TO ORDER**

The Currituck County Board of Commissioners met at 6:00 PM in the Board Meeting Room of the Historic Courthouse, 153 Courthouse Road, Currituck, North Carolina, for a regular meeting.

<b>Attendee Name</b>	<b>Title</b>	<b>Status</b>	<b>Arrived</b>
Bob White	Chairman	Present	
Mike H. Payment	Vice Chairman	Present	
Paul M. Beaumont	Commissioner	Present	
J. Owen Etheridge	Commissioner	Present	
Mary "Kitty" Etheridge	Commissioner	Present	
Selina S. Jarvis	Commissioner	Present	

Kevin E. McCord	Commissioner	Present	
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Chairman White called the meeting to order.

**A) Invocation & Pledge of Allegiance**

Commissioner McCord offered the Invocation and led the Pledge of Allegiance.

**B) Approval of Agenda**

Commissioner McCord moved to approve the agenda. Commissioner Jarvis seconded the motion and the motion carried.

Approved agenda:

**Work Session**

5:00 PM Mainland Sewer Utilities Discussion

**6:00 PM Call to Order**

A) Invocation & Pledge of Allegiance

B) Approval of Agenda

**Public Comment**

*Please limit comments to matters other than those appearing on this agenda as a Public Hearing. Public comments are limited to 3 minutes.*

**Commissioner's**

**Report**

**County Manager's**

**Report**

**Old Business**

- A) PB 19-20 Flora Farm: Rezone 224.44 acres from Agricultural (AG) to Planned Development-Residential (PD-R) for property located in Moyock immediately south of Eagle Creek subdivision and Moyock Middle School. The request includes 285 single-family dwelling lots, up to 100,000 sf commercial, 125 upper story dwelling units, and a 22 acre school site

**New Business**



**A) Consideration of Annual Outdoor Tour Operator Licensing Fee Payments****B) Soil & Water 205J Grant****C) Consent Agenda**

1. Resolution Authorizing the Purchase of Hardware from InstruLogic, LLC, for the Operation of Sailfish Street Stormwater Site through Sole Source Purchase Pursuant to N.C. GEN. STAT. §143-129(e)(6)
2. Resolution Authorizing the Purchase of Hardware and Software from Eastern Data, Inc. through Sole Source Purchase Pursuant to N.C. GEN. STAT. §143-129(e)(6)
3. Shingle Landing Park/Dominion ROW Agreement
4. Maritime Museum Change Order #3
5. Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting

**Closed Session**

Closed Session Pursuant to G.S. 143-318.11(a)(3) to Consult with the County Attorney and to Preserve the Attorney-Client Privilege

**Adjourn**

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Kevin E. McCord, Commissioner
<b>SECONDER:</b>	Selina S. Jarvis, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

**PUBLIC COMMENT**

***Please limit comments to matters other than those appearing on this agenda as a Public Hearing. Public comments are limited to 3 minutes.***

Chairman White opened the Public Comment period.

Jamie Schwedler, Attorney representing the applicant for the Flora Farm rezoning, spoke in favor of approval and highlighted some of the supporting policies including in the county's Unified Development Ordinance and Moyock Small Area Plan. Ms. Schwedler addressed concerns over school capacities and adequate public facilities and cited the planned school expansions and a phased construction plan for development.

Justin Old, developer, also spoke to support the approval of the Flora Farm rezoning request. Mr. Old acknowledged the efforts of county staff and the applicant team to both mitigate and provide solutions to address the concerns of the county. He noted approval

would allow further relief for area residents based on commitments made for improved stormwater infrastructure, drainage and ditch maintenance.

No others were signed up nor wished to speak and the Public Comment period was closed.

### **COMMISSIONER'S REPORT**

Chairman White reported the Currituck/Knotts Island ferry has resumed operations and he commended North Carolina State House Representative Bobby Hanig for his efforts. He reported North Carolina will be included in a Federal moratorium prohibiting off-shore drilling. Chairman White announced he will be traveling and will not be at the next Commissioners meeting.

Commissioner Payment serves on the Albemarle Regional Health Services (ARHS) Board and provided an update on the Covid-19 cases in Currituck County and reported the first death in Currituck County. Because of supply delays, he asked citizens who receive their flu shots through ARHS to please call in advance to make sure the shots are available. ARHS is expecting their supply to be received by the end of September.

Commissioner Mary Etheridge also thanked Representative Bobby Hanig and State Senator Bob Steinburg for their efforts and said she rode the ferry to Knotts Island when the runs resumed. She announced the launch of the Department of Social Services Operation Santa Clause program and encouraged people to support the effort.

Commissioner McCord began with anniversary wishes to his wife. He, too, acknowledged the efforts of Representative Hanig and the great job he does for the district.

Commissioner J. Owen Etheridge asked that a Resolution of Appreciation be adopted by the Board of Commissioners in recognition of the efforts of those involved in getting the Currituck/Knotts Island ferry operational.

Commissioner Jarvis talked about the adoption of the United States Constitution in 1787. She encouraged citizens to register to vote and appreciate this privilege that allows us to choose our leaders.

The County Manager was asked about this year's annual holiday parade and tree lighting. Mr. Stikeleather said a tree has been purchased.

### **COUNTY MANAGER'S REPORT**

Ben Stikeleather, County Manager, announced the estate of Sheldon Metcalfe donated over \$121,000 to The Whalehead Club in Historic Corolla Park, along with a portion of royalties from a textbook he wrote. He announced upcoming work sessions and updated Commissioners on county projects. He read an email from a citizen who acknowledged Engineering Tech Nick Ingold and his efforts in support of the Carova Roads Maintenance Service District.

### **OLD BUSINESS**

- A. PB 19-20 Flora Farm: Rezone 224.44 acres from Agricultural (AG) to Planned Development-Residential (PD-R) for property located in Moyock immediately south of Eagle Creek subdivision and Moyock Middle School. The request includes 285 single-family dwelling lots, up to 100,000 sf commercial, 125 upper story dwelling units, and a 22 acre school site**

APPLICATION SUMMARY	
<b>Property Owner:</b> John J. Flora III PO Box 369 Moyock NC 27958  Mary Nell Flora Brumsey 117 Puddin Ridge Rd Moyock NC 27958	<b>Applicants:</b> John J. Flora III Mary Nell Brumsey  <b>Developer:</b> Justin Old North-South Development Group LLC 417D Caratoke Hwy Moyock NC 27958
<b>Case Number:</b> 19-20	<b>Application Type:</b> Rezoning to PD-R
<b>Parcel Identification Number:</b> 0015-000-085B-0000; 0015-000-085C-0000, 0015-000-085A-0000	<b>Existing Use:</b> Single-family dwelling and Farmland
<b>Land Use Plan Classification:</b> Full Service	<b>Parcel Size (Acres):</b> 224.44
<b>Moyock Small Area Plan Classification:</b> Full and Limited Service	<b>Zoning History:</b> A (1989); A-40 (1975)
<b>Current Zoning:</b> AG (Agricultural)	<b>Proposed Zoning:</b> PD-R (Planned Development – Residential)
<b>Request:</b> The developer is requesting to rezone the property from AG to PD-R. The request includes 285 single-family dwelling lots, up to 100,000 sf commercial, 125 upper story dwelling units, and a 22 acre school site.	

#### ZONING DISTRICT COMPARISON

ZONING	APPROX MAX # UNITS	OPEN SPACE (%)	GROSS DENSITY* (Units/Acre)	NET DENSITY “FEELS LIKE” (Units/Acre)
PD-R (PROPOSED)	410 + Commercial + School	30.1	1.83	2.93
AG (EXISTING)	74	50	.33	.66
SFM	224	40	1	1.66
MXR** (Single-Family)	448	30	2	2.86
(Multi-Family)	673	40	3	5.0
*Assumes 10% area for infrastructure. **These numbers are assuming the Full Service designation in the <i>Land Use Plan</i> would supersede the split Full Service/Limited Service designation in the Moyock Small Area Plan as in an adjoining development.				

Chapter 3 Zoning Districts of the UDO defines a Planned Development – Residential as a development with a purpose to “encourage the use of innovative and creative design to provide a mix of different residential uses in close proximity to one another on mainland Currituck County, while at the same time providing an efficient use of open space. Limited, small-scale commercial uses may be allowed in the PD-R district, primarily to serve the needs of residents in the development.” A planned development zoning district classification is defined by a master plan and a terms and conditions document. The applicant’s objective is “to build a community that has a creative design, providing a mix of different residential uses in close proximity to one another, while at the same time providing an efficient use of open space that promotes an active lifestyle and strong sense of community. True Mixed Use/Commercial development is also proposed to serve the needs of both the residents in this development and the surrounding community.” The proposal includes a total of 410 dwelling units with a mix of upper story dwelling units and conventional single-family dwelling units. The proposed development includes up to 100,000 sf of commercial designation with out-parcels and larger commercial buildings with commercial uses located on street level and upper story residential apartments. The proposal contains 67.55 acres of open space, not counting the school site. Recreational amenities include a clubhouse, swimming pool, nature overlook, a dog park, and amenities related to a school. The plans also show an independent WWTP proposed for the development.

SURROUNDING PARCELS		
	LAND USE	ZONING
NORTH	LOW DENSITY RESIDENTIAL/ CULTIVATED FARMLAND	AG/GB
SOUTH	LOW DENSITY RESIDENTIAL/ CULTIVATED FARMLAND	SFM/AG
EAST	FOST PLANNED DEVELOPMENT	PD-R
WEST	RESIDENTIAL (EAGLE CREEK AND RANCLAND)	SFM/AG

#### COMMUNITY MEETING

The developer held a community meeting on January 22, 2020 at the Moyock Library at 6:00 p.m. There were approximately 12 people in attendance. The primary concerns addressed were regarding traffic on Survey Road, lack of connectivity to Ranchland, and drainage. There were also discussions regarding site design, school site size, and commercial tenants. A community meeting summary prepared by the applicant is attached to this staff report.

#### TRANSPORTATION

The internal transportation network includes a divided boulevard within an 80’ minimum right-of-way, a typical local roadway with a 40’ minimum right-of-way, 4 interconnections with Fost Planned Development, and 5’ sidewalks along all streets. The external transportation network includes the main boulevard connection on the south side of Survey Road, a driveway connection on the north side of Survey Road, and an 8’ multi-modal path along Caratoke Highway. The residential units, school, and commercial area are expected to generate the below trips per day at full build-out in 2026.

ZONING	TRIPS PER DAY
PD-R (PROPOSED)	8,380* (Fost – 5,978*)
AG (EXISTING)	708
SFM	2144
MXR** (Single-Family)	4,287
(Multi-Family)	4,475
*VHB Phasing Memorandum **These numbers are assuming the Full Service designation in the Land Use Plan would supersede the split Full Service/Limited Service designation in the Moyock Small Area Plan as in an adjoining development.	

**May 5, 2020 TIA:** This TIA has been approved by NCDOT (See attached letter from David Otts, District Engineer.) Since the school site is not included in the TIA, it is not possible to determine the adequacy and safety of travelling public within and surrounding this site at this time. It is understandable that driveway location for the school is not determined yet, but the volume of traffic based upon the size of the school can be determined. An elementary school generates a large volume of traffic. While Fost is included as a background development, Moyock Farms is not. Moyock Farms is submitting revised plans that show 100% of its traffic to access through Fost. The list of improvements suggested or referenced by the final TIA is compiled after descriptions of the older TIA submitted to staff. At the June 9, 2020 Planning Board meeting, the applicant's attorney stated a TIA would be completed for the school site in the future.

**March 4, 2020** staff received the attached “**Flora Farm Subdivision – Phasing Memorandum**” from VHB Engineering NC. The memorandum states “The TIA analyzed the Fost Tract Development as a background project which would be completed prior to the Flora Farm Subdivision. Since the submittal of the TIA, the construction schedules for both projects have shifted, and it is expected that construction for both developments will overlap with each other. The recommended offsite improvements within the TIA for the building of both developments are still valid; however, this memorandum provides clarification for how those improvements should be phased as both developments are being constructed.” The county has not received approval from NCDOT regarding the recommendations. It is also unclear if NCDOT commented on the first TIA or the second TIA. NCDOT had not seen or commented on the Phasing Memorandum as of March 25, 2020.

The Phasing Memorandum contains roadway improvements for Fost Boulevard not included in either TIA previously submitted. While the Phasing Memorandum states that recommended offsite improvements are still valid, there appears to be conflict in some areas. For example at Caratoke Highway and Survey Road (Unsignalized), the TIA recommends striping out at least 150 feet of storage within the existing two-way left-turn lane along Caratoke Highway for the northbound left-turn. The memorandum indicates striping out at least 200 feet of full storage within the existing northbound two-way left-turn lane along Caratoke Highway at Survey Road. It is recommended that the TIA be amended

to include the memorandum suggestions and any discrepancies be rectified before resubmittal of another TIA. The TIA must be approved by NCDOT prior to resubmission.

**January 20, 2020 TIA and January 31, 2020 TIA:** Routes all residential traffic through the future Fost Boulevard to Caratoke Highway in the adjoining development. The developer indicates that this is not correct, but a revised TIA has not been submitted. The TIA indicates that the future signalized intersection as part of the Fost Development can accommodate the additional traffic generated during the residential phase, and no signalizations or offsite lane geometric improvements are recommended. On March 25, 2020 the developer submitted a revised phasing plan indicating subdivision access to Survey Road as part of Phase 1.

Once the development is fully constructed (not including school) in 2026, the TIA recommends the following improvements:

Caratoke Highway and Survey Road (unsignalized)

The Survey Road eastbound stop-controlled approach is expected to operate at a Level of Service (LOS) E during the PM peak hour under Build (2026) conditions if no additional improvements are made. After the build-out of the development, vehicles will be able to access full movement traffic signals at Survey Road to north of the development, and Fost Boulevard south. Therefore the following improvements are recommended for the intersection:

- Provide a southbound right-turn lane with at least 100 feet of full storage and appropriate taper.
- Restrict access at the intersection to not allow left-turns off of Survey Road. This restriction of access should be completed when approximately 30% of the total estimated trips for the site are observed, likely in conjunction with the southbound right-turn lane installation.
- Stripe out at least 200 feet of storage within the existing two-way left-turn lane along Caratoke Highway for the northbound left turn.
- Monitor the intersection for potential signalization in the future.

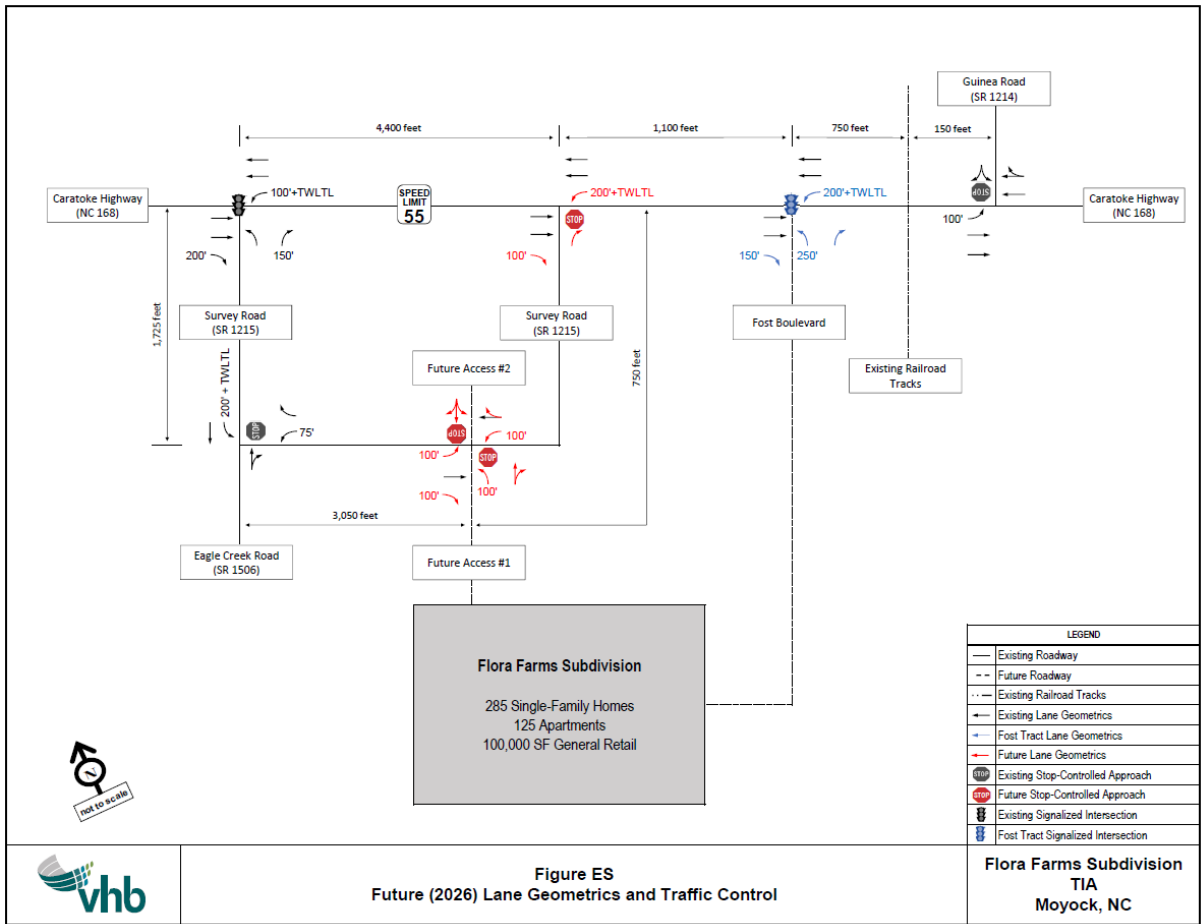
Survey Road and Future Access #1/Future Access #2

The proposed stop-controlled driveways are projected to operate at acceptable levels of service during peak hours under Build (2026) conditions. The following driveway configuration for both access driveways should be considered to enhance traffic operations and safety:

- Connect both driveways to Survey Road with stop-controlled approaches as a full movement four-leg intersection.
- Construct Future Access #1 with one ingress lane and two egress lanes. Provide northbound left-turn lane with a minimum of 100 feet of full storage and appropriate taper and a through/right-turn lane. Lydia Street intersects with Future Access #1 approximately 300 feet from Survey Road, which provides the proper internal protected stem to accommodate projected queues. Typically, NCDOT requires a 100 foot minimum internal protected stem for this type of facility.
- Construct Future Access # 2 with one ingress lane and one egress lane.
- Provide an eastbound left-turn lane and right-turn lane along Survey Road, both with a minimum of 100 feet of full storage and appropriate taper.
- Provide a westbound left turn lane along Survey Road with at least 100 feet of full storage and appropriate taper.

The other intersections within the study area are projected to remain at an acceptable LOS once the development is completed; therefore, no additional offsite lane geometric improvements are recommended.

The illustration below depicts the TIA’s recommended improvements noted above including an additional stoplight on Caratoke Highway (Survey Road and Fost Boulevard):



The following table depicts the Summary Level of Service Table. NCDOT defines the relationship of travel demand compared to the roadway capacity as the level of service (LOS) of a roadway. Please also reference the attached NCDOT LOS Definitions. The last column of the table indicates LOS at full build-out with road improvements. These counts do not consider the proposed school that is a part of this request; therefore, the LOS projections are not an accurate reflection all proposed uses in the PD-R request.

## TRAFFIC IMPACT ANALYSIS

Table ES-1 Summary Level of Service Table

Intersection and Approach	Traffic Control	Existing (2019)		No-Build (2026)		Build (2026)		Build (2026) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B (12.3)</b>	<b>A (7.8)</b>	<b>B (13.5)</b>	<b>B (12.2)</b>	<b>B (16.0)</b>	<b>B (18.1)</b>	<b>B (15.7)</b>	<b>B (18.0)</b>
Eastbound		D-44.8	D-46.3	D-43.7	D-50.0	D-41.5	E-61.2	D-41.5	E-61.2
Northbound		A-6.7	A-3.5	A-7.2	A-3.6	A-9.8	A-5.1	A-9.2	A-4.8
Southbound		A-5.9	A-5.8	B-11.2	B-12.2	B-12.0	B-16.2	B-12.0	B-16.2
<b>Caratoke Highway (NC 168) and Survey Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Eastbound		A-9.7	C-15.1	B-10.5	C-21.2	C-23.3	F-844.9	B-11.4	E-37.9
<b>Caratoke Highway (NC 168) and Guinea Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound		C-15.0	C-15.5	C-20.6	C-21.2	C-22.6	C-23.7	C-22.6	C-23.7
<b>Survey Road and Eagle Creek Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound		A-9.6	A-9.8	B-10.2	B-10.4	B-11.2	B-12.1	B-11.2	B-12.1
<b>Caratoke Highway (NC 168) and Fost Boulevard</b>	Signalized	<b>N/A</b>	<b>N/A</b>	<b>B (11.1)</b>	<b>B (11.3)</b>	<b>B (11.9)</b>	<b>B (11.3)</b>	<b>B (13.9)</b>	<b>B (14.1)</b>
Eastbound		N/A	N/A	C-30.5	D-38.2	C-30.1	D-41.1	C-30.2	D-43.7
Northbound		N/A	N/A	A-9.5	B-11.1	A-9.9	B-11.6	B-11.6	B-13.3
Southbound		N/A	N/A	A-4.6	A-8.0	A-7.2	A-7.2	A-9.4	A-9.9
<b>Survey Road and Future Access #1/Future Access #2</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Northbound		N/A	N/A	N/A	N/A	B-13.3	C-23.5	B-11.7	C-15.4
Southbound		N/A	N/A	N/A	N/A	B-12.4	C-17.7	B-11.7	C-16.2

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

It should also be noted that the School Transportation Director has expressed concern regarding street widths for school bus maneuverability and parking concerns for homes located so close to front property line which has been resulting in insufficient off-street parking causing cars to park on-street making school bus maneuverability very difficult. The applicant has increased the front setback to 35' to alleviate part of the School Transportation Director's concerns.

### Utilities

At the pre-application meeting, the developer said that this development would share a waste water treatment plant (WWTP) with the Fost Development. The plant would be on one property with the spray field on the other. This is allowed, but only with the issuance of a use permit for a major utility unless the two developments are combined into one development. The UDO defines a major utility as "infrastructure services providing regional or *community-wide* service that normally entail the construction of new buildings or structures such as water towers, *waste treatment plants*, potable water treatment plants, solid waste facilities, and electrical substations." The Planning Director interprets a community-wide service facility, such as a waste treatment plant, as a major utility.

The developer did not wish to pursue a use permit for a major utility, and indicated he would provide a separate, independent WWTP for each development. It should be noted that TRC encourages sharing a WWTP between Fost and Flora; however, staff cannot support the developer's interpretation that a shared WWTP is a minor utility that does not require a use permit. While minor utilities are located in or near the neighborhood they service, they are a much less intense use, such as sewage pump station as called out in the UDO, and not the entire WWTP and disposal system.

County water is available to service the request. The Utilities Director has asked the developer to make a main connection off of Survey Road instead of through Fost since Fost is not developed yet and this would make a complete loop for the water line. The loop is important because if there is a water main break at one development, the Water Department could then shut off water to one development instead of to both developments, commercial uses, and a school. The loop would be a more efficient service to the customers and provide a better level of service. The developer has agreed to this request.



### Drainage

There is an emphasis on downstream maintenance at this time. There are portions of Rowland Creek and the ditches on Guinea Road and Survey Road with brush and debris that need to be cleaned up. The conceptual plan provides limited drainage details.

On-site stormwater will be managed by construction a series of stormwater management ponds that will be interconnected and will retain and slow-release stormwater primarily to Rowland Creek both directly and indirectly. Stormwater shall be conveyed to on-site retention ponds through a combination of curbs with inlets, stormwater pipes and open, vegetated swales. With designated wetlands on the property, major drainage features traversing the site, high ground water table, low elevation, soils with slow permeability and the known drainage issues in the area, extra precaution must be made to ensure compliance with drainage regulations.

The mitigate drainage concerns, the developer offers the following:

1. The following improvements to stormwater drainage ("Improvements") shall be completed by the Developer prior to recording the final plat for the first phase of development on the Property:
  - i. Continue the Rowland Creek improvements to the northwest to Eagle Creek pump station as authorized by the Eagle Creek Homeowners Association.
  - ii. Improve the existing property line ditch or install a new ditch along a portion of the Property's northwestern common boundary line with Eagle Creek and Ranchland where shown on the Preliminary Drainage Plan on a positive grade with 3:1 side slopes and sized for a 100 year storm event from the drainage basin in which the Property and a portion of Eagle Creek and Ranchland Subdivision are located.
  - iii. The Improvements set forth in this section shall be maintained by the Developer, or a management association created by the Developer.
  - iv. Establish permanent easements along Rowland Creek and the property line ditch described in paragraph iii above for ongoing maintenance of these drainage facilities.
  - v. Improvements will be generally as shown on sheet 5 of the Master Plan drawing.
2. General Stormwater Conditions
  - i. The Developer shall construct berms along ditch outlets against Eagle Creek and Ranchland to reduce the potential of the proposed development's runoff from flooding Eagle Creek and Ranchland during a 100 year storm.
  - ii. On-site stormwater will be managed by construction a series of stormwater management ponds that will be interconnected and will retain and slow-release stormwater to Rowland Creek and other drainage outlets both directly and indirectly.
  - iii. In addition to modeling and retaining stormwater to the UDO and Stormwater Manual standard for the difference between runoff from the 10-year developed condition and runoff from a 2-year wooded condition site, stormwater will be modeled for the 100-year storm event and property line berms constructed as necessary to manage the 100-year storm without adversely impacting neighboring properties.
  - iv. Stormwater will be conveyed to on-site retention ponds through a combination of curbs with inlets, stormwater pipes and open, vegetated swales.

### Schools

This development is split by the Moyock and Shawboro school districts (see attached map). On June 9, 2020 the former Superintendent attended the Planning Board meeting and shared a letter (attached) that stated the school site shown on the plan has officially been selected for school construction. The former Superintendent said additional capacity was being added through mobile classrooms at Moyock Elementary; however, the Board of Education has not taken official action by vote on this change in policy as of the writing of this staff report. Section 3.7.2.E of the UDO requires that the PD zoning district designation, the master plan, and the terms and conditions document be consistent with the 2006 Land Use Plan and any applicable functional plans and small area plans adopted by the county. According to Land Use Plan Policy PP2 (see below), it is necessary to

consider adequate public facilities when considering a Planned Development rezoning because of the intensity and residential density of this type of development.

Without official action by the Board of Education changing their capacity numbers to include mobile facilities, adequate school capacity or school capacity programmed to be in place within two years from approval, the inability to meet the adequate public facilities ordinance (UDO Section 6.6) should be considered at the rezoning request. The proposed phasing schedule claims that dwelling units will not be built until school capacity is available in August 2023. The developer is asking for zoning approval of lots in the Moyock Elementary School district now that according to Currituck County School System, there is not adequate facilities to service.

Staff is concerned that approving a phasing schedule based on a conceptual timeframe for elementary school construction could create an unmanageable situation. If there is a delay and the school does not open in August 2023, dwellings could be occupied which will send more students to a school that is over capacity. Considering our recent growth along with the number of lots available for home construction, there is also concern that middle school and high school populations will be near or over capacities in the next three to five years. Other public facilities, such as law enforcement, emergency medical services, firefighting services, county water, will need to be evaluated for adequacy as well.

The below tables lists the proposed number of students this development is projected to generate. While Moyock Elementary has been the primary concern, it should be noted that the middle schools and high schools are at or over committed capacity.

ADEQUATE PUBLIC FACILITIES – SCHOOLS <sup>1</sup>				
School	2019-2020 2020-2021 Actual Capaci ty <sup>2</sup>	2021-2022 Actual Capacit y <sup>3</sup>	Committed Capacity <sup>3</sup>	Proposed Capacity Changes
				Number of Students
Moyock Elementary Shawboro Elementary Central Elementary	109%	115%%	122%	71
	87%	90%		31
	77%	85%		0
Moyock Middle Currituck Middle	94%	83%	96%	32
	70%			
Currituck High JP Knapp Early College	85%		103%	57

<sup>1</sup>Does not include minor subdivisions, exempt subdivisions, and subdivisions approved prior to the adoption of the adequate public facilities ordinance (October 1994)

<sup>2</sup>Capacity percentages are based on 2019-2020 and 2020-2021 school year classroom standards and January 2020 ADM

<sup>3</sup>Capacity percentages are based on the 2021-2022 school year classroom standards and January 2020 ADM

On June 11, 2020 the former Superintendent provided the below adjusted Moyock Elementary School capacity numbers based on the addition of four mobile classrooms. Official action by the Board of Education has not been taken to adopt the new capacity numbers. Based on the chart below, the 2021-22 capacity of MES will be 609, The **January 2020 ADM** (average daily membership) for MES provided by school system staff is **609**.

1	<b>Adequate School Capacity Chart (based on K-3 Implementation Schedule)</b>						
2							
3	<b>School</b>	<b>2019-20</b>	<b>2021-22</b>				
4		<b>2020-21</b>					
5	<b>MES</b>	560 (640*)	529 (609*)				
6	<b>SES</b>	641	622				
7	<b>CES</b>	313	282				
8	<b>KIES</b>	236	228				
9	<b>GES</b>	431	413				
10	<b>JES</b>	309	288				
11							
12	<b>CCMS</b>	540	540				
13	<b>MMS</b>	640	640				
14							
15	<b>CCHS</b>	1200	1200				
16	<b>JPk</b>	300	300				
17							
18		K-3 Full Implementation Year					
19							
20	*MES Adjusted Capacities in ( ) were based on the addition of 4 Mobile Classrooms.						
21	MES adjusted capacities expire upon removal/relocation of the Mobile Classrooms.						
22	*adjustments confirmed (6/5/20)						
23							

#### **STAFF'S CONCERNS REGARDING PROJECT CONSIDERATION AT THIS TIME:**

- The Traffic Impact Analysis (TIA):
  - Includes "one background development, Fost Tract Development." Moyock Farms must now be included in the TIA as its only access will be through the Fost Tract, assuming the amended Moyock Farms plan is approved. This will be 31 additional lots. Will the additional estimated 300 trips per day trigger an alternate transportation improvement plan?
  - Since the school site is not included in the TIA, it is not possible to determine the adequacy and safety of travelling public within and surrounding this site at this time. The primary purpose of the UDO is to protect the public health, safety, and general welfare of the citizens and landowners of Currituck County. It would be irresponsible of the county to approve a PDR and not anticipate traffic impacts of all of its uses, including an elementary school. Will the additional trips per day cause an even lower Level of Service on Caratoke Highway intersection? Trigger alternate/additional transportation improvements? It is understood that driveway location for the school is not determined yet, but the volume of traffic based upon the size of the school can be determined. An elementary school generates a large volume of traffic and the traffic impacts must be considered to determine the adequacy of proposed improvements and safety of the travelling public, including pedestrians (school children). It is understood that a school requires it's on TIA as part of project approval from NCDOT.
  - Even though NCDOT is not requiring that school site traffic be considered as part of the development, that does not mean the county cannot ask for an accurate reflection of the total traffic usage of the PDR and examine those traffic impacts on the safety of the travelling public, motorist and pedestrian.
- Without official action by the Board of Education that adequate school capacity or school capacity programmed to be in place within two years from approval, the inability to meet the adequate public facilities ordinance (UDO Section 6.6) can and should be considered at the rezoning request. The proposed phasing schedule claims that dwelling units will not be built

until school capacity is available in August 2023. The developer is asking for zoning approval of lots in the Moyock Elementary School district now when an increase in school capacity due to the use of mobile classrooms has not received official action. The phasing schedule received March 9, 2020 does not include the school. Since the school is a part of the PD-R, it must be included in the phasing schedule.

- The developer must address how the school will open if it is finished before the PD-R's WWTP is operational to service it. The developer claims that the WWTP will be in place before the school opens. A legal document notating the provision of WWTP to service the school prior to school opening is sufficient.
- The developer must address how the school will be accessed if the subdivision roads will not be installed prior to the school opening. The developer claims that the roads will be installed prior to the school opening. A legal document notating the provision of roads to service the school prior to school opening is sufficient.
- Another option is to remove the school parcel from the PD-R. Since the school parcel is over 10 acres, an exempt subdivision plat can be recorded.
- The BOC directed staff at its February 7, 2020 retreat to remove PD-R zoning from the UDO since it allows development densities and intensities beyond what the board finds acceptable, except in Currituck Station where services and infrastructure are planned for that level of development.
- Soils in the project location are concerning. Roanoke fine sandy loam and Cape Fear Silt are found in the area containing the commercial and upper story dwelling units. According to the Currituck County Soils survey, these soils are "poorly suited to most urban and recreation uses because of flooding, wetness, slow permeability and low strength."

## LAND USE PLAN

**THE 2006 LAND USE PLAN CLASSIFIES THIS SITE AS FULL SERVICE WITHIN THE MOYOCK SUBAREA. THE POLICY EMPHASIS FOR THE MOYOCK SUBAREA IS TO PROPERLY MANAGE THE INCREASED URBAN LEVEL OF GROWTH THAT THIS AREA IS SURE TO EXPERIENCE OVER THE NEXT DECADE AND BEYOND. SECTION 3.7.2.E OF THE UDO REQUIRES THAT THE PD ZONING DISTRICT DESIGNATION, THE MASTER PLAN, AND THE TERMS AND CONDITIONS DOCUMENT BE CONSISTENT WITH THE 2006 LAND USE PLAN AND ANY APPLICABLE FUNCTIONAL PLANS AND SMALL AREA PLANS ADOPTED BY THE COUNTY. WHILE THE PROPOSAL IS CONSISTENT WITH SOME POLICIES IN THE LAND USE PLAN (SEE ATTACHED LIST FROM DEVELOPER FOR MORE DETAIL), IT IS INCONSISTENT WITH OTHER POLICIES OF THE PLAN, SOME OF WHICH ARE:**

POLICY HN1	<p>CURRITUCK COUNTY SHALL ENCOURAGE DEVELOPMENT TO OCCUR AT DENSITIES APPROPRIATE FOR THE LOCATION. LOCATION AND DENSITY FACTORS SHALL INCLUDE WHETHER THE DEVELOPMENT IS WITHIN AN ENVIRONMENTALLY SUITABLE AREA, THE TYPE AND CAPACITY OF SEWAGE TREATMENT AVAILABLE TO THE SITE, THE ADEQUACY OF TRANSPORTATION FACILITIES PROVIDING ACCESS TO THE SITE, AND THE PROXIMITY TO EXISTING AND PLANNED URBAN SERVICES.</p> <p><u>COMMENTS:</u></p> <ul style="list-style-type: none"><li>• WITH THE APPROVAL OF FOST PD-R ON A NEIGHBORING PARCEL, IT WAS ESTABLISHED THAT HIGHER RESIDENTIAL DENSITY WAS ACCEPTABLE IN THIS AREA OF MOYOCK.</li><li>• THE BOC UNANIMOUSLY DIRECTED STAFF AT ITS FEBRUARY 7, 2020 RETREAT TO REMOVE PD-R ZONING FROM THE UDO SINCE IT ALLOWS DEVELOPMENT DENSITIES AND INTENSITIES BEYOND WHAT THE BOARD FINDS ACCEPTABLE, EXCEPT IN CURRITUCK STATION WHERE PUBLIC SERVICES AND INFRASTRUCTURE AND PLANNED FOR THAT LEVEL OF DEVELOPMENT. THE TEXT AMENDMENT IS FORTHCOMING.</li><li>• WITHOUT AN UPDATED TIA APPROVED BY NCDOT INCLUDING MOYOCK FARMS TRAFFIC AS NOTED ABOVE, IT IS NOT POSSIBLE TO DETERMINE THE ADEQUACY OF TRANSPORTATION FACILITIES PROVIDING ACCESS TO THIS SITE AT THIS TIME. WILL THE ADDITIONAL ESTIMATED 300 TRIPS PER DAY GENERATED BY MOYOCK FARMS TRIGGER ADDITIONAL TRANSPORTATION IMPROVEMENTS?</li><li>• THE BOC MUST DETERMINE IF LESSENING THE LEVEL OF SERVICE ALONG CARATOKE HIGHWAY DURING PEAK TRAFFIC TIMES WITHOUT INCLUSION OF THE SCHOOL IS ADEQUATE AND ACCEPTABLE.</li><li>• SINCE THE SCHOOL SITE IS NOT INCLUDED IN THE TIA, IT IS NOT POSSIBLE TO DETERMINE THE ADEQUACY AND SAFETY OF TRAVELLING PUBLIC WITHIN AND SURROUNDING THIS SITE AT THIS TIME.</li></ul>
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POLICY TR2	<p>TRANSPORTATION PLANNING SHALL BE EMPLOYED TO PROMOTE A HIERARCHICAL FUNCTIONAL TRANSPORTATION SYSTEM AND TO PROMOTE THE PROPER ARRANGEMENT OF LAND PATTERNS BY CONTROLLING THE LOCATION AND APPROPRIATE USE OF STREETS, HIGHWAYS, TRAILS, AND OTHER MODES OF TRANSPORTATION. GENERALLY, THE DESIGN OF MAJOR ROADS SHOULD GIVE FIRST PRIORITY TO MOVING TRAFFIC, WHILE SMALLER ROADS MAY GIVE GREATER EMPHASIS TO SERVING ADJOINING LAND USES.</p> <p><u>COMMENTS:</u></p> <ul style="list-style-type: none"> <li>• WITHOUT THE SCHOOL BEING A PART OF THE TIA, IT IS NOT POSSIBLE TO DETERMINE IF STREETS ARE BEING APPROPRIATELY DESIGNED AND CONTROLLED.</li> <li>• CURRITUCK COUNTY SCHOOLS HAS EXPRESSED A CONCERN OVER STREET WIDTHS FOR SCHOOL BUS MANEUVERABILITY AND PARKING CONCERNS FOR HOMES LOCATED SO CLOSE TO FRONT PROPERTY LINE WHICH HAS BEEN RESULTING IN INSUFFICIENT OFF-STREET PARKING CAUSING CARS TO PARK ON-STREET MAKING SCHOOL BUS MANEUVERABILITY VERY DIFFICULT. <b>NOTE: THE DEVELOPER HAS INCREASED FROM SETBACKS FROM 20' TO 35' ADDRESSING PART OF THE SCHOOL'S CONCERN.</b></li> <li>• A REVISED TIA INCLUDING MOYOCK FARMS TRAFFIC, APPROVED BY NCDOT, IS NECESSARY TO DETERMINE THE APPROPRIATE IMPROVEMENTS AND TIMING OF IMPROVEMENTS.</li> </ul>
POLICY SF3	<p>SITE PLANNING FOR TRAFFIC MANAGEMENT AND SAFETY IN THE VICINITY OF PUBLIC SCHOOLS SHALL BE A PRIORITY.</p> <p><u>COMMENTS:</u></p> <ul style="list-style-type: none"> <li>• WITHOUT THE SCHOOL BEING A PART OF THE TIA, STAFF HAS CONCERNS THAT TRAFFIC IS NOT (VEHICLE, BICYCLE, PEDESTRIAN) BEING APPROPRIATELY MANAGED WITH A PRIORITY ON THE SAFETY OF THE TRAVELLING PUBLIC INCLUDING SCHOOL CHILDREN, SCHOOL BUSES, ETC.</li> <li>• Currituck County Schools has expressed a concern over street widths for school bus maneuverability.</li> </ul>
POLICY SF4	<p>CURRITUCK COUNTY SHALL CONTINUE TO SUPPORT A SERVICE LEVEL POLICY FOR SCHOOLS THAT CALLS FOR THE CONSTRUCTION AND MAINTENANCE OF CLASSROOM SPACE SUFFICIENT TO AVOID THE USE OF MOBILE CLASSROOM UNITS.</p> <p><u>COMMENTS:</u></p> <ul style="list-style-type: none"> <li>• APPROXIMATELY 286 DWELLING UNITS ARE PROPOSED IN THE MOYOCK ELEMENTARY SCHOOL DISTRICT WHERE NO SCHOOL CAPACITY EXISTS UNTIL OFFICIAL ACTION IS TAKEN BY THE THE CURRITUCK COUNTY BOARD OF EDUCATION.</li> </ul>

POLICY PP2	<p>CURRITUCK COUNTY SHALL CONTINUE TO IMPLEMENT A POLICY OF ADEQUATE PUBLIC FACILITIES, SUFFICIENT TO SUPPORT ASSOCIATED GROWTH AND DEVELOPMENT. SUCH FACILITIES MAY INCLUDE BUT NOT LIMITED TO WATER SUPPLY, SCHOOL CAPACITY, PARK AND OPEN SPACE NEEDS, FIREFIGHTING CAPABILITY, AND LAW ENFORCEMENT.</p> <p><u>COMMENTS:</u></p> <ul style="list-style-type: none"> <li>• APPROXIMATELY 286 DWELLING UNITS ARE PROPOSED IN THE MOYOCK ELEMENTARY SCHOOL DISTRICT WHERE NO SCHOOL CAPACITY EXISTS UNTIL OFFICIAL ACTION IS TAKEN BY THE CURRITUCK COUNTY BOARD OF EDUCATION.</li> <li>• UNTIL OFFICIAL ACTION IS TAKEN BY THE CURRITUCK COUNTY BOARD OF EDUCATION, THE ADDITIONAL STUDENTS (71) THIS DEVELOPMENT IS PROJECTED TO GENERATE THAT WILL ATTEND THE MOYOCK ELEMENTARY SCHOOL DISTRICT WILL INCREASE THE OVER CAPACITY ISSUE. APPROVING A PD-R REZONING TO INCREASE DENSITY MAY ALSO BURDEN THE MIDDLE SCHOOLS AND HIGH SCHOOLS THAT ARE NEAR ACTUAL CAPACITY AND NEAR OR OVER COMMITTED CAPACITY. (SEE TABLE ABOVE.)</li> </ul>
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### MOYOCK SMALL AREA PLAN

THE MOYOCK SMALL AREA PLAN CLASSIFIES THIS SITE AS FULL SERVICE AND LIMITED SERVICE. THE POLICY EMPHASIS FOR FULL SERVICE IN MOYOCK IS TO PROVIDE FOCAL POINTS IN THE COMMUNITY WHERE HIGH AMOUNTS OF ACTIVITY OCCUR. BOTH RESIDENTIAL AND COMMERCIAL COMPONENTS WILL BE PRESENT IN FULL SERVICE AREAS. CLUSTER OR PLANNED COMMERCIAL AND RESIDENTIAL AREAS WITH DIVERSITY IN HOUSING TYPES IS PREFERRED. THE POLICY EMPHASIS FOR LIMITED SERVICE DESIGNATIONS ARE LESS INTENSELY DEVELOPED THAN FULL SERVICE. EMPHASIS IS MORE ON RESIDENTIAL DEVELOPMENT AND DENSITIES. LIMITED SERVICE DESIGNATION HAS REDUCED PUBLIC SERVICES SUCH AS FIRE PROTECTION, EMERGENCY SERVICE, RECREATION, AND PUBLIC WATER. WHILE THE PROPOSAL IS CONSISTENT WITH SOME POLICIES IN THE MOYOCK SMALL AREA PLAN (SEE ATTACHED LIST FROM DEVELOPER FOR MORE DETAIL), IT IS INCONSISTENT WITH OTHER POLICIES OF THE PLAN, SOME OF WHICH ARE:

POLICY TR1	<p>DESIGN FUTURE TRANSPORTATION IMPROVEMENTS THAT ARE CONSISTENT WITH COMPLETE STREETS POLICY. COMPLETE STREETS POLICY ENCOURAGES DESIGN OF TRANSPORTATION NETWORKS AND FACILITIES THAT SAFELY ACCOMMODATE PEDESTRIANS, BICYCLISTS, RAIL, AND VEHICLES.</p> <p><u>COMMENTS:</u></p> <ul style="list-style-type: none"> <li>• A REVISED TIA INCLUDING MOYOCK FARMS TRAFFIC, APPROVED BY NCDOT, IS NECESSARY TO DETERMINE THE APPROPRIATE IMPROVEMENTS AND TIMING OF IMPROVEMENTS.</li> <li>• WITHOUT THE SCHOOL BEING A PART OF THE TIA, IT IS NOT POSSIBLE TO DETERMINE IF STREETS SAFELY ACCOMMODATE PEDESTRIANS, BICYCLISTS, AND VEHICLES.</li> <li>• CURRITUCK COUNTY SCHOOLS HAS EXPRESSED A CONCERN OVER STREET WIDTHS FOR SCHOOL BUS MANEUVERABILITY.</li> </ul>
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POLICY FLU 1	<p>PROMOTE COMPATIBILITY BETWEEN NEW DEVELOPMENT AND EXISTING DEVELOPMENT TO AVOID ADVERSE IMPACTS TO THE EXISTING COMMUNITY. THIS IS ACHIEVED THROUGH DESIGN AND INCLUDES LARGER SETBACKS, LANDSCAPED OR FORESTED STRIPS, TRANSITION ZONES, FENCING, SCREENING, DENSITY AND OR BULK STEP DOWNS OR OTHER ARCHITECTURAL AND SITE PLANNING MEASURES THAT ENCOURAGE HARMONY.</p> <p>COMMENTS:</p> <ul style="list-style-type: none"> <li>• THE AREA OF THE PROJECT NEIGHBORING RANCHLAND HAS SINGLE FAMILY DWELLING LOTS THAT TYPICALLY AVERAGE 15,000 SQ FT. THE RANCHLAND LOTS RANGE FROM 1.5 -5 ACRE LOTS.</li> <li>• THE AREA OF THE PROJECT NEIGHBORING EAGLE CREEK HAS SINGLE FAMILY DWELLING LOTS THAT TYPICALLY AVERAGE 15,000 SQ FT. THE EAGLE CREEK LOTS RANGE FROM 0.69 -1.11 ACRE LOTS</li> <li>• THE 25' BUFFER MAY NOT BE SUFFICIENT TRANSITION BETWEEN LOT SIZES.</li> </ul>
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#### TECHNICAL REVIEW COMMITTEE

THE TECHNICAL REVIEW COMMITTEE RECOMMENDS DENIAL OF THIS REQUEST BASED UPON THE FOLLOWING:

#### PLANNING

1. Traffic Impact Analysis (TIA):
  - a. While the TIA includes Fost as a background development, it does not include Moyock Farms which is proposing 100% access through Fost.
  - b. Staff has concerns that the TIA does not include the school site and may not accurately reflect the proposed conditions. Since the school site is a part of this PD-R request, it must be included in the TIA.
    - i. In looking at Table ES-1 Summary Level of Service Table, even without the inclusion of elementary school traffic, it appears that the LOS will drop from an A to a D at east bound Caratoke Highway and Survey Road at peak travel times. There are other drops in LOS for Caratoke Highway (reference table), a major arterial street, at peak travel times. Is NCDOT agreeable to the drop in LOS for Caratoke Highway? Is the Board of Commissioners agreeable to the drop in the level of service? The LOS and drops in the LOS do not include traffic from the school, which will significantly impact LOS. Are there other traffic improvements that may be required to maintain an equal LOS?
2. On June 9, 2020 the Superintendent attended the Planning Board meeting and shared a letter (attached) that stated the school site shown on the plan has officially been selected for school construction and on June 11, 2020 he provided a new capacity number for Moyock Elementary School based on the addition of four mobile classroom units. As of the writing of this staff report, the Board of Education has not officially acted on the new capacity number. Without Board of Education approval of the new capacity at Moyock Elementary School based on mobile classrooms, there is not school capacity available now or planned to be in place within two years of the development approval for the elementary school children in the Moyock District that this development will generate. Section 3.7.2.E of the UDO requires that the PD zoning district designation, the master plan, and the terms and conditions document be consistent with the 2006 Land Use Plan and any applicable functional plans and small area plans adopted by the county. According to Land Use Plan Policy PP2 (see below), it is necessary to consider adequate public facilities when considering a Planned Development rezoning because of the intensity and residential density of this type of development. Per Superintendent on 1/15/2020, a portion of the development is districted to Moyock Elementary School and at the time of the writing of this comment, the BOE has not made a



change to the district boundary. It is necessary to consider adequate public facilities when considering a Planned Development because of the intensity of development. For a legislative decision like a rezoning, all impacts to the community can and should be considered. The developer is proposing a phasing schedule that claims no dwelling units will be built until school capacity is available. The important thing to note is that according to Currituck County Schools, school capacity is not available now nor voted by the Board of Education to be programmed to be in place in two years for the portion of the development districted to Moyock Elementary School. The developer is asking for zoning approval of lots in the Moyock Elementary School district now that according to Currituck County School System, there is not adequate facilities to service. If the elementary school capacity is addressed, there is no guarantee that all other public facilities will be adequate (i.e. law enforcement, emergency medical services, firefighting services, county water).

3. The timing of the phasing scheduled must include the school since it is a part of the development. (UDO Section 3.7.2.G)
4. Since the school site is a part of the PD-R, the developer must address how the school will open if it is finished before the PD-R's WWTP is operational to service it.
5. Terms and Conditions document:
  - a. It does not appear that the county can regulate or enforce the workforce housing condition. This condition may need to be removed from the document.
  - b. The school must be included in the phasing schedule since it is a part of the master plan. (UDO Section 3.7.2.G)

Currituck County School Facilities, Maintenance, and Transportation Director

6. There is a concern over street widths for school bus.

**A PLANNED DEVELOPMENT REZONING IS A LEGISLATIVE DECISION OF THE BOARD OF COMMISSIONERS. IN DETERMINING WHETHER TO APPROVE OR DENY A REZONING THE BOARD OF COMMISSIONERS SHALL ADOPT A WRITTEN STATEMENT OF CONSISTENCY AND REASONABLENESS.**

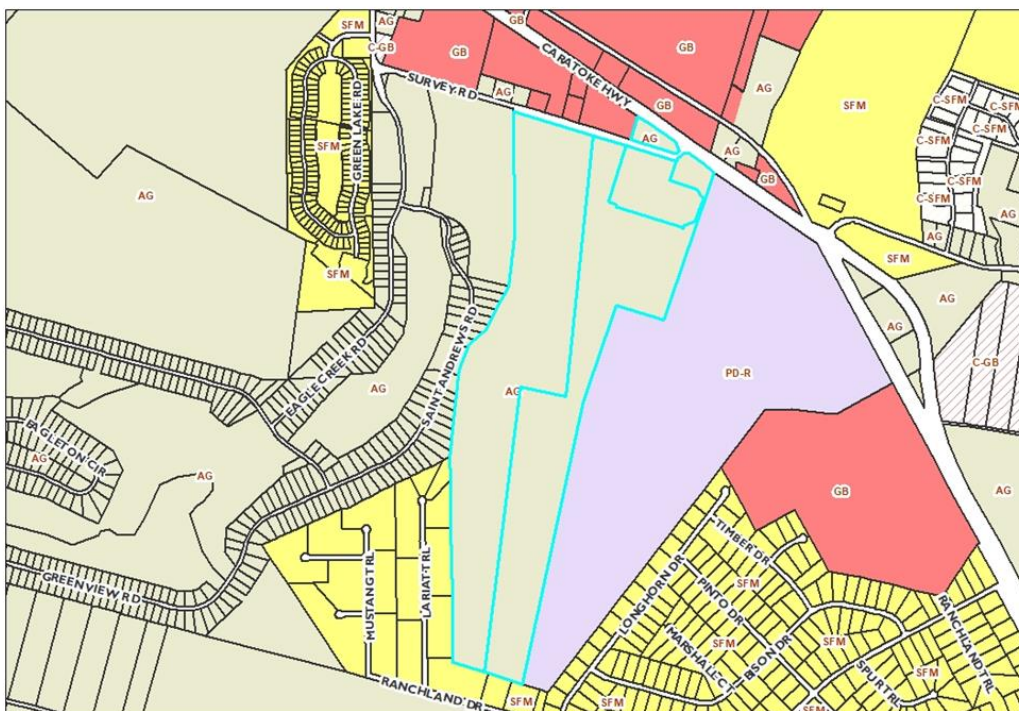
This planned development rezoning request is inconsistent with the below applicable review standards from 2.4.3.C:

1. It is not consistent with the goals, objectives, and policies of the Land Use Plan, other applicable county-adopted plans, and the purpose of the UDO.
  - See above where the development is determined to inconsistent with LUP Policies HN1, TR2, SF3, SF4, PP2, and Moyock Small Area Plan TR1.
    - One of the purposes of the UDO is to facilitate the adequate provision of transportation, utilities, parks, recreation, emergency services, and other public facilities. This proposal is insufficient in determining the safety of the transportation service and offers dwelling units in a school district where zero school capacity exists.

It is not reasonable and not in the public interest because of the inconsistencies with the Land Use Plan, Moyock Small Area Plan, and the purpose of the UDO. There are not adequate public facilities (schools) to service this development now or programed to be in place within two years as required by the Adequate Public Facilities Standards in the UDO. The UDO requires that the conditional zoning (legislative) be consistent with the Land Use Plan. As stated above, the Land Use Plan requires adequate public facilities be in place at time of approval – See Policy PP2 above.



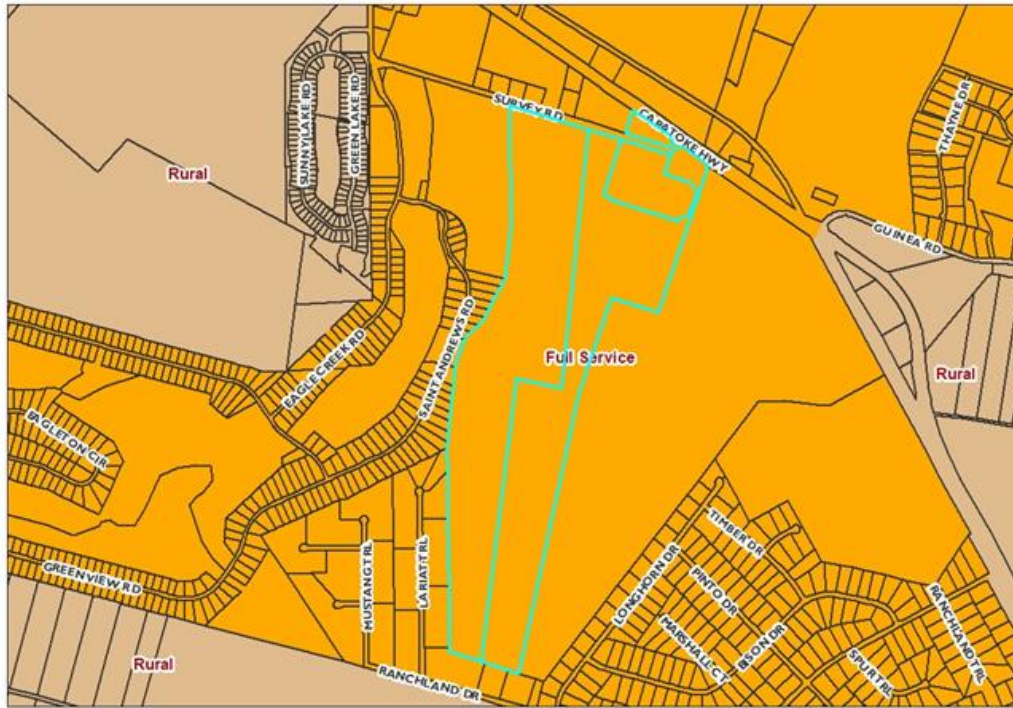
**PB 19-20 Flora Farm**  
**Aerial Photography (2016)**



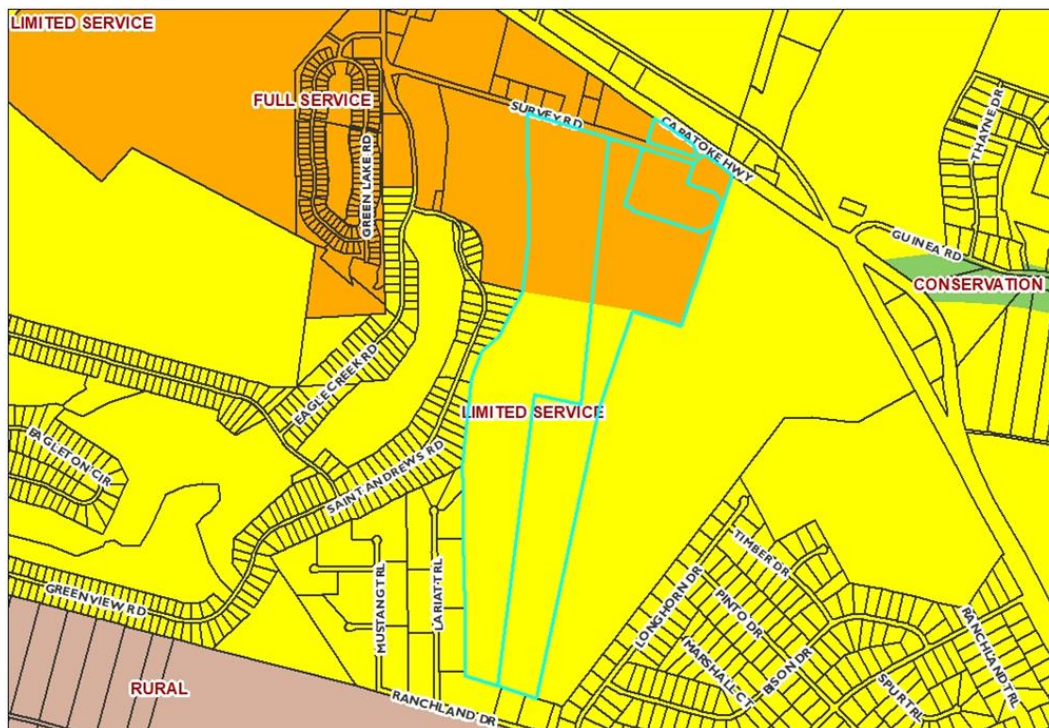
**PB 19-20 Flora Farm**  
**Zoning Base Districts**







**PB 19-20 Flora Farm  
2006 Land Use Plan Classifications**



**PB 19-20 Flora Farm  
Moyock Small Area Plan Classifications**

Ben Stikeleather, County Manager, introduced the Flora Farm rezoning request, which had been continued by the Board of Commissioners at the meeting held June 22, 2020 to allow time for the school system to provide updated student numbers. Jamie Schwedler, Attorney, Mark Bissell, Engineer, and Developer, Justin Old, attended to represent the applicant and provide additional information to Board members as needed. Commissioners posed several questions related to the designated 22 acre school site, student generation, school capacities, and transportation.

Regarding the school site, Mr. Bissell said other compatible governmental uses would be acceptable in lieu of a school, and both he and Ms. Schwedler confirmed the phased construction plan to remedy capacity issues with student generation.

Laurie LoCicero, Planning and Community Development Director, discussed the student generation numbers for Moyock and Shawboro schools and committed capacities of subdivisions already approved. She confirmed students from the neighboring Fost Tract would be going to Shawboro Elementary and explained the formula for calculating student generation. Mr. Stikeleather estimated construction would be completed by the 2023-2024 school year for Moyock Elementary and Moyock Middle School. Additional capacities resulting from school expansion at Moyock Elementary were discussed.

Ms. LoCicero reported roughly 900 lots are approved for potential development in the Moyock Township, not including the lots in the Fost Tract. Mr. Old disagreed and said the figures presented by staff due were inaccurate to the age of the report and other factors related to stages of development.

Additional Board discussion addressed school capacities and average daily memberships, districting, and affects of Covid-19 on the student numbers. Commissioners considered whether controlling growth and addressing adequate public facilities is appropriate at rezoning or when the Use Permit is brought forward.

Site density was reviewed and impacts to other public facilities, such as public safety services and traffic, were reviewed. Mr. Bissell said the traffic report noted no additional impacts, but the Board expressed concerns with the additional trips outlined in the report from the Moyock Farms access through the subdivision and construction of the neighboring Fost Tract. When asked, County Attorney, Ike McRee, compared consideration of a rezoning, which allows Commissioners to consider any information, with the expert testimony required at a quasi-judicial phase for consideration of a use permit. Mr. Bissell concluded with a summary of the Flora Farm request. Chairman White recessed the meeting at 7:02 PM and reconvened at 7:08 PM.

Commissioner McCord moved to approve PB 19-20, Flora Farm, because the request is consistent with the Land Use Policies, including HN3, CD1, HN5, ES2, SF1, and SF2. The request is reasonable and in the public interest because the increase in the number of residential roof tops may bring additional commercial development to Moyock. The following conditions included in the motion were to set aside the twenty-two acre school site, if not selected for school construction, to be used for another governmental purpose; and the conditions of the phasing schedule proposed at the June 22, 2020 meeting apply.

Commissioner J. Owen Etheridge seconded the motion. The motion failed on a final vote of 3 in favor and 4 opposed. Commissioners Payment, J. Owen Etheridge and McCord voted for approval. Chairman White and Commissioners Beaumont, Mary Etheridge and Jarvis were opposed.

<b>RESULT:</b>	<b>FAILED [3 TO 4]</b>
<b>MOVER:</b>	Kevin E. McCord, Commissioner
<b>SECONDER:</b>	J. Owen Etheridge, Commissioner
<b>AYES:</b>	Mike H. Payment, Vice Chairman, J. Owen Etheridge, Commissioner, Kevin E. McCord, Commissioner
<b>NAYS:</b>	Bob White, Chairman, Paul M. Beaumont, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner

## NEW BUSINESS

### Motion for recusal of Chairman White

Chairman White asked to be recused from voting on the Horse Tour Licensing Fee item as owner of an outdoor tour business who pays the fee to operate. County Attorney, Ike McRee, said he could remain in the Board Room to respond to questions until the vote. Commissioner Beaumont moved to recuse Chairman White. The motion was seconded by Commissioner Payment. The motion carried.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Paul M. Beaumont, Commissioner
<b>SECONDER:</b>	Mike H. Payment, Vice Chairman
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### A. Consideration of Annual Outdoor Tour Operator Licensing Fee Payments

Vice-Chairman, Mike Payment, assumed the duties of Chair. County Manager, Ben Stikeleather, recalled the original deferment of the annual payment of horse tour license fees due to unknown impacts from Covid-19 and effects it may have on the summer visitor season.

County Attorney, Ike McRee, reviewed the ordinance amendment approved by the Board of Commissioners that deferred payments until September 1, 2020, and said the fees are now due unless additional action is taken by the Board. Mr. White addressed the Board from the podium in response to questions posed by Commissioners related to the summer season and current operations. He noted his business is currently down about 25 percent but believes he will see an overall 20 percent decline when operations cease for the year. He said vehicle capacities were reduced for tours.

Commissioners began discussion and Mr. White exited the Board room. Mr. Stikeleather reviewed revenues collected and use of the fees for road maintenance on

the off-road beach. Mr. McRee said the ordinance revision could be brought back to the Board of Commissioners at the next meeting for adoption.

Following discussion, Commissioner Beaumont moved to suspend wild horse tour fees for the year. Commissioner Jarvis seconded the motion. The vote resulted in a 3-3 tie and did not pass. Vice-chairman Payment, Commissioner Jarvis, and Commissioner Beaumont were in favor. Commissioner J. Owen Etheridge, Mary Etheridge, and McCord were opposed.

Commissioner J. Owen Etheridge moved to continue the discussion until first meeting in November to get final numbers and to consider assessing fees on a percentage basis. Commissioner McCord seconded the motion. The vote resulted in 3-3 tie and did not pass. Commissioner Jarvis, Commissioner J. Owen Etheridge and Commissioner McCord voted in favor and Vice-chair Payment and Commissioners Mary Etheridge and Beaumont were opposed.

Commissioner Mary Etheridge made a motion to charge the horse tour operator fee at 25 percent of the usual payment. She amended her motion and authorized the county to provide the balance of funds that would have been collected to the Carova Road Service District. Commissioner Beaumont seconded the motion. The motion carried unanimously. Following the vote, Chairman White rejoined Commissioners in the Board Room.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Mary "Kitty" Etheridge, Commissioner
<b>SECONDER:</b>	Paul M. Beaumont, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

## **B. Soil & Water 205J Grant**

County Manager, Ben Stikeleather, briefly described the 205J Grant and introduced Dylan Lloyd, Soil and Water Technician, who presented additional information about the grant process and objectives of the regional watershed study. Mr. Lloyd responded to questions posed by Commissioners and, following presentation, the Board approved the request for matching funds in the amount of \$2,500.

## **C) Consent Agenda**

Commissioner Payment moved to approve Consent Agenda. The motion was seconded by Commissioner Beaumont. The motion carried.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Mike H. Payment, Vice Chairman
<b>SECONDER:</b>	Paul M. Beaumont, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

**1. Resolution Authorizing the Purchase of Hardware from InstruLogic, LLC, for the Operation of Sailfish Street Stormwater Site through Sole Source Purchase Pursuant to N.C. GEN. STAT. §143-129(e)(6)**

**RESOLUTION AUTHORIZING THE PURCHASE OF HARDWARE FROM INSTRULOGIC, LLC FOR THE OPERATION OF SAILFISH STREET STORMWATER SITE THROUGH SOLE SOURCE PURCHASE PURSUANT TO N.C. GEN. STAT. §143-129(e)(6)**

WHEREAS, N.C. Gen. Stat. §143-129(e)(6) authorizes a unit of local government to purchase apparatus, supplies, materials or equipment when standardization or compatibility is an overriding consideration; and

WHEREAS, proper functioning of the County's Sailfish Street Stormwater Site in the Whalehead Subdivision Improvement Service District requires the purchase of flow meter hardware compatible with existing systems equipment and;

WHEREAS, InstruLogic, LLC is the only entity capable of providing the County with necessary hardware compatible with current Whalehead Subdivision Improvement Service District equipment and operational systems, and

WHEREAS, Whalehead Subdivision Improvement Service District has been using InstruLogic, LLC to construct, develop and upgrade its system; and

WHEREAS, InstruLogic, LLC is supplying Whalehead Subdivision Improvement Service District with necessary hardware at a cost of \$19,059.00; and

WHEREAS, InstruLogic, LLC is supplying Whalehead Subdivision Improvement Service District with necessary hardware at a cost of \$19,059.00; and

WHEREAS, the total cost for the Whalehead Subdivision Improvement Service District purchase is \$19,059.00.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners for Currituck County, North Carolina as follows:

Section 1. The County of Currituck is authorized to enter into a contract in the amount of \$19,059.00 with InstruLogic, LLC for the sole source purchase of necessary hardware in accordance with the sole source provision requirements set forth by N.C. Gen. Stat. §143-129(e)(6). Further, the County Manager is authorized to execute the agreement with InstruLogic, LLC for the acquisition of hardware described in this resolution and the proposed contract.

Section 2. This resolution shall be effective upon its adoption.

This the 21<sup>st</sup> day of September 2020.

**2. Resolution Authorizing the Purchase of Hardware and Software from Eastern Data, Inc. through Sole Source Purchase Pursuant to N.C. GEN. STAT. §143-129(e)(6)**

**RESOLUTION AUTHORIZING THE PURCHASE OF HARDWARE AND SOFTWARE FROM EASTERN DATA, INC. THROUGH SOLE SOURCE PURCHASE PURSUANT TO N.C. GEN. STAT. §143-129(e)(6)**

WHEREAS, N.C. Gen. Stat. §143-129(e)(6) authorizes a unit of local government to purchase apparatus, supplies, materials or equipment when standardization or compatibility is an overriding consideration; and

WHEREAS, proper functioning of the county's Mainland Water Treatment Plant access control system requires hardware and software upgrades compatible with existing systems equipment; and

WHEREAS, Eastern Data, Inc. is the only entity capable of providing the county with hardware and necessary software compatible with current county equipment and operational systems, and

WHEREAS, the county has been using Eastern Data, Inc. to construct, develop and upgrade its system; and

WHEREAS, Mainland Water Treatment Plant needs access control system hardware and software upgrades and Eastern Data, Inc. is the sole supplier of compatible hardware and software; and

WHEREAS, Eastern Data, Inc. is supplying Mainland Water Department with hardware and necessary software at a cost of \$17,376.60; and

WHEREAS, the total cost for the Mainland Water Department access control system upgrade is \$17,376.60.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners for Currituck County, North Carolina as follows:

Section 1. The County of Currituck is authorized to enter into a contract in the amount of \$17,376.60 with Eastern Data, Inc. for the sole source purchase of hardware and necessary software in accordance with the sole source provision requirements set forth by N.C. Gen. Stat. §143-129(e)(6). Further, the County Manager is authorized to execute the agreement with Eastern Data, Inc. for the acquisition apparatus, materials, and equipment acquisition described in this resolution and the proposed contract.

Section 2. This resolution shall be effective upon its adoption.

This the 21<sup>st</sup> day of September 2020.

**3. Shingle Landing Park/Dominion ROW Agreement**

**4. Maritime Museum Change Order #3**

**5) Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting**

**1. Minutes-Sept. 8, 2020**



## 2. Special Mtg Minutes-September 14, 2020

### CLOSED SESSION

#### 1. Closed Session Pursuant to G.S. 143-318.11(a)(3) to Consult with the County Attorney and to Preserve the Attorney-Client Privilege

Chairman White moved to enter Closed Session pursuant to G.S. 143-318.11(a)(3) to consult with the County Attorney and to preserve the attorney-client privilege. Commissioner Mary Etheridge seconded the motion. The motion carried and the Board entered Closed Session at 7:47 PM.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Bob White, Chairman
<b>SECONDER:</b>	Mary "Kitty" Etheridge, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### ADJOURN

#### Motion to Adjourn Meeting

Commissioners returned from Closed Session. County Manager, Ben Stikeleather, updated the Board on a situation with the Outer Banks West KOA campground and their use of booster pumps to provide better water pressure at their facility. After the county received complaints from nearby residents about drops in water pressure, staff discussed the issue with campground representatives. A compromise was ultimately reached that allowed some use of the pumps through the Labor Day weekend. Mr. Stikeleather said pressure monitors installed on the county water system noted no drops in pressure after Labor Day, as agreed. A new monitoring meter will be installed that will automatically notify the county if the utility system pressure drops below 20 psi.

