



**Planning Board  
Agenda Packet**

**June 9, 2020**

**Work Session**

5:30 PM

**Call to Order - 6:00 PM**

- A) Pledge of Allegiance & Moment of Silence
- B) Ask for Disqualifications
- C) Announce Quorum Being Met
- D) Approval of Agenda

**Approval of Minutes for May 28, 2020****Old Business****New Business**

- A) **PB 20-02 Hurley Conditional Rezoning:** Request to rezone 0.46 acres at 1202 Ocean Trail from SFO to C-GB for proposed retail and office use.
- B) **PB 20-10 The Cotton Gin, Inc:** The applicant is requesting a zoning map amendment to rezone 2.17 acres from Agriculture (AG) to General Business (GB) for property located at 6957 Caratoke Highway, Jarvisburg, Parcel Identification Number 010900001330000, Poplar Branch Township. The subject parcel is currently 3.25 acres. The 2.17 acres is to be recombined with the original parcel resulting in 5.42 acres GB.

**Planning Board Vote:**

- C) **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. PINs 0015000085B0000, 0015000085C, 0015000085A0000, Moyock Township.

**Planning Board Vote:****Announcements****Adjournment**



## CURRITUCK COUNTY NORTH CAROLINA

May 28, 2020

Minutes – Special Meeting of the Planning Board

### WORK SESSION

The Currituck County Planning Board held a work session at 5:30 PM in the Historic Courthouse Board Meeting Room with five board members present. Staff members present were: Laurie LoCicero, Planning Director; Jennie Turner, Planner II; and Cheri Elliott, Clerk to the Planning Board.

Jennie Turner opened the work session and reviewed the staff report for PB 20-04 Currituck County Flood Ordinance Text Amendment with the board members. Currituck County adopted a revised Flood Insurance Study (FIS) and revised Flood Insurance Rate map (FIRM) panels effective December 21, 2018. Ms. Turner explained that since Dare County shares FIRM panels with Currituck County and Dare County is still in the process of adopting their revised FIS and FIRM panels, we are required to revise our FIS and FIRM. Also, to remain in good standing and continue participation in the National Flood Insurance Program (NFIP), the county is required to adopt the effective FIS report and Digital Flood Insurance Rate Maps (DFIRM) prior to June 19, 2020.

Ms. Turner reviewed the second item on the agenda, PB 20-07 Currituck County Alternative Water Supply for Fire Flow Text Amendment which would allow use of water shuttling as an alternative means of meeting fire flow water supply requirements for lands not serviced by the county water system and to amend references from "Fire Marshal" to "Fire Code Official". Ms. Turner introduced Bill Newns, Chief Building Inspector and Fire Marshal saying he can answer any questions the board may have. Mr. Newns gave a brief description of the man power and equipment required to shuttle water with is the downside, but done in rural areas when county water and hydrants are not available. He also said water shuttling could be used when the developer does not want to dig an engineered pond. Ms. LoCicero said the water shuttling would give more flexibility. The work session adjourned at 5:58 PM.

### CALL TO ORDER - 6:00 PM

The Planning Board met in a special session in the Board Meeting Room of the Historic Courthouse, 153 Courthouse Road, Currituck, North Carolina.

Attendee Name	Title	Status	Arrived
C. Shay Ballance	Chairman	Present	
Garry Owens	Vice Chairman	Present	
K. Bryan Bass	Board Member	Present	
David Doll	Board Member	Present	
Anamarie Hilgendorf	Board Member	Absent	
Juanita S Krause	Board Member	Present	
J. Timothy Thomas	Board Member	Absent	
Laurie LoCicero	Planning and Community Department Director	Present	

Communication: PB Meeting Minutes - May 28, 2020 (Approval of Minutes for May 28, 2020)

Jennie Turner	Planning and Community Development Planner II	Present	
Cheri Elliott	Clerk to the Board	Present	

Chairman Ballance called the meeting to order at 6:01 PM.

#### A. Pledge of Allegiance and Moment of Silence

Chairman Ballance asked everyone to stand for the Pledge of Allegiance and a moment of silence.

#### B. Ask for Disqualifications

Chairman Ballance asked if any board member had a conflict of interest with the item on the agenda tonight. No conflicts were noted.

#### C. Announce Quorum Being Met

Chairman Ballance announce a quorum being met with five board members present.

#### D. Approval of Agenda

Chairman Ballance asked if there were any changes needed to the agenda tonight. With no changes noted, Mr. Bass motioned to approve the agenda. Mr. Doll seconded the motion and the motion carried unanimously.

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>AYES:</b>	C. Shay Ballance, Chairman, Garry Owens, Vice Chairman, K. Bryan Bass, Board Member, David Doll, Board Member, Juanita S Krause, Board Member
<b>ABSENT:</b>	Anamarie Hilgendorf, Board Member, J. Timothy Thomas, Board Member

#### APPROVAL OF MINUTES FOR FEBRUARY 11, 2020

Chairman Ballance asked if there were any changes needed for the meeting minutes for February 11, 2020. With no changes noted, Mr. Doll motioned to approve the minutes and Mr. Bass seconded the motion. The motion passed unanimously.

#### E. PB Minutes - February 11, 2020

<b>RESULT:</b>	<b>APPROVED [UNANIMOUS]</b>
<b>AYES:</b>	C. Shay Ballance, Chairman, Garry Owens, Vice Chairman, K. Bryan Bass, Board Member, David Doll, Board Member, Juanita S Krause, Board Member
<b>ABSENT:</b>	Anamarie Hilgendorf, Board Member, J. Timothy Thomas, Board Member

#### OLD BUSINESS

There was no old business discussed.

#### NEW BUSINESS

##### A. PB 20-04 Currituck County Flood Ordinance Text Amendment:



Ms. Turner reviewed the staff report and presented a PowerPoint presentation. She reviewed the four flood panels Currituck County shares with Dare County. Ms. Turner handed out a sheet to the board members with a correction to the original text amendment sent in the agenda packet. Section 1.7.2. Incorporated by Reference shows a strike through of the last sentence in section B. "Subsequent Letter of Map Revisions (LOMRs) and/or Physical Map Revisions (PMRs) shall be adopted within three months". Ms. Turner said the staff recommends approval of the request with the addition of the previous noted change. Ms. Turner stated the text amendment is consistent with the goals, objectives, and policies of the 2006 Land Use Plan and listed several reasons.

Ms. LoCicero apologized for rushing the text amendment, but explained that our time became shortened due to the public health situation and the board not being able to previously meet. The Flood Ordinance Text Amendment must be approved by the Board of Commissioners by June 19, 2020 in order for the county to stay in good standing with the National Flood Insurance Program.

Chairman Ballance opened the public comment. With no one wishing to speak, Chairman Ballance closed the public comment.

Mr. Bass motioned to add extra sheet in and referenced Item 1 with strike through of last sentence.

Ms. Turner asked if he could restate his motion to include all the changes.

Mr. Bass amended his motion to approve as presented with the addition of striking the last sentence in section B. Mr. Owens seconded the motion and the motion carried unanimously.

<b>RESULT:</b>	<b>RECOMMENDED APPROVAL [UNANIMOUS]</b>	<b>Next: 6/1/2020 6:00 PM</b>
<b>AYES:</b>	C. Shay Ballance, Chairman, Garry Owens, Vice Chairman, K. Bryan Bass, Board Member, David Doll, Board Member, Juanita S Krause, Board Member	
<b>ABSENT:</b>	Anamarie Hilgendorf, Board Member, J. Timothy Thomas, Board Member	

#### **B. PB 20-07 Currituck County Alternative Water Supply for Fire Flow Text Amendment:**

Ms. Turner reviewed the staff report and requested text amendment which would allow use of water shuttling as an alternative means of meeting fire flow water supply requirements for lands not serviced by the county water system and to amend references from "Fire Marshal" to "Fire Code Official". Ms LoCicero gave some background saying the requested text amendment was first discussed at a Board of Commissioner's retreat in February. Mr. Newns, acting Fire Marshal, had not been able to consider shuttling by the fire department. If a fire department is able to meet a certain standard of shuttling then an engineered pond for fire fighting purposes would not be necessary.

Ms. Krause asked about the road requirements for a pond. Mr. Newns gave the requirements and said you also have to have enough turn around space for the fire truck. Ms. Krause asked if someone could put a pond on their property to lower their fire insurance rates. Mr. Newns said the pond has to be certified by an engineer.

Chairman Ballance asked if Family Subdivisions are exempt from the Fire Code. Ms. LoCicero said in order to be exempt it has to be less than three lots. Chairman Ballance asked about the Major Subdivisions using the shuttling and Ms. LoCicero said most Major Subdivisions want to be on county water. Chairman Ballance asked if this effects ten acre plat subdivisions and Ms. LoCicero said they are exempt from the county rules, but they are not exempt from State rules which are Fire Codes.

Mr. Bass asked about the cost to the county for ponds and Mr. Newns said the cost is incurred by the developer.

Discussion was held on the ISO (Insurance Services Office) fire rating for the fire departments and their evaluation process every 5 to 10 years.

Ms. Krause asked how much an engineered pond would cost the developer. Mr. Newns said the engineering itself would be approximately \$2,000 with the total construction price around \$40,000 to \$50,000.

Mr. Newns introduced Fire Chief, Ryland Poyner to answer some of the boards questions. Chief Ryland said a tanker could haul from 1,000 to 3,500 gallons of water. He said they have never ran out of water fighting a residential fire, but they have ran out when fighting a commercial fire.

Ms. Turner finished her presentation by pointing out language 6.2.4.A (2) strike through the word "more". Ms. Turner gave the review standards and the statement of consistency and reasonableness.

Chairman Ballance asked Mr. Newns his opinion and he said he has some concern for the fire departments, but you have to meet the flow. If the fire department can only do 250 and 1,000 is needed, the developer will have to dig a pond for the additional amount.

Chairman Ballance opened the public comment. Chief Ryland Poyner came before the board stating his address as 4174 Caratoke Highway, Barco.

Chief Poyner said shuttling the water could hurt our certifications and explained how the method of operation directly affects credit received. Water shuttle certification could go away and this UDO change is being based on this.

Mr. Bass said this change puts a lot of responsibility on the fire department and the county.

Mr. Bass made a motion to deny the text amendment of allowing water shuttling, but to split the motion to approve item 2 and references in Chapters 4, 5, and 6 from Fire Marshal to Fire Code Official. Chairman Ballance seconded the motion. There was discussion between the staff and board to change the motion. Ms. LoCicero said Mr. Bass would have to withdraw his motion. Mr. Bass withdrew his motion.

Ms. Krause motioned to approve the text amendment with the addition of striking through 6.2.4.B.(1)(b) "Fire Department mobile water supply approved by the Fire Code

Official;" also, including the statement of consistency and reasonableness. Ms. Krause motioned to approve. Mr. Doll seconded the motion and the motion carried unanimously.

<b>RESULT:</b>	<b>RECOMMENDED APPROVAL [UNANIMOUS]</b>	<b>Next: 6/15/2020 6:00 PM</b>
<b>AYES:</b>	C. Shay Ballance, Chairman, Garry Owens, Vice Chairman, K. Bryan Bass, Board Member, David Doll, Board Member, Juanita S Krause, Board Member	
<b>ABSENT:</b>	Anamarie Hilgendorf, Board Member, J. Timothy Thomas, Board Member	

## ANNOUNCEMENTS

Ms. LoCicero reminded the board to attend the June 1st joint work session concerning Flora Farm Planned Development in the auditorium of the NC Cooperative Extension Center at 4 PM.

Ms. LoCicero said there are seven items scheduled for the next Planning Board meeting on June 9th which will also be held at the NC Cooperative Extension Center.

Board of Commissioners will have their regular meeting on June 15th and will hold a special meeting on June 22nd.

Chairman Ballance said he was glad to be back and he thanked staff for all their hard work by spacing all the furniture out to meet the 6 ft guidelines.

Ms. LoCicero said she appreciates everyone being willing to attend the public meeting.

## ADJOURNMENT

Mr. Owens made a motion to adjourn. Ms. Krause seconded the motion and the meeting adjourned at 7:44 PM.



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – 2817

**Agenda Item Title:** PB 20-02 Hurley Conditional Rezoning:

**Submitted By:** Jennie Turner – Planning & Community Development

**Item Type:** Legislative

**Presenter of Item:** Jennie Turner

**Board Action:** Action

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**Brief Description of Agenda Item:**

Request to rezone 0.46 acres at 1202 Ocean Trail from SFO to C-GB for proposed retail and office use.

**Planning Board Recommendation:**

**Staff Recommendation:** Approval with Conditions

**TRC Recommendation:** Approval with Conditions



# STAFF REPORT PB 20-02 HURLEY CONDITIONAL ZONING PLANNING BOARD JUNE 9, 2020

## APPLICATION SUMMARY

<b>Property Owner:</b> Brock North Carolina LLC 7700 Ocean Front Avenue Virginia Beach, VA 23451	<b>Applicant:</b> Thomas & Lisa Hurley 1650 Sandfiddler Road Corolla, NC 27927
<b>Case Number:</b> 20-02	<b>Application Type:</b> Conditional Rezoning
<b>Parcel Identification Number:</b> 114C-000-0112-0001 <b>Property Address:</b> 1202 Ocean Trail	<b>Existing Use:</b> Undeveloped/Vacant Lot in Ocean Hill 1 Subdivision
<b>Land Use Plan Classification:</b> Full Service	<b>Parcel Size (Acres):</b> 0.46 ac
<b>Zoning History:</b> Property has been zoned residential since 1970	
<b>Current Zoning:</b> SFO	<b>Proposed Zoning:</b> Conditional GB

## REQUEST

### NARRATIVE

The applicant is requesting a conditional rezoning from SFO (Single Family Residential-Outer Banks) to C-GB (Conditional-General Business). The subject property is located on Ocean Trail in Corolla, it is approximately 0.46 acres, undeveloped, and was platted as part of Ocean Hill Section 1 Subdivision.

On December 6, 2004, the BOC heard a request for a straight commercial rezoning of the subject property (Lot 112) and the property to the south (Lot 113). At the time, staff was supportive of the rezoning request but had reservations about a conflict between the proposed rezoning and the Ocean Hill 1 Property Owners Association (OH1POA) Restrictive Covenants. The OH1POA Restrictive Covenants restricted all lots for residential purposes only. In 2004, the BOC continued the request and directed the applicants and the opposing parties to work on a mutual solution. The request was continued and was not reheard by the BOC.

On April 17, 2012, a Declaration of Withdrawal was recorded for lots 112 (the subject property) and 113 to remove them from Ocean Hill 1 Subdivision. A Declaration of Restrictive Covenants was also recorded to restrict uses of the withdrawn lots. The uses proposed for this Conditional GB zoning designation are consistent with uses listed in the Declaration of Restrictive Covenants.

The proposed use is *Retail Sales* and *Professional Offices*. In addition, the applicant is requesting approval for the following uses of the property (these uses are consistent with the Declaration of Restrictive Covenants recorded on April 17, 2012):

- Animal grooming
- Animal Shelter
- Vet Clinic
- Fitness Center
- Indoor Recreation
- Convenience Store
- Adult Day Care Center
- Child Care Center
- Museum
- Library
- Retail Sales Establishments (Art Gallery, Art Center, Retail Sales of goods & services)
- Nursery, production
- Business and sales
- Professional services
- Restaurant (No-Drive Thru) with indoor or outdoor seating
- Specialty eating establishment
- Vocational or trade school
- Dwelling, single-family detached
- Family Care Home

#### COMMUNITY MEETING

A community meeting was held on February 24, 2020. Subjects of discussion included stormwater, drainage and access. A meeting summary provided by the applicant is included in the agenda packet.

#### CONDITIONS OF APPROVAL

Prior to land disturbance or construction on the property, the applicant will be required to submit an application for site plan approval.

Staff suggests that the Board carefully consider each proposed use and potential impacts to determine which uses should be included in the conditional zoning.

The recorded plat states that the subject property shall not have an entrance on Ocean Trail. There are existing wetlands within the Coral Lane stub; the Board may consider a condition regarding required access.

The applicant proposed hours of operation consistent with normal retail (surf shop) and professional office hours. The Board may consider setting hours of operation if necessary for compatibility or to mitigate potential off-site impacts.

Staff requested that the applicant consider design elements similar to Corolla Village architecture. The Board may consider specific architectural standards in addition to the Non-Residential and Community Compatibility Standards of the UDO. For example, the Board may request a covered front porch entry along the facade that faces NC12.

SURROUNDING PARCELS		
	Land Use	Zoning
North	Commercial (Landscaping Contractor, Horse Tours, Restaurant)	SFO w/ PUD Overlay and Commercial Allocation
South	Residential	SFO
East	Residential	SFO
West	Utilities	SFO w/ PUD Overlay

LAND USE PLAN	
The 2006 Land Use Plan classifies this site as Full service within the Corolla subarea. The proposed plan is consistent with the policies of the plan, including:	
Policy CD4	HIGHWAY ORIENTED COMMERCIAL USES should be clustered along segments of highways and contain land uses which are mutually compatible and reinforcing in use and design; they should be designed in such a way as to minimize signage, access points, and to prevent unsightly, dysfunctional STRIP DEVELOPMENT.
Policy CD5	Incompatible or poorly planned COMMERCIAL ENCROACHMENT within or immediately adjoining existing residential areas shall be prohibited. Such incompatible encroachments often include, but are not limited to, large-scale commercial uses or automobile-oriented commercial uses such as service stations, car lots, car washes, drive through restaurants, and the like.
Policy CD6	Appropriate OFFICE AND INSTITUTIONAL DEVELOPMENT, such as professional offices, small churches, individual medical offices, and the like, shall be encouraged to locate as a transitional land use between residential areas and commercial or industrial activities of higher intensity.
Policy CD7	Attractive, environmentally beneficial LANDSCAPING shall be provided by new commercial or office developments, and in the rehabilitation and upgrading of existing developments. Appropriate BUFFERING or other effective DESIGN FEATURES may be employed to allow less intensive forms of commercial and office development to adjoin existing or planned residential uses.
Policy CA1	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.
Policy ED1	NEW AND EXPANDING INDUSTRIES AND BUSINESSES should be especially encouraged that: 1) diversify the local economy, 2) train and utilize a more highly skilled labor force, and (3) are compatible with the environmental quality and natural amenity-based economy of Currituck County.
Policy OB2	So as to minimize COMMERCIAL STRIP DEVELOPMENT and maximize the traffic moving capability of NC 12, Currituck County shall encourage commercial development to cluster at appropriate locations rather than dispersing along NC 12.

## RECOMMENDATION

### Technical Review Committee

The Technical Review Committee recommends approval of the conditional rezoning subject to the following conditions:

1. Prior to land disturbance or construction, the applicant shall submit for site plan approval.



2. Access shall be provided from Coral Lane.
3. Non-Residential Design Standards and Community Compatibility Standards of the UDO apply to future development.

### CONSISTENCY AND REASONABLENESS STATEMENT

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

This conditional zoning request is consistent with the 2006 Land Use Plan because it is consistent with the above referenced policies of the plan including Commercial Development, Economic Development, Community Appearance and Special Policies applicable to the Outer Banks. The request will allow commercial development adjacent to existing commercial development near the Corolla Village commercial area. The proposed uses are compatible with surrounding residential development and landscaping and buffering will be provided. The request recognizes the important economic, tourism and community image benefits of NC12, the major highway corridor in Corolla.

It is reasonable and in the public interest because it allows commercial development to occur in a centralized area and future development will comply with the Unified Development Ordinance to achieve an improved appearance.

### CONDITIONS OF APPROVAL

**Only conditions mutually agreed to by the owner(s) may be approved as part of a conditional zoning district. Conditions shall be limited to those that address conformance of development and use of the site with county regulations and adopted plans and that address the impacts reasonably expected to be generated by the development or use. No condition shall be less restrictive than the standards of the parallel general use zoning district.**

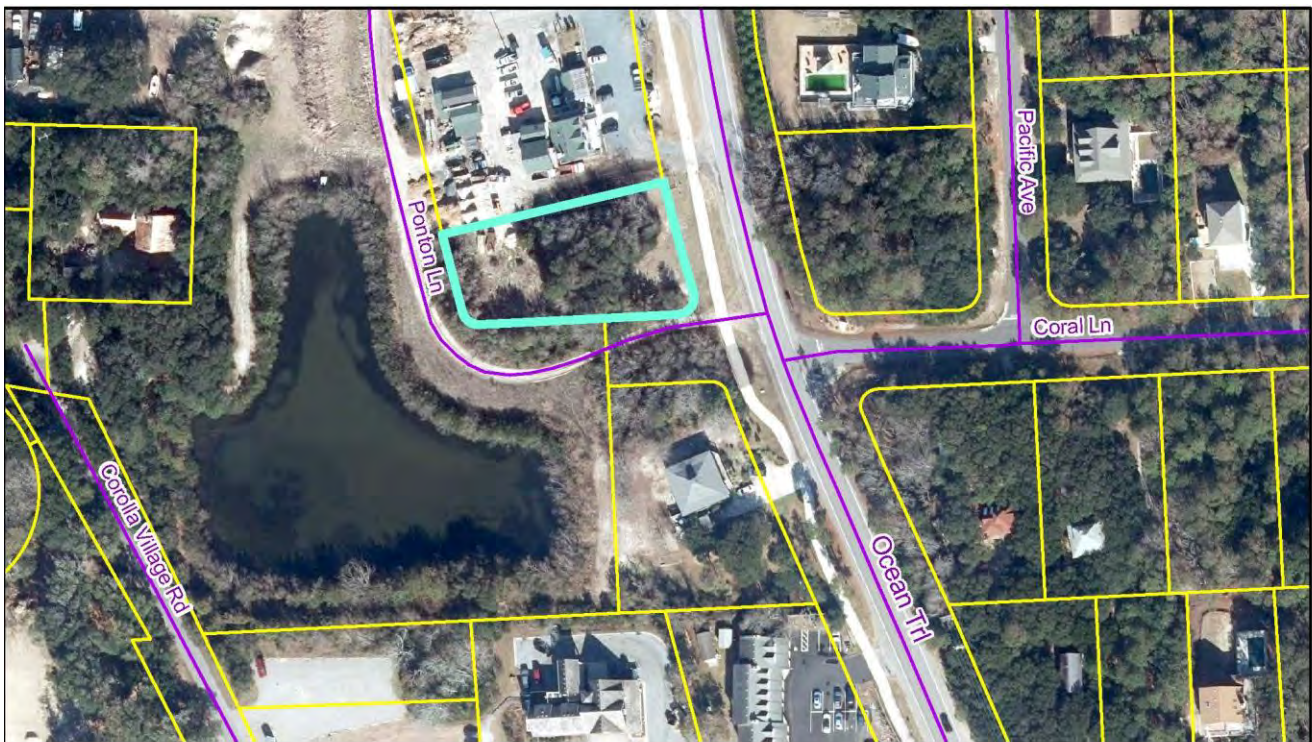
#### Agreed upon conditions of approval:

1. Allowable uses of the property shall be limited to the following Use Types:
  - Animal grooming
  - Animal Shelter
  - Vet Clinic
  - Fitness Center
  - Indoor Recreation
  - Convenience Store
  - Adult Day Care Center
  - Child Care Center
  - Museum
  - Library
  - Retail Sales Establishments (Art Gallery, Art Center, Retail Sales of goods & services)
  - Nursery, production
  - Business and sales
  - Professional services
  - Restaurant (No-Drive Thru) with indoor or outdoor seating
  - Specialty eating establishment
  - Vocational or trade school
  - Dwelling, single-family detached
  - Family Care Home
2. Prior to land disturbance or construction the applicant shall submit for site plan approval.

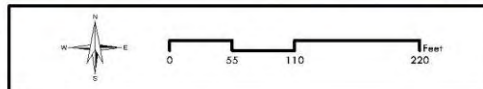


3. Access shall be provided from Coral Lane.
4. Non-Residential Design Standards and Community Compatibility Standards of the UDO apply to future development.
5. Hours of operation shall be consistent with normal retail (surf shop) and professional office hours.

THE APPLICATION AND RELATED MATERIALS ARE AVAILABLE ON THE COUNTY'S WEBSITE  
Board of Commissioners: [www.co.currituck.nc.us/board-of-commissioners-minutes-current.cfm](http://www.co.currituck.nc.us/board-of-commissioners-minutes-current.cfm)

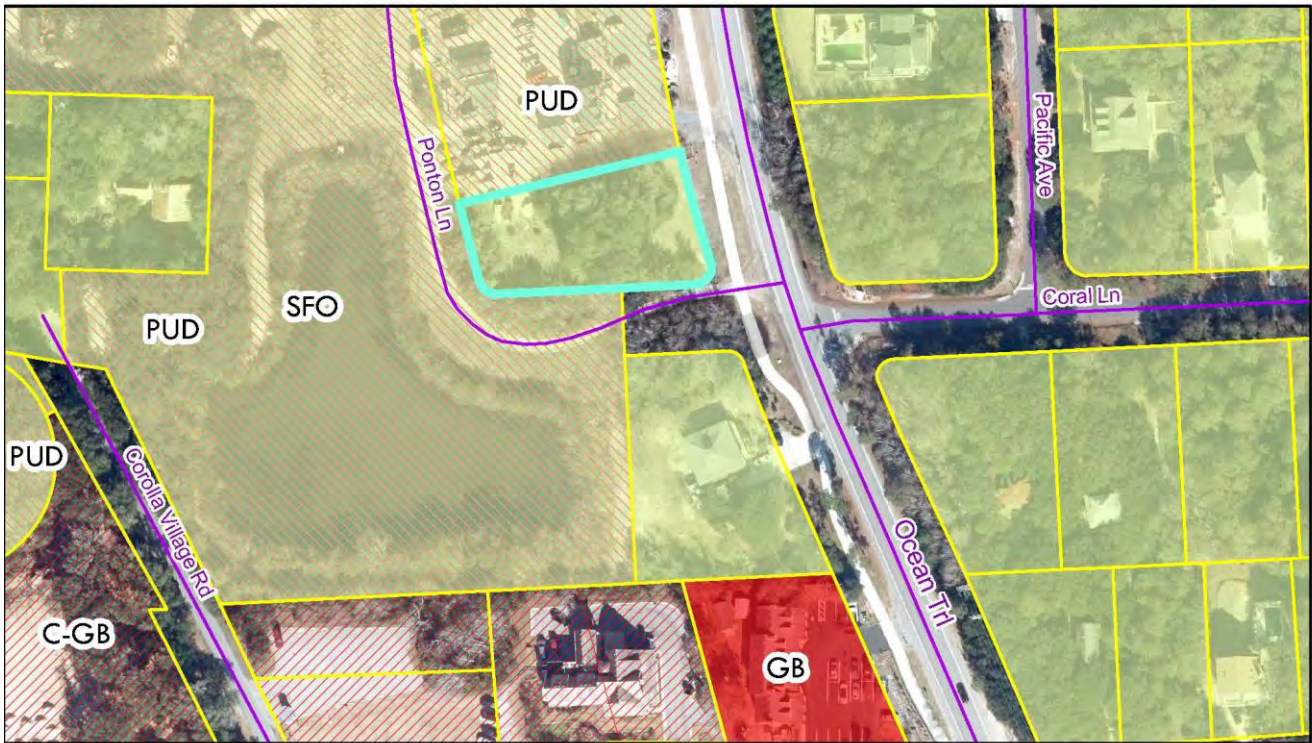


PB20-02 Hurley Conditional Zoning  
1202 Ocean Trail  
Aerial

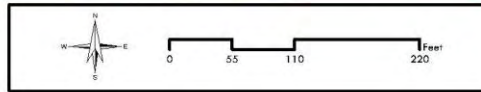


Currituck County  
Planning and Community  
Development





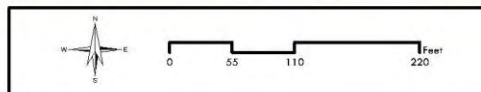
PB20-02 Hurley Conditional Zoning  
1202 Ocean Trail  
Official Zoning Map



Currituck County  
Planning and Community  
Development



PB20-02 Hurley Conditional Zoning  
1202 Ocean Trail  
LUP Classification



Currituck County  
Planning and Community  
Development



## Conditional Rezoning Application

### OFFICIAL USE ONLY:

Case Number: \_\_\_\_\_  
 Date Filed: \_\_\_\_\_  
 Gate Keeper: \_\_\_\_\_  
 Amount Paid: \_\_\_\_\_

### Contact Information

#### APPLICANT:

Name: Tom and Lisa Hurley  
 Address: 1650 Sandfiddler Road  
Corolla, NC 27927  
 Telephone: \_\_\_\_\_  
 E-Mail Address: lisa@corollasurfshop.com

#### PROPERTY OWNER:

Name: Brock North Carolina, LLC  
 Address: 7700 Ocean Front Ave  
Virginia Beach, VA 23451  
 Telephone: \_\_\_\_\_  
 E-Mail Address: \_\_\_\_\_

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Purchaser

### Property Information

Physical Street Address: 1202 Ocean Trail Corolla, NC  
 Location: At the intersection of Coral Ln. and Ocean Trail  
 Parcel Identification Number(s): 114C00001120001  
 Total Parcel(s) Acreage: 0.46 (per GIS)  
 Existing Land Use of Property: Vacant

### Request

Current Zoning of Property: SFO Proposed Zoning District: C-GB

### Community Meeting

Date Meeting Held: 2/24/2020 at 4pm Meeting Location: Corolla Library

Attachment: 2 Application (PB 20-02 Hurley Conditional Rezoning)

**Conditional Rezoning Request**

To Chairman, Currituck County Board of Commissioners:

The undersigned respectfully requests that, pursuant to the Unified Development Ordinance, a conditional zoning district be approved for the following use(s) and subject to the following condition(s):

**Proposed Use(s):**

Retail

**Proposed Zoning Condition(s):**

The property use will be limited to those allowed within the Ocean Hill Section 1 Subdivision Covenants: Animal services ( no outdoor kenels); athletic and exercise facilities (indoor); convenience store; daycare services; dry cleaning and laundromat; funeral home; museums; libraries; art galleries; art centers' greenhouses or similar nurseries; professional offices; residential care institutions; restaurant (without drive thru); retail sales of goods and services; schools (elementary and secondary) and associated uses; private and instructional schools (trade or vocational); residential use with one single family detached unit per lot.

An application has been duly filed requesting that the property involved with this application be rezoned from: SFO to: C-GB

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 conceptual development plan, 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 conditional zoning district so authorized and shall be submitted to the Technical Review Committee.

DocuSigned by:

Joan Perry Brock  
Property Owner(s)

Brock North Carolina, LLC Manager

3/2/2020

Date

**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.**

Attachment: 2 Application (PB 20-02 Hurley Conditional Rezoning)



NOTE: THIS DOCUMENT IS PRELIMINARY – NOT FOR CONSTRUCTION, RECORDATION, SALES OR CONVEYANCES – THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY! EXISTING INFORMATION SHOWN ON THIS DOCUMENT IS BASED ON BEST AVAILABLE DATA AND IS NOT A CERTIFIED SURVEY. ALL INFORMATION SHOWN ON THIS DOCUMENT IS SUBJECT TO ANY REQUIREMENTS BY ANY REGULATORY AGENCY, ENTITY OR AUTHORITY.

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\*PARCEL, AERIAL & LIDAR DATA SHOWN, BASED ON COUNTY GIS DATA.

LINDA KAY COLE  
PO BOX 131  
COROLLA NC, 27927  
ZONING: SFO  
USE: RESIDENTIAL

CORAL LN  
(60' R/W)

NF  
MIDLANTIC BUILDERS LLC  
PO BOX 2138  
NORFOLK VA, 23501  
ZONING: VILLAGES AT OCEAN  
HILL PUD  
USE: WASTEWATER TREATMENT  
PLANT OPERATIONS  
(DB 1153, PG 938)

PC A, SL 136

5' WIDE VEHICULAR USE  
PERIMETER LANDSCAPING STRIPS  
(SHRUBS @ 5' ON CENTERS)

REQUIRED 10' WIDE TYPE B  
LANDSCAPE BUFFER:  
2 ACI CANOPY TREES  
10 ACI UNDERSTORY TREES  
15 SHRUBS  
PER 100 LF

PROPOSED  
SEPTIC REPAIR

25' M.B.S.L.