Mr. Stikeleather also informed the Board of a conflict between a member of the Lower Currituck Volunteer Fire Department (LCVFD) and a Currituck County Emergency Medical Service (EMS) because the employee picked up and drove a LCVFD brush truck when responding to a fire. The LCVFD member did not believe the employee was authorized to do so, and Mr. Stikeleather suggested the county consider adopting a policy authorizing county employees to use fire apparatus if properly certified.

There was no further discussion and Commissioner Payment moved to adjourn. The motion was seconded by Commissioner Jarvis. The motion carried and the meeting adjourned.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Mike H. Payment, Vice Chairman
<b>SECONDER:</b>	Selina S. Jarvis, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner



**STAFF REPORT  
PB 19-20 FLORA FARM  
REZONING  
PLANNED DEVELOPMENT-  
RESIDENTIAL  
BOARD OF COMMISSIONERS  
JUNE 22, 2020**

### APPLICATION SUMMARY

<b>Property Owner:</b> John J. Flora III PO Box 369 Moyock NC 27958  Mary Nell Flora Brumsey 117 Puddin Ridge Rd Moyock NC 27958	<b>Applicants:</b> John J. Flora III Mary Nell Brumsey  <b>Developer:</b> Justin Old North-South Development Group LLC 417D Caratoke Hwy Moyock NC 27958
<b>Case Number:</b> 19-20	<b>Application Type:</b> Rezoning to PD-R
<b>Parcel Identification Number:</b> 0015-000-085B-0000; 0015-000-085C-0000, 0015-000-085A-0000	<b>Existing Use:</b> Single-family dwelling and Farmland
<b>Land Use Plan Classification:</b> Full Service	<b>Parcel Size (Acres):</b> 224.44
<b>Moyock Small Area Plan Classification:</b> Full and Limited Service	<b>Zoning History:</b> A (1989); A-40 (1975)
<b>Current Zoning:</b> AG (Agricultural)	<b>Proposed Zoning:</b> PD-R (Planned Development – Residential)
<b>Request:</b> The developer is requesting to rezone the property from AG to PD-R. The request includes 285 single-family dwelling lots, up to 100,000 sf commercial, 125 upper story dwelling units, and a 22 acre school site.	

Attachment: 1 PB 19-20 Flora Farm PDR Staff Report BOC (PB 19-20 Flora Farm)

**ZONING DISTRICT COMPARISON**

<b>ZONING</b>	<b>APPROX MAX # UNITS</b>	<b>OPEN SPACE (%)</b>	<b>GROSS DENSITY* (Units/Acre)</b>	<b>NET DENSITY “FEELS LIKE” (Units/Acre)</b>
PD-R (PROPOSED)	410 + Commercial + School	30.1	1.83	2.93
AG (EXISTING)	74	50	.33	.66
SFM	224	40	1	1.66
MXR** (Single-Family) (Multi-Family)	448	30	2	2.86
	673	40	3	5.0

\*Assumes 10% area for infrastructure.

\*\*These numbers are assuming the Full Service designation in the *Land Use Plan* would supersede the split Full Service/Limited Service designation in the Moyock Small Area Plan as in an adjoining development.

**REQUEST**

Chapter 3 Zoning Districts of the UDO defines a Planned Development – Residential as a development with a purpose to “encourage the use of innovative and creative design to provide a mix of different residential uses in close proximity to one another on mainland Currituck County, while at the same time providing an efficient use of open space. Limited, small-scale commercial uses may be allowed in the PD-R district, primarily to serve the needs of residents in the development.” A planned development zoning district classification is defined by a master plan and a terms and conditions document. The applicant’s objective is “to build a community that has a creative design, providing a mix of different residential uses in close proximity to one another, while at the same time providing an efficient use of open space that promotes an active lifestyle and strong sense of community. True Mixed Use/Commercial development is also proposed to serve the needs of both the residents in this development and the surrounding community.” The proposal includes a total of 410 dwelling units with a mix of upper story dwelling units and conventional single-family dwelling units. The proposed development includes up to 100,000 sf of commercial designation with out-parcels and larger commercial buildings with commercial uses located on street level and upper story residential apartments. The proposal contains 67.55 acres of open space, not counting the school site. Recreational amenities include a clubhouse, swimming pool, nature overlook, a dog park, and amenities related to a school. The plans also show an independent WWTP proposed for the development.

**SURROUNDING PARCELS**

	Land Use	Zoning
North	Low Density Residential/ Cultivated Farmland	AG/GB
South	Low Density Residential/ Cultivated Farmland	SFM/AG
East	Fost Planned Development	PD-R
West	Residential (Eagle Creek and Ranchland)	SFM/AG

**COMMUNITY MEETING**

The developer held a community meeting on January 22, 2020 at the Moyock Library at 6:00 p.m. There were approximately 12 people in attendance. The primary concerns addressed were regarding traffic on Survey Road, lack of connectivity to Ranchland, and drainage. There were also discussions regarding site design, school site size, and commercial tenants. A community meeting summary prepared by the applicant is attached to this staff report.

**TRANSPORTATION**

The internal transportation network includes a divided boulevard within an 80' minimum right-of-way, a typical local roadway with a 40' minimum right-of-way, 4 interconnections with Fost Planned Development, and 5' sidewalks along all streets. The external transportation network includes the main boulevard connection on the south side of Survey Road, a driveway connection on the north side of Survey Road, and an 8' multi-modal path along Caratoke Highway. The residential units, school, and commercial area are expected to generate the below trips per day at full build-out in 2026.

ZONING	TRIPS PER DAY
PD-R (PROPOSED)	8,380* (Fost – 5,978*)
AG (EXISTING)	708
SFM	2144
MXR** (Single-Family)	4,287
(Multi-Family)	4,475
*VHB Phasing Memorandum **These numbers are assuming the Full Service designation in the Land Use Plan would supersede the split Full Service/Limited Service designation in the Moyock Small Area Plan as in an adjoining development.	

**May 5, 2020 TIA:** This TIA has been approved by NCDOT (See attached letter from David Otts, District Engineer.) Since the school site is not included in the TIA, it is not possible to determine the adequacy and safety of travelling public within and surrounding this site at this time. It is understandable that driveway location for the school is not determined yet, but the volume of

traffic based upon the size of the school can be determined. An elementary school generates a large volume of traffic. While Fost is included as a background development, Moyock Farms is not. Moyock Farms is submitting revised plans that show 100% of its traffic to access through Fost. The list of improvements suggested or referenced by the final TIA is compiled after descriptions of the older TIA submitted to staff. At the June 9, 2020 Planning Board meeting, the applicant's attorney stated a TIA would be completed for the school site in the future.

**March 4, 2020** staff received the attached “**Flora Farm Subdivision – Phasing Memorandum**” from **VHB Engineering NC**. The memorandum states “The TIA analyzed the Fost Tract Development as a background project which would be completed prior to the Flora Farm Subdivision. Since the submittal of the TIA, the construction schedules for both projects have shifted, and it is expected that construction for both developments will overlap with each other. The recommended offsite improvements within the TIA for the building of both developments are still valid; however, this memorandum provides clarification for how those improvements should be phased as both developments are being constructed.” The county has not received approval from NCDOT regarding the recommendations. It is also unclear if NCDOT commented on the first TIA or the second TIA. NCDOT had not seen or commented on the Phasing Memorandum as of March 25, 2020.

The Phasing Memorandum contains roadway improvements for Fost Boulevard not included in either TIA previously submitted. While the Phasing Memorandum states that recommended offsite improvements are still valid, there appears to be conflict in some areas. For example at Caratoke Highway and Survey Road (Unsignalized), the TIA recommends striping out at least 150 feet of storage within the existing two-way left-turn lane along Caratoke Highway for the northbound left-turn. The memorandum indicates striping out at least 200 feet of full storage within the existing northbound two-way left-turn lane along Caratoke Highway at Survey Road. It is recommended that the TIA be amended to include the memorandum suggestions and any discrepancies be rectified before resubmittal of another TIA. The TIA must be approved by NCDOT prior to resubmission.

**January 20, 2020 TIA and January 31, 2020 TIA:** Routes all residential traffic through the future Fost Boulevard to Caratoke Highway in the adjoining development. The developer indicates that this is not correct, but a revised TIA has not been submitted. The TIA indicates that the future signalized intersection as part of the Fost Development can accommodate the additional traffic generated during the residential phase, and no signalizations or offsite lane geometric improvements are recommended. On March 25, 2020 the developer submitted a revised phasing plan indicating subdivision access to Survey Road as part of Phase 1.

Once the development is fully constructed (not including school) in 2026, the TIA recommends the following improvements:

Caratoke Highway and Survey Road (unsignalized)

The Survey Road eastbound stop-controlled approach is expected to operate at a Level of Service (LOS) E during the PM peak hour under Build (2026) conditions if no additional improvements are made. After the build-out of the development, vehicles will be able to access full movement traffic signals at Survey Road to north of the development, and Fost Boulevard south. Therefore the following improvements are recommended for the intersection:

- Provide a southbound right-turn lane with at least 100 feet of full storage and appropriate taper.

- Restrict access at the intersection to not allow left-turns off of Survey Road. This restriction of access should be completed when approximately 30% of the total estimated trips for the site are observed, likely in conjunction with the southbound right-turn lane installation.
- Stripe out at least 200 feet of storage within the existing two-way left-turn lane along Caratoke Highway for the northbound left turn.
- Monitor the intersection for potential signalization in the future.

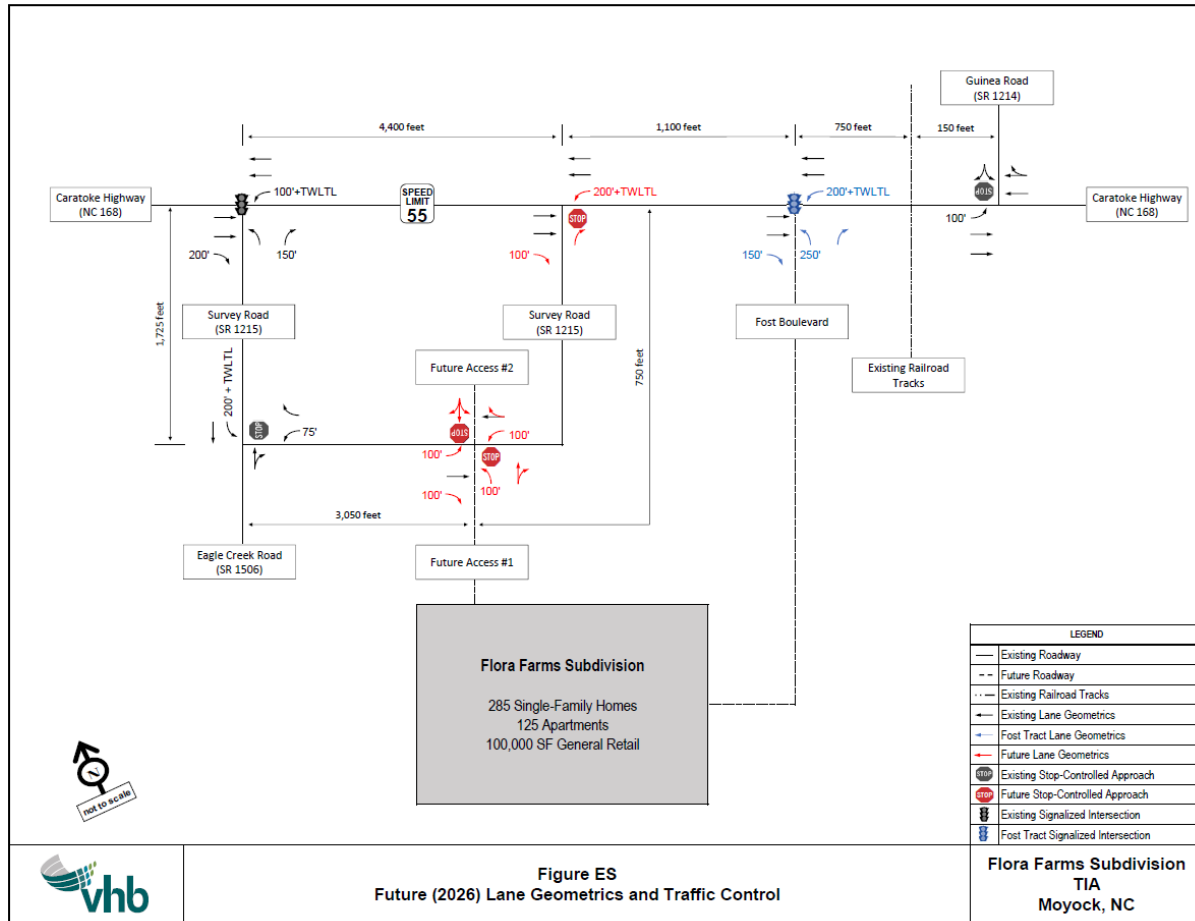
#### Survey Road and Future Access #1/Future Access #2

The proposed stop-controlled driveways are projected to operate at acceptable levels of service during peak hours under Build (2026) conditions. The following driveway configuration for both access driveways should be considered to enhance traffic operations and safety:

- Connect both driveways to Survey Road with stop-controlled approaches as a full movement four-leg intersection.
- Construct Future Access #1 with one ingress lane and two egress lanes. Provide northbound left-turn lane with a minimum of 100 feet of full storage and appropriate taper and a through/right-turn lane. Lydia Street intersects with Future Access #1 approximately 300 feet from Survey Road, which provides the proper internal protected stem to accommodate projected queues. Typically, NCDOT requires a 100 foot minimum internal protected stem for this type of facility.
- Construct Future Access # 2 with one ingress lane and one egress lane.
- Provide an eastbound left-turn lane and right-turn lane along Survey Road, both with a minimum of 100 feet of full storage and appropriate taper.
- Provide a westbound left turn lane along Survey Road with at least 100 feet of full storage and appropriate taper.

The other intersections within the study area are projected to remain at an acceptable LOS once the development is completed; therefore, no additional offsite lane geometric improvements are recommended.

The illustration below depicts the TIA's recommended improvements noted above including an additional stoplight on Caratoke Highway (Survey Road and Fost Boulevard):



The following table depicts the Summary Level of Service Table. NCDOT defines the relationship of travel demand compared to the roadway capacity as the level of service (LOS) of a roadway. Please also reference the attached NCDOT LOS Definitions. The last column of the table indicates LOS at full build-out with road improvements. These counts do not consider the proposed school that is a part of this request; therefore, the LOS projections are not an accurate reflection all proposed uses in the PD-R request.



## TRAFFIC IMPACT ANALYSIS

Table ES-1 Summary Level of Service Table

Intersection and Approach	Traffic Control	Existing (2019)		No-Build (2026)		Build (2026)		Build (2026) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
		<b>(12.3)</b>	<b>(7.8)</b>	<b>(13.5)</b>	<b>(12.2)</b>	<b>(16.0)</b>	<b>(18.1)</b>	<b>(15.7)</b>	<b>(18.0)</b>
Eastbound		D-44.8	D-46.3	D-43.7	D-50.0	D-41.5	E-61.2	D-41.5	E-61.2
Northbound		A-6.7	A-3.5	A-7.2	A-3.6	A-9.8	A-5.1	A-9.2	A-4.8
Southbound	Unsignalized	A-5.9	A-5.8	B-11.2	B-12.2	B-12.0	B-16.2	B-12.0	B-16.2
<b>Caratoke Highway (NC 168) and Survey Road</b>		<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Eastbound		A-9.7	C-15.1	B-10.5	C-21.2	C-23.3	F-844.9	B-11.4	E-37.9
<b>Caratoke Highway (NC 168) and Guinea Road</b>		<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound	Unsignalized	C-15.0	C-15.5	C-20.6	C-21.2	C-22.6	C-23.7	C-22.6	C-23.7
<b>Survey Road and Eagle Creek Road</b>		<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound		A-9.6	A-9.8	B-10.2	B-10.4	B-11.2	B-11.2	B-11.2	B-12.1
<b>Caratoke Highway (NC 168) and Fost Boulevard</b>		<b>N/A</b>	<b>N/A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
	Signalized			<b>(11.1)</b>	<b>(11.3)</b>	<b>(11.9)</b>	<b>(11.3)</b>	<b>(13.9)</b>	<b>(14.1)</b>
Eastbound		N/A	N/A	C-30.5	D-38.2	C-30.1	D-41.1	C-30.2	D-43.7
Northbound		N/A	N/A	A-9.5	B-11.1	A-9.9	B-11.6	B-11.6	B-13.3
Southbound		N/A	N/A	A-4.6	A-8.0	A-7.2	A-7.2	A-9.4	A-9.9
<b>Survey Road and Future Access #1/Future Access #2</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Northbound		N/A	N/A	N/A	N/A	B-13.3	C-23.5	B-11.7	C-15.4
Southbound		N/A	N/A	N/A	N/A	B-12.4	C-17.7	B-11.7	C-16.2

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

It should also be noted that the School Transportation Director has expressed concern regarding street widths for school bus maneuverability and parking concerns for homes located so close to front property line which has been resulting in insufficient off-street parking causing cars to park on-street making school bus maneuverability very difficult. The applicant has increased the front setback to 35' to alleviate part of the School Transportation Director's concerns.

### Utilities

At the pre-application meeting, the developer said that this development would share a waste water treatment plant (WWTP) with the Fost Development. The plant would be on one property with the spray field on the other. This is allowed, but only with the issuance of a use permit for a major utility unless the two developments are combined into one development. The UDO defines a major utility as "infrastructure services providing regional or *community-wide* service that normally entail the construction of new buildings or structures such as water towers, *waste treatment plants*, potable water treatment plants, solid waste facilities, and electrical substations." The Planning Director interprets a community-wide service facility, such as a waste treatment plant, as a major utility.

The developer did not wish to pursue a use permit for a major utility, and indicated he would provide a separate, independent WWTP for each development. It should be noted that TRC encourages sharing a WWTP between Fost and Flora; however, staff cannot support the developer's interpretation that a shared WWTP is a minor utility that does not require a use permit. While minor utilities are located in or near the neighborhood they service, they are a much less intense use, such as sewage pump station as called out in the UDO, and not the entire WWTP and disposal system.

County water is available to service the request. The Utilities Director has asked the developer to make a main connection off of Survey Road instead of through Fost since Fost is not

developed yet and this would make a complete loop for the water line. The loop is important because if there is a water main break at one development, the Water Department could then shut off water to one development instead of to both developments, commercial uses, and a school. The loop would be a more efficient service to the customers and provide a better level of service. The developer has agreed to this request.

## Drainage

There is an emphasis on downstream maintenance at this time. There are portions of Rowland Creek and the ditches on Guinea Road and Survey Road with brush and debris that need to be cleaned up. The conceptual plan provides limited drainage details.

On-site stormwater will be managed by construction a series of stormwater management ponds that will be interconnected and will retain and slow-release stormwater primarily to Rowland Creek both directly and indirectly. Stormwater shall be conveyed to on-site retention ponds through a combination of curbs with inlets, stormwater pipes and open, vegetated swales. With designated wetlands on the property, major drainage features traversing the site, high ground water table, low elevation, soils with slow permeability and the known drainage issues in the area, extra precaution must be made to ensure compliance with drainage regulations.

The mitigate drainage concerns, the developer offers the following:

1. The following improvements to stormwater drainage ("Improvements") shall be completed by the Developer prior to recording the final plat for the first phase of development on the Property:
  - i. Continue the Rowland Creek improvements to the northwest to Eagle Creek pump station as authorized by the Eagle Creek Homeowners Association.
  - ii. Improve the existing property line ditch or install a new ditch along a portion of the Property's northwestern common boundary line with Eagle Creek and Ranchland where shown on the Preliminary Drainage Plan on a positive grade with 3:1 side slopes and sized for a 100 year storm event from the drainage basin in which the Property and a portion of Eagle Creek and Ranchland Subdivision are located.
  - iii. The Improvements set forth in this section shall be maintained by the Developer, or a management association created by the Developer.
  - iv. Establish permanent easements along Rowland Creek and the property line ditch described in paragraph iii above for ongoing maintenance of these drainage facilities.
  - v. Improvements will be generally as shown on sheet 5 of the Master Plan drawing.
2. General Stormwater Conditions
  - i. The Developer shall construct berms along ditch outlets against Eagle Creek and Ranchland to reduce the potential of the proposed development's runoff from flooding Eagle Creek and Ranchland during a 100 year storm.
  - ii. On-site stormwater will be managed by construction a series of stormwater management ponds that will be interconnected and will retain and slow-release stormwater to Rowland Creek and other drainage outlets both directly and indirectly.
  - iii. In addition to modeling and retaining stormwater to the UDO and Stormwater Manual standard for the difference between runoff from the 10-year developed

condition and runoff from a 2-year wooded condition site, stormwater will be modeled for the 100-year storm event and property line berms constructed as necessary to manage the 100-year storm without adversely impacting neighboring properties.

- iv. Stormwater will be conveyed to on-site retention ponds through a combination of curbs with inlets, stormwater pipes and open, vegetated swales.

## Schools

This development is split by the Moyock and Shawboro school districts (see attached map). On June 9, 2020 the former Superintendent attended the Planning Board meeting and shared a letter (attached) that stated the school site shown on the plan has officially been selected for school construction. The former Superintendent said additional capacity was being added through mobile classrooms at Moyock Elementary; however, the Board of Education has not taken official action by vote on this change in policy as of the writing of this staff report. Section 3.7.2.E of the UDO requires that the PD zoning district designation, the master plan, and the terms and conditions document be consistent with the 2006 Land Use Plan and any applicable functional plans and small area plans adopted by the county. According to Land Use Plan Policy PP2 (see below), it is necessary to consider adequate public facilities when considering a Planned Development rezoning because of the intensity and residential density of this type of development.

Without official action by the Board of Education changing their capacity numbers to include mobile facilities, adequate school capacity or school capacity programmed to be in place within two years from approval, the inability to meet the adequate public facilities ordinance (UDO Section 6.6) should be considered at the rezoning request. The proposed phasing schedule claims that dwelling units will not be built until school capacity is available in August 2023. The developer is asking for zoning approval of lots in the Moyock Elementary School district now that according to Currituck County School System, there is not adequate facilities to service.

Staff is concerned that approving a phasing schedule based on a conceptual timeframe for elementary school construction could create an unmanageable situation. If there is a delay and the school does not open in August 2023, dwellings could be occupied which will send more students to a school that is over capacity. Considering our recent growth along with the number of lots available for home construction, there is also concern that middle school and high school populations will be near or over capacities in the next three to five years. Other public facilities, such as law enforcement, emergency medical services, firefighting services, county water, will need to be evaluated for adequacy as well.

The below tables lists the proposed number of students this development is projected to generate. While Moyock Elementary has been the primary concern, it should be noted that the middle schools and high schools are at or over committed capacity.

ADEQUATE PUBLIC FACILITIES – SCHOOLS <sup>1</sup>				
School	2019-2020 2020-2021 Actual Capacity <sup>2</sup>	2021-2022 Actual Capacity <sup>3</sup>	Committed Capacity <sup>3</sup>	Proposed Capacity Changes
				Number of Students
Moyock Elementary	109%	115%%	122%	71
Shawboro Elementary	87%	90%		31
Central Elementary	77%	85%		0
Moyock Middle	94%	83%	96%	32
Currituck Middle	70%			
Currituck High JP Knapp Early College	85%		103%	57

<sup>1</sup>Does not include minor subdivisions, exempt subdivisions, and subdivisions approved prior to the adoption of the adequate public facilities ordinance (October 1994)

<sup>2</sup>Capacity percentages are based on 2019-2020 and 2020-2021 school year classroom standards and January 2020 ADM

<sup>3</sup>Capacity percentages are based on the 2021-2022 school year classroom standards and January 2020 ADM

On June 11, 2020 the former Superintendent provided the below adjusted Moyock Elementary School capacity numbers based on the addition of four mobile classrooms. Official action by the Board of Education has not been taken to adopt the new capacity numbers. Based on the chart below, the 2021-22 capacity of MES will be 609, The **January 2020 ADM** (average daily membership) for MES provided by school system staff is **609**.

**1 Adequate School Capacity Chart (based on K-3 Implementation Schedule)**

2									
3	<b>School</b>	<b>2019-20</b>	<b>2021-22</b>						
4		<b>2020-21</b>							
5	<b>MES</b>	560 (640*)	529 (609*)						
6	<b>SES</b>	641	622						
7	<b>CES</b>	313	282						
8	<b>KIES</b>	236	228						
9	<b>GES</b>	431	413						
10	<b>JES</b>	309	288						
11									
12	<b>CCMS</b>	540	540						
13	<b>MMS</b>	640	640						
14									
15	<b>CCHS</b>	1200	1200						
16	<b>JPK</b>	300	300						
17									
18		K-3 Full Implementation Year							
19									
20	*MES Adjusted Capacities in ( ) were based on the addition of 4 Mobile Classrooms.								
21	MES adjusted capacities expire upon removal/relocation of the Mobile Classrooms.								
22	*adjustments confirmed (6/5/20)								
23									

**STAFF'S CONCERNS REGARDING PROJECT CONSIDERATION AT THIS TIME:**

- The Traffic Impact Analysis (TIA):
  - Includes “one background development, Fost Tract Development.” Moyock Farms must now be included in the TIA as its only access will be through the Fost Tract, assuming the amended Moyock Farms plan is approved. This will be 31 additional lots. Will the additional estimated 300 trips per day trigger an alternate transportation improvement plan?
  - Since the school site is not included in the TIA, it is not possible to determine the adequacy and safety of travelling public within and surrounding this site at this time. The primary purpose of the UDO is to protect the public health, safety, and general welfare of the citizens and landowners of Currituck County. It would be irresponsible of the county to approve a PDR and not anticipate traffic impacts of all of its uses, including an elementary school. Will the additional trips per day cause an even lower Level of Service on Caratoke Highway intersection? Trigger alternate/additional transportation improvements? It is understood that driveway location for the school is not determined yet, but the volume of traffic based upon the size of the school can be determined. An elementary school generates a large volume of traffic and the traffic impacts must be considered to determine the adequacy of proposed improvements and safety of the travelling public, including pedestrians (school children). It is understood that a school requires it's on TIA as part of project approval from NCDOT.
  - Even though NCDOT is not requiring that school site traffic be considered as part of the development, that does not mean the county cannot ask for an accurate reflection of the total traffic usage of the PDR and examine those traffic impacts on the safety of the travelling public, motorist and pedestrian.
- Without official action by the Board of Education that adequate school capacity or school capacity programmed to be in place within two years from approval, the inability to meet the adequate public facilities ordinance (UDO Section 6.6) can and should be considered at the rezoning request. The proposed phasing schedule claims that dwelling units will not be built until school capacity is available in August 2023. The developer is asking for zoning approval of lots in the Moyock Elementary School district now when an increase in school capacity due to the use of mobile classrooms has not received official action. The phasing schedule received March 9, 2020 does not include the school. Since the school is a part of the PD-R, it must be included in the phasing schedule.
  - The developer must address how the school will open if it is finished before the PD-R's WWTP is operational to service it. The developer claims that the WWTP will be in place before the school opens. A legal document notating the provision of WWTP to service the school prior to school opening is sufficient.
  - The developer must address how the school will be accessed if the subdivision roads will not be installed prior to the school opening. The developer claims that the roads will be installed prior to the school opening. A legal document notating the provision of roads to service the school prior to school opening is sufficient.
  - Another option is to remove the school parcel from the PD-R. Since the school parcel is over 10 acres, an exempt subdivision plat can be recorded.
- The BOC directed staff at its February 7, 2020 retreat to remove PD-R zoning from the UDO since it allows development densities and intensities beyond what the board finds acceptable, except in Currituck Station where services and infrastructure and planned for that level of development.

- Soils in the project location are concerning. Roanoke fine sandy loam and Cape Fear Silt are found in the area containing the commercial and upper story dwelling units. According to the Currituck County Soils survey, these soils are “poorly suited to most urban and recreation uses because of flooding, wetness, slow permeability and low strength.”

## LAND USE PLAN

The 2006 Land Use Plan classifies this site as Full Service within the Moyock subarea. The policy emphasis for the Moyock subarea is to properly manage the increased urban level of growth that this area is sure to experience over the next decade and beyond. Section 3.7.2.E of the UDO requires that the PD zoning district designation, the master plan, and the terms and conditions document be consistent with the 2006 Land Use Plan and any applicable functional plans and small area plans adopted by the county. While the proposal is consistent with some policies in the Land Use Plan (see attached list from developer for more detail), it is inconsistent with other policies of the plan, some of which are:

Policy HN1	<p>Currituck County shall encourage development to occur at densities appropriate for the location. LOCATION AND DENSITY FACTORS shall include whether the development is within an environmentally suitable area, the type and capacity of sewage treatment available to the site, the adequacy of transportation facilities providing access to the site, and the proximity to existing and planned urban services.</p> <p><u>Comments:</u></p> <ul style="list-style-type: none"> <li>• With the approval of Fost PD-R on a neighboring parcel, it was established that higher residential density was acceptable in this area of Moyock.</li> <li>• The BOC unanimously directed staff at its February 7, 2020 retreat to remove PD-R zoning from the UDO since it allows development densities and intensities beyond what the board finds acceptable, except in Currituck Station where public services and infrastructure and planned for that level of development. The text amendment is forthcoming.</li> <li>• Without an updated TIA approved by NCDOT including Moyock Farms traffic as noted above, it is not possible to determine the adequacy of transportation facilities providing access to this site at this time. Will the additional estimated 300 trips per day generated by Moyock Farms trigger additional transportation improvements?</li> <li>• The BOC must determine if lessening the Level of Service along Caratoke Highway during peak traffic times without inclusion of the school is adequate and acceptable.</li> <li>• Since the school site is not included in the TIA, it is not possible to determine the adequacy and safety of travelling public within and surrounding this site at this time.</li> </ul>
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Policy TR2	<p>Transportation planning shall be employed to promote a hierarchical functional transportation system and to promote the proper arrangement of land patterns by controlling the location and appropriate use of streets, highways, trails, and other modes of transportation. Generally, the design of major roads should give first priority to moving traffic, while smaller roads may give greater emphasis to serving adjoining land uses.</p> <p><u>Comments:</u></p> <ul style="list-style-type: none"> <li>Without the school being a part of the TIA, it is not possible to determine if streets are being appropriately designed and controlled.</li> <li>Currituck County Schools has expressed a concern over street widths for school bus maneuverability and parking concerns for homes located so close to front property line which has been resulting in insufficient off-street parking causing cars to park on-street making school bus maneuverability very difficult. <b>Note: The developer has increased from setbacks from 20' to 35' addressing part of the School's concern.</b></li> <li>A revised TIA including Moyock Farms traffic, approved by NCDOT, is necessary to determine the appropriate improvements and timing of improvements.</li> </ul>
Policy SF3	<p>Site planning for traffic management and safety in the vicinity of public schools shall be a priority.</p> <p><u>Comments:</u></p> <ul style="list-style-type: none"> <li>Without the school being a part of the TIA, staff has concerns that traffic is not (vehicle, bicycle, pedestrian) being appropriately managed with a priority on the safety of the travelling public including school children, school buses, etc.</li> <li>Currituck County Schools has expressed a concern over street widths for school bus maneuverability.</li> </ul>
Policy SF4	<p>Currituck County shall continue to support a service level policy for schools that calls for the construction and maintenance of classroom space sufficient to avoid the use of mobile classroom units.</p> <p><u>Comments:</u></p> <ul style="list-style-type: none"> <li>Approximately 286 dwelling units are proposed in the Moyock Elementary School district where no school capacity exists until official action is taken by the the Currituck County Board of Education.</li> </ul>
Policy PP2	<p>Currituck County shall continue to implement a policy of ADEQUATE PUBLIC FACILITIES, sufficient to support associated growth and development. Such facilities may include but not limited to water supply, school capacity, park and open space needs, firefighting capability, and law enforcement.</p> <p><u>Comments:</u></p> <ul style="list-style-type: none"> <li>Approximately 286 dwelling units are proposed in the Moyock Elementary School district where no school capacity exists until official action is taken by the Currituck County Board of Education.</li> <li>Until official action is taken by the Currituck County Board of Education, the additional students (71) this development is projected to generate that will attend the Moyock Elementary School district will increase the over capacity issue. Approving a PD-R rezoning to increase density may also burden the middle schools and high schools that are near actual capacity and near or over committed capacity. (See table above.)</li> </ul>



## MOYOCK SMALL AREA PLAN

The Moyock Small Area Plan classifies this site as Full Service and Limited Service. The policy emphasis for Full Service in Moyock is to provide focal points in the community where high amounts of activity occur. Both residential and commercial components will be present in Full Service areas. Cluster or planned commercial and residential areas with diversity in housing types is preferred. The policy emphasis for Limited Service designations are less intensely developed than Full Service. Emphasis is more on residential development and densities. Limited Service designation has reduced public services such as fire protection, emergency service, recreation, and public water. While the proposal is consistent with some policies in the Moyock Small Area Plan (see attached list from developer for more detail), it is inconsistent with other policies of the plan, some of which are:

Policy TR1	<p>Design future transportation improvements that are consistent with Complete Streets Policy. Complete Streets policy encourages design of transportation networks and facilities that safely accommodate pedestrians, bicyclists, rail, and vehicles.</p> <p><u>Comments:</u></p> <ul style="list-style-type: none"> <li>• A revised TIA including Moyock Farms traffic, approved by NCDOT, is necessary to determine the appropriate improvements and timing of improvements.</li> <li>• Without the school being a part of the TIA, it is not possible to determine if streets safely accommodate pedestrians, bicyclists, and vehicles.</li> <li>• Currituck County Schools has expressed a concern over street widths for school bus maneuverability.</li> </ul>
Policy FLU 1	<p>Promote compatibility between new development and existing development to avoid adverse impacts to the existing community. This is achieved through design and includes larger setbacks, landscaped or forested strips, transition zones, fencing, screening, density and or bulk step downs or other architectural and site planning measures that encourage harmony.</p> <p><u>Comments:</u></p> <ul style="list-style-type: none"> <li>• The area of the project neighboring Ranchland has single family dwelling lots that typically average 15,000 sq ft. The Ranchland lots range from 1.5 -5 acre lots.</li> <li>• The area of the project neighboring Eagle Creek has single family dwelling lots that typically average 15,000 sq ft. The Eagle Creek lots range from 0.69 -1.11 acre lots</li> <li>• The 25' buffer may not be sufficient transition between lot sizes.</li> </ul>

## RECOMMENDATION

### Technical Review Committee

The Technical Review Committee recommends denial of this request based upon the following:

Planning

1. Traffic Impact Analysis (TIA):
  - a. While the TIA includes Fost as a background development, it does not include Moyock Farms which is proposing 100% access through Fost.
  - b. Staff has concerns that the TIA does not include the school site and may not accurately reflect the proposed conditions. Since the school site is a part of this PD-R request, it must be included in the TIA.

- i. In looking at Table ES-1 Summary Level of Service Table, even without the inclusion of elementary school traffic, it appears that the LOS will drop from an A to a D at east bound Caratoke Highway and Survey Road at peak travel times. There are other drops in LOS for Caratoke Highway (reference table), a major arterial street, at peak travel times. Is NCDOT agreeable to the drop in LOS for Caratoke Highway? Is the Board of Commissioners agreeable to the drop in the level of service? The LOS and drops in the LOS do not include traffic from the school, which will significantly impact LOS. Are there other traffic improvements that may be required to maintain an equal LOS?
  2. On June 9, 2020 the Superintendent attended the Planning Board meeting and shared a letter (attached) that stated the school site shown on the plan has officially been selected for school construction and on June 11, 2020 he provided a new capacity number for Moyock Elementary School based on the addition of four mobile classroom units. As of the writing of this staff report, the Board of Education has not officially acted on the new capacity number. Without Board of Education approval of the new capacity at Moyock Elementary School based on mobile classrooms, there is not school capacity available now or planned to be in place within two years of the development approval for the elementary school children in the Moyock District that this development will generate. Section 3.7.2.E of the UDO requires that the PD zoning district designation, the master plan, and the terms and conditions document be consistent with the 2006 Land Use Plan and any applicable functional plans and small area plans adopted by the county. According to Land Use Plan Policy PP2 (see below), it is necessary to consider adequate public facilities when considering a Planned Development rezoning because of the intensity and residential density of this type of development. Per Superintendent on 1/15/2020, a portion of the development is districted to Moyock Elementary School and at the time of the writing of this comment, the BOE has not made a change to the district boundary. It is necessary to consider adequate public facilities when considering a Planned Development because of the intensity of development. For a legislative decision like a rezoning, all impacts to the community can and should be considered. The developer is proposing a phasing schedule that claims no dwelling units will be built until school capacity is available. The important thing to note is that according to Currituck County Schools, school capacity is not available now nor voted by the Board of Education to be programmed to be in place in two years for the portion of the development districted to Moyock Elementary School. The developer is asking for zoning approval of lots in the Moyock Elementary School district now that according to Currituck County School System, there is not adequate facilities to service. If the elementary school capacity is addressed, there is no guarantee that all other public facilities will be adequate (i.e. law enforcement, emergency medical services, firefighting services, county water).
  3. The timing of the phasing scheduled must include the school since it is a part of the development. (UDO Section 3.7.2.G)
  4. Since the school site is a part of the PD-R, the developer must address how the school will open if it is finished before the PD-R's WWTP is operational to service it.
  5. Terms and Conditions document:
    - a. It does not appear that the county can regulate or enforce the workforce housing condition. This condition may need to be removed from the document.
    - b. The school must be included in the phasing schedule since it is a part of the master plan. (UDO Section 3.7.2.G)
- Currituck County School Facilities, Maintenance, and Transportation Director
6. There is a concern over street widths for school bus.

## CONSISTENCY AND REASONABLENESS STATEMENT

**A planned development rezoning is a legislative decision of the Board of Commissioners. In determining whether to approve or deny a rezoning the Board of Commissioners shall adopt a written statement of consistency and reasonableness.**

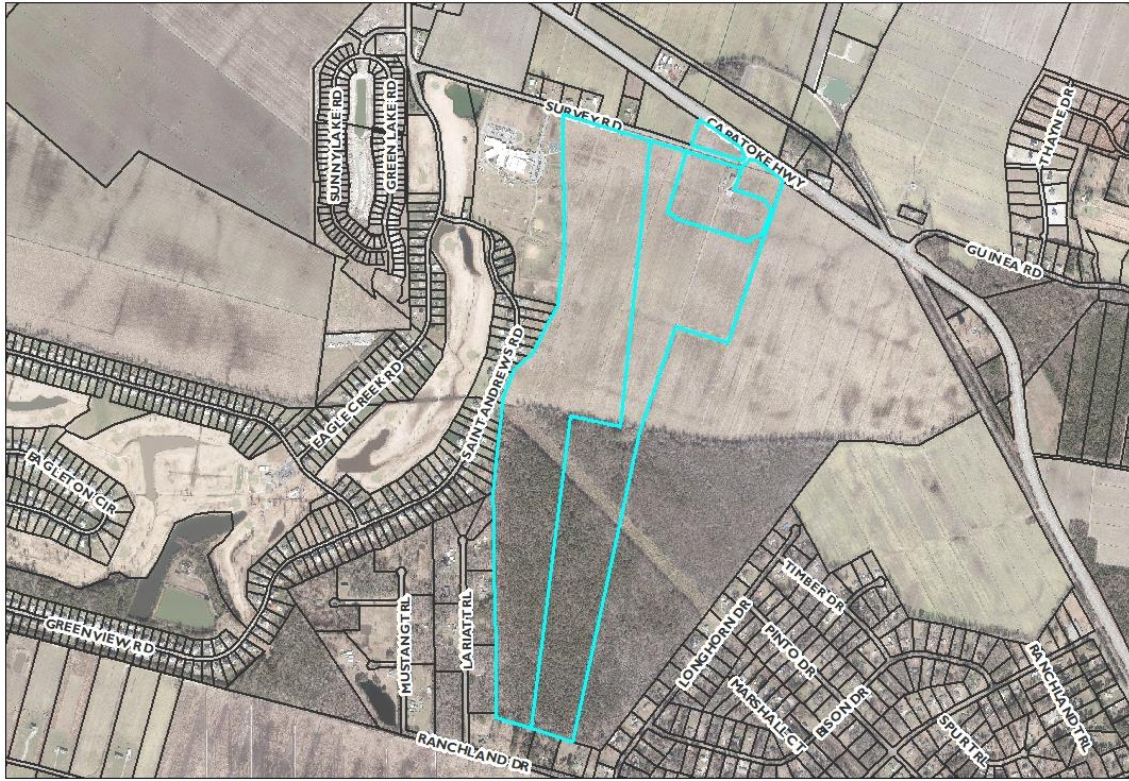
This planned development rezoning request is inconsistent with the below applicable review standards from 2.4.3.C:

1. It is not consistent with the goals, objectives, and policies of the Land Use Plan, other applicable county-adopted plans, and the purpose of the UDO.
  - See above where the development is determined to inconsistent with LUP Policies HN1, TR2, SF3, SF4, PP2, and Moyock Small Area Plan TR1.
    - One of the purposes of the UDO is to facilitate the adequate provision of transportation, utilities, parks, recreation, emergency services, and other public facilities. This proposal is insufficient in determining the safety of the transportation service and offers dwelling units in a school district where zero school capacity exists.

It is not reasonable and not in the public interest because of the inconsistencies with the Land Use Plan, Moyock Small Area Plan, and the purpose of the UDO. There are not adequate public facilities (schools) to service this development now or programed to be in place within two years as required by the Adequate Public Facilities Standards in the UDO. The UDO requires that the conditional zoning (legislative) be consistent with the Land Use Plan. As stated above, the Land Use Plan requires adequate public facilities be in place at time of approval – See Policy PP2 above.

THE APPLICATION AND RELATED MATERIALS ARE AVAILABLE ON THE COUNTY'S WEBSITE

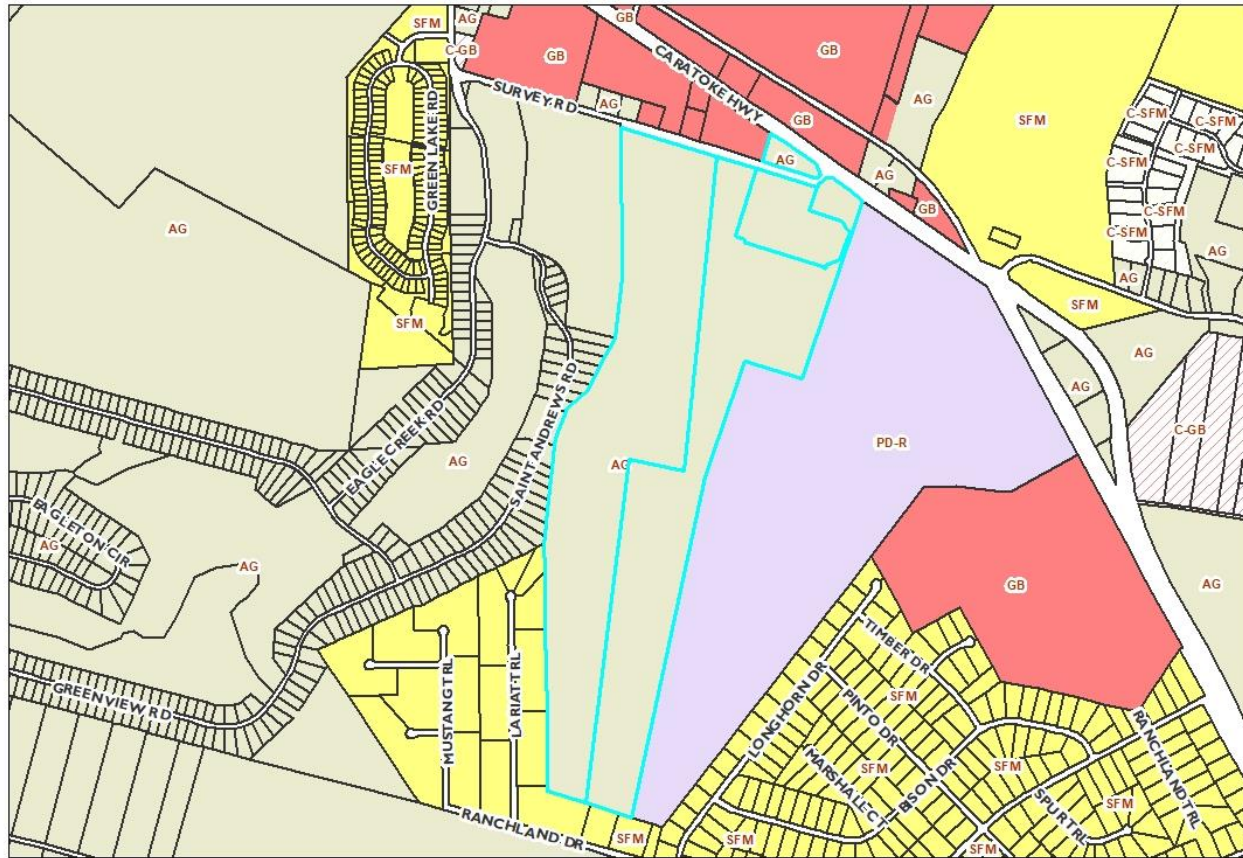
Board of Commissioners: [www.co.currituck.nc.us/planning-board-minutes-current.cfm](http://www.co.currituck.nc.us/planning-board-minutes-current.cfm)



**PB 19-20 Flora Farm  
Aerial Photography (2016)**

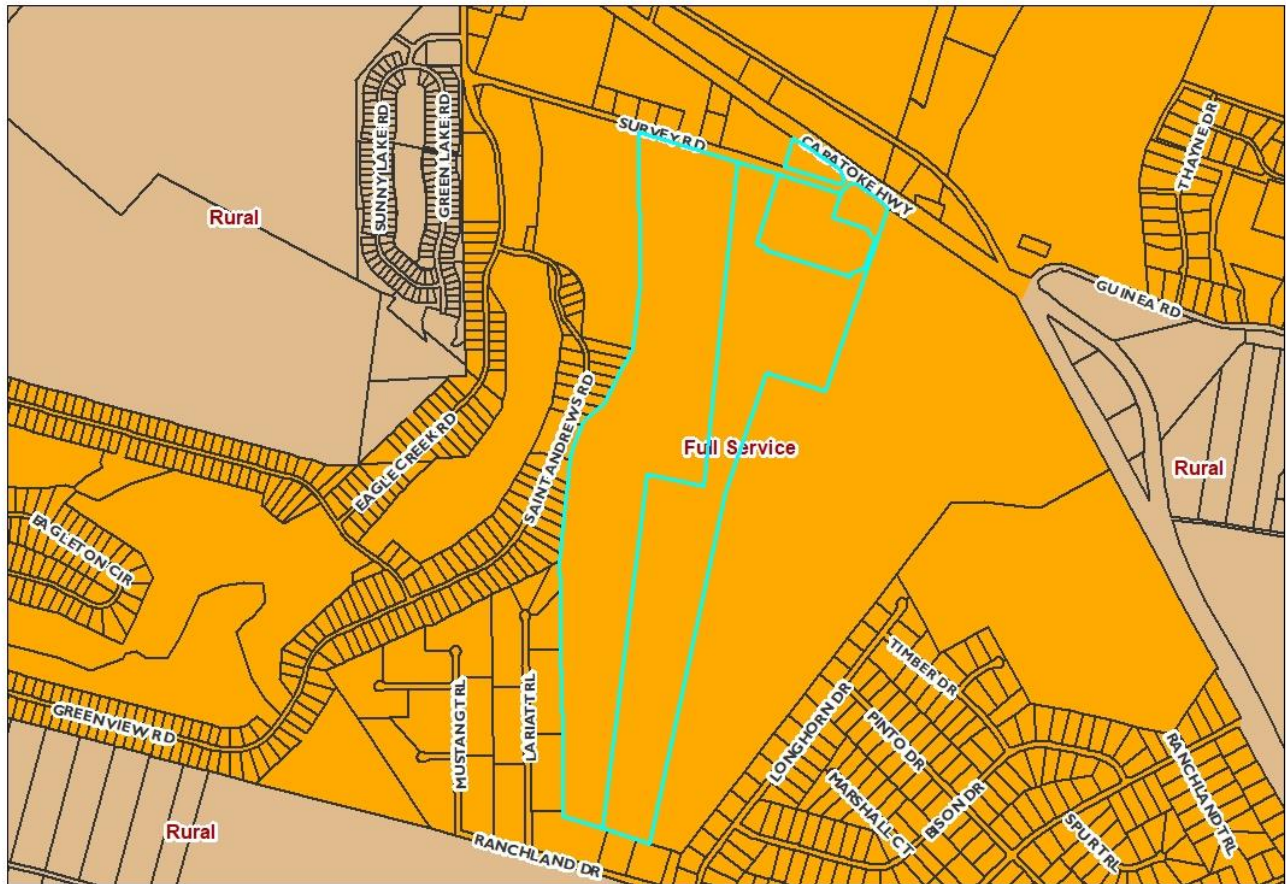






**PB 19-20 Flora Farm  
Zoning Base Districts**

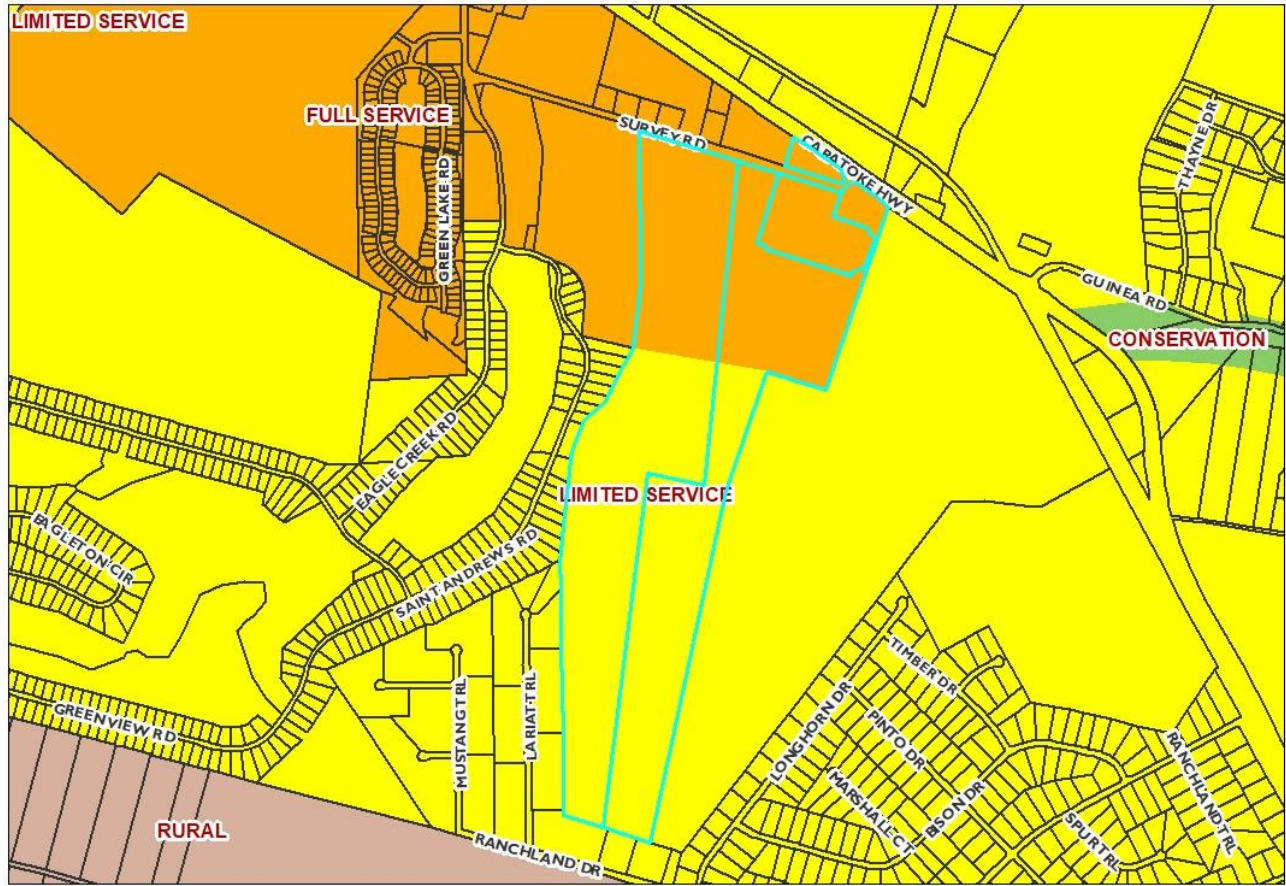




**PB 19-20 Flora Farm  
2006 Land Use Plan Classifications**







**PB 19-20 Flora Farm  
Moyock Small Area Plan Classifications**



## Flora Farm Rezoning PB 19-20

## Planning Board Staff Report

June 9, 2020

**RED TEXT = STAFF RESPONSES 6/10/2020**

<b>STAFF CLAIM</b>	<b>ACTUAL STATUS</b>
<i>"Since the school site is not included in the TIA, it is not possible to determine the adequacy and safety of travelling public within and surrounding this site at this time." p. 51</i>	Per NCDOT District Engineer Otts, Packet p. 257, NCDOT has approved the updated TIA based on March 26 comments. NCDOT engineers are competent to determine the adequacy and safety of the travelling public. <b>IT WOULD BE IRRESPONSIBLE OF THE COUNTY TO APPROVE A SCHOOL AS A PART OF A PDR AND NOT ANTICIPATE TRAFFIC/PEDESTRIAN IMPACTS. WILL TRIPS PER DAY AND AN EVEN LOWER SERVICE LEVEL ON CARATOKE HIGHWAY PROVE THAT THIS IS NOT AN ACCEPTABLE SCHOOL SITE? EVEN THOUGH NCDOT IS NOT REQUIRING THE SCHOOL SITE BE APPROVED AS PART OF THE DEVELOPMENT, THAT DOES NOT MEAN THE COUNTY CANNOT ASK FOR AN ACCURATE REFLECTION OF THE TOTAL USAGE OF THE PDR. IT IS UNDERSTOOD THAT A SCHOOL REQUIRES IT'S ON TIA AS PART OF PROJEC APPROVAL.</b>
<i>"These [TIA] counts do not consider the proposed school that is a part of this request; therefore, the LOS projections are not an accurate reflection all proposed uses in the PD-R request" p. 54</i>	The school site will be required to have its own TIA at site plan, as directed by NCDOT and advised by VHB. <b>AGREED. SCHOOL WILL NEED A MUCH MORE DETAILED TIA ONCE ALL ELEMENTS OF THE SCHOOL ARE KNOWN (DRIVEWAY LOCATION, STACKING, ETC.)</b>
<i>School Transportation Director expressed concerns over street widths and applicant has increased the front setback to 35' to relieve part of these concerns. Packet p. 54</i>	Developer also updated master plan to allow for on-street parking in designated areas to reduce concerns over bus maneuvering. <b>AGREED. ADDRESSED OFF-STREET PARKING BY INCREASING FRONT SETBACKS ON RESIDENTIAL LOTS, BUT DID NOT ADDRESS THE SCHOOL TRANSPORTATION DIRECTOR'S CONCERN OVER STREET WIDTHS.</b>
<i>"Moyock Farms must now be included in the TIA" p. 57</i>	Per NCDOT, the Flora request has adequately mitigated its traffic, and any changes from Moyock Farms' approved plans should be addressed by that developer as it is unrelated to the Flora development. <b>IF THE FLORA TIA INCLUDES FOST, WHICH IT DOES, THEN IT SHOULD ACCOUNT FOR ALL OF FOST TRAFFIC, WHICH NOW INCLUDES ALL OF MOYOCK FARMS TRAFFIC, ESTIMATED TO BE 300 ADDITIONAL TRIPS PER DAY.</b>
<i>"Staff has concerns that the TIA does not include the school site and may not</i>	NCDOT MSTa guidance dictates that a separate traffic study must be performed for any future school development, whether

Attachment: 2 Chart of Flora PB Staff Report Inaccuracies W Staff Responses (PB 19-20 Flora Farm)



# Flora Farm Rezoning PB 19-20

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<p><i>accurately reflect the proposed conditions. Since the school site is a part of this PD-R request, it must be included in the TIA." P.</i></p>	<p>it is a new school or an expansion of an existing school. This traffic study would have to provide expected queues and delays based on daily loading and unloading operations at the school. Since a site plan for the new school site has not yet been developed, it is recommended to perform the school study at a future date when plans for the school are more solidified.</p> <p>The future school site would have its own external driveways that would allow traffic to enter and exit the site whether Flora driveways were constructed or not. If traffic needs to have access to internal streets to avoid having too many external driveways, the development can construct the driveways for Flora Farms when the school will need them. <b>THE COUNTY CANNOT APPROVE A SCHOOL AS A PART OF A PDR AND NOT ANTICIPATE TRAFFIC/PEDESTRIAN IMPACTS. WILL TRIPS PER DAY AND AN EVEN LOWER SERVICE LEVEL PROVE THAT THIS IS NOT AN ACCEPTABLE SCHOOL SITE? JUST BECAUSE NCDOT IS NOT REQUIRING THE SCHOOL SITE TO BE APPROVED AS PART OF THE DEVELOPMENT, THAT DOES NOT MEAN THE COUNTY CANNOT ASK FOR AN ACCURATE REFLECTION OF THE TOTAL USAGE OF THE PDR.</b></p>
<p><i>Planning Director determined Wastewater Treatment Plant to serve two developments is a "regional or community-wide service facility" which is a major utility. Told we can remove it or appeal interpretation to Board of Adjustment p. 54</i></p>	<p>We are not aware of any other WWTP serving two neighborhoods being treated as a "community-wide" or "regional" facility needing its own permit. <b>NEW FACILITIES MUST MEET CURRENT UDO REQUIREMENTS.</b></p>
<p><i>Drainage discussion focuses entirely on problems of drainage in the area and minimal details of what will be done p. 55</i></p>	<p>Actual conditions commit to extensive drainage improvements that relate directly to LUP Policies WS7, WQ3, WQ4; staff report ignores these policies and that concerns are addressed by Flora and Fost developments <b>STAFF REPORT SAYS THERE ARE THE LISTED DRAINAGE CONCERNS, SO 'EXTRA PRECAUTION MUST BE MADE TO ENSURE COMPLIANCE WITH DRAINAGE REGULATIONS.' DRAINAGE IMPROVEMENTS WILL BE DETAILED IN UPDATED STAFF REPORT. THE PURPOSE OF A STAFF REPORT IS TO INFORM THE BOARD AND BRING ANY INCONSISTENCIES TO THE BOARD'S ATTENTION. THE APPLICANT ALSO HAS RESPONSIBILITY TO PROVIDE ADDITIONAL</b></p>

## Flora Farm Rezoning PB 19-20

## Planning Board Staff Report

June 9, 2020

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	<b>INFORMATION AND ANY OTHER LUP POLICIES ITS SEES FIT TO HIGHLIGHT WHEN PRESENTING THEIR CASE. ONE CAN ASSUME THAT IF STAFF HAS NOT CALLED OUT THE POLICY AS INCONSISTENT, IT IS CONSISTENT OR NOT RELEVANT.</b>
<i>Schools: Superintendent stated a portion of the development is districted to Moyock Elementary p. 55</i>	120 lots are currently slated for Shawboro district, with actual capacity today; report ignores portion of 2/18/2020 letter from Superintendent confirming this <b>STAFF REPORT ACKNOWLEDGES THE SUBDIVISION IS SPLIT BY SCHOOL DISTRICT BOUNDARY LINES. SEE MAP IN STAFF REPORT SHOWING SCHOOL DISTRICT LINES. SEE CHART ON PAGE 10 OF STAFF REPORT THAT SPLITS THE CHILDREN UP BETWEEN SHAWBORO AND MOYOCK SCHOOL DISTRICTS. A SENTENCE WILL BE ADDED TO THE STAFF REPORT NOTING SPLIT SCHOOL DISTRICT.</b>
<i>"3.7.2.E of UDO <u>requires</u> that the PD zoning district designation, the master plan, and the terms and conditions document be consistent with the 2006 LUP..." p. 55</i>	State law calls for a weighing of various policies within the 2006 LUP and evaluation of consistent and inconsistent statements. Staff ignored each of the consistent policies raised in the applicant's presentation. Staff should accurately inform the decision-making Boards of all policies and allow the Boards to make an informed decision. <b>THE PURPOSE OF A STAFF REPORT IS TO INFORM THE BOARD AND BRING ANY INCONSISTENCIES TO THE BOARD'S ATTENTION. THE APPLICANT IS RESPONSIBLE FOR PROVIDING ADDITIONAL INFORMATION AND ANY OTHER LUP POLICIES ITS SEES FIT TO HIGHLIGHT WHEN PRESENTING THEIR CASE. ONE CAN ASSUME THAT IF STAFF HAS NOT CALLED OUT THE POLICY AS INCONSISTENT, IT IS CONSISTENT OR NOT RELEVANT.</b>
<i>"Adequate Public Facilities Standards Section of the UDO has been upheld by the court decision in Tate Terrace" p. 57</i>	That case was an appeal of a denied special use permit, not a rezoning. The ordinance itself was not at issue so it was not "upheld" by Tate. The ONLY relevance that case has is whether the evidence in that case supported the Board's decision. Not instructive at zoning, and no bearing on this Board's decision. <b>AGREED, THE CASE WAS CITED TO REMIND THE BOARD OF THE IMPORTANCE OF THE ADEQUATE PUBLIC FACILITIES ORDINANCE. THE REFERENCE HAS BEEN REMOVED FROM THE STAFF REPORT.</b>
<i>Developer must address school in phasing schedule p. 57</i>	Applicant included school in the phasing schedule submitted May 19 based on multiple public statements by staff and County Manager Stikeleather that an elementary school was

# Flora Farm Rezoning PB 19-20

## Planning Board Staff Report

June 9, 2020

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	<p>slated to open by August 2023 in the Moyock area. To adjust to more recent information, applicant will instead work with the Board of Education to record and convey the school site to the County with adequate time for construction. <b>THE PHASING SCHEDULE THAT STAFF RECEIVED ON MAY 19<sup>TH</sup> DID NOT INCLUDE A SCHOOL. PERHAPS STAFF DID NOT RECEIVE THE CORRECT SCHEDULE?</b></p>
<p>BOC directed staff to remove PD-R zoning from the UDO except in Currituck Station p. 58</p>	<p>Going through a separate text amendment to change the UDO for future applications. It does not, and cannot, apply to this zoning application under the NC Permit Choice Act § 143-755:</p> <p>(a) If a permit applicant submits a permit application for any type of development and a rule or ordinance changes between the time the permit application was submitted and a permit decision is made, the permit applicant may choose which version of the rule or ordinance will apply to the permit.</p> <p>(b) This section applies to all development permits issued by the State and by local governments. <b>FOR A LEGISLATIVE REZONING HEARING, THE BOARD MAY CONSIDER ANY AND ALL FACTUAL EVIDENCE. IF IS A FACTUAL STATEMENT THAT THE BOC HAS DIRECTED THAT PD-R ZONING BE REMOVED FROM THE UDO. IT IS AGREED THAT THE TEXT AMENDMENT WILL APPLY TO DEVELOPMENT SUBMITTED AFTER THE EFFECTIVE DATE OF THE NEW ORDINANCE.</b></p>
<p>Policy PP2 "The additional 71 students this development is projected to generate that will attend the Moyock Elementary School district cannot be approved since Currituck County schools indicate NO additional capacity for that district now or planned to be in place within two years." P. 59</p>	<p>This is inaccurate. At full build-out, the project will generate 71 elementary students over 5 years. However, 30 of those students would be generated in the current Shawboro school district, which has actual capacity today. Staff's statement ignores the actual text of Policy PP2 which simply requires the County to implement a APF policy, which they have at Special Use stage; ignores Policy AG3 to direct development near Full Service Areas, Ignores Policy SF2 to encourage offers of land for new schools in conjunction with related community development; ignores Appendix Policy which requires Board to consider not all students will arrive at once; Ignores phasing schedule B; Ignores Policy for Board of Commissioners to work towards a long-term plan for schools. <b>BASED ON THE DATA PROVIDED, IT APPEARS THE DEVELOPMENT WILL GENERATE 71 STUDENTS IN THE MOYOCK SCHOOL DISTRICT AND 31 IN THE SHAWBORO SCHOOL DISTRICT. CAPACITY IS NOT AVIALABLE NOW OR PROGRAMED TO BE IN PLACE WITHIN 2 YEARS OF APPROVAL FOR A SIGNLE STUDENT IN</b></p>

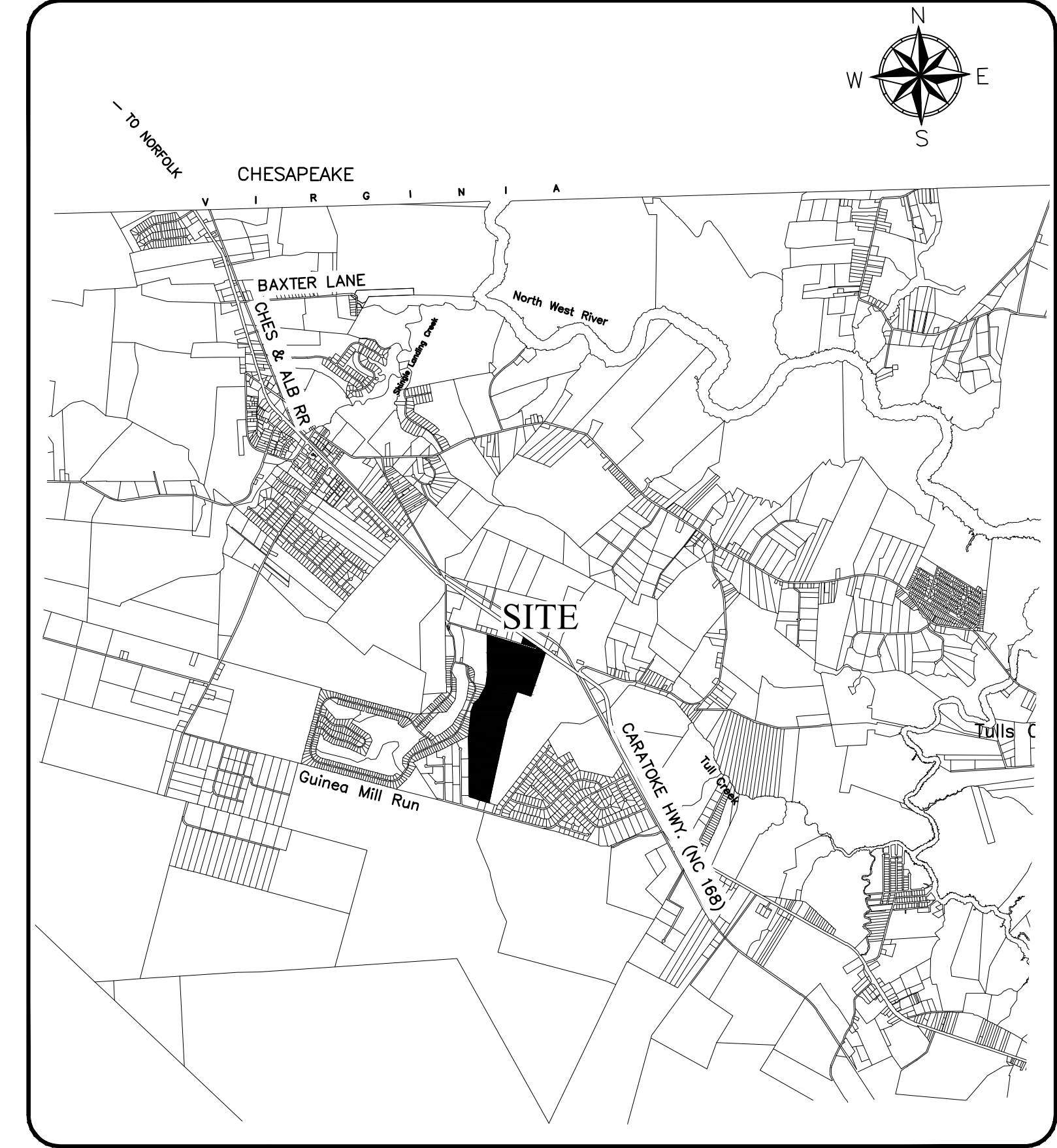
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Flora Farm Rezoning PB 19-20  
Planning Board Staff Report  
June 9, 2020  
*RED TEXT = STAFF RESPONSES 6/10/2020*

	<i><b>THE MOYOCK SCHOOL DISTRICT AS REQUIRED BY THE UDO AND LAND USE PLAN.</b></i>
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Attachment: 2 Chart of Flora PB Staff Report Inaccuracies W Staff Responses (PB 19-20 Flora Farm)





VICINITY MAP  
SCALE: 1" = 5000'

GENERAL DEVELOPMENT NOTES

1. PROPERTY OWNERS:

JOHN J. FLORA III  
P.O. BOX 369  
MOYOCK, NC 27958

MARY NELL FLORA BRUMSEY  
117 PUDDIN RIDGE ROAD  
MOYOCK, NC 27958
2. APPLICANT:

JOHN J. FLORA III  
P.O. BOX 369  
MOYOCK, NC 27958
3. PROPERTY DATA:

ADDRESS: CARATOKE HIGHWAY, MOYOCK, NC 27958

PIN: 0015-000-085C-0000,  
D.B. 1230, PG. 402  
P.C. "Q", SL. 149  
2.58-ACRES (PER PLAT)

PIN: 0015-000-085C-0000  
D.B. 1230, PG. 402  
P.C. "Q", SL. 149  
14.80-ACRES (PER PLAT)