PROPOSED  
PARKING  
AREA  
(11 SPACES)

18.0'  
TYP.

PROPOSED  
SWALE (TYP.)

APPROXIMATE  
PROPOSED  
STORMWATER  
AREA

PROPOSED  
10'x24'  
SCREENED  
DUMPSTER PAD

PROPOSED 5'  
WIDE WALK

NF  
SANDRIDGE PROPERTIES LLC  
1210 OCEAN TRL  
COROLLA NC, 27929  
ZONING: VILLAGES AT OCEAN HILL  
PUD COMMERCIAL AREA  
USE: RESTAURANT/TOURS  
(DB 1282, PG 790)

PROPOSED  
STORMWATER  
AREA

REQUIRED FASCADE  
LANDSCAPING:  
1 CANOPY TREE/PER ACRE  
1 SHRUB PER 5' FACADE

REQUIRED STREETSCAPE  
LANDSCAPING:  
8 ACI CANOPY TREES  
4.5 ACI UNDERSTORY TREES  
10 SHRUBS

PROPOSED 5'  
WIDE WALK

OCEAN TRAIL / N.C. 12  
(100' R/W)

PROPOSED  
2-STORY  
COMMERCIAL  
STRUCTURE  
(2,207 SF)  
W/ POTENTIAL  
UPPER LEVEL  
OFFICES

30' M.B.S.L.

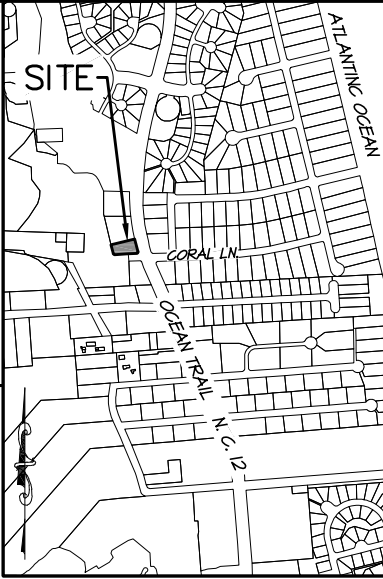
APPROXIMATE  
PROPOSED  
STORMWATER  
AREA

APPROXIMATE  
PROPOSED  
SEPTIC AREA

LEGEND:

- PROPOSED CONCRETE

- NOTES:
1. APPLICANT: LISA & TOM HURLEY
  2. CURRENT OWNER: BROCK NORTH CAROLINA LLC  
7700 OCEAN FRONT AVE.  
VIRGINIA BEACH VA, 23451
  3. PIN: 9937-22-5740
  4. PID: 114C00001120001
  5. PROPERTY ADDRESS: 1202 OCEAN TRAIL  
COROLLA NC, 27929
  6. LOT AREA = 20,191 sqft / 0.46 acres PER PC A, SL 136
  7. PROPOSED LOT COVERAGE = 9,566 sqft (47.4%)
  8. SUBJECT REFERENCES: DB 1228, PG 794; PC A, SL 136
  9. PROPERTY IS LOCATED IN FIRM ZONE "X" AS SHOWN AND SUBJECT TO CHANGES. BASED ON COMMUNITY CID NO. 3720078; PANEL 9937; SUFFIX K (MAP NUMBER 3720993700K) EFFECTIVE DATE: 12/21/2018
  10. THIS IS NOT A SURVEY. ALL LOT LINES AND ADJOINING PROPERTIES ARE PER MB A, PG 136
  11. EXISTING ZONING: SINGLE FAMILY OUTER BANKS (SFO)
  12. PROPOSED ZONING: CONDITIONAL GENERAL BUSINESS (C-GB)



VICINITY MAP  
(NTS)

THIS MAP IS NOT  
CERTIFIED SURVEY  
AND HAS NOT BEE  
REVIEWED BY A  
LOCAL GOVERNMENT  
AGENCY FOR  
COMPLIANCE WITH  
ANY APPLICABLE  
LAND DEVELOPMENT  
REGULATIONS.

CONCEPTUAL DEVELOPMENT PLAN

LISA & TOM HURLEY  
LOT 112 SECTION 1 OCEAN HILL

POPULAR BRANCH TOWNSHIP  
NORTH CAROLINA

CURRITUCK COUNTY



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CONSIDERED PRELIMINARY, NOT A  
CERTIFIED DOCUMENT AND SHALL NOT  
BE USED FOR CONSTRUCTION,  
RECORDATION, SALES OR LAND  
DEVELOPMENT.

PROJECT  
P20009

DRAWN BY  
RJ/CMS

CHECKED BY  
MWS

DATE  
1/15

NC License#: C-0208  
SINCE 1959  
**Quible & Associates, P.C.**  
ENGINEERING\*\* \* CONSULTING \* PLANNING  
ENVIRONMENTAL SCIENCES \* SURVEYING\*\*  
\*\*ENG./SUR. NOT OFFERED AT BLACK MTN. OFFICE  
8466 Caratoke Hwy, Powells Point, NC 2791  
Phone: (252) 491-8147 Fax: (252) 491-8147  
90 Church St., Ste. B, Black Mountain, NC 27714



Attachment: 4 Photo of Desired Building Concept (PB 20-02 Hurley Conditional Rezoning)


**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:** Tom & Lisa Hurley  
 Warren Eadus, Quible & Associates, P.C.  
 Cathleen Saunders, Quible & Associates, P.C.

**From:** Jennie Turner, Planner II

**Date:** March 12, 2020

**Re:** PB 20-02 Hurley Conditional Rezoning  
 1202 Ocean Trail, Corolla, NC 27927

---

The following comments were received at the March 10, 2020 TRC meeting. TRC comments are valid for six months from the date of the TRC meeting.

In order to be scheduled for the April 14, 2020 Planning Board meeting, please address all comments and resubmit a corrected plan by 3:00 p.m. on March 23, 2020.

**Planning, Jennie Turner 252-232-6031**
**Reviewed**

1. The proposed use and the proposed zoning conditions are all uses. Please clarify which uses are proposed for this conditional rezoning. Staff suggests narrowing down the list.
2. Provide a detailed written description of the proposed use(s), types of improvements, buildings, activities, and hours of operation.
3. Please provide any zoning conditions proposed. Staff's suggested zoning conditions:
  - a. Community Compatibility Standards apply to future development.
  - b. Access shall be provided from Ponton Lane (Coral Lane stub).
4. Conceptual Development Plan:
  - a. Show all required landscaping including Type B perimeter buffer along the rear and south property line.
  - b. Provide adjacent use types.
  - c. Identify easements.
5. On zoning map amendment exhibit:
  - a. Revise zoning reference on Villages at Ocean Hill Properties to VOH PUD or Villages at Ocean Hill PUD instead of Ocean Hill PUD.
6. Architectural Elevations:
  - a. Provide an architectural elevation for the building facade that faces NC12.
  - b. Flat roofs are not permitted on the Outer Banks.
  - c. What style of roof is proposed?
  - d. What style of siding is proposed?
  - e. What roof material is proposed?
  - f. Describe design features that will be incorporated into the building design.

- g. Consider using building design elements similar to existing Corolla Village architecture.
7. Provide best available information on potential phasing of project (ex: less than 2 years, 3-5 years, 5-10 years, etc.).

**Currituck County Building Inspections and Fire, Bill Newns 252-232-6023**

No comments received

**Albemarle Regional Health Services, Joe Hobbs 252-232-6603**

REVIEWED

OWNER WILL NEED TO SUBMIT APPLICATION TO HEALTH DEPARTMENT FOR SITE EVALUATION TO DETERMINE SOIL SUITABILITY FOR SEPTIC SYSTEM. CONSULT WITH JOE HOBBS R.S. 252-232-6603  
EXPLORE POSSIBILITY OF SEWER CONNECTION IN LIEU OF ON-SITE WASTEWATER.

**Currituck County Soil and Stormwater, Dylan Lloyd, 757-515-0201**

Approved

1) Existing pipe identified running under west and southern portions of property toward water impoundment area to the south under Coral Drive. Warren Eadus from Quible alerted staff to the existence of a historic drainage tile that serves property to the north; have requested pictures and rough delineation of feature; at the moment the recommendation is to remove and fill excavated areas.

**Currituck County Public Utilities, Will Rumsey & Dave Spence 252-232-6065**

Reviewed

No comment

**Currituck County GIS, Harry Lee 252-232-2034**

Reviewed

When developed, the address of the property will change from Ocean Trl to Ponton Ln (driveway access).

The lane should be Ponton Ln not Coral Ln as shown on the site plan.

**NC DEQ- Division of Coastal Management, Charlan Owens 252-264-3901**

No Comment

**Currituck County Parks & Recreation, Jason Weeks, 252-232-3007**

No Comment

**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.

PB20-02 Tom & Lisa Hurley  
1202 Ocean Trail  
Conditional Rezoning  
Page 2 of 2





Quible & Associates, P.C.

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SINCE 1959

P.O. Drawer 870  
Kitty Hawk, NC 27949  
Phone: 252-491-8147  
Fax: 252-491-8146  
web: quible.com

March 20, 2020

Ms. Jennie Turner  
Currituck County Planning and Community Development  
P.O. Box 73  
Currituck, NC 27927

Re: **Conditional Rezoning Application  
for 1202 Ocean Trail**  
Corolla, Currituck County, North Carolina

Dear Ms. Turner,

On behalf of Tom & Lisa Hurley, Quible & Associates, P.C. (Quible) hereby submit for your review the enclosed revised application package for a Conditional Zoning Permit, in response to the review comments provided by the Technical Review Committee. Please find our responses to the review comments listed below. Responses have been provided in red italics for ease of review.

Quible and the Applicants understand that public gatherings have been cancelled in Currituck County due to concerns over transmission of COVID19. This cancellation includes the Planning Board Meeting that was scheduled for April 14, 2020. On behalf of the applicants, Quible proposes that we prepare all materials for this Conditional Rezoning Request (including the attached materials and your staff report) and hold a virtual meeting. We understand that the Planning Board is an advisory committee and that presenting our application is a requirement in order to move on to the Board of Commissioners Meeting. We are confident that we can present our application and associated materials in a virtual meeting on the platform of your choosing (e.g. YouTube—which allows live comments, Zoom, Free Conference Call.com etc.) if County gatherings are prohibited. We understand that public participation in these meetings is required and in addition to setting up the meeting for County Staff, we will assist with notification of all interested parties of our intention to conduct a virtual meeting.

Please notify us at your earliest convenience that you have received the below and attached revisions to the TRC Comments and whether we should proceed with a virtual meeting.

The following documents are included and shall be considered part of this submittal package:

1. One (1) digital copy of the revised Conceptual Plan;
2. One (1) 8.5"x11" copy of the revised Conceptual Plan;

Please note Hardcopies of all plans can be made available once the County's submittal process returns to normal.

Attachment: 6 Applicant TRC Response (PB 20-02 Hurley Conditional Rezoning)

Conditional Rezoning Application for 1202 Ocean Trail  
March 23, 2020

**Planning, Jennie Turner 252-252-6031**

Reviewed

1. The proposed use and the proposed zoning conditions are all uses. Please clarify which uses are proposed for this conditional rezoning. Staff suggests narrowing down the list.

*Please note, the restrictive covenants set forth in the Declaration of Withdrawal (DB 1196 PG0864-0865) from Ocean Hill Section 1 are more restrictive than the allowed uses within the County Base GB Zoning. The applicant intends to use the property for Retail Sale of Goods and Services and Professional Offices. However, the applicant wishes to leave open additional opportunities for development. To further refine allowable uses the applicant has narrowed down the list further as indicated below:*

- a. Animal Services (no outdoor kennels)
- b. Athletic and Exercise Facilities
- c. Convenience Store
- d. Daycare Services
- e. ~~Dry Cleaning and Laundromat~~
- f. ~~Funeral Home~~
- g. Museums
- h. Libraries
- i. Art Galleries
- j. Art Centers
- k. Greenhouses or Similar Nurseries
- l. Professional Offices
- m. Residential Care Institutions
- n. Restaurant (without drive thru)
- o. Retail Sales of Goods and Services
- p. Schools (elementary and secondary) and associated uses
- q. Private and Instructional Schools (trade or vocational)
- r. Residential Use with one single family detached unit per lot

2. Provide a detailed written description of the proposed use(s), types of improvements, buildings, activities, and hours of operation.

*The proposed use is Retail and Professional Offices. A building or buildings that conform to Community Standards and all appropriate building codes will be erected along with all required and permitted infrastructure. Hours of operation will be consistent with normal retail (surf shop) and professional office hours.*

3. Please provide any zoning conditions proposed. Staff's suggested zoning conditions:
  - a. Community Compatibility Standards apply to future development. *Acknowledged. The building and site will be designed to meet UDO requirements during Major Site Plan application. This zoning condition is agreed to.*
  - b. Access shall be provided from Ponton Lane (Coral Lane stub).  
*The applicant proposes to access the property from Ponton Lane. However, we would like to preserve the right to access the property via a shared driveway access and/or NC 12 in the event that access from Ponton Lane is not available*

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Telephone (252) 491-8147 • Fax (252) 491-8146

Conditional Rezoning Application for 1202 Ocean Trail  
March 23, 2020

*or if access from a shared drive or NC 12 becomes a preferred option and is available in the future.*

4. Conceptual Development Plan:

- a. Show all required landscaping including Type B perimeter buffer along the rear and south property line. *A Type B buffer has been provided on the conceptual sketch. However, the adjacent rear use is a wastewater upset pond which is commercial and/or light industrial. The applicant will provide those buffers necessary and required according to the UDO at the time of development.*
- b. Provide adjacent use types. *Use types have been provided on the conceptual sketch.*
- c. Identify easements. *Easements are not proposed at this time. Any applicable easements will be shown and recorded with a Major Site Plan application.*

5. On zoning map amendment exhibit:

- a. Revise zoning reference on Villages at Ocean Hill Properties to VOH PUD or Villages at Ocean Hill PUD instead of Ocean Hill PUD. *Acknowledged. This has been updated on the conceptual sketch.*

6. Architectural Elevations:

- a. Provide an architectural elevation for the building facade that faces NC12. *During our pre-application meeting the applicants explained that the structure has not been designed and there are no conceptual sketches prepared for any planned building(s). Photographs of the style that may be used are provided and staff indicated during our pre-application meeting that photographs have been accepted in the past to fulfill this requirement of providing an Architectural Elevation.*
- b. Flat roofs are not permitted on the Outer Banks. *This is a rezoning request and not a Major Site Plan. Design and architectural details will be provided at the appropriate time. Any structure that is built will need to conform with all appropriate County UDO requirements.*
- c. What style of roof is proposed? *Design and architectural details will be provided at the appropriate time. Any structure that is built will need to conform with all appropriate County UDO requirements.*
- d. What style of siding is proposed? *Design and architectural details will be provided at the appropriate time. Any structure that is built will need to conform with all appropriate County UDO requirements.*
- e. What roof material is proposed? *Design and architectural details will be provided at the appropriate time. Any structure that is built will need to conform with all appropriate County UDO requirements.*
- f. Describe design features that will be incorporated into the building design. *Design and architectural details will be provided at the appropriate time. Any structure that is built will need to conform with all appropriate County UDO requirements.*
- g. Consider using building design elements similar to existing Corolla Village architecture.

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Conditional Rezoning Application for 1202 Ocean Trail  
March 23, 2020

*Design and architectural details will be provided at the appropriate time. Any structure that is built will need to conform with all appropriate County UDO requirements. The structure will also conform to local community standards and architecture as required.*

7. Provide best available information on potential phasing of project (ex: less than 2 years, 3-5 years, 5-10 years, etc.). *The project, if feasible, would not take place for another 2-5 years.*

**Currituck County Building Inspections and Fire, Bill Newns 252-232-6023**

No comments received

**Albemarle Regional Health Services, Joe Hobbs 252-232-6603**

REVIEWED

OWNER WILL NEED TO SUBMIT APPLICATION TO HEALTH DEPARTMENT FOR SITE EVALUATION TO DETERMINE SOIL SUITABILITY FOR SEPTIC SYSTEM. CONSULT WITH JOE HOBBS R.S. 252-232-6603

EXPLORE POSSIBILITY OF SEWER CONNECTION IN LIEU OF ON-SITE WASTEWATER.

*Acknowledged.*

**Currituck County Soil and Stormwater, Dylan Lloyd, 757-515-0201**

Approved

1) Existing pipe identified running under west and southern portions of property toward water impoundment area to the south under Coral Drive. Warren Eadus from Quible alerted staff to the existence of a historic drainage tile that serves property to the north; have requested pictures and rough delineation of feature; at the moment the recommendation is to remove and fill excavated areas. *The location of this feature is unknown and Quible merely relayed information that was presented during a Community Meeting to County Staff to inquire whether or not there was any documentation as to the existence of a drainage pipe running west to east along the northern boundary of the property. The absence or existence of any subsurface utilities on this property are not known at this time. Existing ditches and drainage pipes that cross Ponton Lane have been located on previous surveys.*

**Currituck County Public Utilities, Will Rumsey & Dave Spence 252-232-6065**

Reviewed

No comment

**Currituck County GIS, Harry Lee 252-232-2034**

Reviewed

When developed, the address of the property will change from Ocean Trl to Ponton Ln (driveway access). *Acknowledged.*

The lane should be Ponton Ln not Coral Ln as shown on the site plan. Acknowledged. *The conceptual plan has been updated to indicate Ponton Ln. Please note PC F, Pg 137 and PC D, Pg 153 both indicate that this right-of-way is Coral Ln.*

**NC DEQ- Division of Coastal Management, Charlan Owens 252-264-3901**

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Conditional Rezoning Application for 1202 Ocean Trail  
March 23, 2020

No Comment

**Currituck County Parks & Recreation, Jason Weeks, 252-232-3007**

No Comment

Please do not hesitate to contact Warren D. Eadus, P.G., or myself at 252.491.8147 should you have any questions and/or concerns.

Sincerely,  
**Quible & Associates, P.C.**



Warren D. Eadus, P.G.

Encl.: as stated  
Cc: Tom & Lisa Hurley  
File

Attachment: 6 Applicant TRC Response (PB 20-02 Hurley Conditional Rezoning)



**From:** Jennie Turner  
**To:** ["Cathleen Saunders"](#); [Warren Eadus](#)  
**Subject:** RE: Conditional Rezoning Lot 112 Ocean Hill S/D  
**Date:** Thursday, March 26, 2020 12:20:00 PM  
**Attachments:** [image003.png](#)  
[image004.png](#)

---

Good afternoon,  
 Thank you for the response to the TRC memo.

Here are my comments on the resubmittal:

- According to the most recently approved VOH sketch plan, the area owned by Midlantic Builders that abuts the subject property is designated as open space and right of way area, any designated commercial areas are to the rear of the property. Please remove "commercial area" from the zoning description.
- The perimeter buffers are required between zoning districts and not uses, a type B buffer is required between GB zoning and SFO w/PUD overlay zoning unless the adjacent property is designated commercial.
- Regarding the architectural elevations, it is correct that we have accepted photographs in the past and we will for this application. The conceptual development plan section of the ordinance requires elevations of proposed buildings as seen from public streets and adjacent lands containing SFDs. The photos submitted each show different styles, the questions were intended to clarify which elements in the submitted photos are proposed. Please submit one elevation, you may describe proposed design elements. The elevation is part of the conceptual development plan and may be part of the conditional rezoning approval.

If you'd like to discuss this further, please feel free to call me on my cell at 252-202-3320 as I am working from home today.

Thanks,  
 Jennie

Jennie Turner  
 Planner II  
 County of Currituck  
 Planning & Community Development  
 Phone: 252-232-6031  
 Fax: 252-453-8300  
 Email: [jennie.turner@currituckcountync.gov](mailto:jennie.turner@currituckcountync.gov)  
 Website: [www.currituckgovernment.com](http://www.currituckgovernment.com)

---

**From:** Cathleen Saunders [mailto:[csaunders@quible.com](mailto:csaunders@quible.com)]  
**Sent:** Monday, March 23, 2020 9:55 AM  
**To:** Jennie Turner; Warren Eadus

Attachment: 7 Staff Response to TRC response - 2nd round (PB 20-02 Hurley Conditional Rezoning)

**From:** [Cathleen Saunders](#)  
**To:** [Jennie Turner](#); [Warren Eadus](#)  
**Cc:** [Thomas Hurley](#); [Lisa](#)  
**Subject:** RE: Conditional Rezoning Lot 112 Ocean Hill S/D  
**Date:** Wednesday, April 15, 2020 11:41:44 AM  
**Attachments:** [image004.png](#)  
[image005.png](#)  
[image006.png](#)  
[image007.png](#)  
[Photo of Desired Building Concept.jpg](#)  
[P20009-Sketch 2 11x17-2020-04-15.pdf](#)

Jennie –

We have attached an updated version of the sketch that addresses the following:

- Change Ponton Ln. to Coral Ln. *This has been updated on the sketch.*
- According to the most recently approved VOH sketch plan, the area owned by Midlantic Builders that abuts the subject property is designated as open space and right of way area, any designated commercial areas are to the rear of the property. Please remove “commercial area” from the zoning description. *The commercial designation has been removed from the wastewater treatment plant property.*
- The perimeter buffers are required between zoning districts and not uses, a type B buffer is required between GB zoning and SFO w/PUD overlay zoning unless the adjacent property is designated commercial. *Type B buffers are provided on the sketch adjacent to SFO zoned properties (including adjacent to the PUD overlay/WWTP lagoon).*
- Regarding the architectural elevations, it is correct that we have accepted photographs in the past and we will for this application. The conceptual development plan section of the ordinance requires elevations of proposed buildings as seen from public streets and adjacent lands containing SFDs. The photos submitted each show different styles, the questions were intended to clarify which elements in the submitted photos are proposed. Please submit one elevation, you may describe proposed design elements. The elevation is part of the conceptual development plan and may be part of the conditional rezoning approval. *See attached photo of the desired building design. This photo supersedes those previously provided. Please note that the developer acknowledges that the building will need to meet all requirements of the UDO at the time of development (including roof pitch, materials, design elements, etc.)*

Please let us know if the County decides to start holding advisory Board Meetings and if we can anticipate being on the next planning board agenda. If you need additional information, please do not hesitate to reach out.

Thank you,  
 Cathleen M. Saunders, P.E.  
 Project Manager  
**Quible & Associates, P.C.**  
 8466 Caratoke Highway, Bldg 400  
 Powells Point, NC 27966  
 P.O. Drawer 870  
 Kitty Hawk, NC 27949  
 t 252.491.8147



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web: quible.com

February 27, 2020

Jennie Turner  
Currituck County Planning and Community Development  
P.O. Box 73  
Currituck, NC 27927

RE: **Community Meeting Report**  
Conditional Zoning  
For Parcel 9837-22-5740,  
1202 Ocean Trail  
Corolla, Currituck County, NC

Ms. Turner,

A community meeting for the proposed Conditional Rezoning of the above referenced parcel at 1202 Ocean Trail was held on Monday, February 24th, 2020 at 4:00 p.m. in the Corolla Library located in Corolla, NC. The meeting was conducted by Quible & Associates, P.C. (Quible) on behalf of Tom and Lisa Hurley with representatives from Quible & Associates, P.C. and Currituck County in attendance.

### Purpose

The purpose of the meeting was to inform the community in the vicinity of the subject parcel of the intent to apply for conditional zoning to allow for a potential retail. The existing site consists of a vacant lot without existing improvements. The current zoning is Single Family Outer Banks (SFO) and the applicant is proposing to change the zoning of the site to Conditional General Business (C-GB).

### Meeting synopsis

The library was opened to the public prior to the meeting and attendees began arriving prior to 4:00 pm. The rezoning map and an aerial of the associated area were available to attendees prior to the meeting on an easel. The proposed Preliminary Site Plan was available in 11"x17" on the conference table. Other items including agendas, blank application including the County process, and comment cards were provided on the table for attendees.

As attendees arrived, they were asked to provide their contact information on the sign-in sheet. Attendees were also advised that comments could be received by Quible & Associates, P.C. either by email or telephone.

Around 4:00 pm a presentation of the project desires was provided by Warren Eadus along with a summary of the required conditional rezoning process. A copy of the agenda was distributed to everyone in attendance and the sign-in sheet was routed throughout the room. The



presentation generally followed the Agenda (Exhibit 1) that was provided to the attendees and is summarized in the following sections.

The parcel proposed for conditional rezoning was described and identified on the exhibits. The Preliminary Site Plan and conditional rezoning permit application were described as being in compliance with the current Currituck County UDO requirements. The attendees were told that the proposed site plan will be submitted and reviewed through the Currituck County Technical Review Committee.

Questions were allowed from the audience during the presentation. Discussions centered around use of Coral Lane Stub and stormwater. These discussions are summarized as follows:

1. Locations of old pipes and ditches were discussed.
2. Kay Cole indicated that the "wetlands" started out as a ditch but somehow became jurisdictional.
3. Rex Patterson indicated that there is a stormwater pipe running through the property somewhere.
4. An attendee indicated that Hwy 12 floods and Mr. Eadus explained that this development would be held to County stormwater rules.
5. Ocean Hill resident Ed Cornet confirmed that Coral Stub was privately owned but public right of way.
6. Buddy Ponton said he was good with the project as long as he can continue to gain access to his property.
7. Kay Cole provided a lot of history about the area and the former rezoning request.
8. Additional questions/comments about issues within the Corolla area outside of the project area were also discussed.

Attendees were again reminded that any further questions or comments not addressed at the meeting can be forwarded to Quible & Associates and the meeting was adjourned.

Copies of all handouts, exhibits, and other documents available at the meeting are provided in attachments to this document.

Please do not hesitate to contact Warren D. Eadus or myself at (252) 491-8147 or csaunders@quible.com should you have any questions and/or concerns.

Sincerely,  
**Quible & Associates, P.C.**



Cathleen M. Saunders, P.E.

cc:



**Community Meeting for Conditional Rezoning –  
 Parcel Identification Numbers 9837-22-5740  
 Corolla Currituck County, NC**

February 24, 2020

**AGENDA**

- 1. General Introduction**
  - a. Quible & Associates, P.C.
  - b. Currituck County
- 2. Existing Information**
  - a. Location:
    - i. 1202 Ocean Trail
    - ii. 9837-22-5740
  - b. Current Land Use: Vacant
  - c. Existing Site Zoning: SFO
  - d. Site Zoning: C-GB; Conditional - General Business
  - e. The existing site consists of a vacant lot without existing improvements.
- 3. Discussion**
  - a. Apply for a Conditional Rezoning within property zoned as SFO (Single Family Outer Banks) as required by The Currituck County Unified Development Ordinance for retail use.
- 4. Site Development**
  - a. All site development will be in conformance with the County's Unified Development Ordinance.
  - b. The site development will be in general conformance with the County's Future Land Use Plan.
- 5. Questions & Comments**
  - a. Quible & Associates and representatives are available to answer questions and comments.
  - b. Comments can be provided in writing on Comment Forms provided or they can be sent to Cathleen Saunders, P.E. of Quible & Associates, P.C. by email at [csaunders@quible.com](mailto:csaunders@quible.com) or by phone at 252-491-8147.

Quible & Associates, P.C.

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8466 Caratoke Highway • Powells Point, NC 27966

Phone 252-491-8147 • FAX 252-491-8146

JOB

SIGN IN

3.A.i

SHEET NO.

OF

CALCULATED BY

DATE

CHECKED BY

DATE

SCALE

LOT 112 OCEAN HILL

\* PLEASE SIGN YOUR NAME:

Tom Lutton

Beth Lutton

Rex Patterson

MATT KIRKENDALL - CURRITUCK COUNTY

Jennie Turner Planner Currituck County

KYLE KUBIN & KAREN BELL

Kay Cole - Lot 113 Ocean Hill

~~Tom Lutton~~ ~~Beth Lutton~~ ~~Rex Patterson~~ ~~Matt Kirkendall~~ ~~Jennie Turner~~ ~~Kyle Kubin & Karen Bell~~ ~~Kay Cole~~

Sid Hosler - VOH Resident

Fran Hamilton - VOH

BOOK 1196 PAGE 0863



Doc ID: 002403580070 Type: CRP  
Recorded: 04/17/2012 at 11:49:24 AM  
Fee Amt: \$246.00 Page 1 of 70  
Currituck County, NC  
Charlene Y Dowdy Register of Deeds

376

BK 1196 PG 863-932

STATE OF NORTH CAROLINA

COUNTY OF CURRITUCK

Prepared by and return to:  
Thomas P. Nash, IB  
200 N. Water St. #2A  
Elizabeth City, NC 27909

**DECLARATION OF WITHDRAWAL**

THIS DECLARATION OF WITHDRAWAL made this 1<sup>ST</sup> day of November, 2011 is made by OCEAN HILL 1 PROPERTY OWNERS ASSOCIATION, INC. ("Association") and a majority of the LOT OWNERS in Section 1, Ocean Hill Subdivision ("Owners") and LINDA KAY COLE, Unmarried, MACON F. BROCK, JR. and wife, JOAN P. BROCK (collectively "Withdrawing Lot Owners")

**W I T N E S S E T H :**

WHEREAS, Association is a non-profit corporation organized to collect association dues and perform other responsibilities for those lots shown on plat of Ocean Hill, Section 1 recorded in Plat Cabinet A, Slides 136 through 140, Currituck County Registry and is the Successor in Interest to the Developer of said lots and the owner of the roads and streets shown on said plat; and

WHEREAS, Owners are the owners of a majority of the lots within Section 1 of Ocean Hill Subdivision as shown on the aforesaid plat; and

WHEREAS, Linda Kay Cole is the owner of Lot 113 on the plat of Section 1, Subdivision of Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140 in the Office of the Register of Deeds of Currituck County; and

WHEREAS, Macon F. Brock, Jr. and wife, Joan P. Brock are the owners of Lot 112 on the plat of Section 1, Subdivision of Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140 in the Office of the Register of Deeds of Currituck County; and

WHEREAS, the Developers of Ocean Hill Section 1 previously established for the aforesaid lots certain Restrictive Covenants, same being of record in Deed Book 157, Page 143 as amended by Amendment and Modification of Restrictive Covenants recorded in Book 211, Page 705; Amended Declaration of Restrictive Covenants recorded in Book 559, Page 880; Amendment & Modification of Restrictive Covenant recorded in Book 575, Page 170; Amended Declaration of Restrictive Covenants recorded in Book 776, Page 520, and Amendment to Declaration of Restrictive Covenants for Section 1 of Ocean Hill Subdivision



## Ocean Hill Section 1 – Declaration of Withdrawal Lots 112 &amp; 113

recorded in Book 992, Page 334, all in the Currituck County Registry (hereinafter collectively "Declaration").

WHEREAS, pursuant to said covenants, an instrument signed by a majority of the Owners within said Section 1 of said Subdivision may change said covenants in whole or in part; and

WHEREAS, WITHDRAWING LOT OWNERS, being the owners of Lots 112 and 113 of Section 1, Ocean Hill Subdivision have requested that said lots be withdrawn from the coverage of the Declaration in order to allow for said lots to be rezoned and the Association and a majority of the current Owners in Section 1 Ocean Hill Subdivision have agreed to such withdrawal under the express condition that Withdrawing Lot Owners record new covenants limiting the uses for and access utilized by said lots, which covenants would be enforceable by Association, all as hereinafter set out.

NOW, THEREFORE, for and in consideration of the premises, and other good and valuable consideration cited herein, Association and the undersigned Owners do hereby covenant and agree that the Declaration is hereby amended for the purpose of withdrawing from the coverage of the Declaration those lots in Section 1 Ocean Hill Subdivision which are more particularly described as follows and that said Declaration shall no longer be of any force or effect as to said lots:

Being all those certain lots or parcels of land located in Currituck County, North Carolina, more particularly described as follows:

Lots 112 and 113 as delineated on the plat of Section 1, Subdivision of Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140 in the Office of the Register of Deeds of Currituck County; and

Parties hereto further acknowledge that henceforth, the Owners of said lots and their heirs, successors and/or assigns shall have no interest in nor right of access to or in those roads and streets shown on the aforementioned plat except as to the stub of Coral Lane lying to the west of Ocean Trail and those rights or access, if any, held by the general public in and to said roads and streets.

Except as amended herein, the Declaration shall remain in full force and effect as to all of the remaining property in Section 1 Ocean Hill Subdivision.

As further consideration for this withdrawal, parties hereto acknowledge and agree that Withdrawing Lot Owners shall record a new Declaration of Restrictive Covenants restricting said Lots 112 and 113 to the following uses regardless of the zoning classification given to said lots and that the Association shall be given the right and authority to enforce said new Declaration:

1. Animal Services (no outdoor kennels);
2. Athletic and Exercise Facilities (indoor)
3. Convenience Store;
4. Daycare Services;
5. Dry Cleaning and Laundromat;
6. Funeral Home;
7. Museums;

## Ocean Hill Section 1 – Declaration of Withdrawal Lots 112 &amp; 113

8. Libraries;
9. Art Galleries;
10. Art Centers;
11. Greenhouses or Similar Nurseries;
12. Professional Offices;
13. Residential Care Institutions;
14. Restaurant (without drive thru);
15. Retail Sales of Goods and Services;
16. Schools (elementary and secondary) and associated uses;
17. Private and Instructional Schools (trade or vocational);
18. Residential use with one single family detached unit per lot.

Other than the above uses, any other commercial or residential use of the lots will be specifically prohibited including, but not limited to, using the lots as parking for an adjacent business or, as a stand alone parking lot.

IN WITNESS WHEREOF, this Declaration of Withdrawal is executed by Association, Withdrawing Lot Owners and Majority of Lot Owners the day and year first above written.

r\Ocean Hill-Brock withdrawal 10-3-11

Ocean Hill Section 1 – Declaration of Withdrawal Lots 112 & 113

OCEAN HILL 1 PROPERTY OWNERS  
ASSOCIATION, INC.

By: Edward Cornet (SEAL)  
President

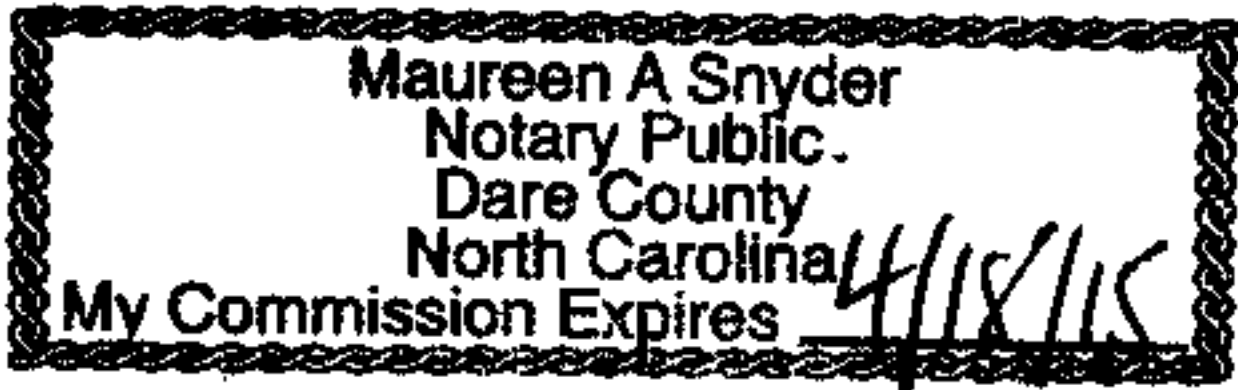
STATE OF NORTH CAROLINA  
COUNTY OF Dare

I, a Notary Public of the County and State aforesaid, certify that Edward Cornet personally came before me this day and acknowledged that he/she is President of Ocean Hill 1 Property Owners Association, Inc., a North Carolina nonprofit corporation, and that he/she as President, being authorized to do so, executed the foregoing on behalf of the corporation.

Witness my hand and official stamp or seal, this 6th day of March, 2012 AKS

My Commission Expires:  
4/18/15

Maureen A. Snyder  
Notary Public  
Printed Name of Notary Public:  
MAUREEN A SNYDER



Final  
10/19/11

Doc ID: 002403590008 Type: CAP  
 Recorded: 04/17/2012 at 11:50:51 AM  
 Fee Amt: \$26.00 Page 1 of 8  
 Currituck County, NC  
 Charlene Y Dowdy Register of Deeds

BK 1196 PG 933-940

377

STATE OF NORTH CAROLINA  
 COUNTY OF CURRITUCK

Prepared by and return to  
 Thomas P. Nash, IV  
 200 N. Water St. #2A  
 Elizabeth City, NC 27909

**THIS DECLARATION OF RESTRICTIVE COVENANTS** made and entered into this 1st day of November, 2011, by LINDA KAY COLE, Unmarried, and MACON F. BROCK, JR. and wife, JOAN P. BROCK, hereinafter referred to as "Withdrawing Lot Owners" to and with and on behalf of all persons hereafter owning or acquiring either of those lots known as Lots 112 and 113 on the plat of Section 1, Subdivision of Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140 in the Office of the Register of Deeds of Currituck County, and OCEAN HILL 1 PROPERTY OWNERS ASSOCIATION, INC., hereinafter referred to as "Association";

## WITNESSETH:

WHEREAS, Linda Kay Cole is the owner of Lot 113 on the plat of Section 1, Subdivision of Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140 in the Office of the Register of Deeds of Currituck County; and

WHEREAS, Macon F. Brock, Jr. and wife, Joan P. Brock are the owners of Lot 112 on the plat of Section 1, Subdivision of Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140 in the Office of the Register of Deeds of Currituck County; and

WHEREAS, pursuant to Declaration of Withdrawal recorded in Book 1196, Page 863, Currituck County Registry, Withdrawing Lot Owners were allowed to withdraw said lots from the Restrictive Covenants pertaining to Section 1 of Ocean Hill Subdivision in



return for subjecting said lots to new covenants enforceable by Association; and

WHEREAS, Withdrawing Lot Owners desire to subject said lots to certain new restrictive covenants in order to limit the development and use of said lots with said restrictive covenants to be enforceable by the Association; and

WHEREAS, it is the intent of this Declaration to restrict the uses and access for said lots and provide for the enforcement thereof as hereinafter set out.

NOW, THEREFORE, the Withdrawing Lot Owners do hereby declare that the following restrictive covenants shall apply to Lots 112 and 113 as shown and delineated on plat of Section 1, Subdivision of Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140 in the Office of the Register of Deeds of Currituck County and said covenants shall run with the land and be binding upon all subsequent owners of any of said lots:

Use of Lots: The zoning of said lots may be changed from residential contingent upon the uses of said lots being limited to the following despite other uses being allowed by any other zoning classification obtained for said lots:

1. Animal Services (no outdoor kennels);
2. Athletic and Exercise Facilities (indoor)
3. Convenience Store;
4. Daycare Services;
5. Dry Cleaning and Laundromat;
6. Funeral Home;
7. Museums;
8. Libraries;
9. Art Galleries;
10. Art Centers;
11. Greenhouses or Similar Nurseries;
12. Professional Offices;
13. Residential Care Institutions;
14. Restaurant (without drive thru);
15. Retail Sales of Goods and Services;
16. Schools (elementary and secondary) and associated uses;
17. Private and Instructional Schools (trade or vocational);
18. Residential use with one single family detached unit per lot.

Other than the above uses, any other commercial or residential use of the property is hereby specifically prohibited including, but not limited to, using the lots as parking for an adjacent business or, as a stand alone parking lot.

Access by Owners of Lots: Withdrawing Lot Owners, on behalf of themselves and their successors and/or assigns, covenants and agree that with the exception of the stub of Coral Lane located to the west of Ocean Trail, the Owners of said Lots 112 and 113 shall have no interest in nor right of access to or over those roads and streets shown on plat of Section I, Ocean Hill recorded in Plat Cabinet A, Sheets 136 through 140, Currituck Registry except for those rights of access, if any, held by the general public in and to said roads and streets.

Enforcement of Covenants: The Association shall have the right to enforce, by any proceeding at law or in equity, all restrictions, conditions, covenants, reservations, liens and charges now or hereafter imposed by the provisions of this Declaration. Failure by the Association to enforce any covenants or restrictions herein shall in no event be deemed a waiver of the right to do so thereafter.

Upon written notice to an Owner of a violation hereunder and failure of the Owner to take action to correct said violation within 30 days, the Association may undertake the enforcement of the provisions of this Declaration by injunction or other action at law and Association shall be entitled to reasonable attorney fees incurred by the Association as a result of its bringing an action at law or in equity to enforce these provisions.

Amendment or Rescission. Except as provided herein, this Declaration may only be amended or rescinded by a written instrument executed and expressly agreed to by the Association and authorized by the affirmative vote of the Withdrawing Lot Owners. Any amendment or rescission must be recorded at the Currituck County Registry to be effective.

Severability. Invalidation of any one of these covenants or restrictions by judgment or court order shall not affect any of the other provisions of this Declaration, which shall remain in full force and effect.

Law Controlling. This Declaration shall be construed and governed pursuant to the laws of North Carolina.



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – 2818

**Agenda Item Title:** PB 20-10 The Cotton Gin, Inc:

**Submitted By:** Cheri Elliott – Planning & Community Development

**Item Type:** Quasi-Judicial

**Presenter of Item:** Jason Litteral

**Board Action:** Action

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**Brief Description of Agenda Item:**

The applicant is requesting a zoning map amendment to rezone 2.17 acres from Agriculture (AG) to General Business (GB) for property located at 6957 Caratoke Highway, Jarvisburg, Parcel Identification Number 010900001330000, Poplar Branch Township. The subject parcel is currently 3.25 acres. The 2.17 acres is to be recombined with the original parcel resulting in 5.42 acres GB.

**Planning Board Vote:**

**Planning Board Recommendation:**

**Staff Recommendation:**

**TRC Recommendation:** Approval



**STAFF REPORT  
PB 20-10 COTTON GIN INC.  
PLANNING BOARD  
JUNE 9, 2020**

### APPLICATION SUMMARY

<b>Property Owner:</b> The Cotton Gin Inc. 6957 Caratoke Hwy Jarvisburg, NC 27947	<b>Applicant:</b> Same as Owner
<b>Case Number:</b> PB 20-10	<b>Application Type:</b> Zoning Map Amendment
<b>Parcel Identification Number:</b> 010900001330000	<b>Existing Use:</b> Retail/Restaurant
<b>Land Use Plan Classification:</b> Limited Service	<b>Parcel Size (Acres):</b> 3.25 (5.45 after recombine)
<b>Current Zoning:</b> General Business/Agriculture	<b>Proposed Zoning:</b> General Business
<b>Zoning History:</b> GB/A(1989)	
<b>Request:</b> Rezone 2.17 acres from AG to GB to be recombined with the original 3.25 acre GB zoned parcel resulting in a 5.42 acre GB zoned parcel	

### REQUEST

#### NARRATIVE

The applicant is requesting a conventional zoning map amendment to change 2.17 acres of Agriculture (AG) property to General Business (GB). The subject parcel is currently 3.25 acres in size. The 2.17 acres is to be recombined with the original parcel resulting in a 5.42 acre GB zoned property. Historically the property has been used as a retail establishment and a restaurant. Due to a recent fire, the property owner wishes to rebuild the structures in a different configuration. To better accommodate current and potential future uses of the property, some structures will need to be relocated. The new structure will also need to adhere to a 100' setback from Caratoke Highway. For GB zoning district outside of a Full Service Area, there is a 100' setback from roads designated as major arterials. The applicant would like to construct a building that will be used as an office and storage for the existing Kitty Hawk Kites hang gliding business. The same building will also be used as accessory warehousing and distribution for the Cotton Gin retail stores. The ideal location for this new building is further from the highway in an area currently zoned AG. This is the reason for the requested zoning map amendment.

#### Community Meeting

The community meeting was held on April 10, 2020 at 4:00 pm. The applicant provided a virtual meeting option as well. A list of attendees can be found in the community meeting summary submitted by the applicant. There were no concerns from the public.

Attachment: Staff Report Cotton Gin (PB 20-10 The Cotton Gin, Inc.)

SURROUNDING PARCELS		
	Land Use	Zoning
North	Agriculture (vineyard)	General Business/Agriculture
South	Agriculture (vineyard)	General Business/Agriculture
East	Agriculture	Agriculture
West	Commercial (Tarheel Produce)	General Business
LAND USE PLAN		
The 2006 Land Use Plan classifies this site as Limited Service within the Jarvisburg subarea. The proposed plan is consistent with the policies of the plan, some of which are:		
Policy CD4	HIGHWAY ORIENTED COMMERCIAL USES should be clustered along segments of highways and contain land uses which are mutually compatible and reinforcing in use and design; they should be designed in such a way as to minimize signage, access points, and to prevent unsightly, dysfunctional STRIP DEVELOPMENT.	
Policy ED4	In addition to the recruitment and expansion of major new industries, the considerable value of SMALL BUSINESS START-UPS, EXPANSIONS AND SPIN-OFFS shall also be recognized.	

## RECOMMENDATION

### Planning Staff

The applicant is requesting an expansion of the General Business zoning district to comply with the current major arterial street setback requirement of 100 feet. This request to GB will accommodate current and future uses in an ever-changing brick and mortar retail landscape. The applicant is currently working on a boundary line correction of the existing parcel and a recombination plat to include the area being rezoned. If the zoning map amendment is approved, the GB area will be used for a new building. The new building will include office area for Kitty Hawk Kites, storage, and accessory warehousing uses. Staff recommends approval of the request as submitted.

## CONSISTENCY AND REASONABLENESS STATEMENT

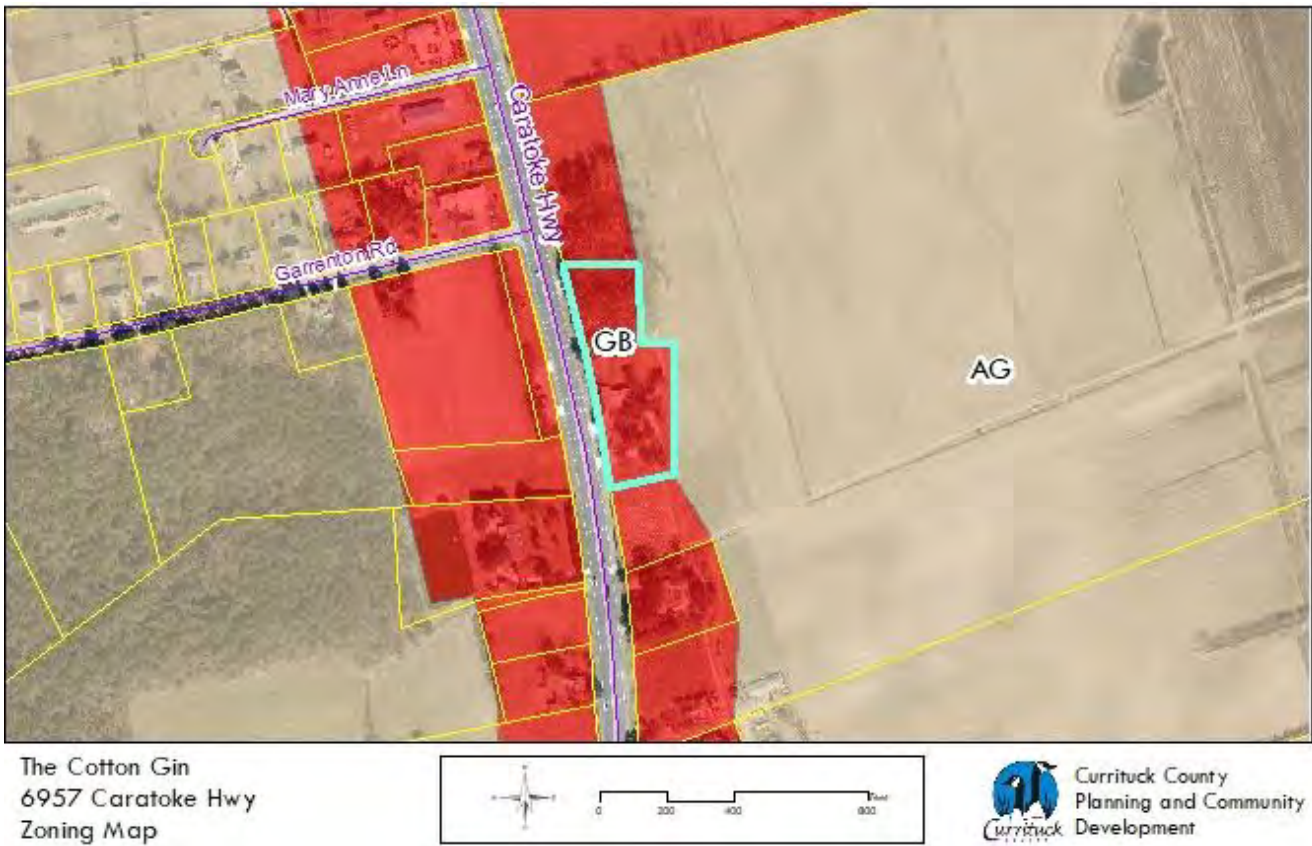
### A zoning map amendment is a legislative decision of the Board of Commissioners. In determining whether to approve or deny a zoning map amendment the Board of Commissioners shall adopt a written statement of consistency and reasonableness.

This zoning map amendment request is consistent with the goals, objectives, and policies of the Land Use Plan, is compatible with existing and proposed uses surrounding the land subject to the application, and is an appropriate zoning district and use for the land.

It is reasonable and in the public interest because it would result in a logical and orderly development pattern and addresses a demonstrated community need.

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

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



Attachment: Staff Report Cotton Gin (PB 20-10 The Cotton Gin, Inc.)







Q:\2019\19121\Drawings\19121-BOUNDARY EXHIBIT.dwg 4/1/2020 8:02 AM Csaunders

- NOTES:
1. CURRENT OWNER: THE COTTON GIN INC.
  2. PIN: 9921-40-7029
  3. PID: 010900001330000
  4. PROPERTY ADDRESS: P.O. BOX 24  
JARVISBURG NC, 27447
  5. LOT AREA = 186,855 sqft / 4.29 acres  
(AREAS BY COORDINATE METHOD.)
  6. SUBJECT REFERENCES: DB 150, PG 113

N/F  
JERRY M. WRIGHT &  
THOMAS C. WRIGHT  
DB 2001, PG E/114

PROPOSED  
PROPERTY  
BOUNDARY

EXISTING BOUNDARY SHOWN PER FIELD  
SURVEY PERFORMED BY QUILBE &  
ASSOCIATES, P.C. 04/04/2020

5/8"EIR  
(1.5'BG)

APPROX. GB/AG  
ZONING BOUNDARY  
(SHOWN PER  
COUNTY GIS)

N/F  
JERRY M. WRIGHT &  
THOMAS C. WRIGHT  
DB 2001, PG E/114

5/8"EIR  
(0.7'BG)

5/8"EIR  
(1.5'BG)

15' M.B.S.L.

15' M.B.S.L.

5/8"EIR  
(1.2'BG)

CARATOKE HIGHWAY  
(110' R/W)

NCGS MON GIN  
N 910,850.26 sFT  
E 2,924,423.01 sFT  
NAD83(2011)

N 13° 17' 37" W

5/8"EIR  
(0.3'BG)

N 910,437.24 sFT  
E 2,924,520.58 sFT

100' M.B.S.L.

25' M.B.S.L.

APPROX. GB/AG  
ZONING BOUNDARY  
(SHOWN PER  
COUNTY GIS)

15' M.B.S.L.

N/F  
JERRY M. WRIGHT &  
THOMAS C. WRIGHT  
DB 2001, PG E/114

424.34'

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**Quilbe & 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

THIS MAP IS NOT  
CERTIFIED SURVEY  
AND HAS NOT BEE  
REVIEWED BY A  
LOCAL GOVERNMENT  
AGENCY FOR  
COMPLIANCE WITH  
ANY APPLICABLE  
LAND DEVELOPMENT  
REGULATIONS.

BOUNDARY EXHIBIT

**THE COTTON GIN**  
**6957 CARATOKE HIGHWAY**

POPLAR BRANCH TOWNSHIP  
CURRITUCK COUNTY  
NORTH CAROLINA

0 60 120

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CONVEYANCE UNLESS OTHERWISE

PROJECT  
**P19121**

DRAWN BY  
**MS/JMH**

CHECKED BY  
**MWS**

DATE  
**4/31,**





# Zoning Map Amendment Application

**OFFICIAL USE ONLY:**

Case Number: \_\_\_\_\_  
 Date Filed: \_\_\_\_\_  
 Gate Keeper: \_\_\_\_\_  
 Amount Paid: \_\_\_\_\_

**Contact Information**
**APPLICANT:**

Name: The Cotton Gin Inc.  
 Address: 6957 Caratoke Hwy  
Jarvisburg, NC 27947  
 Telephone: 252.207.2387  
 E-Mail Address: tom@cottongin.com

**PROPERTY OWNER:**

Name: The Cotton Gin Inc.  
 Address: PO Box 24  
Jarvisburg, NC 27947  
 Telephone: 252.207.2387  
 E-Mail Address: tom@cottongin.com

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Self

**Property Information**

Physical Street Address: 6957 Caratoke Highway Jarvisburg, NC 27947  
 Location: The Cotton Gin  
 Parcel Identification Number(s): 010900001330000  
 Total Parcel(s) Acreage: 5.45 (Recombined Acreage) Original Parcel acreage 3.25 (GIS)  
 Existing Land Use of Property: Cotton Gin Retail Store

**Request**

Current Zoning of Property: Split GB and AG Proposed Zoning District: GB  
 Total Acreage for Rezoning: 2.2 Are you rezoning the entire parcel(s): Yes/No  
 Metes and Bounds Description Provided: Yes/No

**Community Meeting, if Applicable**

Date Meeting Held: April 10, 2020 Meeting Location: Sanctuary Vineyards

I, the undersigned, do certify that all of the information presented in this application is accurate to the best of my knowledge, information, and belief.

Further, I hereby authorize county officials to enter my property for purposes of determining zoning compliance. All information submitted and required as part of this application process shall become public record.

Thomas C Wright  
 Property Owner(s)/Applicant\*

4/21/20  
 Date

**\*NOTE: Form must be signed by the owner(s) of record, contract purchaser(s), or other person(s) having a recognized property interest. If there are multiple property owners/applicants a signature is required for each.**

# Zoning Map Amendment Design Standards and Submittal Checklist

The table below depicts the design standards of the site plan or map for a zoning map amendment application. Please make sure to include all applicable listed items to ensure all appropriate standards are reviewed.

## Zoning Map Amendment

### Site Plan Design Standards and Submittal Checklist

Date Received: \_\_\_\_\_

Project Name: \_\_\_\_\_

Applicant/Property Owner: \_\_\_\_\_

Site Plan or Map Design Standards Checklist		
1	Lot/parcel dimensions. <b>REZONING SQ FT SHOWN</b>	✓
2	Zoning designation.	✓
3	All existing physical features (structures, buildings, streets, roads, etc.). <b>(AERIAL)</b>	✓
4	Location and dimensions of any proposed construction. <b>(UNKNOWN @ THIS TIME)</b>	N/A

### Zoning Map Amendment Submittal Checklist

Staff will use the following checklist to determine the completeness of your application within ten business days of submittal. Please make sure all of the listed items are included. Staff shall not process an application for further review until it is determined to be complete.

Zoning Map Amendment Submittal Checklist		
1	Complete zoning map amendment application	✓
2	Application fee (\$200 plus \$5 for each acre or part thereof) <b>2.17 ACRES TO BE REZONED (\$215)</b>	✓
3	Community meeting written summary, if applicable	✓
4	Site plan or map <b>REZONING MAP PROVIDED IN COMMUNITY</b>	✓
5	Metes and bounds survey, if applicable <b>Mtg. SUMMARY</b>	N/A
6	2 copies of plans or maps	✓
7	2 hard copies of ALL documents	✓
8	1 PDF digital copy of all plans AND documents (ex. Compact Disk – e-mail not acceptable)	✓

### For Staff Only

#### Pre-application Conference

Pre-application Conference was held on \_\_\_\_\_ and the following people were present:

\_\_\_\_\_  
 \_\_\_\_\_

#### Comments

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – 2819

**Agenda Item Title:** PB 19-20 Flora Farm:

**Submitted By:** Tammy Glave – Planning & Community Development

**Item Type:** Legislative

**Presenter of Item:** Laurie LoCicero

**Board Action:** Action

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**Brief Description of Agenda Item:**

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. PINs 0015000085B0000, 0015000085C, 0015000085A0000, Moyock Township.

**Planning Board Vote:**

**Planning Board Recommendation:**

**Staff Recommendation:** Denial

**TRC Recommendation:** Denial



**STAFF REPORT  
PB 19-20 FLORA FARM  
REZONING  
PLANNED DEVELOPMENT-  
RESIDENTIAL  
PLANNING BOARD  
JUNE 9, 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 PB 3-10-20 (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)	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 *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 “established and intended 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**

	<b>Land Use</b>	<b>Zoning</b>
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.

**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.

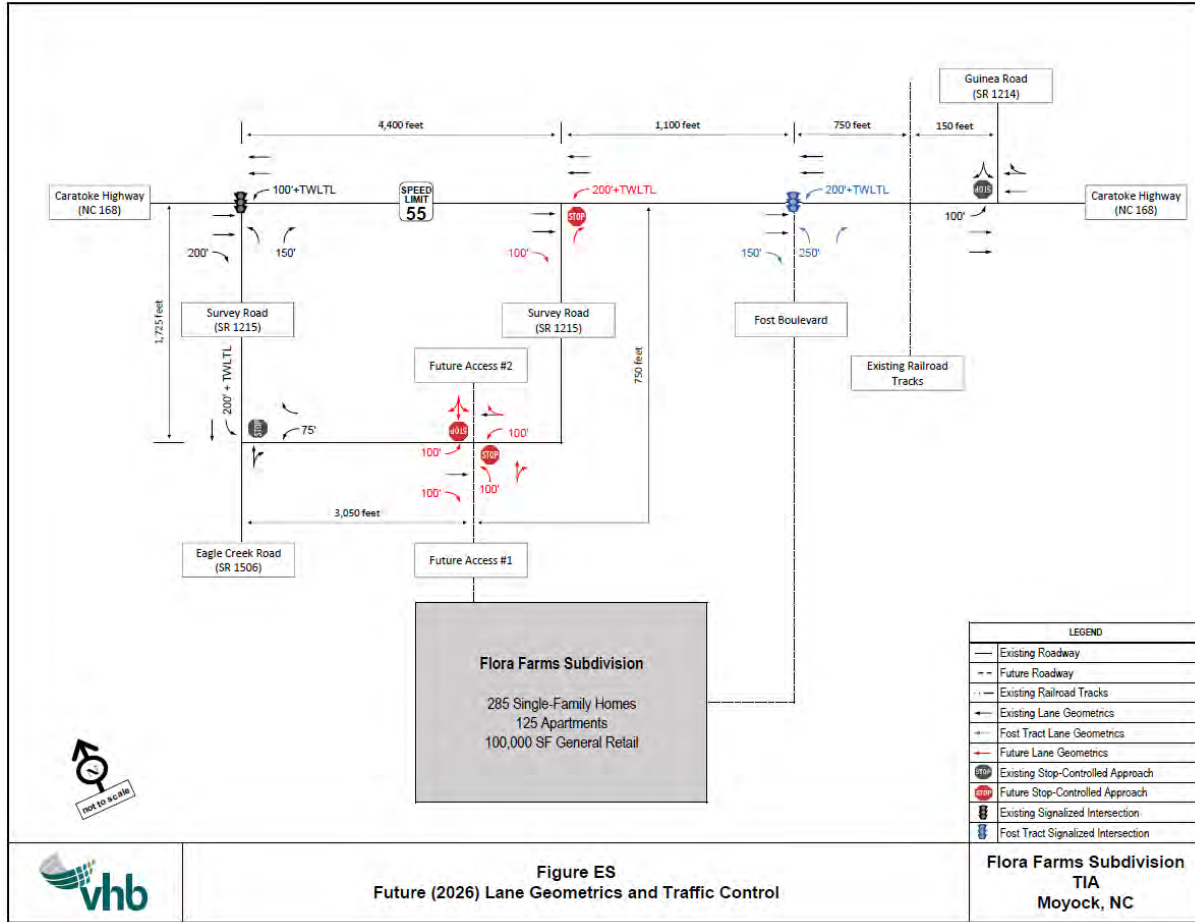
### Survey Road and Future Access #1/Future Access #2

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.

The development will be served by curb and gutter, lot line swales, and a series of BMPs throughout the development. With designated wetlands on the property, major drainage features traversing the site, high ground water table, low elevation, and the known drainage issues in the area, extra precaution must be made to ensure compliance with drainage regulations.

### Schools

On January 15, 2020 the Superintendent stated that a portion of the development is districted to Moyock Elementary School. At this time, the Board of Education has not changed the district boundary (see Attached School District map). 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 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. For the portion of the development districted to Moyock Elementary School, school capacity is not available *now* nor programmed to be in place in *two years*. 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	85%		103%	57
JP Knapp Early College				

<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

#### **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.
  - 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 and the traffic impacts must be considered to determine the adequacy of proposed improvements and safety of the travelling public, including pedestrians (school children).
- Currituck County School System has affirmed there is not adequate school capacity to service the 286 units proposed in the Moyock Elementary School District. The most recent information provided by the School System indicates there are no assurances that an elementary school will be in place or programmed to be in place within the next several years in the Moyock School District. The applicant indicates that “the completion schedule has been tentatively set for August 2023” for the school. At this time, there is not enough information to conclude when a school may be open for student attendance. There are currently too many variables to establish a projected time for elementary school completion. The state of adequate public facilities should be considered during a legislative decision and not only at the Use Permit stage. The Adequate Public Facilities Standards section of the UDO has been upheld by the court decision Tate Terrace Realty Investors v. Currituck County, 127 N.C App. 212, 488 S.E. 2d 845 (1997)
- 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.