PIN: 0015-000-0085B-0000  
D.B. 1230, PG. 398 & 402  
P.C. "D", SL. 315  
94.53-ACRES (PER GIS)

PIN: 0015-000-085A-0000  
D.B. 1230, PG. 398 & 402  
P.C. "D", SL. 315  
111.78-ACRES (PER GIS)

SUBDIVISION TOTAL ACREAGE: 224.44-ACRES  
(DOES NOT INCLUDE 1.47-ACRE R/W DEDICATION OF A 30' STRIP ALONG SURVEY ROAD)

4. ZONING:

EXISTING: AGRICULTURAL (AG)

PROPOSED: PD-R (PLANNED DEVELOPMENT-RESIDENTIAL)
- FLORA FARM PD-R

PLANNED DEVELOPMENT - RESIDENTIAL

MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA
- OBJECTIVE:
- To build a community that has a creative design, providing a mix of different residential uses in close proximity to one another, while at the same time providing an efficient use of open space that promotes an active lifestyle and strong sense of community. True Mixed Used/Commercial development is also proposed to serve the needs of both the residents in this development and the surrounding community.
- Sheet  
Number
- Sheet Title
- 1COVER SHEET, DEVELOPMENT NOTES & SITE LOCATION

2EXISTING CONDITIONS & SITE FEATURES

3PRELIMINARY MASTER PLAN - OVERALL

4PRELIMINARY MASTER PLAN - COMMERCIAL

5PRELIMINARY STORMWATER MANAGEMENT PLAN

6PRELIMINARY UTILITIES PLAN

7PRELIMINARY PHASING PLAN
- S:\projects\4680 Flora Farm\Drawings\468000MP4.dwg 5/19/2020 1:41 PM HP Desktop17500 PS HP52.2.pc3
- 6.A.c

PROJECT

FLORA FARM PD-R SUBDIVISION

MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

COVER SHEET, DEVELOPMENT NOTES & SITE LOCATION

REVISIONS

NO.	DATE	DESCRIPTION	BY	WIT.
1	02/24/20	Address, Title, Comments		
2	05/19/20	Address, Additional, staff, Comments		

PRELIMINARY FOR REVIEW PURPOSES ONLY

DATE: 01/23/20

SCALE: N/A

DESIGNED: MSB

CHECKED: MSB

DRAWN: KFW.WGY

APPROVED: BPG

SHEET: 1 OF 7

CAD FILE: 468000MP4

PROJECT NO: 4680

Bissell Professional Group

Firm License # C-565

10000 Highway

P.O. Box 108

City, State, Zip

North Carolina 27149

FAX (252) 281-1760

**BISSELL**

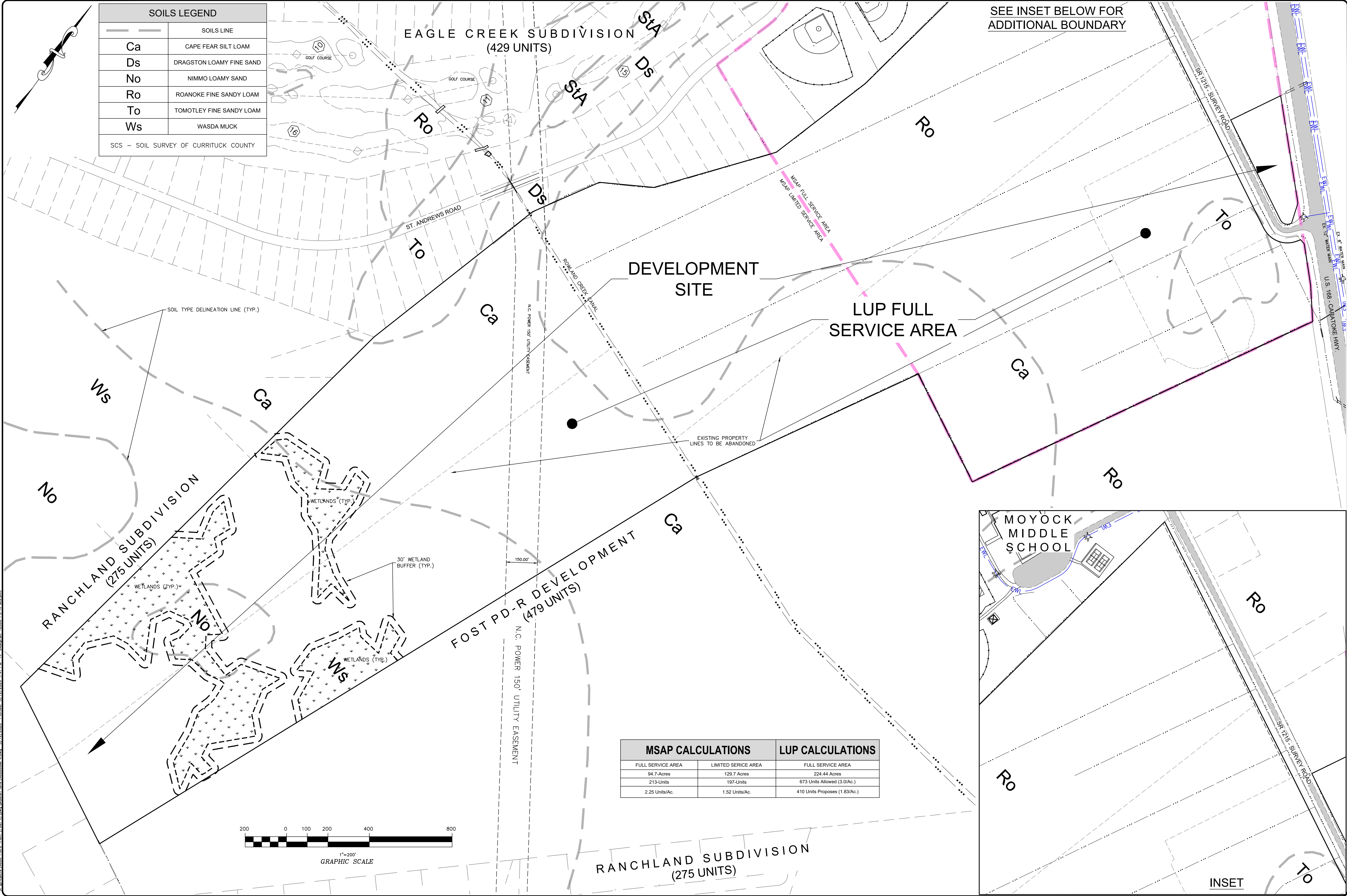
PROFESSIONAL GROUP

Engineers, Planners, Surveyors and Environmental Specialists

Attachment: 2 05-19-2020 REVISED Flora Revised Master Plan #3 (PB 19-20 Flora Farm)

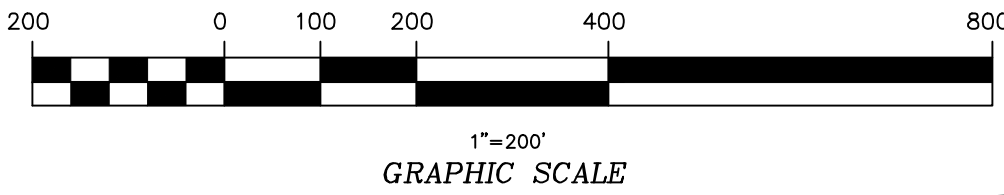
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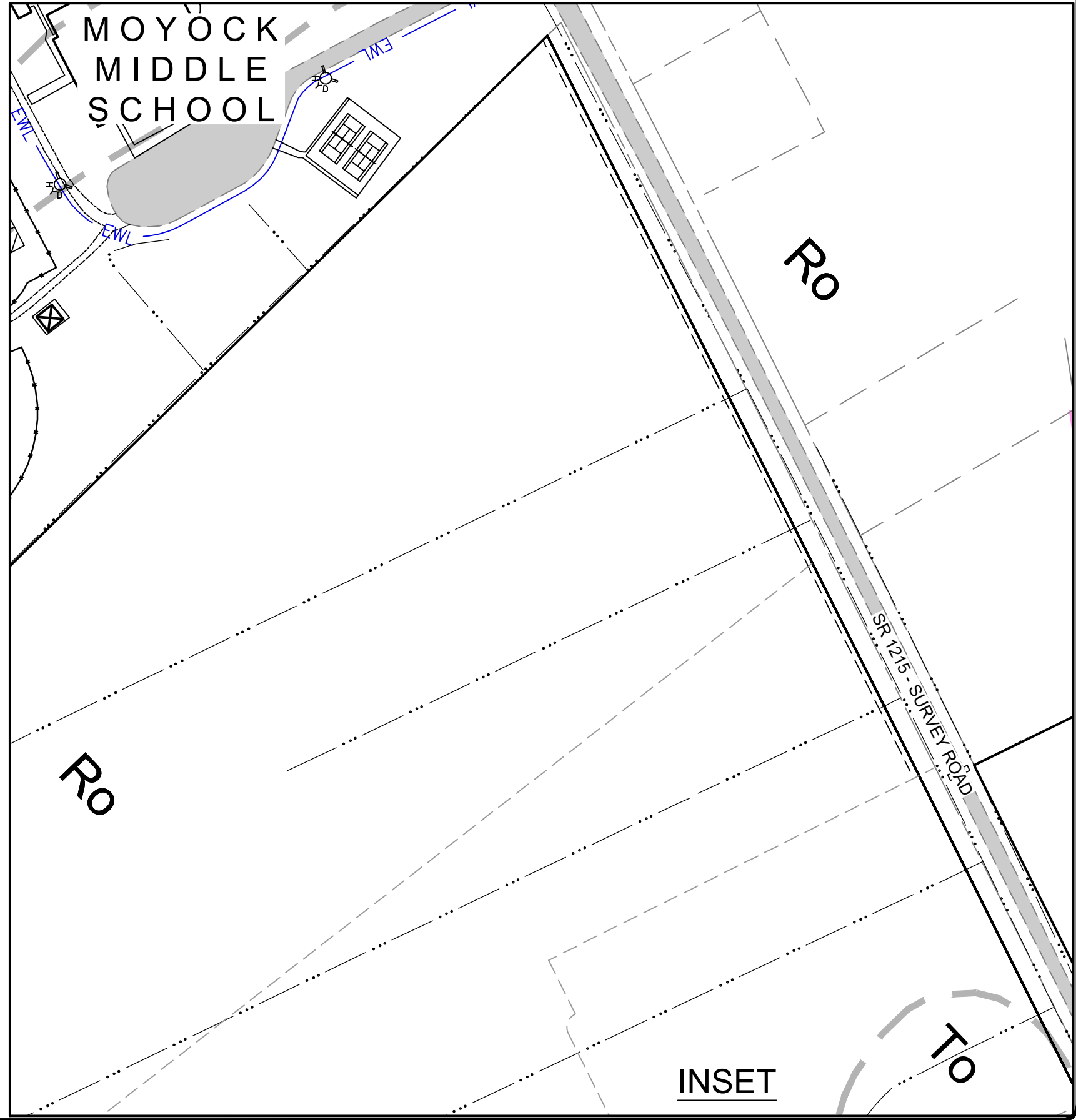


SOILS LEGEND	
SOILS LINE	
Ca	CAPE FEAR SILT LOAM
Ds	DRAGSTON LOAMY FINE SAND
No	NIMMO LOAMY SAND
Ro	ROANOKE FINE SANDY LOAM
To	TOMOTLEY FINE SANDY LOAM
Ws	WASDA MUCK
SCS - SOIL SURVEY OF CURRITUCK COUNTY	

MSAP CALCULATIONS		LUP CALCULATIONS
FULL SERVICE AREA	LIMITED SERVICE AREA	FULL SERVICE AREA
94.7-Acres	129.7 Acres	224.44 Acres
213-Units	197-Units	673 Units Allowed (3.0/Ac.)
2.25 Units/Ac.	1.52 Units/Ac.	410 Units Proposes (1.83/Ac.)



SEE INSET BELOW FOR  
ADDITIONAL BOUNDARY



**BISSELL**  
PROFESSIONAL GROUP  
Engineers, Planners, Surveyors  
and Environmental Specialists

Bissell Professional Group  
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1000 North Carolina Highway  
P.O. Box 108  
City of Cape Fear, North Carolina 27449  
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Fax: (336) 281-1760

**EXISTING CONDITIONS & SITE FEATURES PLAN**

THIS PLAN IS THE SOIL PROPERTY OF BISS, INC. IN THE CITY OF HAWAII. NO PART OF THIS PLAN OR ANY PART OF THE INFORMATION HEREON SHALL BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF BISS, INC. COPYRIGHT 2005.

**FLORA FARM PD-R SUBDIVISION**  
CURRITUCK COUNTY  
MOYOCK TOWNSHIP  
NORTH CAROLINA

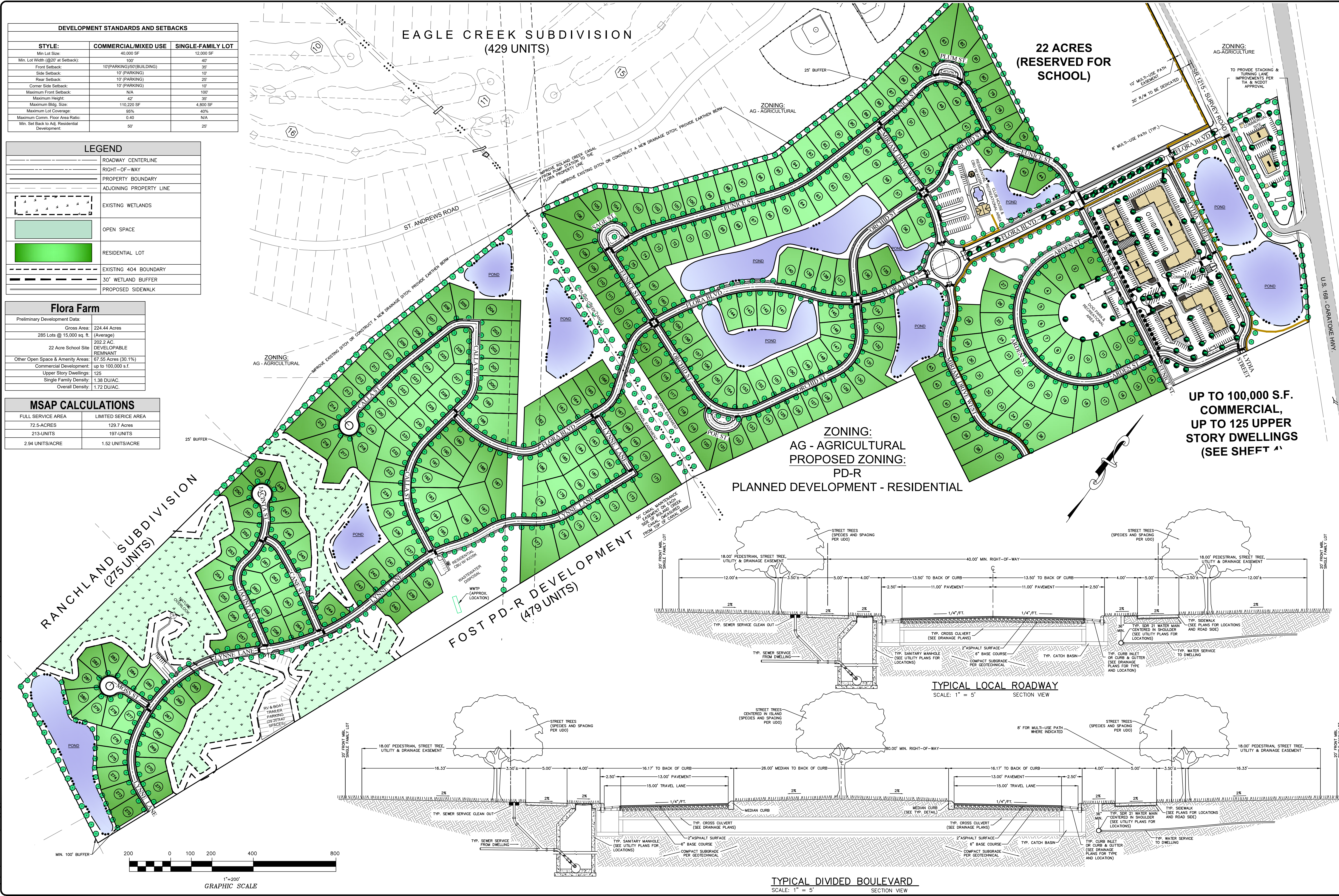
**PRELIMINARY MASTER PLAN**

NO.	DATE	DESCRIPTION	BY	WGT
1	02/24/20	Address: TBC Comments		
2	05/19/20	Address: Additional staff Comments		

**PRELIMINARY FOR REVIEW PURPOSES ONLY**

DATE: 01/23/20 SCALE: 1" = 200'  
DESIGNED: MSB CHECKED: MSB  
DRAWN: KFW:WGY APPROVED: BPG  
SHEET: 2 OF 7  
CAD FILE: 468000MP4  
PROJECT NO: 4680





**Bissell Professional Group**  
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**BISSELL**  
PROFESSIONAL GROUP

Engineers, Planners, Surveyors  
and Environmental Specialists

**PRELIMINARY MASTER PLAN - OVERALL**

THIS DRAWING IS THE SCALE PRELIMINARY PLAN. NO CITY, TOWN, OR COUNTY ADOPTION OR RECORDATION IS PART OF THE MODIFICATION OF ANY DETAIL OR DESIGN IS NOT TO BE MADE WITHOUT THE WRITTEN CONSENT OF BISSELL PROFESSIONAL GROUP, INC. COPYRIGHT 2020.

**FLORA FARM PD-R SUBDIVISION**  
NORTH CAROLINA  
CURRITUCK COUNTY  
MOYOCK TOWNSHIP

**PRELIMINARY MASTER PLAN**

REVISIONS	
NO.	DESCRIPTION
1	01/23/20 Address TPO Comments
2	05/19/20 Address Additional staff Comments

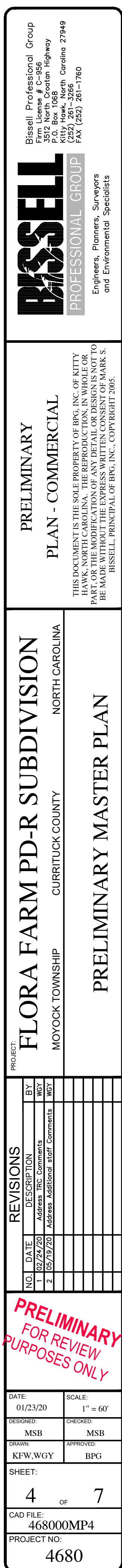
DATE: 01/23/20  
DESIGNED: MSB  
DRAWN: KFW.WGY  
SHEET: 3 OF 7

SCALE: 1" = 200'  
CHECKED: MSB  
APPROVED: BPG

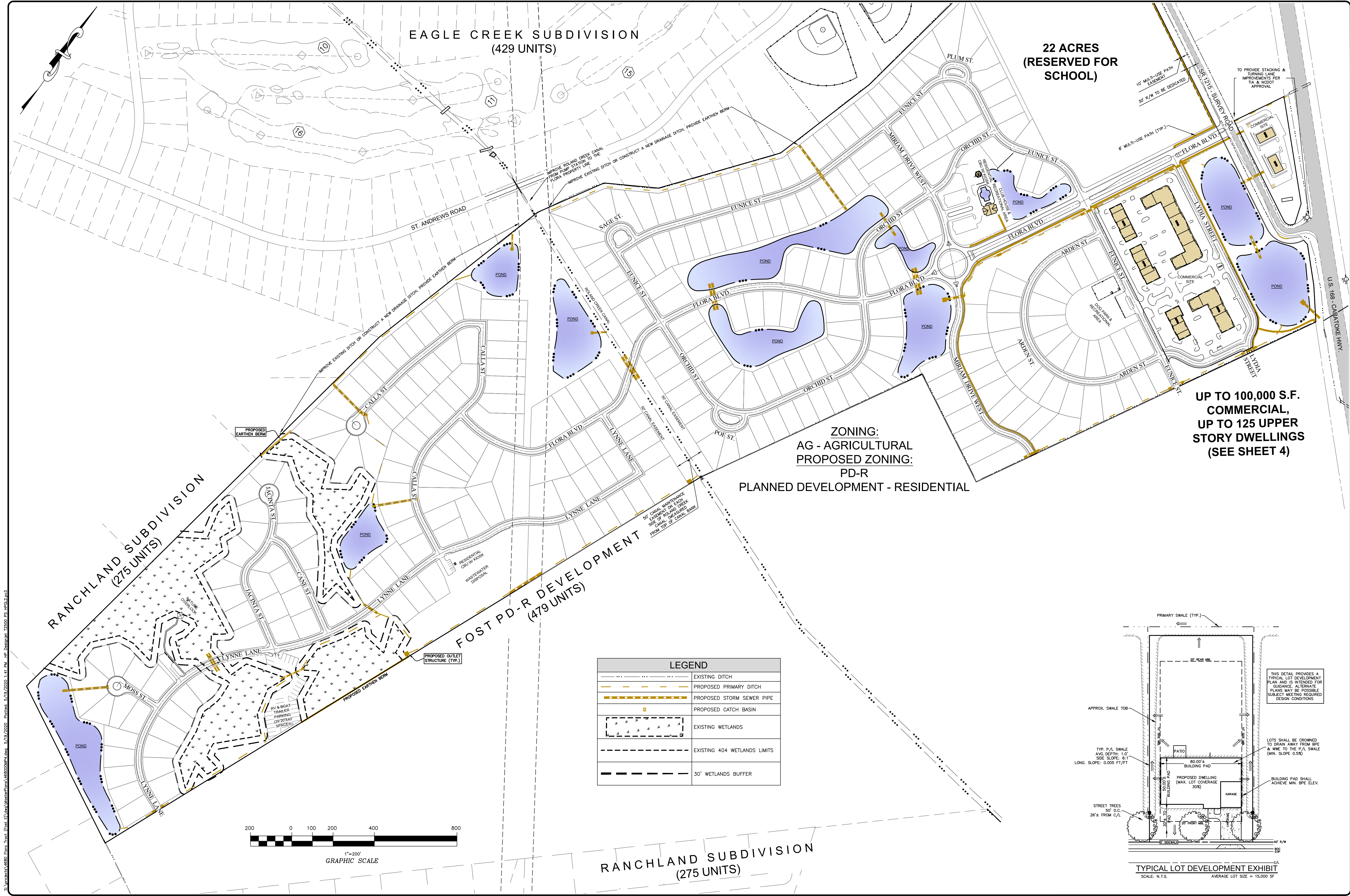
CAD FILE: 468000MP4  
PROJECT NO: 4680

**PRELIMINARY FOR REVIEW PURPOSES ONLY**









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Fax: (704) 366-1760

**BISSELL**  
PROFESSIONAL GROUP

Engineers, Planners, Surveyors  
and Environmental Specialists

**PRELIMINARY STORMWATER  
MANAGEMENT PLAN**

THIS PLAN IS THE SOLE PROPERTY OF BISS, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF BISS, INC. ANY VIOLATION OF THIS NOTICE SHALL BE SUBJECT TO LEGAL ACTION.

**FLORA FARM PD-R SUBDIVISION**  
NORTH CAROLINA  
CURRITUCK COUNTY  
MOYOCK TOWNSHIP

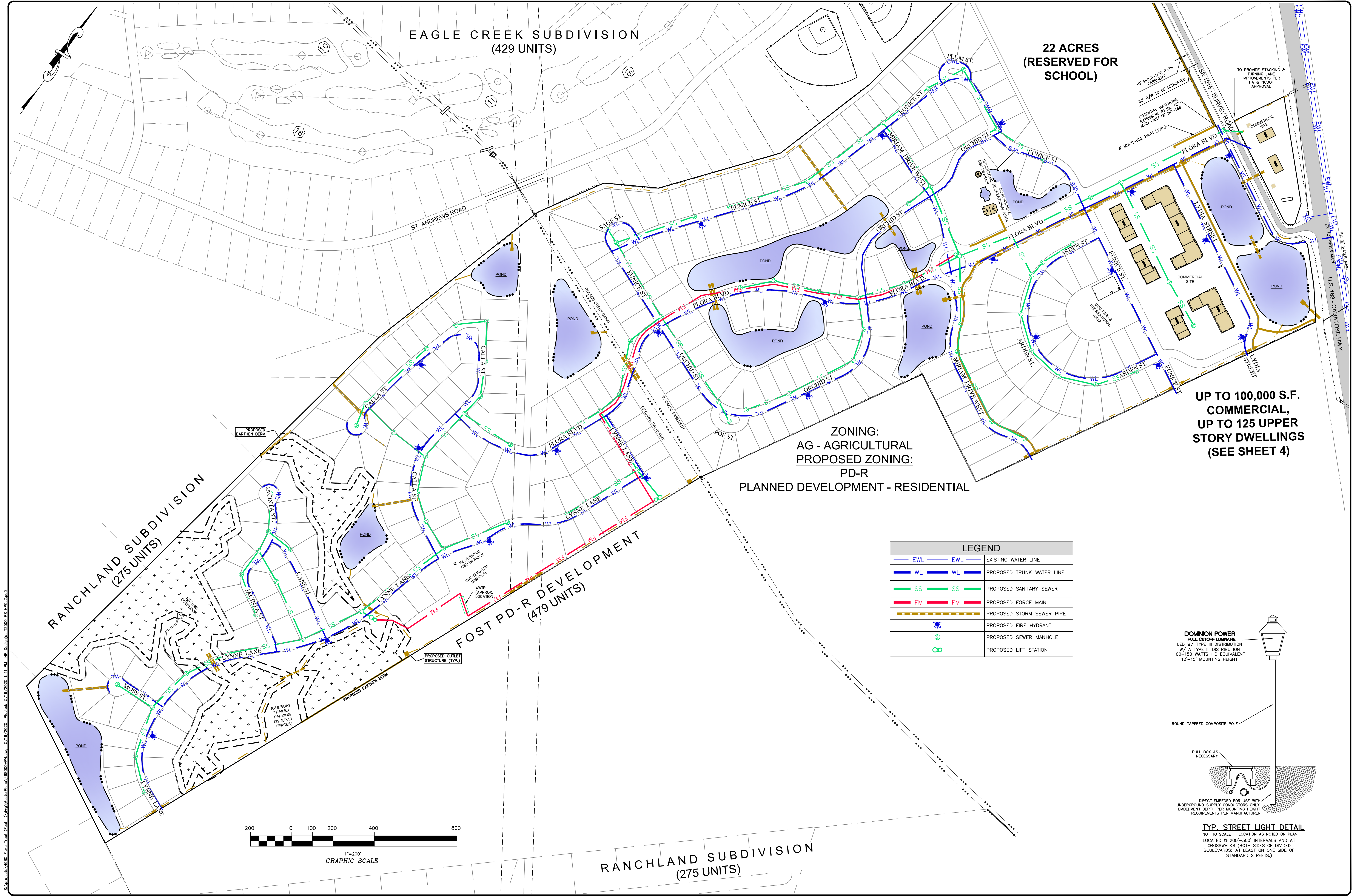
**PRELIMINARY MASTER PLAN**

NO.	DATE	DESCRIPTION	BY
1	02/24/20	Address: TBC Comments	WGT
2	05/19/20	Address: Additional staff Comments	WGT

**PRELIMINARY FOR REVIEW PURPOSES ONLY**

DATE: 01/23/20 SCALE: 1" = 200'  
DESIGNED: MSB CHECKED: MSB  
DRAWN: KFW:WGY APPROVED: BPG  
SHEET: 5 OF 7  
CAD FILE: 468000MP4  
PROJECT NO: 4680





**Bissell Professional Group**  
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Fax: (919) 232-1760

**BISSELL**  
PROFESSIONAL GROUP  
Engineers, Planners, Surveyors  
and Environmental Specialists

**PRELIMINARY UTILITIES PLAN**

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**FLORA FARM PD-R SUBDIVISION**  
NORTH CAROLINA  
CURRITUCK COUNTY  
MOYOCK TOWNSHIP

**PRELIMINARY MASTER PLAN**

NO.	DATE	DESCRIPTION	BY	WFO
1	02/24/20	Address TBC Comments		
2	05/19/20	Address Additional staff Comments		

**PRELIMINARY FOR REVIEW PURPOSES ONLY**

DATE: 01/23/20  
DESIGNED: MSB  
CHECKED: MSB  
DRAWN: KFW:WGY  
APPROVED: BPG  
SHEET: 6 OF 7  
CAD FILE: 468000MP4  
PROJECT NO: 4680





SCHEDULE B PHASING SCHEDULE						
RESIDENTIAL						
PHASE	OPEN SPACE (AC.)	UNITS	ESTIMATED FINAL PLAT RECORDING DATE	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	OTHER IMPROVEMENTS
1	16.4	58	AUG. 2021	46.2	1.26	MAIL KIOSK & RV/BOAT PARKING
2	24.1	62	FEB. 2022	53.8	1.15	NATURE OVERLOOK & CLUBHOUSE
3	9.1	53	AUG. 2022	28.8	1.84	DOG PARK, REC. AREA & POOL
4	8.3	66	FEB. 2023	37.7	1.75	MULTI-USE PATH
5	7.0	46	AUG. 2023	23.1	1.99	-
SUBTOTAL	64.9	285	-	189.6	1.50	-
COMMERCIAL						
PHASE	OPEN SPACE (AC.)	UNITS	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	COMM. S.F.	MAXIMUM COMMERCIAL FLOOR AREA RATIO
A	0.3	7	2.1	3.33	10426	0.15
B	0.4	30	3.5	8.57	20132	0.15
C	0.4	0	1.1	0.00	3825	0.10
D	0.4	70	2.8	25.00	36740	0.35
E	0.7	0	1.1	0.00	3825	0.10
F	0.2	9	1.2	7.50	12637	0.30
G	0.2	9	0.8	11.25	11520	0.35
SUBTOTAL	2.6	125	12.8	9.92	99105	0.20
SCHOOL SITE	-	-	22.2 AC. (AUG. 2023)	-	TBD	-
TOTAL	67.5	410	224.4	1.83	-	0.40

**BISSELL** Professional Group  
Firm License # C-955  
P.O. Box 108  
1000 North Carolina Highway 2749  
Moyock, North Carolina 27949  
Tel: (252) 281-1760  
Fax: (252) 281-1760

**PRELIMINARY PHASING PLAN**

THIS PLAN IS THE SCALE PRELIMINARY PLAN. IT IS NOT TO BE USED FOR THE CONSTRUCTION OF ANY PART OF THE PROJECT. THE FINAL PLAN SHALL BE THE FINAL PLAN. THE FINAL PLAN SHALL BE THE FINAL PLAN. THE FINAL PLAN SHALL BE THE FINAL PLAN.

**FLORA FARM PD-R SUBDIVISION**  
NORTH CAROLINA  
CURRITUCK COUNTY  
MOYOCK TOWNSHIP

**PRELIMINARY MASTER PLAN**

NO.	DATE	DESCRIPTION	BY	WIT.
1	02/24/20	Address: TBC. Comments		
2	05/19/20	Address: Additional staff Comments		

**PRELIMINARY FOR REVIEW PURPOSES ONLY**

DATE: 01/23/20 SCALE: 1" = 200'

DESIGNED: MSB CHECKED: MSB

DRAWN: KFW.WGY APPROVED: BPG

SHEET: 7 OF 7

CAD FILE: 468000MP4

PROJECT NO: 4680



SCHEDULE B						
PHASING SCHEDULE						
RESIDENTIAL						
PHASE	OPEN SPACE (AC.)	UNITS	ESTIMATED FINAL PLAT RECORDING DATE	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	OTHER IMPROVEMENTS
1	16.4	58	AUG. 2021	46.2	1.26	MAIL KIOSK & RV/BOAT PARKING
2	24.1	62	FEB. 2022	53.8	1.15	NATURE OVERLOOK & CLUBHOUSE
3	9.1	53	AUG. 2022	28.8	1.84	DOG PARK, REC. AREA & POOL
4	8.3	66	FEB. 2023	37.7	1.75	MULTI-USE PATH
5	7.0	46	AUG. 2023	23.1	1.99	-
SUBTOTAL	64.9	285	-	189.6	1.50	-
COMMERCIAL						
PHASE	OPEN SPACE (AC.)	UNITS	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	COMM. S.F.	MAXIMUM COMMERCIAL FLOOR AREA RATIO
A	0.3	7	2.1	3.33	10426	0.15
B	0.4	30	3.5	8.57	20132	0.15
C	0.4	0	1.1	0.00	3825	0.10
D	0.4	70	2.8	25.00	36740	0.35
E	0.7	0	1.1	0.00	3825	0.10
F	0.2	9	1.2	7.50	12637	0.30
G	0.2	9	0.8	11.25	11520	0.35
SUBTOTAL	2.6	125	12.6	9.92	UP TO 100,000	0.20
SCHOOL SITE	-	-	22.2 AC. (AUG. 2023)	-	TBD	-
<b>TOTAL</b>	<b>67.5</b>	<b>410</b>	<b>224.4</b>	<b>1.83</b>		<b>0.40</b>

## SCHEDULE A

DEVELOPMENT STANDARDS & SETBACKS

STYLE:	COMMERCIAL/MIXED USE	SINGLE-FAMILY LOT
Min. Lot Size:	40,000 SF	12,000 SF
Min. Lot Width (@20' setback):	100'	40'
Front Setback:	10' (Parking)/50' (Building)	35'
Side Setback:	10' (Parking)	10'
Rear Setback:	10' (Parking)	25'
Corner Side Setback:	10' (Parking)	15'
Maximum Front Setback:	N/A	100'
Maximum Height:	42'	35'
Maximum Bldg. Size:	110,220 SF	4,800 SF
Maximum Lot Coverage:	95%	40%
Max. Comm. Floor Area Ration:	0.40	
Min. Setback to Adj. Residential Development:	50'	25'

**SCHEDULE C  
ROADWAY  
STANDARDS**

<u>TYPE</u>	<u>R/W WIDTH</u>	<u>MIN. ROADWAY WIDTH (Back to Back of Curb)</u>
Boulevard	80' min	16' each way
Local Road	40' min	27'

### Flora Farm • Draft Terms and Conditions

- a. The Phasing Plan attached to this ordinance and incorporated herein by reference as Schedule B (attached) shall be adhered to except that the Developer may determine the sequence in which phases are developed. The Developer shall provide an annual report updating the Phasing Plan for the development.
- b. Development on the Property shall be connected to a North Carolina Department of Environmental Quality ("NCDEQ") permitted and approved central wastewater treatment and disposal system, and to the Currituck County water system. Fire protection shall be provided in accordance with the UDO Standards and the N.C. Fire Code.
- c. The density/intensity standards, dimensional standards and development standards for development of the Property shall be in accordance with the Master Plan and Schedule A (attached), subject to the degree of flexibility provided in these conditions.
- d. Community form and design for development of the Property shall conform to the sample building elevations attached in Appendix A. Variations may be provided and shall be permitted in colors, materials, and architectural detailing that are compatible with the design concept.
- e. Transportation: The main subdivision entrance will be connected to Survey Road and interconnected with the Fost tract roadway system in accordance with recommendations made in the Traffic Impact Analysis (TIA) for this development as approved by NCDOT. Improvements to Survey Road shall be made in accordance with the TIA, as approved by and in accordance with North Carolina Department of Transportation, ("NCDOT"), standards and shall be approved by NCDOT prior to construction. Roadways shall be laid out generally as shown on the Master Plan and in accordance with Schedule C.
- f. Potable Water: Water shall be supplied by Currituck County via the interconnections with the Fost tract water distribution system, and a connection to the existing water main on Caratoke Highway. Fire Protection shall be provided in accordance with UDO standards and the applicable Insurance Service Office standards. Individual lots and dwellings shall be metered. The Developer shall model the county's water system to demonstrate adequate water flow and pressure for fighting fires while meeting the maximum day domestic demand.
- g. Wastewater: Land has been set aside for the construction of a centralized wastewater disposal facility that will be constructed in accordance with NCDEQ Standards and approved by NCDEQ. A wastewater collection system will be constructed by the Developer and managed by a wastewater utility. The wastewater system will be regulated by the North Carolina Utilities Commission and will apply for a Certificate of Public Necessity and Convenience.

- h. Stormwater: The following improvements to stormwater drainage ("Improvements") shall be completed by the Developer prior to recording the final plat for the first phase of development on the Property:
- i. Continue the Rowland Creek improvements to the northwest to the Eagle Creek pump station as authorized by the Eagle Creek Homeowners Association.
  - ii. Improve the existing property line ditch or install a new ditch along a portion of the Property's northwestern common boundary line with Eagle Creek and Ranchland where shown on the Preliminary Drainage Plan on a positive grade with 3:1 side slopes and sized for a 100 year storm event from the drainage basin in which the Property and a portion of Eagle Creek and Ranchland Subdivision are located.
  - iii. The Improvements set forth in this section shall be maintained by the Developer, or a management association created by the Developer.
  - iv. Establish permanent easements along Rowland Creek and the property line ditch described in paragraph iii above for ongoing maintenance of these drainage facilities.

Improvements will be generally as shown on sheet 5 of the Master Plan drawings

- i. General stormwater conditions:
- i. The Developer shall construct berms along ditch outlets against Eagle Creek and Ranchland to reduce the potential of the proposed development's runoff from flooding Eagle Creek and Ranchland during a 100 year storm.
  - ii. On-site stormwater will be managed by construction a series of stormwater management ponds that will be interconnected and will retain and slow-release stormwater to Rowland Creek and other drainage outlets both directly and indirectly.

In addition to modeling and retaining stormwater to the UDO and Stormwater Manual standard for the difference between runoff from the 10-year developed condition and runoff from a 2-year wooded condition site, stormwater will be modeled for the 100-year storm event and property line berms constructed as necessary to manage the 100-year storm without adversely impacting neighboring properties.

Stormwater will be conveyed to on-site retention ponds through a combination of curbs with inlets, stormwater pipes and open, vegetated swales.

- j. Up to 100,000 square feet of commercial development will be constructed in the area set aside for commercial development on the Master Plan, along with up to 125 upper story apartments generally as shown on the Master Plan drawings. A minimum of 10% of the apartments will be reserved for workforce housing for public service personnel, such as teachers, firefighters, and police, for a period of at least 5 years from the Certificate of Occupancy on the first apartment



building. The owner of the apartment facility will provide an annual certification of renter eligibility to the Planning Department.

- k. Perimeter compatibility shall be addressed as follows:
  - i. To the west a 25 foot vegetated buffer and berm shall be provided to existing residential development along upland areas.
  - ii. To the south: A minimum 100 foot open space buffer is shown to the property line. The southern buffer may include a pond. A berm will also be installed.
  - iii. Commercial development is located away from existing development and adjacent to the Fost tract.
  - iv. Architectural Features: Building placement, design features, orientation and entryways promote compatibility with adjacent properties.
- l. Environmental Protection and Monitoring: Wetlands subject to the jurisdiction of the US Army Corps of Engineers have been delineated and confirmed by the Corps of Engineers. Wetland buffers have been shown on the Master Plan and the Development plan honors those buffers. The Association documents (Declaration) will include provisions that prohibit the filling of wetlands and prohibit the clearing of the buffer areas other than incidental tree cutting and vegetation removal, and for stormwater management.

The Association, either itself or via a management entity, will assume responsibility for ongoing operation and maintenance of all stormwater management facilities in accordance with the Currituck County UDO requirements and all NCDEQ permit requirements. The Association dues will be structured in a way that funds are provided for the upkeep of these facilities, as well as periodic improvements to Rowland Creek both through the development, as well as a contribution to off-site maintenance.

- m. School site: A 22 acre portion of the tract is reserved for use as a public school site, as shown on the Master Plan.
- n. Developer general responsibilities:
 

The developer is responsible to design and construct or install the required and proposed on site public utilities in compliance with applicable county, state and federal regulations.

The developer shall dedicate to the public the right-of-way and easements necessary to construct or install the required and proposed on site public facilities in compliance with applicable county, state and federal regulations.

## SCHEDULE A

DEVELOPMENT STANDARDS & SETBACKS

STYLE:	COMMERCIAL/MIXED USE	SINGLE-FAMILY LOT
Min. Lot Size:	40,000 SF	12,000 SF
Min. Lot Width (@20' setback):	100'	40'
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Side Setback:	10' (Parking)	10'
Rear Setback:	10' (Parking)	25'
Corner Side Setback:	10' (Parking)	15'
Maximum Front Setback:	N/A	100'
Maximum Height:	42'	35'
Maximum Bldg. Size:	110,220 SF	4,800 SF
Maximum Lot Coverage:	95%	40%
Max. Comm. Floor Area Ration:	0.40	
Min. Setback to Adj. Residential Development:	50'	25'

SHEDULE B						
PHASING SCHEDULE						
RESIDENTIAL						
PHASE	OPEN SPACE (AC.)	UNITS	ESTIMATED FINAL PLAT RECORDING DATE	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	OTHER IMPROVEMENTS
1	8.9	58	AUG. 2021	43.8	1.32	MAIL KIOSK & RV/BOAT PARKING
2	28.6	62	APR. 2022	53.8	1.15	NATURE OVERLOOK & CLUBHOUSE
3	9.3	53	FEB. 2023	30.3	1.75	DOG PARK, REC. AREA & POOL
4	10.1	66	AUG. 2023	37.7	1.75	MULTI-USE PATH
5	8.0	46	JAN. 2024	24.0	1.92	-
SUBTOTAL	64.9	285	-	189.6	1.50	-
COMMERCIAL						
PHASE	OPEN SPACE (AC.)	UNITS	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	COMM. S.F.	MAXIMUM COMMERCIAL FLOOR AREA RATIO
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B	0.4	30	3.5	8.57	20132	0.15
C	0.4	0	1.1	0.00	3825	0.10
D	0.4	70	2.8	25.00	36740	0.35
E	0.7	0	1.1	0.00	3825	0.10
F	0.2	9	1.2	7.50	12637	0.30
G	0.2	9	0.8	11.25	11520	0.35
SUBTOTAL	2.6	125	12.6	9.92	UP TO 100,000	0.20
SCHOOL SITE			22.2ac. (AUG. 2023)		TBD	0.40
TOTAL	67.5	410	224.4	1.83		

**SCHEDULE C**  
**ROADWAY**  
**STANDARDS**

<b><u>TYPE</u></b>	<b><u>R/W WIDTH</u></b>	<b><u>MIN. ROADWAY WIDTH/Back to Back of Curb</u></b>
Boulevard	80' min	16' each way
Local Road	40' min	27'

## TRAFFIC IMPACT ANALYSIS

# Flora Farms Subdivision

Moyock, NC

## PREPARED FOR

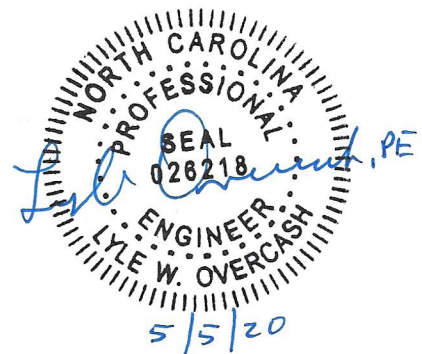
Mark S. Bissell, PE  
Bissell Professional Group  
3512 N. Croatan Highway  
PO Box 1068  
Kitty Hawk, NC 27949

## PREPARED BY

**VHB Engineering NC, P.C. (C-3705)**

940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
919.829.0328

May 5<sup>th</sup>, 2020



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



## Executive Summary

Bissell Professional Group plans to construct a new mixed-use development south of Caratoke Highway (NC 168) and Survey Road (SR 1215) in Moyock, North Carolina (Figure 1). The site is bordered by undeveloped land and existing single-family residential developments. When fully completed, the site will consist of 285 single-family homes, 125 apartments, and 100,000 square feet (SF) of general retail space, with an expected full build-out year of 2026.

### Project Background

Based on the conceptual site plan (Figure 2), access to the development is proposed via two (2) vehicular access points:

- › Future Access #1: full movement access along and south of Survey Road (SR 1215), approximately 750 feet southwest of Caratoke Highway (NC 168).
- › Future Access #2: full movement access along and north of Survey Road (SR 1215), approximately 750 feet southwest of Caratoke Highway (NC 168).

A total of four (4) cross-connections are currently planned between the proposed Flora Farms Subdivision and the future Fost Tract Development.

The following intersections are included in the study area and were analyzed, where applicable, for existing and future conditions:

- › Caratoke Highway (NC 168) at Guinea Road (SR 1214) (unsignalized)
- › Caratoke Highway (NC 168) at Survey Road (SR 1215) (unsignalized)
- › Caratoke Highway (NC 168) at Survey Road (SR 1215) (signalized)
- › Survey Road (SR 1215) at Eagle Creek Road (SR 1506) (unsignalized)

- › Caratoke Highway (NC 168) and Fost Boulevard (future signalized)
- › Survey Road (SR 1215) and Future Access #1/Future Access #2 (future unsignalized)

The analysis was performed under four (4) scenarios: Existing (2019), No-Build (2026), Build (2026), and Build (2026) with Improvements. The Existing (2019) scenario includes typical weekday AM and PM peak hour analysis based on turning movement count data collected in December 2019. The No-Build (2026) scenario includes existing traffic with a 3% annual growth rate applied between the base year (2019) and the build-out year (2026). The No-Build (2026) scenario includes site trips generated from the proposed Fost Tract Development. The Build (2026) scenario includes No-Build (2026) volumes with the addition of site trips generated by the proposed development. Future conditions with the recommended improvements in place were analyzed in the Build (2026) with Improvements scenario.

## Existing (2019) Conditions

Existing analyses were conducted based on current roadway geometrics and intersection turning movement counts collected in December 2019. The existing through volumes along Caratoke Highway (NC 168) were grown by 10% to account for an increase in volumes that is experienced during summer months.

Crash data was obtained from the NCDOT's Traffic Engineering Accident Analysis System (TEAAS) along Caratoke Highway (NC 168). A five-year period (11/1/2014 – 10/31/2019) was analyzed from 500 feet south of Guinea Road to 500 feet north of the signalized intersection with Survey Road. During this period, there were 37 crashes reported with the predominant crash types being rear ends (43.2%) and fixed object (run off the road) crashes (24.3%). No fatal or suspected serious injury crashes (Type A) occurred within the study area during the five-year period.

As reported in the Summary Level of Service (LOS) table on page vi, all stop-controlled and signalized approaches operate at an acceptable level of service (i.e., LOS D or better) during both peak hours.

## No-Build (2026) Conditions

The historical average annual daily traffic (AADT) along Caratoke Highway (NC 168) shows little to no growth over the previous ten years; however, to account for potential development growth in the area, an annual growth rate of three percent (3%) was applied to the existing traffic to account for traffic increases between the base year (2019) and the build-out year (2026). In addition, one background development, Fost Tract Development, was included specifically in the No-Build traffic volumes.

As reported in the Summary Level of Service (LOS) table on page vi, all stop-controlled and signalized approaches continue to operate acceptably during both peak hours. The proposed signalized intersection of Caratoke Highway (NC 168) and Fost Boulevard operates at LOS B during both peak hours.



## Trip Generation and Assignment

Trip generation was conducted based on the most appropriate corresponding trip generation codes included in the *ITE Trip Generation Manual, 10<sup>th</sup> Edition* and the suggested method of calculation in the NCDOT's *"Rate vs. Equation" Spreadsheet*. Trips captured internally were calculated based on the *NCHRP 684* method and the *NCDOT Internal Capture Spreadsheet*. ITE LUC 210 (Single-Family Detached Housing), LUC 220 (Multifamily Housing (Low Rise)), and LUC 820 (General Retail) were used based on the NCDOT guidance. The full build-out of the site is anticipated to be completed by 2026 and to consist of the following:

- › 285 single-family homes
- › 125 apartment units
- › 100,000 SF of general retail space

As a result, the proposed development is projected to generate 8,380 daily external site trips, with 463 trips (189 entering, 274 exiting) occurring in the AM peak hour and 717 trips (393 entering, 324 exiting) occurring in the PM peak hour. The generated site trips were distributed in accordance with the existing turning movement counts and land uses.

## Build (2026) Conditions

The Build (2026) conditions account for both the No-Build (2026) traffic and the site traffic generated by the proposed development after completion of the full build-out of the development.

As shown on the Summary LOS table on page vi, with the addition of site trips, all stop-controlled approaches, except for one, operate at acceptable levels of service during both peak hours. The eastbound Survey Road stop-controlled approach at Caratoke Highway (NC 168) is projected to operate at LOS F during the PM peak hour. All signalized intersections operate acceptably under Build (2026) conditions.

## Roadway Improvement Recommendations

Based on the traffic operations analyses, the proposed development is projected to impact the traffic operations of the surrounding roadway network and intersections after the full build-out of the development. The following improvements are recommended by the time the development is fully constructed in 2026:

### Caratoke Highway (NC 168) and Survey Road (SR 1215) (unsignalized)

The Survey Road (SR 1215) eastbound stop-controlled approach is expected to operate at LOS F during the PM peak hour under Build (2026) conditions. After the build-out of the development, vehicles will be able to access full movement traffic signals at Survey Road to north of the development, and Fost Boulevard to the south. Therefore, the following improvements are recommended for the intersection:

- › Provide a southbound right-turn lane with at least 100 feet of full storage and appropriate taper.
- › Restrict access at the intersection to not allow left turns off of Survey Road. This restriction of access should be completed when approximately 30% of the total estimated trips for the site are observed, likely in conjunction with the southbound right-turn lane installation.
- › Stripe out at least 200 feet of storage within the existing two-way left-turn lane along Caratoke Highway (NC 168) for the northbound left-turn.
- › Monitor the intersection for protentional signalization in the future.

Survey Road (SR 1215) and Future Access #1/Future Access #2

The proposed stop-controlled driveways are projected to operate at acceptable levels of service during peak hours under Build (2026) conditions. The following driveway configuration for both access driveways should be considered to enhance traffic operations and safety:

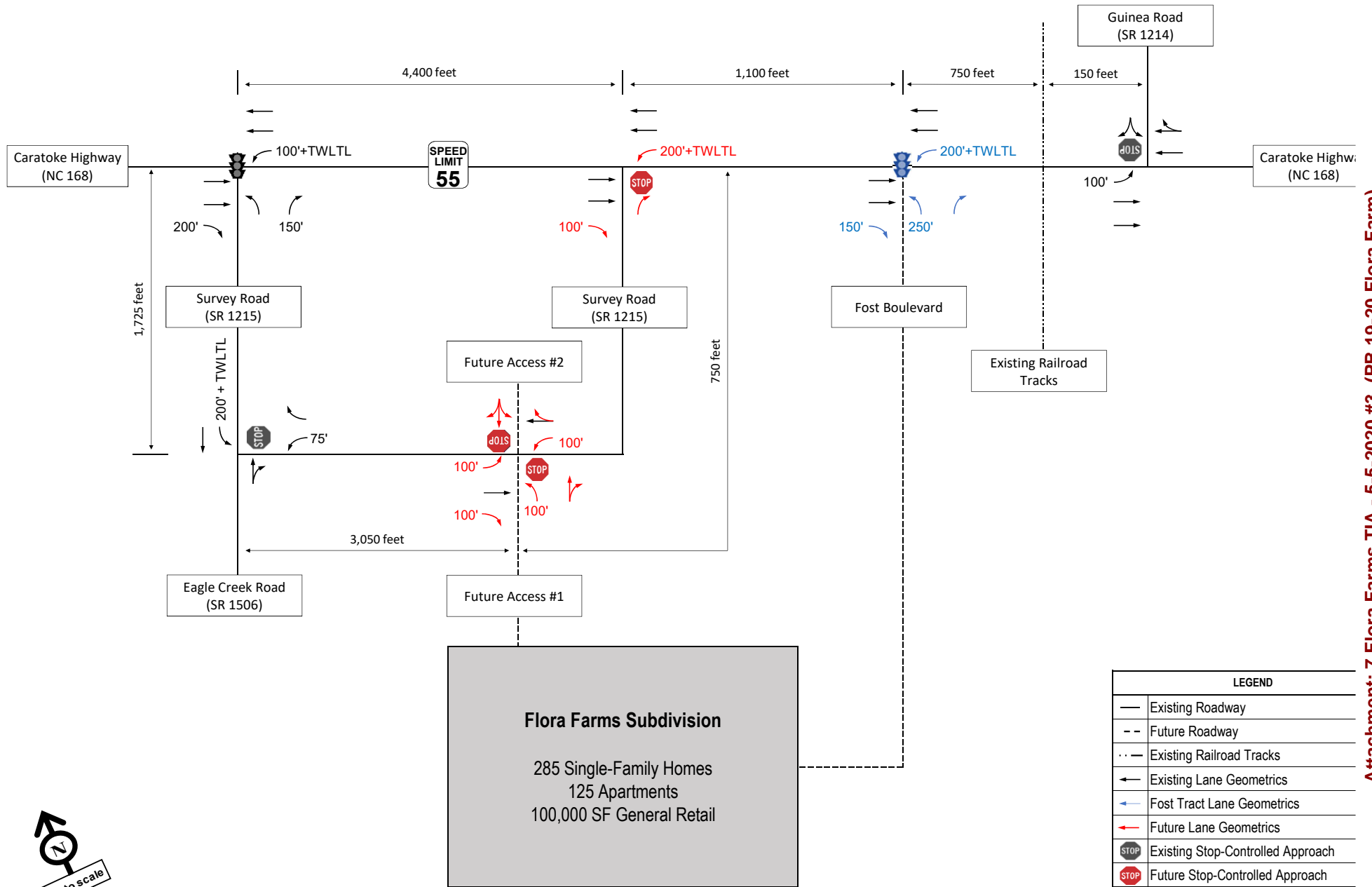
- › Connect both driveways to Survey Road with stop-controlled approaches as a full movement four-leg intersection.
- › Construct Future Access #1 with one ingress lane and two egress lanes. Provide a northbound left-turn lane with a minimum of 100 feet of full storage and appropriate taper and a through/right-turn lane. Lydia Street intersects with Future Access #1 approximately 300 feet from Survey Road, which provides the proper internal protected stem to accommodate projected queues. Typically, NCDOT requires a 100-foot minimum internal protected stem for this type of facility.
- › Construct Future Access #2 with one ingress lane and one egress lane.
- › Provide an eastbound left-turn lane and right-turn lane along Survey Road, both with a minimum of 100 feet of full storage and appropriate taper.
- › Provide a westbound left-turn lane along Survey Road with at least 100 feet of full storage and appropriate taper.

The other intersections within the study area are projected to remain acceptably once the development is completed, therefore no additional offsite lane geometric improvements are recommended.

**Table ES-1 Summary Level of Service Table**

Intersection and Approach	Traffic Control	Existing (2019)		No-Build (2026)		Build (2026)		Build (2026) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B (12.3)</b>	<b>A (7.8)</b>	<b>B (13.5)</b>	<b>B (12.2)</b>	<b>B (16.0)</b>	<b>B (18.1)</b>	<b>B (15.7)</b>	<b>B (18.0)</b>
Eastbound		D-44.8	D-46.3	D-43.7	D-50.0	D-41.5	E-61.2	D-41.5	E-61.2
Northbound		A-6.7	A-3.5	A-7.2	A-3.6	A-9.8	A-5.1	A-9.2	A-4.8
Southbound		A-5.9	A-5.8	B-11.2	B-12.2	B-12.0	B-16.2	B-12.0	B-16.2
<b>Caratoke Highway (NC 168) and Survey Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Eastbound		A-9.7	C-15.1	B-10.5	C-21.2	C-23.3	F-844.9	B-11.4	E-37.9
<b>Caratoke Highway (NC 168) and Guinea Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound		C-15.0	C-15.5	C-20.6	C-21.2	C-22.6	C-23.7	C-22.6	C-23.7
<b>Survey Road and Eagle Creek Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound		A-9.6	A-9.8	B-10.2	B-10.4	B-11.2	B-12.1	B-11.2	B-12.1
<b>Caratoke Highway (NC 168) and Fost Boulevard</b>	Signalized	<b>N/A</b>	<b>N/A</b>	<b>B (11.1)</b>	<b>B (11.3)</b>	<b>B (11.9)</b>	<b>B (11.3)</b>	<b>B (13.9)</b>	<b>B (14.1)</b>
Eastbound		N/A	N/A	C-30.5	D-38.2	C-30.1	D-41.1	C-30.2	D-43.7
Northbound		N/A	N/A	A-9.5	B-11.1	A-9.9	B-11.6	B-11.6	B-13.3
Southbound		N/A	N/A	A-4.6	A-8.0	A-7.2	A-7.2	A-9.4	A-9.9
<b>Survey Road and Future Access #1/Future Access #2</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Northbound		N/A	N/A	N/A	N/A	B-13.3	C-23.5	B-11.7	C-15.4
Southbound		N/A	N/A	N/A	N/A	B-12.4	C-17.7	B-11.7	C-16.2

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay



**Figure ES**  
**Future (2026) Lane Geometrics and Traffic Control**

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**Appendix B: NCDOT TEAAS Strip Analysis Report**

**Appendix C: Intersection Capacity Analysis**

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# 1

## Introduction

Bissell Professional Group plans to construct a new mixed-use development south of Caratoke Highway (NC 168) and Survey Road (SR 1215) in Moyock, North Carolina (Figure 1). The site is bordered by undeveloped land and existing single-family residential developments. When fully completed, the site will consist of 285 single-family homes, 125 apartments, and 100,000 square feet (SF) of general retail space, with an expected full build-out year of 2026.

Based on the conceptual site plan (Figure 2), access to the development is proposed via two (2) vehicular access points:

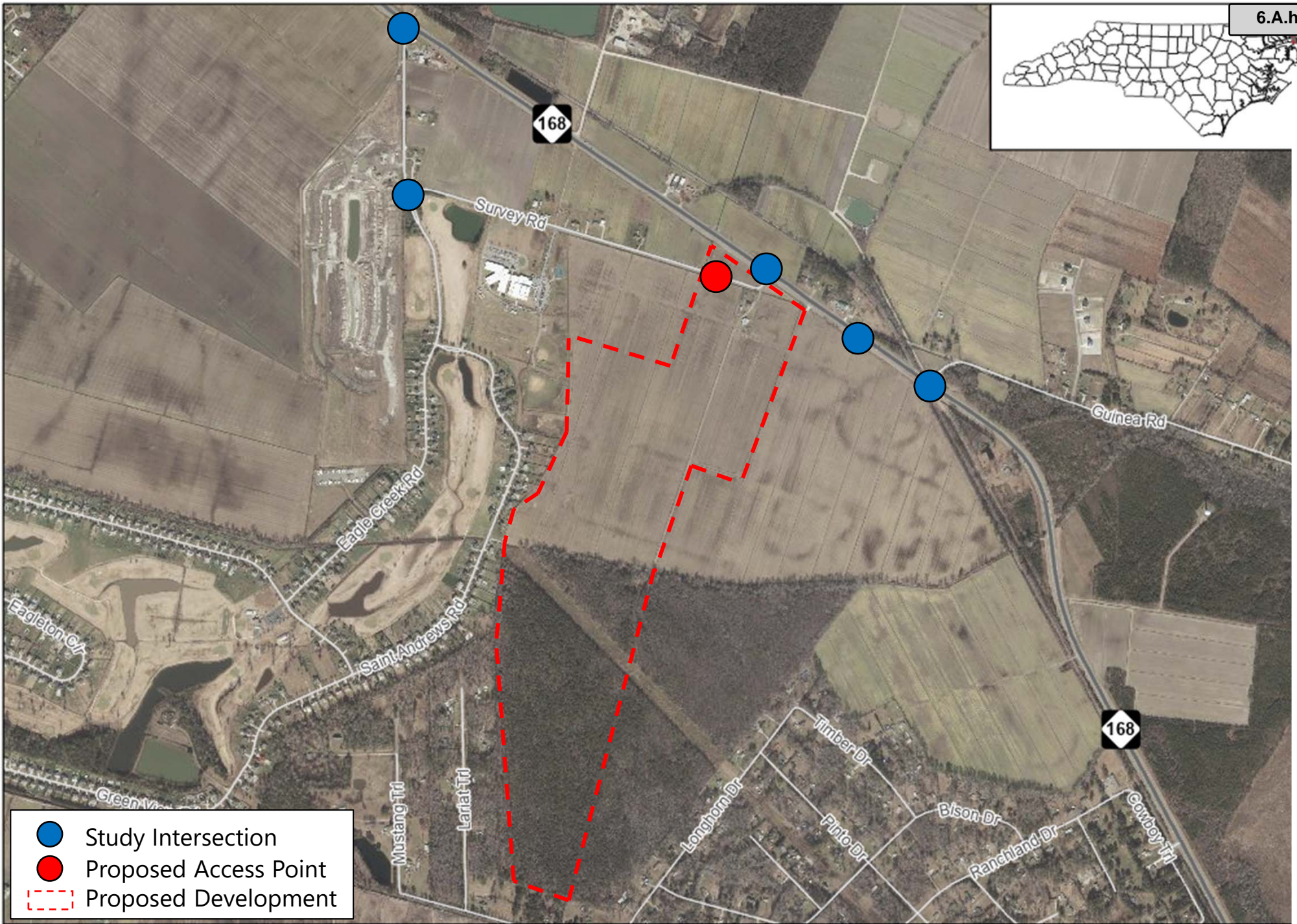
- › Future Access #1: full movement access along and south of Survey Road (SR 1215), approximately 750 feet southwest of Caratoke Highway (NC 168).
- › Future Access #2: full movement access along and north of Survey Road (SR 1215), approximately 750 feet southwest of Caratoke Highway (NC 168).

A total of four (4) cross-connections are currently planned between the proposed Flora Farms Subdivision and the future Fost Tract Development.

The following intersections are included in the study area and were analyzed, where applicable, for existing and future conditions:

- › Caratoke Highway (NC 168) at Guinea Road (SR 1214) (unsignalized)
- › Caratoke Highway (NC 168) at Survey Road (SR 1215) (unsignalized)
- › Caratoke Highway (NC 168) at Survey Road (SR 1215) (signalized)
- › Survey Road (SR 1215) at Eagle Creek Road (SR 1506) (unsignalized)
- › Caratoke Highway (NC 168) and Fost Boulevard (future signalized)
- › Survey Road (SR 1215) and Future Access #1/Future Access #2 (future unsignalized)

VHB Engineering NC, P.C. was retained by Bissell Professional Group to analyze the potential traffic impacts of the proposed development and to identify any necessary roadway improvements. This Traffic Impact Analysis (TIA) summarizes trip generation, distribution, traffic assignment, and traffic analyses for the proposed development. The scope of this TIA was based on previous studies in the area and parameters NCDOT had specified in the review of the Fost Tract Development site plan.



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

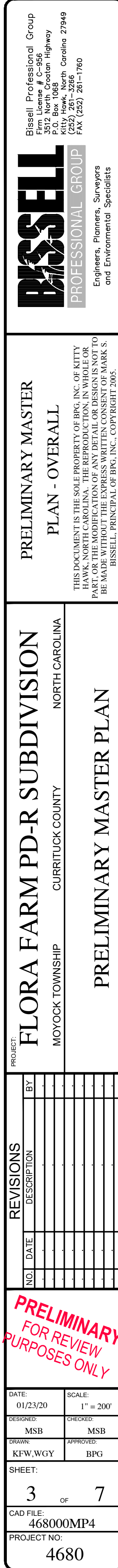
Figure 1:  
Vicinity Map

Flora Farms Subdivision TIA  
Currituck County  
Moyock, NC





MSAP CALCULATIONS	
FULL SERVICE AREA	LIMITED SERVICE AREA
72.5-ACRES	129.7 Acres
213-UNITS	197-UNITS
2.94 UNITS/ACRE	1.52 UNITS/ACRE







# 2

## Existing (2019) Conditions

This section describes the existing roadways in the vicinity of the proposed development. Average Annual Daily Traffic (AADT) data for the surrounding network of roadway were obtained from the North Carolina Department of Transportation (NCDOT). The most recent AADT counts from the NCDOT are for 2018 on the study area roadways.

### **Caratoke Highway (NC 168)**

- › Within the study area limits, Caratoke Highway (NC 168) is a four-lane roadway divided by a center two-way left-turn lane. The roadway has a posted speed limit of 55 miles per hour (mph).
- › The land uses along Caratoke Highway (NC 168) are primarily commercial and agriculture within the study area limits.
- › According to the NCDOT, the 2018 AADT along Caratoke Highway (NC 168) was 19,000 vehicles per day (vpd) south of Survey Road (SR 1215).

### **Guinea Road (SR 1214)**

- › Within the study area limits, Guinea Road (SR 1214) is a two-lane undivided roadway with no posted speed limit.
- › The land uses along Guinea Road (SR 1214) are primarily residential and agriculture within the study area limits.
- › According to the NCDOT, the 2016 AADT along Guinea Road (SR 1214) was 800 vpd.

**Survey Road (SR 1215)**



- › Within the study area limits, Survey Road (SR 1215) is a two-lane undivided roadway with no posted speed limit.
- › The land uses along Survey Road (SR 1215) are primarily residential and commercial within the study area limits. Survey Road (SR 1215) provides direct access to Moyock Middle School.
- › No AADT data was available for Survey Road (SR 1215).

**Eagle Creek Road (SR 1206)**

- › Within the study area limits, Eagle Creek Road (SR 1206) is a two-lane undivided roadway with no posted speed limit.
- › The land use along Eagle Creek Road (SR 1206) is primarily residential within the study area limits.
- › No AADT data was available for Eagle Creek Road (SR 1206).

Figure 3 provides a schematic diagram of the existing roadways near the proposed development, including the intersection geometrics.



LEGEND	
—	Existing Roadway
--	Future Roadway
· · —	Existing Railroad Tracks
←	Existing Lane Geometrics
	Existing Stop-Controlled Approach
	Existing Signalized Intersection



## Existing Turning Movement Data

VHB Engineering NC, P.C. collected the weekday AM and PM peak hour intersection turning movement counts in December 2019. Table 1 summarizes the schedule used to obtain the turning movement data. Because the project lies in a coastal area of North Carolina, volumes along Caratoke Highway (NC 168) were grown to simulate traffic during the peak summer months. All through movements along Caratoke Highway (NC 168) were grown by 10% to account for this increase in traffic during the summer. A detailed summary of the traffic counts can be found in Appendix A. The existing peak hour turning movement volumes are shown in Figure 4.

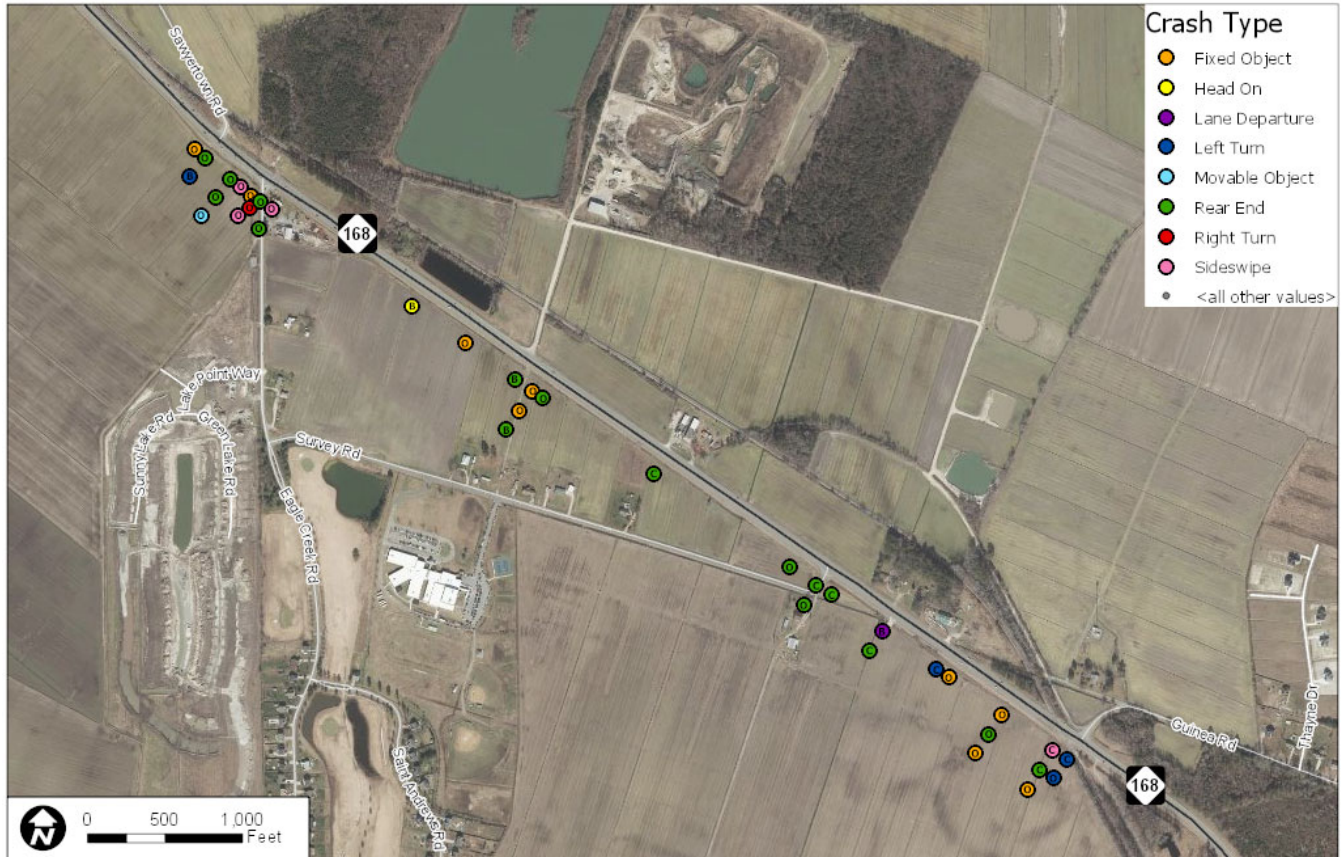
**Table 1 Weekday Peak Hour Turning Movement Count Schedule**

Intersection	Time Period	Data Collection Date
Caratoke Highway (NC 168) and Guinea Road (unsignalized)	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Tuesday December 10, 2019
Caratoke Highway (NC 168) and Survey Road (unsignalized)	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Tuesday December 10, 2019
Caratoke Highway (NC 168) and Survey Road (signalized)	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Tuesday December 10, 2019
Survey Road and Eagle Creek Road (unsignalized)	7:00 AM – 9:00 AM 4:00 PM – 6:00 PM	Tuesday December 10, 2019

## Crash Analysis

Crash data was obtained from the NCDOT's Traffic Engineering Accident Analysis System (TEAAS) along Caratoke Highway (NC 168). A five-year period (11/1/2014 – 10/31/2019) was analyzed from 500 feet south of Guinea Road to 500 feet north of the signalized intersection with Survey Road. During this period, there were 37 crashes reported with the predominant crash types being rear ends (43.2%) and fixed object (run off the road) crashes (24.3%).