## 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, 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.</li> <li>• The BOC must determine if lessening the Level of Service along Caratoke Highway during peak traffic times 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 zero school capacity exists according to the Currituck County Schools.</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 zero school capacity exists according to Currituck County Schools.</li> <li>The additional students (71) 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. Approving a PD-R rezoning to increase density will 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, 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):

- While the TIA includes Fost as a background development, it does not include Moyock Farms which is proposing 100% access through Fost.
- 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 made to maintain an equal LOS?
  2. 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. In accordance with LUP PP2, without adequate school capacity or school capacity programmed to be in place within two years from approval, the adequate public facilities ordinance (UDO Section 6.6) cannot be met and this project should be denied. The developer is proposing a phasing schedule that he claims will not allow dwelling units to 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 programmed to be in place in two years for the portion of the development districted to Moyock Elementary School. The developer is asking for approval of lots in the Moyock Elementary School district now that according to Currituck County School System, there is not adequate facilities to service. It is not recommended to give approval for future lots because at the time they are to go to record, even if the 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) The developer indicates that he cannot provide the timing of the school site because site selection has not been finalized. A remedy is to hold PD-R request until the school makes site selection so the developer will know what the entire project will be. If the Board of Education does not purchase the property and site the school in this location, will the property remain reserved as a school site?
  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. The county attorney needs additional time to investigate this topic.
    - 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:

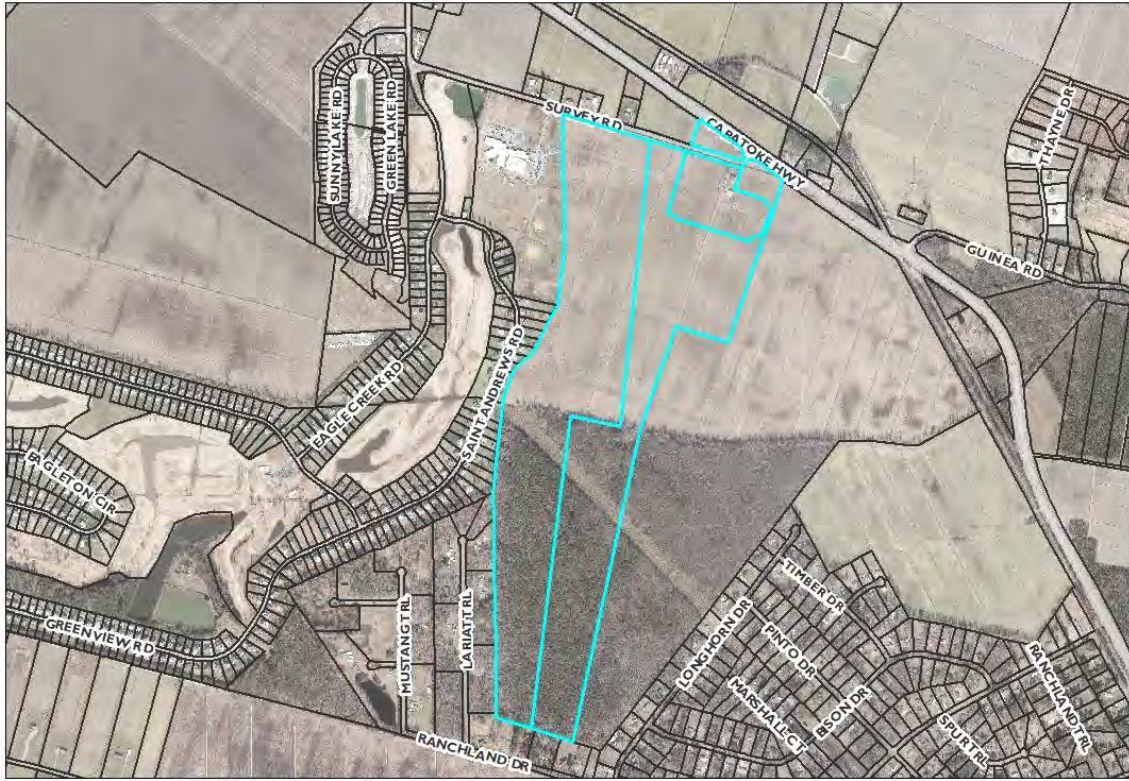
1. It is not consistent with the goals, objectives, and policies of the Land Use Plan, other applicable county-adopted plans, and the purpose of the UDO.
  - See above where the development is determined to inconsistent with LUP Policies HN1, TR2, SF3, SF4, PP2, and Moyock Small Area Plan TR1.
    - 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)

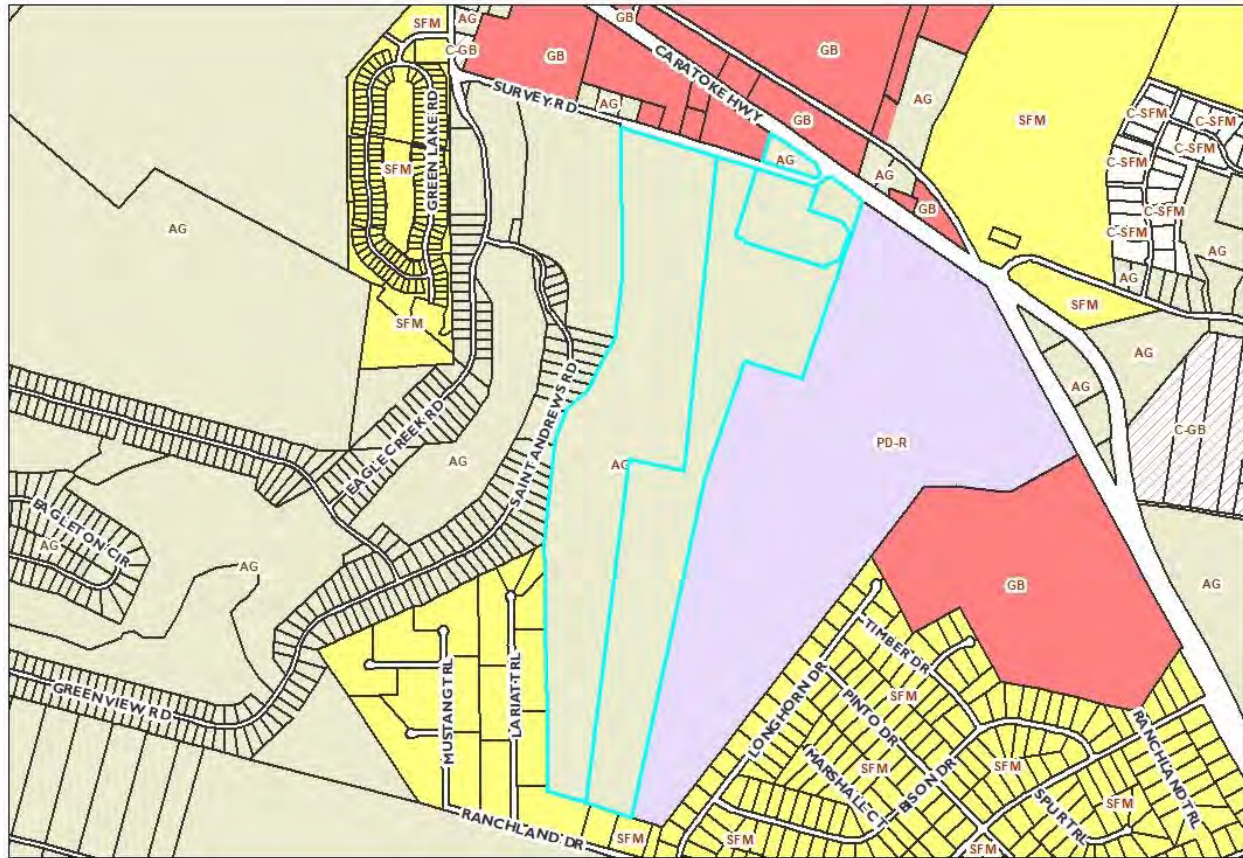




**PB 19-20 Flora Farm**  
**Aerial Photography (2016)**

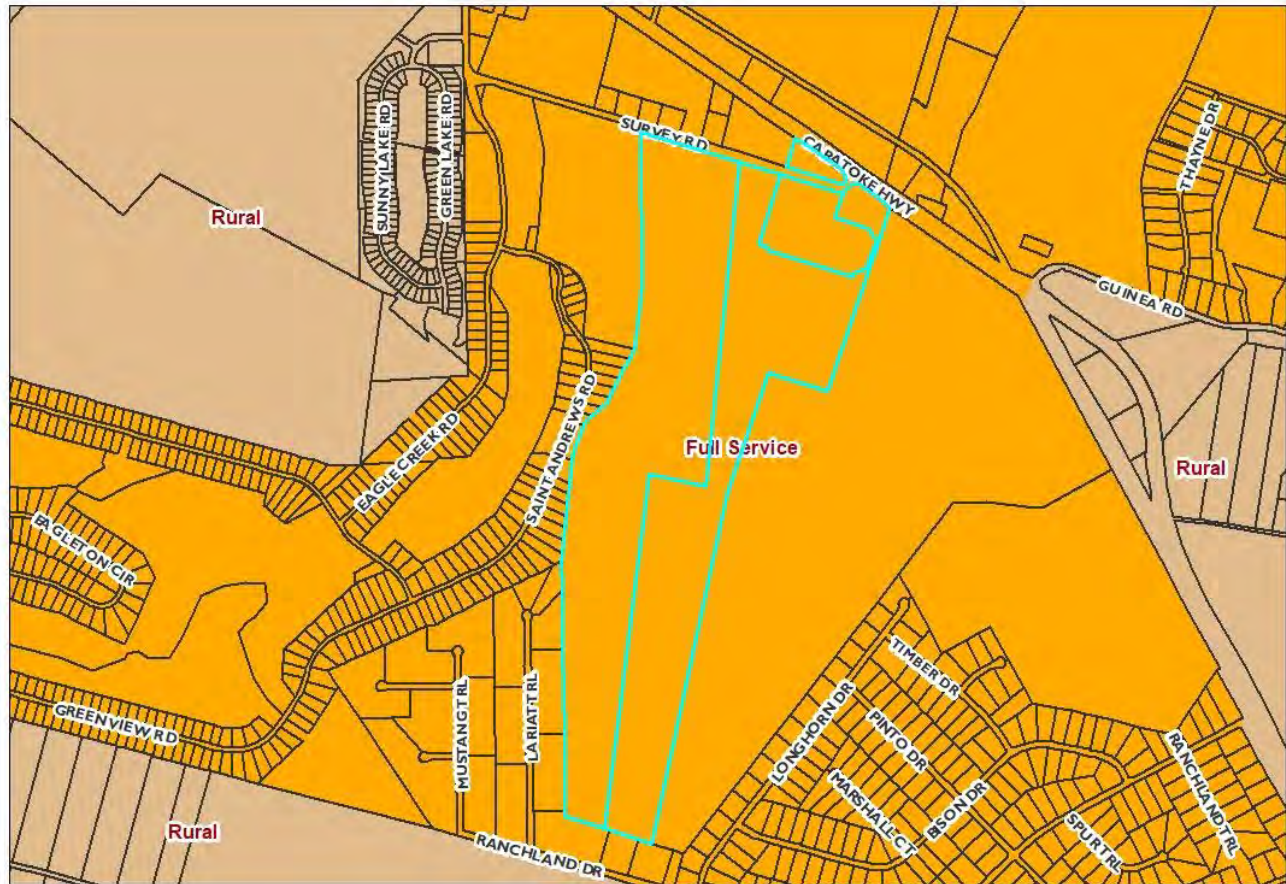






**PB 19-20 Flora Farm  
Zoning Base Districts**

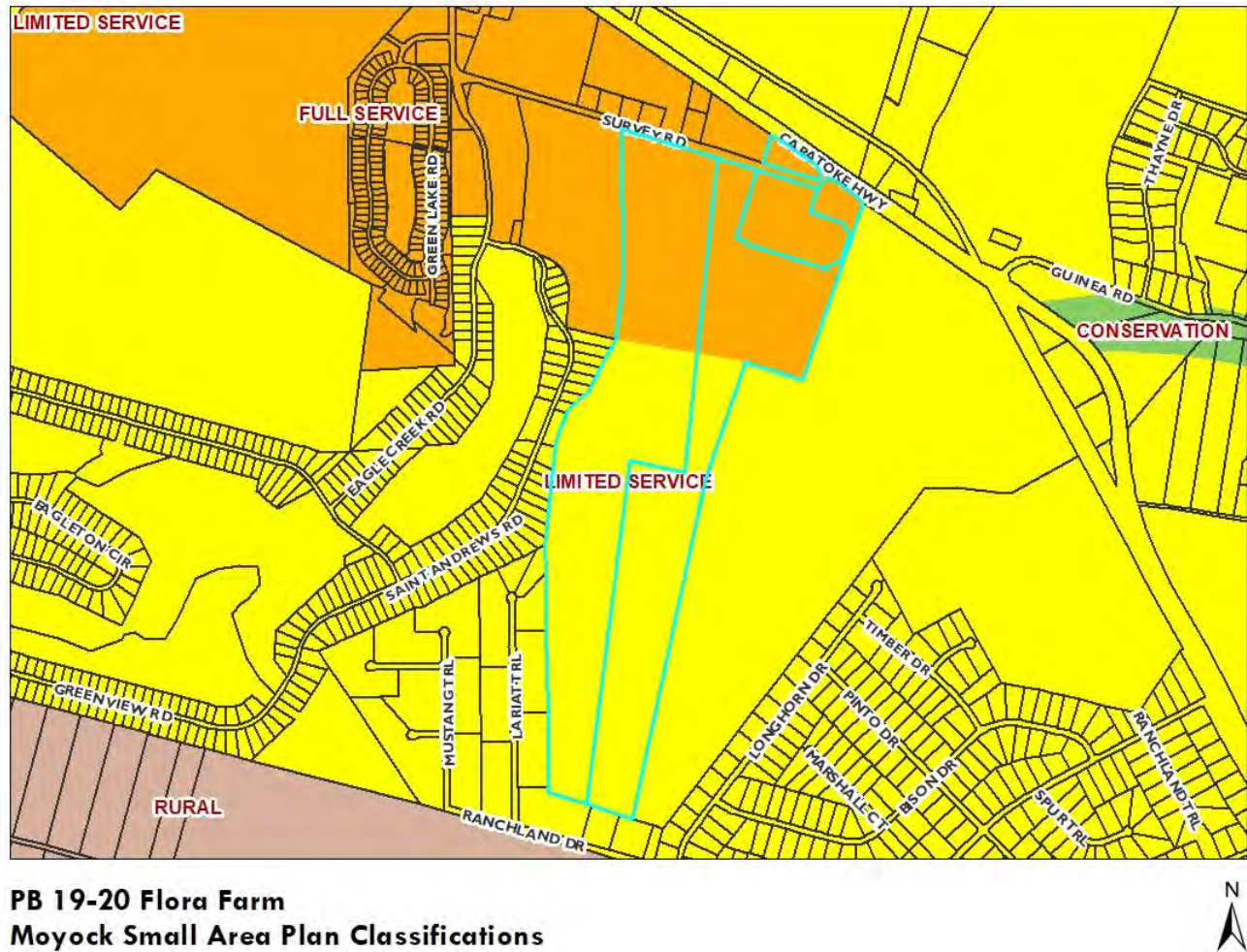




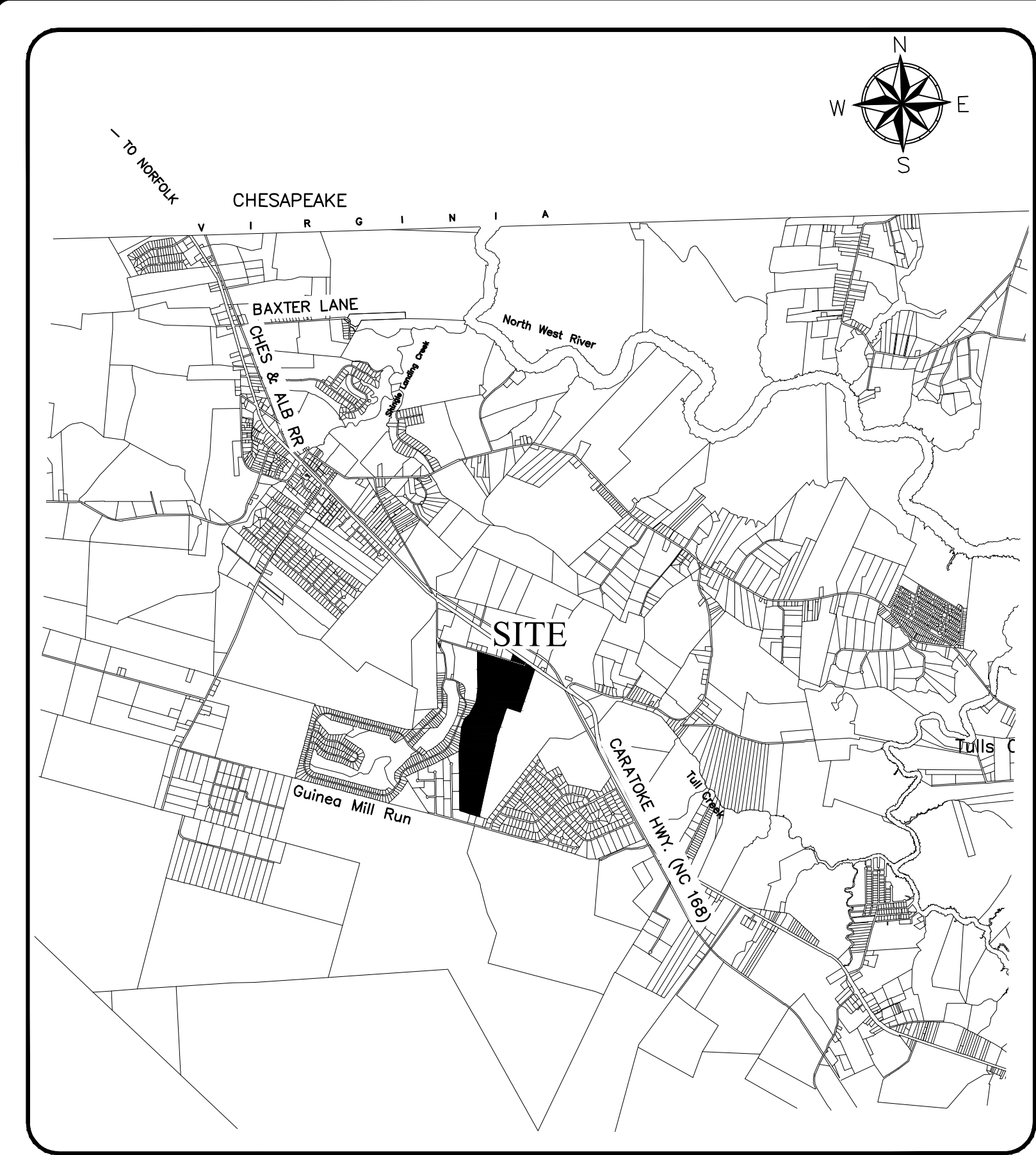
**PB 19-20 Flora Farm  
2006 Land Use Plan Classifications**







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



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
- REVISIONS

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

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

PROJECT:

FLORA FARM PD-R SUBDIVISION

MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

COVER SHEET, DEVELOPMENT NOTES & SITE LOCATION

PRELIMINARY FOR REVIEW PURPOSES ONLY

PROFESSIONAL GROUP

Engineers, Planners, Surveyors and Environmental Specialists

Bissell Professional Group

Firm License # C-565

10000 Highway 101 North

P.O. Box 108

City of Cape Fear, North Carolina 27449

Phone: (336) 281-1760

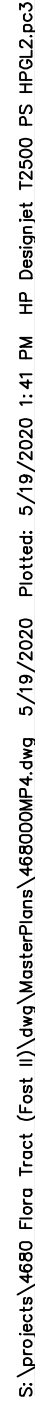
FAX: (336) 281-1760

3.C.b

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

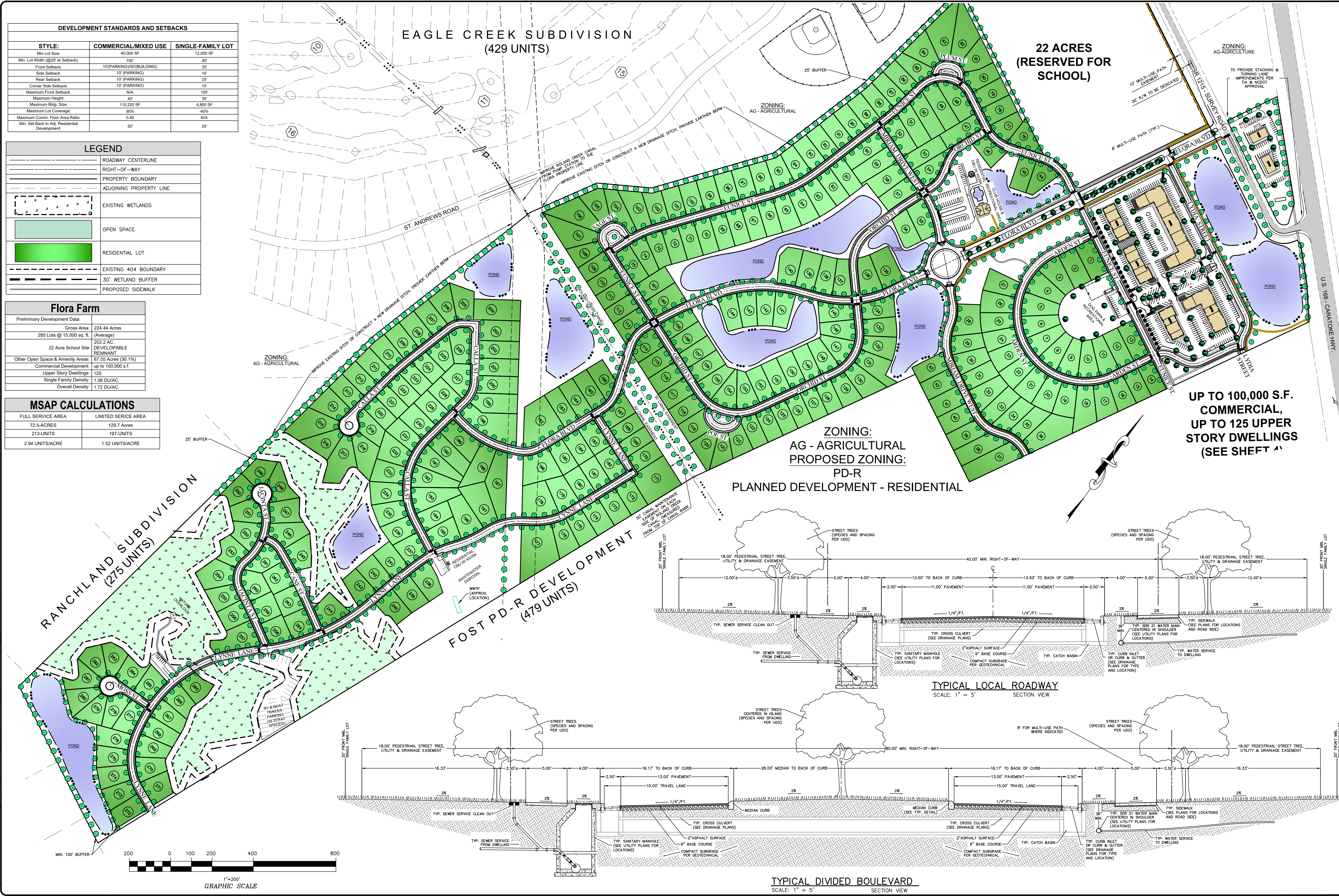
Packet Pg. 67





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





DEVELOPMENT STANDARDS AND SETBACKS		
STYLE:	COMMERCIAL/MIXED USE	SINGLE-FAMILY LOT
Min. Lot Size:	40,000 SF	12,000 SF
Min. Lot Width (@20' at 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)	10'
Maximum Front Setback:	N/A	100'
Maximum Height:	42'	35'
Maximum Bldg. Size:	110,220 SF	4,800 SF
Maximum Lot Coverage:	95%	40%
Maximum Comm. Floor Area Ratio:	0.40	N/A
Min. Set Back to Adj. Residential Development:	50'	25'

LEGEND	
	ROADWAY CENTERLINE
	RIGHT-OF-WAY
	PROPERTY BOUNDARY
	ADJOINING PROPERTY LINE
	EXISTING WETLANDS
	OPEN SPACE
	RESIDENTIAL LOT
	EXISTING 404 BOUNDARY
	30' WETLAND BUFFER
	PROPOSED SIDEWALK

Flora Farm	
Preliminary Development Data:	
Gross Area:	224.44 Acres
285 Lots @ 15,000 sq. ft. (Average)	
22 Acre School Site	202.2 AC.
Other Open Space & Amenity Areas:	67.55 Acres (30.1%)
Commercial Development:	up to 100,000 s.f.
Upper Story Dwellings:	125
Single Family Density:	1.38 DU/AC.
Overall Density:	1.72 DU/AC.

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

**BISSELL**  
Professional Group  
P.O. Box 108  
Kitty Hawk, North Carolina 27949  
Tel: (252) 281-1760  
Fax: (252) 281-1760

**PRELIMINARY MASTER PLAN - OVERALL**

THIS PLAN IS THE SCALE PRELIMINARY PLAN. IT IS NOT TO BE USED FOR THE CONSTRUCTION OF ANY PART OF THE PROJECT. THE FINAL DESIGN SHALL BE THE RESULT OF THE FINAL DESIGN AND SHALL BE THE PROPERTY OF BISSELL PROFESSIONAL GROUP.

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

**PRELIMINARY MASTER PLAN**

NO.	DATE	DESCRIPTION	BY	CHKD.
1	01/23/20	Address: TBC. Comments	MSB	
2	05/19/20	Address: Additional staff comments	MSB	

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

DESIGNED: MSB CHECKED: MSB

DRAWN: KFW.WGY APPROVED: BPG

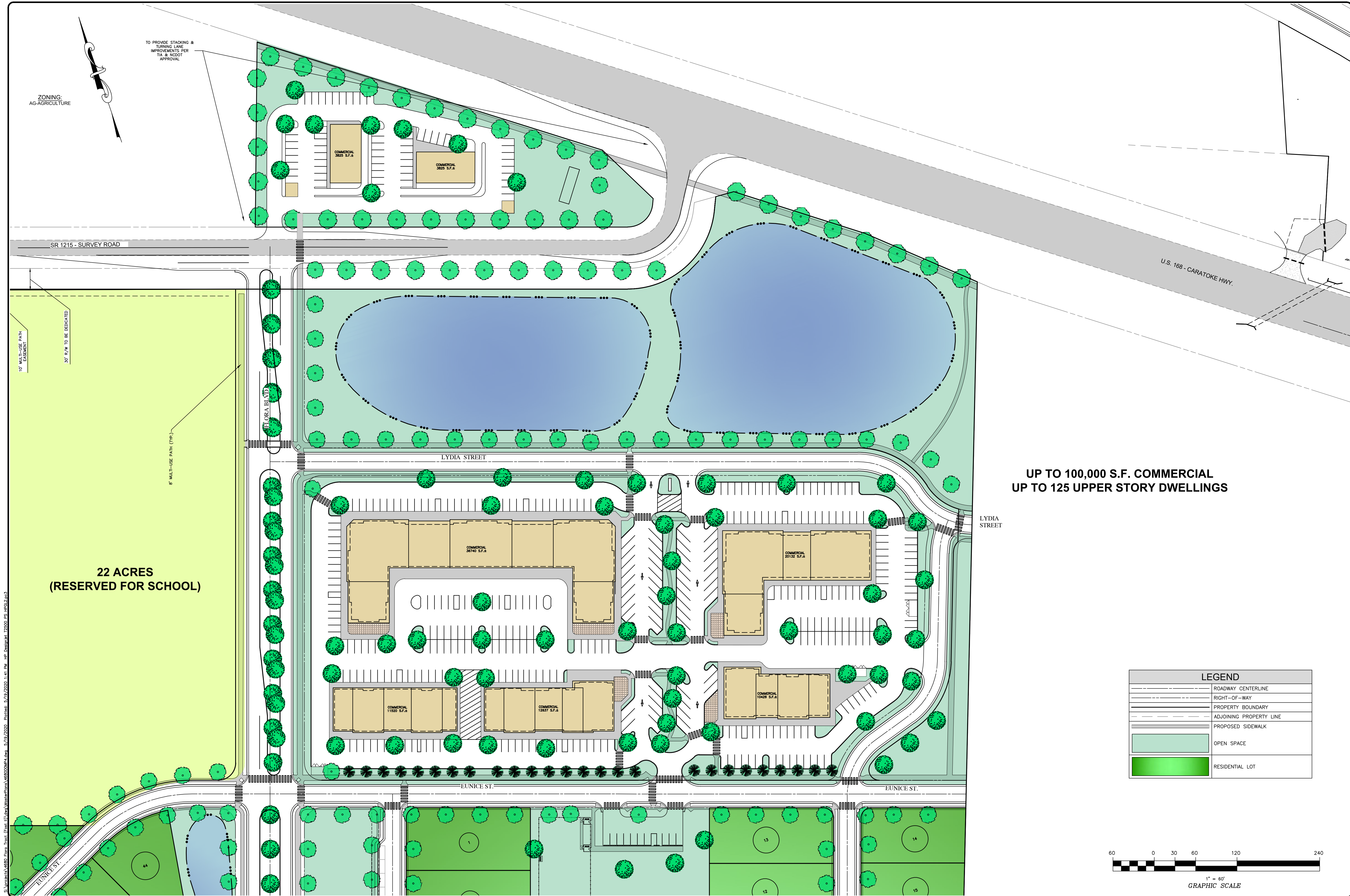
SHEET: 3 OF 7

CAD FILE: 468000MP4

PROJECT NO: 4680

**PRELIMINARY FOR REVIEW PURPOSES ONLY**





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3.C.b

REVISIONS

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

DATE: 01/23/20

DESIGNED: MSB

DRAWN: KFW.WGY

SHEET: 4

SCALE: 1" = 60'

CHECKED: MSB

APPROVED: BPG

OF 7

CAD FILE: 468000MP4

PROJECT NO: 4680

PRELIMINARY  
FOR REVIEW  
PURPOSES ONLY

FLORA FARM PD-R SUBDIVISION

MOYOCK TOWNSHIP

CURRITUCK COUNTY

NORTH CAROLINA

PRELIMINARY  
PLAN - COMMERCIAL

THIS DRAWING IS THE SOLE PROPERTY OF BISSSELL, INC. IN THE CITY OF HAWAII. NO PART OF THIS DRAWING IS 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 BISSSELL, INC. A PROFESSIONAL CORPORATION.

Bissell Professional Group

Firm License # C-965

2000 Kalia Road, Suite 100

P.O. Box 1008

Honolulu, Hawaii 96806

City & State, Zip

FAX (202) 281-1760

**BISSSELL**

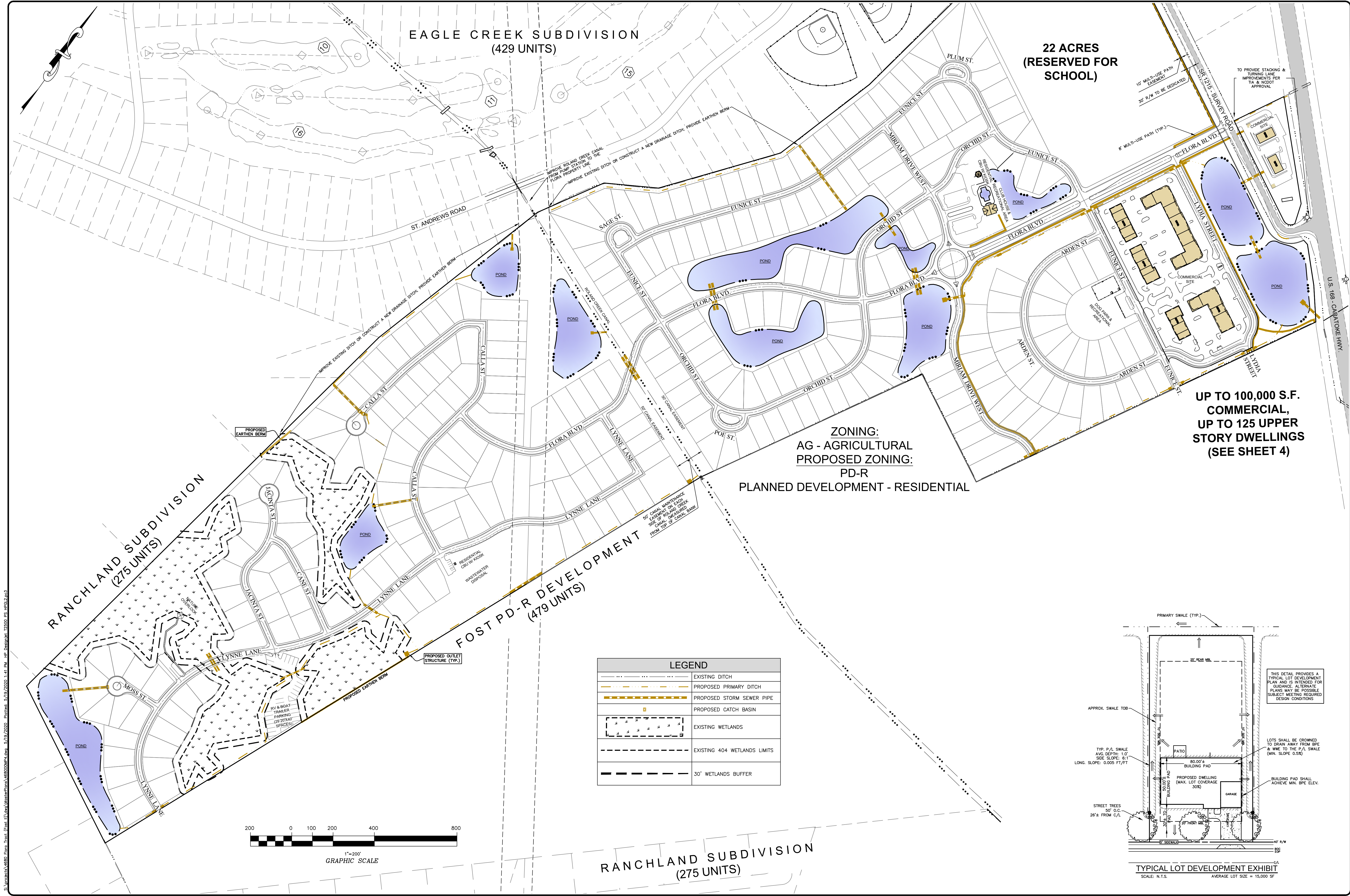
PROFESSIONAL GROUP

Engineers, Planners, Surveyors  
and Environmental Specialists

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

Packet Pg. 70





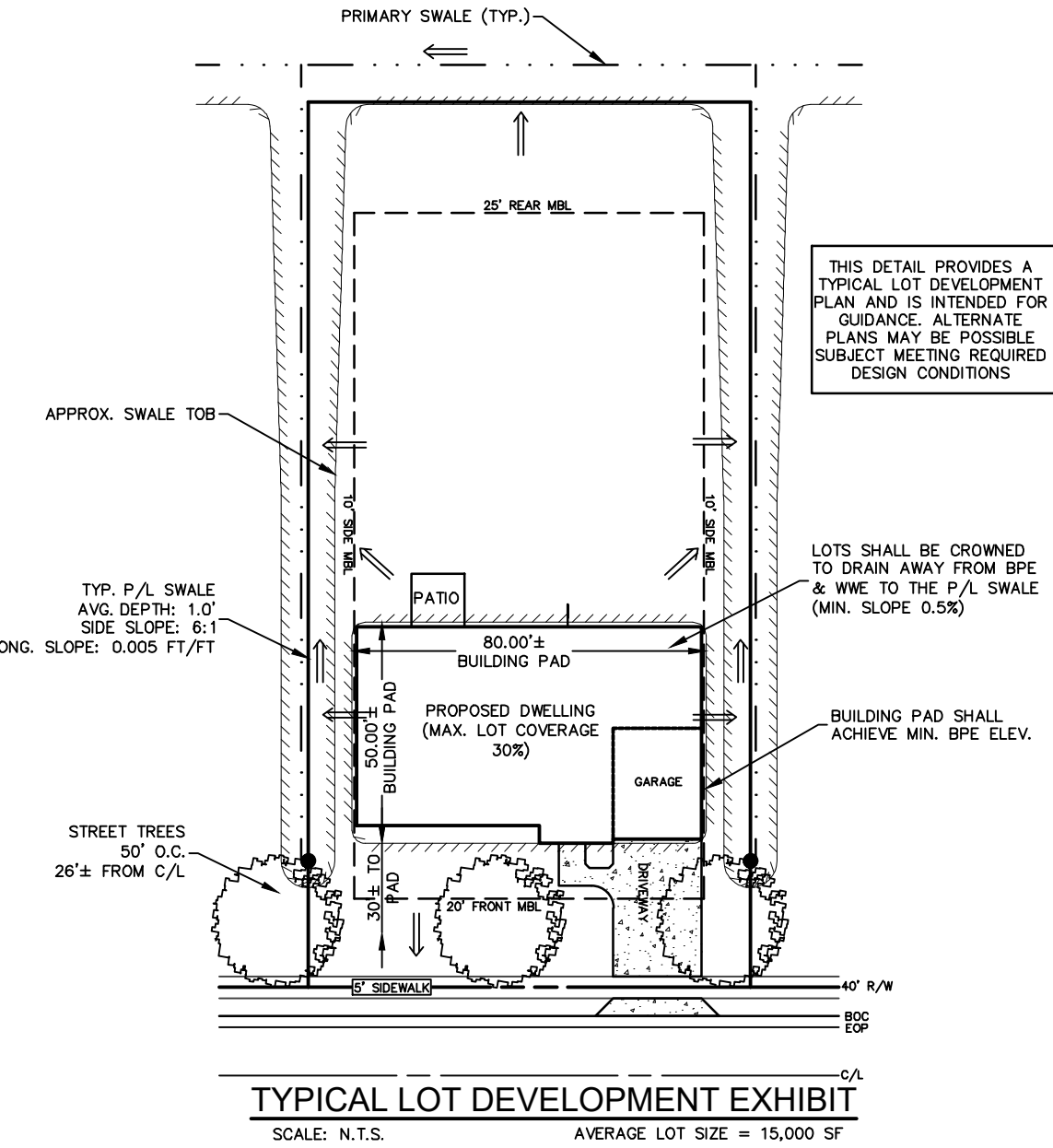
RANCHLAND SUBDIVISION  
(275 UNITS)

ZONING:  
AG - AGRICULTURAL  
PROPOSED ZONING:  
PD-R  
PLANNED DEVELOPMENT - RESIDENTIAL

UP TO 100,000 S.F.  
COMMERCIAL,  
UP TO 125 UPPER  
STORY DWELLINGS  
(SEE SHEET 4)

22 ACRES  
(RESERVED FOR  
SCHOOL)

LEGEND	
	EXISTING DITCH
	PROPOSED PRIMARY DITCH
	PROPOSED STORM SEWER PIPE
	PROPOSED CATCH BASIN
	EXISTING WETLANDS
	EXISTING 404 WETLANDS LIMITS
	30' WETLANDS BUFFER



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Tel: (252) 281-1760  
Fax: (252) 281-1760

**BISSELL**  
PROFESSIONAL GROUP

Engineers, Planners, Surveyors  
and Environmental Specialists

PRELIMINARY STORMWATER  
MANAGEMENT PLAN

FLORA FARM PD-R SUBDIVISION

MOYOCK TOWNSHIP  
CURRITUCK COUNTY  
NORTH CAROLINA

PRELIMINARY MASTER PLAN

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

DATE: 01/23/20  
DESIGNED: MSB  
DRAWN: KFW:WGY  
SHEET: 5 OF 7

SCALE: 1" = 200'

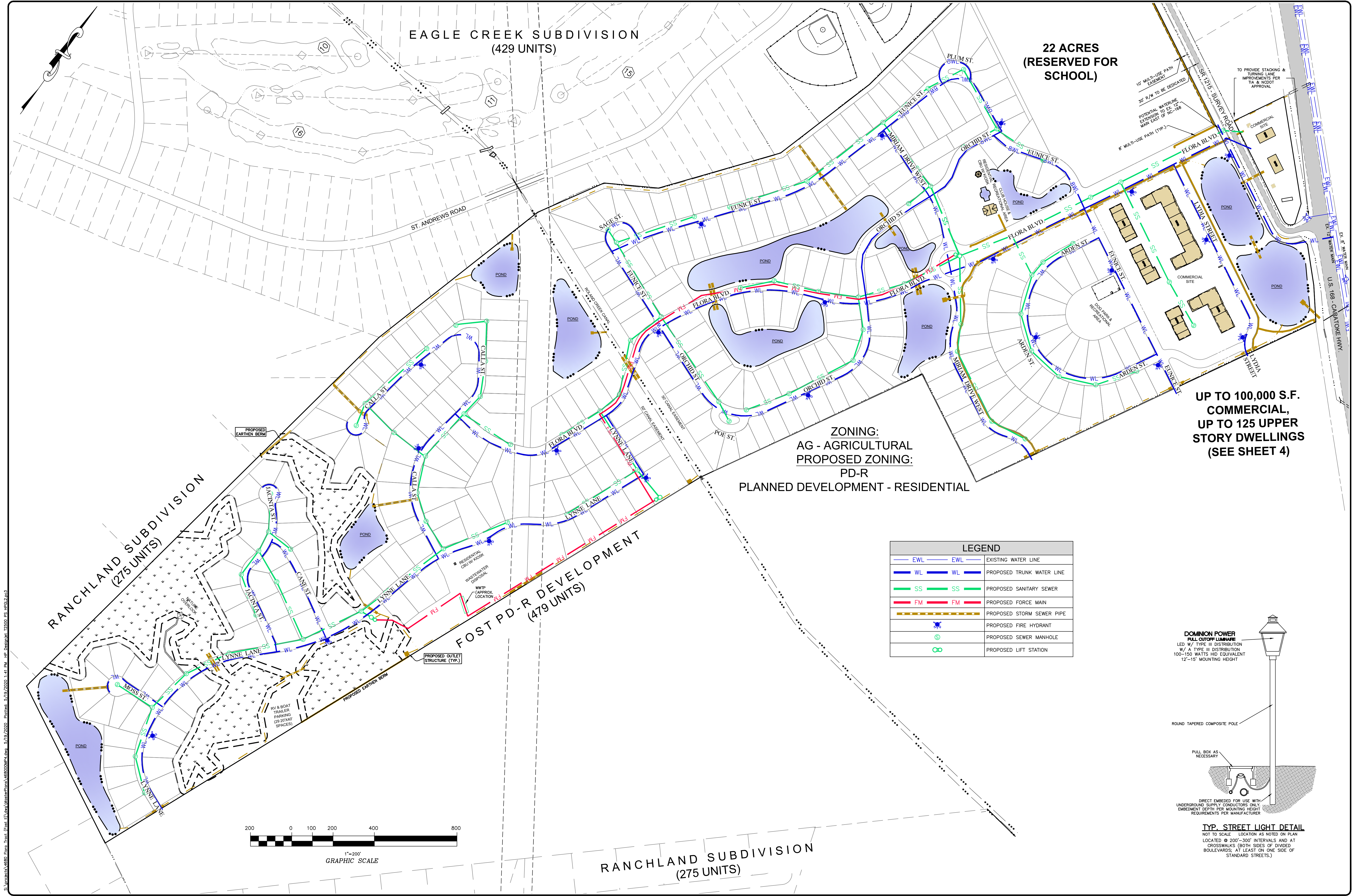
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APPROVED: BPG

CAD FILE: 468000MP4  
PROJECT NO: 4680

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

Packet Pg. 71





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Bissell Professional Group  
Firm License # C-955  
P.O. Box 1068  
Cary, NC 27513  
Phone: (919) 232-1760  
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

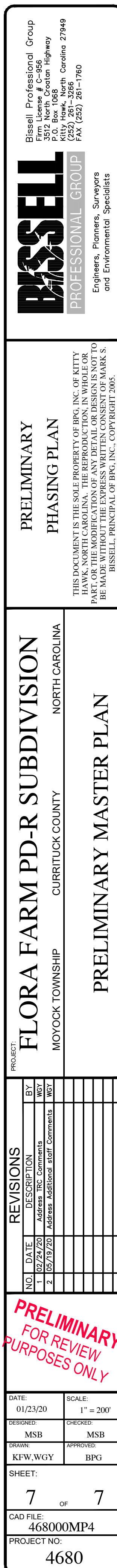
**PRELIMINARY MASTER PLAN**

NO.	DATE	DESCRIPTION	BY	WFO
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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: 6 OF 7  
CAD FILE: 4680000MP4  
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
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Max. Comm. Floor Area Ration:	0.40	
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SHEDULE B						
PHASING SCHEDULE						
RESIDENTIAL						
PHASE	OPEN SPACE (AC.)	UNITS	ESTIMATED FINAL PLAT RECORDING DATE	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	OTHER IMPROVEMENTS
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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
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			22.2ac. (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

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Bissell Professional Group  
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PO Box 1068  
Kitty Hawk, NC 27949

## PREPARED BY

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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:

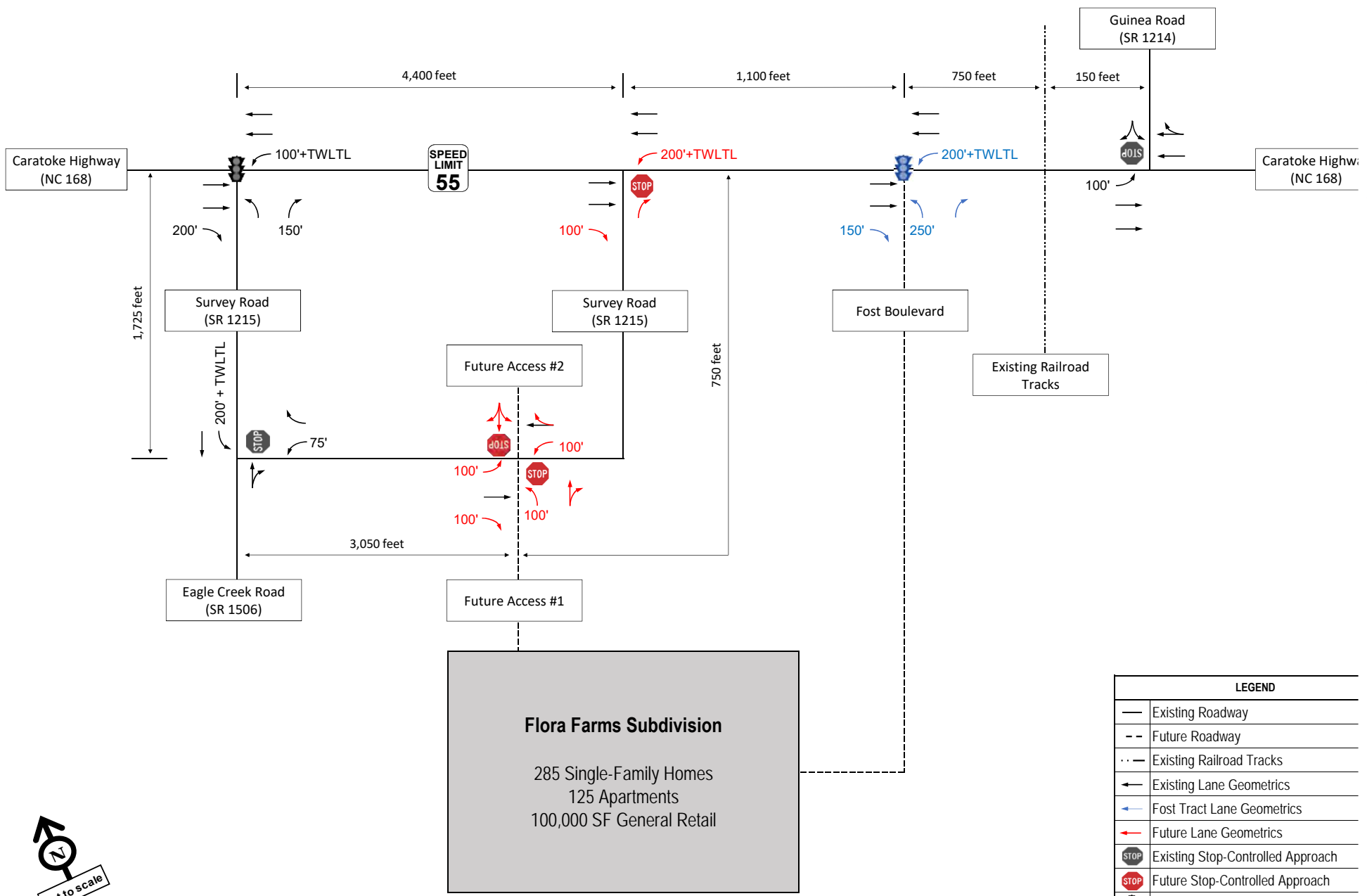
- › Connect both driveways to Survey Road with stop-controlled approaches as a full movement four-leg intersection.
- › Construct Future Access #1 with one ingress lane and two egress lanes. Provide a northbound left-turn lane with a minimum of 100 feet of full storage and appropriate taper and a through/right-turn 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



**Flora Farms Subdivision**

285 Single-Family Homes  
125 Apartments  
100,000 SF General Retail

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

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

**Flora Farms Subdivision**

**TIA**



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

**Appendix C: Intersection Capacity Analysis**

**Appendix D: Background Development**

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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).

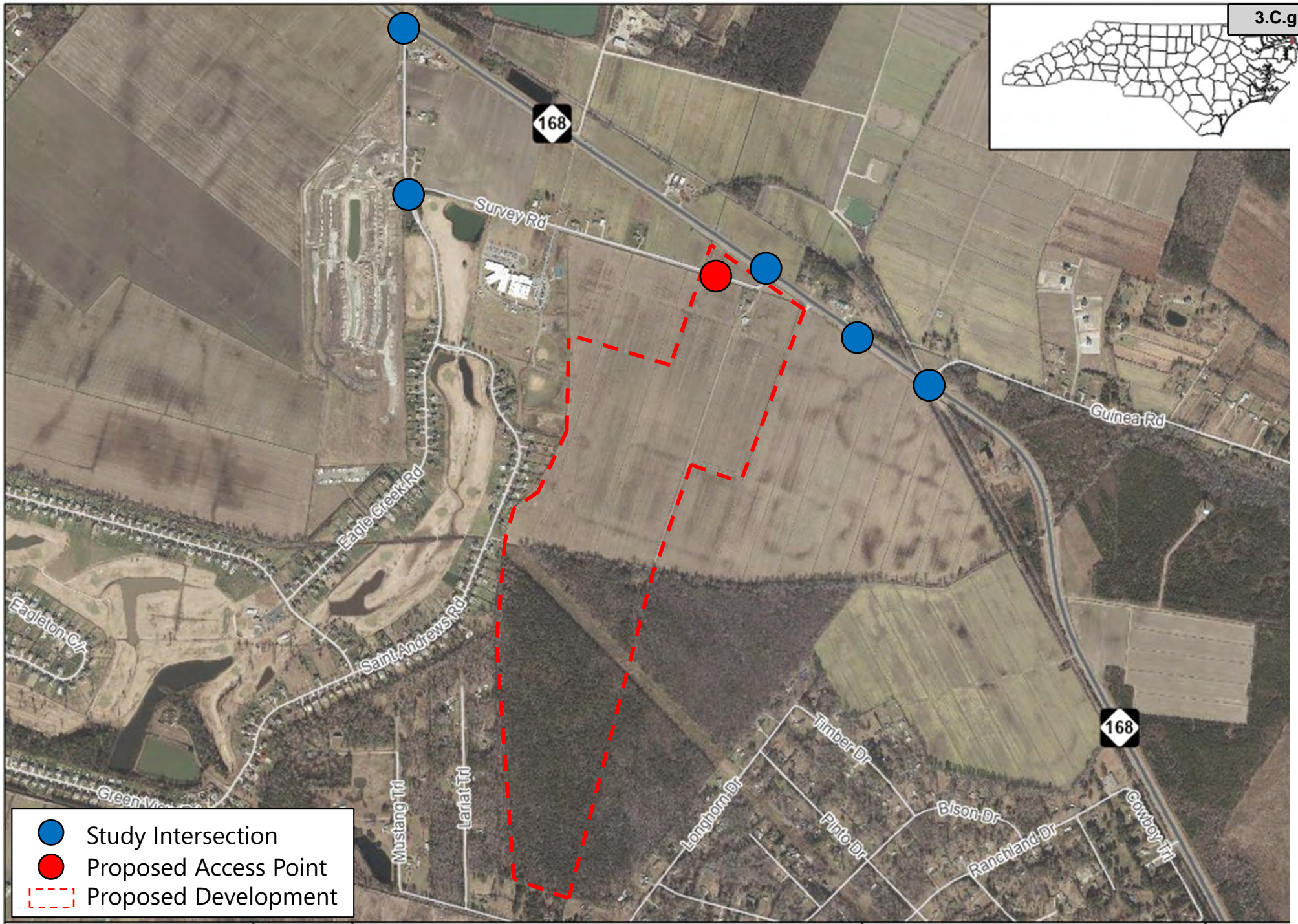
A total of four (4) cross-connections are currently planned between the proposed Flora Farms Subdivision and the future Fost Tract Development.

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.





- Study Intersection
- Proposed Access Point
- Proposed Development

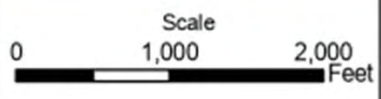


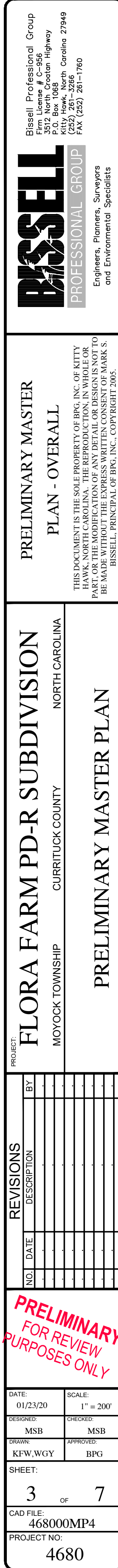
Figure 1:  
Vicinity Map

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.

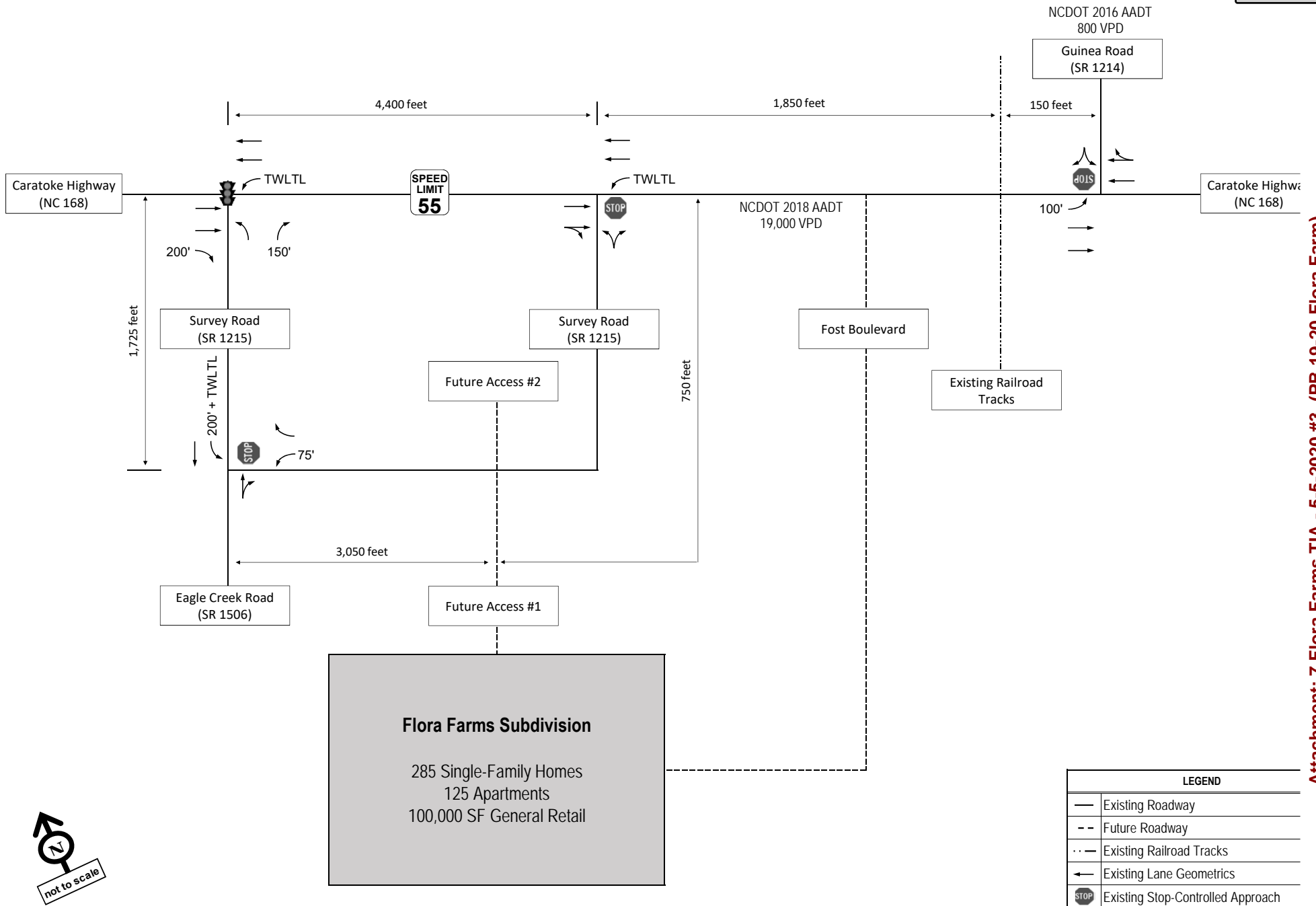
**Survey Road (SR 1215)**

- › 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.



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

**Figure 3**  
**Existing (2019) Lane Geometrics and Traffic Control**





## 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.

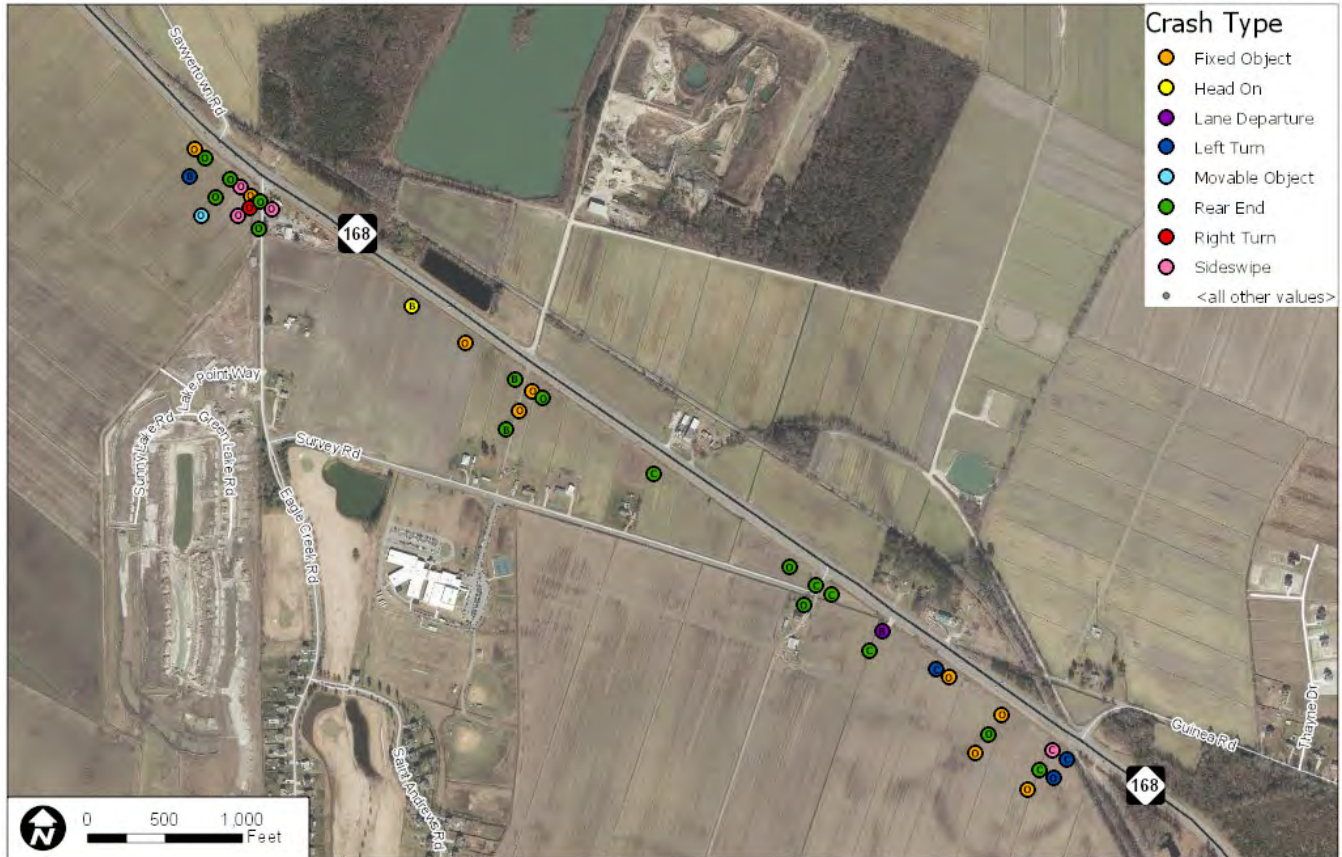
**Table 1 Weekday Peak Hour Turning Movement Count Schedule**

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.

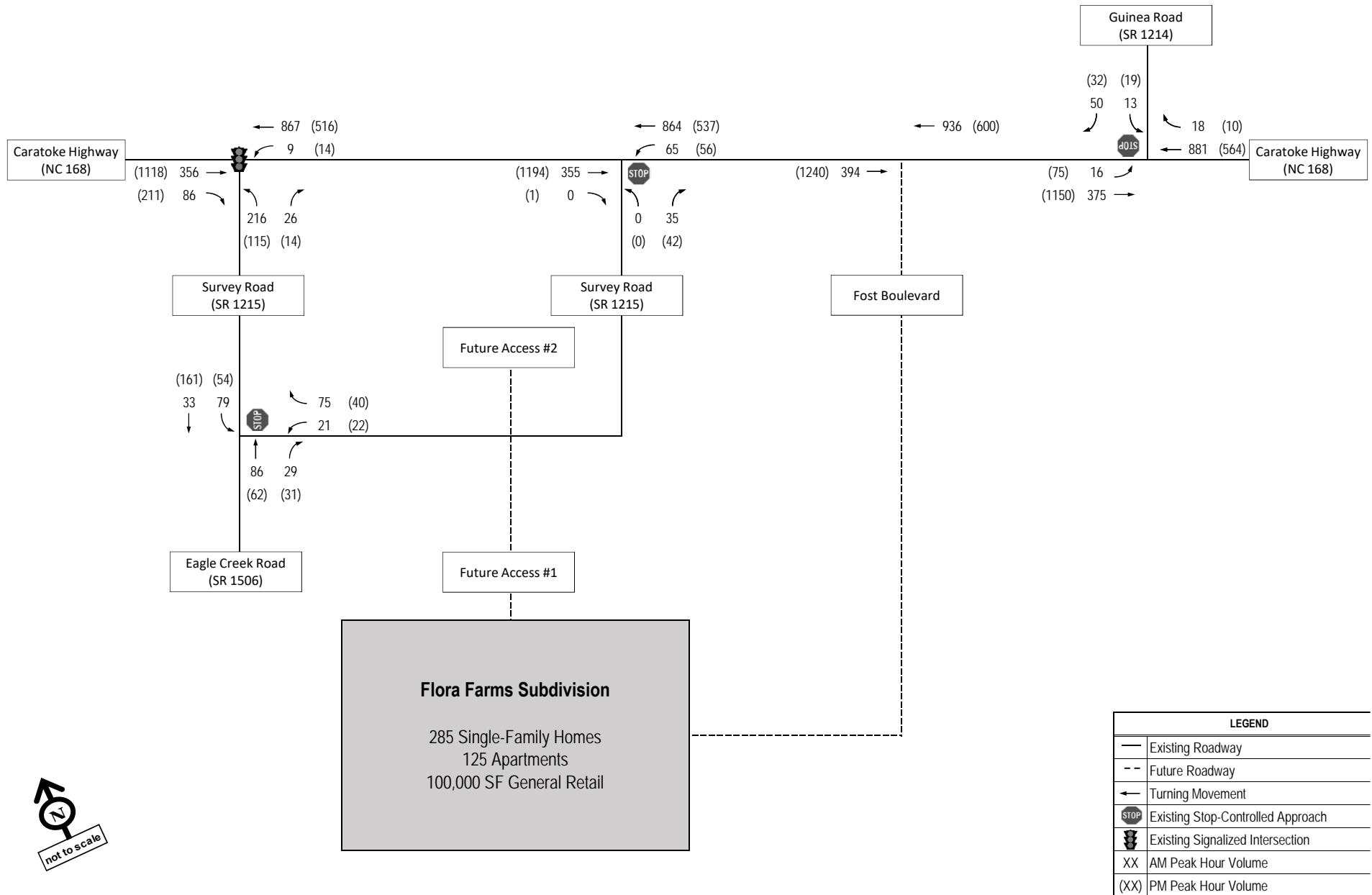
As reported in Table 3, all stop-controlled and signalized approaches operate at an acceptable level of service (i.e., LOS D or better) during both peak hours.