No fatal or suspected serious injury crashes (Type A) occurred within the study area during the five-year period. The NCDOT crash summary memorandum and 5-year strip analysis can be found in Appendix B. A visual representation of the crashes by location is depicted in Exhibit A.



**Exhibit A: Crashes by Location along Caratoke Highway (NC 168)**

## Level of Service Criteria

Peak hour level of service (LOS) measures the adequacy of the intersection geometrics and traffic controls of a particular intersection or approach for the given turning volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of total delay attributed to traffic control devices (e.g., signals or stop signs). The engineering professional generally accepts LOS D as an acceptable operating condition for signalized intersections in urban areas and LOS C for rural areas.

At unsignalized intersections, LOS E is generally considered acceptable only if the side street encounters the delay. Nevertheless, side streets sometimes function at LOS F during peak traffic periods; however, the traffic volume often does not warrant a traffic signal to assist side street traffic. Table 2 provides a general description of various levels of service categories and delay ranges.

**Table 2 Level of Service Description for Intersections**

Level of Service	Description	Signalized Intersection	Unsignalized Intersection
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80 sec.	> 50 sec.

## Level of Service Analysis

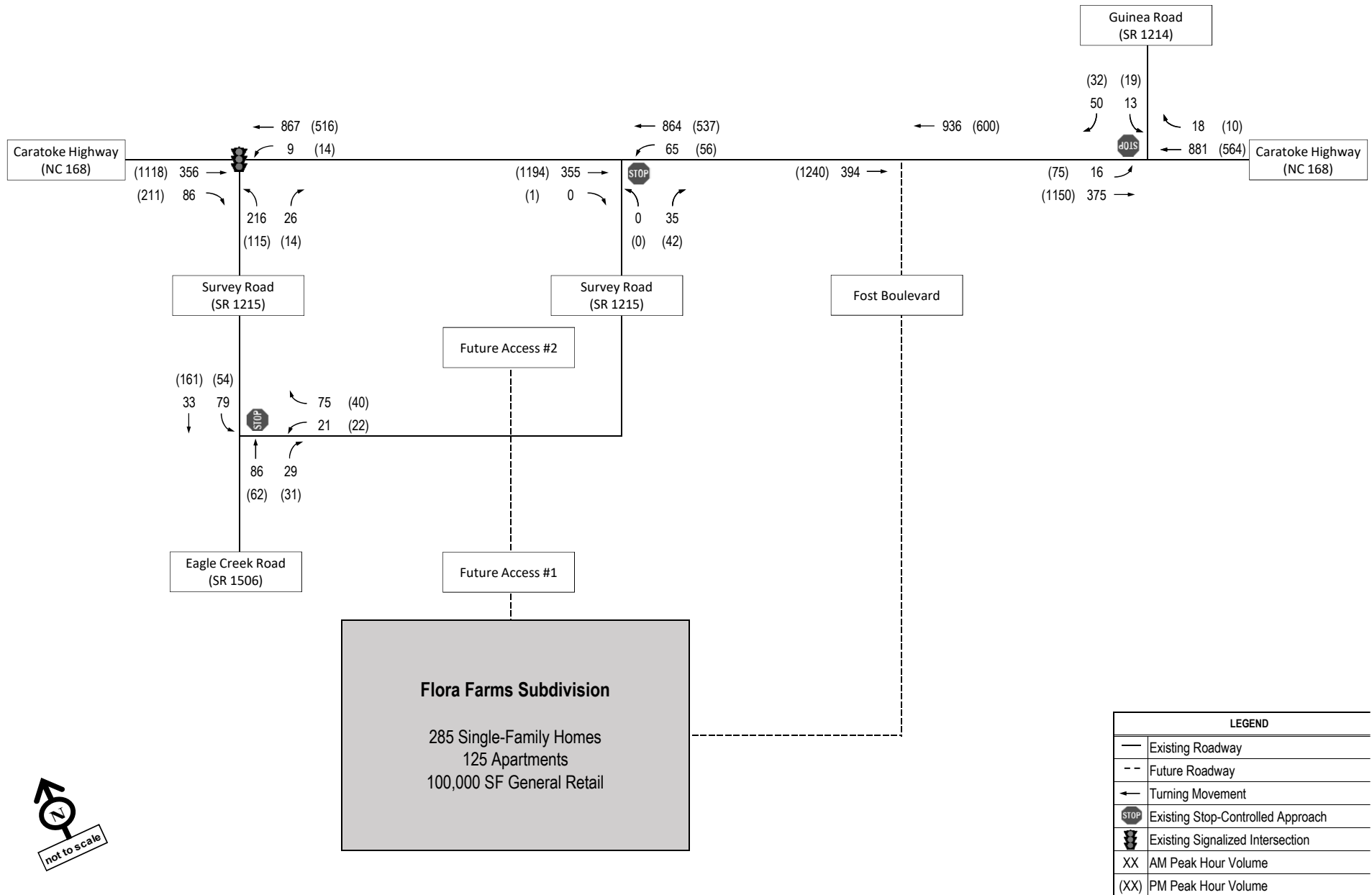
Intersection levels of service analyses were performed for the typical weekday AM and PM peak hour using *Synchro/SimTraffic Professional Version 10*. A summary of the findings for the Existing (2019) scenario LOS analysis can be found in Table 3 and the full *Synchro* output can be found in Appendix C.

As reported in Table 3, all stop-controlled and signalized approaches operate at an acceptable level of service (i.e., LOS D or better) during both peak hours.

**Table 3 Existing (2019) LOS Results**

Intersection and Approach	Traffic Control	Existing (2019)	
		AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B (12.3)</b>	<b>A (7.8)</b>
Eastbound		D-44.8	D-46.3
Northbound		A-6.7	A-3.5
Southbound		A-5.9	A-5.8
<b>Caratoke Highway (NC 168) and Survey Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Eastbound		A-9.7	C-15.1
<b>Caratoke Highway (NC 168) and Guinea Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Westbound		C-15.0	C-15.5
<b>Survey Road and Eagle Creek Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Westbound		A-9.6	A-9.8

**X (XX.X)** = Overall intersection LOS (average delay), **X-XX** = Approach LOS and average delay



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



**Figure 4**  
 Existing (2019) AM and PM Peak Hour Turning Movement Volumes

**Flora Farms Subdivision**  
 TIA  
 Moyock, NC



# 3

## No-Build (2026) Conditions

### Background Growth and Development

The historical average annual daily traffic (AADT) along Caratoke Highway (NC 168) shows little to no growth over the previous ten years; however, to account for potential development growth in the area, an annual growth rate of three percent (3%) was applied to the existing traffic to account for traffic increases between the base year (2019) and the build-out year (2026). In addition, one background development, Fost Tract Development, was included specifically in the No-Build traffic volumes.

*Fost Tract Development* – The proposed development is located adjacent to the proposed Flora Farms Subdivision, south of Caratoke Highway (NC 168). The development is expected to consist of 353 single-family homes, 126 townhomes, and up to 22,000 SF of general retail space. The site trips that are expected to be generated by the development were distributed based on existing traffic patterns in the area, and the calculated site trips are depicted in Appendix D.

The resulting No-Build (2026) AM and PM peak hour volumes are shown in Figure 5, and the proposed lane geometrics and traffic control are depicted in Figure 6. A table showing the historical background growth along Caratoke Highway (NC 168) is provided along with the existing turning movement counts in Appendix A.

## Level of Service Analysis

Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 10*. A summary of the findings for the No-Build (2026) scenario LOS analysis can be found in Table 4 and the full *Synchro* output can be found in Appendix C.







As reported in Table 4, all stop-controlled and signalized approaches continue to operate acceptably during both peak hours. The proposed signalized intersection of Caratoke Highway (NC 168) and Fost Boulevard operates at LOS B during both peak hours.

**Table 4 No-Build (2026) LOS Results**

Intersection and Approach	Traffic Control	No-Build (2026)	
		AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B (13.5)</b>	<b>B (12.2)</b>
Eastbound		D-43.7	D-50.0
Northbound		A-7.2	A-3.6
Southbound		B-11.2	B-12.2
<b>Caratoke Highway (NC 168) and Survey Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Eastbound		B-10.5	C-21.2
<b>Caratoke Highway (NC 168) and Guinea Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Westbound		C-20.6	C-21.2
<b>Survey Road and Eagle Creek Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Westbound		B-10.2	B-10.4
<b>Caratoke Highway (NC 168) and Fost Boulevard</b>	Signalized	<b>B (11.1)</b>	<b>B (11.3)</b>
Eastbound		C-30.5	D-38.2
Northbound		A-9.5	B-11.1
Southbound		A-4.6	A-8.0

**X (XX.X)** = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

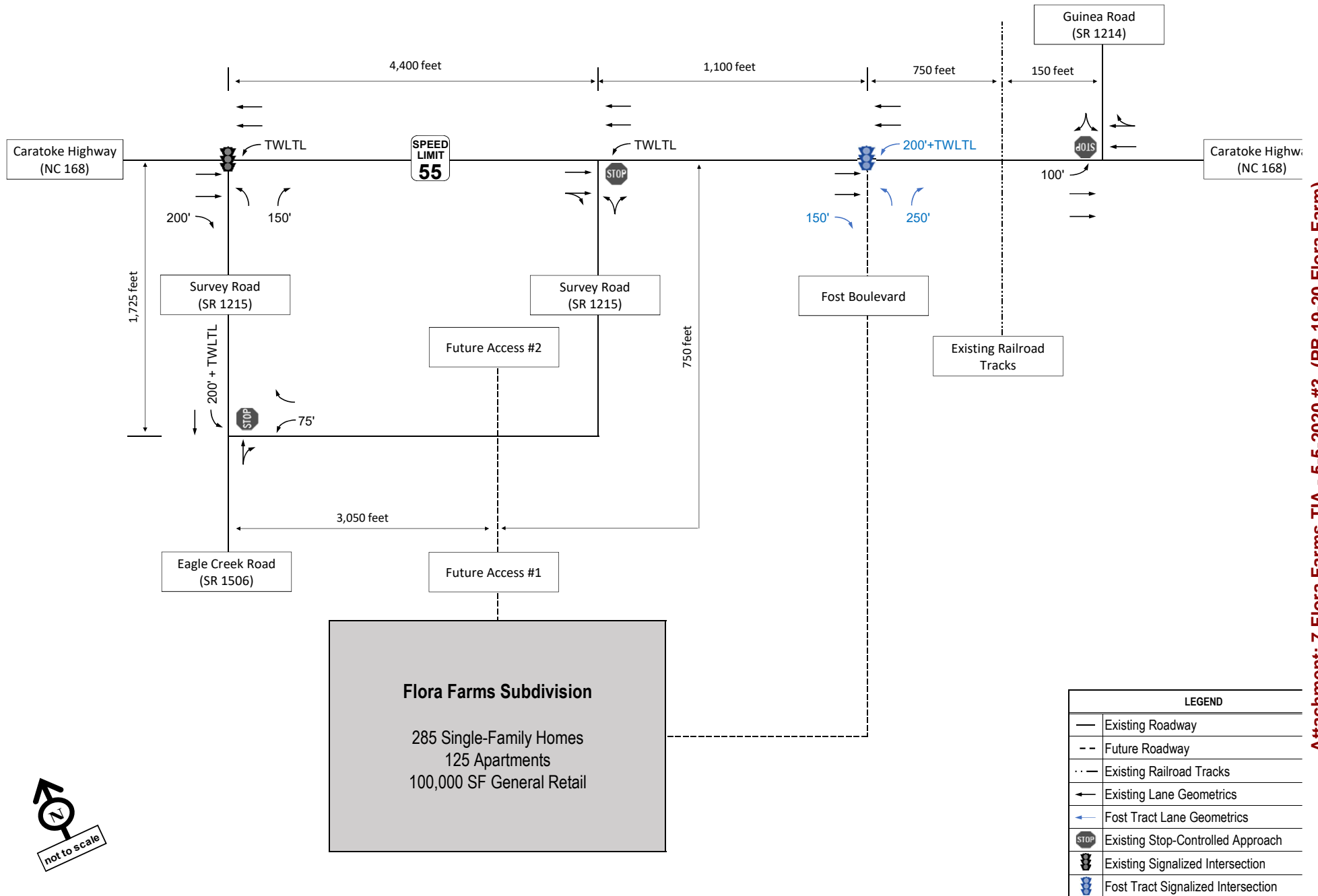


LEGEND	
	Existing Roadway
	Future Roadway
	Turning Movement
	Existing Stop-Controlled Approach
	Existing Signalized Intersection
	Fast Tract Signalized Intersection
XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume

**Figure 5**  
**No-Build (2026) AM and PM Peak Hour Turning Movement Volumes**

**Flora Farms Subdivision  
TIA  
Moyock, NC**





Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



**Figure 6**  
**No-Build (2026) Lane Geometrics and Traffic Control**



# 4

## Build (2026) Conditions

Bissell Professional Group plans to construct a new mixed-use development south of Caratoke Highway (NC 168) and Survey Road (SR 1215) in Moyock, North Carolina (Figure 1). The site is bordered by undeveloped land and existing single-family residential developments. When fully completed, the site will consist of 285 single-family homes, 125 apartments, and 100,000 square feet (SF) of general retail space, with an expected full build-out year of 2026.

### Trip Generation

Trip generation was conducted based on the most appropriate corresponding trip generation codes included in the *ITE Trip Generation Manual, 10<sup>th</sup> Edition* and the suggested method of calculation in the NCDOT's *"Rate vs. Equation" Spreadsheet*. Trips captured internally were calculated based on the *NCHRP 684* method and the *NCDOT Internal Capture Spreadsheet*. ITE LUC 210 (Single-Family Detached Housing), LUC 220 (Multifamily Housing (Low Rise)), and LUC 820 (General Retail) were used based on the NCDOT guidance. The full build-out of the site is anticipated to be completed by 2026 and to consist of the following:

- › 285 single-family homes
- › 125 apartment units
- › 100,000 SF of general retail space

As a result, the proposed development is projected to generate 8,380 daily external site trips, with 463 trips (189 entering, 274 exiting) occurring in the AM peak hour and 717 trips (393

entering, 324 exiting) occurring in the PM peak hour. The generated site trips were distributed in accordance with the existing turning movement counts and land uses.

Table 5 summarizes the assumed trip generation for the proposed development for typical weekday AM and PM peak hours.

**Table 5 Trip Generation Rates (Vehicle Trips)**

Land Use Code <sup>1</sup>	Land Use	Unit	ADT	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Total Site Trips <sup>2</sup>									
210	Single-Family Detached Housing	285 du	2,725	52	155	207	175	103	278
220	Multifamily Housing (Low-Rise)	125 du	904	14	45	59	45	27	72
820	General Retail	100,000 sf	6,012	125	77	202	261	282	543
Development Total			9,641	191	277	468	481	412	893
Trip Reduction Due to Internal Capture <sup>3</sup>									
210	Single-Family Detached Housing	285 du	406	1	2	2	54	16	70
220	Multifamily Housing (Low-Rise)	125 du	129	0	0	1	14	4	18
820	General Retail	100,000 sf	726	1	1	2	20	68	88
Development Total			1,262	2	3	5	88	88	176
Total External Site Trips									
210	Single-Family Detached Housing	285 du	2,319	51	153	204	121	87	208
220	Multifamily Housing (Low-Rise)	125 du	775	14	45	59	31	23	54
820	General Retail	100,000 sf	5,286	124	76	200	241	214	455
Development Total			8,380	189	274	463	393	324	717
Pass-by Site Trips <sup>4</sup>									
210	Single-Family Detached Housing	285 du		0	0	0	0	0	0
220	Multifamily Housing (Low-Rise)	125 du		0	0	0	0	0	0
820	General Retail	100,000 sf		0	0	0	77	78	155
Development Total				0	0	0	77	78	155
No-Pass-by Site Trips									
210	Single-Family Detached Housing	285 du		51	153	204	121	87	208
220	Multifamily Housing (Low-Rise)	125 du		14	45	59	31	23	54
820	General Retail	100,000 sf		124	76	200	164	136	300
Development Total				189	274	463	316	246	562

Notes:

1. Land Use Code and trip generation rates are determined based on *ITE Trip Generation, 10th Edition*
2. Total site trips are determined based on the suggested method in the NCDOT Rate Vs Equation Spreadsheet
3. Internal capture was based on NCHRP 684 method and NCDOT IC calculation spreadsheet
4. Unconstrained pass-by trips are calculated based on *ITE Trip Generation Handbook, 3rd Edition*. The final projections are not expected to exceed 10% of adjacent street volumes.

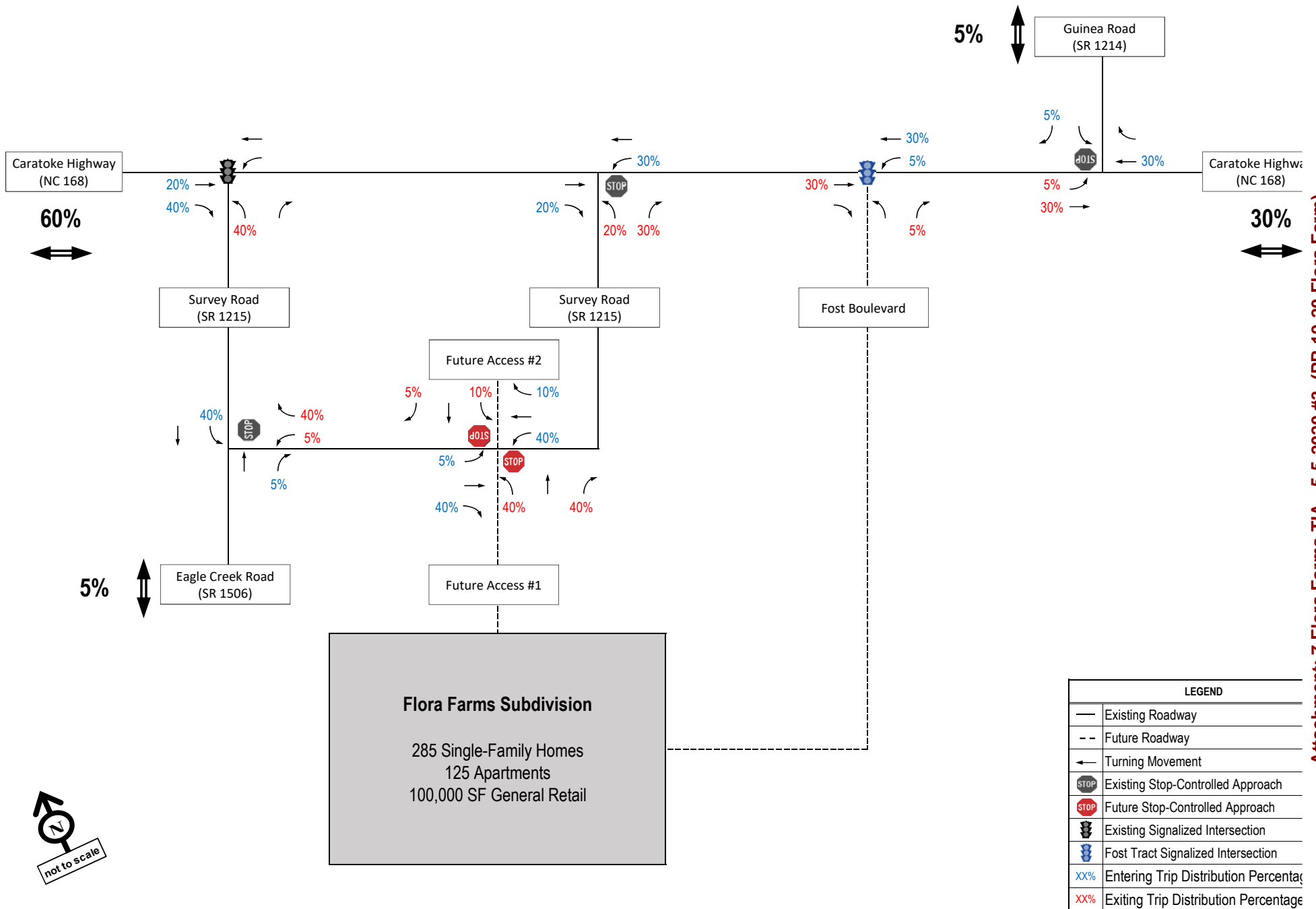
## Trip Distribution and Assignment

The proposed development will construct two access driveways as a four-leg intersection along Survey Road. A total of four (4) cross-connections are also planned between the proposed Flora Farms Subdivision and the future Fost Tract Development. The generated site trips were distributed in accordance with the existing traffic patterns and land uses in the vicinity of the study area as follows:

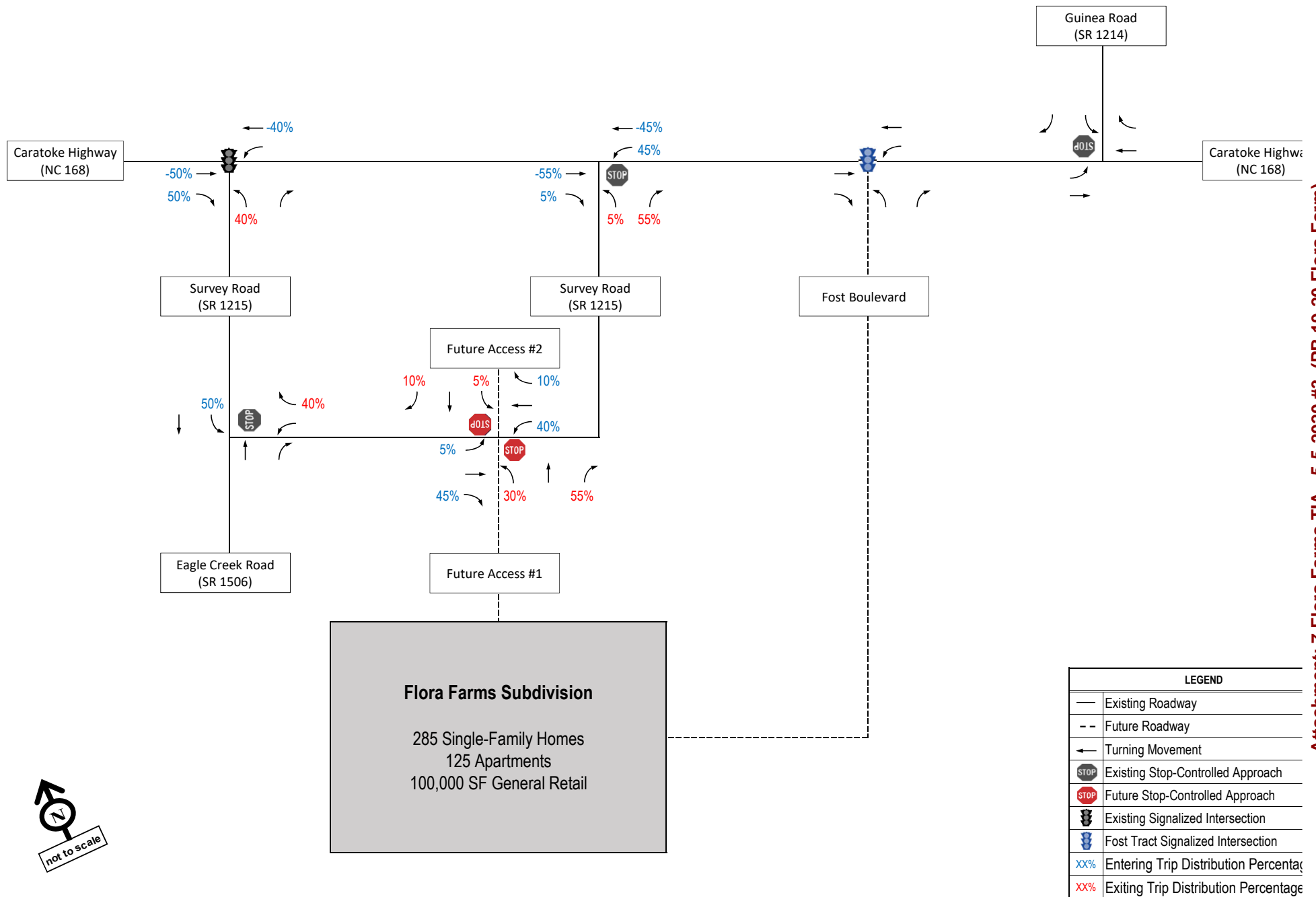
- › Caratoke Highway (NC 168) to/from the south – 30%

- › Caratoke Highway (NC 168) to/from the north – 60%
- › Guinea Road to/from the east – 5%
- › Eagle Creek Road to/from the southwest – 5%

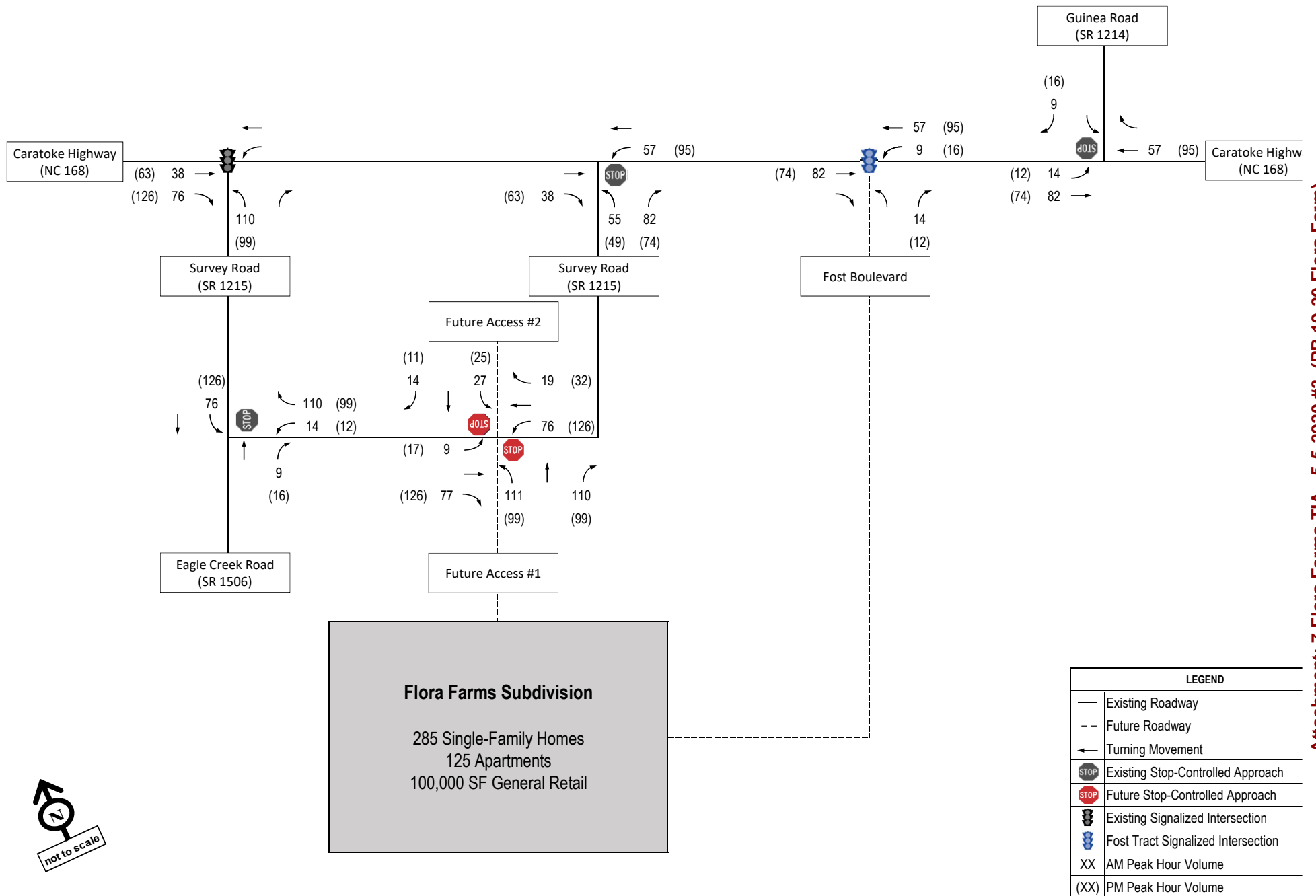
Pass-by trips were distributed based on existing traffic flow in the area. The proposed non-pass-by and pass-by trip assignment percentages are depicted in Figure 7 and Figure 8, and the resulting non-pass-by and pass-by trips are depicted in Figure 9 and Figure 10, respectively. The combined full build-out site generated trips are shown in Figure 11.



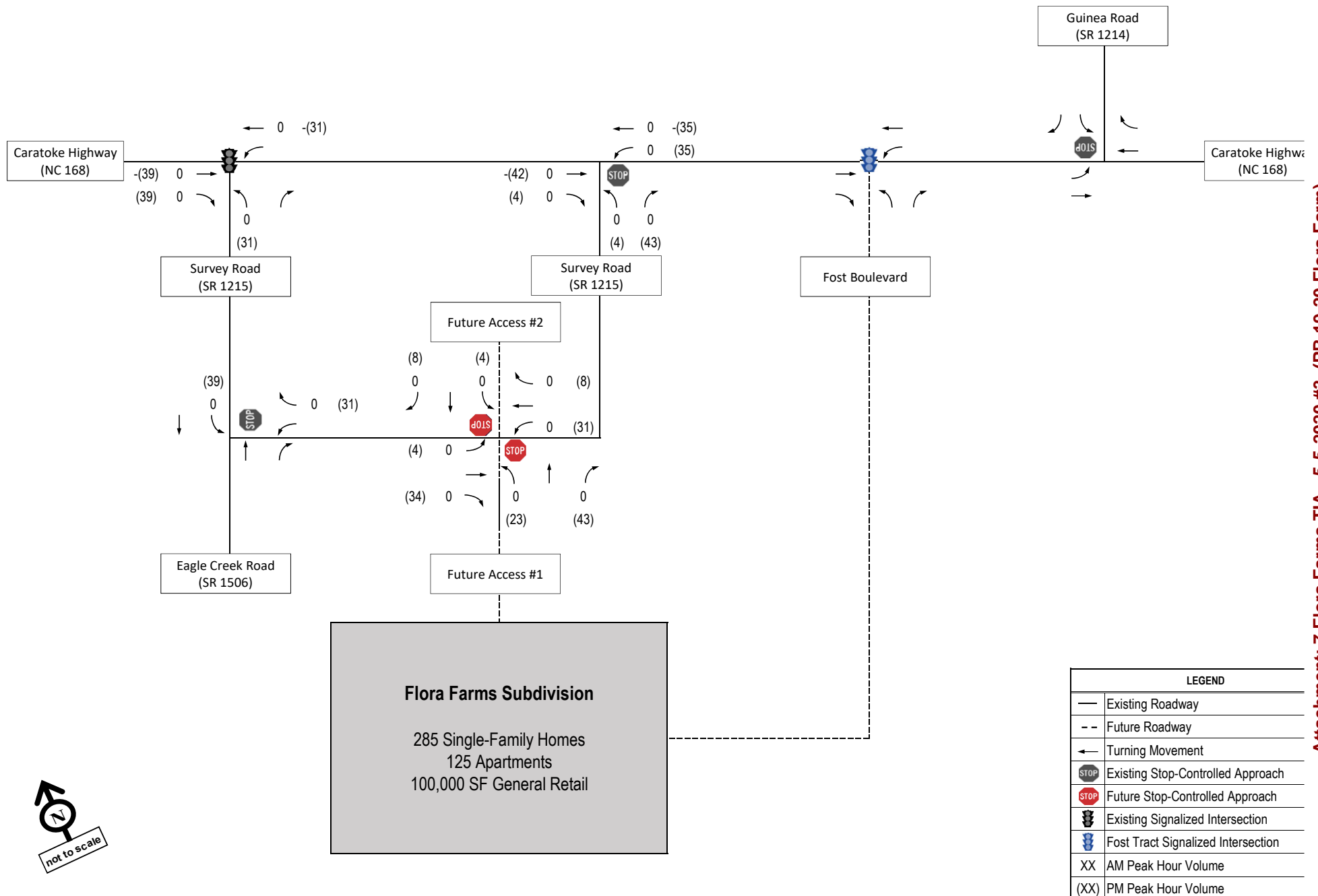
**Figure 7**  
**Non-Pass-By Peak Hour Trip Distribution Percentages**

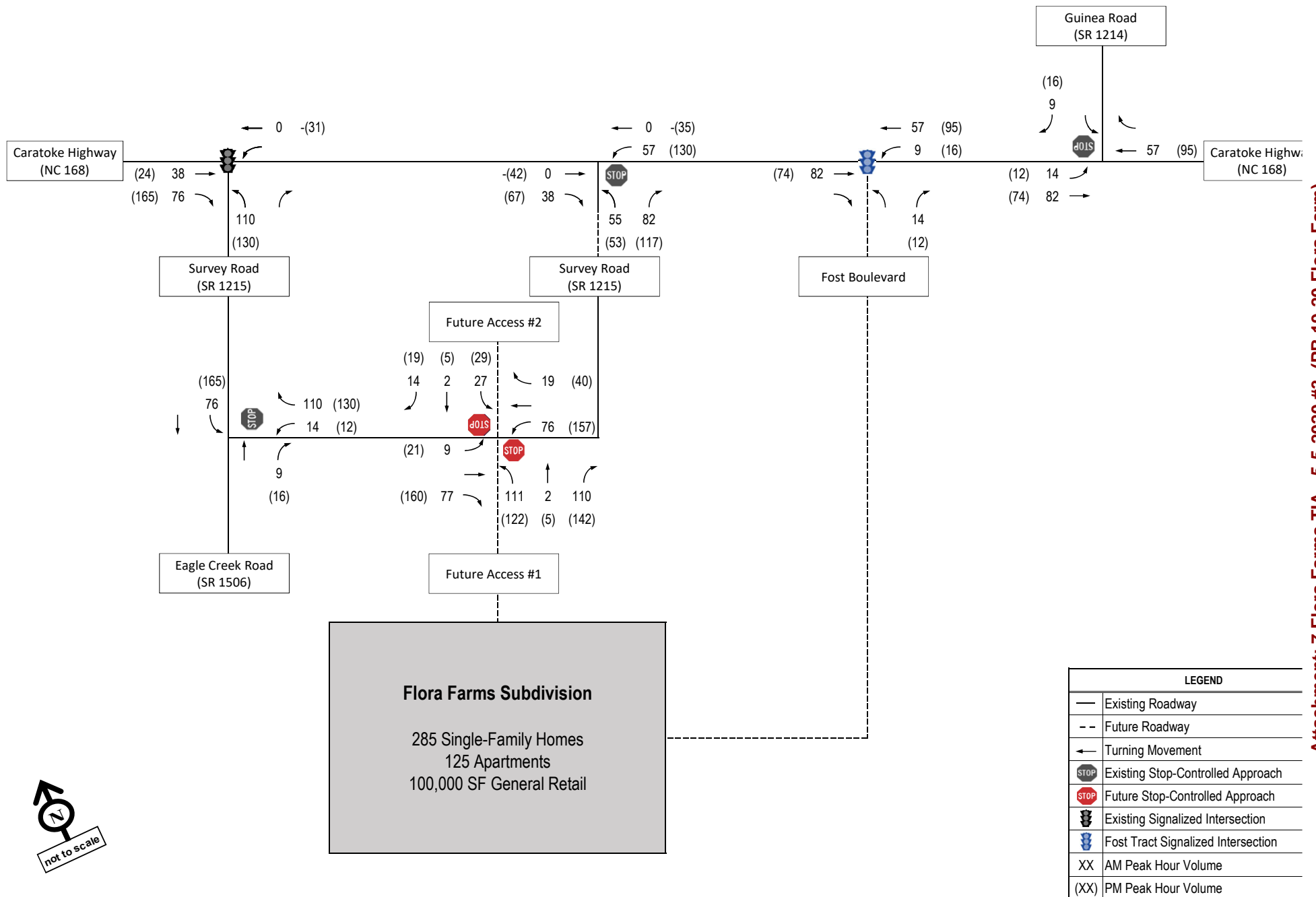


**Figure 8**  
**Pass-By Peak Hour Trip Distribution Percentages**









**Figure 11**  
**Total AM and PM Peak Hour Site Trips**

**Flora Farms Subdivision**

**TIA**

Mo Packet Pg. 101

## Level of Service Analysis

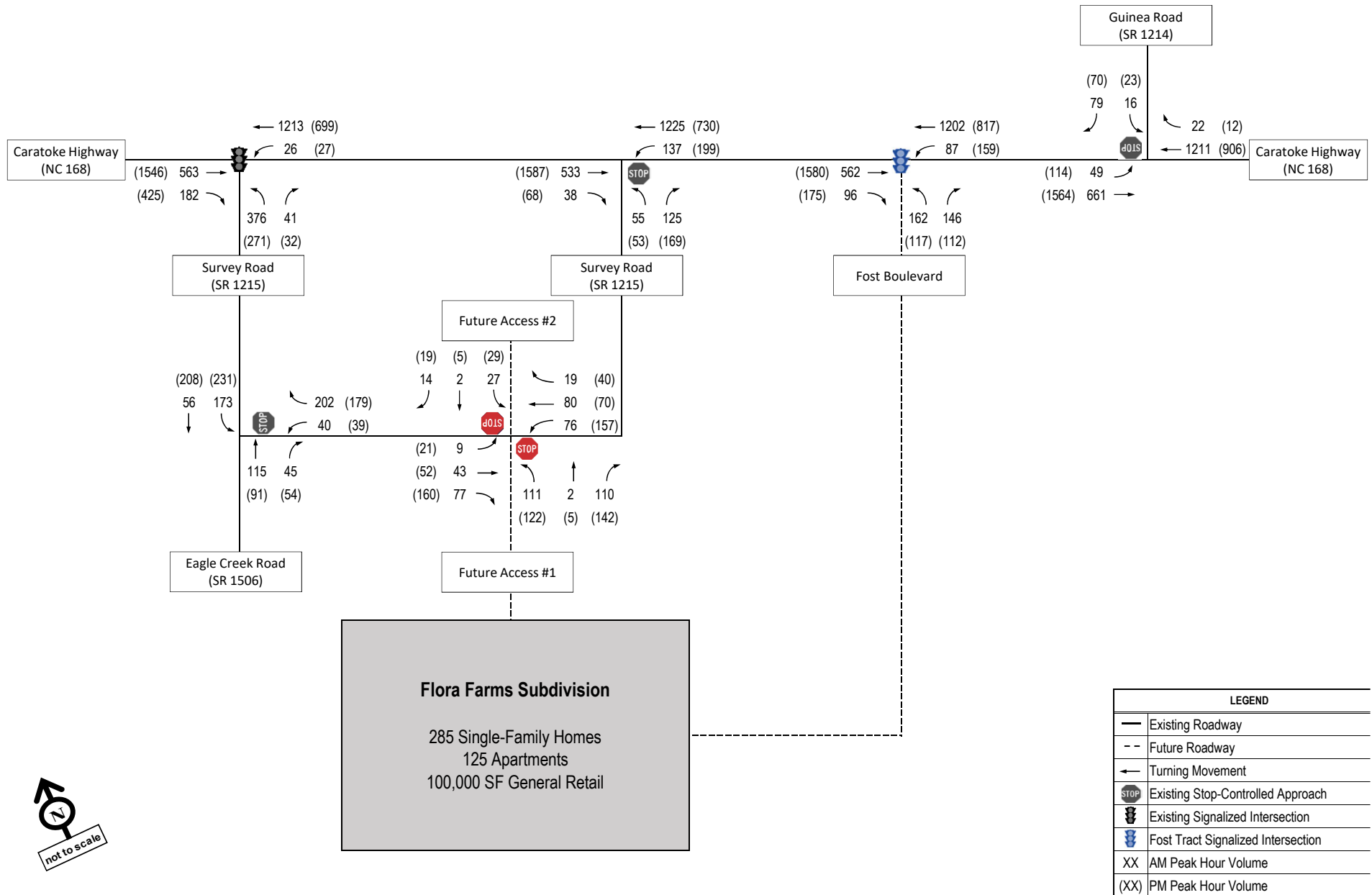
The Build (2026) analysis scenario includes the No-Build (2026) traffic and site-generated trips from the proposed development. Figure 12 depicts the turning movement volumes used in the Build (2026) scenario analysis. Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 10*. Table 6 summarizes the findings of the LOS analysis, and Appendix C contains the full *Synchro* reports of the analyses.

As reported in Table 6, with the addition of site trips, all stop-controlled approaches, except for one, operate at acceptable levels of service during both peak hours. The eastbound Survey Road stop-controlled approach at Caratoke Highway (NC 168) is projected to operate at LOS F during the PM peak hour. All signalized intersections operate acceptably under Build (2026) conditions.

**Table 6 Build (2026) LOS Results**

Intersection and Approach	Traffic Control	Build (2026)	
		AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B (16.0)</b>	<b>B (18.1)</b>
Eastbound		D-41.5	E-61.2
Northbound		A-9.8	A-5.1
Southbound		B-12.0	B-16.2
<b>Caratoke Highway (NC 168) and Survey Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Eastbound		C-23.3	F-844.9
<b>Caratoke Highway (NC 168) and Guinea Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Westbound		C-22.6	C-23.7
<b>Survey Road and Eagle Creek Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Westbound		B-11.2	B-12.1
<b>Caratoke Highway (NC 168) and Fost Boulevard</b>	Signalized	<b>B (11.9)</b>	<b>B (11.3)</b>
Eastbound		C-30.1	D-41.1
Northbound		A-9.9	B-11.6
Southbound		A-7.2	A-7.2
<b>Survey Road and Future Access #1/Future Access #2</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>
Northbound		B-13.3	C-23.5
Southbound		B-12.4	C-17.7

**X (XX.X)** = Overall intersection LOS (average delay), **X-XX** = Approach LOS and average delay



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)





# 5

## Findings and Conclusions

Based on the traffic operations analyses, the proposed development is projected to impact the traffic operations of the surrounding roadway network and intersections after the full build-out of the development. The following improvements are recommended by the time the development is fully constructed in 2026:

### Caratoke Highway (NC 168) and Survey Road (SR 1215) (unsignalized)

The Survey Road (SR 1215) eastbound stop-controlled approach is expected to operate at LOS F during the PM peak hour under Build (2026) conditions. After the build-out of the development, vehicles will be able to access full movement traffic signals at Survey Road to north of the development, and Fost Boulevard to the south. Therefore, the following improvements are recommended for the intersection:

- › Provide a southbound right-turn lane with at least 100 feet of full storage and appropriate taper.
- › Restrict access at the intersection to not allow left turns off of Survey Road. This restriction of access should be completed when approximately 30% of the total estimated trips for the site are observed, likely in conjunction with the southbound right-turn lane installation.
- › Stripe out at least 200 feet of storage within the existing two-way left-turn lane along Caratoke Highway (NC 168) for the northbound left-turn.
- › Monitor the intersection for protentional signalization in the future.

Survey Road (SR 1215) and Future Access #1/Future Access #2

The proposed stop-controlled driveways are projected to operate at acceptable levels of service during peak hours under Build (2026) conditions. The following driveway configuration for both access driveways should be considered to enhance traffic operations and safety:

- › Connect both driveways to Survey Road with stop-controlled approaches as a full movement four-leg intersection.
- › Construct Future Access #1 with one ingress lane and two egress lanes. Provide a northbound left-turn lane with a minimum of 100 feet of full storage and appropriate taper and a through/right-turn lane. Lydia Street intersects with Future Access #1 approximately 300 feet from Survey Road, which provides the proper internal protected stem to accommodate projected queues. Typically, NCDOT requires a 100-foot minimum internal protected stem for this type of facility.
- › Construct Future Access #2 with one ingress lane and one egress lane.
- › Provide an eastbound left-turn lane and right-turn lane along Survey Road, both with a minimum of 100 feet of full storage and appropriate taper.
- › Provide a westbound left-turn lane along Survey Road with at least 100 feet of full storage and appropriate taper.

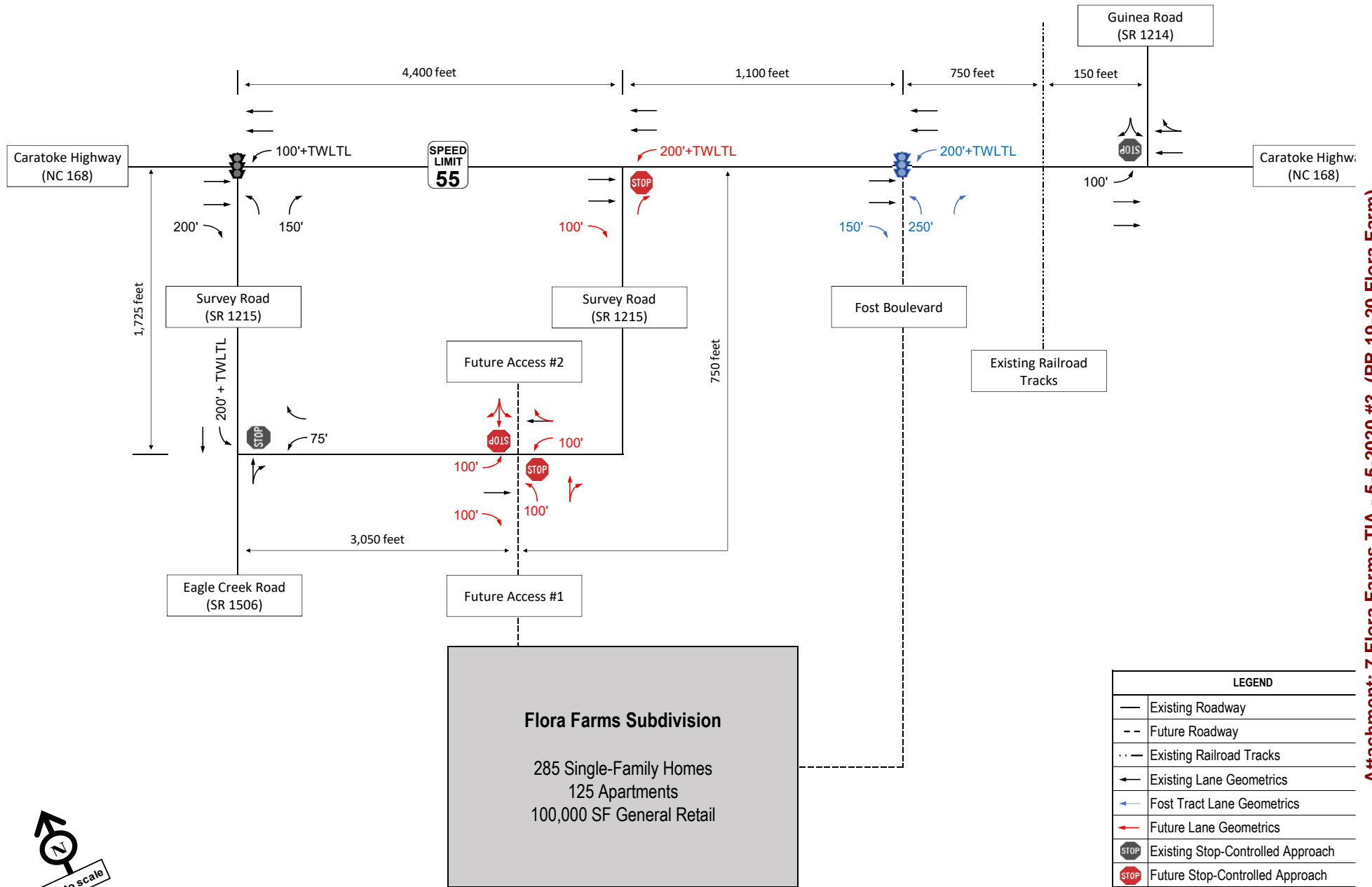
The summary of level of service results is displayed in Table 7, and the proposed Future (2026) lane geometrics and traffic control is displayed in Figure 13. Since the proposed improvements after the full build-out of the site will affect existing traffic patterns in the area, the proposed Build (2026) turning movement volumes after the improvements are in place are depicted in Figure 14.

**Table 7 Summary of LOS Results**

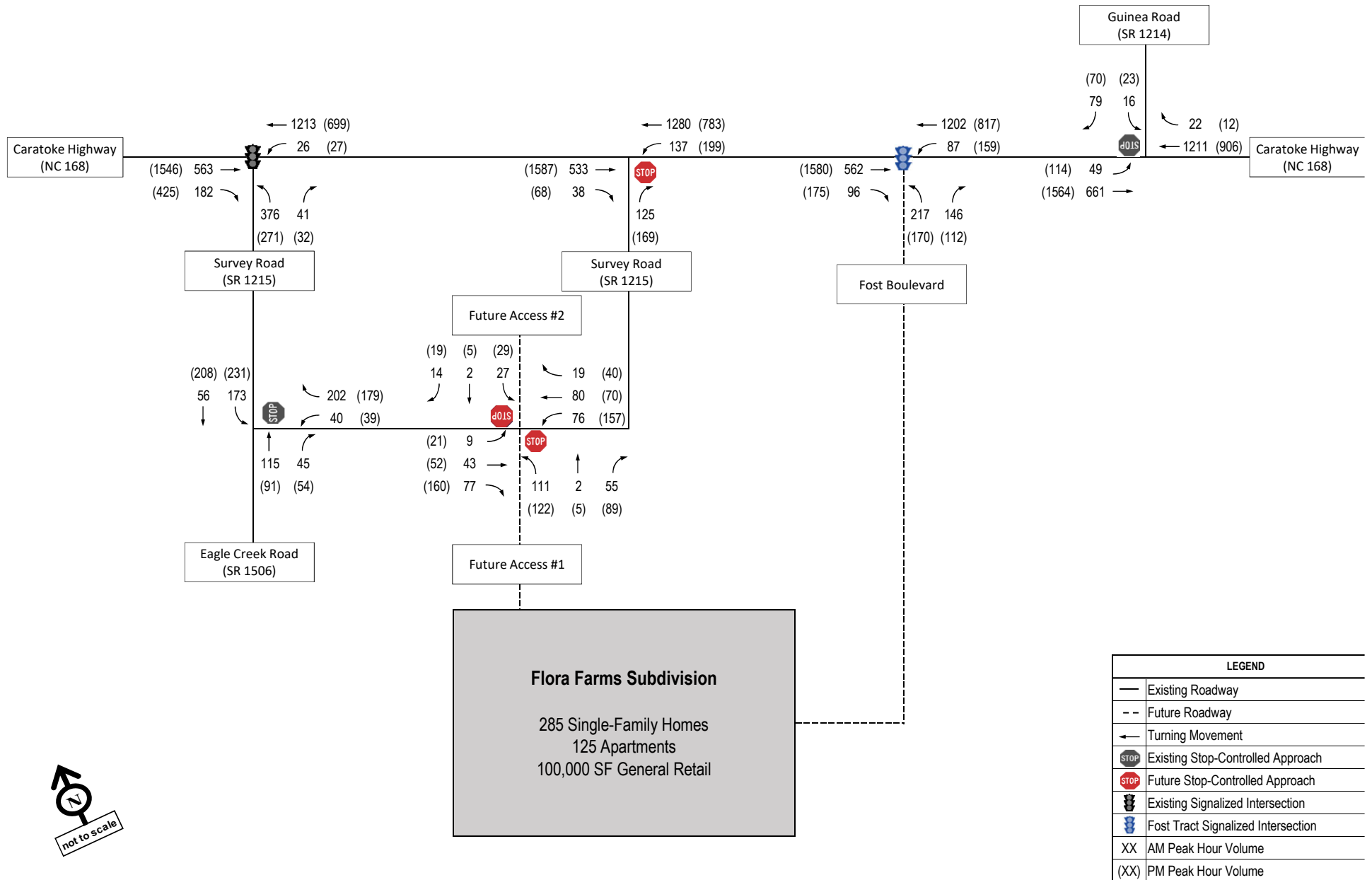
Intersection and Approach	Traffic Control	Existing (2019)		No-Build (2026)		Build (2026)		Build (2026) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B (12.3)</b>	<b>A (7.8)</b>	<b>B (13.5)</b>	<b>B (12.2)</b>	<b>B (16.0)</b>	<b>B (18.1)</b>	<b>B (15.7)</b>	<b>B (18.0)</b>
Eastbound		D-44.8	D-46.3	D-43.7	D-50.0	D-41.5	E-61.2	D-41.5	E-61.2
Northbound		A-6.7	A-3.5	A-7.2	A-3.6	A-9.8	A-5.1	A-9.2	A-4.8
Southbound		A-5.9	A-5.8	B-11.2	B-12.2	B-12.0	B-16.2	B-12.0	B-16.2
<b>Caratoke Highway (NC 168) and Survey Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Eastbound		A-9.7	C-15.1	B-10.5	C-21.2	C-23.3	F-844.9	B-11.4	E-37.9
<b>Caratoke Highway (NC 168) and Guinea Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound		C-15.0	C-15.5	C-20.6	C-21.2	C-22.6	C-23.7	C-22.6	C-23.7
<b>Survey Road and Eagle Creek Road</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Westbound		A-9.6	A-9.8	B-10.2	B-10.4	B-11.2	B-12.1	B-11.2	B-12.1
<b>Caratoke Highway (NC 168) and Fost Boulevard</b>	Signalized	<b>N/A</b>	<b>N/A</b>	<b>B (11.1)</b>	<b>B (11.3)</b>	<b>B (11.9)</b>	<b>B (11.3)</b>	<b>B (13.9)</b>	<b>B (14.1)</b>
Eastbound		N/A	N/A	C-30.5	D-38.2	C-30.1	D-41.1	C-30.2	D-43.7
Northbound		N/A	N/A	A-9.5	B-11.1	A-9.9	B-11.6	B-11.6	B-13.3
Southbound		N/A	N/A	A-4.6	A-8.0	A-7.2	A-7.2	A-9.4	A-9.9
<b>Survey Road and Future Access #1/Future Access #2</b>	Unsignalized	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Northbound		N/A	N/A	N/A	N/A	B-13.3	C-23.5	B-11.7	C-15.4
Southbound		N/A	N/A	N/A	N/A	B-12.4	C-17.7	B-11.7	C-16.2

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay





**Figure 13**  
**Future (2026) Lane Geometrics and Traffic Control**



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



**Figure 14**  
 Build (2026) AM and PM Peak Hour Turning Movement Volumes - After Improvements

**Flora Farms Subdivision**  
 TIA  
 Moyock, NC

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## Appendices

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## Appendix A:

# Turning Movement Counts

# VHB Engineering NC, P.C.

6.A.h

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@  
Site Code :  
Start Date : 12/10/201  
Page No : 1

## Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

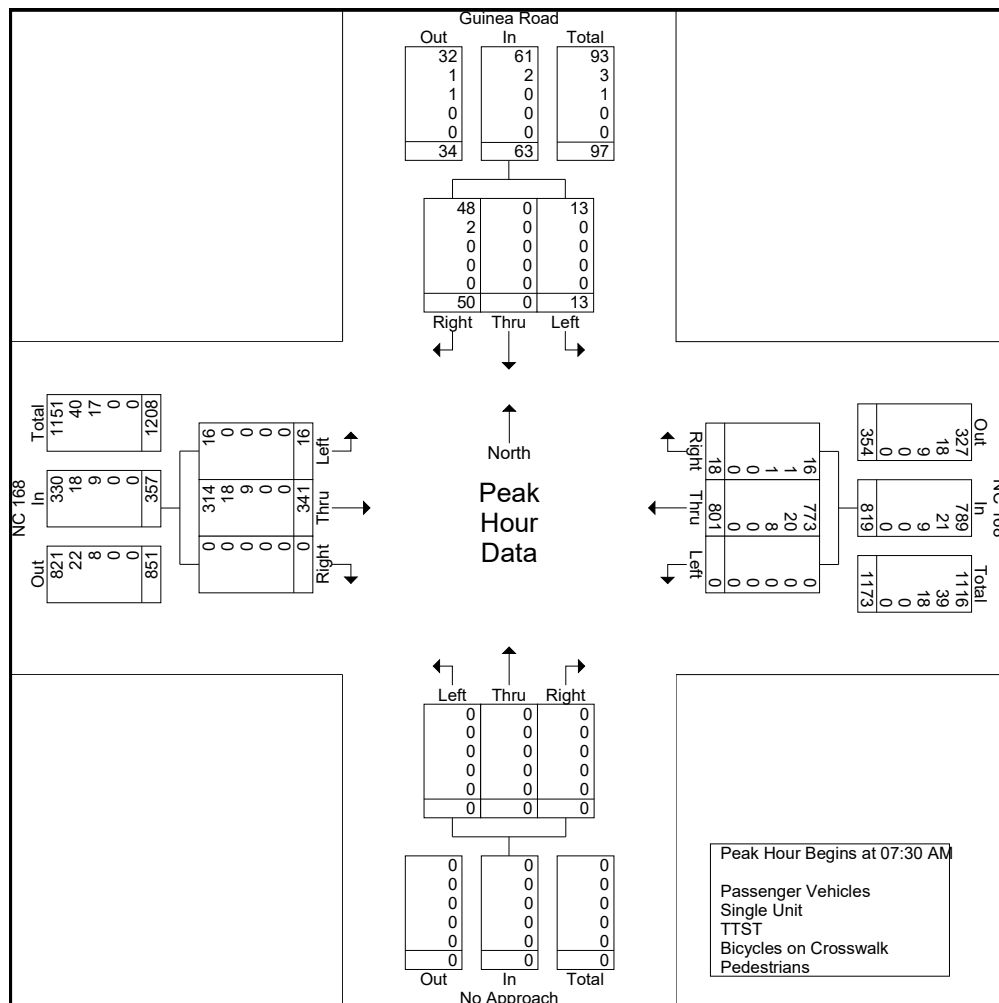
	Guinea Road Southbound				NC 168 Westbound				No Approach Northbound				NC 168 Eastbound				Exclu. Total	Inclu. Total	Int.
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	3	0	8	0	0	203	3	0	0	0	0	0	4	76	0	0	0	297	
07:15 AM	3	0	9	0	0	186	1	0	0	0	0	6	2	85	0	0	6	286	
07:30 AM	5	0	8	0	0	166	2	0	0	0	0	5	2	123	0	0	5	306	
07:45 AM	3	0	13	0	0	223	6	0	0	0	0	1	5	86	0	0	1	336	
Total	14	0	38	0	0	778	12	0	0	0	0	12	13	370	0	0	12	1225	
08:00 AM	2	0	13	0	0	212	4	0	0	0	0	0	1	70	0	0	0	302	
08:15 AM	3	0	16	0	0	200	6	0	0	0	0	0	8	62	0	0	0	295	
08:30 AM	5	0	15	0	0	152	2	0	0	0	0	0	4	100	0	0	0	278	
08:45 AM	3	0	9	0	0	164	5	0	0	0	0	0	2	77	0	0	0	260	
Total	13	0	53	0	0	728	17	0	0	0	0	0	15	309	0	0	0	1135	
*** BREAK ***																			
04:00 PM	4	0	4	0	0	142	2	0	0	0	0	0	13	215	0	0	0	380	
04:15 PM	6	0	7	0	0	141	0	0	0	0	0	0	10	231	0	0	0	395	
04:30 PM	3	0	4	0	0	122	4	0	0	0	0	0	13	290	0	0	0	436	
04:45 PM	1	0	15	0	0	122	2	0	0	0	0	0	18	253	0	0	0	411	
Total	14	0	30	0	0	527	8	0	0	0	0	0	54	989	0	0	0	1622	
05:00 PM	10	0	6	0	0	129	1	0	0	0	0	0	35	242	0	0	0	423	
05:15 PM	5	0	7	0	0	140	3	0	0	0	0	0	9	260	0	0	0	424	
05:30 PM	1	0	13	0	0	100	4	0	0	0	0	0	25	226	0	0	0	369	
05:45 PM	0	0	8	0	0	102	0	0	0	0	0	0	15	190	0	0	0	315	
Total	16	0	34	0	0	471	8	0	0	0	0	0	84	918	0	0	0	1531	
Grand Total	57	0	155	0	0	2504	45	0	0	0	0	12	166	2586	0	0	12	5513	
Apprch %	26.9	0	73.1		0	98.2	1.8		0	0	0		6	94	0				
Total %	1	0	2.8		0	45.4	0.8		0	0	0		3	46.9	0		0.2	99.8	
Passenger Vehicles	52	0	151		0	2411	40		0	0	0		165	2486	0		0	0	
% Passenger Vehicles	91.2	0	97.4	0	0	96.3	88.9	0	0	0	0	0	99.4	96.1	0	0	0	0	
Single Unit	5	0	4		0	68	3		0	0	0		1	76	0		0	0	
% Single Unit	8.8	0	2.6	0	0	2.7	6.7	0	0	0	0	0	0.6	2.9	0	0	0	0	
TTST	0	0	0		0	25	2		0	0	0		0	24	0		0	0	
% TTST	0	0	0	0	0	1	4.4	0	0	0	0	0	0	0.9	0	0	0	0	
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@  
Site Code :  
Start Date : 12/10/201  
Page No : 2

	Guinea Road Southbound				NC 168 Westbound				No Approach Northbound				NC 168 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int.
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	5	0	8	13	0	166	2	168	0	0	0	0	2	123	0	125	
07:45 AM	3	0	13	16	0	223	6	229	0	0	0	0	5	86	0	91	
08:00 AM	2	0	13	15	0	212	4	216	0	0	0	0	1	70	0	71	
08:15 AM	3	0	16	19	0	200	6	206	0	0	0	0	8	62	0	70	
Total Volume	13	0	50	63	0	801	18	819	0	0	0	0	16	341	0	357	
% App. Total	20.6	0	79.4		0	97.8	2.2		0	0	0		4.5	95.5	0		
PHF	.650	.000	.781	.829	.000	.898	.750	.894	.000	.000	.000	.000	.500	.693	.000	.714	
Passenger Vehicles	13	0	48	61	0	773	16	789	0	0	0	0	16	314	0	330	
% Passenger Vehicles	100	0	96.0	96.8	0	96.5	88.9	96.3	0	0	0	0	100	92.1	0	92.4	
Single Unit	0	0	2	2	0	20	1	21	0	0	0	0	0	18	0	18	
% Single Unit	0	0	4.0	3.2	0	2.5	5.6	2.6	0	0	0	0	0	5.3	0	5.0	
TTST	0	0	0	0	0	8	1	9	0	0	0	0	0	9	0	9	
% TTST	0	0	0	0	0	1.0	5.6	1.1	0	0	0	0	0	2.6	0	2.5	
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

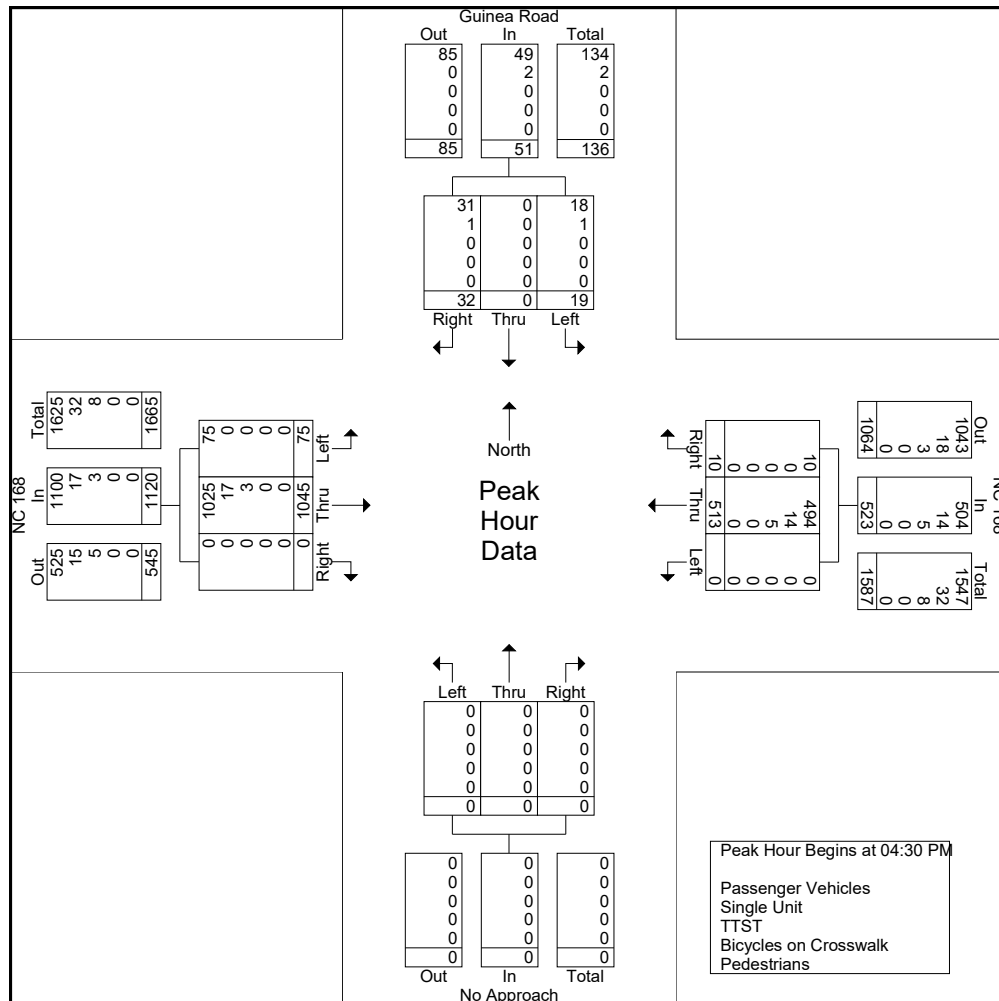


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@  
Site Code :  
Start Date : 12/10/201  
Page No : 3

	Guinea Road Southbound				NC 168 Westbound				No Approach Northbound				NC 168 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int.
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	3	0	4	7	0	122	4	126	0	0	0	0	13	290	0	303	
04:45 PM	1	0	15	16	0	122	2	124	0	0	0	0	18	253	0	271	
05:00 PM	10	0	6	16	0	129	1	130	0	0	0	0	35	242	0	277	
05:15 PM	5	0	7	12	0	140	3	143	0	0	0	0	9	260	0	269	
Total Volume	19	0	32	51	0	513	10	523	0	0	0	0	75	1045	0	1120	
% App. Total	37.3	0	62.7		0	98.1	1.9		0	0	0		6.7	93.3	0		
PHF	.475	.000	.533	.797	.000	.916	.625	.914	.000	.000	.000	.000	.536	.901	.000	.924	
Passenger Vehicles	18	0	31	49	0	494	10	504	0	0	0	0	75	1025	0	1100	
% Passenger Vehicles	94.7	0	96.9	96.1	0	96.3	100	96.4	0	0	0	0	100	98.1	0	98.2	
Single Unit	1	0	1	2	0	14	0	14	0	0	0	0	0	17	0	17	
% Single Unit	5.3	0	3.1	3.9	0	2.7	0	2.7	0	0	0	0	0	1.6	0	1.5	
TTST	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	
% TTST	0	0	0	0	0	1.0	0	1.0	0	0	0	0	0	0.3	0	0.3	
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

# VHB Engineering NC, P.C.

6.A.h

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@Survey(sign d)  
Site Code :  
Start Date : 12/10/2019  
Page No : 1

## Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

Start Time	No Approach Southbound				NC 168 Westbound				Survey Road Northbound				NC 168 Eastbound				Exclu. Total	Inclu. Total	Int.
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	0	0	0	0	1	204	0	0	48	0	7	0	0	67	9	0	0	336	
07:15 AM	0	0	0	0	3	195	0	0	60	0	2	0	0	71	21	0	0	352	
07:30 AM	0	0	0	0	2	183	0	0	63	0	14	0	0	103	24	0	0	389	
07:45 AM	0	0	0	0	3	206	0	0	45	0	3	0	0	83	32	0	0	372	
Total	0	0	0	0	9	788	0	0	216	0	26	0	0	324	86	0	0	1449	
08:00 AM	0	0	0	0	6	201	0	0	35	0	2	0	0	68	17	0	0	329	
08:15 AM	0	0	0	0	5	188	0	0	43	0	1	0	0	61	33	0	0	331	
08:30 AM	0	0	0	0	3	151	0	0	57	0	3	0	0	63	33	0	0	310	
08:45 AM	0	0	0	0	1	145	0	0	30	0	0	0	0	72	10	0	0	258	
Total	0	0	0	0	15	685	0	0	165	0	6	0	0	264	93	0	0	1228	
*** BREAK ***																			
04:00 PM	0	0	0	0	4	133	0	0	33	0	2	0	0	218	43	0	0	433	
04:15 PM	0	0	0	0	3	144	0	0	23	0	3	0	0	263	44	0	0	480	
04:30 PM	0	0	0	0	2	101	0	0	14	0	4	0	0	265	59	0	0	445	
04:45 PM	0	0	0	0	7	110	0	0	31	0	5	0	0	260	59	0	0	472	
Total	0	0	0	0	16	488	0	0	101	0	14	0	0	1006	205	0	0	1830	
05:00 PM	0	0	0	0	2	114	0	0	47	0	2	0	0	228	49	0	0	442	
05:15 PM	0	0	0	0	2	130	0	0	20	0	1	0	0	271	51	0	0	475	
05:30 PM	0	0	0	0	5	103	0	0	27	0	3	0	1	238	46	0	0	423	
05:45 PM	0	0	0	0	3	108	0	0	14	0	2	0	0	210	39	0	0	376	
Total	0	0	0	0	12	455	0	0	108	0	8	0	1	947	185	0	0	1716	
Grand Total	0	0	0	0	52	2416	0	0	590	0	54	0	1	2541	569	0	0	6223	
Apprch %	0	0	0		2.1	97.9	0		91.6	0	8.4		0	81.7	18.3				
Total %	0	0	0		0.8	38.8	0		9.5	0	0.9		0	40.8	9.1		0	100	
Passenger Vehicles	0	0	0		51	2333	0		573	0	52		1	2452	555		0	0	
% Passenger Vehicles	0	0	0	0	98.1	96.6	0	0	97.1	0	96.3	0	100	96.5	97.5	0	0	0	
Single Unit	0	0	0		1	60	0		17	0	2		0	76	14		0	0	
% Single Unit	0	0	0	0	1.9	2.5	0	0	2.9	0	3.7	0	0	3	2.5	0	0	0	
TTST	0	0	0		0	23	0		0	0	0		0	13	0		0	0	
% TTST	0	0	0	0	0	1	0	0	0	0	0	0	0	0.5	0	0	0	0	
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

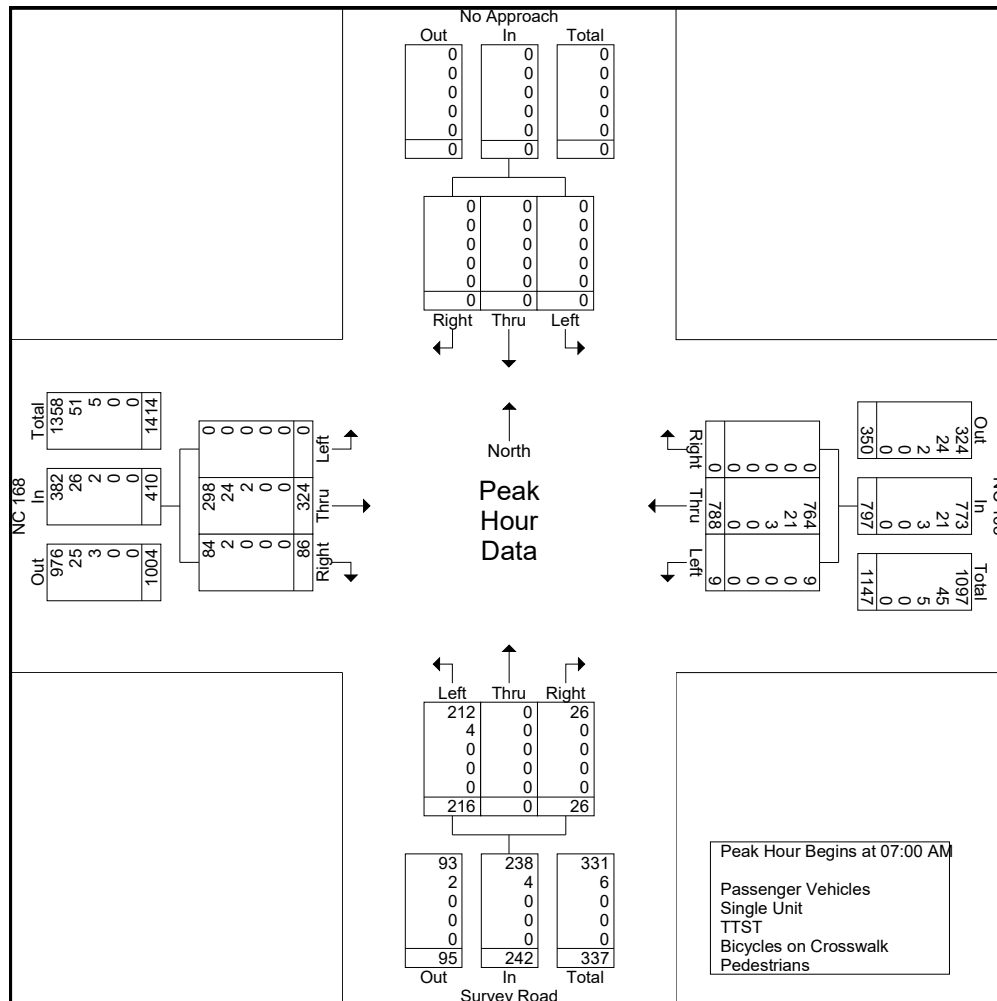
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@Survey(sign d)  
Site Code :  
Start Date : 12/10/2019  
Page No : 2

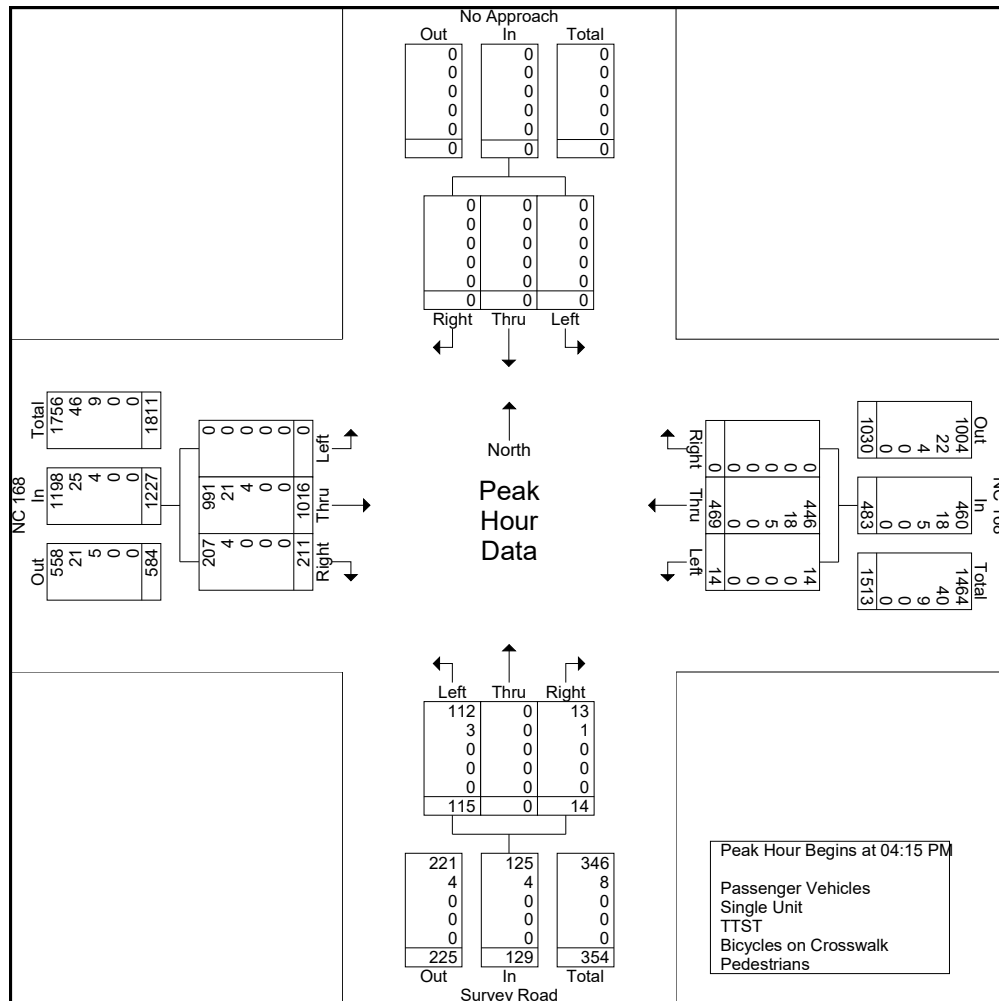
	No Approach Southbound				NC 168 Westbound				Survey Road Northbound				NC 168 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int.
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	1	204	0	205	48	0	7	55	0	67	9	76	
07:15 AM	0	0	0	0	3	195	0	198	60	0	2	62	0	71	21	92	
07:30 AM	0	0	0	0	2	183	0	185	63	0	14	77	0	103	24	127	
07:45 AM	0	0	0	0	3	206	0	209	45	0	3	48	0	83	32	115	
Total Volume	0	0	0	0	9	788	0	797	216	0	26	242	0	324	86	410	
% App. Total	0	0	0	0	1.1	98.9	0		89.3	0	10.7		0	79	21		
PHF	.000	.000	.000	.000	.750	.956	.000	.953	.857	.000	.464	.786	.000	.786	.672	.807	
Passenger Vehicles	0	0	0	0	9	764	0	773	212	0	26	238	0	298	84	382	
% Passenger Vehicles	0	0	0	0	100	97.0	0	97.0	98.1	0	100	98.3	0	92.0	97.7	93.2	
Single Unit	0	0	0	0	0	21	0	21	4	0	0	4	0	24	2	26	
% Single Unit	0	0	0	0	0	2.7	0	2.6	1.9	0	0	1.7	0	7.4	2.3	6.3	
TTST	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	
% TTST	0	0	0	0	0	0.4	0	0.4	0	0	0	0	0	0.6	0	0.5	
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@Survey(sign d)  
Site Code :  
Start Date : 12/10/2019  
Page No : 3

	No Approach Southbound				NC 168 Westbound				Survey Road Northbound				NC 168 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int.
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	3	144	0	147	23	0	3	26	0	263	44	307	
04:30 PM	0	0	0	0	2	101	0	103	14	0	4	18	0	265	59	324	
04:45 PM	0	0	0	0	7	110	0	117	31	0	5	36	0	260	59	319	
05:00 PM	0	0	0	0	2	114	0	116	47	0	2	49	0	228	49	277	
Total Volume	0	0	0	0	14	469	0	483	115	0	14	129	0	1016	211	1227	
% App. Total	0	0	0	0	2.9	97.1	0		89.1	0	10.9		0	82.8	17.2		
PHF	.000	.000	.000	.000	.500	.814	.000	.821	.612	.000	.700	.658	.000	.958	.894	.947	
Passenger Vehicles	0	0	0	0	14	446	0	460	112	0	13	125	0	991	207	1198	
% Passenger Vehicles	0	0	0	0	100	95.1	0	95.2	97.4	0	92.9	96.9	0	97.5	98.1	97.6	
Single Unit	0	0	0	0	0	18	0	18	3	0	1	4	0	21	4	25	
% Single Unit	0	0	0	0	0	3.8	0	3.7	2.6	0	7.1	3.1	0	2.1	1.9	2.0	
TTST	0	0	0	0	0	5	0	5	0	0	0	0	0	4	0	4	
% TTST	0	0	0	0	0	1.1	0	1.0	0	0	0	0	0	0.4	0	0.3	
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



# VHB Engineering NC, P.C.

6.A.h

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@  
Site Code :  
Start Date : 12/10/2017  
Page No : 1

## Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

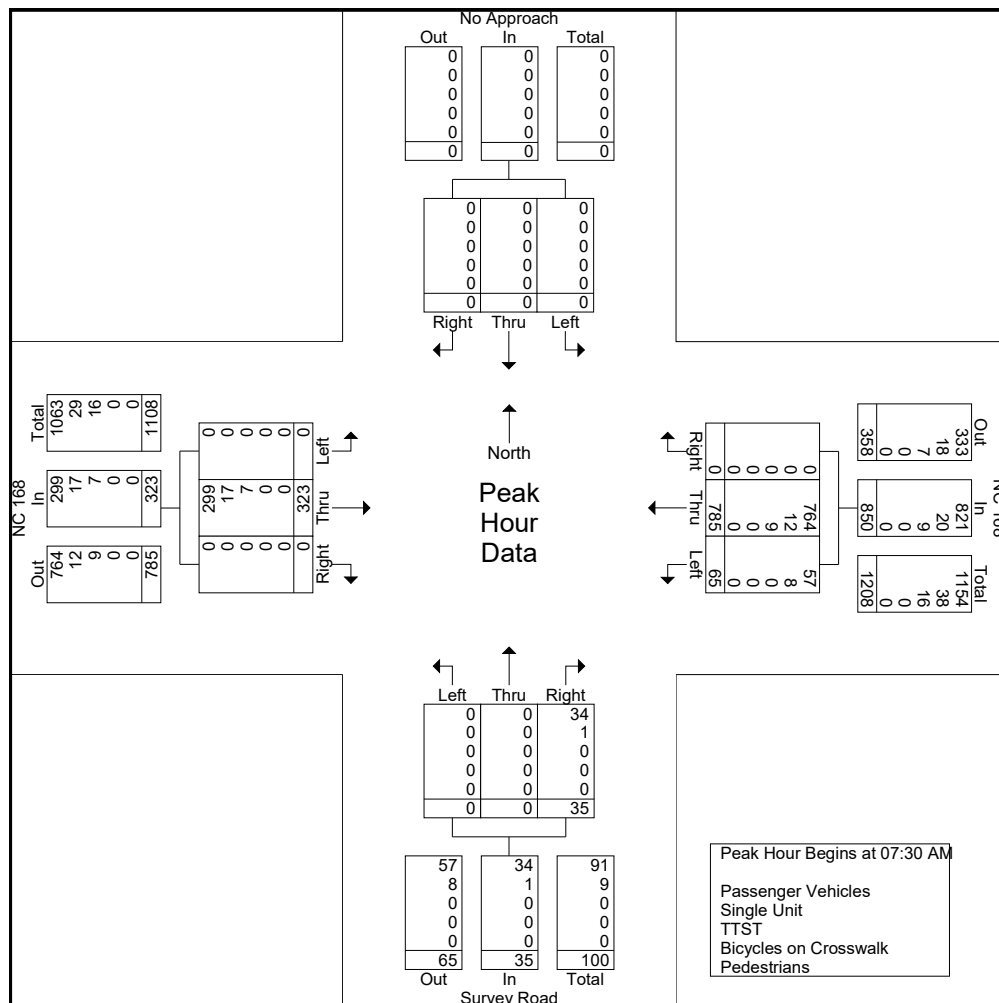
Start Time	No Approach Southbound				NC 168 Westbound				Survey Road Northbound				NC 168 Eastbound				Exclu. Total	Inclu. Total	Int.
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	0	0	0	0	4	202	0	0	0	0	5	0	0	76	0	0	0	287	
07:15 AM	0	0	0	0	3	196	0	0	0	0	13	0	0	73	0	0	0	285	
07:30 AM	0	0	0	0	2	173	0	0	0	0	14	0	0	112	0	0	0	301	
07:45 AM	0	0	0	0	9	218	0	0	0	0	2	0	0	89	0	0	0	318	
Total	0	0	0	0	18	789	0	0	0	0	34	0	0	350	0	0	0	1191	
08:00 AM	0	0	0	0	26	197	0	0	0	0	2	0	0	69	0	0	0	294	
08:15 AM	0	0	0	0	28	197	0	0	0	0	17	0	0	53	0	0	0	295	
08:30 AM	0	0	0	0	28	146	0	0	1	0	28	0	0	74	0	0	0	277	
08:45 AM	0	0	0	0	8	152	0	0	0	0	7	0	0	73	0	0	0	240	
Total	0	0	0	0	90	692	0	0	1	0	54	0	0	269	0	0	0	1106	
*** BREAK ***																			
04:00 PM	0	0	0	0	11	137	0	0	0	0	6	0	0	229	0	0	0	383	
04:15 PM	0	0	0	0	12	144	0	0	0	0	7	0	0	236	2	0	0	401	
04:30 PM	0	0	0	0	10	112	0	0	0	0	9	0	0	299	1	0	0	431	
04:45 PM	0	0	0	0	25	115	0	0	0	0	10	0	0	268	0	0	0	418	
Total	0	0	0	0	58	508	0	0	0	0	32	0	0	1032	3	0	0	1633	
05:00 PM	0	0	0	0	13	122	0	0	0	0	19	0	0	255	0	0	0	409	
05:15 PM	0	0	0	0	8	139	0	0	0	0	4	0	0	263	0	0	0	414	
05:30 PM	0	0	0	0	6	106	0	0	0	0	8	0	0	248	0	0	0	368	
05:45 PM	0	0	0	0	5	110	0	0	0	0	0	0	0	209	0	0	0	324	
Total	0	0	0	0	32	477	0	0	0	0	31	0	0	975	0	0	0	1515	
Grand Total	0	0	0	0	198	2466	0	0	1	0	151	0	0	2626	3	0	0	5445	
Apprch %	0	0	0		7.4	92.6	0		0.7	0	99.3		0	99.9	0.1				
Total %	0	0	0		3.6	45.3	0		0	0	2.8		0	48.2	0.1		0	100	
Passenger Vehicles	0	0	0		177	2393	0		1	0	140		0	2537	3		0	0	
% Passenger Vehicles	0	0	0	0	89.4	97	0	0	100	0	92.7	0	0	96.6	100	0	0	0	
Single Unit	0	0	0		21	43	0		0	0	11		0	69	0		0	0	
% Single Unit	0	0	0	0	10.6	1.7	0	0	0	0	7.3	0	0	2.6	0	0	0	0	
TTST	0	0	0		0	30	0		0	0	0		0	20	0		0	0	
% TTST	0	0	0	0	0	1.2	0	0	0	0	0	0	0	0.8	0	0	0	0	
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@  
Site Code :  
Start Date : 12/10/2017  
Page No : 2

	No Approach Southbound				NC 168 Westbound				Survey Road Northbound				NC 168 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int.
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	2	173	0	175	0	0	14	14	0	112	0	112	
07:45 AM	0	0	0	0	9	218	0	227	0	0	2	2	0	89	0	89	
08:00 AM	0	0	0	0	26	197	0	223	0	0	2	2	0	69	0	69	
08:15 AM	0	0	0	0	28	197	0	225	0	0	17	17	0	53	0	53	
Total Volume	0	0	0	0	65	785	0	850	0	0	35	35	0	323	0	323	
% App. Total	0	0	0	0	7.6	92.4	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.580	.900	.000	.936	.000	.000	.515	.515	.000	.721	.000	.721	
Passenger Vehicles	0	0	0	0	57	764	0	821	0	0	34	34	0	299	0	299	
% Passenger Vehicles	0	0	0	0	87.7	97.3	0	96.6	0	0	97.1	97.1	0	92.6	0	92.6	
Single Unit	0	0	0	0	8	12	0	20	0	0	1	1	0	17	0	17	
% Single Unit	0	0	0	0	12.3	1.5	0	2.4	0	0	2.9	2.9	0	5.3	0	5.3	
TTST	0	0	0	0	0	9	0	9	0	0	0	0	0	7	0	7	
% TTST	0	0	0	0	0	1.1	0	1.1	0	0	0	0	0	2.2	0	2.2	
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



### 6.A.h

# VHB Engineering NC, P.C.

6.A.h

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : Survey@Eagle  
Site Code :  
Start Date : 12/10/2019  
Page No : 1

## Groups Printed- Passenger Vehicles - Single Unit - TTST - Bicycles on Crosswalk - Pedestrians

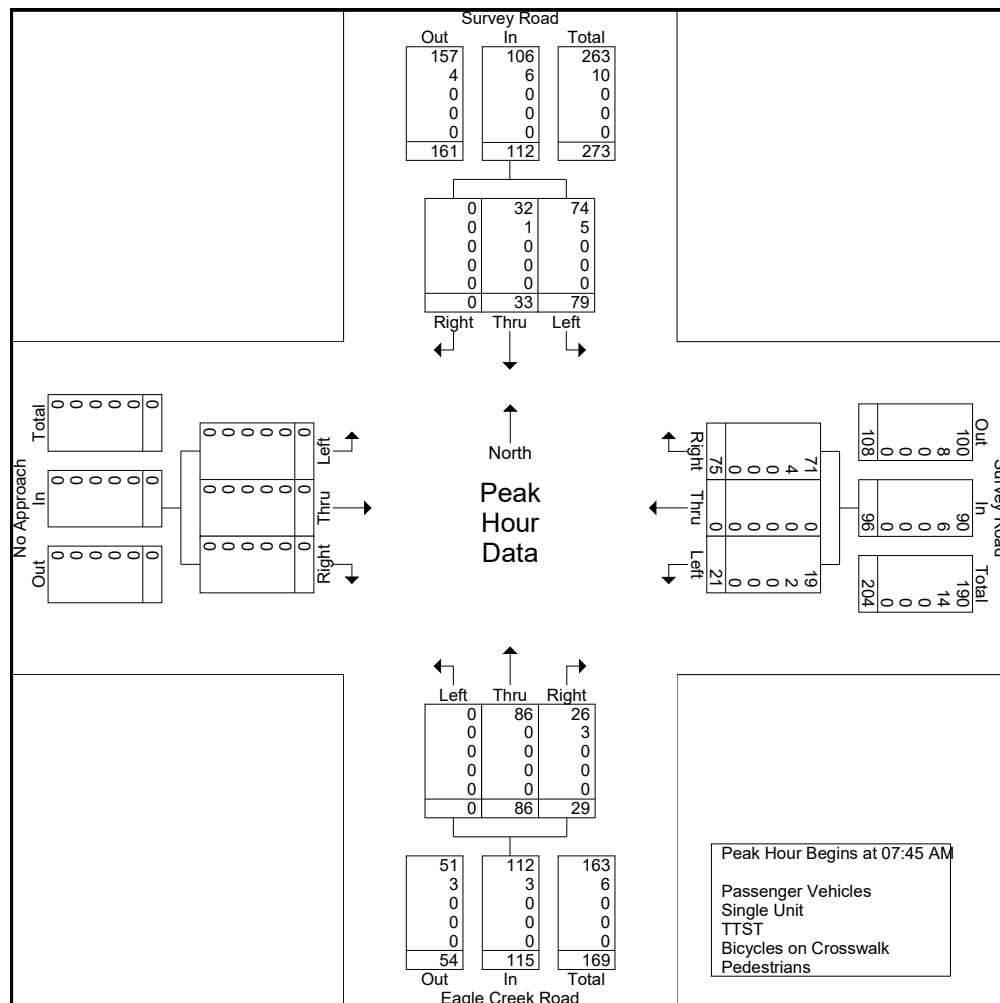
Start Time	Survey Road Southbound				Survey Road Westbound				Eagle Creek Road Northbound				No Approach Eastbound				Exclu. Total	Inclu. Total	Int.
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	1	7	0	0	2	0	0	0	0	42	5	0	0	0	0	0	0	57	
07:15 AM	4	11	0	0	3	0	2	0	0	48	11	0	0	0	0	0	0	79	
07:30 AM	6	11	0	0	0	0	4	0	0	55	13	0	0	0	0	0	0	89	
07:45 AM	11	13	0	0	2	0	3	0	0	30	3	0	0	0	0	0	0	62	
Total	22	42	0	0	7	0	9	0	0	175	32	0	0	0	0	0	0	287	
08:00 AM	8	5	0	0	7	0	5	0	0	22	3	0	0	0	0	0	0	50	
08:15 AM	30	8	0	0	4	0	26	0	0	20	10	0	0	0	0	0	0	98	
08:30 AM	30	7	0	0	8	0	41	0	0	14	13	0	0	0	0	0	0	113	
08:45 AM	4	8	0	0	1	0	11	0	1	11	3	0	0	0	0	0	0	39	
Total	72	28	0	0	20	0	83	0	1	67	29	0	0	0	0	0	0	300	
*** BREAK ***																			
04:00 PM	9	26	0	0	10	0	12	0	0	19	4	0	0	0	0	0	0	80	
04:15 PM	8	34	0	0	4	0	4	0	0	19	0	0	0	0	0	0	0	69	
04:30 PM	11	45	0	0	4	0	7	0	0	12	8	0	0	0	0	0	0	87	
04:45 PM	21	41	0	0	4	0	3	0	0	19	13	0	0	0	0	0	0	101	
Total	49	146	0	0	22	0	26	0	0	69	25	0	0	0	0	0	0	337	
05:00 PM	11	37	0	0	9	0	24	0	0	19	5	0	0	0	0	4	4	105	
05:15 PM	11	38	0	0	5	0	6	0	0	12	5	0	0	0	0	0	0	77	
05:30 PM	3	39	0	0	7	0	12	0	0	17	4	0	0	0	0	2	2	82	
05:45 PM	2	35	0	0	4	0	4	0	0	12	1	0	0	0	0	0	0	58	
Total	27	149	0	0	25	0	46	0	0	60	15	0	0	0	0	6	6	322	
Grand Total	170	365	0	0	74	0	164	0	1	371	101	0	0	0	0	6	6	1246	
Apprch %	31.8	68.2	0		31.1	0	68.9		0.2	78.4	21.4		0	0	0				
Total %	13.6	29.3	0		5.9	0	13.2		0.1	29.8	8.1		0	0	0		0.5	99.5	
Passenger Vehicles	160	362	0		70	0	157		1	363	93		0	0	0		0	0	
% Passenger Vehicles	94.1	99.2	0	0	94.6	0	95.7	0	100	97.8	92.1	0	0	0	0	0	0	0	
Single Unit	10	3	0		4	0	7		0	8	8		0	0	0		0	0	
% Single Unit	5.9	0.8	0	0	5.4	0	4.3	0	0	2.2	7.9	0	0	0	0	0	0	0	
TTST	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles on Crosswalk	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16.7	0	0	
Pedestrians	0	0	0		0	0	0		0	0	0		0	0	0		0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83.3	0	0	

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : Survey@Eagle  
Site Code :  
Start Date : 12/10/2019  
Page No : 2

	Survey Road Southbound				Survey Road Westbound				Eagle Creek Road Northbound				No Approach Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int.
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	11	13	0	24	2	0	3	5	0	30	3	33	0	0	0	0	
08:00 AM	8	5	0	13	7	0	5	12	0	22	3	25	0	0	0	0	
08:15 AM	30	8	0	38	4	0	26	30	0	20	10	30	0	0	0	0	
08:30 AM	30	7	0	37	8	0	41	49	0	14	13	27	0	0	0	0	
Total Volume	79	33	0	112	21	0	75	96	0	86	29	115	0	0	0	0	
% App. Total	70.5	29.5	0		21.9	0	78.1		0	74.8	25.2		0	0	0		
PHF	.658	.635	.000	.737	.656	.000	.457	.490	.000	.717	.558	.871	.000	.000	.000	.000	
Passenger Vehicles	74	32	0	106	19	0	71	90	0	86	26	112	0	0	0	0	
% Passenger Vehicles	93.7	97.0	0	94.6	90.5	0	94.7	93.8	0	100	89.7	97.4	0	0	0	0	
Single Unit	5	1	0	6	2	0	4	6	0	0	3	3	0	0	0	0	
% Single Unit	6.3	3.0	0	5.4	9.5	0	5.3	6.3	0	0	10.3	2.6	0	0	0	0	
TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% TTST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

### 6.A.h



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## Appendix B:

# NCDOT TEAAS Strip Analysis Report

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Study Criteria Summary**

**County:** CURRITUCK      **City:** All and Rural  
**Date:** 11/1/2014      **to** 10/31/2019      **Study:** NC168FLORATIA  
**Location:** Caratoke Highway (NC 168) from 500 ft south of Guinea Road (SR 1214) to 500 ft north of the northern intersection with Survey Road (SR 1215)

**Report Details**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
1	104207433	13.651	11/06/2014 17:22	LEFT TURN, DIFFERENT ROADWAYS	\$ 9000	0	0	0	1	2	2	1	1	0	1	1
Unit	1 : 1	Alchl/Drugs:	0	Speed: 15 MPH Dir: S		Veh Mnvr/Ped Actn:				8	Obj Strk:					
Unit	2 : 4	Alchl/Drugs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
2	105142493	13.651	06/22/2017 20:10	LEFT TURN, SAME ROADWAY	\$ 9200	0	0	0	0	1	5	1	1	0	1	1
Unit	1 : 5	Alchl/Drugs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk: 42					
Unit	2 : 2	Alchl/Drugs:	0	Speed: 10 MPH Dir: S		Veh Mnvr/Ped Actn:				8	Obj Strk:					
3	105631785	13.678	10/10/2018 08:56	SIDESWIPE, SAME DIRECTION	\$ 4500	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 5	Alchl/Drugs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 3	Alchl/Drugs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk:					
4	105686457	13.678	11/22/2018 20:47	REAR END, SLOW OR STOP	\$ 11000	0	0	0	1	1	5	1	1	0	0	
Unit	1 : 14	Alchl/Drugs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn:				1	Obj Strk:					
Unit	2 : 1	Alchl/Drugs:	1	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk: 58					
5	105861765	13.678	05/08/2019 11:13	FIXED OBJECT	\$ 550	0	0	0	0	1	1	1	1	0	6	1
Unit	1 : 2	Alchl/Drugs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk: 64					
6	104323831	13.751	03/15/2015 03:54	FIXED OBJECT	\$ 900	0	0	0	0	1	5	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	7	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn:				4	Obj Strk: 58					
7	104484328	13.751	08/29/2015 11:21	REAR END, SLOW OR STOP	\$ 1500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				11	Obj Strk:					
Unit	2 : 32	Alchl/Drugs:	7	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk:					
8	105270822	13.751	10/29/2017 16:04	FIXED OBJECT	\$ 10000	0	0	0	0	2	1	2	1	0	0	
Unit	1 : 1	Alchl/Drugs:	0	Speed: 65 MPH Dir: N		Veh Mnvr/Ped Actn:				4	Obj Strk: 58					

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
9	105016975	13.831	02/22/2017 20:43	FIXED OBJECT	\$ 6000	0	0	0	0	1	5	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn:				4		Obj Strk:		58		
10	105512685	13.840	06/15/2018 12:03	LEFT TURN, SAME ROADWAY	\$ 17000	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 5	Alchl/Drgs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn:				8		Obj Strk:				
Unit	2 : 4	Alchl/Drgs:	0	Speed: 50 MPH Dir: N		Veh Mnvr/Ped Actn:				4		Obj Strk:				
11	104320283	13.931	03/12/2015 12:39	OVERTURN/ROLLOVER	\$ 10000	0	0	1	0	1	1	1	1	0	0	
Unit	1 : 2	Alchl/Drgs:	1	Speed: 60 MPH Dir: S		Veh Mnvr/Ped Actn:				4		Obj Strk:				
12	104575709	13.931	12/05/2015 11:27	REAR END, SLOW OR STOP	\$ 2000	0	0	0	1	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 62 MPH Dir: S		Veh Mnvr/Ped Actn:				4		Obj Strk:				
Unit	2 : 2	Alchl/Drgs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn:				4		Obj Strk:				
13	105554832	14.009	07/28/2018 11:11	REAR END, SLOW OR STOP	\$ 11600	0	0	0	3	1	1	2	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1		Obj Strk:				
Unit	2 : 4	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1		Obj Strk:				
Unit	3 : 4	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn:				11		Obj Strk:				
14	104530442	14.031	10/23/2015 16:26	REAR END, SLOW OR STOP	\$ 10700	0	0	0	1	1	1	1	1	0	3	1
Unit	1 : 1	Alchl/Drgs:	3	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn:				4		Obj Strk:		42		
Unit	2 : 2	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1		Obj Strk:				
15	105401525	14.031	03/03/2018 17:11	REAR END, SLOW OR STOP	\$ 5000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 4	Alchl/Drgs:	0	Speed: 50 MPH Dir: N		Veh Mnvr/Ped Actn:				4		Obj Strk:				
Unit	2 : 2	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1		Obj Strk:				
16	105189939	14.069	08/13/2017 12:39	REAR END, SLOW OR STOP	\$ 4700	0	0	0	0	2	1	2	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1		Obj Strk:				
Unit	2 : 2	Alchl/Drgs:	0	Speed: 60 MPH Dir: N		Veh Mnvr/Ped Actn:				4		Obj Strk:		58		
17	104824244	14.271	08/20/2016 10:33	REAR END, SLOW OR STOP	\$ 500	0	0	0	3	1	1	2	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 50 MPH Dir: N		Veh Mnvr/Ped Actn:				4		Obj Strk:				
Unit	2 : 5	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn:				1		Obj Strk:				

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	104405564	14.441	06/06/2015 10:35	REAR END, SLOW OR STOP	\$ 5400	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 10 MPH Dir: N		Veh Mnvr/Ped Actn: 1				Obj Strk:						
Unit	2 : 2	Alchl/Drgs:	0	Speed: 30 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
19	105347081	14.450	01/09/2018 21:13	FIXED OBJECT	\$ 1800	0	0	0	0	1	5	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk: 64						
20	105528507	14.450	06/30/2018 07:42	FIXED OBJECT	\$ 800	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk: 58						
21	105980782	14.450	09/04/2019 13:07	REAR END, SLOW OR STOP	\$ 19500	0	0	1	2	1	1	2	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 55 MPH Dir: NW		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 4	Alchl/Drgs:	0	Speed: 45 MPH Dir: NW		Veh Mnvr/Ped Actn: 11				Obj Strk:						
Unit	3 : 2	Alchl/Drgs:	0	Speed: 5 MPH Dir: NW		Veh Mnvr/Ped Actn: 5				Obj Strk:						
22	104416972	14.476	06/24/2015 15:08	REAR END, SLOW OR STOP	\$ 6000	0	0	1	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 55 MPH Dir: N		Veh Mnvr/Ped Actn: 11				Obj Strk:						
23	104348464	14.551	04/11/2015 16:48	FIXED OBJECT	\$ 3500	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drgs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn: 7				Obj Strk: 58						
24	104866820	14.631	09/20/2016 17:43	HEAD ON	\$ 5000	0	0	1	0	2	1	3	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 60 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 55 MPH Dir: S		Veh Mnvr/Ped Actn: 4				Obj Strk:						
25	104631044	14.841	02/01/2016 07:34	SIDESWIPE, SAME DIRECTION	\$ 1500	0	0	0	0	1	3	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	7	Speed: 15 MPH Dir: N		Veh Mnvr/Ped Actn: 5				Obj Strk:						
Unit	2 : 1	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
26	105188595	14.841	08/12/2017 10:14	REAR END, SLOW OR STOP	\$ 6600	0	0	0	0	2	1	2	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed: 0 MPH Dir: N		Veh Mnvr/Ped Actn: 1				Obj Strk:						
Unit	2 : 5	Alchl/Drgs:	0	Speed: 40 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						
27	104916873	14.855	11/08/2016 07:59	RIGHT TURN, SAME ROADWAY	\$ 10000	0	0	0	0	1	1	2	1	0	0	
Unit	1 : 2	Alchl/Drgs:	0	Speed: 45 MPH Dir: N		Veh Mnvr/Ped Actn: 4				Obj Strk:						

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
Unit	2 : 2	Alchl/Drgs:	0	Speed:	5 MPH Dir: E	Veh Mnvr/Ped Actn:				7	Obj Strk:			64		
28	105171027	14.857	07/24/2017 13:51	REAR END, SLOW OR STOP	\$ 800	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 2	Alchl/Drgs:	0	Speed:	55 MPH Dir: N	Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed:	55 MPH Dir: N	Veh Mnvr/Ped Actn:				11	Obj Strk:					
29	104375705	14.871	05/11/2015 14:14	FIXED OBJECT	\$ 1200	0	0	0	0	8	1	2	1	1	3	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	15 MPH Dir: N	Veh Mnvr/Ped Actn:				8	Obj Strk:			58		
30	105484704	14.871	05/10/2018 15:41	SIDESWIPE, SAME DIRECTION	\$ 4000	0	0	0	0	1	1	1	1	0	3	1
Unit	1 : 11	Alchl/Drgs:	0	Speed:	55 MPH Dir: S	Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	15 MPH Dir: S	Veh Mnvr/Ped Actn:				5	Obj Strk:					
31	104392762	14.874	05/28/2015 22:08	SIDESWIPE, SAME DIRECTION	\$ 5000	0	0	0	0	1	5	1	5	0	3	1
Unit	1 : 4	Alchl/Drgs:	1	Speed:	55 MPH Dir: S	Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	55 MPH Dir: S	Veh Mnvr/Ped Actn:				1	Obj Strk:					
32	104767263	14.900	06/17/2016 16:31	REAR END, SLOW OR STOP	\$ 3000	0	0	0	0	2	1	3	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed:	55 MPH Dir: N	Veh Mnvr/Ped Actn:				5	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed:	55 MPH Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:					
33	104853356	14.900	09/10/2016 12:25	REAR END, SLOW OR STOP	\$ 1000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 1	Alchl/Drgs:	0	Speed:	15 MPH Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 5	Alchl/Drgs:	0	Speed:	5 MPH Dir: N	Veh Mnvr/Ped Actn:				11	Obj Strk:					
34	104959464	14.900	12/27/2016 10:42	MOVABLE OBJECT	\$ 1000	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 2	Alchl/Drgs:	0	Speed:	55 MPH Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 1	Alchl/Drgs:	0	Speed:	55 MPH Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:			18		
35	104481066	14.941	09/07/2015 15:53	REAR END, SLOW OR STOP	\$ 3500	0	0	0	0	1	1	1	1	0	1	1
Unit	1 : 2	Alchl/Drgs:	0	Speed:	25 MPH Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:					
Unit	2 : 2	Alchl/Drgs:	0	Speed:	15 MPH Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:					
36	105554475	14.941	07/26/2018 12:56	LEFT TURN, DIFFERENT ROADWAYS	\$ 12700	0	0	1	0	1	1	1	1	0	1	1
Unit	1 : 1	Alchl/Drgs:	0	Speed:	55 MPH Dir: N	Veh Mnvr/Ped Actn:				4	Obj Strk:			58		
Unit	2 : 1	Alchl/Drgs:	0	Speed:	10 MPH Dir: S	Veh Mnvr/Ped Actn:				8	Obj Strk:					

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

12/16/2019

All data presented in this report comes explicitly from the Traffic Engineering Accident Analysis System based upon the criteria provided by the report's creator. The onus is strictly upon the user of this report to exercise due diligence in its use and further representing this data.

-4-

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
37	104641198	14.946	02/11/2016 14:10	FIXED OBJECT	\$ 250	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drugs:	7	Speed:	55 MPH	Dir:	N	Veh Mnvr/Ped Actn:				4	Obj Strk:		58	

**Legend for  
Report Details:**

Acc No - Accident Number  
 Injuries: F - Fatal, A - Class A, B - Class B, C - Class C  
 Condition: R - Road Surface, L - Ambient Light, W - Weather  
 Rd Ch - Road Character  
 Rd Ci - Roadway Contributing Circumstances  
 Trfc Ctl - Traffic Control: Dv - Device, Op - Operating  
 Alchl/Drugs - Alcohol Drugs Suspected  
 Veh Mnvr/Ped Actn - Vehicle Maneuver/Pedestrian Action  
 Obj Strk - Object Struck

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report

**Summary Statistics**

**High Level Crash Summary**

Crash Type	Number of Crashes	Percent of Total
Total Crashes	37	100.00
Fatal Crashes	0	0.00
Non-Fatal Injury Crashes	13	35.14
Total Injury Crashes	13	35.14
Property Damage Only Crashes	24	64.86
Night Crashes	6	16.22
Wet Crashes	6	16.22
Alcohol/Drugs Involvement Crashes	3	8.11

**Crash Severity Summary**

Crash Type	Number of Crashes	Percent of Total
Total Crashes	37	100.00
Fatal Crashes	0	0.00
Class A Crashes	0	0.00
Class B Crashes	5	13.51
Class C Crashes	8	21.62
Property Damage Only Crashes	24	64.86

**Vehicle Exposure Statistics**

Annual ADT = 19100

Total Length = 1.41 (Miles)

2.269 (Kilometers)

Total Vehicle Exposure = 49.18 (MVT)

79.14 (MVKMT)

Crash Rate	Crashes Per 100 Million Vehicle Miles	Crashes Per 100 Million Vehicle Kilometers
Total Crash Rate	75.24	46.75
Fatal Crash Rate	0.00	0.00
Non Fatal Crash Rate	26.44	16.43
Night Crash Rate	12.20	7.58
Wet Crash Rate	12.20	7.58
EPDO Rate	270.86	168.31

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Miscellaneous Statistics**

Severity Index = 3.60  
 EPDO Crash Index = 133.20  
 Estimated Property Damage Total = \$ 206700.00

**Accident Type Summary**

<b>Accident Type</b>	<b>Number of Crashes</b>	<b>Percent of Total</b>
FIXED OBJECT	9	24.32
HEAD ON	1	2.70
LEFT TURN, DIFFERENT ROADWAYS	2	5.41
LEFT TURN, SAME ROADWAY	2	5.41
MOVABLE OBJECT	1	2.70
OVERTURN/ROLLOVER	1	2.70
REAR END, SLOW OR STOP	16	43.24
RIGHT TURN, SAME ROADWAY	1	2.70
SIDESWIPE, SAME DIRECTION	4	10.81

**Injury Summary**

<b>Injury Type</b>	<b>Number of Injuries</b>	<b>Percent of Total</b>
Fatal Injuries	0	0.00
Class A Injuries	0	0.00
Class B Injuries	5	26.32
Class C Injuries	14	73.68
Total Non-Fatal Injuries	19	100.00
Total Injuries	19	100.00

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Monthly Summary**

<b>Month</b>	<b>Number of Crashes</b>	<b>Percent of Total</b>
Jan	1	2.70
Feb	3	8.11
Mar	3	8.11
Apr	1	2.70
May	4	10.81
Jun	6	16.22
Jul	3	8.11
Aug	4	10.81
Sep	4	10.81
Oct	3	8.11
Nov	3	8.11
Dec	2	5.41

**Daily Summary**

<b>Day</b>	<b>Number of Crashes</b>	<b>Percent of Total</b>
Mon	4	10.81
Tue	4	10.81
Wed	5	13.51
Thu	8	21.62
Fri	3	8.11
Sat	10	27.03
Sun	3	8.11

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Hourly Summary**

<b>Hour</b>	<b>Number of Crashes</b>	<b>Percent of Total</b>
0000-0059	0	0.00
0100-0159	0	0.00
0200-0259	0	0.00
0300-0359	1	2.70
0400-0459	0	0.00
0500-0559	0	0.00
0600-0659	0	0.00
0700-0759	3	8.11
0800-0859	1	2.70
0900-0959	0	0.00
1000-1059	4	10.81
1100-1159	4	10.81
1200-1259	5	13.51
1300-1359	2	5.41
1400-1459	2	5.41
1500-1559	3	8.11
1600-1659	4	10.81
1700-1759	3	8.11
1800-1859	0	0.00
1900-1959	0	0.00
2000-2059	3	8.11
2100-2159	1	2.70
2200-2259	1	2.70
2300-2359	0	0.00

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Light and Road Conditions Summary**

Condition	Dry	Wet	Other	Total
Day	23	5	1	29
Dark	6	0	0	6
Other	1	1	0	2
Total	30	6	1	37

**Object Struck Summary**

Object Type	Times Struck	Percent of Total
DITCH	10	62.50
GUARDRAIL FACE ON SHOULDER	2	12.50
MOVABLE OBJECT	1	6.25
OTHER FIXED OBJECT	3	18.75

**Vehicle Type Summary**

Vehicle Type	Number Involved	Percent of Total
LIGHT TRUCK (MINI-VAN, PANEL)	1	1.52
PASSENGER CAR	24	36.36
PICKUP	17	25.76
SINGLE UNIT TRUCK (3 OR MORE AXLES)	1	1.52
SPORT UTILITY	15	22.73
TRACTOR/SEMI-TRAILER	1	1.52
UNKNOWN	1	1.52
VAN	6	9.09

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Yearly Totals Summary**

**Accident Totals**

<b>Year</b>	<b>Total Accidents</b>	<b>Fatal Accidents</b>	<b>Injury Accidents</b>	<b>Property Damage Only Accidents</b>
2014	1	0	1	0
2015	11	0	4	7
2016	8	0	2	6
2017	6	0	0	6
2018	9	0	5	4
2019	2	0	1	1
<b>Total</b>	<b>37</b>	<b>0</b>	<b>13</b>	<b>24</b>

**Injury Totals**

<b>Year</b>	<b>Fatal Injuries</b>	<b>Class A, B, or C Injuries</b>
2014	0	1
2015	0	4
2016	0	4
2017	0	0
2018	0	7
2019	0	3
<b>Total</b>	<b>0</b>	<b>19</b>

**Miscellaneous Totals**

<b>Year</b>	<b>Property Damage</b>	<b>EPDO Index</b>
2014	\$ 9000	8.40
2015	\$ 49700	40.60
2016	\$ 22250	22.80
2017	\$ 37300	6.00
2018	\$ 68400	46.00
2019	\$ 20050	9.40
<b>Total</b>	<b>\$ 206700</b>	<b>133.20</b>

**Type of Accident Totals**

<b>Year</b>	<b>Left Turn</b>	<b>Right Turn</b>	<b>Rear End</b>	<b>Run Off Road &amp; Fixed Object</b>	<b>Angle</b>	<b>Side Swipe</b>	<b>Other</b>
2014	1	0	0	0	0	0	0
2015	0	0	6	3	0	1	1

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Year	Run Off Road &						
	Left Turn	Right Turn	Rear End	Fixed Object	Angle	Side Swipe	Other
2016	0	1	3	1	0	1	2
2017	1	0	3	2	0	0	0
2018	2	0	3	2	0	2	0
2019	0	0	1	1	0	0	0
Total	4	1	16	9	0	4	3

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Strip Diagram**

Features	Milepost	Crash IDs
	13.56	
	13.57	
	13.58	
	13.59	
	13.60	
	13.61	
	13.62	
	13.63	
	13.64	
SR 1214   GUINEA	13.65	104207433   105142493
Railroad Crossing:465405M	13.66	
	13.67	
	13.68	105631785   105686457   105861765
	13.69	
	13.70	
	13.71	
	13.72	
	13.73	
	13.74	
	13.75	104323831   104484328   105270822
	13.76	
	13.77	
	13.78	
	13.79	
	13.80	
	13.81	
	13.82	
	13.83	105016975
	13.84	105512685
	13.85	
	13.86	
	13.87	
	13.88	
	13.89	
	13.90	
	13.91	
	13.92	
	13.93	104320283   104575709
	13.94	
	13.95	
	13.96	
	13.97	
	13.98	

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Features	Milepost	Crash IDs
SR 1215   SURVEY   SOUTHEAST INTERSECTION	13.99	
	14.00	
	14.01	105554832
	14.02	
	14.03	104530442   105401525
	14.04	
	14.05	
	14.06	
	14.07	105189939
	14.08	
	14.09	
	14.10	
	14.11	
	14.12	
	14.13	
	14.14	
	14.15	
	14.16	
	14.17	
	14.18	
	14.19	
	14.20	
	14.21	
	14.22	
	14.23	
	14.24	
	14.25	
	14.26	
	14.27	104824244
	14.28	
	14.29	
	14.30	
	14.31	
	14.32	
	14.33	
	14.34	
	14.35	
	14.36	
	14.37	
	14.38	
	14.39	
	14.40	
	14.41	
	14.42	

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Features	Milepost	Crash IDs
	14.43	
	14.44	104405564
	14.45	105347081   105528507   105980782
	14.46	
	14.47	
	14.48	104416972
	14.49	
	14.50	
	14.51	
	14.52	
	14.53	
	14.54	
	14.55	104348464
	14.56	
	14.57	
	14.58	
	14.59	
	14.60	
	14.61	
	14.62	
	14.63	104866820
	14.64	
	14.65	
	14.66	
	14.67	
	14.68	
	14.69	
	14.70	
	14.71	
	14.72	
	14.73	
	14.74	
	14.75	
	14.76	
	14.77	
	14.78	
	14.79	
	14.80	
	14.81	
	14.82	
	14.83	
	14.84	104631044   105188595
	14.85	104916873
	14.86	105171027
SR 1215   SURVEY   NORTHWEST	14.87	104375705   105484704   104392762

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

Features	Milepost	Crash IDs
INTERSECTION	14.88	
	14.89	
	14.90	104767263   104853356   104959464
	14.91	
	14.92	
	14.93	
SR 1221   SAWYER TOWN	14.94	104481066   105554475
	14.95	104641198
	14.96	
	14.97	

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

**North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report**

**Study Criteria**

Study Name	Log No.	PH No.	TIP No.	K/A Cf.	B/C Cf.	ADT	ADT Route
NC168FLORATIA				76.8	8.4	19100	30000168

Request Date	Courier Service	Phone No.	Ext.	Fax No.
--------------	-----------------	-----------	------	---------

County			Municipality					
Name	Code	Div.	Name	Code	Y-Line Ft.	Begin Date	End Date	Years
CURRITUCK	27	1	All and Rural		0	11/1/2014	10/31/2019	5.00

Location Text	Requestor
Caratoke Highway (NC 168) from 500 ft south of Guinea Road (SR 1214) to 500 ft north of the northern intersection with Survey Road (SR 1215)	

Included Accidents	Old MP	New MP	Type
105861765		13.678	I
105512685		13.84	I
105484704		14.871	I
105171027		14.857	I
104916873		14.855	I
105401525		14.031	I
105686457		13.678	I
104959464		14.9	I
104853356		14.9	I
104767263		14.9	I
104866820		14.631	I
104416972		14.476	I
105528507		14.45	I
105347081		14.45	I
105980782		14.45	I
104375705		14.871	I
104824244		14.271	I

**Fiche Roads**

Name	Code
NC 168	30000168
CARATOK	50037599

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

North Carolina Department of Transportation  
Traffic Engineering Accident Analysis System  
Strip Analysis Report

Strip Road					
Name	Code	Begin MP	End MP	Miles	Kilometers
NC 168	30000168	13.556	14.966	1.410	2.269

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

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## Appendix C:













# Intersection Capacity Analysis



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) AM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	216	26	9	867	356	86
Future Volume (vph)	216	26	9	867	356	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3505	3343	1583
Flt Permitted	0.950		0.518			
Satd. Flow (perm)	1770	1583	965	3505	3343	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	8%	2%
Adj. Flow (vph)	240	29	10	963	396	96
Shared Lane Traffic (%)						
Lane Group Flow (vph)	240	29	10	963	396	96
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	36.0	36.0	14.0	54.0	40.0	36.0
Total Split (%)	40.0%	40.0%	15.6%	60.0%	44.4%	40.0%
Maximum Green (s)	30.1	30.1	9.1	47.6	33.6	30.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	-1.4	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	16.8	16.8	62.2	63.2	60.8	86.6
Actuated g/C Ratio	0.19	0.19	0.69	0.70	0.68	0.96
v/c Ratio	0.73	0.10	0.01	0.39	0.18	0.06
Control Delay	46.8	28.5	5.7	6.7	7.1	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0







Existing (2019) AM.syn  
VHB

Synchro 10 - Report  
Page 1

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) AM  
04/10/2020

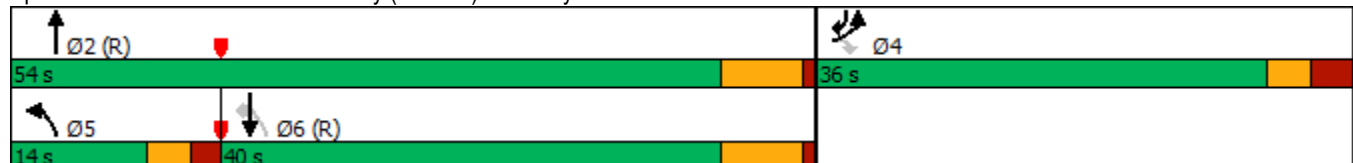
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	46.8	28.5	5.7	6.7	7.1	0.7
LOS	D	C	A	A	A	A
Approach Delay	44.8			6.7	5.9	
Approach LOS	D			A	A	
Queue Length 50th (ft)	130	14	2	101	34	0
Queue Length 95th (ft)	191	34	8	172	93	15
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	609	545	752	2462	2259	1551
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	0.39	0.05	0.01	0.39	0.18	0.06

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 12.3  
 Intersection Capacity Utilization 44.3%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service A













Splits and Phases: 1: Caratoke Hwy (NC 168) & Survey Road



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) AM

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	216	26	9	867	356	86
Future Volume (veh/h)	216	26	9	867	356	86
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1781	1870
Adj Flow Rate, veh/h	240	29	10	963	396	96
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	3	8	2
Cap, veh/h	291	259	644	2558	2213	1287
Arrive On Green	0.16	0.16	0.02	0.73	0.65	0.65
Sat Flow, veh/h	1781	1585	1781	3618	3474	1585
Grp Volume(v), veh/h	240	29	10	963	396	96
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1763	1692	1585
Q Serve(g_s), s	11.7	1.4	0.2	9.3	4.1	1.1
Cycle Q Clear(g_c), s	11.7	1.4	0.2	9.3	4.1	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	291	259	644	2558	2213	1287
V/C Ratio(X)	0.82	0.11	0.02	0.38	0.18	0.07
Avail Cap(c_a), veh/h	614	546	793	2558	2213	1287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	32.1	5.5	4.7	6.1	1.7
Incr Delay (d2), s/veh	2.3	0.1	0.0	0.4	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	1.3	0.0	2.1	1.1	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.7	32.1	5.5	5.1	6.3	1.8
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	269			973	492	
Approach Delay, s/veh	38.0			5.1	5.4	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		70.3		19.7	6.4	63.8
Change Period (Y+Rc), s		6.4		5.9	* 4.9	6.4
Max Green Setting (Gmax), s		47.6		30.1	* 9.1	33.6
Max Q Clear Time (g_c+I1), s		11.3		13.7	2.2	6.1
Green Ext Time (p_c), s		17.6		0.1	0.0	6.7

## Intersection Summary











HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

## Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) AM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	65	864	355	0
Future Volume (vph)	0	35	65	864	355	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1596	0	1612	3505	3343	0
Flt Permitted			0.950			
Satd. Flow (perm)	1596	0	1612	3505	3343	0
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	12%	3%	8%	2%
Adj. Flow (vph)	0	39	72	960	394	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	0	72	960	394	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.9%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)





Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) AM

04/10/2020

## Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	35	65	864	355	0
Future Vol, veh/h	0	35	65	864	355	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	12	3	8	2
Mvmt Flow	0	39	72	960	394	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1018	197	394
Stage 1	394	-	-
Stage 2	624	-	-
Critical Hdwy	6.84	6.96	4.34
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.33	2.32
Pot Cap-1 Maneuver	233	808	1093
Stage 1	650	-	-
Stage 2	496	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	218	808	1093
Mov Cap-2 Maneuver	347	-	-
Stage 1	607	-	-
Stage 2	496	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.6	0
HCM LOS	A		











Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1093	-	808	-	-
HCM Lane V/C Ratio	0.066	-	0.048	-	-
HCM Control Delay (s)	8.5	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-



Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Existing (2019) AM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	50	881	18	16	375
Future Volume (vph)	13	50	881	18	16	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.892		0.997			
Flt Protected	0.990				0.950	
Satd. Flow (prot)	1620	0	3456	0	1770	3343
Flt Permitted	0.990				0.950	
Satd. Flow (perm)	1620	0	3456	0	1770	3343
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	4%	11%	2%	8%
Adj. Flow (vph)	14	56	979	20	18	417
Shared Lane Traffic (%)						
Lane Group Flow (vph)	70	0	999	0	18	417
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 35.4%

ICU Level of Service A





Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Existing (2019) AM  
04/10/2020

Intersection

Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	50	881	18	16	375
Future Vol, veh/h	13	50	881	18	16	375
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	4	11	2	8
Mvmt Flow	14	56	979	20	18	417

Major/Minor	Minor1	Major1		Major2	
Conflicting Flow All	1234	500	0	0	999
Stage 1	989	-	-	-	-
Stage 2	245	-	-	-	-
Critical Hdwy	6.84	6.98	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.34	-	-	2.22
Pot Cap-1 Maneuver	169	511	-	-	689
Stage 1	321	-	-	-	-
Stage 2	773	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	165	511	-	-	689
Mov Cap-2 Maneuver	263	-	-	-	-
Stage 1	321	-	-	-	-
Stage 2	753	-	-	-	-












Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	428	689
HCM Lane V/C Ratio	-	-	0.164	0.026
HCM Control Delay (s)	-	-	15	10.4
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.6	0.1

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Existing (2019) AM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	75	86	29	79	33
Future Volume (vph)	21	75	86	29	79	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.966			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1538	1765	0	1703	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1538	1765	0	1703	1845
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	5%	2%	10%	6%	3%
Adj. Flow (vph)	23	83	96	32	88	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	83	128	0	88	37
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 21.0%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)






Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Existing (2019) AM

04/10/2020

## Intersection

Int Delay, s/veh 4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	75	86	29	79	33
Future Vol, veh/h	21	75	86	29	79	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	5	2	10	6	3
Mvmt Flow	23	83	96	32	88	37

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	325	112	0
Stage 1	112	-	-
Stage 2	213	-	-
Critical Hdwy	6.5	6.25	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.345	-
Pot Cap-1 Maneuver	653	933	-
Stage 1	893	-	-
Stage 2	804	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	613	933	-
Mov Cap-2 Maneuver	613	-	-
Stage 1	893	-	-
Stage 2	755	-	-













Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	5.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	613	933
HCM Lane V/C Ratio	-	-	0.038	0.089
HCM Control Delay (s)	-	-	11.1	9.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.3

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) PM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	14	14	516	1118	211
Future Volume (vph)	115	14	14	516	1118	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1752	1509	1770	3438	3505	1583
Flt Permitted	0.950		0.186			
Satd. Flow (perm)	1752	1509	346	3438	3505	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	7%	2%	5%	3%	2%
Adj. Flow (vph)	128	16	16	573	1242	234
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	16	16	573	1242	234
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	21.0	21.0	12.0	69.0	57.0	21.0
Total Split (%)	23.3%	23.3%	13.3%	76.7%	63.3%	23.3%
Maximum Green (s)	15.1	15.1	7.1	62.6	50.6	15.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	-1.4	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	11.2	11.2	67.8	68.8	66.4	86.6
Actuated g/C Ratio	0.12	0.12	0.75	0.76	0.74	0.96
v/c Ratio	0.59	0.09	0.04	0.22	0.48	0.15
Control Delay	47.8	34.0	3.5	3.5	6.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Existing (2019) PM.syn  
VHB







Synchro 10 - Report  
Page 1

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) PM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	47.8	34.0	3.5	3.5	6.7	0.8
LOS	D	C	A	A	A	A
Approach Delay	46.3			3.5	5.8	
Approach LOS	D			A	A	
Queue Length 50th (ft)	70	8	2	37	105	0
Queue Length 95th (ft)	120	26	7	67	283	35
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	311	268	371	2628	2586	1519
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	0.41	0.06	0.04	0.22	0.48	0.15

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 7.8

Intersection Capacity Utilization 45.6%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A













Splits and Phases: 1: Caratoke Hwy (NC 168) & Survey Road



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) PM

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	14	14	516	1118	211
Future Volume (veh/h)	115	14	14	516	1118	211
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1796	1870	1826	1856	1870
Adj Flow Rate, veh/h	128	16	16	573	1242	234
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	7	2	5	3	2
Cap, veh/h	177	153	315	2736	2498	1273
Arrive On Green	0.10	0.10	0.02	0.79	0.71	0.70
Sat Flow, veh/h	1767	1522	1781	3561	3618	1585
Grp Volume(v), veh/h	128	16	16	573	1242	234
Grp Sat Flow(s),veh/h/ln	1767	1522	1781	1735	1763	1585
Q Serve(g_s), s	6.3	0.9	0.2	3.8	14.3	3.1
Cycle Q Clear(g_c), s	6.3	0.9	0.2	3.8	14.3	3.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	177	153	315	2736	2498	1273
V/C Ratio(X)	0.72	0.10	0.05	0.21	0.50	0.18
Avail Cap(c_a), veh/h	314	271	410	2736	2498	1273
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	36.8	4.8	2.4	5.9	2.0
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.2	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.8	0.1	0.5	3.4	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.3	36.9	4.9	2.6	6.6	2.4
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	144			589	1476	
Approach Delay, s/veh	40.9			2.6	5.9	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.0		14.0	7.2	68.8
Change Period (Y+Rc), s		6.4		5.9	* 4.9	6.4
Max Green Setting (Gmax), s		62.6		15.1	* 7.1	50.6
Max Q Clear Time (g_c+I1), s		5.8		8.3	2.2	16.3
Green Ext Time (p_c), s		10.5		0.0	0.0	25.0

## Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

## Notes











\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) PM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	42	56	537	1194	1
Future Volume (vph)	0	42	56	537	1194	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1611	0	1719	3505	3539	0
Flt Permitted			0.950			
Satd. Flow (perm)	1611	0	1719	3505	3539	0
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	3%	2%	2%
Adj. Flow (vph)	0	47	62	597	1327	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	62	597	1328	0
Sign Control	Stop			Free	Free	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.7%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)





Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Existing (2019) PM

04/10/2020

## Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	42	56	537	1194	1
Future Vol, veh/h	0	42	56	537	1194	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	3	2	2
Mvmt Flow	0	47	62	597	1327	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1751	664	1328
Stage 1	1328	-	-
Stage 2	423	-	-
Critical Hdwy	6.84	6.94	4.2
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.25
Pot Cap-1 Maneuver	77	403	500
Stage 1	212	-	-
Stage 2	629	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	67	403	500
Mov Cap-2 Maneuver	151	-	-
Stage 1	186	-	-
Stage 2	629	-	-











Approach	EB	NB	SB
HCM Control Delay, s	15.1	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	500	-	403	-	-
HCM Lane V/C Ratio	0.124	-	0.116	-	-
HCM Control Delay (s)	13.2	-	15.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	0.4	-	-

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Existing (2019) PM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	32	564	10	75	1150
Future Volume (vph)	19	32	564	10	75	1150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.915		0.997			
Flt Protected	0.982				0.950	
Satd. Flow (prot)	1646	0	3462	0	1770	3539
Flt Permitted	0.982				0.950	
Satd. Flow (perm)	1646	0	3462	0	1770	3539
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	3%	4%	2%	2%	2%
Adj. Flow (vph)	21	36	627	11	83	1278
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	638	0	83	1278
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 41.8%

ICU Level of Service A

Analysis Period (min) 15





Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Existing (2019) PM  
04/10/2020

Intersection

Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	32	564	10	75	1150
Future Vol, veh/h	19	32	564	10	75	1150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	3	4	2	2	2
Mvmt Flow	21	36	627	11	83	1278

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1438	319	0
Stage 1	633	-	-
Stage 2	805	-	-
Critical Hdwy	6.9	6.96	-
Critical Hdwy Stg 1	5.9	-	-
Critical Hdwy Stg 2	5.9	-	-
Follow-up Hdwy	3.55	3.33	-
Pot Cap-1 Maneuver	121	674	-
Stage 1	483	-	-
Stage 2	393	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	110	674	-
Mov Cap-2 Maneuver	236	-	-
Stage 1	483	-	-
Stage 2	358	-	-












Approach	WB	NB	SB
HCM Control Delay, s	15.5	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	398	942
HCM Lane V/C Ratio	-	-	0.142	0.088
HCM Control Delay (s)	-	-	15.5	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Existing (2019) PM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	40	62	31	54	161
Future Volume (vph)	22	40	62	31	54	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.955			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1583	1773	0	1687	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1583	1773	0	1687	1863
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	2%	3%	7%	2%
Adj. Flow (vph)	24	44	69	34	60	179
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	44	103	0	60	179
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 19.7%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)






Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Existing (2019) PM

04/10/2020

## Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	40	62	31	54	161
Future Vol, veh/h	22	40	62	31	54	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	2	3	7	2
Mvmt Flow	24	44	69	34	60	179

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	385	86	0
Stage 1	86	-	-
Stage 2	299	-	-
Critical Hdwy	6.45	6.22	-
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.318	-
Pot Cap-1 Maneuver	612	973	-
Stage 1	930	-	-
Stage 2	746	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	587	973	-
Mov Cap-2 Maneuver	587	-	-
Stage 1	930	-	-
Stage 2	715	-	-













Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	1.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	587	973
HCM Lane V/C Ratio	-	-	0.042	0.046
HCM Control Delay (s)	-	-	11.4	8.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

Lanes, Volumes, Timings  
1: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) AM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	266	41	26	1213	525	106
Future Volume (vph)	266	41	26	1213	525	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3505	3343	1583
Flt Permitted	0.950		0.404			
Satd. Flow (perm)	1770	1583	753	3505	3343	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	8%	2%
Adj. Flow (vph)	296	46	29	1348	583	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	46	29	1348	583	118
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	33.0	33.0	12.0	57.0	45.0	33.0
Total Split (%)	36.7%	36.7%	13.3%	63.3%	50.0%	36.7%
Maximum Green (s)	27.1	27.1	7.1	50.6	38.6	27.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	-1.4	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	19.5	19.5	58.5	60.5	52.9	80.4
Actuated g/C Ratio	0.22	0.22	0.65	0.67	0.59	0.89
v/c Ratio	0.77	0.13	0.05	0.57	0.30	0.08
Control Delay	46.4	27.0	6.0	7.3	12.9	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

No-Build (2026) AM.syn  
VHB

Synchro 10 - Report  
Page 1







Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

# Lanes, Volumes, Timings

## 1: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) AM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	46.4	27.0	6.0	7.3	12.9	2.3
LOS	D	C	A	A	B	A
Approach Delay	43.7			7.2	11.2	
Approach LOS	D			A	B	
Queue Length 50th (ft)	159	21	4	124	61	0
Queue Length 95th (ft)	226	45	m10	194	177	31
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	550	492	599	2355	2015	1402
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	0.54	0.09	0.05	0.57	0.29	0.08

### Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 13 (14%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 13.5

Intersection LOS: B

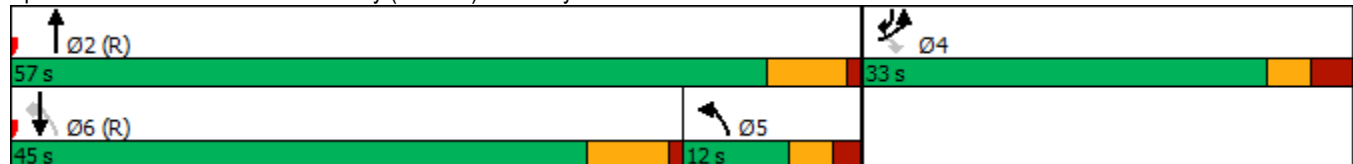
Intersection Capacity Utilization 56.6%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

### Splits and Phases: 1: Caratoke Hwy (NC 168) & Survey Road

















# HCM 6th Signalized Intersection Summary

## 1: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) AM

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	266	41	26	1213	525	106
Future Volume (veh/h)	266	41	26	1213	525	106
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1781	1870
Adj Flow Rate, veh/h	296	46	29	1348	583	118
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	3	8	2
Cap, veh/h	346	308	767	2449	977	756
Arrive On Green	0.19	0.19	0.33	0.69	0.29	0.28
Sat Flow, veh/h	1781	1585	1781	3618	3474	1585
Grp Volume(v), veh/h	296	46	29	1348	583	118
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1763	1692	1585
Q Serve(g_s), s	14.5	2.2	0.0	17.0	13.3	3.8
Cycle Q Clear(g_c), s	14.5	2.2	0.0	17.0	13.3	3.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	346	308	767	2449	977	756
V/C Ratio(X)	0.86	0.15	0.04	0.55	0.60	0.16
Avail Cap(c_a), veh/h	554	493	767	2449	1504	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	30.1	13.8	6.8	27.5	13.3
Incr Delay (d2), s/veh	4.1	0.1	0.0	0.9	2.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	2.1	0.3	4.3	5.2	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.2	30.2	13.8	7.7	30.2	13.7
LnGrp LOS	D	C	B	A	C	B
Approach Vol, veh/h	342			1377	701	
Approach Delay, s/veh	38.0			7.8	27.4	
Approach LOS	D			A	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		67.5		22.5	36.5	31.0
Change Period (Y+Rc), s		6.4		5.9	6.4	* 6.4
Max Green Setting (Gmax), s		50.6		27.1	7.1	* 39
Max Q Clear Time (g_c+I1), s		19.0		16.5	2.0	15.3
Green Ext Time (p_c), s		22.9		0.1	0.0	9.3

### Intersection Summary

HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.











Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

# Lanes, Volumes, Timings

## 2: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) AM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	43	80	1225	533	0
Future Volume (vph)	0	43	80	1225	533	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1596	0	1612	3505	3343	0
Flt Permitted			0.950			
Satd. Flow (perm)	1596	0	1612	3505	3343	0
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	12%	3%	8%	2%
Adj. Flow (vph)	0	48	89	1361	592	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	89	1361	592	0
Sign Control	Stop			Free	Free	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 43.9%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

# HCM 6th TWSC





## 2: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) AM

04/10/2020

## Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	43	80	1225	533	0
Future Vol, veh/h	0	43	80	1225	533	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	12	3	8	2
Mvmt Flow	0	48	89	1361	592	0

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1451	296	592
Stage 1	592	-	-
Stage 2	859	-	-
Critical Hdwy	6.84	6.96	4.34
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.33	2.32
Pot Cap-1 Maneuver	122	697	914
Stage 1	516	-	-
Stage 2	375	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	110	697	914
Mov Cap-2 Maneuver	239	-	-
Stage 1	466	-	-
Stage 2	375	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.6	0
HCM LOS	B		











Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	914	-	697	-	-
HCM Lane V/C Ratio	0.097	-	0.069	-	-
HCM Control Delay (s)	9.4	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	-	-

### Lanes, Volumes, Timings

#### 3: Caratoke Hwy (NC 168) & Guinea Road

No-Build (2026) AM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	70	1154	22	35	579
Future Volume (vph)	16	70	1154	22	35	579
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.890		0.997			
Flt Protected	0.991				0.950	
Satd. Flow (prot)	1617	0	3456	0	1770	3343
Flt Permitted	0.991				0.950	
Satd. Flow (perm)	1617	0	3456	0	1770	3343
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	4%	11%	2%	8%
Adj. Flow (vph)	18	78	1282	24	39	643
Shared Lane Traffic (%)						
Lane Group Flow (vph)	96	0	1306	0	39	643
Sign Control	Stop		Free			Free

#### Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 44.5%

ICU Level of Service A

Analysis Period (min) 15





Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

# HCM 6th TWSC 3: Caratoke Hwy (NC 168) & Guinea Road

No-Build (2026) AM

04/10/2020

## Intersection

Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	70	1154	22	35	579
Future Vol, veh/h	16	70	1154	22	35	579
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	4	11	2	8
Mvmt Flow	18	78	1282	24	39	643

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1694	653	0	0	1306
Stage 1	1294	-	-	-	-
Stage 2	400	-	-	-	-
Critical Hdwy	6.84	6.98	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.34	-	-	2.22
Pot Cap-1 Maneuver	84	405	-	-	526
Stage 1	221	-	-	-	-
Stage 2	646	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	78	405	-	-	526
Mov Cap-2 Maneuver	174	-	-	-	-
Stage 1	221	-	-	-	-
Stage 2	598	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.6	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	325	526
HCM Lane V/C Ratio	-	-	0.294	0.074
HCM Control Delay (s)	-	-	20.6	12.4
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.2	0.2














# Lanes, Volumes, Timings

## 4: Eagle Creek Road & Survey Road

No-Build (2026) AM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	92	115	36	97	56
Future Volume (vph)	26	92	115	36	97	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.968			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1538	1770	0	1703	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1538	1770	0	1703	1845
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	5%	2%	10%	6%	3%
Adj. Flow (vph)	29	102	128	40	108	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	102	168	0	108	62
Sign Control	Stop		Free			Free

### Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.9%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

# HCM 6th TWSC






## 4: Eagle Creek Road & Survey Road

No-Build (2026) AM

04/10/2020

## Intersection

Int Delay, s/veh 4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	92	115	36	97	56
Future Vol, veh/h	26	92	115	36	97	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	5	2	10	6	3
Mvmt Flow	29	102	128	40	108	62

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	426	148	0
Stage 1	148	-	-
Stage 2	278	-	-
Critical Hdwy	6.5	6.25	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.345	-
Pot Cap-1 Maneuver	570	891	-
Stage 1	860	-	-
Stage 2	751	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	526	891	-
Mov Cap-2 Maneuver	526	-	-
Stage 1	860	-	-
Stage 2	692	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	5
HCM LOS	B		













Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	526	891
HCM Lane V/C Ratio	-	-	0.055	0.115
HCM Control Delay (s)	-	-	12.2	9.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.4

# Lanes, Volumes, Timings

## 5: Caratoke Hwy (NC 168) & Fost Boulevard

No-Build (2026) AM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	162	132	78	1145	480	96
Future Volume (vph)	162	132	78	1145	480	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	557			859	1116	
Travel Time (s)	15.2			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	180	147	87	1272	533	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	180	147	87	1272	533	107
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	28.0	19.0	19.0	62.0	43.0	28.0
Total Split (%)	31.1%	21.1%	21.1%	68.9%	47.8%	31.1%
Maximum Green (s)	21.0	12.0	12.0	55.0	36.0	21.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	16.4	33.3	11.9	63.6	46.7	68.1
Actuated g/C Ratio	0.18	0.37	0.13	0.71	0.52	0.76
v/c Ratio	0.56	0.25	0.37	0.51	0.29	0.09
Control Delay	39.7	19.3	39.5	7.4	5.2	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	19.3	39.5	7.4	5.2	1.4
LOS	D	B	D	A	A	A
Approach Delay	30.5			9.5	4.6	
Approach LOS	C			A	A	

No-Build (2026) AM.syn  
VHB







Synchro 10 - Report  
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Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

# Lanes, Volumes, Timings

## 5: Caratoke Hwy (NC 168) & Fost Boulevard

No-Build (2026) AM  
04/10/2020

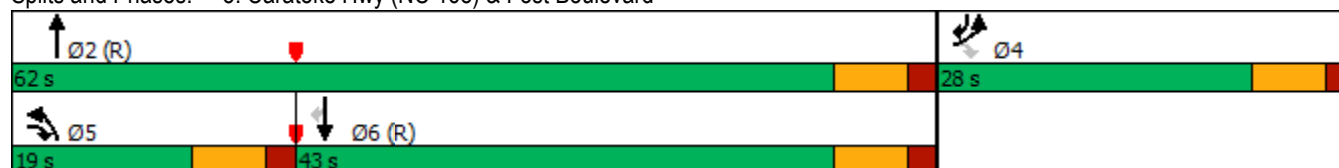
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	94	57	46	148	51	5
Queue Length 95th (ft)	149	84	87	238	24	7
Internal Link Dist (ft)	477			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	452	627	281	2502	1839	1314
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.23	0.31	0.51	0.29	0.08

### Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.56  
 Intersection Signal Delay: 11.1  
 Intersection Capacity Utilization 49.0%  
 Analysis Period (min) 15

Intersection LOS: B  
ICU Level of Service A













### Splits and Phases: 5: Caratoke Hwy (NC 168) & Fost Boulevard



# HCM 6th Signalized Intersection Summary 5: Caratoke Hwy (NC 168) & Fost Boulevard

No-Build (2026) AM

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	132	78	1145	480	96
Future Volume (veh/h)	162	132	78	1145	480	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	180	147	87	1272	533	107
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	265	380	162	2631	2109	1176
Arrive On Green	0.15	0.15	0.09	0.74	0.59	0.59
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	180	147	87	1272	533	107
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	8.6	7.0	4.2	13.0	6.5	1.7
Cycle Q Clear(g_c), s	8.6	7.0	4.2	13.0	6.5	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	265	380	162	2631	2109	1176
V/C Ratio(X)	0.68	0.39	0.54	0.48	0.25	0.09
Avail Cap(c_a), veh/h	455	550	277	2631	2109	1176
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	28.7	39.1	4.7	8.7	3.2
Incr Delay (d2), s/veh	3.1	0.6	2.7	0.6	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	6.5	1.8	2.7	2.0	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.3	29.3	41.8	5.4	9.0	3.4
LnGrp LOS	D	C	D	A	A	A
Approach Vol, veh/h	327			1359	640	
Approach Delay, s/veh	34.8			7.7	8.1	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		71.6		18.4	13.2	58.4
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		55.0		21.0	12.0	36.0
Max Q Clear Time (g_c+I1), s		15.0		10.6	6.2	8.5
Green Ext Time (p_c), s		10.4		0.8	0.1	3.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			













Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) PM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	141	32	27	730	1522	260
Future Volume (vph)	141	32	27	730	1522	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1752	1509	1770	3438	3505	1583
Flt Permitted	0.950		0.081			
Satd. Flow (perm)	1752	1509	151	3438	3505	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	7%	2%	5%	3%	2%
Adj. Flow (vph)	157	36	30	811	1691	289
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	36	30	811	1691	289
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4







No-Build (2026) PM.syn  
VHB

Synchro 10 - Report  
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Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) PM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	19.0	19.0	11.9	71.0	59.1	19.0
Total Split (%)	21.1%	21.1%	13.2%	78.9%	65.7%	21.1%
Maximum Green (s)	13.1	13.1	7.0	64.6	52.7	13.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	0.0	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.4	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	11.7	11.7	68.1	68.3	59.8	79.9
Actuated g/C Ratio	0.13	0.13	0.76	0.76	0.66	0.89
v/c Ratio	0.69	0.18	0.13	0.31	0.73	0.21
Control Delay	53.2	36.1	5.5	3.6	14.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	36.1	5.5	3.6	14.0	1.8
LOS	D	D	A	A	B	A
Approach Delay	50.0			3.6	12.2	
Approach LOS	D			A	B	

#### Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 24 (27%), Referenced to phase 2:NBT and 6:NBSB, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 12.2  
 Intersection Capacity Utilization 59.4%  
 Analysis Period (min) 15

Intersection LOS: B  
ICU Level of Service B













#### Splits and Phases: 1: Caratoke Hwy (NC 168) & Survey Road



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) PM

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	141	32	27	730	1522	260
Future Volume (veh/h)	141	32	27	730	1522	260
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1796	1870	1826	1856	1870
Adj Flow Rate, veh/h	157	36	30	811	1691	289
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	7	2	5	3	2
Cap, veh/h	208	179	312	2675	2030	1115
Arrive On Green	0.12	0.12	0.11	0.77	0.58	0.59
Sat Flow, veh/h	1767	1522	1781	3561	3618	1585
Grp Volume(v), veh/h	157	36	30	811	1691	289
Grp Sat Flow(s),veh/h/ln	1767	1522	1781	1735	1763	1585
Q Serve(g_s), s	7.7	1.9	0.0	6.3	35.2	5.9
Cycle Q Clear(g_c), s	7.7	1.9	0.0	6.3	35.2	5.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	208	179	312	2675	2030	1115
V/C Ratio(X)	0.75	0.20	0.10	0.30	0.83	0.26
Avail Cap(c_a), veh/h	275	237	312	2675	2064	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	35.9	26.2	3.1	15.6	4.8
Incr Delay (d2), s/veh	5.4	0.2	0.0	0.3	4.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	1.7	0.5	1.0	11.9	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.8	36.1	26.2	3.4	19.8	5.4
LnGrp LOS	D	D	C	A	B	A
Approach Vol, veh/h	193			841	1980	
Approach Delay, s/veh	42.4			4.2	17.7	
Approach LOS	D			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		74.4		15.6	16.2	58.2
Change Period (Y+Rc), s		6.4		5.9	6.4	* 6.4
Max Green Setting (Gmax), s		64.6		13.1	7.0	* 53
Max Q Clear Time (g_c+I1), s		8.3		9.7	2.0	37.2
Green Ext Time (p_c), s		16.7		0.0	0.0	14.6

## Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B











## Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) PM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	52	69	765	1629	1
Future Volume (vph)	0	52	69	765	1629	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.865					
Flt Protected			0.950			
Satd. Flow (prot)	1611	0	1719	3505	3539	0
Flt Permitted			0.950			
Satd. Flow (perm)	1611	0	1719	3505	3539	0
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	3%	2%	2%
Adj. Flow (vph)	0	58	77	850	1810	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	77	850	1811	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	62.2%			ICU Level of Service B		
Analysis Period (min)	15					

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)





Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

No-Build (2026) PM

04/10/2020

## Intersection

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	52	69	765	1629	1
Future Vol, veh/h	0	52	69	765	1629	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	3	2	2
Mvmt Flow	0	58	77	850	1810	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2390	906	1811
Stage 1	1811	-	-
Stage 2	579	-	-
Critical Hdwy	6.84	6.94	4.2
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.25
Pot Cap-1 Maneuver	28	279	323
Stage 1	116	-	-
Stage 2	524	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	21	279	323
Mov Cap-2 Maneuver	73	-	-
Stage 1	88	-	-
Stage 2	524	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.2	1.6	0
HCM LOS	C		














Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	323	-	279	-	-
HCM Lane V/C Ratio	0.237	-	0.207	-	-
HCM Control Delay (s)	19.6	-	21.2	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0.9	-	0.8	-	-



Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

No-Build (2026) PM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 		 	 
Traffic Volume (vph)	23	54	811	12	102	1490
Future Volume (vph)	23	54	811	12	102	1490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.906		0.998			
Flt Protected	0.985				0.950	
Satd. Flow (prot)	1637	0	3465	0	1770	3539
Flt Permitted	0.985				0.950	
Satd. Flow (perm)	1637	0	3465	0	1770	3539
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	3%	4%	2%	2%	2%
Adj. Flow (vph)	26	60	901	13	113	1656
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	0	914	0	113	1656
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 52.5%

ICU Level of Service A





Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

No-Build (2026) PM  
04/10/2020

Intersection

Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	54	811	12	102	1490
Future Vol, veh/h	23	54	811	12	102	1490
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	3	4	2	2	2
Mvmt Flow	26	60	901	13	113	1656

Major/Minor	Minor1	Major1		Major2	
Conflicting Flow All	1962	457	0	0	914
Stage 1	908	-	-	-	-
Stage 2	1054	-	-	-	-
Critical Hdwy	6.9	6.96	-	-	4.14
Critical Hdwy Stg 1	5.9	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-
Follow-up Hdwy	3.55	3.33	-	-	2.22
Pot Cap-1 Maneuver	53	548	-	-	742
Stage 1	347	-	-	-	-
Stage 2	290	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	45	548	-	-	742
Mov Cap-2 Maneuver	151	-	-	-	-
Stage 1	347	-	-	-	-
Stage 2	246	-	-	-	-












Approach	WB	NB	SB
HCM Control Delay, s	21.2	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	307	742
HCM Lane V/C Ratio	-	-	0.279	0.153
HCM Control Delay (s)	-	-	21.2	10.7
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.1	0.5

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

No-Build (2026) PM

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	49	91	38	66	208
Future Volume (vph)	27	49	91	38	66	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.960			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1583	1783	0	1687	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1583	1783	0	1687	1863
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	2%	3%	7%	2%
Adj. Flow (vph)	30	54	101	42	73	231
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	54	143	0	73	231
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 24.1%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)






Flora Farms TIA  
4: Eagle Creek Road & Survey Road

No-Build (2026) PM

04/10/2020

## Intersection

Int Delay, s/veh 2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	49	91	38	66	208
Future Vol, veh/h	27	49	91	38	66	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	2	3	7	2
Mvmt Flow	30	54	101	42	73	231

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	499	122	0
Stage 1	122	-	-
Stage 2	377	-	-
Critical Hdwy	6.45	6.22	-
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.318	-
Pot Cap-1 Maneuver	526	929	-
Stage 1	896	-	-
Stage 2	687	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	499	929	-
Mov Cap-2 Maneuver	499	-	-
Stage 1	896	-	-
Stage 2	651	-	-













Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	499	929
HCM Lane V/C Ratio	-	-	0.06	0.059
HCM Control Delay (s)	-	-	12.7	9.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.2

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

No-Build (2026) PM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	117	100	143	722	1506	175
Future Volume (vph)	117	100	143	722	1506	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	586			859	1116	
Travel Time (s)	16.0			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	130	111	159	802	1673	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	111	159	802	1673	194
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane				Yes	Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6

No-Build (2026) PM.syn  
VHB







Synchro 10 - Report  
Page 10

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

No-Build (2026) PM  
04/10/2020

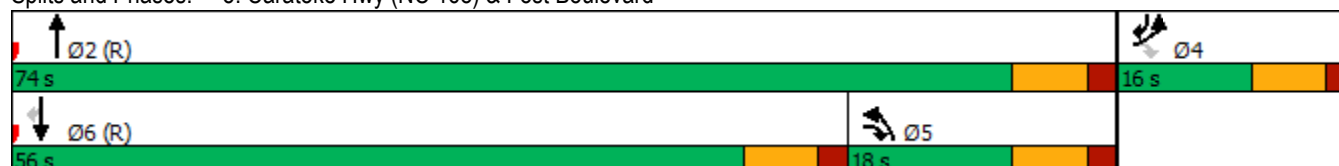
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	67.0	49.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	10.9	28.4	12.5	69.1	51.6	67.5
Actuated g/C Ratio	0.12	0.32	0.14	0.77	0.57	0.75
v/c Ratio	0.61	0.22	0.65	0.30	0.82	0.16
Control Delay	50.5	23.8	49.6	3.5	8.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	23.8	49.6	3.5	8.9	0.7
LOS	D	C	D	A	A	A
Approach Delay	38.2			11.1	8.0	
Approach LOS	D			B	A	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 11.3  
 Intersection Capacity Utilization 68.5%  
 Analysis Period (min) 15

Intersection LOS: B  
ICU Level of Service C













Splits and Phases: 5: Caratoke Hwy (NC 168) & Fost Boulevard



Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

No-Build (2026) PM

04/10/2020













						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	117	100	143	722	1506	175
Future Volume (veh/h)	117	100	143	722	1506	175
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	111	159	802	1673	194
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	204	470	324	2752	1908	1033
Arrive On Green	0.11	0.11	0.18	0.77	0.54	0.54
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	130	111	159	802	1673	194
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	6.3	0.0	7.2	5.9	37.1	4.4
Cycle Q Clear(g_c), s	6.3	0.0	7.2	5.9	37.1	4.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	204	470	324	2752	1908	1033
V/C Ratio(X)	0.64	0.24	0.49	0.29	0.88	0.19
Avail Cap(c_a), veh/h	218	482	324	2752	2014	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	24.0	33.1	3.0	18.2	6.2
Incr Delay (d2), s/veh	5.5	0.3	1.2	0.3	6.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.8	3.0	1.0	13.5	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	24.2	34.2	3.2	24.3	6.6
LnGrp LOS	D	C	C	A	C	A
Approach Vol, veh/h	241			961	1867	
Approach Delay, s/veh	34.7			8.4	22.5	
Approach LOS	C			A	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		74.7		15.3	21.4	53.3
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		67.0		9.0	11.0	49.0
Max Q Clear Time (g_c+I1), s		7.9		8.3	9.2	39.1
Green Ext Time (p_c), s		5.5		0.1	0.1	7.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			19.0			
HCM 6th LOS			B			

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	376	41	26	1213	563	182
Future Volume (vph)	376	41	26	1213	563	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3505	3343	1583
Flt Permitted	0.950		0.367			
Satd. Flow (perm)	1770	1583	684	3505	3343	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	8%	2%
Adj. Flow (vph)	418	46	29	1348	626	202
Shared Lane Traffic (%)						
Lane Group Flow (vph)	418	46	29	1348	626	202
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	38.0	38.0	12.0	52.0	40.0	38.0
Total Split (%)	42.2%	42.2%	13.3%	57.8%	44.4%	42.2%
Maximum Green (s)	32.1	32.1	7.1	45.6	33.6	32.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	-1.4	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	25.7	25.7	52.3	54.3	48.3	82.0
Actuated g/C Ratio	0.29	0.29	0.58	0.60	0.54	0.91
v/c Ratio	0.83	0.10	0.06	0.64	0.35	0.14
Control Delay	43.7	21.7	8.2	9.8	15.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0







Build (2026) AM.syn  
VHB

Synchro 10 - Report  
Page 1

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM  
04/10/2020

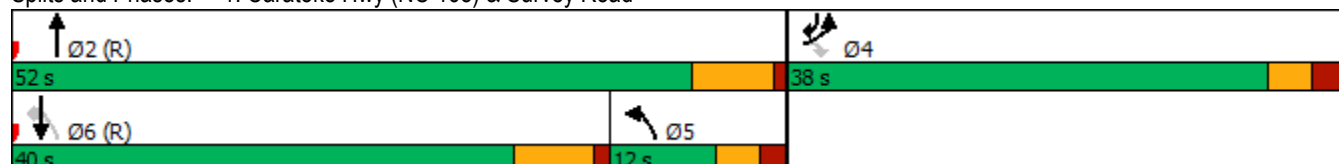
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	43.7	21.7	8.2	9.8	15.4	1.7
LOS	D	C	A	A	B	A
Approach Delay	41.5			9.8	12.0	
Approach LOS	D			A	B	
Queue Length 50th (ft)	220	19	5	151	84	0
Queue Length 95th (ft)	296	40	m11	203	189	31
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	649	580	496	2114	1811	1438
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	0.64	0.08	0.06	0.64	0.35	0.14

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 21 (23%), Referenced to phase 2:NBT and 6:NBSB, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 16.0  
 Intersection Capacity Utilization 62.7%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.













Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 1: Caratoke Hwy (NC 168) & Survey Road



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM  
04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	376	41	26	1213	563	182
Future Volume (veh/h)	376	41	26	1213	563	182
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1781	1870
Adj Flow Rate, veh/h	418	46	29	1348	626	202
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	3	8	2
Cap, veh/h	465	413	621	2214	1004	875
Arrive On Green	0.26	0.26	0.26	0.63	0.30	0.29
Sat Flow, veh/h	1781	1585	1781	3618	3474	1585
Grp Volume(v), veh/h	418	46	29	1348	626	202
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1763	1692	1585
Q Serve(g_s), s	20.4	2.0	0.0	20.7	14.4	5.9
Cycle Q Clear(g_c), s	20.4	2.0	0.0	20.7	14.4	5.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	465	413	621	2214	1004	875
V/C Ratio(X)	0.90	0.11	0.05	0.61	0.62	0.23
Avail Cap(c_a), veh/h	653	581	621	2214	1316	1021
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	25.3	18.1	10.1	27.3	10.4
Incr Delay (d2), s/veh	9.7	0.0	0.0	1.3	2.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	2.0	0.4	6.2	5.6	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.8	25.4	18.1	11.3	30.2	11.0
LnGrp LOS	D	C	B	B	C	B
Approach Vol, veh/h	464			1377	828	
Approach Delay, s/veh	40.2			11.5	25.5	
Approach LOS	D			B	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		61.5		28.5	29.8	31.7
Change Period (Y+Rc), s		6.4		5.9	6.4	* 6.4
Max Green Setting (Gmax), s		45.6		32.1	7.1	* 34
Max Q Clear Time (g_c+I1), s		22.7		22.4	2.0	16.4
Green Ext Time (p_c), s		17.8		0.2	0.0	8.9

Intersection Summary

HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C











Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	125	137	1225	533	38
Future Volume (vph)	55	125	137	1225	533	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.906				0.990	
Flt Protected	0.985		0.950			
Satd. Flow (prot)	1651	0	1612	3505	3321	0
Flt Permitted	0.985		0.950			
Satd. Flow (perm)	1651	0	1612	3505	3321	0
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	12%	3%	8%	2%
Adj. Flow (vph)	61	139	152	1361	592	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	0	152	1361	634	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.3%

ICU Level of Service A





Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM  
04/10/2020

Intersection

Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	125	137	1225	533	38
Future Vol, veh/h	55	125	137	1225	533	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	12	3	8	2
Mvmt Flow	61	139	152	1361	592	42











Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1598	317	634	0	0
Stage 1	613	-	-	-	-
Stage 2	985	-	-	-	-
Critical Hdwy	6.84	6.96	4.34	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.33	2.32	-	-
Pot Cap-1 Maneuver	97	676	880	-	-
Stage 1	503	-	-	-	-
Stage 2	322	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	80	676	880	-	-
Mov Cap-2 Maneuver	201	-	-	-	-
Stage 1	416	-	-	-	-
Stage 2	322	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.3	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	880	-	393	-	-
HCM Lane V/C Ratio	0.173	-	0.509	-	-
HCM Control Delay (s)	9.9	-	23.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.6	-	2.8	-	-

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) AM  
04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	79	1211	22	49	661
Future Volume (vph)	16	79	1211	22	49	661
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.888		0.997			
Flt Protected	0.992				0.950	
Satd. Flow (prot)	1615	0	3457	0	1770	3343
Flt Permitted	0.992				0.950	
Satd. Flow (perm)	1615	0	3457	0	1770	3343
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	4%	11%	2%	8%
Adj. Flow (vph)	18	88	1346	24	54	734
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	1370	0	54	734
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.1%

Analysis Period (min) 15





ICU Level of Service A

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) AM  
04/10/2020

Intersection

Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	79	1211	22	49	661
Future Vol, veh/h	16	79	1211	22	49	661
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	4	11	2	8
Mvmt Flow	18	88	1346	24	54	734












Major/Minor	Minor1	Major1		Major2	
Conflicting Flow All	1833	685	0	0	1370
Stage 1	1358	-	-	-	-
Stage 2	475	-	-	-	-
Critical Hdwy	6.84	6.98	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.34	-	-	2.22
Pot Cap-1 Maneuver	68	386	-	-	497
Stage 1	204	-	-	-	-
Stage 2	592	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	61	386	-	-	497
Mov Cap-2 Maneuver	156	-	-	-	-
Stage 1	204	-	-	-	-
Stage 2	527	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.6	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	309	497
HCM Lane V/C Ratio	-	-	0.342	0.11
HCM Control Delay (s)	-	-	22.6	13.1
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.5	0.4

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM  
04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	202	115	45	173	56
Future Volume (vph)	40	202	115	45	173	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.962			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1538	1753	0	1703	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1538	1753	0	1703	1845
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	5%	2%	10%	6%	3%
Adj. Flow (vph)	44	224	128	50	192	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	224	178	0	192	62
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 31.7%

Analysis Period (min) 15

ICU Level of Service A

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)








Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM  
04/10/2020

Intersection

Int Delay, s/veh 6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	202	115	45	173	56
Future Vol, veh/h	40	202	115	45	173	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	5	2	10	6	3
Mvmt Flow	44	224	128	50	192	62













Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	599	153	0
Stage 1	153	-	-
Stage 2	446	-	-
Critical Hdwy	6.5	6.25	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.345	-
Pot Cap-1 Maneuver	452	885	-
Stage 1	856	-	-
Stage 2	628	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	389	885	-
Mov Cap-2 Maneuver	389	-	-
Stage 1	856	-	-
Stage 2	540	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	6.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	389	885
HCM Lane V/C Ratio	-	-	0.114	0.254
HCM Control Delay (s)	-	-	15.4	10.4
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.4	1

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) AM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	162	146	87	1202	562	96
Future Volume (vph)	162	146	87	1202	562	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	557			859	1116	
Travel Time (s)	15.2			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	180	162	97	1336	624	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	180	162	97	1336	624	107
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	27.0	19.0	19.0	63.0	44.0	27.0
Total Split (%)	30.0%	21.1%	21.1%	70.0%	48.9%	30.0%
Maximum Green (s)	20.0	12.0	12.0	56.0	37.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	16.4	33.7	12.3	63.6	46.3	67.7
Actuated g/C Ratio	0.18	0.37	0.14	0.71	0.51	0.75
v/c Ratio	0.56	0.27	0.40	0.53	0.34	0.09
Control Delay	39.7	19.4	39.7	7.7	8.2	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	19.4	39.7	7.7	8.2	1.6
LOS	D	B	D	A	A	A
Approach Delay	30.1			9.9	7.2	
Approach LOS	C			A	A	







Build (2026) AM.syn  
VHB

Synchro 10 - Report  
Page 10

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) AM  
04/10/2020

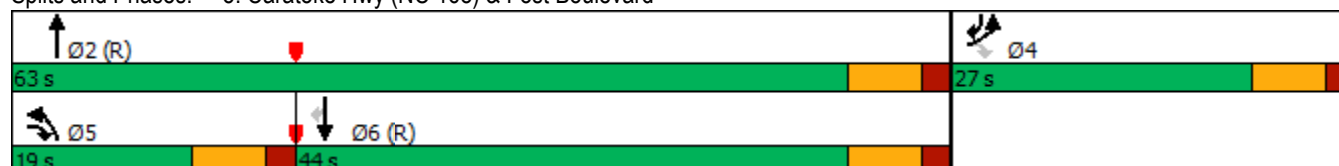
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	94	63	51	160	71	7
Queue Length 95th (ft)	149	91	94	257	56	8
Internal Link Dist (ft)	477			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	432	629	283	2502	1835	1289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.26	0.34	0.53	0.34	0.08

#### Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.56  
 Intersection Signal Delay: 11.9  
 Intersection Capacity Utilization 50.5%  
 Analysis Period (min) 15

Intersection LOS: B  
ICU Level of Service A













#### Splits and Phases: 5: Caratoke Hwy (NC 168) & Fost Boulevard



Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) AM

















04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	146	87	1202	562	96
Future Volume (veh/h)	162	146	87	1202	562	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	180	162	97	1336	624	107
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	265	383	166	2630	2102	1173
Arrive On Green	0.15	0.15	0.09	0.74	0.59	0.59
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	180	162	97	1336	624	107
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	8.6	7.8	4.7	14.1	7.8	1.7
Cycle Q Clear(g_c), s	8.6	7.8	4.7	14.1	7.8	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	265	383	166	2630	2102	1173
V/C Ratio(X)	0.68	0.42	0.58	0.51	0.30	0.09
Avail Cap(c_a), veh/h	435	535	277	2630	2102	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	28.8	39.1	4.9	9.1	3.3
Incr Delay (d2), s/veh	3.0	0.7	3.2	0.7	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	7.2	2.1	2.9	2.4	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.3	29.6	42.4	5.6	9.5	3.4
LnGrp LOS	D	C	D	A	A	A
Approach Vol, veh/h	342			1433	731	
Approach Delay, s/veh	34.7			8.1	8.6	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		71.6		18.4	13.4	58.2
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		56.0		20.0	12.0	37.0
Max Q Clear Time (g_c+I1), s		16.1		10.6	6.7	9.8
Green Ext Time (p_c), s		11.2		0.8	0.1	4.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			11.8			
HCM 6th LOS			B			

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
6: Future Access #1/Future Access #2 & Survey Road

Build (2026) AM  
04/10/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	43	77	76	80	19	111	2	110	27	2	14
Future Volume (vph)	9	43	77	76	80	19	111	2	110	27	2	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.919			0.985			0.933			0.955	
Flt Protected		0.997			0.979			0.976			0.970	
Satd. Flow (prot)	0	1707	0	0	1796	0	0	1696	0	0	1726	0
Flt Permitted		0.997			0.979			0.976			0.970	
Satd. Flow (perm)	0	1707	0	0	1796	0	0	1696	0	0	1726	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2903			390			327			235	
Travel Time (s)		56.6			7.6			8.9			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	48	86	84	89	21	123	2	122	30	2	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	144	0	0	194	0	0	247	0	0	48	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 37.3%

Analysis Period (min) 15

ICU Level of Service A

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)







Flora Farms TIA  
6: Future Access #1/Future Access #2 & Survey Road

Build (2026) AM  
04/10/2020

Intersection

Int Delay, s/veh 7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	43	77	76	80	19	111	2	110	27	2	14
Future Vol, veh/h	9	43	77	76	80	19	111	2	110	27	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	48	86	84	89	21	123	2	122	30	2	16













Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	110	0	0	134	0	0	388	389	91	441	422	100
Stage 1	-	-	-	-	-	-	111	111	-	268	268	-
Stage 2	-	-	-	-	-	-	277	278	-	173	154	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1451	-	-	571	546	967	527	523	956
Stage 1	-	-	-	-	-	-	894	804	-	738	687	-
Stage 2	-	-	-	-	-	-	729	680	-	829	770	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1480	-	-	1451	-	-	530	508	967	435	487	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	530	508	-	435	487	-
Stage 1	-	-	-	-	-	-	888	798	-	733	644	-
Stage 2	-	-	-	-	-	-	670	638	-	717	765	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	3.3	13.3	12.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	682	1480	-	-	1451	-	-	532
HCM Lane V/C Ratio	0.363	0.007	-	-	0.058	-	-	0.09
HCM Control Delay (s)	13.3	7.4	0	-	7.6	0	-	12.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	0.3

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	271	32	27	699	1546	425
Future Volume (vph)	271	32	27	699	1546	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1752	1509	1770	3438	3505	1583
Flt Permitted	0.950		0.077			
Satd. Flow (perm)	1752	1509	143	3438	3505	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	7%	2%	5%	3%	2%
Adj. Flow (vph)	301	36	30	777	1718	472
Shared Lane Traffic (%)						
Lane Group Flow (vph)	301	36	30	777	1718	472
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	23.0	23.0	11.9	67.0	55.1	23.0
Total Split (%)	25.6%	25.6%	13.2%	74.4%	61.2%	25.6%
Maximum Green (s)	17.1	17.1	7.0	60.6	48.7	17.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	0.0	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.4	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	17.3	17.3	62.4	62.7	54.1	79.9
Actuated g/C Ratio	0.19	0.19	0.69	0.70	0.60	0.89
v/c Ratio	0.89	0.12	0.13	0.32	0.82	0.34
Control Delay	64.8	30.8	7.1	5.1	20.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0







Build (2026) PM.syn  
VHB

Synchro 10 - Report  
Page 1

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	64.8	30.8	7.1	5.1	20.0	2.4
LOS	E	C	A	A	B	A
Approach Delay	61.2			5.1	16.2	
Approach LOS	E			A	B	
Queue Length 50th (ft)	167	17	4	68	435	51
Queue Length 95th (ft)	#309	43	m10	90	#582	79
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	352	302	224	2396	2107	1400
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	0.86	0.12	0.13	0.32	0.82	0.34

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 29 (32%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 67.2%

ICU Level of Service C

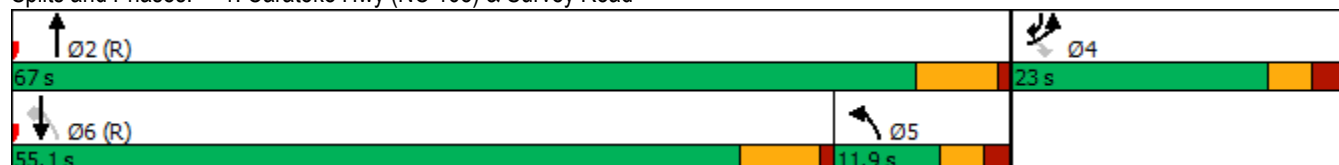
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 1: Caratoke Hwy (NC 168) & Survey Road



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	271	32	27	699	1546	425
Future Volume (veh/h)	271	32	27	699	1546	425
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1796	1870	1826	1856	1870
Adj Flow Rate, veh/h	301	36	30	777	1718	472
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	7	2	5	3	2
Cap, veh/h	348	300	213	2400	1901	1183
Arrive On Green	0.20	0.20	0.06	0.69	0.54	0.55
Sat Flow, veh/h	1767	1522	1781	3561	3618	1585
Grp Volume(v), veh/h	301	36	30	777	1718	472
Grp Sat Flow(s),veh/h/ln	1767	1522	1781	1735	1763	1585
Q Serve(g_s), s	14.8	1.8	0.0	8.0	39.4	9.7
Cycle Q Clear(g_c), s	14.8	1.8	0.0	8.0	39.4	9.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	348	300	213	2400	1901	1183
V/C Ratio(X)	0.86	0.12	0.14	0.32	0.90	0.40
Avail Cap(c_a), veh/h	353	304	234	2400	1908	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	29.7	36.7	5.5	18.6	4.1
Incr Delay (d2), s/veh	18.4	0.1	0.1	0.4	7.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	1.6	0.6	2.0	14.6	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	29.8	36.8	5.9	26.2	5.1
LnGrp LOS	D	C	D	A	C	A
Approach Vol, veh/h	337			807	2190	
Approach Delay, s/veh	50.8			7.0	21.7	
Approach LOS	D			A	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		67.3		22.7	12.3	54.9
Change Period (Y+Rc), s		6.4		5.9	6.4	* 6.4
Max Green Setting (Gmax), s		60.6		17.1	7.0	* 49
Max Q Clear Time (g_c+I1), s		10.0		16.8	2.0	41.4
Green Ext Time (p_c), s		15.3		0.0	0.0	7.1

## Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C











## Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	53	169	199	730	1587	68
Future Volume (vph)	53	169	199	730	1587	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt	0.897				0.994	
Flt Protected	0.988		0.950			
Satd. Flow (prot)	1651	0	1719	3505	3518	0
Flt Permitted	0.988		0.950			
Satd. Flow (perm)	1651	0	1719	3505	3518	0
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	3%	2%	2%
Adj. Flow (vph)	59	188	221	811	1763	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	247	0	221	811	1839	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 80.4%

Analysis Period (min) 15

ICU Level of Service D





Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM  
04/10/2020

Intersection

Int Delay, s/veh	69.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	169	199	730	1587	68
Future Vol, veh/h	53	169	199	730	1587	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	3	2	2
Mvmt Flow	59	188	221	811	1763	76

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	2649	920	1839	0	0
Stage 1	1801	-	-	-	-
Stage 2	848	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-
Pot Cap-1 Maneuver	~ 19	273	315	-	-
Stage 1	117	-	-	-	-
Stage 2	380	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	~ 6	273	315	-	-
Mov Cap-2 Maneuver	~ 30	-	-	-	-
Stage 1	~ 35	-	-	-	-
Stage 2	380	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 844.9	8.4	0
HCM LOS	F		











Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	315	-	93	-	-
HCM Lane V/C Ratio	0.702	-	2.652	-	-
HCM Control Delay (s)	39.4	-	\$ 844.9	-	-
HCM Lane LOS	E	-	F	-	-
HCM 95th %tile Q(veh)	5	-	23.2	-	-

Notes

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

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) PM  
04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	70	906	12	114	1564
Future Volume (vph)	23	70	906	12	114	1564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.998			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1631	0	3465	0	1770	3539
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1631	0	3465	0	1770	3539
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	3%	4%	2%	2%	2%
Adj. Flow (vph)	26	78	1007	13	127	1738
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	1020	0	127	1738
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other  
Control Type: Unsignalized  
Intersection Capacity Utilization 55.5%  
Analysis Period (min) 15





ICU Level of Service B

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) PM  
04/10/2020

Intersection

Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	70	906	12	114	1564
Future Vol, veh/h	23	70	906	12	114	1564
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	3	4	2	2	2
Mvmt Flow	26	78	1007	13	127	1738












Major/Minor	Minor1	Major1		Major2	
Conflicting Flow All	2137	510	0	0	1020
Stage 1	1014	-	-	-	-
Stage 2	1123	-	-	-	-
Critical Hdwy	6.9	6.96	-	-	4.14
Critical Hdwy Stg 1	5.9	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-
Follow-up Hdwy	3.55	3.33	-	-	2.22
Pot Cap-1 Maneuver	40	506	-	-	676
Stage 1	304	-	-	-	-
Stage 2	266	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	32	506	-	-	676
Mov Cap-2 Maneuver	129	-	-	-	-
Stage 1	304	-	-	-	-
Stage 2	216	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.7	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	294	676
HCM Lane V/C Ratio	-	-	0.351	0.187
HCM Control Delay (s)	-	-	23.7	11.5
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.5	0.7

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) PM  
04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	179	91	54	231	208
Future Volume (vph)	39	179	91	54	231	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.950			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1583	1763	0	1687	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1583	1763	0	1687	1863
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	2%	3%	7%	2%
Adj. Flow (vph)	43	199	101	60	257	231
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	199	161	0	257	231
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other  
Control Type: Unsignalized  
Intersection Capacity Utilization 34.2%  
Analysis Period (min) 15

ICU Level of Service A

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)






Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) PM

04/10/2020

## Intersection

Int Delay, s/veh 5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	179	91	54	231	208
Future Vol, veh/h	39	179	91	54	231	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	2	3	7	2
Mvmt Flow	43	199	101	60	257	231













Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	876	131	0
Stage 1	131	-	-
Stage 2	745	-	-
Critical Hdwy	6.45	6.22	-
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.318	-
Pot Cap-1 Maneuver	315	919	-
Stage 1	888	-	-
Stage 2	464	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	257	919	-
Mov Cap-2 Maneuver	257	-	-
Stage 1	888	-	-
Stage 2	378	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	4.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	257	919
HCM Lane V/C Ratio	-	-	0.169	0.216
HCM Control Delay (s)	-	-	21.8	10
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.6	0.8

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) PM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	117	112	159	817	1580	175
Future Volume (vph)	117	112	159	817	1580	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	586			859	1116	
Travel Time (s)	16.0			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	130	124	177	908	1756	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	124	177	908	1756	194
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	15.0	18.0	18.0	75.0	57.0	15.0
Total Split (%)	16.7%	20.0%	20.0%	83.3%	63.3%	16.7%
Maximum Green (s)	8.0	11.0	11.0	68.0	50.0	8.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	9.9	27.6	12.6	70.1	52.4	67.4
Actuated g/C Ratio	0.11	0.31	0.14	0.78	0.58	0.75
v/c Ratio	0.67	0.26	0.71	0.33	0.85	0.16
Control Delay	56.4	25.0	54.1	3.3	7.8	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	25.0	54.1	3.3	7.8	1.1
LOS	E	C	D	A	A	A
Approach Delay	41.1			11.6	7.2	
Approach LOS	D			B	A	

Build (2026) PM.syn  
VHB







Synchro 10 - Report  
Page 10

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) PM  
04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	72	52	97	63	42	5
Queue Length 95th (ft)	#150	97	#187	81	49	m7
Internal Link Dist (ft)	506			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	196	491	255	2754	2061	1185
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	0.66	0.25	0.69	0.33	0.85	0.16

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 11.3

Intersection LOS: B

Intersection Capacity Utilization 71.5%

ICU Level of Service C

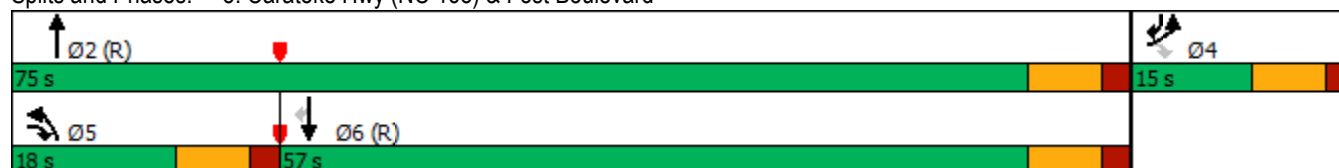
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 5: Caratoke Hwy (NC 168) & Fost Boulevard



Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) PM

04/10/2020

















						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	117	112	159	817	1580	175
Future Volume (veh/h)	117	112	159	817	1580	175
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	124	177	908	1756	194
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	198	395	246	2764	2075	1102
Arrive On Green	0.11	0.11	0.14	0.78	0.58	0.58
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	130	124	177	908	1756	194
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	6.3	5.7	8.6	6.9	36.6	3.8
Cycle Q Clear(g_c), s	6.3	5.7	8.6	6.9	36.6	3.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	198	395	246	2764	2075	1102
V/C Ratio(X)	0.66	0.31	0.72	0.33	0.85	0.18
Avail Cap(c_a), veh/h	198	395	257	2764	2075	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	27.5	37.1	3.0	15.4	4.8
Incr Delay (d2), s/veh	7.7	0.4	8.9	0.3	4.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	5.5	4.1	1.1	12.4	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.0	28.0	46.0	3.3	19.9	5.1
LnGrp LOS	D	C	D	A	B	A
Approach Vol, veh/h	254			1085	1950	
Approach Delay, s/veh	37.2			10.3	18.4	
Approach LOS	D			B	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		75.0		15.0	17.4	57.6
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		68.0		8.0	11.0	50.0
Max Q Clear Time (g_c+I1), s		8.9		8.3	10.6	38.6
Green Ext Time (p_c), s		6.5		0.0	0.0	8.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			17.2			
HCM 6th LOS			B			

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
6: Future Access #1/Future Access #2 & Survey Road

Build (2026) PM

04/10/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	52	160	157	70	40	122	5	142	29	5	19
Future Volume (vph)	21	52	160	157	70	40	122	5	142	29	5	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.907			0.980			0.929			0.952	
Flt Protected		0.996			0.971			0.978			0.974	
Satd. Flow (prot)	0	1683	0	0	1773	0	0	1692	0	0	1727	0
Flt Permitted		0.996			0.971			0.978			0.974	
Satd. Flow (perm)	0	1683	0	0	1773	0	0	1692	0	0	1727	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2916			377			351			255	
Travel Time (s)		56.8			7.3			9.6			7.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	58	178	174	78	44	136	6	158	32	6	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	259	0	0	296	0	0	300	0	0	59	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15





Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
6: Future Access #1/Future Access #2 & Survey Road

Build (2026) PM  
04/10/2020

Intersection

Int Delay, s/veh 10.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	52	160	157	70	40	122	5	142	29	5	19
Future Vol, veh/h	21	52	160	157	70	40	122	5	142	29	5	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	58	178	174	78	44	136	6	158	32	6	21

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	122	0	0	236	0	0	655	663	147	723	730	100
Stage 1	-	-	-	-	-	-	193	193	-	448	448	-
Stage 2	-	-	-	-	-	-	462	470	-	275	282	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1465	-	-	1331	-	-	379	382	900	342	349	956
Stage 1	-	-	-	-	-	-	809	741	-	590	573	-
Stage 2	-	-	-	-	-	-	580	560	-	731	678	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1465	-	-	1331	-	-	321	322	900	245	295	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	321	322	-	245	295	-
Stage 1	-	-	-	-	-	-	794	728	-	579	492	-
Stage 2	-	-	-	-	-	-	482	481	-	587	666	-













Approach	EB		WB		NB		SB
HCM Control Delay, s	0.7		4.8		23.5		17.7
HCM LOS					C		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	486	1465	-	-	1331	-	-	342
HCM Lane V/C Ratio	0.615	0.016	-	-	0.131	-	-	0.172
HCM Control Delay (s)	23.5	7.5	0	-	8.1	0	-	17.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	4.1	0	-	-	0.5	-	-	0.6

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	376	41	26	1213	563	182
Future Volume (vph)	376	41	26	1213	563	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3505	3343	1583
Flt Permitted	0.950		0.367			
Satd. Flow (perm)	1770	1583	684	3505	3343	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	8%	2%
Adj. Flow (vph)	418	46	29	1348	626	202
Shared Lane Traffic (%)						
Lane Group Flow (vph)	418	46	29	1348	626	202
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	38.0	38.0	12.0	52.0	40.0	38.0
Total Split (%)	42.2%	42.2%	13.3%	57.8%	44.4%	42.2%
Maximum Green (s)	32.1	32.1	7.1	45.6	33.6	32.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	-1.4	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	25.7	25.7	52.3	54.3	48.3	82.0
Actuated g/C Ratio	0.29	0.29	0.58	0.60	0.54	0.91
v/c Ratio	0.83	0.10	0.06	0.64	0.35	0.14
Control Delay	43.7	21.7	7.6	9.2	15.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Build (2026) AM - Improved.syn  
VHB







Synchro 10 - Report  
Page 1

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	43.7	21.7	7.6	9.2	15.4	1.7
LOS	D	C	A	A	B	A
Approach Delay	41.5			9.2	12.0	
Approach LOS	D			A	B	
Queue Length 50th (ft)	220	19	5	125	84	0
Queue Length 95th (ft)	296	40	m10	194	189	31
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	649	580	496	2114	1811	1438
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	0.64	0.08	0.06	0.64	0.35	0.14

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 12 (13%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 15.7

Intersection LOS: B

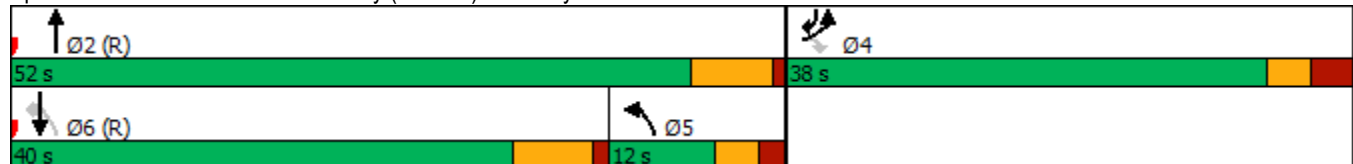
Intersection Capacity Utilization 62.7%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

## Splits and Phases: 1: Caratoke Hwy (NC 168) &amp; Survey Road

















Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM with Improvements

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	376	41	26	1213	563	182
Future Volume (veh/h)	376	41	26	1213	563	182
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1856	1781	1870
Adj Flow Rate, veh/h	418	46	29	1348	626	202
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	3	8	2
Cap, veh/h	465	413	621	2214	1004	875
Arrive On Green	0.26	0.26	0.26	0.63	0.30	0.29
Sat Flow, veh/h	1781	1585	1781	3618	3474	1585
Grp Volume(v), veh/h	418	46	29	1348	626	202
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1763	1692	1585
Q Serve(g_s), s	20.4	2.0	0.0	20.7	14.4	5.9
Cycle Q Clear(g_c), s	20.4	2.0	0.0	20.7	14.4	5.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	465	413	621	2214	1004	875
V/C Ratio(X)	0.90	0.11	0.05	0.61	0.62	0.23
Avail Cap(c_a), veh/h	653	581	621	2214	1316	1021
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	25.3	18.1	10.1	27.3	10.4
Incr Delay (d2), s/veh	9.7	0.0	0.0	1.3	2.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	2.0	0.4	6.2	5.6	3.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.8	25.4	18.1	11.3	30.2	11.0
LnGrp LOS	D	C	B	B	C	B
Approach Vol, veh/h	464			1377	828	
Approach Delay, s/veh	40.2			11.5	25.5	
Approach LOS	D			B	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		61.5		28.5	29.8	31.7
Change Period (Y+Rc), s		6.4		5.9	6.4	* 6.4
Max Green Setting (Gmax), s		45.6		32.1	7.1	* 34
Max Q Clear Time (g_c+I1), s		22.7		22.4	2.0	16.4
Green Ext Time (p_c), s		17.8		0.2	0.0	8.9

## Intersection Summary

HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C












## Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	125	137	1280	533	38
Future Volume (vph)	0	125	137	1280	533	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			100
Storage Lanes	0	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1596	1612	3505	3343	1583
Flt Permitted			0.950			
Satd. Flow (perm)	0	1596	1612	3505	3343	1583
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	12%	3%	8%	2%
Adj. Flow (vph)	0	139	152	1422	592	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	139	152	1422	592	42
Sign Control	Stop			Free	Free	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.7%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) AM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↗↗	↗↗	↗
Traffic Vol, veh/h	0	125	137	1280	533	38
Future Vol, veh/h	0	125	137	1280	533	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	12	3	8	2
Mvmt Flow	0	139	152	1422	592	42

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	296	634
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.96	4.34
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.33	2.32
Pot Cap-1 Maneuver	0	697	880
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	697	880
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-











Approach	EB	NB	SB
HCM Control Delay, s	11.4	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	880	-	697	-	-
HCM Lane V/C Ratio	0.173	-	0.199	-	-
HCM Control Delay (s)	9.9	-	11.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.7	-	-

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	79	1211	22	49	661
Future Volume (vph)	16	79	1211	22	49	661
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.888		0.997			
Flt Protected	0.992				0.950	
Satd. Flow (prot)	1615	0	3457	0	1770	3343
Flt Permitted	0.992				0.950	
Satd. Flow (perm)	1615	0	3457	0	1770	3343
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	4%	11%	2%	8%
Adj. Flow (vph)	18	88	1346	24	54	734
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	1370	0	54	734
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.1%

ICU Level of Service A

Analysis Period (min) 15





Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) AM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	79	1211	22	49	661
Future Vol, veh/h	16	79	1211	22	49	661
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	4	11	2	8
Mvmt Flow	18	88	1346	24	54	734

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1833	685	0
Stage 1	1358	-	-
Stage 2	475	-	-
Critical Hdwy	6.84	6.98	-
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.34	-
Pot Cap-1 Maneuver	68	386	-
Stage 1	204	-	-
Stage 2	592	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	61	386	-
Mov Cap-2 Maneuver	156	-	-
Stage 1	204	-	-
Stage 2	527	-	-












Approach	WB	NB	SB
HCM Control Delay, s	22.6	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	309	497
HCM Lane V/C Ratio	-	-	0.342	0.11
HCM Control Delay (s)	-	-	22.6	13.1
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.5	0.4

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	40	202	115	45	173	56
Future Volume (vph)	40	202	115	45	173	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.962			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1641	1538	1753	0	1703	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1641	1538	1753	0	1703	1845
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	5%	2%	10%	6%	3%
Adj. Flow (vph)	44	224	128	50	192	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	224	178	0	192	62
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 31.7%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)








Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	202	115	45	173	56
Future Vol, veh/h	40	202	115	45	173	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	5	2	10	6	3
Mvmt Flow	44	224	128	50	192	62

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	599	153	0
Stage 1	153	-	-
Stage 2	446	-	-
Critical Hdwy	6.5	6.25	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.345	-
Pot Cap-1 Maneuver	452	885	-
Stage 1	856	-	-
Stage 2	628	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	389	885	-
Mov Cap-2 Maneuver	389	-	-
Stage 1	856	-	-
Stage 2	540	-	-













Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	6.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	389	885
HCM Lane V/C Ratio	-	-	0.114	0.254
HCM Control Delay (s)	-	-	15.4	10.4
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.4	1

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	217	146	87	1202	562	96
Future Volume (vph)	217	146	87	1202	562	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	557			859	1116	
Travel Time (s)	15.2			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	162	97	1336	624	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	162	97	1336	624	107
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	30.0	17.0	17.0	60.0	43.0	30.0
Total Split (%)	33.3%	18.9%	18.9%	66.7%	47.8%	33.3%
Maximum Green (s)	23.0	10.0	10.0	53.0	36.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	19.4	36.7	12.3	60.6	43.3	67.7
Actuated g/C Ratio	0.22	0.41	0.14	0.67	0.48	0.75
v/c Ratio	0.63	0.25	0.40	0.56	0.37	0.09
Control Delay	39.1	17.1	39.7	9.5	10.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	17.1	39.7	9.5	10.7	1.7
LOS	D	B	D	A	B	A
Approach Delay	30.2			11.6	9.4	
Approach LOS	C			B	A	

Build (2026) AM - Improved.syn  
VHB







Synchro 10 - Report  
Page 10

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	125	59	51	183	87	10
Queue Length 95th (ft)	186	83	94	295	66	8
Internal Link Dist (ft)	477			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	493	661	260	2386	1738	1290
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	0.49	0.25	0.37	0.56	0.36	0.08

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 72 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.9

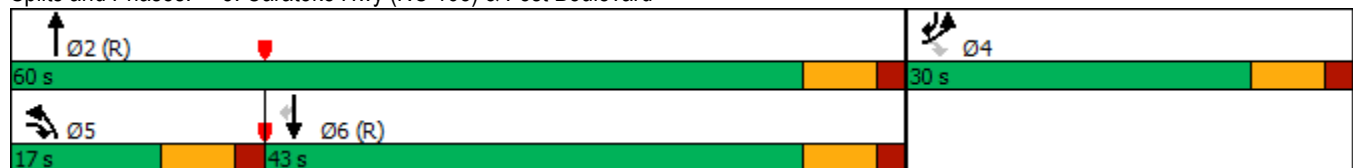
Intersection LOS: B

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15













Splits and Phases: 5: Caratoke Hwy (NC 168) &amp; Fost Boulevard



Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) AM with Improvements

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	217	146	87	1202	562	96
Future Volume (veh/h)	217	146	87	1202	562	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	241	162	97	1336	624	107
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	326	437	166	2509	1981	1173
Arrive On Green	0.18	0.18	0.09	0.71	0.56	0.56
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	241	162	97	1336	624	107
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	11.5	7.4	4.7	15.9	8.5	1.7
Cycle Q Clear(g_c), s	11.5	7.4	4.7	15.9	8.5	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	326	437	166	2509	1981	1173
V/C Ratio(X)	0.74	0.37	0.58	0.53	0.32	0.09
Avail Cap(c_a), veh/h	495	588	238	2509	1981	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	26.3	39.1	6.2	10.7	3.3
Incr Delay (d2), s/veh	3.3	0.5	3.2	0.8	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	7.0	2.1	3.9	2.8	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.1	26.8	42.4	7.0	11.1	3.4
LnGrp LOS	D	C	D	A	B	A
Approach Vol, veh/h	403			1433	731	
Approach Delay, s/veh	33.5			9.4	10.0	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		68.5		21.5	13.4	55.2
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		53.0		23.0	10.0	36.0
Max Q Clear Time (g_c+I1), s		17.9		13.5	6.7	10.5
Green Ext Time (p_c), s		10.8		0.9	0.1	4.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			13.4			
HCM 6th LOS			B			





















Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

## Flora Farms TIA

## Build (2026) AM with Improvements

## 6: Future Access #1/Future Access #2 &amp; Survey Road

04/10/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	43	77	76	80	19	111	2	55	27	2	14
Future Volume (vph)	9	43	77	76	80	19	111	2	55	27	2	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	100		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.971			0.855			0.955	
Flt Protected	0.950			0.950			0.950				0.970	
Satd. Flow (prot)	1770	1863	1583	1770	1809	0	1770	1593	0	0	1726	0
Flt Permitted	0.950			0.950			0.950				0.970	
Satd. Flow (perm)	1770	1863	1583	1770	1809	0	1770	1593	0	0	1726	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2903			390			327			235	
Travel Time (s)		56.6			7.6			8.9			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	48	86	84	89	21	123	2	61	30	2	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	48	86	84	110	0	123	63	0	0	48	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.7%

Analysis Period (min) 15

ICU Level of Service A

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
6: Future Access #1/Future Access #2 & Survey Road

Build (2026) AM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	43	77	76	80	19	111	2	55	27	2	14
Future Vol, veh/h	9	43	77	76	80	19	111	2	55	27	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	100	100	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	48	86	84	89	21	123	2	61	30	2	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	134	0	0	345	346	48	411	422	100
Stage 1	-	-	-	-	-	-	68	68	-	268	268	-
Stage 2	-	-	-	-	-	-	277	278	-	143	154	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1451	-	-	609	577	1021	551	523	956
Stage 1	-	-	-	-	-	-	942	838	-	738	687	-
Stage 2	-	-	-	-	-	-	729	680	-	860	770	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1480	-	-	1451	-	-	568	539	1021	491	489	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	568	539	-	491	489	-
Stage 1	-	-	-	-	-	-	935	832	-	733	647	-
Stage 2	-	-	-	-	-	-	673	641	-	801	765	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	3.3	11.7	11.7
HCM LOS			B	B













Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	568	990	1480	-	-	1451	-	-	583
HCM Lane V/C Ratio	0.217	0.064	0.007	-	-	0.058	-	-	0.082
HCM Control Delay (s)	13.1	8.9	7.4	-	-	7.6	-	-	11.7
HCM Lane LOS	B	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.8	0.2	0	-	-	0.2	-	-	0.3



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	271	32	27	699	1546	425
Future Volume (vph)	271	32	27	699	1546	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1752	1509	1770	3438	3505	1583
Flt Permitted	0.950		0.077			
Satd. Flow (perm)	1752	1509	143	3438	3505	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	7%	2%	5%	3%	2%
Adj. Flow (vph)	301	36	30	777	1718	472
Shared Lane Traffic (%)						
Lane Group Flow (vph)	301	36	30	777	1718	472
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	23.0	23.0	11.9	67.0	55.1	23.0
Total Split (%)	25.6%	25.6%	13.2%	74.4%	61.2%	25.6%
Maximum Green (s)	17.1	17.1	7.0	60.6	48.7	17.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	0.0	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.4	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	17.3	17.3	62.4	62.7	54.1	79.9
Actuated g/C Ratio	0.19	0.19	0.69	0.70	0.60	0.89
v/c Ratio	0.89	0.12	0.13	0.32	0.82	0.34
Control Delay	64.8	30.8	6.6	4.7	20.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Build (2026) PM - Improved.syn  
VHB







Synchro 10 - Report  
Page 1

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	64.8	30.8	6.6	4.7	20.0	2.4
LOS	E	C	A	A	B	A
Approach Delay	61.2			4.8	16.2	
Approach LOS	E			A	B	
Queue Length 50th (ft)	167	17	4	63	435	51
Queue Length 95th (ft)	#309	43	m10	83	#582	79
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	352	302	224	2396	2107	1400
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	0.86	0.12	0.13	0.32	0.82	0.34

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 31 (34%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 18.0

Intersection LOS: B

Intersection Capacity Utilization 67.2%

ICU Level of Service C

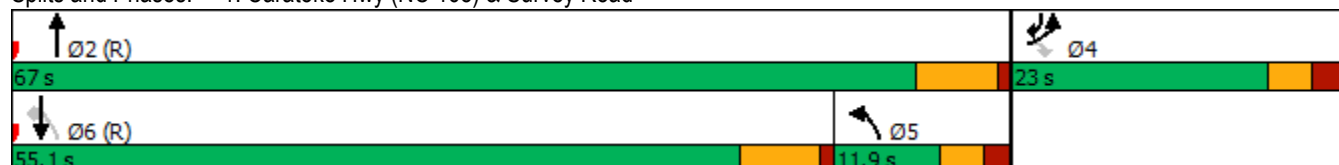
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 1: Caratoke Hwy (NC 168) &amp; Survey Road



Flora Farms TIA  
1: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM with Improvements

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	271	32	27	699	1546	425
Future Volume (veh/h)	271	32	27	699	1546	425
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1796	1870	1826	1856	1870
Adj Flow Rate, veh/h	301	36	30	777	1718	472
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	7	2	5	3	2
Cap, veh/h	348	300	213	2400	1901	1183
Arrive On Green	0.20	0.20	0.06	0.69	0.54	0.55
Sat Flow, veh/h	1767	1522	1781	3561	3618	1585
Grp Volume(v), veh/h	301	36	30	777	1718	472
Grp Sat Flow(s),veh/h/ln	1767	1522	1781	1735	1763	1585
Q Serve(g_s), s	14.8	1.8	0.0	8.0	39.4	9.7
Cycle Q Clear(g_c), s	14.8	1.8	0.0	8.0	39.4	9.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	348	300	213	2400	1901	1183
V/C Ratio(X)	0.86	0.12	0.14	0.32	0.90	0.40
Avail Cap(c_a), veh/h	353	304	234	2400	1908	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	29.7	36.7	5.5	18.6	4.1
Incr Delay (d2), s/veh	18.4	0.1	0.1	0.4	7.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	1.6	0.6	2.0	14.6	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	29.8	36.8	5.9	26.2	5.1
LnGrp LOS	D	C	D	A	C	A
Approach Vol, veh/h	337			807	2190	
Approach Delay, s/veh	50.8			7.0	21.7	
Approach LOS	D			A	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		67.3		22.7	12.3	54.9
Change Period (Y+Rc), s		6.4		5.9	6.4	* 6.4
Max Green Setting (Gmax), s		60.6		17.1	7.0	* 49
Max Q Clear Time (g_c+I1), s		10.0		16.8	2.0	41.4
Green Ext Time (p_c), s		15.3		0.0	0.0	7.1

## Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

## Notes












\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	169	199	783	1587	68
Future Volume (vph)	0	169	199	783	1587	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			100
Storage Lanes	0	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1611	1719	3505	3539	1583
Flt Permitted			0.950			
Satd. Flow (perm)	0	1611	1719	3505	3539	1583
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	3%	2%	2%
Adj. Flow (vph)	0	188	221	870	1763	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	188	221	870	1763	76
Sign Control	Stop			Free	Free	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)






Flora Farms TIA  
2: Caratoke Hwy (NC 168) & Survey Road

Build (2026) PM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 5.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	169	199	783	1587	68
Future Vol, veh/h	0	169	199	783	1587	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	3	2	2
Mvmt Flow	0	188	221	870	1763	76

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	882	1839
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	4.2
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	2.25
Pot Cap-1 Maneuver	0	289	315
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	289	315
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-











Approach	EB	NB	SB
HCM Control Delay, s	37.9	8	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	315	-	289	-	-
HCM Lane V/C Ratio	0.702	-	0.65	-	-
HCM Control Delay (s)	39.4	-	37.9	-	-
HCM Lane LOS	E	-	E	-	-
HCM 95th %tile Q(veh)	5	-	4.2	-	-

Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	70	906	12	114	1564
Future Volume (vph)	23	70	906	12	114	1564
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	0		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt	0.899		0.998			
Flt Protected	0.988				0.950	
Satd. Flow (prot)	1631	0	3465	0	1770	3539
Flt Permitted	0.988				0.950	
Satd. Flow (perm)	1631	0	3465	0	1770	3539
Link Speed (mph)	55		55			55
Link Distance (ft)	1144		980			859
Travel Time (s)	14.2		12.1			10.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	3%	4%	2%	2%	2%
Adj. Flow (vph)	26	78	1007	13	127	1738
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	1020	0	127	1738
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.5%

ICU Level of Service B

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)







Flora Farms TIA  
3: Caratoke Hwy (NC 168) & Guinea Road

Build (2026) PM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	70	906	12	114	1564
Future Vol, veh/h	23	70	906	12	114	1564
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	3	4	2	2	2
Mvmt Flow	26	78	1007	13	127	1738

Major/Minor	Minor1	Major1		Major2	
Conflicting Flow All	2137	510	0	0	1020
Stage 1	1014	-	-	-	-
Stage 2	1123	-	-	-	-
Critical Hdwy	6.9	6.96	-	-	4.14
Critical Hdwy Stg 1	5.9	-	-	-	-
Critical Hdwy Stg 2	5.9	-	-	-	-
Follow-up Hdwy	3.55	3.33	-	-	2.22
Pot Cap-1 Maneuver	40	506	-	-	676
Stage 1	304	-	-	-	-
Stage 2	266	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	32	506	-	-	676
Mov Cap-2 Maneuver	129	-	-	-	-
Stage 1	304	-	-	-	-
Stage 2	216	-	-	-	-












Approach	WB	NB	SB
HCM Control Delay, s	23.7	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	294	676
HCM Lane V/C Ratio	-	-	0.351	0.187
HCM Control Delay (s)	-	-	23.7	11.5
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.5	0.7

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	179	91	54	231	208
Future Volume (vph)	39	179	91	54	231	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75	0		0	200	
Storage Lanes	1	1		0	1	
Taper Length (ft)	45				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.950			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1583	1763	0	1687	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1583	1763	0	1687	1863
Link Speed (mph)	35		25			35
Link Distance (ft)	198		1362			1728
Travel Time (s)	3.9		37.1			33.7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	2%	2%	3%	7%	2%
Adj. Flow (vph)	43	199	101	60	257	231
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	199	161	0	257	231
Sign Control	Stop		Free			Free

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 34.2%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)






Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) PM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	179	91	54	231	208
Future Vol, veh/h	39	179	91	54	231	208
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	5	2	2	3	7	2
Mvmt Flow	43	199	101	60	257	231

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	876	131	0
Stage 1	131	-	-
Stage 2	745	-	-
Critical Hdwy	6.45	6.22	-
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.318	-
Pot Cap-1 Maneuver	315	919	-
Stage 1	888	-	-
Stage 2	464	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	257	919	-
Mov Cap-2 Maneuver	257	-	-
Stage 1	888	-	-
Stage 2	378	-	-













Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	4.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	257	919
HCM Lane V/C Ratio	-	-	0.169	0.216
HCM Control Delay (s)	-	-	21.8	10
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.6	0.8

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	112	159	817	1580	175
Future Volume (vph)	170	112	159	817	1580	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	586			859	1116	
Travel Time (s)	16.0			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	189	124	177	908	1756	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	124	177	908	1756	194
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	17.0	17.0	72.0	55.0	18.0
Total Split (%)	20.0%	18.9%	18.9%	80.0%	61.1%	20.0%
Maximum Green (s)	11.0	10.0	10.0	65.0	48.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	12.8	29.7	11.9	67.2	50.3	68.1
Actuated g/C Ratio	0.14	0.33	0.13	0.75	0.56	0.76
v/c Ratio	0.75	0.24	0.76	0.34	0.89	0.16
Control Delay	57.2	23.3	59.3	4.3	10.8	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	23.3	59.3	4.3	10.8	1.3
LOS	E	C	E	A	B	A
Approach Delay	43.7			13.3	9.9	
Approach LOS	D			B	A	

Build (2026) PM - Improved.syn  
VHB







Synchro 10 - Report  
Page 10

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	104	50	98	76	44	5
Queue Length 95th (ft)	#205	94	#198	98	#54	m7
Internal Link Dist (ft)	506			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	255	523	236	2643	1979	1202
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	0.74	0.24	0.75	0.34	0.89	0.16

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 14.1

Intersection LOS: B

Intersection Capacity Utilization 74.4%

ICU Level of Service D

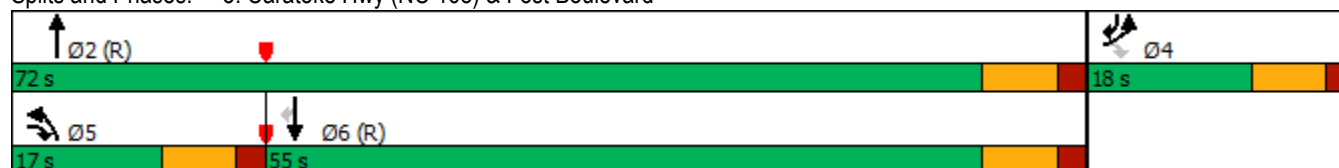
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.













Splits and Phases: 5: Caratoke Hwy (NC 168) &amp; Fost Boulevard



Flora Farms TIA  
5: Caratoke Hwy (NC 168) & Fost Boulevard

Build (2026) PM with Improvements

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	170	112	159	817	1580	175
Future Volume (veh/h)	170	112	159	817	1580	175
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	124	177	908	1756	194
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	257	440	238	2646	1974	1110
Arrive On Green	0.14	0.14	0.13	0.74	0.56	0.56
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	189	124	177	908	1756	194
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	9.1	5.5	8.6	7.9	39.1	3.8
Cycle Q Clear(g_c), s	9.1	5.5	8.6	7.9	39.1	3.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	257	440	238	2646	1974	1110
V/C Ratio(X)	0.73	0.28	0.75	0.34	0.89	0.17
Avail Cap(c_a), veh/h	257	440	238	2646	1974	1110
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	25.5	37.5	3.9	17.6	4.6
Incr Delay (d2), s/veh	10.4	0.3	12.0	0.4	6.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	5.4	4.3	1.6	14.1	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.2	25.8	49.6	4.3	24.1	5.0
LnGrp LOS	D	C	D	A	C	A
Approach Vol, veh/h	313			1085	1950	
Approach Delay, s/veh	38.8			11.7	22.2	
Approach LOS	D			B	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.0		18.0	17.0	55.0
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		65.0		11.0	10.0	48.0
Max Q Clear Time (g_c+l1), s		9.9		11.1	10.6	41.1
Green Ext Time (p_c), s		6.5		0.0	0.0	5.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			20.3			
HCM 6th LOS			C			

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)























## Flora Farms TIA

## Build (2026) PM with Improvements

## 6: Future Access #1/Future Access #2 &amp; Survey Road

04/10/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	52	160	157	70	40	122	5	89	29	5	19
Future Volume (vph)	21	52	160	157	70	40	122	5	89	29	5	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	100		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.946			0.859			0.952	
Flt Protected	0.950			0.950			0.950				0.974	
Satd. Flow (prot)	1770	1863	1583	1770	1762	0	1770	1600	0	0	1727	0
Flt Permitted	0.950			0.950			0.950				0.974	
Satd. Flow (perm)	1770	1863	1583	1770	1762	0	1770	1600	0	0	1727	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2916			377			351			255	
Travel Time (s)		56.8			7.3			9.6			7.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	58	178	174	78	44	136	6	99	32	6	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	58	178	174	122	0	136	105	0	0	59	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.0%

ICU Level of Service A

Analysis Period (min) 15

Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)









Flora Farms TIA  
6: Future Access #1/Future Access #2 & Survey Road

Build (2026) PM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	52	160	157	70	40	122	5	89	29	5	19
Future Vol, veh/h	21	52	160	157	70	40	122	5	89	29	5	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	100	100	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	58	178	174	78	44	136	6	99	32	6	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	122	0	0	236	0	0	566	574	58	694	730	100
Stage 1	-	-	-	-	-	-	104	104	-	448	448	-
Stage 2	-	-	-	-	-	-	462	470	-	246	282	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1465	-	-	1331	-	-	435	429	1008	357	349	956
Stage 1	-	-	-	-	-	-	902	809	-	590	573	-
Stage 2	-	-	-	-	-	-	580	560	-	758	678	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1465	-	-	1331	-	-	373	367	1008	283	298	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	367	-	283	298	-
Stage 1	-	-	-	-	-	-	888	796	-	581	498	-
Stage 2	-	-	-	-	-	-	488	487	-	668	667	-

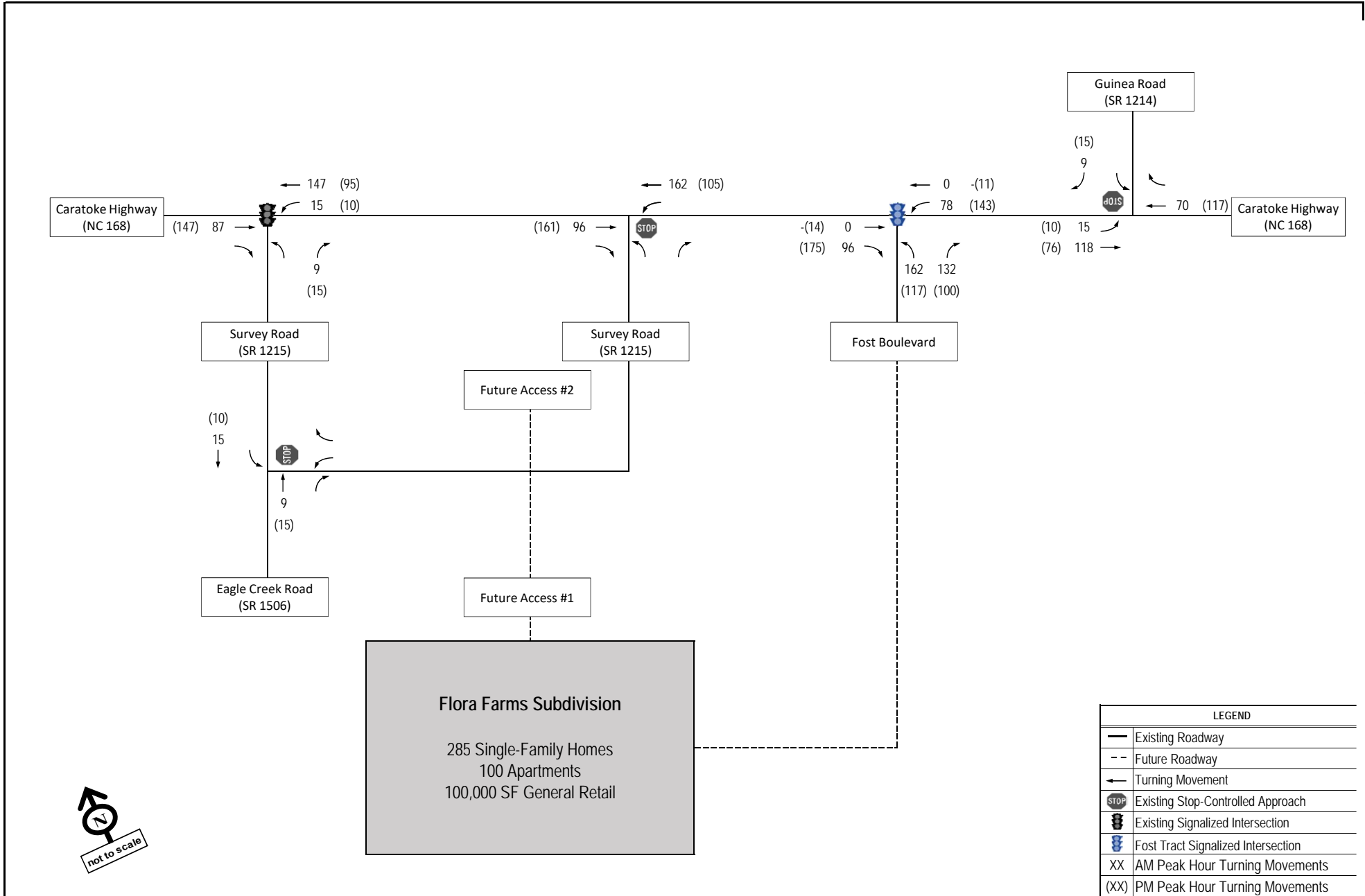
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	4.8	15.4	16.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	922	1465	-	-	1331	-	-	381
HCM Lane V/C Ratio	0.363	0.113	0.016	-	-	0.131	-	-	0.155
HCM Control Delay (s)	20.1	9.4	7.5	-	-	8.1	-	-	16.2
HCM Lane LOS	C	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.6	0.4	0	-	-	0.5	-	-	0.5

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## Appendix D:

# Background Development



Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



[www.vhb.com](http://www.vhb.com)



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

5/11/2020

Justin Old  
QHOC Homes  
417 Caratoke Highway, Unit D  
Moyock, NC 27958

Dear Mr. Old,

I have reviewed the submitted Flora Farms Subdivision Traffic Impact Analysis (TIA) prepared by VHB Engineering NC, and submitted by the Developer. This document was revised on May 5<sup>th</sup>, 2020, based upon the Department's comments submitted via email on March 26<sup>th</sup>, 2020. As all concerns are adequately addressed by the "Executive Summary" of this TIA, the Department is now in agreeance with the required improvements and their associated implementation time frames.

If you have any additional questions or comments, please don't hesitate to contact me at any time.

Sincerely,

A handwritten signature in blue ink, appearing to read "David B. Otts".

David B. Otts, P.E.  
District Engineer





## Currituck County

Department of Planning and Community Development  
 153 Courthouse Road, Suite 110  
 Currituck, North Carolina 27929  
 252-232-3055  
 FAX 252-232-3026

### MEMORANDUM

**To:** Mark Bissell, Bissell Professional Group  
 Justin Old, Allied Properties LLC

**From:** Tammy D. Glave, CZO, Senior Planner

**Date:** February 13, 2020

**Re:** PB 19-20 Flora Farm, Planned Development - Residential

The following comments have been received for Flora Farm, Planned Development – Residential, rezoning request. In order to be placed on the March 10, 2020 Planning Board agenda, all outstanding TRC comments must be addressed and amended plans and documents received before 3:00 p.m. on February 24, 2020. TRC comments are valid for six months.

#### **Planning (Tammy Glave, 252-232-6025)**

Reviewed with comment/Resubmit:

1. Per Superintendent on 1/15/2020, a portion of the development is districted to Moyock Elementary School and at the time of the writing of this comment, the BOE has not made a change to the district boundary. Without adequate school capacity or school capacity programmed to be in place within two years from approval, this project is recommended for denial.
2. A planned development application provides in depth details of the proposed development along with terms and conditions, and staff recommends a work session with the developer, design engineer, planning staff, planning board, and board of commissioners to discuss and review the proposed development prior to consideration of this project.
3. Since the development will be sharing the Fost WWTP facilities, a use permit is required for a major utility. The use permit for the major utility must be granted prior to rezoning the property to PD-R with a shared utility.
4. The plans and documents submitted for the pre-application meeting indicated 100 upper story dwelling units. The plans and application submitted indicate 125 upper story dwelling units. Which number is correct?
5. It is recommended that the school site be subdivided out and not be a part of the Planned Development rezoning.
6. There is a concern that front yard setbacks on these smaller lots are not adequate to support the intended dwelling sizes and driveway/parking area. There have been many conflicts lately caused by non-compliant on-street parking due to inadequate driveway parking (see School comment), driveway widths at property line, etc.
7. Traffic impact analysis:
  - a. Must be approved by NCDOT. Staff has requested a work session with NCDOT to discuss the TIA recommendations.

- b. County staff defers to NCDOT recommendations for the type, timing, and placement of any traffic improvements. Staff has concerns regarding the recommendation in the TIA that improvements are made after full build-out of the development in 2026.
- c. Staff has concerns that the TIA does not include the school site and may not accurately reflect the proposed conditions.
- d. The TIA indicates 100 apartment units. The master plan indicates 125 apartment units. Please correct.
- e. States "The land uses along Harvey Point Road are primarily residential and agriculture within the study area limits." Where is Harvey Point Road?
- 8. It appears that the "common areas" called out on the plan are open space. Please label as "open space" in the legend and differentiate any common areas that are not open space.
- 9. List the proposed timing of the phasing scheduled. (UDO Section 3.7.2.G)
- 10. Terms and Conditions document:
  - a. It does not appear that the county can regulate or enforce the workforce housing condition. This condition may need to be removed from the document. The county attorney needs additional time to investigate this topic.
  - b. Add timing to phasing schedule. (UDO Section 3.7.2.G)
- 11. Please verify that the minimum Connectivity Index Score of 1.6 is being met. Perhaps supply a sheet that shows what you are counting as links and nodes. It appears the connectivity score is not being met which may require a street connection/potential lot layout redesign of the subdivision. (UDO Section 5.6.4).
- 12. How are Nonresidential Design Standards, Building Placement (UDO Section 5.8.3.B) being met?
- 13. If any of the proposed earthen berms cross into wetlands, the US Army Corp of Engineers must approve the activity before any ground disturbing activity occurs.
- 14. The waterlines do not extend to all lots.

#### Suggestion

- 1. Since you indicate in your application package that you cannot add timing to the phasing schedule, which is required as part of the application submittal, until additional information becomes available regarding adequate public facilities, allow time for the BOE to workout school capacity issues before bringing this project forward.

#### **Currituck County Building Inspector (Ron , 252-232-6023)**

Reviewed with comments:

- 1. Fire hydrant locations not on drawings
- 2. Phase 6 water line doesn't extend to all lots
- 3. provide CBU kiosk, parking details

#### **Currituck County Chief Building Inspector (Bill Newns, 252-232-6023)**

Reviewed with comments:

#### Fire comments for commercial portions

- 1. Needed Fire Flow for construction is determined by the ISO method.
- 2. No new construction can occur that creates a Needed Fire Flow greater than the available fire flow on site.

3. A fire hydrant must be within 400' of all exterior portions of the structure. 600' if the structure has NFPA 13 sprinkler system installed.
4. Fences/barriers must not impede the fire hydrant access to site.
5. Gates/entrances to sites must be 20' clear width.
6. The fire apparatus must be able to come within 150' of all exterior portions of the structures. 200' if the structure has NFPA 13 sprinkler system installed.
7. Fire apparatus must not have to back up on an access road greater than 150' without a turnaround as indicated in appendix D of the NC Fire Code. The backing of 150' should be measured in a straight line.
8. Fire apparatus access must be at least 20' wide 13' 6" in height. Maximum slope shall not exceed 10%.
9. All portions of the fire apparatus access must be capable of 75,000lbs under all weather conditions.
10. By general statute parking is not allowed within 15' of a fire hydrant. (FDC)
11. FDC connection must be a minimum of 25' away from structure and within 50' of fire hydrant.
12. FDC's must have signage in 4" letters (red sign with white letters)
13. FDC's 4" minimum Stortz connection.
14. Knox Box provided on buildings (Coordinate location with the local VFD)
15. Mark fire hydrants locations in the center of road/street with blue reflectors.

#### Building Inspections Commercial Buildings

1. Appendix B Building Code summary for all structures
2. ADA accessible routes, connectivity of exits to a public way.

#### Residential Comments – Fire

1. Fire hydrants must be within 500' of all road frontages.
2. Cul de sacs must be 96' in width curb to curb at the center of the cul de sac.
3. Dwellings greater than 4800 sq. ft. and/or greater than 2 stories will be calculated using the ISO commercial method.
4. Dwellings 4800 sq. ft. and no greater than 2 stories may use set-backs as indicated in the ISO method to determine Needed Fire Flow.

#### Inspection Comments

1. Cluster mail box units must be accessible (accessible route, reach ranges)
2. Accessible routes must be provided to all amenities such as pools, boardwalks, piers, docks and other amenities within the development. Plans must be designed to the 2018 NC Building Code design loads and structures must meet ADA requirements.
3. Curb cuts at vehicular traffic areas and pedestrian crossings must be ADA compliant and have detectable warning devices installed.
4. Soil engineering reports for footings will be required for lots that have fill placed on them where the footings do not rest at a minimum of 12" below grade on undisturbed natural soil. Site preparation, the area within the foundation walls shall have all vegetation, top soil and foreign material removed.
5. Compaction testing will be required for slabs and thickened footing areas that exceed 24" of fill. Fill material shall be free of vegetation and foreign material. The fill shall be compacted to ensure uniform support of the slab, and except where approved, the fill depths shall not exceed 24 inches for clean sand or gravel and 8 inches (203 mm) for earth.
6. Mark fire hydrants locations in the center of road/street with blue reflectors.

**Currituck County GIS (Harry Lee, 252-232-4039)**

Reviewed with comment:

1. Please propose street names.

**Currituck County Parks and Recreation (Jason Weeks, 252-232-3007)**

Reviewed without comment.

**Currituck County Schools Facilities, Maintenance and Transportation Director (Matt Mullins, 252-232-2223, ext. 1022)**

Reviewed with comment:

1. There is a concern over street widths for school bus maneuverability and parking concerns for homes located so close to front property line which has been resulting in insufficient off-street parking causing cars to park on-street making school bus maneuverability very difficult.

**Currituck County Soil and Stormwater (Dylan Lloyd, 252-232-3360)**

Reviewed

1. There is an emphasis on downstream maintenance at this time. There are portions (Rowland Creek and the ditch on Guinea Road and Survey Road) with brush and debris that need to be cleaned up.
2. The conceptual plan provides limited drainage details.

**Currituck County Utilities Director (Will Rumsey, 252-232-2769)****Currituck County Water Department – Distribution Supervisor (Dave Spence, 252-232-2769)**

Reviewed

1. The preliminary utilities plan (page 6 of 7) indicates a potential waterline extension based on modeling. Provide additional information on the purpose of this statement. The pre-application meeting recommended connection to the existing line.
2. Provide road bore details.

**Albemarle Regional Health Services (Joe Hobbs, 252-232-6603)**

Reviewed with comment:

1. DEVELOPER NEEDS TO CONSULT WITH NC DEPT. OF ENVIRONMENTAL QUALITY (WASHINGTON REGIONAL OFFICE) CONCERNING LARGE WASTEWATER TREATMENT PLANT APPROVAL FOR THIS PROPOSED DEVELOPMENT.
2. DEVELOPER NEEDS TO CONSULT WITH HEALTH DEPT. AT 252-232-6603 CONCERNING PROPOSED COMMERCIAL POOL TO BE BUILT FOR PROPOSED DEVELOPMENT.
3. DEVELOPER NEEDS TO CONSULT WITH HEALTH DEPT. AT 252-232-6603 CONCERNING FUTURE RESTAURANTS (FOOD ESTABLISHMENTS) PROPOSED WITHIN THE COMMERCIAL BUSINESS AREAS OF DEVELOPMENT.

**NC Department of Transportation, District Engineer (David Otts, 252-331-4860)**

Reviewed

1. No additional comments until the TIA results are received from NCDOT office in Raleigh.

**NC Division of Coastal Management (Charlan Owens, 252-264-3901)**

Reviewed without comment.

**US Post Office (Local)**

Please contact the post office regarding method of mail delivery.

**The following items are necessary for resubmittal:**

- 3 - full size copies of revised plans
- 1 – 8.5 x 11” reduced copy
- 1- PDF digital copy of all revised or new documents and plans.



May 19, 2020

Ms. Laurie LoCicero, AICP, Director  
Currituck County Department of Planning  
and Community Development  
153 Courthouse Road, Suite 153  
Currituck, NC 27929

RE: 19-20 Flora Farm PD-R Joint Work Session

Dear Laurie:

We are providing an updated submittal package in connection with a request for rescheduling the proposed work session to review the request for rezoning of the Flora Farm property to Planned Development - Residential. Additional information is now available to help with this review. Most importantly, the Traffic Impact Analysis report has been updated in connection with recommendations provided by NCDOT's Congestion Management unit and the District Engineer's office, and has been officially approved by NCDOT. A copy of the final TIA report and the associated approval are attached.

Updated plans are included with this submittal that match the plans that are referenced in the final TIA report as approved by NCDOT, and which also address several comments that were made by the planning staff after the TRC review process had been completed. Since we have now had an opportunity to review and address those comments, and since much of the previous staff report had to do with questions about the TIA that had not yet been approved by NCDOT, we believe it would be appropriate and are asking that a new Staff Report be prepared, based on the additional information that is now available. Also, the master plan drawings that were attached to the staff report were not the updated plans that were sent with the TRC response.

In addition to the NCDOT issues, which now appear to be fully resolved, we would like to address several of the other comments that were made in the staff report that was drafted previously for the work session that was not held due to the new social distancing requirements, as follows:

1. The phasing schedule that has been provided shows that school capacity is not being requested until it is available. The portion of the school capacity that is needed outside of the current Shawboro school district will not be in the current Moyock school district, but will be in a new district when the new elementary school is completed.
2. The question was asked about how the new school will be able to open if it is finished before the wastewater treatment plant is operational to service it. This question was not asked until after the TRC review had been completed, but the phasing schedule that was provided shows that lots are proposed to go to record in August 2021, which requires an operational wastewater treatment facility. The new elementary school is tentatively scheduled to be online



two years later, in August 2023, so the wastewater treatment plant will certainly be available to serve the school long before its scheduled opening.

3. An additional question was asked about access to the school from subdivision roads. At the present time, no actual site plan has been developed for the school, but if internal access is needed in addition to the Survey Road access, it will be provided. The latest phasing plan shows that the main access road will be constructed with the first phase of development, well in advance of the school being ready for occupancy.
4. A comment was made about including the school in the phasing schedule. The school site will be its own phase and will conform to the Board of Education's schedule upon selection of the site and formalizing its construction schedule; since we understand that the completion schedule has been tentatively set for August 2023, this is being shown in the updated schedule on Sheet 7 of the master plan drawings.
5. A comment was made about the final square footage of the commercial buildings. While the development plan that has been provided is preliminary and is subject to fine-tuning during actual design of the buildings, the TIA report has used a square footage rounded up to 100,000 sq. ft., which will be the maximum amount of commercial space that will be developed on this site. The buildings with approximate square footages as shown on the preliminary site plan total 99,105 sq. ft., but we are using "up to 100,000 sq. ft." in all of the calculations. Actual development will likely be less than the maximum proposed.
6. Staff has provided a partial summary of the community meeting results. There were many positive comments made at the community meeting that we believe the Planning Board and Board of Commissioners should be made aware of. Can a copy of the meeting minutes be included in the staff report? A copy is attached with this submittal.
7. A comment was made about street widths for school bus maneuverability and parking concerns during the TRC review. For this the reason, on-street parallel parking was added to the plan, but no mention was made of this in the staff report, which made it appear that no attempt had been made to address the issue. In addition to the on-street parking areas, we have now increased the front building setbacks to 35'. Since garages are typically set back 5' or more from the line of the front porch, this increased setback will result in the ability to stack cars two deep in the driveways to further address this issue.
8. The staff report indicated that the overall plan sheet did not show the wastewater treatment plant, but that it was shown on the utilities plan. We customarily show wastewater facilities, along with associated water and sewer lines, not on the overall Master Plan but on the utilities sheet, but for clarity and since staff has raised this as an issue, we have also added the approximate location of the WWTP to the development overview sheet.
9. Staff has recommended denial of the rezoning request based on school capacity not being programmed to be in place within two years for a portion of the development; however, this is

more appropriately addressed at the Use Permit stage upon evaluation of the UDO approval criteria for the specific phase(s) requested, rather than at the rezoning of the overall property. In any event, while we agree that school capacity can be considered as one of many factors at the rezoning stage, denial on this basis is not appropriate. In addition, a phasing commitment has been proposed that will assure that school capacity is available in advance of each development phase that generates additional students in the relevant subdistrict. The County Commissioners have a valid basis to approve the zoning request and this commitment strengthens that basis, allowing them to adopt the accompanying phasing schedule as appropriate. The county is protected, as the phasing schedule prevents final plats from going to record ahead of public facilities being available to support the new dwelling units. Also, a Use Permit application will be considered by the BOC at a future date, prior to approval for construction of this development, which provides the opportunity for the County Commissioners to consider the actual Use Permit review standards and precise student projections at that time.

10. Staff has also mentioned law enforcement, emergency medical services, fire services, county water, etc. needing to be evaluated for adequacy. It is our understanding that this is the reason for having a formal Use Permit process following the rezoning. The water department has already stated that water is available for this development, and we believe that a finding can be made at the appropriate time regarding the adequacy of other public facilities.
11. In the staff report, staff has referenced an anticipated text amendment which has not yet been drafted. We do not believe a rezoning request should be reviewed based upon a possible future UDO text amendment. In any event this request is permitted to proceed under the UDO in place at the time of the zoning application filing.
12. Staff has objected to the school site not being included in the TIA report, but both NCDOT and the traffic consultant agree that it is not appropriate to include the school at this time. Once there is an actual site plan with driveway locations determined and a design capacity for the school, the TIA will need to be updated accordingly. It would not be meaningful to speculate about the school traffic in advance of a specific school plan being developed.
13. Staff has stated that approving this rezoning will burden the middle schools and high schools "that are near or over committed capacity". Again, school capacity should be evaluated against the approval criteria at the Use Permit stage. To the extent it is examined at zoning, there is no indication that the middle or high schools will be overburdened by this development, as the County's capacity study shows that new single-family development does not produce a significant number of upper grade students. Thus to the extent this capacity is an issue, it will be an issue with or without the development based on existing approved development.
14. The staff report mentioned that an 8' multiuse path must be installed along Caratoke Highway. The required MUP was and is shown on the Master Plan drawings.

15. Regarding waterline looping, while there was an agreement at the pre-application conference to delay a decision on the looping until the future modeling was completed, the developer has since agreed to accommodate the water department's request and the actual looping is shown on the updated utility plan. (This was shown on the TRC resubmittal plan, but was still identified as an unresolved issue in the staff report.)
16. The Tate Terrace Realty Investors vs. Currituck County court case that was mentioned in the staff report does not appear to be relevant to a rezoning request. It is our understanding that Tate Terrace's Special Use Permit was denied, not its rezoning request, which was the basis for that court case.

In the previous staff report, it appears that the planning staff had become an advocate for denial of the application rather than presenting a balanced overview of the request. With the provision of an updated, NCDOT-approved TIA report, and an updated plan that addresses the staff comments that were generated after the TRC review had been completed, we believe that a new staff report can now be generated that reflects the resolution of most of the issues that were raised previously, and can present a more balanced overview of the rezoning request. Also, it appears that there are many more consistencies with the Land Use Plan and the Moyock Small Area plan than there are inconsistencies, whereas only the inconsistencies appear to be mentioned in the initial staff report. Please include the consistencies to give the Board a complete view of the entire request.

Two of the attachments to the Terms & Conditions document have been updated (the phasing schedule to include the school and the dimensional standards to update the front setback as discussed above) so that everything should be consistent.

We are including 3 sets of the updated plans, one 8-1/2x11 reduced copy, 2 copies of the TIA report and associated approval, and the updated Terms & Conditions, and a CD with all new plans and documents for your use.

Thank you for consideration of this request. Please let us know if you have any additional questions or comments regarding the updated plans or the approved TIA report. We look forward to the opportunity to meet at a new joint work session at the earliest opportunity.

Sincerely yours,  
BISSELL PROFESSIONAL GROUP



Mark S. Bissell, P.E.

cc: Mr. Justin Old  
Ms. Jamie Schwedler





# FLORA FARMS

ALLIED PROPERTIES, LLC  
417 CARATOKE HIGHWAY, UNIT D  
MOYOCK, NORTH CAROLINA 27958

JANUARY 23, 2020  
21936\_01\_Flora\_Farm

Cox, Klier &  
Company, P.C.

ARCHITECTURE  
2533 VIRGINIA BEACH BOULEVARD  
VIRGINIA BEACH, VIRGINIA • 23452-76  
Voice 757-431-0033 • Facsimile 757-463-0380  
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Packet Pg. 254





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Packet Pg. 255

Attachment: 11 21936\_01\_Flora\_Farm\_Mixed\_Use\_Rendering\_200123 - Copy (PB 19-20 Flora Farm)





# FLORA FARMS

ALLIED PROPERTIES, LLC  
417 CARATOKE HIGHWAY, UNIT D  
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JANUARY 23, 2020

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Packet Pg. 256





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)

# Flora Tract 4<sup>rd</sup> Community Meeting- Outline of Presentation

January 22, 2020

## A. Housekeeping –

- Please sign-in
- A record of the Community meeting will be provided to Currituck County.  
(concerns raised/ attempts to address concerns)

## B. What is the Request?

- First step in the approval process – for zoning approval for PD-R

## C. The Process:

- Initial Master Plan Design
- Pre-Application conference with staff
- Community meeting (now)
- TRC review
- Planning Board hearing
- BOC hearing/action

Then:

- Preliminary Plat application & approval process
- Construction drawing preparation
- Permit applications
- Construction
- As-Built certifications
- Final plat application

The process will take up to 2 years before you see the first building

## D. Setting (refer to zoning map)

## E. The Plan:

- Previous plan PDR with 446 dwellings;
- New Vision: Create a commercial center in front where we have good visibility from Caratoke Hwy; and an upscale residential community behind it. Dropped lot count to 285. Added mixed use. Well designed and attractive commercial

element, well-amenitized with walking trails, good pedestrian connectivity and good connectivity to adjacent Fost development

- Upper story dwellings above commercial buildings to give a “main street” appearance; with the goal of creating a true Mixed Use community.
- Have open spaces with stormwater ponds to hold 6” +/- of rainfall on site; will model for management of 100 year storm event
- Help adjacent drainage (Rowland; Benefits to Ranchland and Eagle Creek
- Neighborhood commercial (such as coffee shop, brew pub, sandwich shop, internet café, etc.) but also larger commercial that will serve neighboring communities (e.g., no need to go onto 168)
- Highly amenitized; good use of open space areas, park areas, recreation facilities, well-integrated community
- Developing residential in up to 9 phases; commercial in approximately 6 phases
- Finally, Reserving 22 acres for a school site

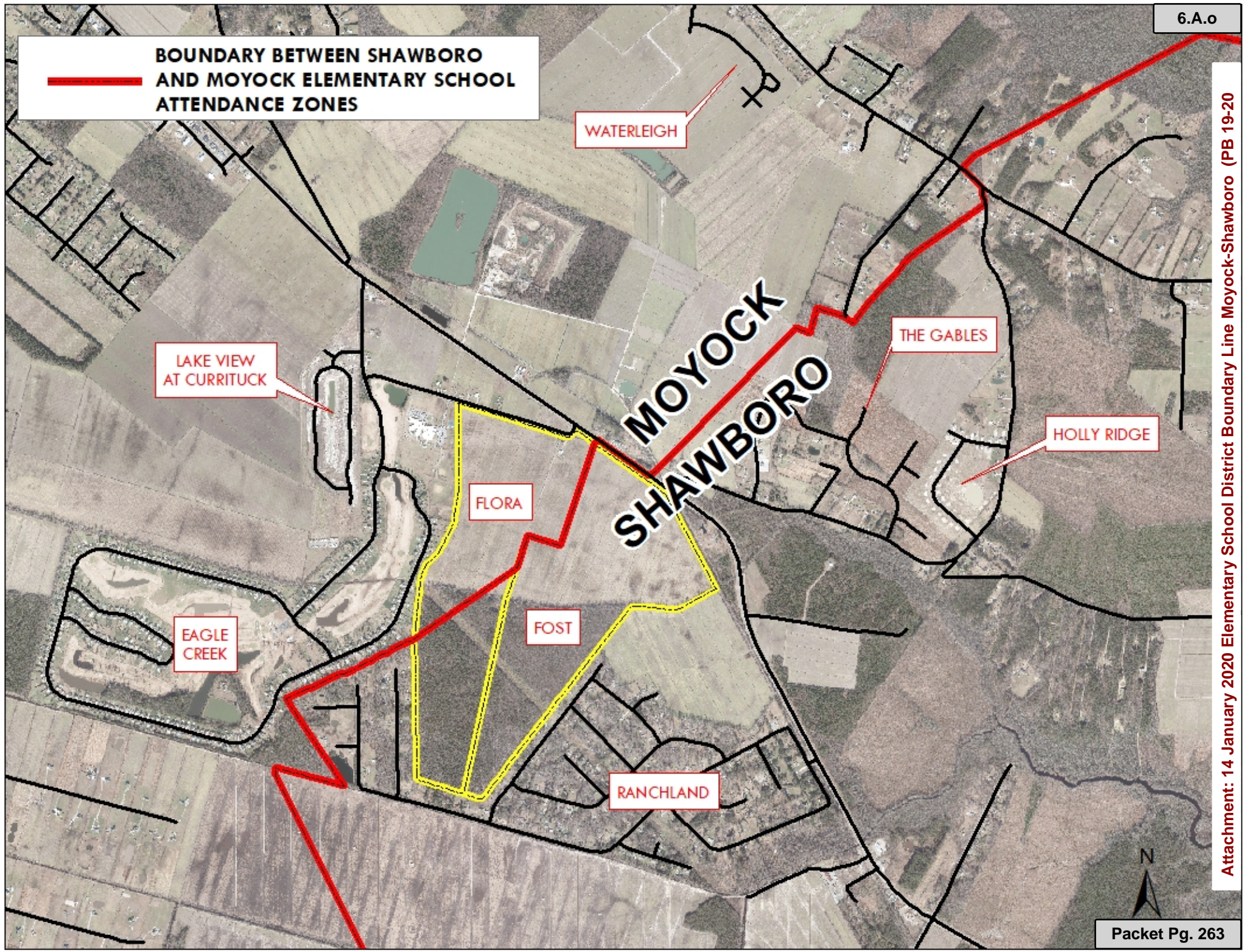
#### F. Comments/Concerns

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

#### G. Invitation to review plans close-up



**BOUNDARY BETWEEN SHAWBORO  
AND MOYOCK ELEMENTARY SCHOOL  
ATTENDANCE ZONES**





## Level of Service Definitions

The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions.

Design requirements for roadways vary according to the desired capacity and level of service. LOS D indicates “practical capacity” of a roadway, or the capacity at which the public begins to express dissatisfaction. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C on new facilities. The six levels of service are described below and illustrated in the following figures.

- **LOS A:** Describes primarily free flow conditions. The motorist experiences a high level of physical and psychological comfort. The effects of minor incidents of breakdown are easily absorbed. Even at the maximum density, the average spacing between vehicles is about 528 ft, or 26 car lengths.
- **LOS B:** Represents reasonably free flow conditions. The ability to maneuver within the traffic stream is only slightly restricted. The lowest average spacing between vehicles is about 330 ft, or 18 car lengths.
- **LOS C:** Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service. Freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local decline in service will be great. Queues may be expected to form behind any significant blockage. Minimum average spacing is in the range of 220 ft, or 11 car lengths.
- **LOS D:** Borders on unstable flow. Density begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow can cause substantial deterioration in service. Freedom to maneuver is severely limited, and the driver experiences drastically reduced comfort levels. Minor incidents can be expected to create substantial queuing. At the limit, vehicles are spaced at about 165 ft, or 9 car lengths.
- **LOS E:** Describes operation at capacity. Operations at this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or changing lanes, requires the following vehicles to give way to admit the vehicle. This can establish a disruption wave that propagates through the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate any disruption. Any incident can be expected to produce a serious breakdown with extensive queuing. Vehicles are spaced at approximately 6 car lengths, leaving little room to maneuver.
- **LOS F:** Describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points.

## Level of Service Illustrations

### Level of Service A



**Driver Comfort:** High

**Maximum Density:**

12 passenger cars per mile per lane

### Level of Service B



**Driver Comfort:** High

**Maximum Density:**

20 passenger cars per mile per lane

### Level of Service C



**Driver Comfort:** Some Tension

**Maximum Density:**

30 passenger cars per mile per lane

### Level of Service D



**Driver Comfort:** Poor

**Maximum Density:**

42 passenger cars per mile per lane

### Level of Service E



**Driver Comfort:** Extremely Poor

**Maximum Density:**

67 passenger cars per mile per lane

### Level of Service F



**Driver Comfort:** The lowest

**Maximum Density:**

More than 67 passenger cars per mile per lane

Source: 2000 Highway Capacity Manual



To: Mark Bissell, PE  
Bissell Professional Group

Date: March 4, 2020

## Memorandum

Project #: 39134.00

From: Lyle Overcash, PE

Re: Flora Farms Subdivision TIA – Phasing Memorandum

VHB Engineering NC, P.C submitted the Flora Farms Subdivision TIA in February 2020 which provided recommendations for area roadways once the Fost Tract Development and Flora Farms Subdivision are constructed. The TIA analyzed the Fost Tract Development as a background project which would be completed prior to the Flora Farms Subdivision. Since the submittal of the TIA, the construction schedules for both projects have shifted, and it is expected that construction for both developments will overlap with each other. The recommended offsite improvements within the TIA for the buildout of both developments are still valid; however, this memorandum provides clarification for how those improvements should be phased as both developments are being constructed.

### Trip Generation

The trip generation for both developments was calculated separately so that internal capture could not be used to reduce the total number of trips generated from each respective development. The Fost Tract Development proposed the construction of 353 single-family homes, 126 townhomes, and up to 22,000 square feet (sf) of general retail space. This will generate approximately 5,978 daily external site trips with 468 occurring during the AM peak hour and 534 occurring during the PM peak hour. The Flora Farms Subdivision development plans to construct 285 single-family homes, 125 apartments, and up to 100,000 sf of general retail space. This will generate approximately 8,380 daily external site trips with 463 trips occurring during the AM peak hour and 717 trips occurring during the PM peak hour.

### Committed Transportation Improvements

Even though the project schedules for the Fost Tract Development and Flora Farms Subdivision have shifted, the list of offsite transportation improvements within the Flora Farms Subdivision TIA should still be implemented as construction proceeds. The following serves as an estimated timeline for when specific offsite recommendations should be implemented during the construction of both developments.

### Fost Tract Development

The Fost Tract Development plans to construct Fost Boulevard, a future driveway that will provide full movement access along NC 168. Initial phases of the Fost Tract Development and Flora Farms Subdivision will utilize this driveway to access NC 168. The following roadway improvements should be implemented with the construction of Fost Boulevard:

#### *NC 168 at Fost Boulevard (future signalized intersection)*

- Construct an eastbound right-turn lane along NC 168 with a minimum of 150 feet of full storage with appropriate taper.
- Stripe out 200 feet of full storage within the existing two-way left-turn lane along NC 168 for an exclusive northbound left-turn lane.
- Provide an exclusive left-turn lane along Fost Boulevard with approximately 250 feet of full storage along with a continuous right-turn lane.
- Install a traffic signal when warranted. The intersection should be monitored once the initial phases of the Fost Tract Development and Flora Farms Subdivision are under construction to determine when a signal will be warranted. Once an estimated 180 single-family homes are occupied between the two developments, it is expected that the traffic along Fost Boulevard will warrant a traffic signal. A new turning movement count and a signal warrant analysis should be completed before the traffic signal is installed.

### Flora Farms Subdivision

Initial phases of the Flora Farms Subdivision will utilize Fost Boulevard to access NC 168. New site access driveways will be constructed along Survey Road during Phase 3 of construction for the Flora Farms Subdivision. The following roadway improvements should be implemented with the construction of future site driveways along Survey Road:

#### *NC 168 at Survey Road (existing unsignalized)*

- Stripe out at least 200 feet of full storage within the existing northbound two-way left-turn lane along NC 168 at Survey Road.

#### *Survey Road at Flora Farms Site Driveways (future unsignalized)*

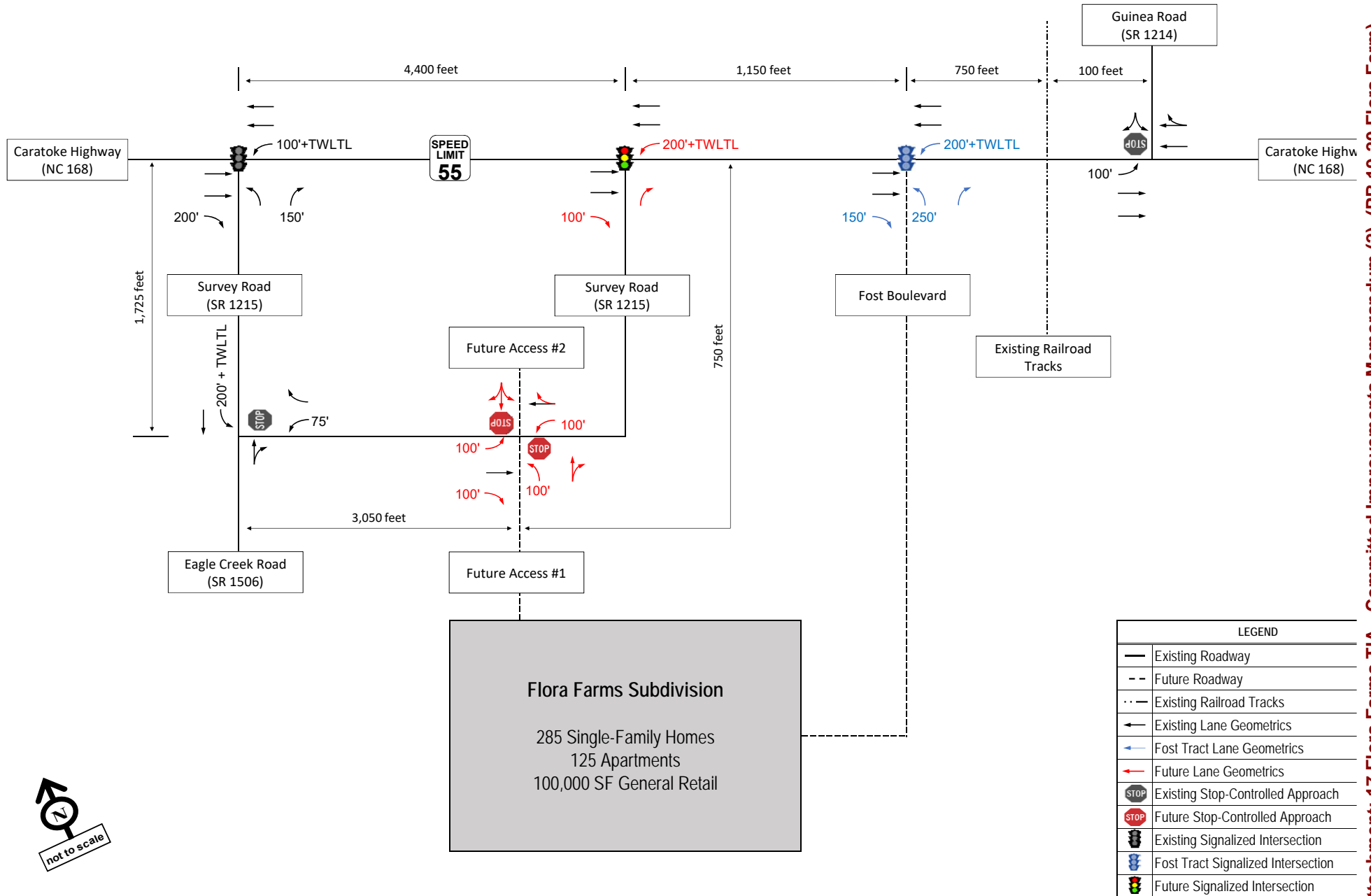
- Construct an exclusive eastbound left-turn along Survey Road at the site driveways with at least 100 feet of full storage and appropriate taper.
- Construct an exclusive eastbound right-turn along Survey Road at the site driveways with at least 100 feet of full storage and appropriate taper.
- Construct an exclusive westbound left-turn along Survey Road at the site driveways with at least 100 feet of full storage and appropriate taper.
- The northbound site driveway should consist of an exclusive northbound right-turn lane with at least 100 feet of full storage with appropriate taper and a continuous thru/right-turn lane.
- The southbound site driveway should consist of a single left/thru/right-turn lane.

As the Flora Farms Subdivision is being developed, it is expected that increasing northbound left-turning traffic entering the site at NC 168 and Survey Road will warrant the installation of a traffic signal.

#### *NC 168 at Survey Road (future signalized)*

- Construct a southbound right-turn lane along NC 168 with a minimum of 100 feet of full storage and appropriate taper.
- Restrict access at the intersection so that the left-turning movement from Survey Road onto NC 168 is no longer allowed. Vehicles wanting to make that left-turning movement can do so at the future signal for Fost Boulevard to the south or the existing signal at Survey Road to the north. The traffic signal at Fost Boulevard can operate acceptably with the additional left-turning traffic.
- It is estimated that once the Flora Farms development is at approximately 50% buildout, a traffic signal will be desired, therefore a signal warrant analysis should be undertaken at that time.

Figure 1 (attached) shows the committed improvements that should be implemented with the full buildout of the Fost Tract Development and Flora Farms Subdivision.



**Figure 1**  
**Future (2026) Lane Geometrics and Traffic Control**





## Planned Development Application

**OFFICIAL USE ONLY:**

Case Number: \_\_\_\_\_  
 Date Filed: \_\_\_\_\_  
 Gate Keeper: \_\_\_\_\_  
 Amount Paid: \_\_\_\_\_

**Contact Information**
**APPLICANT:**

Name: John J. Flora, III/Mary Nell Flora Brumsey

 Address: P.O. Box 369/117 Puddin Ridge Rd.  
 Moyock, NC 27958

Telephone: (252) 232-3005

E-Mail Address: \_\_\_\_\_

**PROPERTY OWNER:**

Name: Same

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Same

**Property Information**

Physical Street Address: US Hwy. 168 and Survey Road

Location: Moyock, NC 27958

Parcel Identification Number(s): 0015000085A0000, 0015000085B0000, 0015000085C0000

Total Parcel(s) Acreage: 224.44 +/-

Existing Land Use of Property: Farmland, Woodlands and Residential

**Request**

Current Zoning of Property: A

**Proposed Zoning District**
☒ Planned Development – Residential (PD-R)

☐ Planned Development – Mixed (PD-M)

☐ Planned Development – Outer Banks (PD-O)

**Amendments**
☐ Amended Master Plan

☐ Amended Terms and Conditions

**Community Meeting**

Date Meeting Held: 01-22-2020

Meeting Location: Eagle Creek Event Pavilion

**Planned Development Request**

It is understood and acknowledged that if the property is rezoned as requested, the property involved in this request will be perpetually bound to the master plan, terms and conditions document, use(s) authorized, and subject to such condition(s) as imposed, unless subsequently changed or amended as provided for in the Currituck County Unified Development Ordinance. It is further understood and acknowledged that final plans for any development be made pursuant to any such planned development so authorized and shall be submitted to the Technical Review Committee.

Property Owner (s)

NOTE: Form must be signed by the owner(s) of record. If there are multiple property owners a signature is required for each owner of record.

Date

 Planned Development Application  
 Page 6 of 7

Revised 7/1/2018

Attachment: 18 Signed Application - Flora Farm (PB 19-20 Flora Farm)



## Planned Development Application

**OFFICIAL USE ONLY:**

Case Number: \_\_\_\_\_  
 Date Filed: \_\_\_\_\_  
 Gate Keeper: \_\_\_\_\_  
 Amount Paid: \_\_\_\_\_

**Contact Information**
**APPLICANT:**

 Name: John J. Flora, III / ~~Mary Nell Flora Brumsey~~

 Address: P.O. Box 369 / ~~117 Puddin Ridge Rd.~~  
 Moyock, NC 27958

Telephone: (252) 232-3005

E-Mail Address: \_\_\_\_\_

**PROPERTY OWNER:**

 Name: ~~Same~~ Mary Nell Flora Brumsey

 Address: 117 Puddin Ridge Rd  
 Moyock, NC 27958

Telephone: (252) 202-8694

E-Mail Address: mary.brumsy@yahoo.com

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Same

**Property Information**

Physical Street Address: US Hwy. 168 and Survey Road

Location: Moyock, NC 27958

Parcel Identification Number(s): 0015000085A0000, 0015000085B0000, 0015000085C0000

Total Parcel(s) Acreage: 224.44 +/-

Existing Land Use of Property: Farmland, Woodlands and Residential

**Request**

Current Zoning of Property: A

**Proposed Zoning District**

- ☒ Planned Development – Residential (PD-R)  
☐ Planned Development – Mixed (PD-M)  
☐ Planned Development – Outer Banks (PD-O)

**Amendments**

- ☐ Amended Master Plan  
☐ Amended Terms and Conditions

**Community Meeting**

Date Meeting Held: 01-22-2020

Meeting Location: Eagle Creek Event Pavilion

**Planned Development Request**

It is understood and acknowledged that if the property is rezoned as requested, the property involved in this request will be perpetually bound to the master plan, terms and conditions document, use(s) authorized, and subject to such condition(s) as imposed, unless subsequently changed or amended as provided for in the Currituck County Unified Development Ordinance. It is further understood and acknowledged that final plans for any development be made pursuant to any such planned development so authorized and shall be submitted to the Technical Review Committee.

Property Owner (s)

NOTE: Form must be signed by the owner(s) of record. If there are multiple property owners a signature is required for each owner of record.

Date

 Planned Development Application  
 Page 5 of 7

Revised 7/1/2018

Attachment: 18 Signed Application - Flora Farm (PB 19-20 Flora Farm)



# Currituck County Schools

*A Beacon for Excellence in Education*

**BOARD OF EDUCATION**

KAREN ETHERIDGE, CHAIRMAN • DWAN CRAFT, VICE-CHAIRMAN  
WILLIAM DOBNEY, EDD • JANET ROSE • WILLIAM CRODICK III

**MARK J. STEFANIK**  
**SUPERINTENDENT**

June 9, 2020

Currituck County Planning Board  
Currituck County Board of Commissioners

Dear Board Members and Commissioners:

As you know, the Currituck County Board of Education has been evaluating sites for a new elementary school in the Moyock/Shawboro area of the County to address capacity issues associated with this area. We have also examined capacity at the schools within our district, and how we plan to deal with growth in the coming years, including whether the development of new homes and a school on a 224 acre property located on Caratoke Highway in Moyock (the Flora site) would impact capacity. I am writing to inform you of two determinations we have made.

First, on May 29, 2020, the Board voted unanimously to select the Flora site as its primary location for the new elementary school. This was based upon several factors, including its proximity to the existing middle school, and safe access to Caratoke Highway. Its location near the Shawboro Elementary and Moyock Elementary boundary lines gives the Board flexibility in being able to redistrict in a manner that minimizes student disruption. Allied Properties has also offered several other concessions included but not limited to, paying for the stormwater design for the school site, and expanding the private pool to a competition-level pool and allowing designated times for CCHS swim team practices. The School Board also supports the concessions Allied has made in the rezoning case (PB 19-12), including the commitment to 10% of apartment units reserved for workforce housing for teachers, traffic improvements and commitments, and drainage improvements near the school site. These concessions offer a significant public benefit to the County, and respond to school needs in a way that reduces County costs.

Second, we have reviewed the phasing schedule associated with the Flora rezoning. The schedule staggers development by phase, and we note that each phase will be staggered by at least 6 months. The Currituck County School District appreciates the staggered development proposal. As we wait for the completion of the new elementary school, the Currituck County School District will use its resources to serve the students generated from all phases of the Flora project. Once completed, the new school will provide expanded capacity to address the needs of students in the northern part of the county.

Please do not hesitate to call me with any questions.

Sincerely,

*Mark J. Stefanik*

Mark Stefanik

**APPLICANT'S Flora Farm Rezoning  
PB 19-20  
2006 Land Use Plan Consistent Policies**

POLICY AG6	<i>For areas experiencing intense development pressure, new residential development may be allowed to locate in COMPACT, VILLAGE-LIKE CLUSTERS, PREFERABLY NEAR EXISTING, NON-AGRICULTURAL ACTIVITIES AND SERVICES, or in other locations that will not interfere with resource production activities</i>
POLICY HN1	<i>County shall encourage development to occur at densities appropriate for the location. LOCATION AND DENSITY FACTORS shall include whether the development is within an environmentally suitable area, the type and capacity of sewage treatment available to the site, the adequacy of transportation facilities providing access to the site, and the proximity of the site to existing and planned urban services. For example, projects falling within the Full Services areas of the FLUM would be permitted a higher density because of the availability of infrastructure as well as similarity to the existing development pattern. Such projects could be developed at a density of two (2) or more dwelling units per acre</i>
Moyock Area Policy Emphasis	<i>“The policy emphasis of this plan is on properly managing the increased urban level of growth that this area is sure to experience over the next decade and beyond. Residential development densities should be medium to high depending upon available services.”</i>
Summary of Area Character	<i>The Moyock area is the fastest growing part of Currituck County. Development densities currently range from 1 to 3 units per acre depending upon development type. <u>It is coming under increasing development pressure as a “bedroom community” for the Tidewater Area of Virginia. This means that people moving into the Moyock area often work across the state line in Virginia but prefer to have their residence in Currituck County.</u> Heightened development interest in this area has brought with it pressure for more subdivisions, as well as the retail services that follow such development.</i>
POLICY WS7	<i>Currituck County allows for the appropriate use of PACKAGE SEWAGE TREATMENT PLANTS as a means of achieving more efficient land use, while properly disposing of waste. Such systems shall have a permanent organizational ownership to guarantee their proper management, including operation, maintenance and replacement needs. Depending on their location in the county, such systems may be required to have a design that allows for assimilation into a centralized system at a future date</i>
POLICY WQ3	<i>Currituck County supports policies, plans and actions that help protect the water quality of the county’s estuarine system by preventing SOIL EROSION AND SEDIMENTATION, and by controlling the quantity and quality of STORMWATER RUNOFF entering the estuary</i>
POLICY WQ4	<i>RUNOFF AND DRAINAGE from development, forestry and agricultural activities shall be of a quality and quantity as near to natural conditions as possible. Post-development runoff shall not exceed pre-development volumes.</i>
POLICY TR12	<i>New residential developments shall provide for the installation of PAVED PUBLIC ROADWAY AND DRAINAGE INFRASTRUCTURE at the time of development. This policy is intended to prevent the creation of substandard</i>

	<i>developments that must later correct for infrastructure problems that could have been avoided, had they been installed properly from the beginning</i>
POLICY CA1	<i>The important economic, tourism, and community image benefits of attractive, functional MAJOR HIGHWAY CORRIDORS through Currituck County shall be recognized. Such highway corridors, beginning with US 158 and NC 168, shall receive priority attention for improved appearance and development standards, including driveway access, landscaping, buffering, signage, lighting and tree preservation.</i>
POLICY TR8	<i>Local streets shall be designed and built to allow for convenient CIRCULATION WITHIN AND BETWEEN NEIGHBORHOODS and to encourage mobility by pedestrians and bicyclists. Care shall be taken to encourage local street “connectivity” without creating opportunities for cut-through traffic from outside the connected areas.</i>
POLICY AG3	<i>County ACTIONS CONCERNING INFRASTRUCTURE (e.g. schools, parks, and utilities) and regulations shall serve to direct new development first to targeted growth areas near existing settlements identified as Full Service Areas on the FLUM</i>
POLICY SF1	<i>Currituck County shall support and actively engage in ADVANCED PLANNING FOR THE LOCATION OF NEW SCHOOLS. Such locations shall serve to reinforce contiguous growth patterns near existing developments rather than promoting sprawl in more rural locations.</i>
POLICY SF	<i>Currituck County encourages OFFERS OF LAND FOR THE SITING OF NEW SCHOOLS, particularly in conjunction with related community development. Acceptance of such properties shall be based on approved location and design criteria.</i>
LUP Policy 8.3	<i>To provide residents of Currituck highest level of county services and ensure that adequate facilities are available to meet current and long range needs of the County. Strategy 4: A long range facilities plan shall be prepared for Currituck County schools. RESPONSIBLE AGENCY: Board of Commissioners TIME FRAME: 1993 Implementation: Board of Commissioners and Board of Education agreed to approve a 10-year Capital Facilities plan for new school construction and expansion.</i>
Actions Concerning School Facilities	<i>Action SF-1: Form an interdepartmental project team whose purpose is to fully implement County objectives for growth management and adequate public facilities as applicable to schools and parks. Bring together top school administrators, planning department personnel, and the parks department, among others, to prepare a plan of action for review by the School Board and County Commissioners. Who Leads: County Commissioners, County School Board</i>
LUP Appx G, Infrastructure Analysis, Schools	<i>It is essential to remember that all of these students will not be entering the school system at one time</i>









## Currituck County SWCD

Soil & Stormwater  
 Post Office Box 70  
 Currituck, North Carolina 27929  
 252-232-3360  
 FAX 252-232-3026

Michael Ervin  
 Executive Director, Albemarle Commission  
 512 South Church Street  
 Hertford, NC 27944

Dear Mr Ervin:

The Currituck Soil and Water Conservation District is pleased to partner with the Albemarle Commission and Albemarle Resource Conservation and Development Council on a 205j grant application to conduct a regional watershed study in the county.

Currituck County is one of the fastest growing counties in the state, with much of the growth driven by demand for affordable housing for people working in Chesapeake and Hampton Roads, Virginia. Key demographics for the county and study target area include:

- Population projected to increase from 27,072 to 36,493 by 2035
- One of the 10 fastest growing counties based on 2000-2010 trend
- Projected 30% increase in visitors by 2035
- As of February 2020, 1717 proposed residential lots, 6,557 current residential units, and proposed Currituck Station Mega Site with 1500 single family and 1500 multifamily units.

The upper watersheds in the county do not currently have impaired waters on the 2018 303(d) list. However, Coinjock Bay was listed in 2012 as impaired for enterococcus. Rapid residential and commercial development in the upper part of the county will increase stormwater runoff and related water quality issues.

Protecting water quality is a key objective of the county as it promotes water resources for nature tourism to both residents and visitors. The Northwest River in the study target area is unique in that it is surrounded in many places by state game lands, and has relatively good water quality. The county last year constructed three paddle camping platforms on the river to promote the region for nature tourism.

The proposed regional watershed study will

1. Identify and establish key partnerships for protecting regional water quality
2. Identify key locations to monitor and establish a baseline for water quality
3. Identify and prioritize key areas for building resiliency to future storm events
4. Identify key locations for Best Management Practices to effectively manage stormwater
5. Survey coastlines and identify areas for invasive species control, and living shoreline projects.

Thank you for the opportunity to partner on this important study for our county. The SWCD will provide in-kind technical support for the project if awarded.

Sincerely,

Manly West, Chairman





## **COUNTY OF CURRITUCK**

### **RESOLUTION AUTHORIZING THE PURCHASE OF HARDWARE FROM INSTRULOGIC, LLC FOR THE OPERATION OF SAILFISH STREET STORMWATER SITE THROUGH SOLE SOURCE PURCHASE PURSUANT TO N.C. GEN. STAT. §143-129(e)(6)**

WHEREAS, N.C. Gen. Stat. §143-129(e)(6) authorizes a unit of local government to purchase apparatus, supplies, materials or equipment when standardization or compatibility is an overriding consideration; and

WHEREAS, proper functioning of the County's Sailfish Street Stormwater Site in the Whalehead Subdivision Improvement Service District requires the purchase of flow meter hardware compatible with existing systems equipment and;

WHEREAS, InstruLogic, LLC is the only entity capable of providing the County with necessary hardware compatible with current Whalehead Subdivision Improvement Service District equipment and operational systems, and

WHEREAS, Whalehead Subdivision Improvement Service District has been using InstruLogic, LLC to construct, develop and upgrade its system; and

WHEREAS, InstruLogic, LLC is supplying Whalehead Subdivision Improvement Service District with necessary hardware at a cost of \$19,059.00; and

WHEREAS, InstruLogic, LLC is supplying Whalehead Subdivision Improvement Service District with necessary hardware at a cost of \$19,059.00; and

WHEREAS, the total cost for the Whalehead Subdivision Improvement Service District purchase is \$19,059.00.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners for Currituck County, North Carolina as follows:

Section 1. The County of Currituck is authorized to enter into a contract in the amount of \$19,059.00 with InstruLogic, LLC for the sole source purchase of necessary hardware in accordance with the sole source provision requirements set forth by N.C. Gen. Stat. §143-129(e)(6). Further, the County Manager is authorized to execute the agreement with InstruLogic, LLC for the acquisition of hardware described in this resolution and the proposed contract.

Section 2. This resolution shall be effective upon its adoption.

This the 21<sup>st</sup> day of September 2020.

---

Bob White, Chairman  
Board of Commissioners

ATTEST:

---

Leeann Walton  
Clerk to the Board of Commissioners

(COUNTY SEAL)



## **COUNTY OF CURRITUCK**

### **RESOLUTION AUTHORIZING THE PURCHASE OF HARDWARE AND SOFTWARE FROM EASTERN DATA, INC. THROUGH SOLE SOURCE PURCHASE PURSUANT TO N.C. GEN. STAT. §143-129(e)(6)**

WHEREAS, N.C. Gen. Stat. §143-129(e)(6) authorizes a unit of local government to purchase apparatus, supplies, materials or equipment when standardization or compatibility is an overriding consideration; and

WHEREAS, proper functioning of the county's Mainland Water Treatment Plant access control system requires hardware and software upgrades compatible with existing systems equipment; and

WHEREAS, Eastern Data, Inc. is the only entity capable of providing the county with hardware and necessary software compatible with current county equipment and operational systems, and

WHEREAS, the county has been using Eastern Data, Inc. to construct, develop and upgrade its system; and

WHEREAS, Mainland Water Treatment Plant needs access control system hardware and software upgrades and Eastern Data, Inc. is the sole supplier of compatible hardware and software; and

WHEREAS, Eastern Data, Inc. is supplying Mainland Water Department with hardware and necessary software at a cost of \$17,376.60; and

WHEREAS, the total cost for the Mainland Water Department access control system upgrade is \$17,376.60.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners for Currituck County, North Carolina as follows:

Section 1. The County of Currituck is authorized to enter into a contract in the amount of \$17,376.60 with Eastern Data, Inc. for the sole source purchase of hardware and necessary software in accordance with the sole source provision requirements set forth by N.C. Gen. Stat. §143-129(e)(6). Further, the County Manager is authorized to execute the agreement with Eastern Data, Inc. for the acquisition apparatus, materials, and equipment acquisition described in this resolution and the proposed contract.

Section 2. This resolution shall be effective upon its adoption.



This the 21<sup>st</sup> day of September 2020.

---

Bob White, Chairman  
Board of Commissioners

ATTEST:

---

Leeann Walton  
Clerk to the Board of Commissioners

(COUNTY SEAL)



## Right of Way Agreement

THIS RIGHT OF WAY AGREEMENT, is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by and between

COUNTY OF CURRITUCK, NORTH CAROLINA,  
a body corporate and politic existing pursuant to the laws of the State of North Carolina

("GRANTOR") and VIRGINIA ELECTRIC AND POWER COMPANY, a Virginia public service corporation, doing business in North Carolina as Dominion Energy North Carolina, with its principal office in Richmond, Virginia ("GRANTEE").

### WITNESSETH:

1. That for and in consideration of the sum of One Dollar (\$1.00) cash in hand paid and other good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, **GRANTOR** grants and conveys unto **GRANTEE**, its successors and assigns, the perpetual right, privilege and non-exclusive easement over, under, through, upon and across the property described herein, for the purpose of transmitting and distributing electric power by one or more circuits; for its own internal telephone and other internal communication purposes directly related to or incidental to the generation, distribution, and transmission of electricity, including the wires and facilities of any other public service company in aid of or to effectuate such internal telephone or other internal communication purposes; and for lighting purposes; including but not limited to the right:

Initials: \_\_\_\_\_

**This Document Prepared by Virginia Electric and Power Company and should be returned to:**  
Dominion Energy North Carolina, 304 NC Highway 11N, Ahoskie, NC 27910.

(Page 1 of 5 Pages)  
NCROW No(s). 71-20-0052

Form No. 721043-1 (May 2019)

## Right of Way Agreement

1.1 to lay, construct, operate and maintain one or more lines of underground conduits and cables including, without limitation, one or more lighting supports and lighting fixtures as **GRANTEE** may from time to time determine, and all wires, conduits, cables, transformers, transformer enclosures, concrete pads, manholes, handholes, connection boxes, accessories and appurtenances desirable in connection therewith; the width of said easement shall extend TWENTY (20') feet in width across the lands of **GRANTOR**; and

2. The easement granted herein shall extend across the lands of **GRANTOR** situated in CURRITUCK COUNTY, North Carolina, as more fully described on Plat(s) Numbered 71-20-0052

, attached to and made a part of this Right of Way Agreement; the location of the boundaries of said easement being shown in broken lines on said Plat(s), reference being made thereto for a more particular description thereof.

3. All facilities constructed hereunder shall remain the property of **GRANTEE**. **GRANTEE** shall have the right to inspect, reconstruct, remove, repair, improve, relocate on the easement, and make such changes, alterations, substitutions, additions to or extensions of its facilities as **GRANTEE** may from time to time deem advisable.

4. **GRANTEE** shall have the right to keep the easement clear of all buildings, structures, trees, roots, undergrowth and other obstructions which would interfere with its exercise of the rights granted hereunder, including, without limitation, the right to trim, top, retrim, retop, cut and keep clear any trees or brush inside and outside the boundaries of the easement that may endanger the safe and proper operation of its facilities. All trees and limbs cut by **GRANTEE** shall remain the property of **GRANTOR**.

5. For the purpose of exercising the right granted herein, **GRANTEE** shall have the right of ingress to and egress from this easement over such private roads as may now or hereafter exist on the property of **GRANTOR**. The right, however, is reserved to **GRANTOR** to shift, relocate, close or abandon such private roads at any time. If there are no public or private roads reasonably convenient to the easement, **GRANTEE** shall have such right of ingress and egress over the lands of **GRANTOR** adjacent to the easement. **GRANTEE** shall exercise such rights in such manner as shall occasion the least practicable damage and inconvenience to **GRANTOR**.

Initials: \_\_\_\_\_

(Page 2 of 5 Pages)

NCROW No(s). 71-20-0052

Form No. 721043-2 (May 2019)

© 2020 Dominion Energy

## Right of Way Agreement

6. **GRANTEE** shall repair damage to roads, fences, or other improvements (a) inside the boundaries of the easement (subject, however, to **GRANTEE**'s rights set forth in Paragraph 4 of this Right of Way Agreement) and (b) outside the boundaries of the easement and shall repair or pay **GRANTOR**, at **GRANTEE**'s option, for other damage done to **GRANTOR**'s property inside the boundaries of the easement (subject, however, to **GRANTEE**'s rights set forth in Paragraph 4 of this Right of Way Agreement) and outside the boundaries of the easement caused by **GRANTEE** in the process of the construction, inspection, and maintenance of **GRANTEE**'s facilities, or in the exercise of its right of ingress and egress; provided **GRANTOR** gives written notice thereof to **GRANTEE** within sixty (60) days after such damage occurs.

7. **GRANTOR**, its successors and assigns, may use the easement for any reasonable purpose not inconsistent with the rights hereby granted, provided such use does not interfere with **GRANTEE**'s exercise of any of its rights hereunder. **GRANTOR** shall not have the right to construct any building, structure, or other above ground obstruction on the easement; provided, however, **GRANTOR** may construct on the easement fences, landscaping (subject, however, to **GRANTEE**'s rights in Paragraph 4 of this Right of Way Agreement), paving, sidewalks, curbing, gutters, street signs, and below ground obstructions as long as said fences, landscaping, paving, sidewalks, curbing, gutters, street signs, and below ground obstructions do not interfere with **GRANTEE**'s exercise of any of its rights granted hereunder. In the event such use does interfere with **GRANTEE**'s exercise of any of its rights granted hereunder, **GRANTEE** may, in its reasonable discretion, relocate such of its facilities as may be practicable to a new site designated by **GRANTOR** and acceptable to **GRANTEE**. In the event any such facilities are so relocated, **GRANTOR** shall reimburse **GRANTEE** for the cost thereof and convey to **GRANTEE** an equivalent easement at the new site.

8. **GRANTEE** shall have the right to assign or transfer, without limitation, to any public service company all or any part of the perpetual right, privilege and easement granted herein.

9. If there is an Exhibit A attached hereto, then the easement granted hereby shall additionally be subject to all terms and conditions contained therein provided said Exhibit A is executed by **GRANTOR** contemporaneously herewith and is recorded with and as a part of this Right of Way Agreement.

10. Whenever the context of this Right of Way Agreement so requires, the singular number shall mean the plural and the plural the singular.

Initials: \_\_\_\_\_

(Page 3 of 5 Pages)

NCROW No(s). 71-20-0052

Form No. 721043-3 (May 2019)

© 2020 Dominion Energy



## Right of Way Agreement

11. **GRANTOR** covenants that it is seised of and has the right to convey this easement and the rights and privileges granted hereunder; that **GRANTEE** shall have quiet and peaceable possession, use and enjoyment of the aforesaid easement, rights and privileges; and that **GRANTOR** shall execute such further assurances thereof as may be reasonably required.

12. The individual executing this Right of Way Agreement on behalf of **GRANTOR** warrants that **GRANTOR** is a corporation duly organized and existing under the laws of the state hereinabove mentioned and that he or she has been duly authorized to execute this easement on behalf of said corporation.

**IN WITNESS WHEREOF**, **GRANTOR** has caused its corporate name to be signed hereto by its authorized officer or agent, described below, on the date first above written.

Corporate Name: COUNTY OF CURRITUCK

By: \_\_\_\_\_

Its: \_\_\_\_\_  
(Title)

State of \_\_\_\_\_

County of \_\_\_\_\_

I, \_\_\_\_\_, a Notary Public for the jurisdiction aforesaid  
(Name of Notary)

do hereby certify that \_\_\_\_\_ personally came  
(Name of Signatory)

before me and acknowledged that he (or she) is \_\_\_\_\_, of  
(Title)

COUNTY OF CURRITUCK, a corporation, and  
(Corporation Name)

that he (or she), as \_\_\_\_\_, being authorized to do so,  
(Title)

executed the foregoing on behalf of the corporation.

Witness my hand and official seal this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Notary Public (Print Name)

\_\_\_\_\_  
Notary Public (Signature)

My commission expires: \_\_\_\_\_

(Page 4 of 5 Pages)

NCROW No(s). 71-20-0052

\_\_\_\_\_  
(Notary Seal Here)

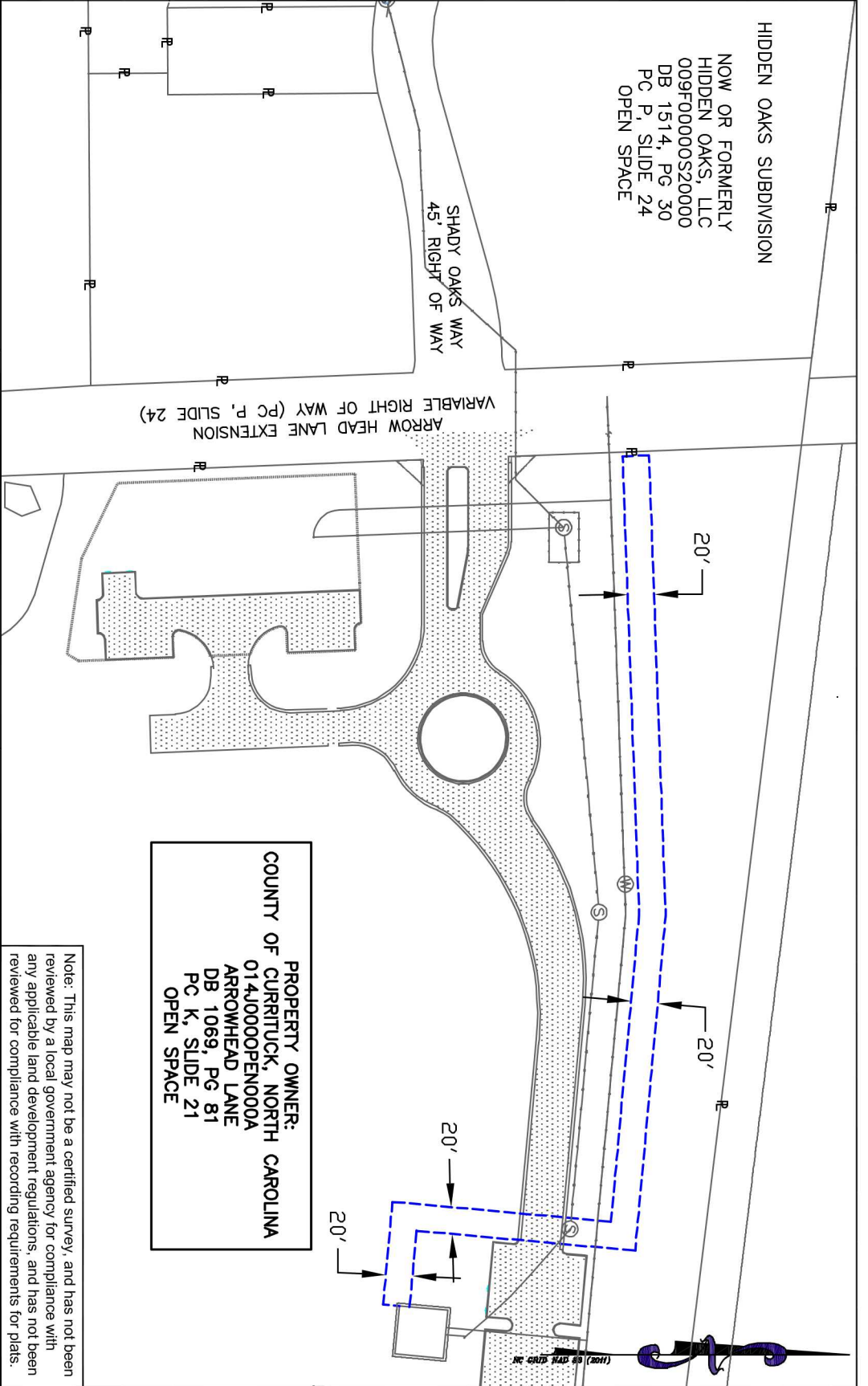


HIDDEN OAKS SUBDIVISION

NOW OR FORMERLY  
HIDDEN OAKS, LLC  
009F00000S20000  
DB 1514, PG 30  
PC P, SLIDE 24  
OPEN SPACE

SHADY OAKS WAY  
45' RIGHT OF WAY

ARROW HEAD LANE EXTENSION  
VARIABLE RIGHT OF WAY (PC P, SLIDE 24)



PROPERTY OWNER:  
COUNTY OF CURRITUCK, NORTH CAROLINA  
014J0000PEN000A  
ARROWHEAD LANE  
DB 1069, PG 81  
PC K, SLIDE 21  
OPEN SPACE

Note: This map may not be a certified survey, and has not been reviewed by a local government agency for compliance with any applicable land development regulations, and has not been reviewed for compliance with recording requirements for plats.