**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)



# 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.

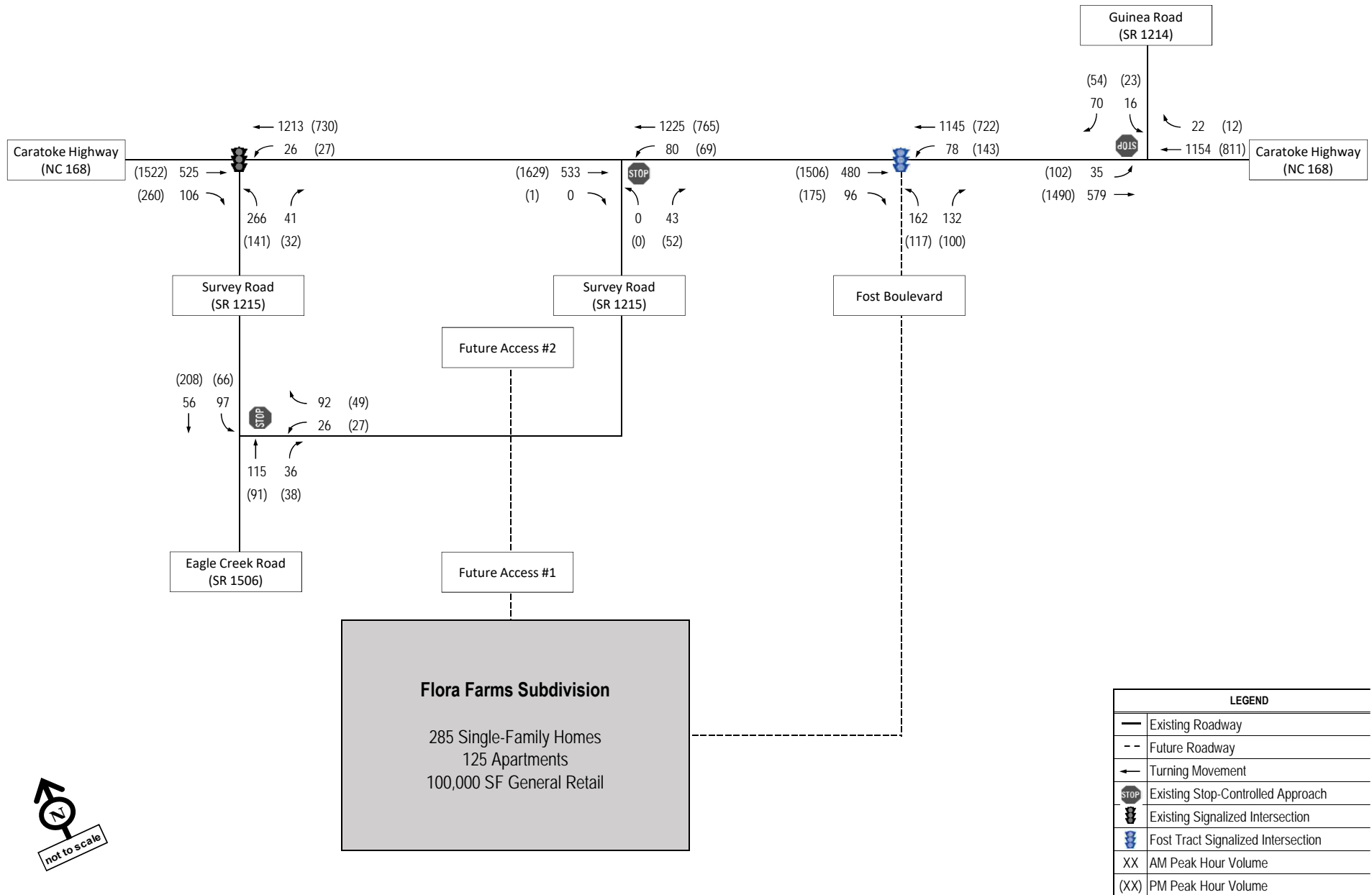
As reported in Table 4, all stop-controlled and signalized approaches continue to operate acceptably during both peak hours. The proposed signalized intersection of Caratoke Highway (NC 168) and Fost Boulevard operates at LOS B during both peak hours.

**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



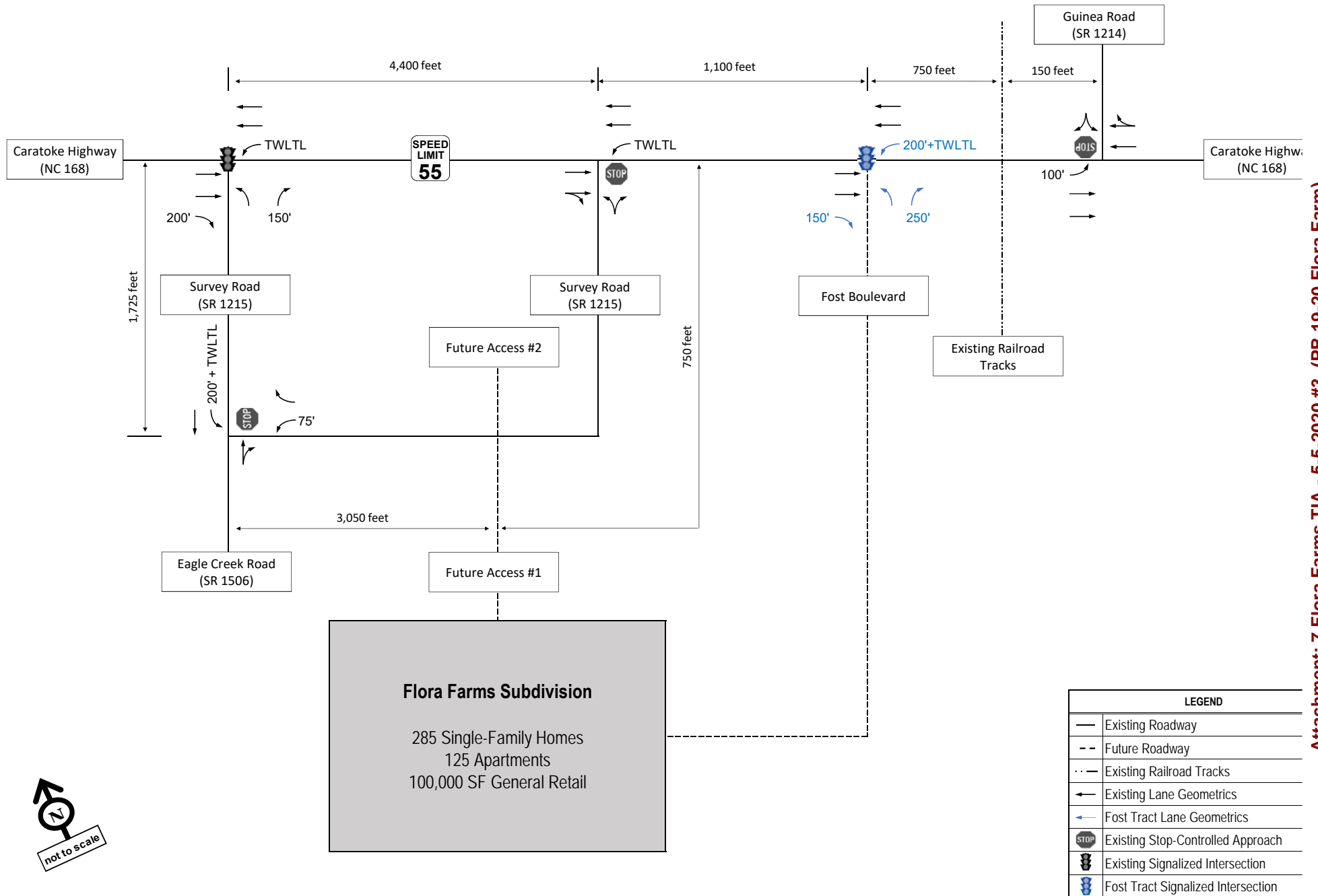


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



**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.

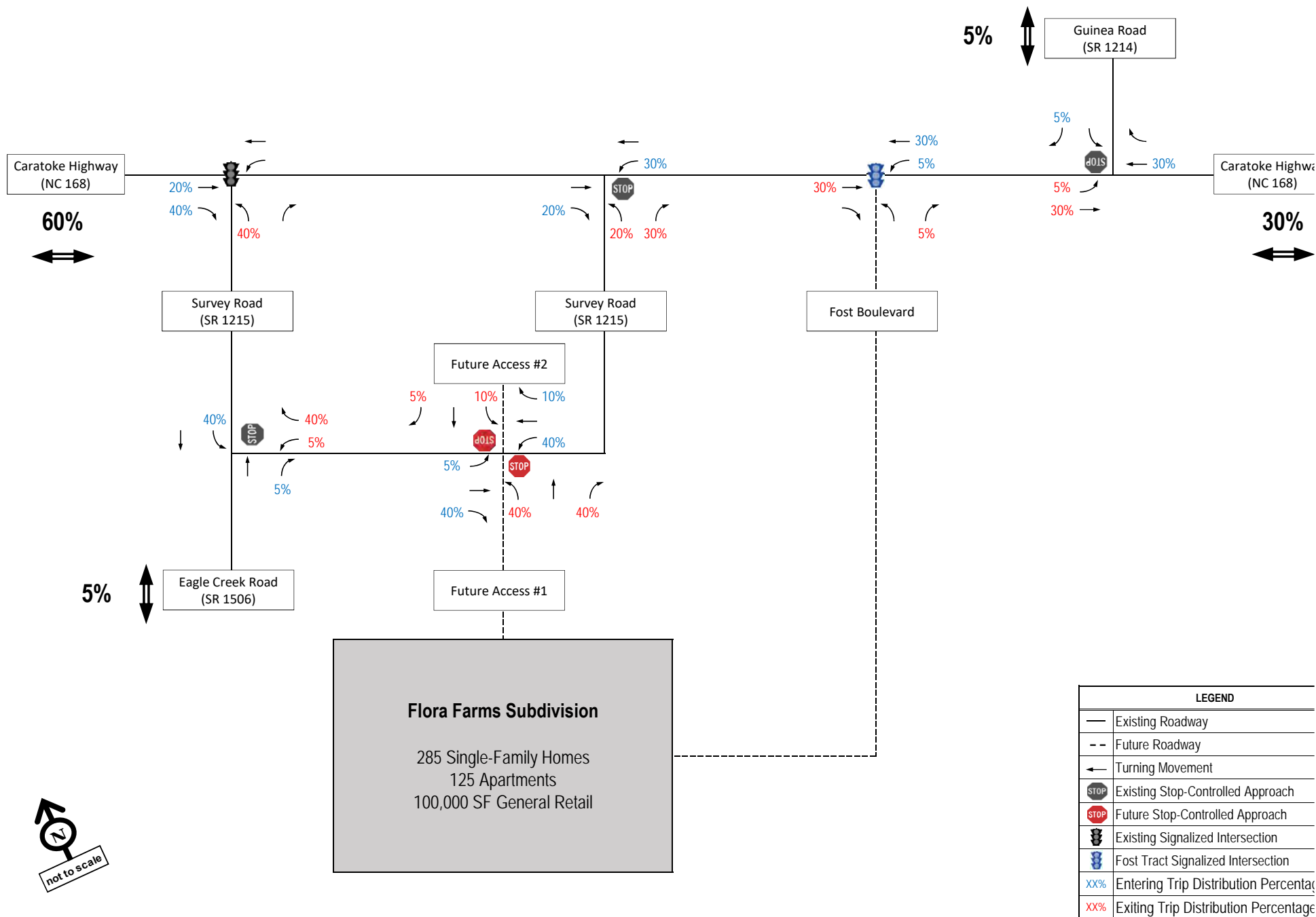
## Trip Distribution and Assignment

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.

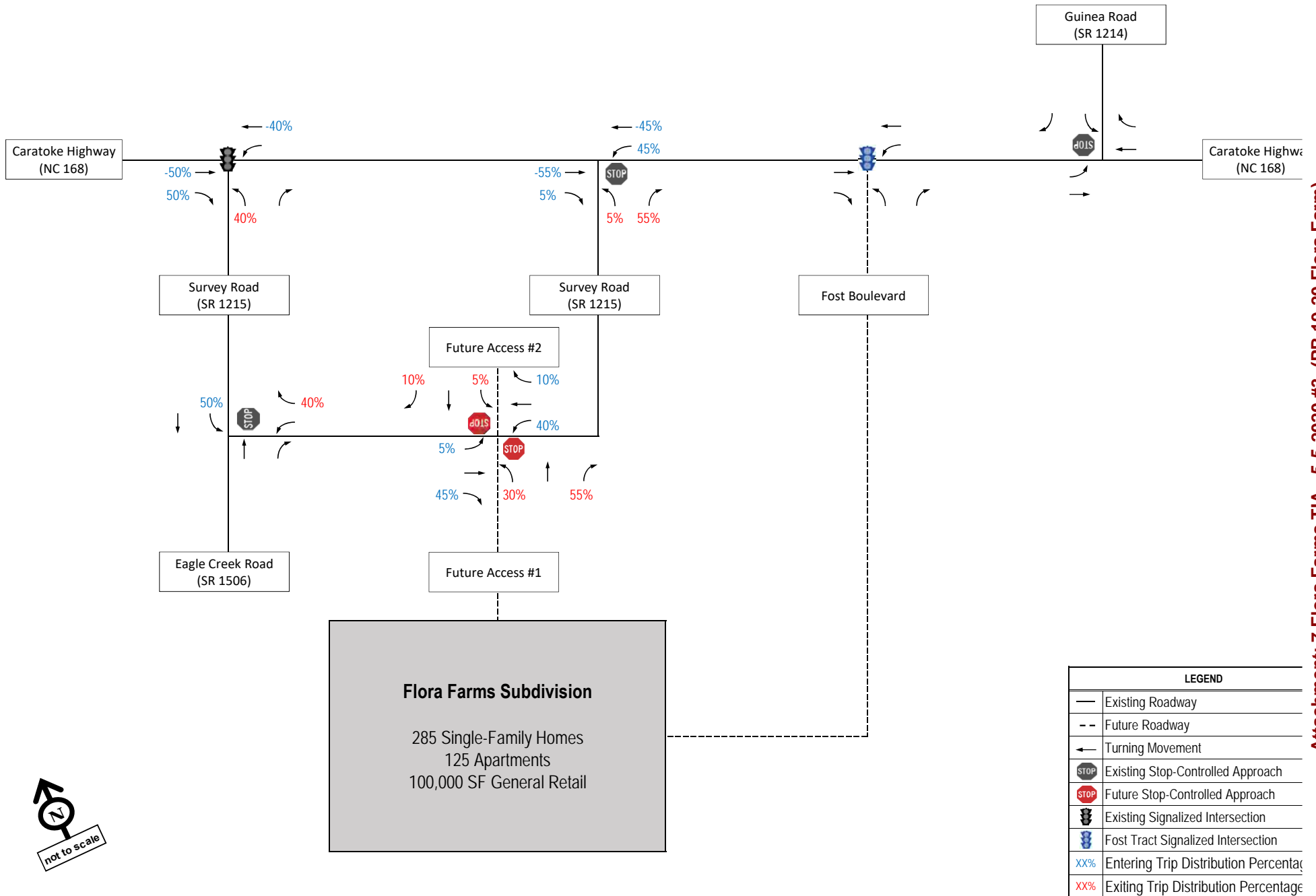


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

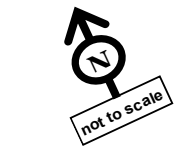


**Figure 7**  
**Non-Pass-By Peak Hour Trip Distribution Percentages**

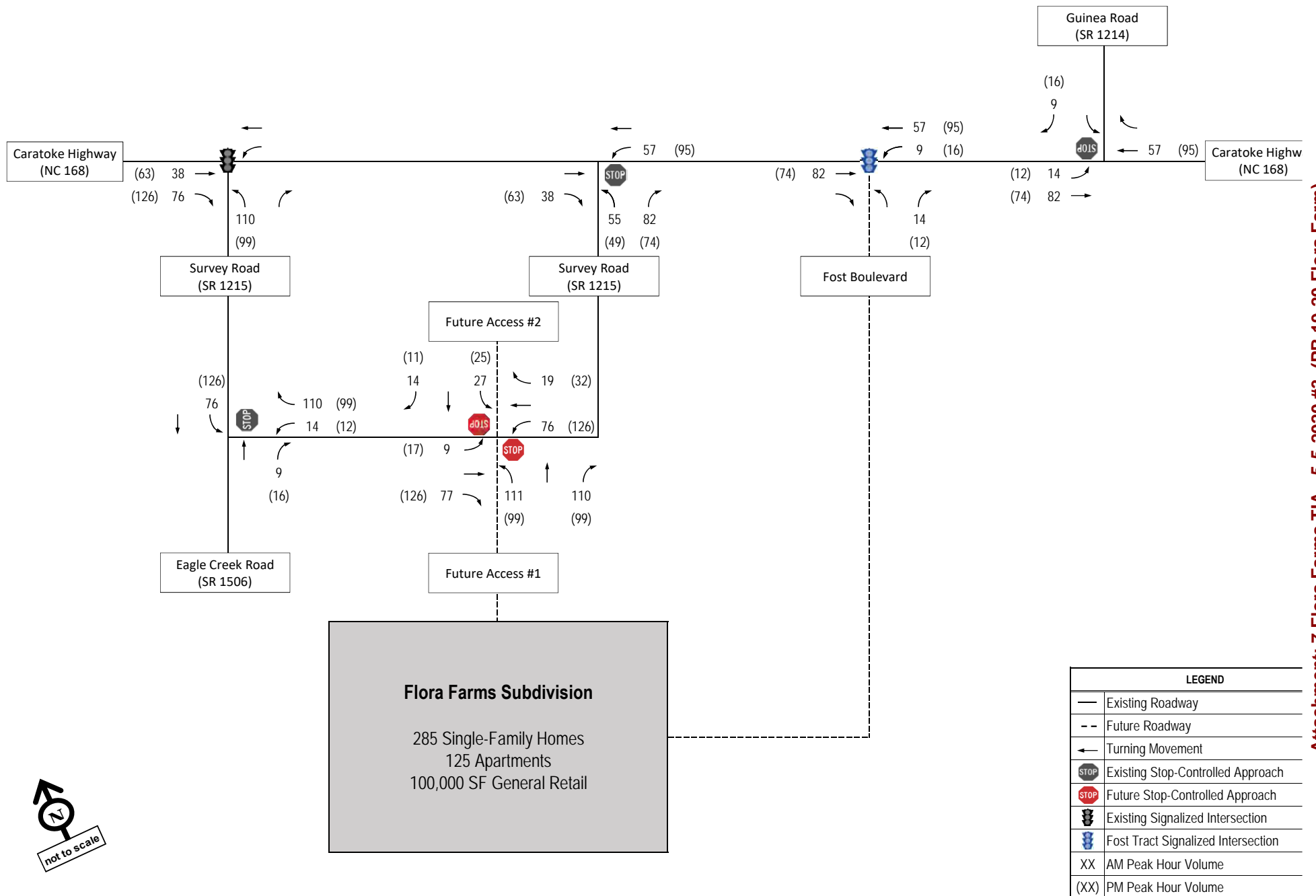




Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



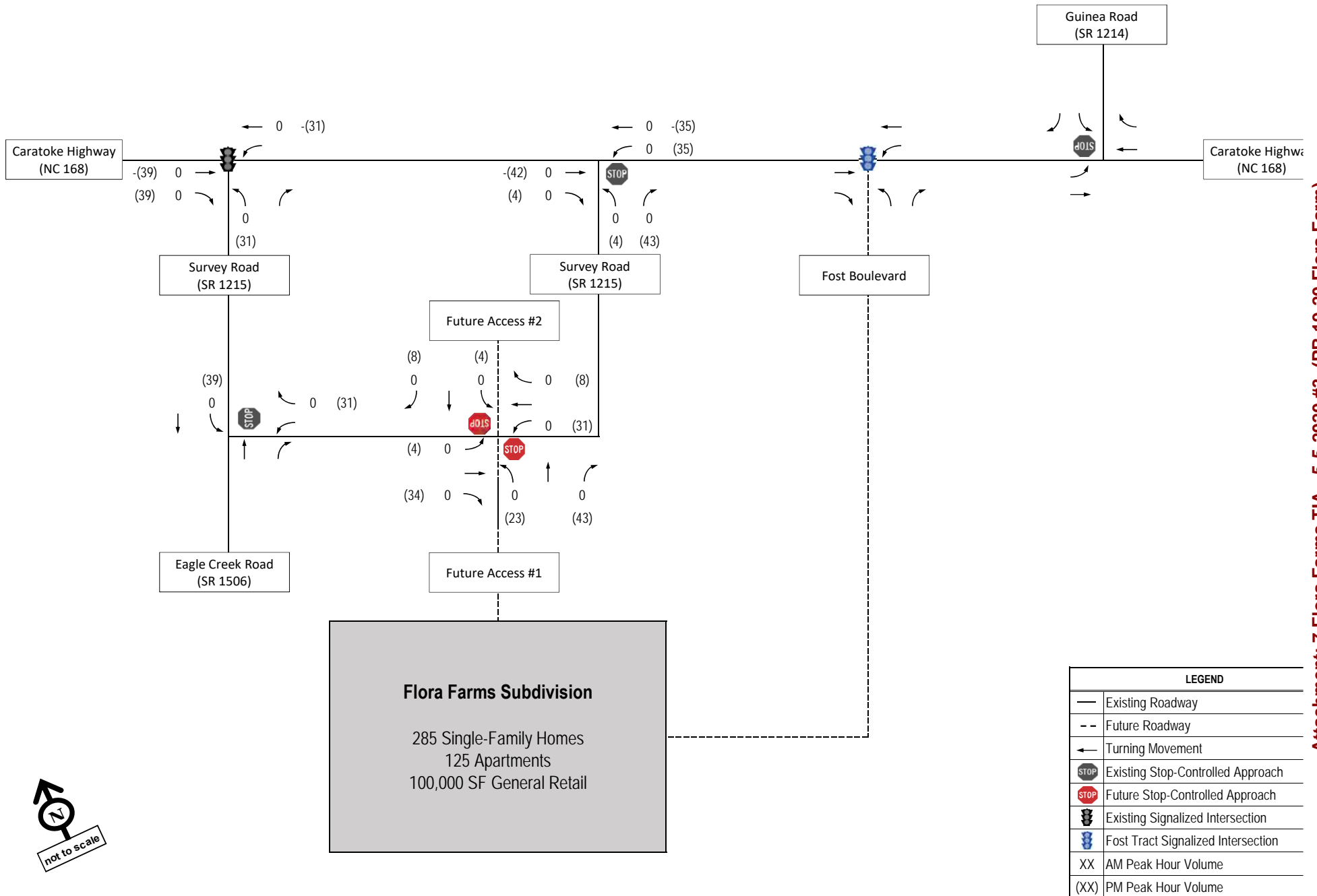
**Figure 8**  
**Pass-By Peak Hour Trip Distribution Percentages**



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



**Figure 9**  
**Non-Pass-By AM and PM Peak Hour Site Trips**

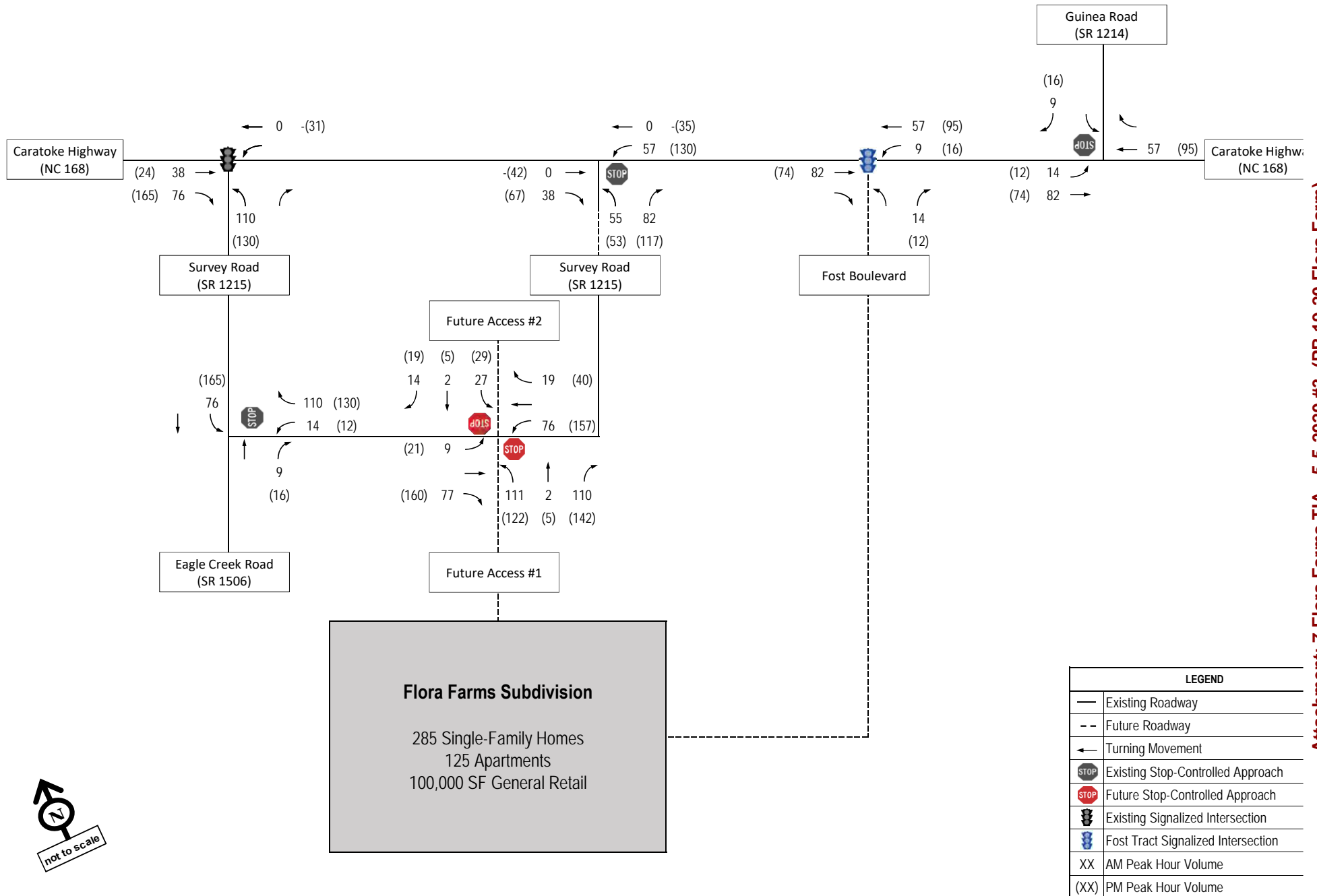


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



**Figure 10**  
**Pass-By AM and PM Peak Hour Site Trips**





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

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



## Level of Service Analysis

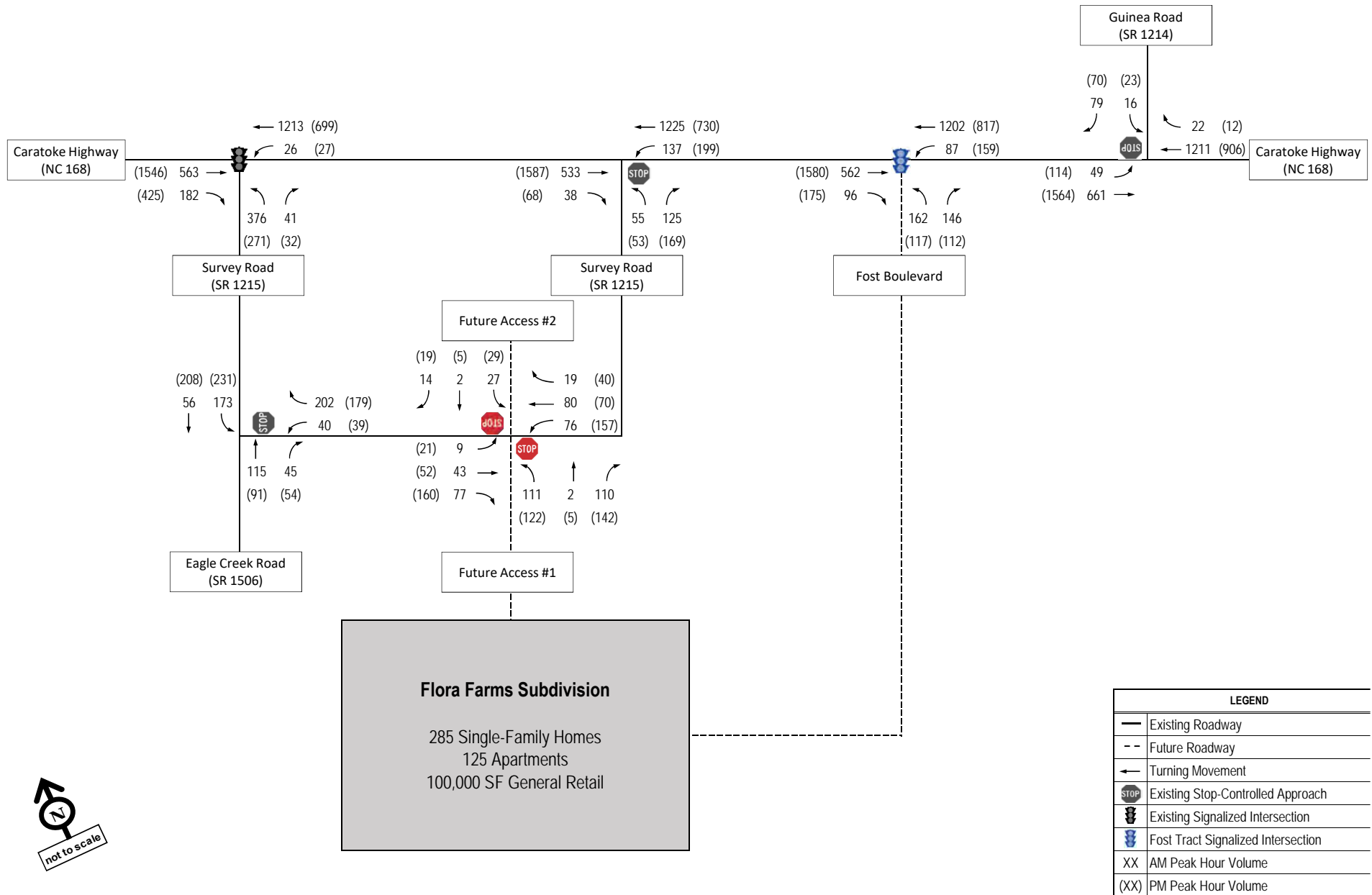
The Build (2026) analysis scenario includes the No-Build (2026) traffic and site-generated trips from the proposed development. Figure 12 depicts the turning movement volumes used in the Build (2026) scenario analysis. Intersection levels of service analyses were performed for the typical weekday AM 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)