LEGEND		Scale		NOT TO SCALE	
-----	Location of Boundary Lines of Right-of-Way 20' in Width.	District	ELIZABETH CITY	County-City	State
-----	Indicates Property Line is Right-of-Way Boundary 20' in Width.	District-Township-Borough	MOYOCK	CURRITUCK	NC
=====		Office	ELIZABETH CITY	Plat Number	71-20-0052
		Work Request Number	10364310	Grid Number	N0701
DATE 09/08/2020	BY BROWN/TEMPLE			OWNER INITIALS _____	
				Page 5 of 5	

PLAT TO ACCOMPANY  
RIGHT-OF-WAY AGREEMENT  
UG  
VIRGINIA ELECTRIC AND POWER COMPANY  
doing business as  
Dominion Energy North Carolina



09/14/2020

County of Currituck  
Eric Weatherly  
Currituck, NC 27929

**RE: New service for park building.**  
**Location: 219 Arrow head Lane.**  
**WR # 10403926**

Dear Mr. Weatherly,

The estimated cost for the above work is \$13,590.38. This cost estimate is valid for 120 days from the date of this letter. In the event the actual cost varies from this, final billing will be rendered upon completion of the work. If payment is not received by the invoice due date a late payment charge of 1% will apply.

If the Currituck County desires Dominion Energy North Carolina to proceed with the work, please have an authorized representative of Currituck County provide Authorization to Proceed by reviewing the attached construction plans, reading, completing and executing the following and returning this authorization within 120 days from 09/14/2020 in the enclosed self addressed envelope. Once we have received the Authorization below, and after any additional requirements have been satisfied, e.g. right of way agreements; we will begin procurement of the material and equipment, and the work scheduling necessary to accomplish this project.

---

---

### **AUTHORIZATION TO PROCEED**

I understand the estimated cost of the requested work will be \$13,590.38 and will be performed on an actual cost basis with final billing rendered upon completion of work. As an authorized representative of Currituck County, I hereby provide authorization for Dominion Energy North Carolina to proceed with the work and confirm Currituck County agreement to reimburse Dominion Energy North Carolina the total cost referenced above upon completion of the work. In the event the requested work is canceled, Currituck County agrees to reimburse Dominion Energy North Carolina its costs incident to implementing this authorization.

Currituck County requests the bill for the non-service project work described above should be mailed to the following address for payment:

Entity Name: \_\_\_\_\_  
 Attention Name: \_\_\_\_\_  
 Purchase Order #: \_\_\_\_\_  
 Street Address/P.O. Box: \_\_\_\_\_  
 City, State; Zip: \_\_\_\_\_

I confirm with my signature below that the information contained and provided within this Authorization to Proceed is true and correct.

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Entity: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Should you have any further questions, please call me at 252-331-9194. In my absence, please call Randall Wright at 252-331-6108.

Sincerely,

Tony Temple, Lead Designer  
 Dominion Energy  
 Elizabeth City Office  
 1707 W. Ehringhaus St.  
 Elizabeth City, NC 27909

**Maritime Museum**

## Change Order #3 Summary

September 21, 2020

RFC 012	Additional framing at rear porch	Frame in rear porch to create a soffit for lighting.	\$ 1,503.70
RFC 013	Deduct for reduction in sidewalk	Re-route sidewalk at front of building due to existing live oaks.	(\$ 2,187.00)
RFC 014	Exhibit related changes to building	Coordinated changes developing from Riggs Ward's exhibit progress design dated 7/1/2020. Includes the installation of plywood to provide blocking and backing at the mezzanine's front wall face and back. Includes the addition of (5) electrical power receptacles and (2) data receptacles. (Note: a credit to delete site primary electrical feeder conduit installation has been included in the electrical proposal.) Paint one pre-finished metal fire extinguisher cabinet to match the wall color at new location.	\$ 3,719.92
RFC 015	Upgrade connection box for Manual Transfer Switch	Upgrade ATS connection box to stainless steel per submittal review comments from engineer.	\$ 5,870.48
	<b>Total Changes</b>		<b>\$ 8,907.10</b>

Staff recommends approval of Change Order #3 in the amount of \$8,907.10. The funds for this change order are available in the project budget.

Current Contract Amount	\$	3,249,781.57
Change Order	\$	8,907.10
Proposed Contract Amount	\$	3,258,688.67

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)



CHANGE ORDER NO. CO003

<b>PROJECT:</b> Whalehead Boat Museum 1100 Club Road Corolla, NC 27927	<b>CHANGE ORDER</b> Date:	<b>CO003</b> Sep 10, 2020	<b>OWNER:</b> <input checked="" type="checkbox"/> <b>ARCHITECT:</b> <input checked="" type="checkbox"/> <b>CONTRACTOR:</b> <input checked="" type="checkbox"/> <b>FIELD:</b> <input type="checkbox"/> <b>OTHER:</b> <input type="checkbox"/>
<b>TO CONTRACTOR:</b> Sussex Development Corporation 109 S. Lynnhaven Road, Suite 200 Virginia Beach VA 23452			

THE CONTRACT IS CHANGED AS FOLLOWS:

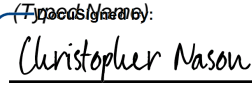
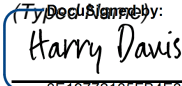
(Include, where applicable, any undisputed amount attributable to previously executed Construction Change Directives)

RFC012	Frame in rear porch to create a soffit for lighting	\$1,503.70
RFC013	Changes per Field Change #2 dated 07/28/20	-2,187.00
RFC014	Exhibit related building changes	\$3,719.92
RFC015	Upgrade ATS connection box to stainless steel per submittal review comments from engineer	\$5,870.48

The original Contract Sum was	\$3,213,029.49
The net change by previously authorized Change Orders	\$36,752.08
The Contract Sum prior to this Change Order was	\$3,249,781.57
The Contract Sum will be increased by this Change Order in the amount	\$8,907.10
The New Contract Sum Including This Change Order	\$3,258,688.67
The Contract Time Will Not Be Changed	
The date of Substantial Completion as of the date of this Change Order	

**NOTE:**  
This Change Order does not include changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER

Beacon Architecture and Design, PLLC	Sussex Development Corporation	County of Currituck
<b>ARCHITECT</b> (Firm name)	<b>CONTRACTOR</b> (Firm name)	<b>OWNER</b> (Firm name)
2400 N Croatan Highway Suite H Kill Devil Hills NC 27948 USA	109 S. Lynnhaven Road, Suite 200 Virginia Beach VA 23452	153 Courthouse Road Currituck NC 27929 USA
<b>ADDRESS</b>	<b>ADDRESS</b>	<b>ADDRESS</b>
Christopher Nason	Harry L. Davis, III	Ben Stikeleather
(Typed Name)	(Typed Name)	(Typed Name)
		
CD8188427F86480...	0E19772105FB4E3...	
<b>BY</b> (Signature)	<b>BY</b> (Signature)	<b>BY</b> (Signature)
09/11/20   4:56 PM ADT	09/11/20   1:09 PM PDT	
<b>DATE</b>	<b>DATE</b>	<b>DATE</b>



**REQUEST FOR CHANGE****Project Code:** 2019-045**Date:** 2020-07-30**Project Name:** Whalehead Boat Museum**RFC#:** RFC012**Owner:** County of Currituck  
153 Courthouse Road Suite 302  
Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

**Scope of Work:**

Frame in rear porch to create a soffit for lighting

Description	Amount
Frame in rear porch to create a soffit for lighting	\$ 1,367.00
10% OH&P on Subcontractors	\$ 136.70
<b>TOTAL</b>	<b>\$ 1,503.70</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation****County of Currituck**

DocuSigned by:

607695073464449

Jim Vachon, Senior Project Manager

Michelle Perry  
or Authorized Signature

Date

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)



1333 Ingleside Road, Suite 200

Norfolk, Virginia 23502

Phone: (757) 965-2175

FAX (757) 855-9424

## Bid Proposal

DATE: July 24, 2020

Project Manager:

Chris Fevrier

[chris@alaric21.com](mailto:chris@alaric21.com)

### Whalehead Boat Museum- CO Add Exterior Soffit at Back Canopy

Job Name

Corolla, VA

Location

Provide all necessary labor, materials, equipment, tools and insurance required to perform the following work:	Total
<b>Add Exterior Soffit Framing at Back Canopy</b> <ul style="list-style-type: none"> <li>Reference S5.1 Detail 2</li> <li>Material: \$487.00</li> <li>Labor: \$880.00</li> </ul>	<b>\$1,367.00</b>

Notes	Exclusions
<ul style="list-style-type: none"> <li>*All other pricing contingent upon acceptance of this line item.</li> <li>Proposal based on items listed above only.</li> <li>Proposal based on plans and specs, dated 2/15/19.</li> <li>Addendum Acknowledged (N/A)</li> </ul>	<ul style="list-style-type: none"> <li><b>Proposal does not include the following:</b> <ul style="list-style-type: none"> <li>Decking, Corrugated Metal, Soffit Panels</li> </ul> </li> </ul>

Chris Fevrier, Vice President

Accepted By

Date

PAYMENT DUE UPON COMPLETION ON CONTRACT UNDER \$3,000.00; ANY CONTRACT OVER \$3,000.00 WILL BE BILLED ON A PERCENTAGE BASIS MONTHLY. A charge of 3% applies to credit card payments; Visa, MasterCard, Discover, American Express, and Debit Card. A charge of 1 1/2% per month or 18% per year will be applied to all accounts over 30 days. Any account turned over to an attorney for collection will be charged reasonable attorney fees. All applicable sales and use taxes are included. If your company issues separate contract or purchase order, this proposal will become a part of same. All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from the specifications involving extra cost will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by workmen's compensation insurance. THIS PROPOSAL SUBJECT TO CHANGE IF NOT ACCEPTED IN THIRTY DAYS.



## REQUEST FOR CHANGE

**Project Code:** 2019-045**Date:** 2020-09-02**Project Name:** Whalehead Boat Museum**RFC#:** RFC013

**Owner:** County of Currituck  
 153 Courthouse Road Suite 302  
 Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

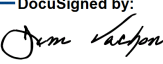
**Scope of Work:**

Changes per Field Change #2 dated 07/28/20

Description	Amount
Credit to deduct 486sqft of sidewalk	\$ -2,187.00
<b>TOTAL</b>	<b>\$ -2,187.00</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation****County of Currituck**

DocuSigned by:  
  
 607685073464449...

---

 Jim Vachon, Senior Project Manager

---

 Michelle Perry  
 or Authorized Signature

---

 Date

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)

**HATCHELL CONCRETE, INC.**

P.O. Box 2405  
1002 Driftwood Drive  
Manteo, NC 27954

NC LICENSED CONTRACTOR  
Commercial & Residential

Phone: (252) 473-6074  
Fax: (252) 473-6606  
Email: hci@hatchellconcrete.com

September 1, 2020

Re: Whalehead Boat Museum  
Sussex Development

Hatchell Concrete is pleased to offer the below deduction for the removal of 486 sq. ft from previously shown concrete sidewalk.

- Total Deduction - **\$2,187**

Clarifications:

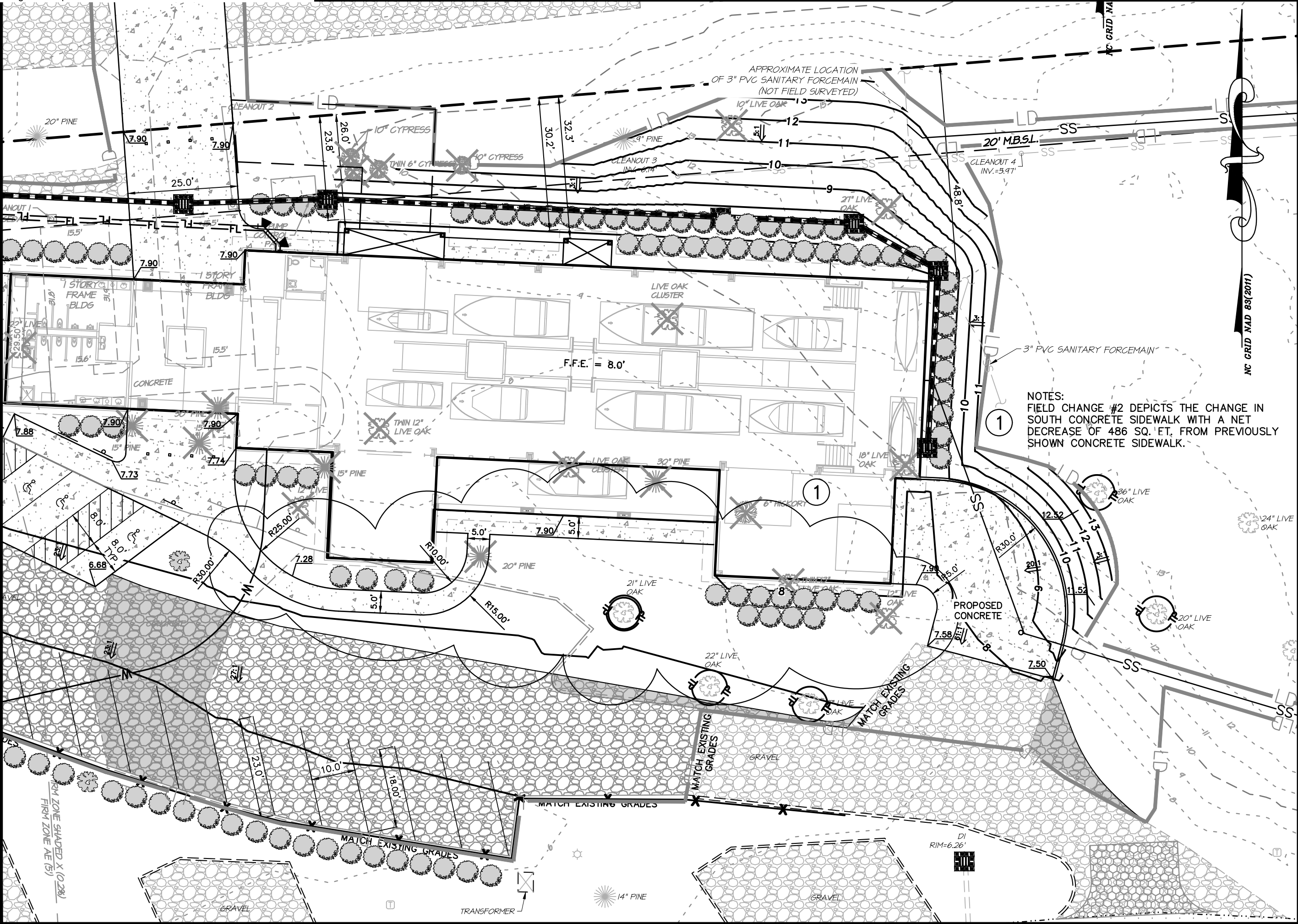
1. *This pricing is based off the attached plan and field notes. No other deductions are included in this pricing.*

Best Regards,

Hatchell Concrete, Inc.

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)

C:\1998\p98003\Drawings\p98003.4-Construction-SidewalkAmendment-2020-07-24.dwg 7/28/2020 6:55 AM Mstrader



NOTES:  
FIELD CHANGE #2 DEPICTS THE CHANGE IN  
SOUTH CONCRETE SIDEWALK WITH A NET  
DECREASE OF 486 SQ. FT. FROM PREVIOUSLY  
SHOWN CONCRETE SIDEWALK.

Quible  
& Associates, P.C.  
ENGINEERING\*\* \* CONSULTING \* PLANNING  
ENVIRONMENTAL SCIENCES \* SURVEYING\*\*  
\*\*ENG./SUR. NOT OFFERED AT BLACK MTN. OFFICE  
8466 Caratoke Hwy, Powells Point, NC 279  
Phone: (252) 491-8147 Fax: (252) 491-81  
90 Church St., Sta. B, Black Mountain, NC 2

7.C.4.a

PRELIMINARY  
NOT FOR  
CONSTRUCTION

FIELD CHANGE #2

WHALEHEAD BOAT  
MUSEUM

POPULAR BRANCH TOWNSHIP  
NORTH CAROLINA

CURRITUCK COUNTY

0 20 40

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MANAGEMENT, UNLESS OTHERWISE  
NOTED.

PROJECT  
P98003.4

DRAWN BY  
CMS

CHECKED BY  
MWS

DATE  
28/1

Packet Pg. 294





## REQUEST FOR CHANGE

**Project Code:** 2019-045

**Date:** 2020-09-10

**Project Name:** Whalehead Boat Museum

**RFC#:** RFC014R

**Owner:** County of Currituck  
153 Courthouse Road Suite 302  
Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

### Scope of Work:

Coordinated changes developing from Riggs Ward's exhibit progress design dated 7/1/2020. Includes the installation of plywood to provide blocking and backing at the Mezzanine's front wall face and back. Includes the addition of (5) electrical power receptacles and (2) data receptacles. (Note: a credit to delete site primary electrical feeder conduit installation has been included in the electrical proposal.) Paint one pre-finished metal fire extinguisher cabinet to match the wall color at new location.

Description	Amount
Alaric quote: Option 4 plywood blocking	\$ 3,035.00
Seabreeze quote: Add power/date. Credit conduit	\$ 201.25
Budget: paint 1 fire extinguisher cabinet	\$ 100.00
Payment & Performance Bonds	\$ 50.04
10% OH&P on Subcontractors	\$ 333.63
<b>TOTAL</b>	<b>\$ 3,719.92</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation**

**County of Currituck**

DocuSigned by:

Jim Vachon, Senior Project Manager

Michelle Perry  
or Authorized Signature

Date

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)



1333 Ingleside Road, Suite 200  
Norfolk, Virginia 23502  
Phone: (757) 965-2175  
FAX (757) 855-9424

## Bid Proposal

**DATE: August 10, 2020**

**Project Manager:**  
**Chris Fevrier**  
[chris@alaric21.com](mailto:chris@alaric21.com)

### Whalehead Boat Museum- CO Plywood Blocking at Mezzanine- Revised 8-10-20

Job Name

**Corolla, VA**

Location

Provide all necessary labor, materials, equipment, tools and insurance required to perform the following work:	Total
<b>Option 1: Substitute 5/8" Plywood at Dashed Line Locations In lieu of Drywall</b>	<b>\$1,367.00</b>
<b>Option 2: Substitute 5/8" Plywood at Walls Indicated to Replace ALL Drywall</b>	<b>\$3,388.00</b>
<b>Option 3: Install 5/8" Plywood Inside Wall Cavity on Each Side for Blocking</b> - Drywall to Remain. 5/8" Plywood to be Installed Just like Typical In-Wall Blocking	<b>\$2,836.00</b>
<b>Option 4: Install 5/8" Plywood In Wall Cavity Exhibit Side, Substitute Plywood on Mezzanine Side</b>	<b>\$3,035.00</b>

Notes	Exclusions
<ul style="list-style-type: none"> <li>- *All other pricing contingent upon acceptance of this line item.</li> <li>- Proposal based on items listed above only.</li> <li>- Proposal based on plans and specs, dated 2/15/19.</li> <li>- Addendum Acknowledged (N/A)</li> </ul>	<ul style="list-style-type: none"> <li>- <b>Proposal does not include the following:</b> <ul style="list-style-type: none"> <li>- Decking, Corrugated Metal, Soffit Panels</li> </ul> </li> </ul>

Chris Fevrier, Vice President

Accepted By

Date

PAYMENT DUE UPON COMPLETION ON CONTRACT UNDER \$3,000.00; ANY CONTRACT OVER \$3,000.00 WILL BE BILLED ON A PERCENTAGE BASIS MONTHLY. A charge of 3% applies to credit card payments; Visa, MasterCard, Discover, American Express, and Debit Card. A charge of 1 1/2% per month or 18% per year will be applied to all accounts over 30 days. Any account turned over to an attorney for collection will be charged reasonable attorney fees. All applicable sales and use taxes are included. If your company issues separate contract or purchase order, this proposal will become a part of same. All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from the specifications involving extra cost will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by workmen's compensation insurance. THIS PROPOSAL SUBJECT TO CHANGE IF NOT ACCEPTED IN THIRTY DAYS.

**Packet Pg. 296**

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)



DATE:

7.C.4.a

## SUBCONTRACTOR CHANGE ORDER REQUEST FORM

PROJECT:

CHANGE ORDER DESCRIPTION:

Project #2019-045 Whalehead Boat Museum

1. Credit labor for install of primary electrical service conduit.
2. Add'l power & date service at interior per Riggs Ward sketches

SUBCONTRACTOR:

SUBCONTRACTOR COR NO.:

## MATERIAL

Description	Quantity (Q)	Unit of Measure (U)	Unit Cost (UC)	Total Cost (Q x UC)	Total Material Co
For change item #1. No material.	0			\$0.00	
For change item #2. Add'l wiring, boxes, etc.	7	each	\$25.00	\$175.00	
				\$0.00	
				\$0.00	
(A) TOTAL MATERIAL COST					\$175

## SHOP LABOR

Trade	Total Hours (H)	Total Rate w/Fringes (HR)	Total Cost (H x HR)	Total Shop Labo
			\$0.00	
			\$0.00	
			\$0.00	
			\$0.00	
(B) TOTAL SHOP LABOR			\$0.00	
(C) SUBTOTAL MAT & SHOP LABOR (A+B)			\$175.00	
Allowable OH&P:	15%	(D) OVERHEAD & PROFIT	\$26.25	
(E) SUBTOTAL W/OH & PROFIT (C + D)				\$201

## LABOR

Trade	Total Hours (H)	Total Rate w/Fringes (HR)	Total Cost (H x HR)	Total Labor Cos
Change item #1. Approx 200 LF conduit install	200	40.00	\$33.50	\$1,340.00
Change item #2. Install (7) power and data	7	40.00	\$33.50	\$1,340.00
			\$0.00	
			\$0.00	
			\$0.00	
(F) SUBTOTAL LABOR			\$0.00	
Allowable OH&P:	15%	(G) OVERHEAD & PROFIT	\$0.00	
(H) SUBTOTAL W/OH & PROFIT (F + G)				\$0

## EQUIPMENT AND TOOLS

Equipment	Quantity (Q)	Total Hours (HR)	Rental Rate (R)	Total Cost (HR x R)	Total Equip. Cos
				\$0.00	
				\$0.00	
				\$0.00	
				\$0.00	
				\$0.00	
			Delivery Charge (If Applies)		
(I) SUBTOTAL EQUIPMENT COSTS			\$0.00		
Allowable OH&P:	15%	(J) OVERHEAD & PROFIT	\$0.00		
(K) SUBTOTAL W/OH & PROFIT (I + J)					\$0

## SUB-SUBCONTRACTORS

Company	Type of Work Provided	Total Cost	Total SC Cost *
	(L) SUB-SUBCONTRACTED SUBTOTAL	\$0.00	
Allowable OH&P:	15%	(M) OVERHEAD & PROFIT	\$0.00
(N) TOTAL SUB-SUBCONTRACTS (L + M)			\$0

## SUMMARY

Seabreeze Electric Subcontractor's Name (Print or Type)		TOTAL MATERIAL & SHOP LABOR (E)	\$201.25
		TOTAL LABOR (H)	\$0.00
		TOTAL EQUIPMENT (K)	\$0.00
		TOTAL SUB-SUBCONTRACTORS (N)	\$0.00
		BOND (O)	
Subcontractor's Signature	Date Signed	TAXES OTHER THAN SALES (IF ANY) (P)	
		TOTAL PROPOSAL (E+H+K+N+O+P):	\$201.25



## REQUEST FOR CHANGE

**Project Code:** 2019-045

**Date:** 2020-09-03

**Project Name:** Whalehead Boat Museum

**RFC#:** RFC015

**Owner:** County of Currituck  
153 Courthouse Road Suite 302  
Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

**Scope of Work:**

Upgrade ATS connection box to stainless steel per submittal review comments from engineer

Description	Amount
Upgrade ATS connection box to stainless steel per submittal review comments from engineer	\$ 5,265.00
Payment & Performance Bonds	\$ 78.98
10% OH&P on Subcontractors	\$ 526.50
<b>TOTAL</b>	<b>\$ 5,870.48</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation**

**County of Currituck**

DocuSigned by:

607685073464449

Jim Vachon, Senior Project Manager

Michelle Perry  
or Authorized Signature

Date

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)



White Electric Company  
117 Butternut Lane  
Virginia Beach, VA 23452  
Phone: (757) 431-0123  
Fax: (757) 431-1007  
e-mail: [jkirby@whiteelectric.info](mailto:jkirby@whiteelectric.info)

## QUOTATION

**DATE: 9/3/20**

**TO: SUSSEX DEVELOPMENT**

**ATTN: DANIELLE HANGEN / JIM VACHON**

**RE: HCP BOAT MUSEUM TRANSFER SWITCH**

### **JOB DESCRIPTION:**

INSTALLATION OF (1) OWNER FURNISHED 600 AMP 120/208 VOLT THREE PHASE SERVICE RATED NON-AUTOMATIC TRANSFER SWITCH PER PLAN. THIS INCLUDES THE CONDUITS AND WIRES FROM THE CT CABINET TO THE TRANSFER SWITCH AND FROM THE TRANSFER SWITCH TO THE MDP. THIS QUOTE ALSO INCLUDES A NEMA 3R CONNECTION BOX WITH CAM LOK CONNECTORS LOCATED ON THE EXTERIOR OF THE BUILDING.

**ALTERNATE #1- UPGRADE THE CONNECTION BOX TO STAINLESS STEEL.**

**BASE BID \$20,835.00**

**ALT. #1- ADD \$5265.00**

**Jamie Kirby**  
**PREPARED BY**

[Va.Lic.# 2701-036736A](#)

[NC.Lic.# 18828U](#)

Attachment: Maritime Museum-Change Order 3 (Maritime Museum-Change Order #3)





## CURRITUCK COUNTY NORTH CAROLINA

September 8, 2020

Minutes – Regular Meeting of the Board of Commissioners

### WORK SESSIONS-5:00 PM

#### 1. Ocean Sands N/Crown Point Stormwater Discussion

The Currituck County Board of Commissioners held a Work Session at 5:00 PM to hear from members of Ocean Sands and Crown Point communities of Corolla, some of whom serve on the Ocean Sands North/Crown Point Watershed District Advisory Board, about attempts to reach an agreement with developer, Coastland Corporation, to resolve ongoing stormwater flooding issues in their neighborhoods. Advisory Board Chairman, Ed Pence, said Coastland Corporation will not grant open space easements necessary to allow installation of infrastructure for stormwater mitigation. A video was played for Commissioners that showed photos of flooded homes and roadways. Residents Al Marzetti and Lynda Gryzinski presented additional information on the negative financial and health impacts flooding has on the community. Because of the public benefit that would be realized by homeowners within the stormwater district, the group asked the Commissioners to exercise the power of Eminent Domain to secure the necessary easements.

Following presentation, Chairman White said the county has been talking with James Johnson, Coastland Corporation, to secure the necessary easements for stormwater infrastructure. He said recent meetings with Mr. Johnson have been productive, and the Chairman would like more time to see if an agreement can be reached.

#### 2. Legislative Goals Discussion

County Manager, Ben Stikeleather, suggested a work session be held to review and select which statewide Legislative Goals and Local Legislation Commissioners want to support for consideration in the next Legislative session of the General Assembly. The special meeting was scheduled for Monday, September 14, at 5:00 PM.

The work sessions concluded at 5:50 PM.

### 6:00 PM CALL TO ORDER

The Currituck County Board of Commissioners held its regular meeting at 6:00 PM in the Board Meeting Room of the Historic Courthouse, 153 Courthouse Road, Currituck, North Carolina.

Attendee Name	Title	Status	Arrived
Bob White	Chairman	Present	
Mike H. Payment	Vice Chairman	Present	
Paul M. Beaumont	Commissioner	Present	
J. Owen Etheridge	Commissioner	Present	

Communication: Minutes-Sept. 8, 2020 (Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting)

Mary "Kitty" Etheridge	Commissioner	Present	
Selina S. Jarvis	Commissioner	Present	
Kevin E. McCord	Commissioner	Present	

Chairman White called the meeting to order.

#### **A) Invocation/Moment of Silence & Pledge of Allegiance**

Reverend Dr. Ken Robinson of Mt. Zion United Methodist Church, Grandy, was in attendance to offer the Invocation. Chairman White led the Pledge of Allegiance.

#### **B) Approval of Agenda**

Chairman White moved to amend the agenda by adding a Closed Session to follow the Special Meeting of the Ocean Sands Water and Sewer District Board. The motion was seconded by Commissioner Mary Etheridge. The motion carried and the agenda was approved as amended:

#### **Work Sessions-5:00 PM**

Ocean Sands N/Crown Point Stormwater

Discussion

Legislative Goals Discussion

#### **6:00 PM Call to Order**

A) Invocation/Moment of Silence & Pledge of Allegiance

B) Approval of Agenda

#### **Public Comment**

*Please limit comments to matters other than those appearing on this agenda as a Public Hearing. Public comments are limited to 3 minutes.*

#### **Commissioner's**

#### **Report**

#### **County Manager's**

#### **Report**

#### **New Business**

A) Resolution of the Board of Commissioners Requesting that the NC Dept of Transportation Resume Operation of the Knotts Island Ferry

- B) Sole Source Purchase Resolution for Water Department Acquisition of Kamstrup Metering Equipment
- C) Ordinance Amending Section 2-99 of the Currituck County Code of Ordinances by Removing the Prohibition for County Commissioner ABC Board Member Compensation
- D) Consideration of Corolla Volunteer Fire Department Request to purchase 800 MHZ Radio
- E) Consideration of Lower Currituck Volunteer Fire Department Request to Use Funds for Repairs to Fire Apparatus
- F) Consideration of J. Owen Etheridge Request to Waive Text Amendment Application Fee
- G) 2020-2021 Fiscal Year Budget Review
- H) Board Appointments
  - 1. Fire and EMS Advisory
- I) Consent Agenda
  - 1. Budget Amendments
  - 2. Agreement for Mutual/Automatic Aid Fire and Emergency Medical Services Assistance Between the City of Virginia Beach, VA and Currituck County, NC
  - 3. Corolla ABC Store-Dominion Power Easement
  - 4. Public Safety Center-Change Order #1, Time Extension
  - 5. Job Description Revision-IT Support Tech
  - 6. Approval Of Minutes-August 17, 2020

**Recess**

**Special Meeting-Tourism Development Authority**

Budget Amendments-TDA

**Adjourn TDA**

**Special Meeting-Ocean Sands Water & Sewer District Board**

Budget Amendment-OSWSD Board

Communication: Minutes-Sept. 8, 2020 (Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting)

**Adjourn OSWSD****Board****Closed Session**

Amended Item-Closed Session Pursuant to G.S. 143-318.11(a)(3) to Consult with the County Attorney and Preserve the Attorney-Client Privilege.

**Adjourn**

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Bob White, Chairman
<b>SECONDER:</b>	Mary "Kitty" Etheridge, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

**PUBLIC COMMENT**

***Please limit comments to matters other than those appearing on this agenda as a Public Hearing. Public comments are limited to 3 minutes.***

Chairman White opened the Public Comment period.

Gemma Green, an Ocean sands resident serving on the Ocean Sands North/Crown Point Watershed District Advisory Board, provided additional information and comment related to the flooding discussed during the prior work session and supports the position of the Advisory Board.

No others were signed up nor wished to speak and the Public Comment period was closed.

**COMMISSIONER'S REPORT**

Chairman White anticipates a busy fall season in Corolla and an increased occupancy of rental homes by property owners rather than visitors. He addressed the Knotts Island Ferry Resolution on the agenda and encouraged citizens to engage with our state legislators who support re-establishing ferry service. Chairman White announced the lifeguard service contract has been extended. He announced Labor Day marks the end of the required beach parking permits and the drive-lane shift on the off-road beach.

Commissioner Payment updated citizens on the Covid-19 cases in Currituck County, with no reported deaths and cases trending down across the state. He noted an increase in traffic accidents, fires and water rescues and encouraged citizens to assist by volunteering. He thanked the county's first responders.

Commissioner Mary Etheridge recognized the anniversary of the 9-11 terrorist attack in New York City and those who were lost, including first responders. She asked citizens to thank those on the front line.

Commissioner Beaumont reported construction delays for the Mid-Currituck bridge, with funding postponed for two years. He acknowledged the recent loss of Frank Flora, a long-time Currituck County resident who, with his wife Doris, attended almost every Board of Commissioners meeting. He asked for prayers for Doris and the Flora family.

Commissioner McCord announced a 9-11 ceremony held at Veterans Memorial Park. He spoke of the many saves made by Ocean Rescue this season with no deaths reported. He also acknowledged first responders. Commissioner McCord introduced Dr. Matt Lutz, the county's new school Superintendent, who attended the meeting. He offered condolences to the families of Frank Flora and Greg George, another resident who recently passed.

Commissioner J. Owen Etheridge also remembered Mr. Frank Flora. He talked about a discussion he had with a Virginia police officer who said people have lost respect for law enforcement. Commissioner Etheridge said they are needed and encouraged citizens to acknowledge law enforcement when you see them.

Commissioner Jarvis noted the busy Labor Day weekend for first responders and thanked them for their efforts. She offered congratulations to Dr. Lutz and recognized teachers, administrators and staff, students and parents, all of whom have to adapt to a new way of teaching and learning.

Dr. Lutz, when asked, clarified how student attendance is addressed if internet issues affect the ability to attend on-line classes.

## **COUNTY MANAGER'S REPORT**

Ben Stikeleather, County Manager, discussed new Solid Waste decals that will go into effect next year in an effort to help defray costs associated with the waste convenience centers. He reported an upcoming utility rate study will include solid waste, and he announced the transfer station will eventually be used for the disposal of construction debris. Mr. Stikeleather said upgrades and expansions are being considered at some of the waste disposal sites.

## **NEW BUSINESS**

### **A. Resolution of the Board of Commissioners Requesting that the NC Dept of Transportation Resume Operation of the Knotts Island Ferry**

County Manager, Ben Stikeleather, presented the Resolution in response to the fact that the Currituck/Knotts Island ferry is the only ferry in the state not operating, while some others are operating with minimal ridership.

Following presentation, Commissioners asked that Lieutenant Governor Dan Forest be included on the distribution list in the Resolution.

Commissioner J. Owen Etheridge moved for approval of the Resolution with the addition of Lieutenant Governor Dan Forest. Chairman White seconded the motion. The motion carried.



**RESOLUTION OF THE CURRITUCK COUNTY BOARD OF COMMISSIONERS  
INSISTING ON THE RESUMPTION OF A FREE FERRY OPERATION FROM KNOTTS  
ISLAND, NORTH CAROLINA TO CURRITUCK, NORTH CAROLINA**

**WHEREAS**, Currituck County and North Carolina citizens of Knotts Island have depended on a regular free ferry service to serve as their only direct connection to North Carolina for over 50 years; and

**WHEREAS**, the Knotts Island ferry was originally instituted to provide a path for Knotts Island residents to enjoy economic opportunities, students to have access to quality and equal education, and provide a way for public safety services to be provided quickly in times of emergency; and

**WHEREAS**, further detrimental impact of Knotts Island ferry operation suspension was recently experienced following Hurricane Isaias when Currituck County officials were unable to access Knotts Island for damage assessment due to blocked roads in Virginia which could have resulted in dire public safety consequences; and

**WHEREAS**, although ferry travel is the main form of transportation and only connection to the Currituck Mainland from Knotts Island, the Knotts Island ferry has not operated since March 2020 while every other ferry route in North Carolina is now in operation; and

**WHEREAS**, suspending operation of the Knotts Island ferry the North Carolina Department of Transportation is treating citizens, children, and business owners of Knotts Island and Currituck County in a manner that does not equate to treatment of other ferry dependent citizens and communities of Aurora, Bayview, Cedar Island, Cherry Branch, Kure Beach, Hatteras, Minnesott Beach, Ocracoke, and Swan Quarter.

**NOW THEREFORE BE IT RESOLVED** that the Currituck County Board of Commissioners insists that the North Carolina Department of Transportation immediately resume operation of the Knotts Island ferry and failing immediate return to operation explain in a community meeting why citizens of Currituck County are treated differently than those of other North Carolina communities now enjoying ferry service.

**BE IT FURTHER RESOLVED THAT** the Clerk to the Board of Commissioners is directed to forward a copy of this resolution to Governor Roy Cooper, Lieutenant Governor Dan Forest, State Senator Bob Steinburg, State Representative Bobby Hanig and North Carolina Department of Transportation Secretary J. Eric Boyette.

**ADOPTED** the 8<sup>th</sup> day of September 2020.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	J. Owen Etheridge, Commissioner
<b>SECONDER:</b>	Bob White, Chairman
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

**B. Sole Source Purchase Resolution for Water Department Acquisition of Kamstrup Metering Equipment**

Ben Stikeleather, County Manager, presented the Resolution for the purchase of water metering equipment via sole source that is compatible with the current system.

Commissioner Beaumont moved for approval. The motion was seconded by Commissioner Payment. The motion carried.

**RESOLUTION AUTHORIZING THE PURCHASE OF KAMSTRUP METERS FROM FORTILINE, INC. THROUGH SOLE SOURCE PURCHASE PURSUANT TO N.C. GEN. STAT. §143-129(e)(6)**

WHEREAS, N.C. Gen. Stat. §143-129(e)(6) authorizes a unit of local government to purchase apparatus, supplies, materials or equipment when standardization or compatibility is an overriding consideration; and

WHEREAS, proper functioning of the county's Mainland Water System requires replacement meters compatible with existing systems equipment; and

WHEREAS, as the sole and exclusive distributor of Kamstrup AMR and AMI meters in the State of North Carolina, Fortiline, Inc. is the only entity capable of providing the county with meters compatible with current Mainland Water System equipment and operational systems, and

WHEREAS, Mainland Water System has been using Fortiline, Inc. to construct, develop and upgrade its system; and

WHEREAS, Mainland Water Department needs replacement meters and Fortiline, Inc. is the sole supplier of compatible meters; and

WHEREAS, Fortiline, Inc. is supplying Mainland Water Department with two thousand 5/8x3/4 FlowIQ 2100 Kamstrup meters at a cost of \$164/meter; and

WHEREAS, the total cost for the Mainland Water Department meter purchase is \$328,000.00.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners for Currituck County, North Carolina as follows:

Section 1. The County of Currituck is authorized to enter into a contract in the amount of \$328,000.00 with Fortiline, Inc. for the sole source purchase of FlowIQ 2100 Kamstrup meters in accordance with the sole source provision requirements set forth by N.C. Gen. Stat. §143-129(e)(6). Further, the County Manager is authorized to execute the agreement with Fortiline, Inc. for the acquisition apparatus, materials, and equipment acquisition described in this resolution and the proposed contract.

Section 2. This resolution shall be effective upon its adoption.

This the 8th day of September 2020.

Communication: Minutes-Sept. 8, 2020 (Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting)

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Paul M. Beaumont, Commissioner
<b>SECONDER:</b>	Mike H. Payment, Vice Chairman
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### **Motion for Recusal-Commissioner Mike Payment**

As Commissioner serving on the Alcohol Beverage Control (ABC) Board, Commissioner Payment requested recusal prior to consideration of the ordinance amendment that would allow compensation for Commissioners who serve on the ABC Board. Chairman White moved to allow recusal for Commissioner Payment. Commissioner McCord seconded. The motion carried and Commissioner Payment exited the Board Room.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Bob White, Chairman
<b>SECONDER:</b>	Kevin E. McCord, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### **C. Ordinance Amending Section 2-99 of the Currituck County Code of Ordinances by Removing the Prohibition for County Commissioner ABC Board Member Compensation**

County Attorney, Ike McRee, reviewed the history of the original ordinance that provided no compensation for Commissioners serving on the ABC Board. Chairman White said compensation is paid for service on other Boards and the ABC Board now should be no different than others.

Following discussion, Commissioner Mary Etheridge moved for approval. Commissioner Jarvis seconded the motion. The motion carried 6-0. Commissioner Payment was reseated with Commissioners following the vote.

### **AN ORDINANCE OF THE CURRITUCK COUNTY BOARD OF COMMISSIONERS AMENDING SECTION 2-99 OF THE CURRITUCK COUNTY CODE OF ORDINANCES BY REMOVING THE PROHIBITION FOR COUNTY COMMISSIONER ABC BOARD MEMBER COMPENSATION**

WHEREAS, pursuant to N.C. Gen. Stat. §153A-76 a board of commissioners may change the composition and manner of selection of boards, commissions, and agencies, and may generally organize and reorganize the county government in order to promote orderly and efficient administration of county affairs; and

WHEREAS, pursuant to N.C. Gen. Stat. §153A-77 a board of commissioners may appoint advisory boards, committees, councils and agencies composed of qualified and

interested county residents to study, interpret and develop community support and cooperation in activities conducted by or under the authority of the board of commissioners; and

WHEREAS, pursuant to N.C. Gen. Stat. §18B-700(c) county ABC board members shall be appointed by the board of county commissioners.

NOW, THEREFORE, BE IT ORDAINED by the Board of Commissioners for the County of Currituck, North Carolina as follows:

PART I. Sec. 2-99. County commissioner to serve as county ABC board member without compensation. is amended to read as follows

**Sec. 2-99. County commissioner to serve as county ABC board member without compensation.**

A county commissioner shall be appointed by the board of commissioners to serve as a member of the county ABC board. ~~The county commissioner member of the county ABC board shall not receive compensation for service on the county ABC board.~~

PART II. All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

PART III. This ordinance is effective upon its adoption.

ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

<b>RESULT:</b>	<b>APPROVED [6 TO 0]</b>
<b>MOVER:</b>	Mary "Kitty" Etheridge, Commissioner
<b>SECONDER:</b>	Selina S. Jarvis, Commissioner
<b>AYES:</b>	Bob White, Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner
<b>RECUSED:</b>	Mike H. Payment, Vice Chairman

#### **D. Consideration of Corolla Volunteer Fire Department Request to purchase 800 MHZ Radio**

Ben Stikeleather, County Manager, reviewed the purchase request to provide radio equipment on a new apparatus purchased by Corolla Volunteer Fire Department. Purchases over \$5,000 require Board approval.

Chairman White moved for approval of the request. The motion was seconded by Commissioner Payment. The motion carried.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Bob White, Chairman
<b>SECONDER:</b>	Mike H. Payment, Vice Chairman
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

#### **E. Consideration of Lower Currituck Volunteer Fire Department Request to Use Funds for Repairs to Fire Apparatus**

Ben Stikeleather, County Manager, presented the request for engine repairs to a fire apparatus, estimated at \$9,687.00, to be taken from the apparatus replacement fund.

Commissioner Beaumont said the proper process for approval was not followed and the Fire and Emergency Medical Services Advisory Board (FEAB) had not approved the request prior to it being brought to the Board of Commissioners. He noted it was particularly important since the money will be coming from a county fund and not existing funds of the Lower Currituck Volunteer Fire Department. Commissioners expressed concern with the accuracy of the estimate and asked that a better assessment be performed so a more accurate repair cost can be presented.

Commissioner Beaumont moved to recommend an assessment of engine be performed and a final repair number or recommendation be brought back to the FEAB for consideration. Commissioner Jarvis seconded and the motion carried.

<b>RESULT:</b>	<b>MOTION PASSED-ITEM DENIED [UNANIMOUS]</b>
<b>MOVER:</b>	Paul M. Beaumont, Commissioner
<b>SECONDER:</b>	Kevin E. McCord, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

#### **Motion for Recusal-Commissioner J. Owen Etheridge**

As the applicant who would present the text amendment request for the fee waiver, Commissioner J. Owen Etheridge requested a recusal from the vote.

Commissioner Mary Etheridge moved to recuse Commissioner J. Owen Etheridge. Commissioner McCord seconded the motion. The motion carried.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Mary "Kitty" Etheridge, Commissioner
<b>SECONDER:</b>	Kevin E. McCord, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

#### **F. Consideration of J. Owen Etheridge Request to Waive Text Amendment Application Fee**

Commissioner J. Owen Etheridge addressed the Board from the podium and presented the text amendment request for a fee waiver, brought forward to assist a local business owner. He said the Unified Development Ordinance (UDO) addresses residential development, and we apply residential standards to businesses which hinders business



growth, expansion, and economic development. He said fees should be waived for businesses if language is found in the UDO that hinder the ability to develop or expand business in the county.

Chairman White said fees are used to help offset admin costs, and Commissioner Jarvis agreed that fees are a part of doing business and how the county functions. Commissioners also considered effects a fee waiver would have on Planning staff if overwhelmed with frivolous ideas. Commissioner McCord said the fee waiver request is valid and supports the text amendment.

Commissioner discussion included the processes for revising the UDO if staff initiated or upon direction from the Board. Utilizing the Economic Development Director to review and provide input for changes from a business perspective was discussed.

Ben Stikeleather, County Manager, reviewed staff discussion with the property owner and requirements associated with the owner's wanting to subdivide a particular piece of property. Commissioner J. Owen Etheridge said he is trying to keep business in Currituck County. Following presentation and discussion, prior to the vote, Commissioner J. Owen Etheridge exited the Board Meeting Room.

Commissioner Beaumont moved to deny the request. Commissioner Mary Etheridge seconded the motion. The motion carried on a vote of 5-1, with Commissioner McCord voting against the motion to deny.

Commissioner J. Owen Etheridge rejoined Commissioners in the Board Meeting Room.

Chairman White called for a brief recess at 7:27 PM. The meeting was reconvened at 7:34 PM.

<b>RESULT:</b>	<b>MOTION PASSED-ITEM DENIED [5 TO 1]</b>
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner
<b>NAYS:</b>	Kevin E. McCord, Commissioner
<b>RECUSED:</b>	J. Owen Etheridge, Commissioner

## G. 2020-2021 Fiscal Year Budget Review

County Manager, Ben Stikeleather, used a powerpoint to review and update the Board on the County's financial status following the heavy reductions that had been made to the Fiscal Year 2020-2021 annual operating budget due to the Covid-19 pandemic. Following a presentation of Sales Tax and Occupancy Tax revenues and projections, he proposed revising the budget to put back into the budget the two percent Cost of Living Adjustment (COLA) for staff, four position reclassifications, fifteen new positions, and some capital projects that had been eliminated.

Costs related to staffing items were reviewed, as were timelines for position funding and recruitment. Concerns with organization and salary compression in the Sheriff's office

resulted in the Board wanting more information on the Sheriff's request for new positions, a Major and a Lieutenant.

Commissioners discussed making the COLA retroactive to the July 1, 2020, start of the fiscal year. Mr. Stikeleather suggested a flat bonus due to the time it would take to calculate back pay for every employee. Commissioners were comfortable with a bonus and Mr. Stikeleather said he will bring options and costs back to the Board for consideration.

A review of capital projects paid through Occupancy Tax included beach access walkovers, jail stabilization and the Historic Corolla Village sidewalk. Another budget update in December will examine transfer tax revenues and other capital budgets. Mr. Stikeleather summarized the Board's approved budget revisions. Mr. Stikeleather will contact Sheriff Beickert to see if he can attend the Monday, September 14th Special Meeting to address the Board's concerns with his staffing requests.

## H) Board Appointments

### 1. Fire and EMS Advisory

Commissioner Beaumont nominated William Bailey for reappointment to the Fire and Emergency Medical Services (EMS) Advisory Board. Commissioner Payment seconded and the nominee was unanimously approved.

Commissioner Beaumont said the Board is looking for volunteers to serve and encouraged citizens to apply.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Paul M. Beaumont, Commissioner
<b>SECONDER:</b>	Mike H. Payment, Vice Chairman
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

## I) Consent Agenda

Commissioner J. Owen Etheridge moved for approval of the Consent Agenda. Commissioner Jarvis seconded the motion. The motion carried, 7-0.

**RESULT:** **APPROVED [UNANIMOUS]**  
**MOVER:** J. Owen Etheridge, Commissioner  
**SECONDER:** Selina S. Jarvis, Commissioner  
**AYES:** Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

## 1. Budget Amendments

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
Account Number	Account Description		
10490-561000	Professional Services	\$ 33,186	
10511-545000	Contract Services	\$ 15,252	
10530-516200	Vehicle Repair	\$ 2,000	
10550-516000	Maintenance & Repair	\$ 500	
10980-545000	Contract Services	\$ 9,250	
10660-561000	Professional Services	\$ 14,580	
10390-499900	Appropriated Fund Balance		\$ 74,768
12541-536104	Personal Protective Equip - Crawford	\$ 2,730	
12390-499900	Appropriated Fund Balance		\$ 2,730
25607-545000	Contract Services	\$ 50,793	
25390-499900	Appropriated Fund Balance		\$ 50,793
28450-545000	Contract Services	\$ 295,042	
28390-499900	Appropriated Fund Balance		\$ 295,042
43848-590000	Capital Outlay	\$ 3,500	
43390-499900	Appropriated Fund Balance		\$ 3,500
63838-545001	Contract Services - Collection	\$ 15,041	
63838-545600	Site Work/Landscaping	\$ 5,706	
63838-561000	Professional Services	\$ 25,760	
63390-499900	Appropriated Fund Balance		\$ 46,507
66868-590000	Capital Outlay	\$ 13,320	
66390-499900	Appropriated Fund Balance		\$ 13,320
67878-561000	Professional Services	\$ 1,720	
67878-590000	Capital Outlay	\$ 6,468	
67390-499900	Appropriated Fund Balance		\$ 8,188
		\$ 494,848	\$ 494,848
<b>Explanation:</b>		Court Facilities (10490); Detention Center (10511); EMS (10530); Airport (10550); Disaster Recovery (10980); Planning (10660); Fire Services (12541); Guinea Mill Watershed (25607); Revaluation (28450); Land Banking (43848); Solid Waste (63838); Southern Outer Banks Water (66868); Mainland Central Sewer (67878) - Carry-forward funds from prior fiscal year for purchases/contracts in process on June 30, 2020 that were not completed.	
<b>Net Budget Effect:</b>		Operating Fund (10) - Increased by \$74,768. Fire Services Fund (12) - Increased by \$2,730. Guinea Mill Watershed District Fund (25) - Increased by \$50,793. Revaluation Fund (28) - Increased by \$295,042. Land Banking Fund (43) - Increased by \$3,500. Solid Waste Fund (63) - Increased by \$46,507. Southern Outer Banks Water Fund (66) - Increased by \$13,320. Mainland Central Sewer Fund (67) - Increased by \$8,188.	

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
61818-545000	Contract Services	\$ 194,523	
61818-590000	Capital Outlay		\$ 194,523
		<u>\$ 194,523</u>	<u>\$ 194,523</u>

**Explanation:** Mainland Water (61818) - To reclassify water tank maintenance.

**Net Budget Effect:** Mainland Water Fund (61) - No change.

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
210546-590006	Capital Outlay	\$ 6,182	
210546-516006	Repairs & Maintenance		\$ 6,182
		<u>\$ 6,182</u>	<u>\$ 6,182</u>

**Explanation:** Corolla Volunteer Fire Department (210546) - Transfer funds to purchase a radio.

**Net Budget Effect:** Corolla Fire District Fund (210) - No change.

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
10795-590000	Capital Outlay	\$ 4,860	
10350-464795	Rent - Parks & Rec Fields		\$ 3,000
10350-465003	Recreation Concessions		\$ 1,860
		<u>\$ 4,860</u>	<u>\$ 4,860</u>

**Explanation:** Parks & Recreation (10795) - Increase appropriations to replace diesel particulate filter in 2011 F-250 truck for parks & recreation.

**Net Budget Effect:** Operating Fund (10) - Increased by \$4,860.

Communication: Minutes-Sept. 8, 2020 (Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting)



		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
10650-516200	Vehicle Maintenance	\$ 100	
10650-531000	Fuel		\$ 100
		<u>\$ 100</u>	<u>\$ 100</u>
<b>Explanation:</b>	Economic Development (10650) - Transfer budgeted funds for vehicle maintenance for the Economic Development vehicle.		
<b>Net Budget Effect:</b>	Operating Fund (10) - No change.		

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
10531-532000	Supplies	\$ 10,839	
10531-545000	Contract Services	\$ 11,250	
10531-590000	Capital Outlay	\$ 50,625	
10390-499900	Appropriated Fund Balance		\$ 72,714
		<u>\$ 72,714</u>	<u>\$ 72,714</u>
<b>Explanation:</b>	Emergency Management (10531) - Increase appropriations to carry forward unspent Emergency Management Program Grant funds and Search and Rescue Grant funds to be used for supplies for the medical bus. Capital Outlay items consist of an event trailer (message board, traffic cones, barricades, safety vests) - \$30,625; and camera system for medical bus - \$20,000.		
<b>Net Budget Effect:</b>	Operating Fund (10) - Increased by \$72,714.		

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
20609-590000	Capital Outlay	\$ 600,000	
20609-588000	Contingency		\$ 324,875
20390-499900	Appropriated Fund Balance		\$ 275,125
		\$ 600,000	\$ 600,000
<b>Explanation:</b> Whalehead Watershed Drainage District (20609) - Increase appropriations for drainage system upgrade to serve the Sailfish drainage basin.			
<b>Net Budget Effect:</b> Whalehead Watershed Drainage District Fund (20) - Increased by \$275,125.			
		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
51848-598004	Central Ctr Wing Roof 2020	\$ 25,000	
51848-592010	Griggs - HVAC Ph III (7 Units)	\$ 28,000	
51380-425001	State Lottery Proceeds		\$ 53,000
		\$ 53,000	\$ 53,000
<b>Explanation:</b> School Construction (51848) - Increase appropriations for school projects funded with lottery proceeds.			
<b>Net Budget Effect:</b> School Capital Construction Fund (51) - Increased by \$53,000.			

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
12543-582203	Debt Service	\$ 31,187	
12543-561003	Professional Services		\$ 31,187
		\$ 31,187	\$ 31,187
<b>Explanation:</b> Moyock Volunteer Fire Department (12543) - Transfer budgeted funds from professional services to debt service for the debt payments 6 & 7. No payment made in FY 2020. In FY 2021 the PPE was budgeted twice, which will cover both debt payments for FY 2020 and FY 2021.			
<b>Net Budget Effect:</b> Fire Services Fund (12) - No change.			
		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
10510-526200	Promotional efforts	\$ 350	
10510-526000	Advertising		\$ 350
		\$ 350	\$ 350
<b>Explanation:</b> Sheriff (10510) - Transfer budgeted funds for Sheriff Challenge Coins.			
<b>Net Budget Effect:</b> Operating Fund (10) - No change.			

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
10511-554000	Insurance & Bonds	\$ 15	
10511-557100	Software License Fees	\$ 327	
10511-506000	Insurance Expense		\$ 342
10531-557100	Software License Fees	\$ 40	
10531-531000	Fuel		\$ 40
10460-557100	Software License Fees	\$ 362	
10460-516000	Repairs & Maintenance		\$ 362
10795-576008	Grass Cutting/Spraying	\$ 12	
10795-506000	Insurance Expense		\$ 12
		\$ 756	\$ 756
<b>Explanation:</b>	Detention Center (10511); Emergency Management (10531); Public Works (10460); Parks & Recreation (10795) - Transfer budgeted funds for contract increases in this fiscal year.		
<b>Net Budget Effect:</b>	Operating Fund (10) - No change.		

2. **Agreement for Mutual/Automatic Aid Fire and Emergency Medical Services Assistance Between the City of Virginia Beach, VA and Currituck County, NC**
3. **Corolla ABC Store-Dominion Power Easement**
4. **Public Safety Center-Change Order #1, Time Extension**
5. **Job Description Revision-IT Support Tech**
- 6) **Approval Of Minutes-August 17, 2020**
  1. **Minutes for August 17, 2020**

## RECESS

Chairman White recessed the regular meeting to hold a Special Meeting of the Board of Commissioners.

## SPECIAL MEETING-TOURISM DEVELOPMENT AUTHORITY

The Currituck County Board of Commissioners held a Special Meeting during a recess of the September 8, 2020, 6:00 PM regular meeting to sit as the Tourism Development Authority. The meeting was held in the Board Meeting Room of the Historic Courthouse, 153 Courthouse Road, Currituck, North Carolina, for the purpose of considering Budget Amendments.

### Budget Amendments-TDA

The County Manager, Ben Stikeleather, reviewed the first budget amendment with the Board of Commissioners. Chairman White moved for approval and Commissioner Mary Etheridge seconded the motion. The motion carried.

				Debit		Credit
				Decrease Revenue or Increase Expense		Increase Revenue or Decrease Expense
<u>Account Number</u>		<u>Account Description</u>				
15447-545004		Corolla Wild Horse Fund		\$ 24,015		
15447-545002		Historic Preservation		\$ 29,481		
15390-499900		Appropriated Fund Balance				\$ 53,496
				\$ 53,496		\$ 53,496
<b>Explanation:</b>	Occupancy Tax - Tourism Related (15447) - Increase appropriations to carry forward contract in process at June 30, 2020.					
<b>Net Budget Effect:</b>	Occupancy Tax Fund (15) - Increased by \$53,496.					

**RESULT:** APPROVED [UNANIMOUS]  
**MOVER:** Bob White, Chairman  
**SECONDER:** Mary "Kitty" Etheridge, Commissioner  
**AYES:** Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### TDA Budget Amendments-Lifeguard Services Contract Extension

The Budget Amendment providing funds for the Lifeguard services contract extension was reviewed by the County Manager. Chairman White moved for approval. Commissioner Jarvis seconded the motion and the motion carried.

Communication: Minutes-Sept. 8, 2020 (Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting)



		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
Account Number	Account Description		
15447-545001	Beach Services	\$ 22,500	
15390-499900	Appropriated Fund Balance		\$ 22,500
		\$ 22,500	\$ 22,500
<b>Explanation:</b>	Occupancy Tax - Tourism Related (15447) - Increase appropriations for three additional life guards for the Fall.		
<b>Net Budget Effect:</b>	Occupancy Tax Fund (15) - Increased by \$22,500.		

**RESULT:** APPROVED [UNANIMOUS]  
**MOVER:** Bob White, Chairman  
**SECONDER:** Selina S. Jarvis, Commissioner  
**AYES:** Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### ADJOURN TDA

There was no further business and Commissioner Mary Etheridge moved to adjourn. Commissioner McCord seconded the motion. The motion carried unanimously and the meeting of the Tourism Development Authority concluded at 7:59 PM.

**RESULT:** APPROVED [UNANIMOUS]  
**MOVER:** Mary "Kitty" Etheridge, Commissioner  
**SECONDER:** Kevin E. McCord, Commissioner  
**AYES:** Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### SPECIAL MEETING-OCEAN SANDS WATER & SEWER DISTRICT BOARD

The Currituck County Board of Commissioners held a Special Meeting during a recess of the September 8, 2020, 6:00 PM regular meeting to sit as the Ocean Sands Water and Sewer District Board. The meeting was held in the Board Meeting Room of the Historic Courthouse, 153 Courthouse Road, Currituck, North Carolina, to consider a Budget Amendment.

#### Budget Amendment-OSWSD Board

County Manager, Ben Stikeleather, reviewed the budget amendment to provide funds for odor control at the Ocean Sands wastewater treatment plant, Corolla.

Chairman White moved for approval and Commissioner Beaumont seconded the motion. The motion carried.

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
Account Number	Account Description		
59808-594500	Contract Services	\$ 25,963	
59808-588000	Contingency		\$ 10,525
59808-596100	Professional Services		\$ 15,438
		\$ 25,963	\$ 25,963
<b>Explanation:</b> Ocean Sands Water and Sewer (59808) - Transfer funds from contingency and professional services for Phase I Odor Control project at the Ocean Sands Wastewater Treatment Plant.			
<b>Net Budget Effect:</b> Ocean Sands Water and Sewer District Construction Fund (59) - No change.			

**RESULT:** APPROVED [UNANIMOUS]  
**MOVER:** Bob White, Chairman  
**SECONDER:** Paul M. Beaumont, Commissioner  
**AYES:** Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### ADJOURN OSWSD BOARD

There was no further business and Commissioner McCord moved to adjourn. Commissioner Beaumont seconded the motion. The motion carried and the meeting of the Ocean Sands Water & Sewer District Board adjourned at 8:00 PM.

**RESULT:** APPROVED [UNANIMOUS]  
**MOVER:** Kevin E. McCord, Commissioner  
**SECONDER:** Paul M. Beaumont, Commissioner  
**AYES:** Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

### CLOSED SESSION

Chairman White reconvened the regular meeting of the Board of Commissioners at 8:00 PM.

**Amended Item-Closed Session Pursuant to G.S. 143-318.11(a)(3) to Consult with the County Attorney and Preserve the Attorney-Client Privilege.**

<Insert Manager Recommendation if Denied or Further Consideration OTHERWISE PLEASE ERASE COMPLETELY AND LEAVE BLANK>

The Board of Commissioners entered Closed Session pursuant to G.S. 143-318.11(a)(3) to consult with the County Attorney and Preserve the Attorney-Client Privilege.

**ADJOURN**

Commissioners returned from Closed Session. Prior to adjournment, the County Manager relayed a proposal from the county's lobby firm, McClees Consulting, who suggested using a targeted marketing campaign to compel the North Carolina Department of Transportation's Ferry Division to resume operation of the Currituck/Knotts Island ferry. Commissioners did not agree to the marketing campaign and chose to seek Requests for Proposals from other lobby firms since the company was being sold and lobby duties would be assumed by others. Chairman White said he would notify McClees Consulting of the Board's decision.

**Motion to Adjourn Meeting**

There was no further business and Commissioner Jarvis made a motion to adjourn. Commissioner Beaumont seconded the motion. The motion carried and the regular meeting of the Board of Commissioners adjourned at 8:46 PM.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Selina S. Jarvis, Commissioner
<b>SECONDER:</b>	Paul M. Beaumont, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner



**CURRITUCK COUNTY  
NORTH CAROLINA**

September 14, 2020

Minutes – Special Meeting of the Board of Commissioners

**5:00 CALL TO ORDER**

The Currituck County Board of Commissioners met at 5:00 PM in the Board Meeting Room of the Historic Courthouse, 153 Courthouse Road, for a Special Meeting.

Attendee Name	Title	Status	Arrived
Bob White	Chairman	Present	
Mike H. Payment	Vice Chairman	Present	
Paul M. Beaumont	Commissioner	Present	
J. Owen Etheridge	Commissioner	Present	
Mary "Kitty" Etheridge	Commissioner	Present	
Selina S. Jarvis	Commissioner	Present	
Kevin E. McCord	Commissioner	Present	

Chairman White called the meeting to order at 5:04 PM.

**A. Approval of Agenda**

Chairman White amended the agenda to change the order of items. Item C, Budget/Staffing Review and Discussion, was moved to Item A, to be followed by Legislative Goals and Local Legislation discussions.

The motion was seconded by Commissioner Payment. The motion carried.

Approved agenda:

**5:00 Call to Order**

A) Approval of Agenda

**New Business**

A) Budget/Staffing Review and Discussion-Amended, moved to Item A from Item C

Communication: Special Mtg Minutes-September 14, 2020 (Approval Of Minutes-Sept. 8, 2020, Sept. 14, 2020 Special Meeting)

B) Legislative Goals Discussion

C) Local Legislation Discussion

### **Closed Session**

Closed Session Pursuant to G.S. 143-318.11(a)(3) to Consult with the County Attorney and Preserve the Attorney-Client Privilege

### **Adjourn**

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Bob White, Chairman
<b>SECONDER:</b>	Mike H. Payment, Vice Chairman
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

## **NEW BUSINESS**

### **A. Budget/Staffing Review and Discussion**

Denise Hall, Register of Deeds, was invited to address the Board about her request to reclassify a Register of Deeds employee. Ms. Hall reviewed additional duties the employee has assumed and the cost of the reclassification was presented. Reclassification for the employee was approved by the Board.

At the September 8, 2020 Board meeting, Commissioners asked for additional information on a new Major position requested for the Sheriff's office. Sheriff Beickert attended to review the duties of the Major position for the Board. Salary and departmental structure changes were discussed and Sheriff Beickert responded to questions from Commissioners. Concerns over possible salary compression and the change to the command structure resulted in Commissioners denying the Sheriff's request for a Major. Commissioners instead authorized an additional Captain position. A Lieutenant and Evidence Tech for the Sheriff's office had previously been approved by Commissioners and put back into the budget.

Ben Stikeleather, County Manager, presented job duties and costs of salary and benefits for a new Solid Waste Superintendent position to support Public Works. The position was approved by Commissioners. Following discussion, Commissioners requested digital signs be installed at county waste sites that could be used to disseminate information to citizens.

During the September 8, 2020, budget review, Commissioners asked Mr. Stikeleather to determine the cost for an employee bonus to delay implementing the cost of living increase. Mr. Stikeleather reported a cost of \$135,466 for a \$250.00 per employee

bonus, and the Board of Commissioners approved the bonus for distribution in early December.

Discussion concluded at 5:45 PM, at which time Chairman White called a 45 minute recess.

### **B. Legislative Goals Discussion**

The meeting reconvened at 6:30 PM and Commissioners began discussion of selecting which Legislative Goals they want to support for possible consideration by the General Assembly in their next Legislative Session. County Manager, Ben Stikeleather, distributed the most current list of Legislative Goals compiled by the North Carolina Association of County Commissioners (NCACC). He said a NCACC goals committee will select and submit the goals to the state legislature and will represent issues that can be supported by all one hundred North Carolina counties.

Commissioners selected several items included in the NCACC listing, including Priority Goals 1, 3 and 5, GG-4, JPS-2 and PE-2. New goals included support for school vouchers, construction impact fees, enhanced safety for large, residential construction, keeping Social Services under local authority, and allowing the transport of mental health patients to the nearest facility, including over state lines.

### **C. Local Legislation Discussion**

The Board of Commissioners selected items to be submitted and considered by the North Carolina General Assembly for Local Legislation in Currituck County. Topics included allowing revenues from Beach Parking Permits to be used for infrastructure upgrades in the off-road area, eliminating the print advertising requirement for legal ads and notices, and allowing access to Currituck County beach communities through Dare County when travel in Dare County is restricted. Other items discussed included legislation to prevent closure of the Currituck/Knotts Island ferry, relief from Coastal Area Management Act regulations that prohibit maintenance of drainage systems, and allowing the transfer of development rights. Two Legislative Goals, school impact fees for new home construction and cross-state travel for medical health transport were also considered for submission as Local Legislation. Mr. Stikeleather said he will contact state representatives to get a time frame for submittal.

## **CLOSED SESSION**

### **Closed Session Pursuant to G.S. 143-318.11(a)(3) to Consult with the County Attorney and Preserve the Attorney-Client Privilege**

Commissioner McCord moved to enter Closed Session pursuant to G.S. 143-318.11(a)(3) to consult with the County Attorney and preserve the attorney-client privilege. Commissioner Jarvis seconded the motion. The motion carried and the Board entered Closed Session.



<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Kevin E. McCord, Commissioner
<b>SECONDER:</b>	Selina S. Jarvis, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner

## ADJOURN

Commissioners returned from Closed Session and, prior to adjournment, discussed the idea of a land swap between the county and the National Estuarine Research Reserve. The swap would give the county access to unrestricted land which could be used as an off-road beach recreation area. County Attorney, Ike McRee, explained the plan and said the property exchange would offer access to the county land by providing the ability to shift the road and beach ramp to the north. Commissioners directed staff to contact representatives from the National Estuarine Research Reserve about the land swap.

There was no further business and Commissioner Beaumont moved to adjourn. The motion was seconded by Commissioner McCord. The motion carried and the Special Meeting concluded at 7:40 PM.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>MOVER:</b>	Paul M. Beaumont, Commissioner
<b>SECONDER:</b>	Kevin E. McCord, Commissioner
<b>AYES:</b>	Bob White, Chairman, Mike H. Payment, Vice Chairman, Paul M. Beaumont, Commissioner, J. Owen Etheridge, Commissioner, Mary "Kitty" Etheridge, Commissioner, Selina S. Jarvis, Commissioner, Kevin E. McCord, Commissioner