**Figure 12**  
 Build (2026) AM and PM Peak Hour Turning Movement Volumes

**Flora Farms Subdivision**  
 TIA  
 Moyock, NC





# 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.

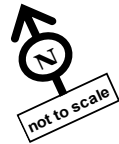
The summary of level of service results is displayed in Table 7, and the proposed Future (2026) lane geometrics and traffic control is displayed in Figure 13. Since the proposed improvements after the full build-out of the site will affect existing traffic patterns in the area, the proposed Build (2026)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

**Table 7 Summary of LOS Results**

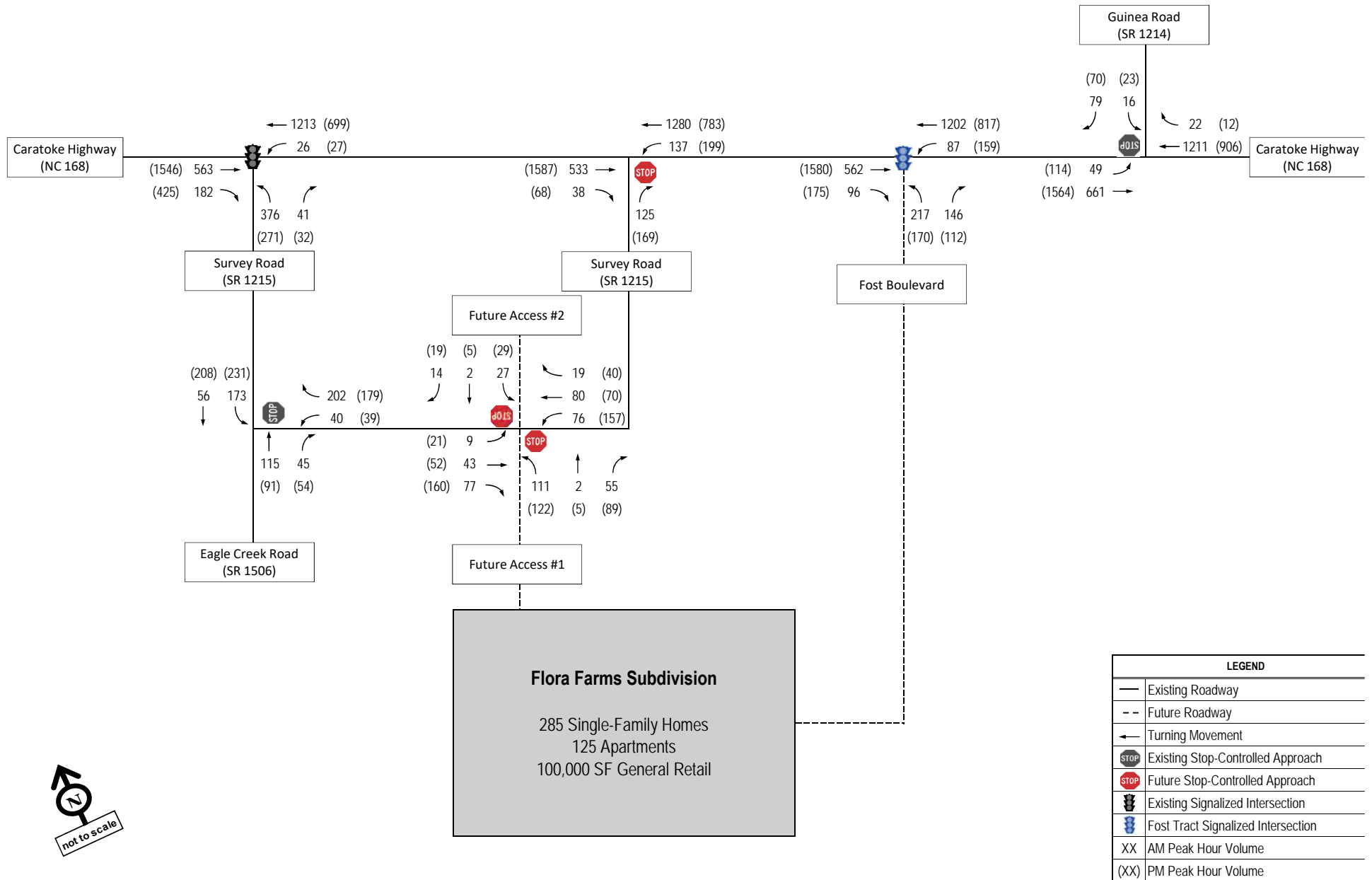
Intersection and Approach	Traffic Control	Existing (2019)		No-Build (2026)		Build (2026)		Build (2026) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
<b>Caratoke Highway (NC 168) and Survey Road</b>	Signalized	<b>B (12.3)</b>	<b>A (7.8)</b>	<b>B (13.5)</b>	<b>B (12.2)</b>	<b>B (16.0)</b>	<b>B (18.1)</b>	<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





Flora Farms Subdivision  
TIA  
Mc Packet Pg. 120



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

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## Appendices



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## Appendix A:

# Turning Movement Counts

# VHB Engineering NC, P.C.

3.C.g

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

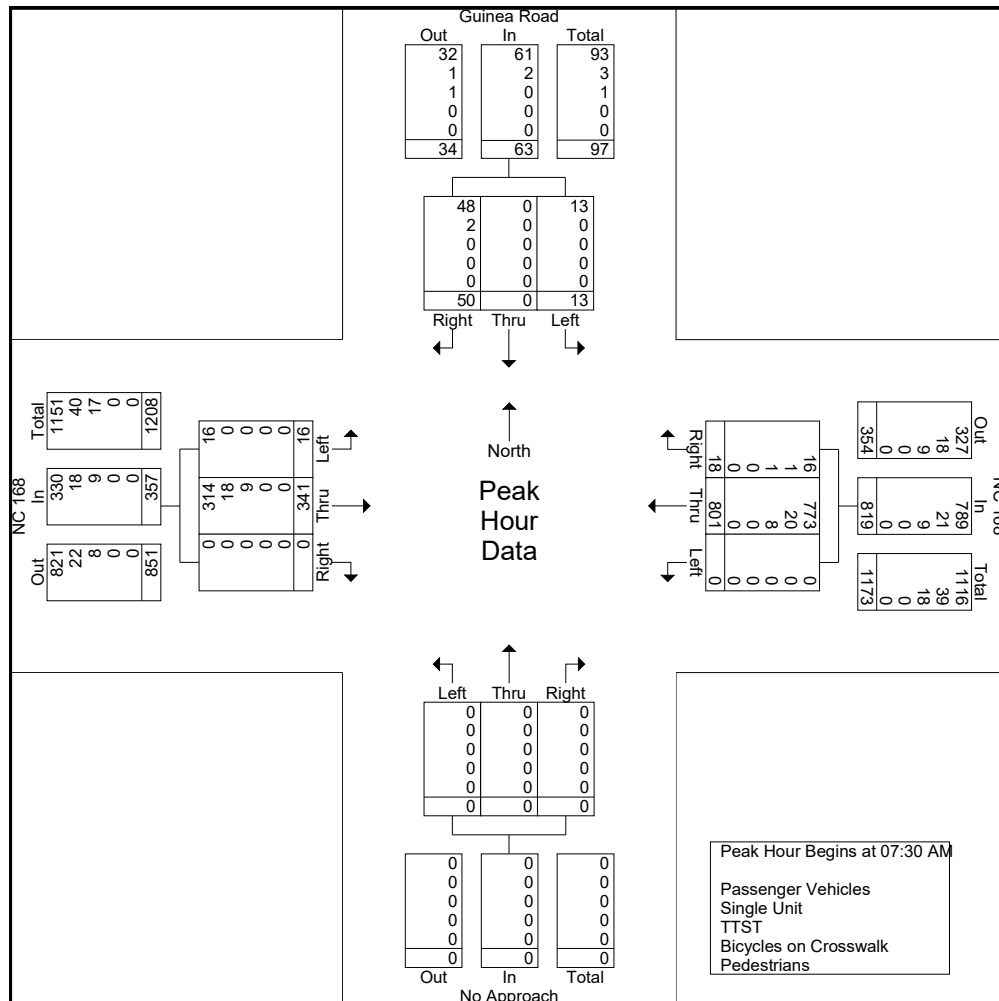
	Guinea Road Southbound				NC 168 Westbound				No Approach Northbound				NC 168 Eastbound				Exclu. Total	Inclu. Total	Int.
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	3	0	8	0	0	203	3	0	0	0	0	0	4	76	0	0	0	297	
07:15 AM	3	0	9	0	0	186	1	0	0	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	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	



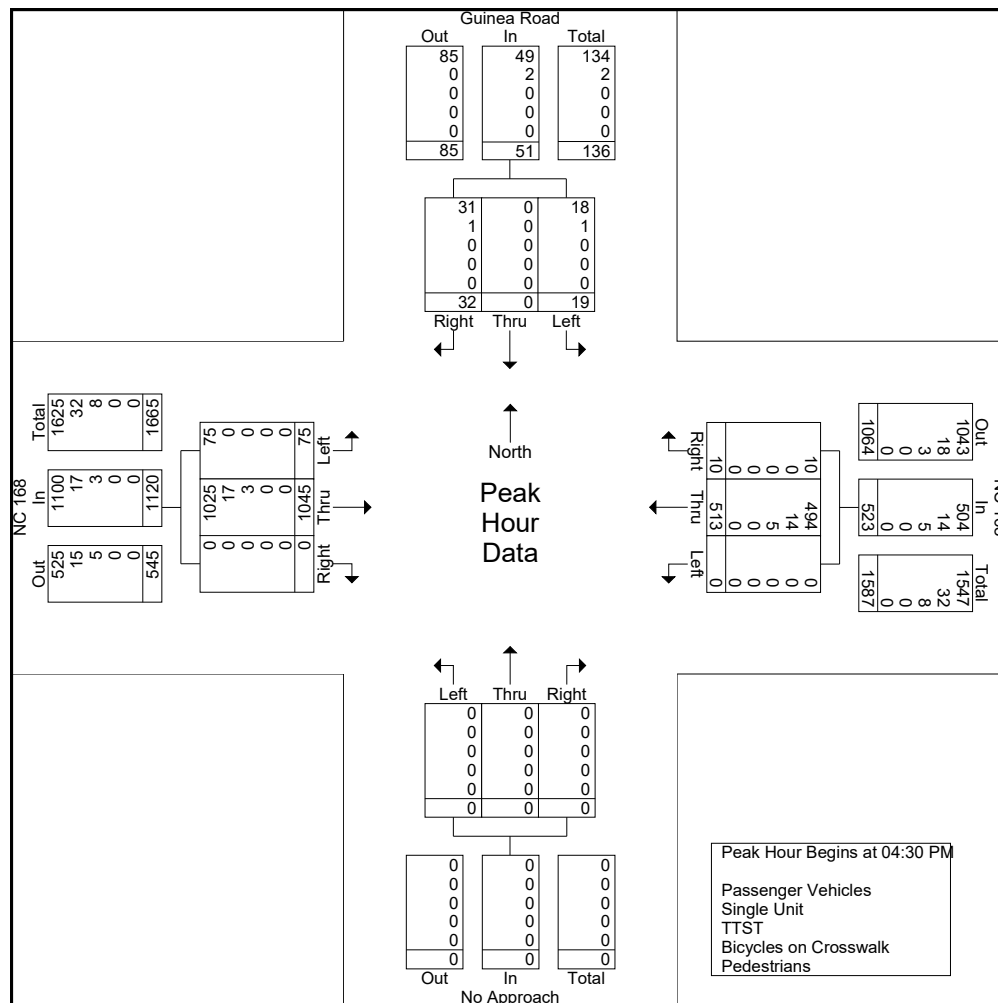
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



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.

3.C.g

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

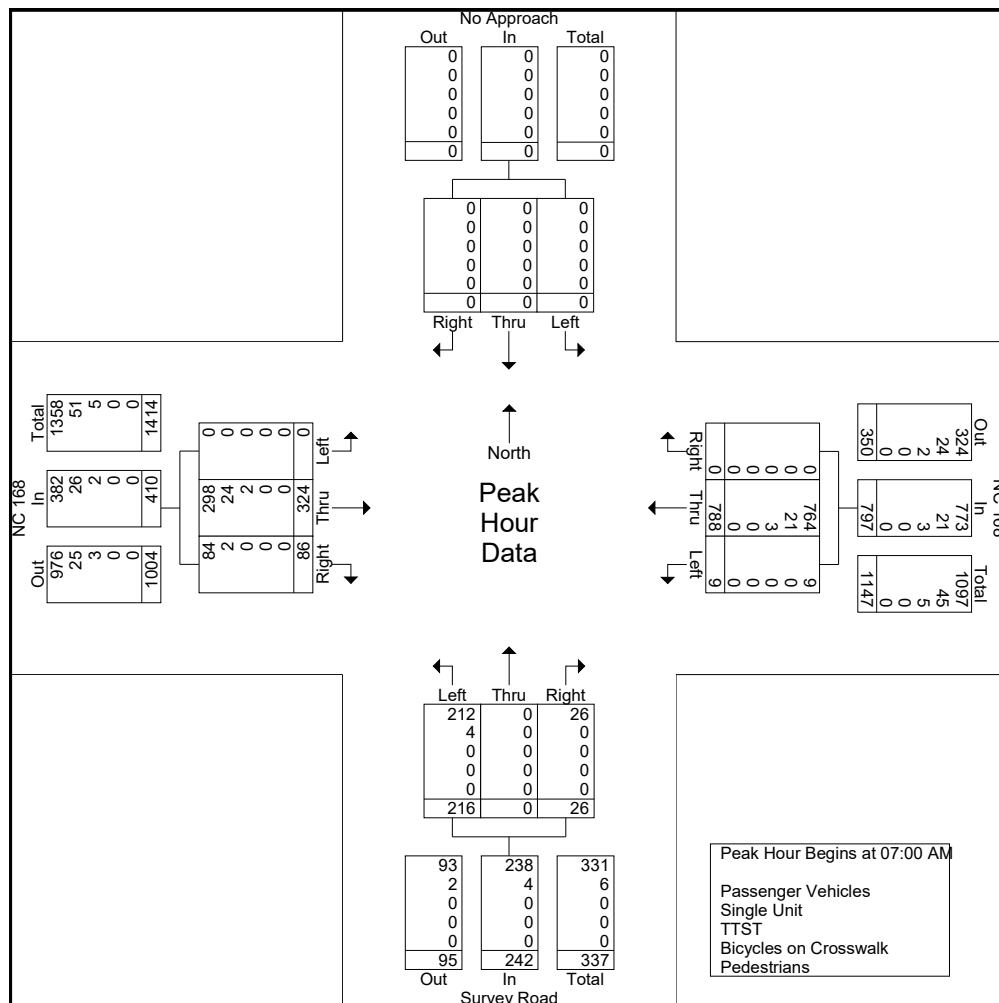
Start Time	No Approach Southbound				NC 168 Westbound				Survey Road Northbound				NC 168 Eastbound				Exclu. Total	Inclu. Total	Int.
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	0	0	0	0	1	204	0	0	48	0	7	0	0	67	9	0	0	336	
07:15 AM	0	0	0	0	3	195	0	0	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	



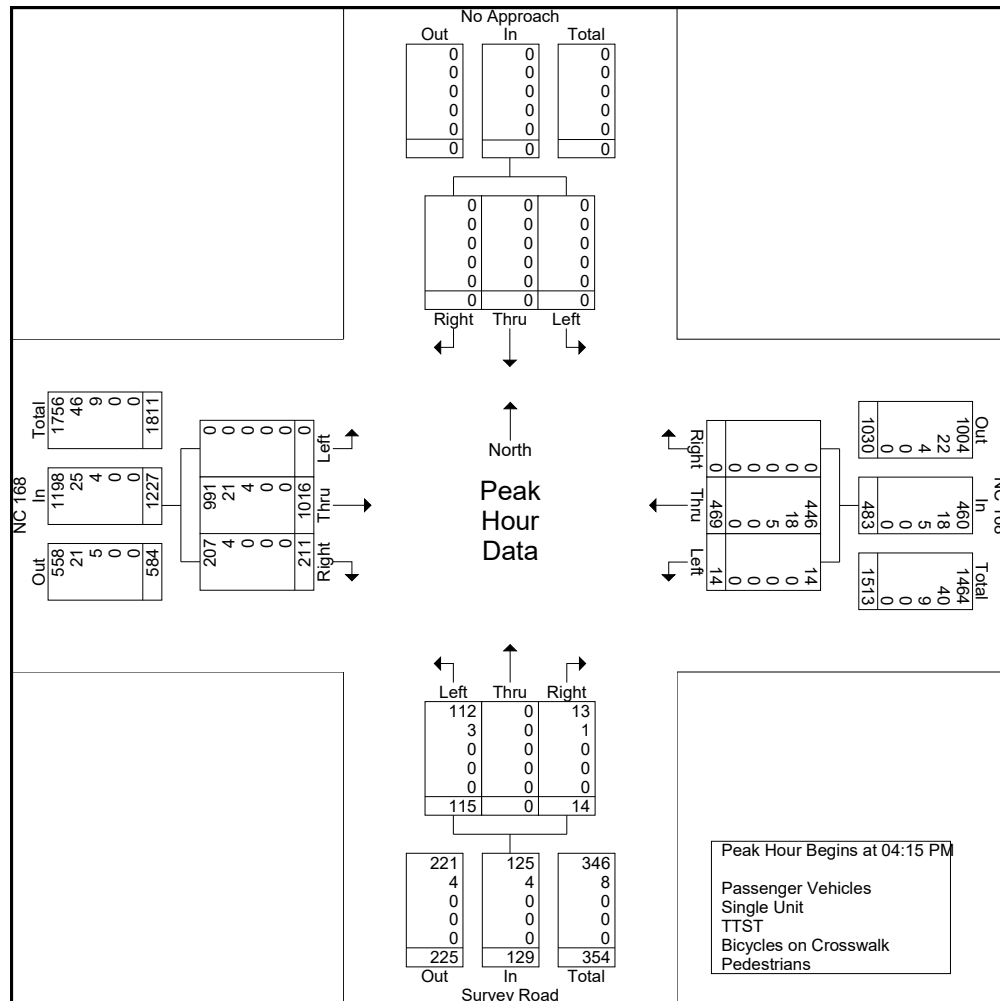
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



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 : 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	



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

# VHB Engineering NC, P.C.

3.C.g

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

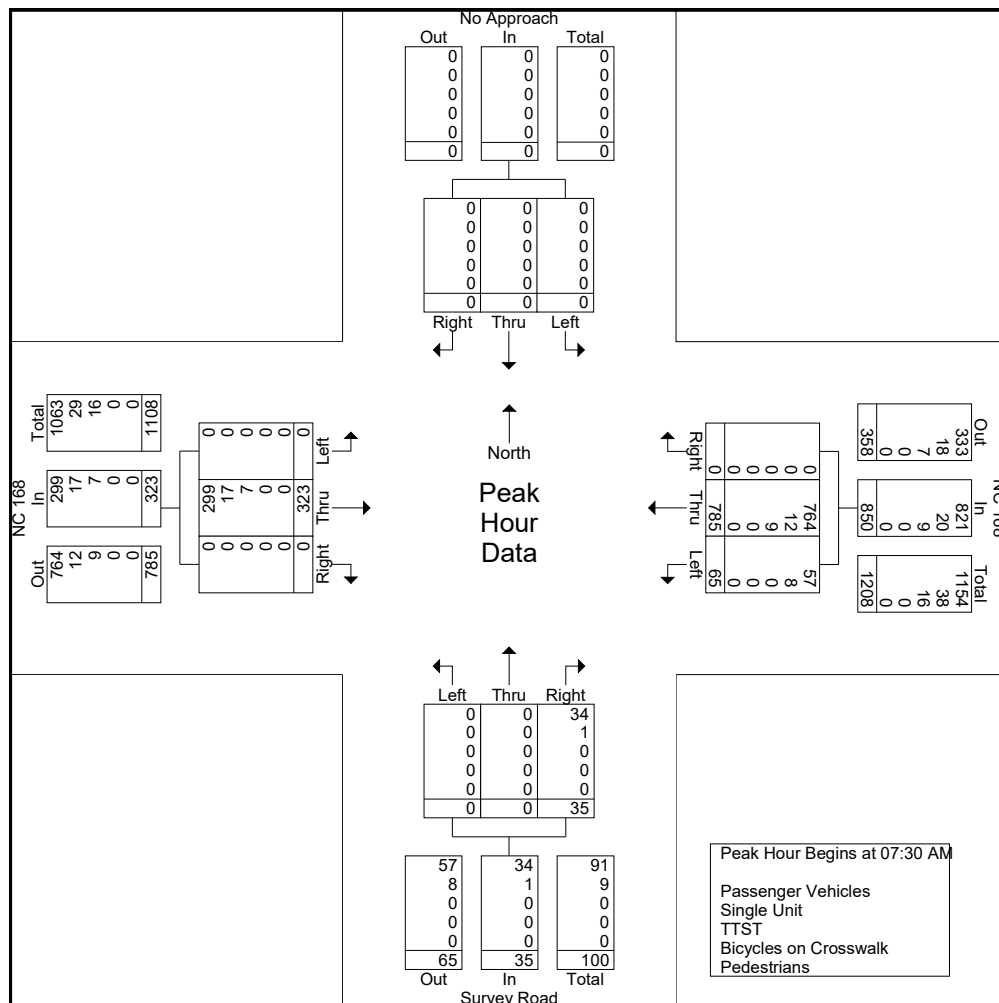
Start Time	No Approach Southbound				NC 168 Westbound				Survey Road Northbound				NC 168 Eastbound				Exclu. Total	Inclu. Total	Int.
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	0	0	0	0	4	202	0	0	0	0	5	0	0	76	0	0	0	287	
07:15 AM	0	0	0	0	3	196	0	0	0	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	

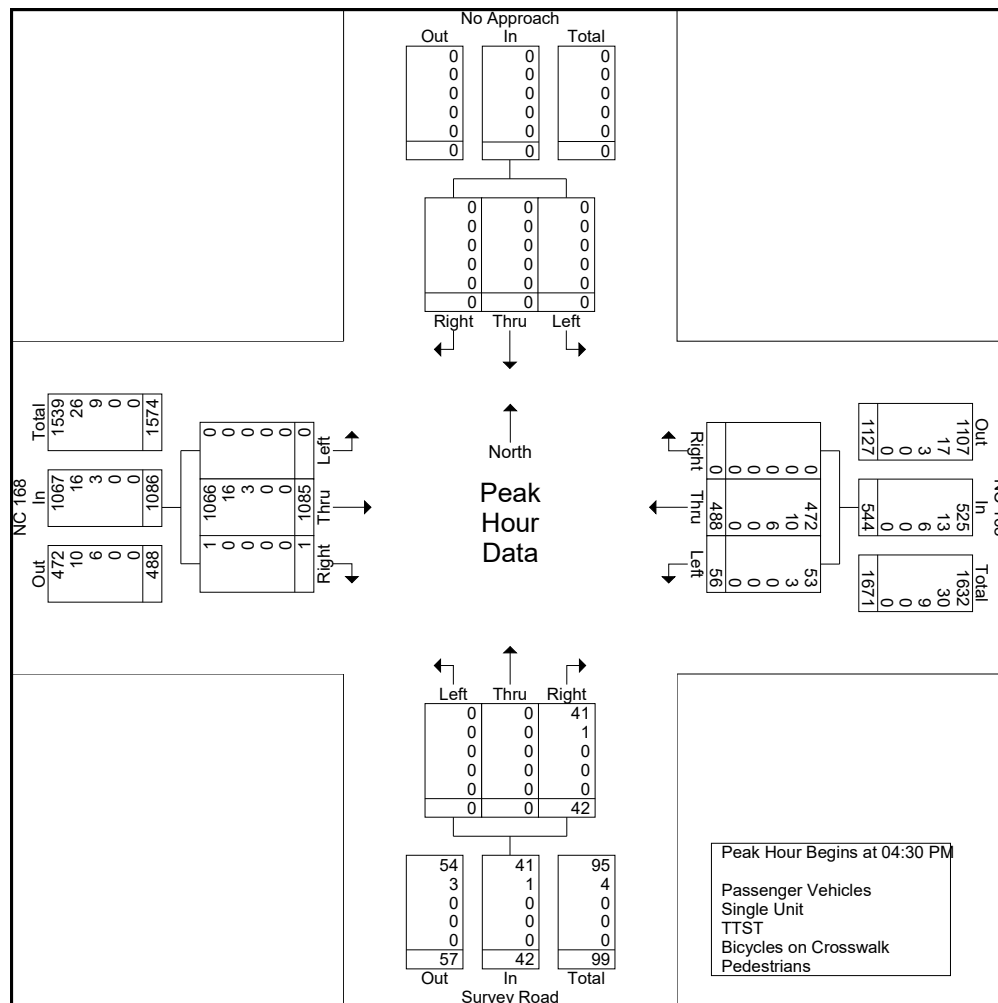




Venture I  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606  
p: 919.829.0328 f: 919.833.0034

File Name : NC168@  
Site Code :  
Start Date : 12/10/2017  
Page No : 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 04:30 PM																	
04:30 PM	0	0	0	0	10	112	0	122	0	0	9	9	0	299	1	300	
04:45 PM	0	0	0	0	25	115	0	140	0	0	10	10	0	268	0	268	
05:00 PM	0	0	0	0	13	122	0	135	0	0	19	19	0	255	0	255	
05:15 PM	0	0	0	0	8	139	0	147	0	0	4	4	0	263	0	263	
Total Volume	0	0	0	0	56	488	0	544	0	0	42	42	0	1085	1	1086	
% App. Total	0	0	0	0	10.3	89.7	0		0	0	100		0	99.9	0.1		
PHF	.000	.000	.000	.000	.560	.878	.000	.925	.000	.000	.553	.553	.000	.907	.250	.905	
Passenger Vehicles	0	0	0	0	53	472	0	525	0	0	41	41	0	1066	1	1067	
% Passenger Vehicles	0	0	0	0	94.6	96.7	0	96.5	0	0	97.6	97.6	0	98.2	100	98.3	
Single Unit	0	0	0	0	3	10	0	13	0	0	1	1	0	16	0	16	
% Single Unit	0	0	0	0	5.4	2.0	0	2.4	0	0	2.4	2.4	0	1.5	0	1.5	
TTST	0	0	0	0	0	6	0	6	0	0	0	0	0	3	0	3	
% TTST	0	0	0	0	0	1.2	0	1.1	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	



# VHB Engineering NC, P.C.

3.C.g

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

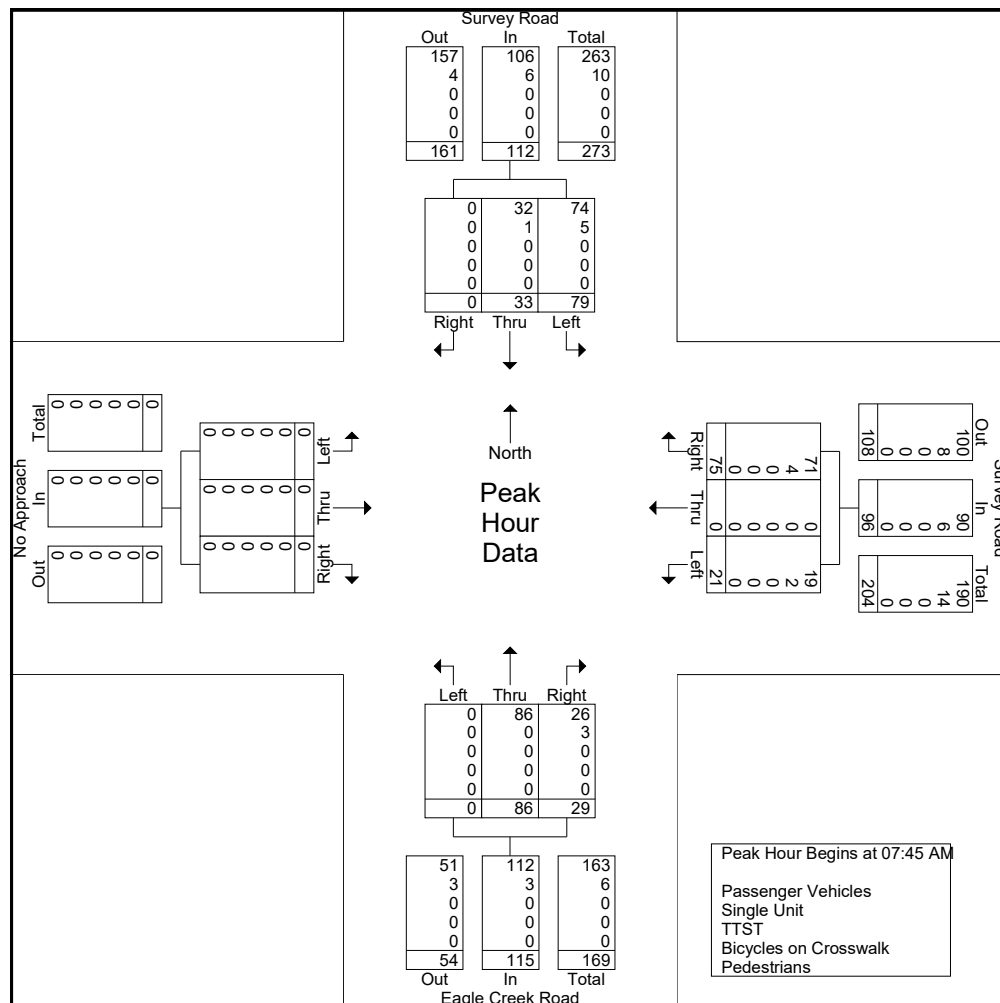
Start Time	Survey Road Southbound				Survey Road Westbound				Eagle Creek Road Northbound				No Approach Eastbound				Exclu. Total	Inclu. Total	Int.
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:00 AM	1	7	0	0	2	0	0	0	0	42	5	0	0	0	0	0	0	57	
07:15 AM	4	11	0	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	



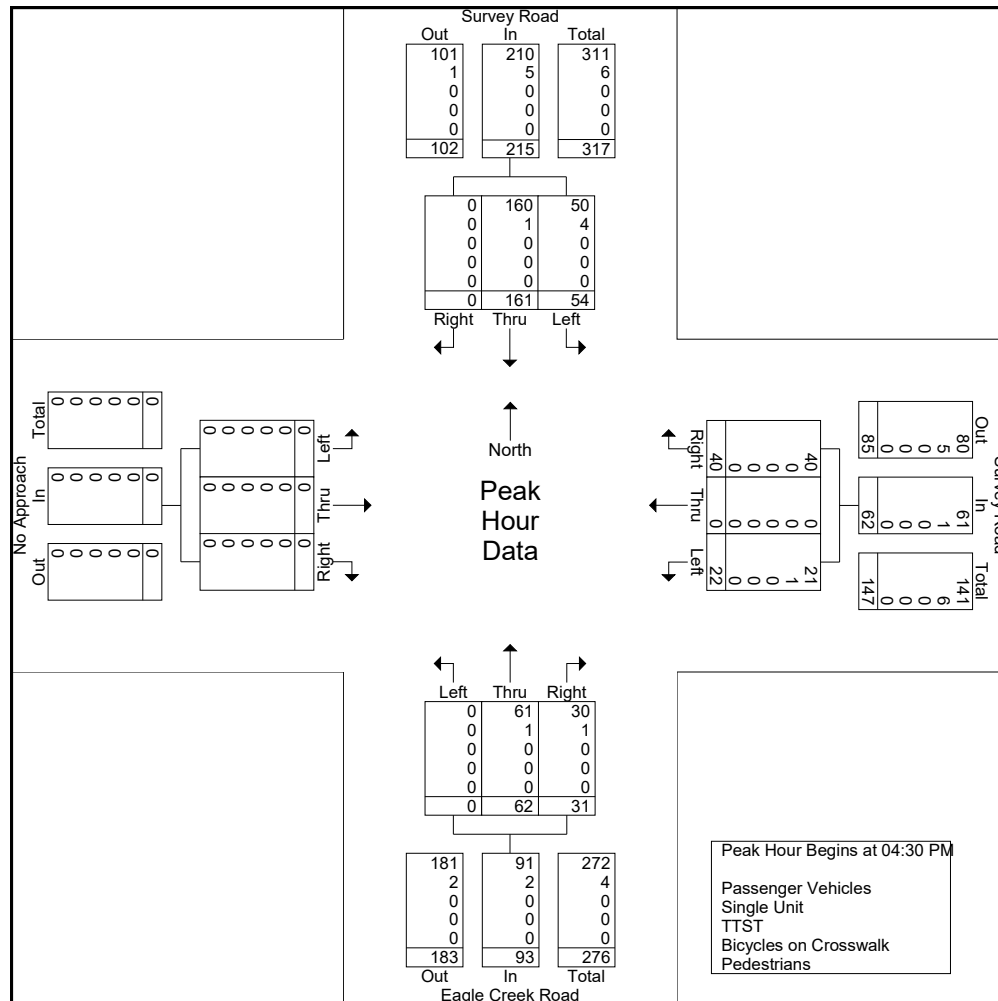
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



Venture I  
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File Name : Survey@Eagle  
Site Code :  
Start Date : 12/10/2019  
Page No : 3

	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 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	11	45	0	56	4	0	7	11	0	12	8	20	0	0	0	0	
04:45 PM	21	41	0	62	4	0	3	7	0	19	13	32	0	0	0	0	
05:00 PM	11	37	0	48	9	0	24	33	0	19	5	24	0	0	0	0	
05:15 PM	11	38	0	49	5	0	6	11	0	12	5	17	0	0	0	0	
Total Volume	54	161	0	215	22	0	40	62	0	62	31	93	0	0	0	0	
% App. Total	25.1	74.9	0		35.5	0	64.5		0	66.7	33.3		0	0	0		
PHF	.643	.894	.000	.867	.611	.000	.417	.470	.000	.816	.596	.727	.000	.000	.000	.000	
Passenger Vehicles	50	160	0	210	21	0	40	61	0	61	30	91	0	0	0	0	
% Passenger Vehicles	92.6	99.4	0	97.7	95.5	0	100	98.4	0	98.4	96.8	97.8	0	0	0	0	
Single Unit	4	1	0	5	1	0	0	1	0	1	1	2	0	0	0	0	
% Single Unit	7.4	0.6	0	2.3	4.5	0	0	1.6	0	1.6	3.2	2.2	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)

---

## 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.

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**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/Drgs:	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/Drgs - 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 (MVMT)

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  
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**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  
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**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  
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**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  
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**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  
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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;</b>				<b>Other</b>
				<b>Fixed Object</b>	<b>Angle</b>	<b>Side Swipe</b>		
2014	1	0	0	0	0	0		0
2015	0	0	6	3	0	1		1

**North Carolina Department of Transportation  
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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  
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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  
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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  
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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  
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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

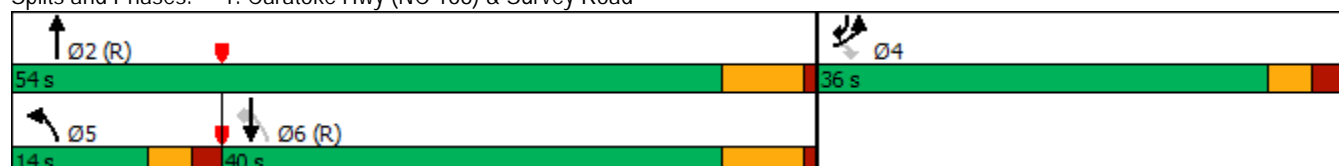
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	46.8	28.5	5.7	6.7	7.1	0.7
LOS	D	C	A	A	A	A
Approach Delay	44.8			6.7	5.9	
Approach LOS	D			A	A	
Queue Length 50th (ft)	130	14	2	101	34	0
Queue Length 95th (ft)	191	34	8	172	93	15
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
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.











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

						
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
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Lane Configurations						
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Traffic Vol, veh/h	0	35	65	864	355	0
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Future Vol, veh/h	0	35	65	864	355	0
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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
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Mvmt Flow	0	39	72	960	394	0
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Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	1018	197	394
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Stage 1	394	-	-
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Stage 2	624	-	-
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Critical Hdwy	6.84	6.96	4.34
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Critical Hdwy Stg 1	5.84	-	-
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Critical Hdwy Stg 2	5.84	-	-
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Follow-up Hdwy	3.52	3.33	2.32
----------------	------	------	------

Pot Cap-1 Maneuver	233	808	1093
--------------------	-----	-----	------

Stage 1	650	-	-
---------	-----	---	---

Stage 2	496	-	-
---------	-----	---	---

Platoon blocked, %			
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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
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HCM LOS	A		
---------	---	--	--

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
-----------------------	-----	-----	-------	-----	-----

Capacity (veh/h)	1093	-	808	-	-
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HCM Lane V/C Ratio	0.066	-	0.048	-	-
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HCM Control Delay (s)	8.5	-	9.7	-	-
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HCM Lane LOS	A	-	A	-	-
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HCM 95th %tile Q(veh)	0.2	-	0.2	-	-
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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

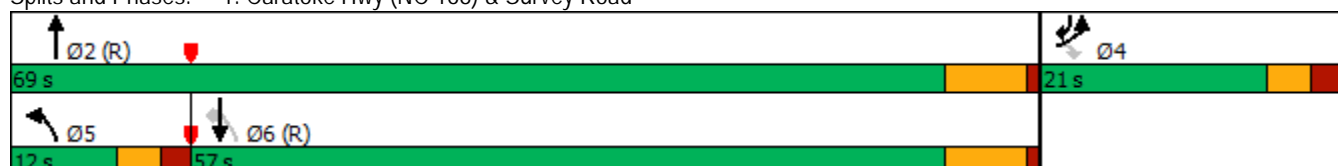
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	47.8	34.0	3.5	3.5	6.7	0.8
LOS	D	C	A	A	A	A
Approach Delay	46.3			3.5	5.8	
Approach LOS	D			A	A	
Queue Length 50th (ft)	70	8	2	37	105	0
Queue Length 95th (ft)	120	26	7	67	283	35
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
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 <sub>pbT</sub> )	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 <sub>s</sub> ), s	6.3	0.9	0.2	3.8	14.3	3.1
Cycle Q Clear(g <sub>c</sub> ), 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 <sub>a</sub> ), 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 <sub>c</sub> +I1), s		5.8		8.3	2.2	16.3
Green Ext Time (p <sub>c</sub> ), s		10.5		0.0	0.0	25.0
<b>Intersection Summary</b>						
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.

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	0	0
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	0	638
Stage 1	633	-	-	-	-
Stage 2	805	-	-	-	-
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	121	674	-	-	942
Stage 1	483	-	-	-	-
Stage 2	393	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	110	674	-	-	942
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

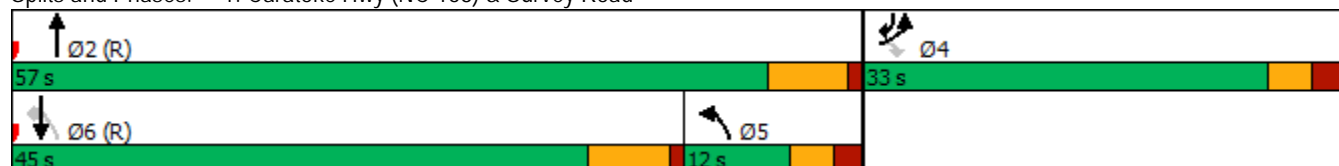
Intersection Capacity Utilization 56.6%

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	0	0
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
Stage 1	1294	-	-
Stage 2	400	-	-
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	84	405	-
Stage 1	221	-	-
Stage 2	646	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	78	405	-
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  
Page 10







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

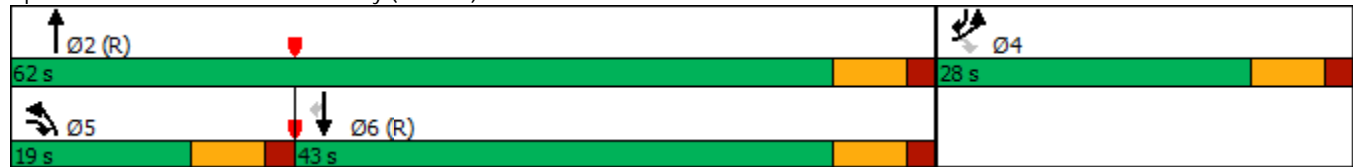
Intersection Capacity Utilization 49.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

Splits and Phases: 5: Caratoke Hwy (NC 168) &amp; 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  
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

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 <sub>pbT</sub> )	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 <sub>s</sub> ), s	7.7	1.9	0.0	6.3	35.2	5.9
Cycle Q Clear(g <sub>c</sub> ), 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 <sub>a</sub> ), 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 <sub>c</sub> +I1), s		8.3		9.7	2.0	37.2
Green Ext Time (p <sub>c</sub> ), 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
Stage 1	908	-	-
Stage 2	1054	-	-
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	53	548	-
Stage 1	347	-	-
Stage 2	290	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	45	548	-
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

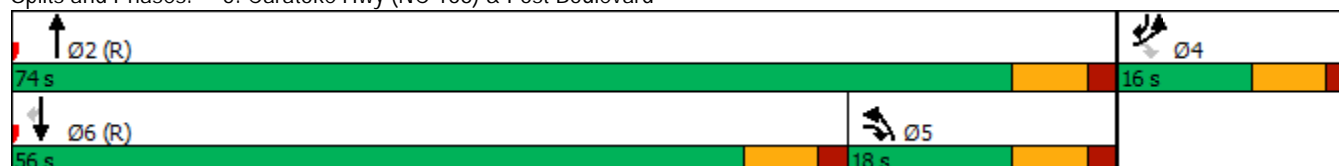
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0	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

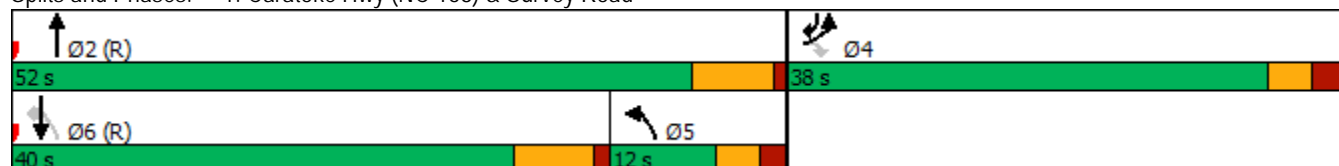
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	43.7	21.7	8.2	9.8	15.4	1.7
LOS	D	C	A	A	B	A
Approach Delay	41.5			9.8	12.0	
Approach LOS	D			A	B	
Queue Length 50th (ft)	220	19	5	151	84	0
Queue Length 95th (ft)	296	40	m11	203	189	31
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			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 <sub>pbT</sub> )	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 <sub>s</sub> ), s	20.4	2.0	0.0	20.7	14.4	5.9
Cycle Q Clear(g <sub>c</sub> ), 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 <sub>a</sub> ), 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 <sub>c</sub> +I1), s		22.7		22.4	2.0	16.4
Green Ext Time (p <sub>c</sub> ), 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.











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

						
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
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%

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

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

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

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

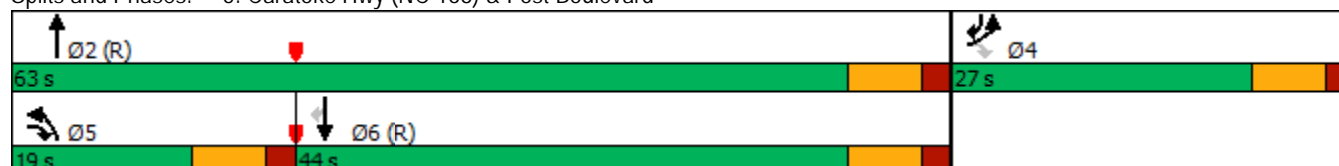
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	94	63	51	160	71	7
Queue Length 95th (ft)	149	91	94	257	56	8
Internal Link Dist (ft)	477			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	432	629	283	2502	1835	1289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	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 <sub>pbT</sub> )	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 <sub>s</sub> ), s	8.6	7.8	4.7	14.1	7.8	1.7
Cycle Q Clear(g <sub>c</sub> ), 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 <sub>a</sub> ), 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 <sub>c</sub> +I1), s		16.1		10.6	6.7	9.8
Green Ext Time (p <sub>c</sub> ), 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

Build (2026) AM

## 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	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%

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) 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  
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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

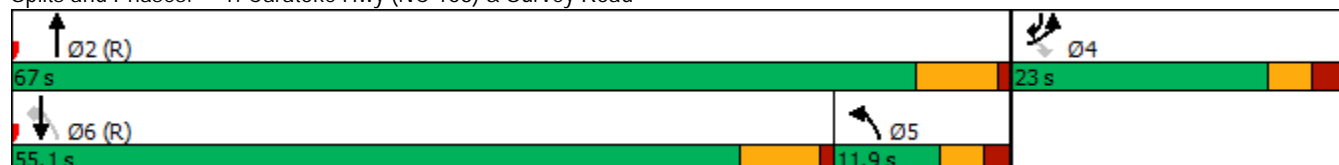
Build (2026) PM  
04/10/2020

						
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 Capacity Utilization 67.2%  
 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%

ICU Level of Service D

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

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
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%

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

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%

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

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 1388	-	-
HCM Lane V/C Ratio	-	- 0.169 0.216 0.185	-	-
HCM Control Delay (s)	-	- 21.8 10 8.2	-	-
HCM Lane LOS	-	- C B A	-	-
HCM 95th %tile Q(veh)	-	- 0.6 0.8 0.7	-	-



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

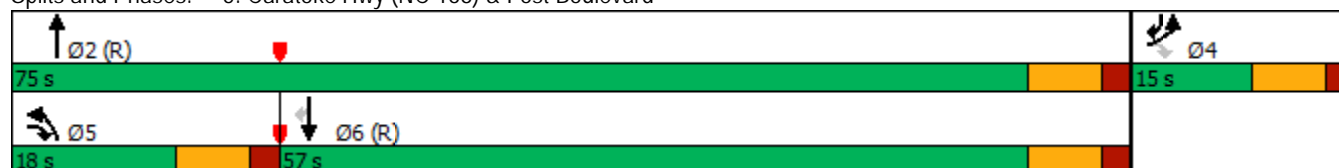
Analysis Period (min) 15

# 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

Build (2026) PM

## 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	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

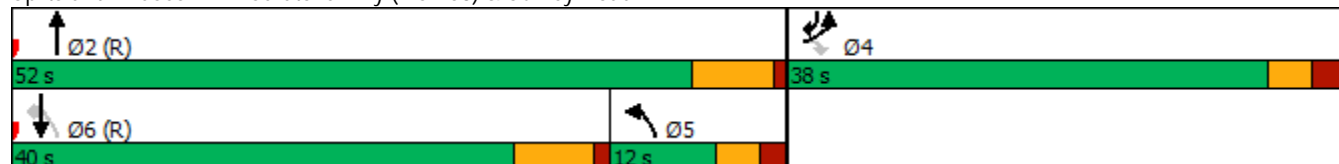
Intersection Capacity Utilization 62.7%

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 <sub>pbT</sub> )	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 <sub>s</sub> ), s	20.4	2.0	0.0	20.7	14.4	5.9
Cycle Q Clear(g <sub>c</sub> ), 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 <sub>a</sub> ), 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 <sub>c</sub> +I1), s		22.7		22.4	2.0	16.4
Green Ext Time (p <sub>c</sub> ), 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	0	178	0
Stage 1	153	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Critical Hdwy	6.5	6.25	-	-	4.16	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.345	-	-	2.254	-
Pot Cap-1 Maneuver	452	885	-	-	1374	-
Stage 1	856	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	389	885	-	-	1374	-
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	1374	-
HCM Lane V/C Ratio	-	- 0.114 0.254	0.14	-
HCM Control Delay (s)	-	- 15.4 10.4	8	-
HCM Lane LOS	-	- C B	A	-
HCM 95th %tile Q(veh)	-	- 0.4 1	0.5	-

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

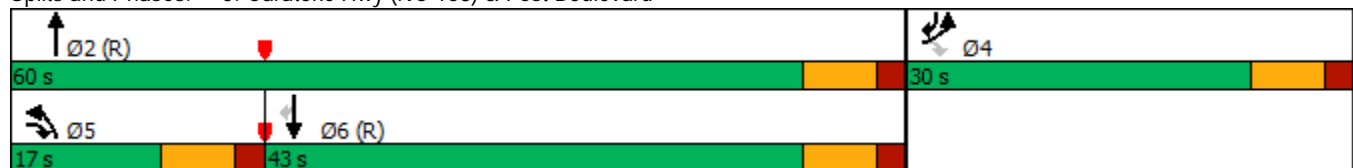
Intersection Capacity Utilization 53.6%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A













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%

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) 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

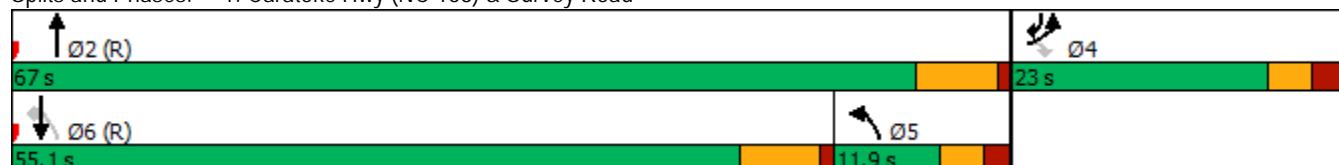
Analysis Period (min) 15

# 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	0	161
Stage 1	131	-	-	-	-
Stage 2	745	-	-	-	-
Critical Hdwy	6.45	6.22	-	-	4.17
Critical Hdwy Stg 1	5.45	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.263
Pot Cap-1 Maneuver	315	919	-	-	1388
Stage 1	888	-	-	-	-
Stage 2	464	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	257	919	-	-	1388
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 1388	-	-
HCM Lane V/C Ratio	-	- 0.169 0.216 0.185	-	-
HCM Control Delay (s)	-	- 21.8 10 8.2	-	-
HCM Lane LOS	-	- C B A	-	-
HCM 95th %tile Q(veh)	-	- 0.6 0.8 0.7	-	-

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 Effct 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

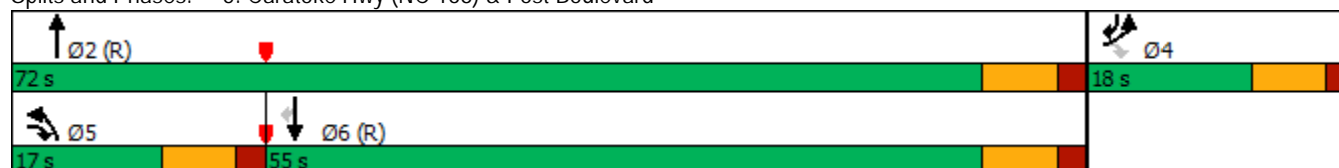
Analysis Period (min) 15

# 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+I1), 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

---

## Appendix D:

# Background Development

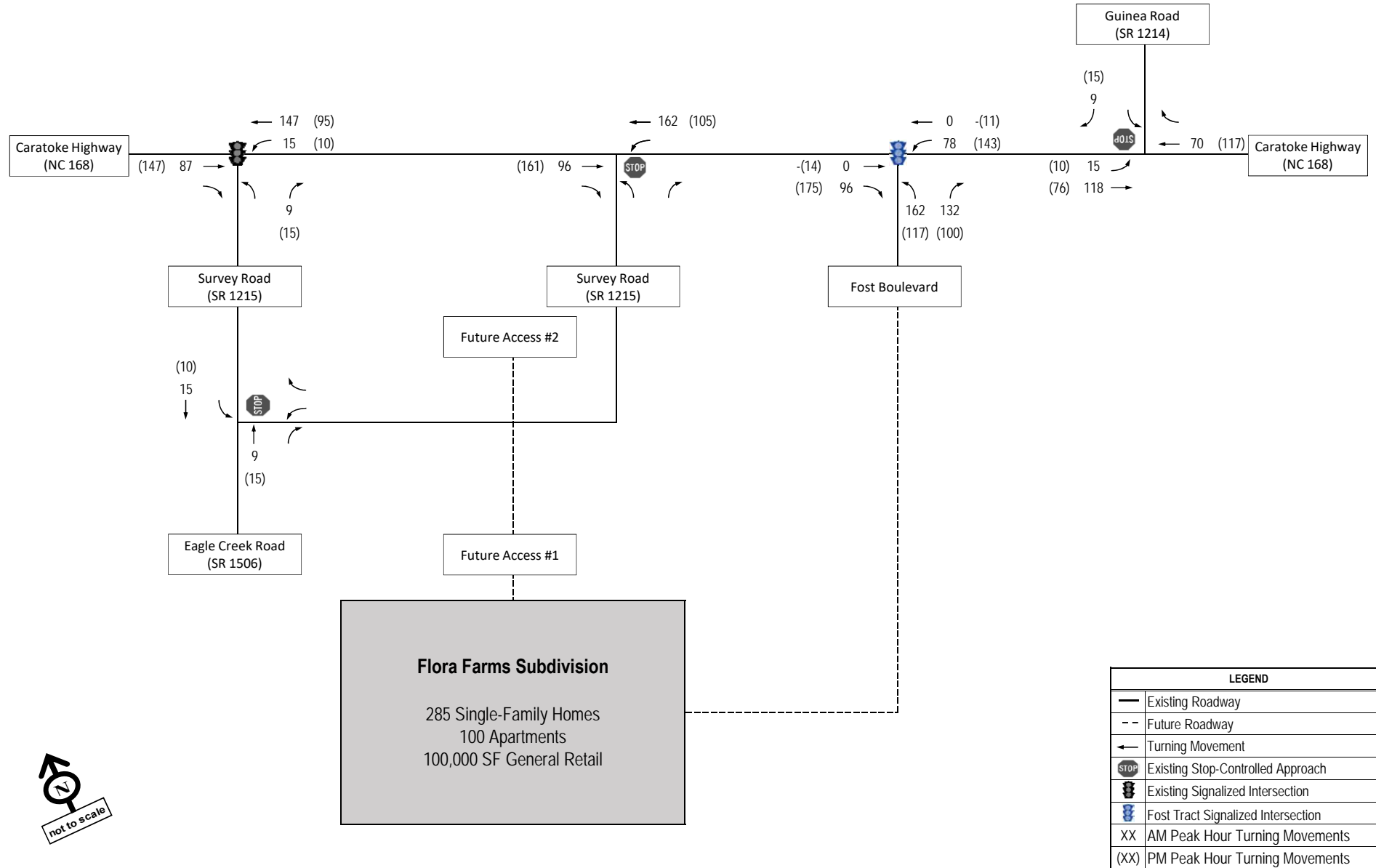


Figure D-1  
Fost Tract Development Site Trips

**Flora Farms Subdivision  
TIA  
Moyock, NC**





[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.

Attachment: 9 PB 19-12 Flora PDR TRC Comments 2-12-2020 (PB 19-20 Flora Farm)



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. 267





# FLORA FARMS

ALLIED PROPERTIES, LLC  
417 CARATOKE HIGHWAY, UNIT D  
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JANUARY 23, 2020

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Packet Pg. 268

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  
MOYOCK, NORTH CAROLINA 27958

JANUARY 23, 2020

21936\_01\_Flora\_Farm

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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

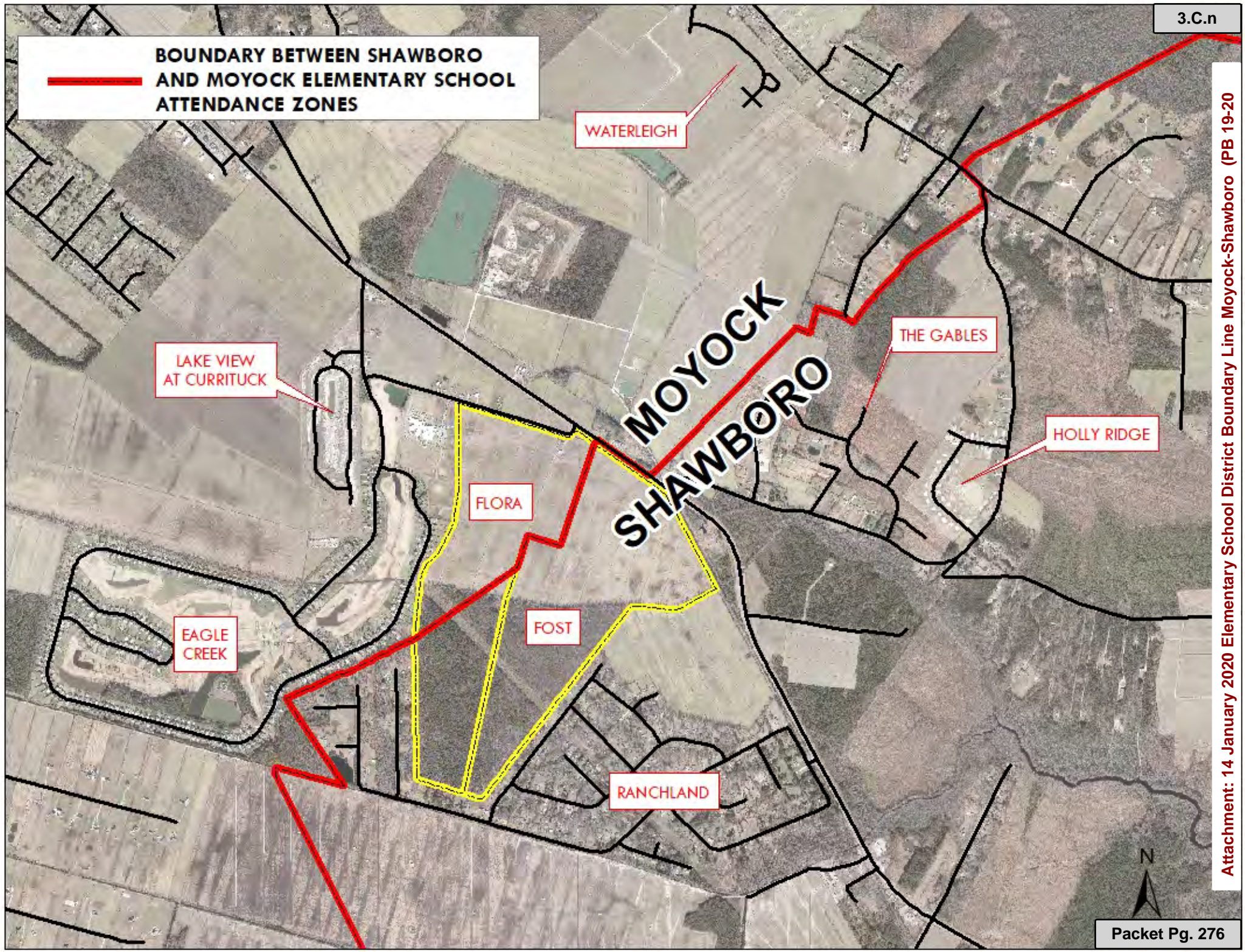
#### F. Comments/Concerns

- 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



## Memorandum

To: Mark Bissell, PE  
Bissell Professional Group

Date: March 4, 2020

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.

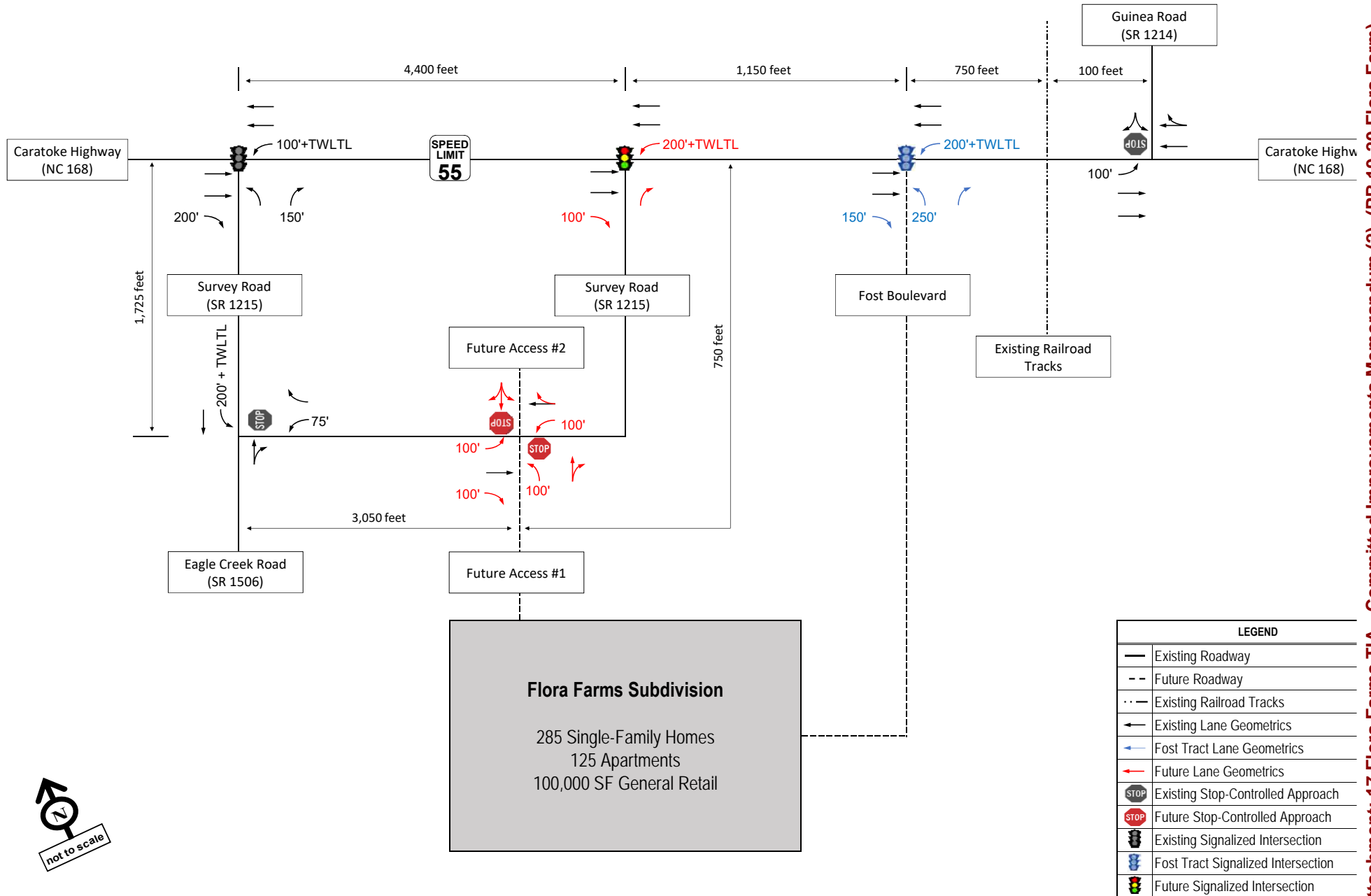
As the Flora Farms Subdivision is being developed, it is expected that increasing northbound left-turning traffic entering the site at NC 168 and Survey Road will warrant the installation of a traffic signal.

#### *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)