



**Board of Commissioners  
Agenda Packet**

**July 20, 2020**



**Work Session**

5:00 PM Campgrounds Discussion

**6:00 PM Call to Order**

- A) Moment of Silence & Pledge of Allegiance
- B) Approval of Agenda

**Public Comment**

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

**Commissioner's Report****County Manager's Report****Public Hearings**

- A) **HPC 20-01 M.C. Poyner House:** Anthony Agreste is requesting to designate his property as a historical landmark. The house is located on 1.44 acres and is located at 219 Shingle Landing Road, Moyock, Parcel Identification Number 014B-000-0026-0000, Moyock Township.
- B) **PB 19-14 Moyock Farms:** Request for an amended Preliminary Plat/Use Permit for a 31 lot Traditional Development located at 1216 Caratoke Highway, Parcel Identification Number 0023-000-0007-0000, Moyock Township.
- C) **PB 19-24 New Bridge Creek Estates:** Request for a Preliminary Plat/Use Permit for a 37 lot Conservation Subdivision located off Caratoke Highway, Parcel Identification Number 0031-000-064N-0000, Moyock Township.

**Old Business**

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

**New Business**

- A) **Consideration and Possible Action to Adopt the Strategic Plan for Currituck County**
- B) **Consideration and Action on a Resolution to Approve the Regional Hazard Mitigation Plan for Currituck County**
- C) **Consent Agenda**
  - 1. Approval Of Minutes-Covid-19 Special Meeting 3-30-2020; Regular Meeting 6-15-2020

2. Surplus Resolution-Commercial Washer, Detention Center
3. Surplus Resolution-Tourism, Vehicle
4. Maritime Museum-Change Order #2
5. Corolla ABC Store-Change Order #1
6. Consideration of an Agreement between Currituck County and FEMA for Integration of Communication Technology and to Authorize County Manager to Execute the Memorandum
7. Designation of NCACC Voting Delegate and Alternate for Currituck County
8. Petition for Road Addition-Kilmarlic Subdivision-Long Point, Sullivans, Dexter, Forbes, Hillock, Duncans Way, Kilmarlic Club

**Closed Session**

Closed Session Pursuant to G.S. 143-318.11(a)(6) to Discuss a Personnel Matter

**Adjourn**



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2855)

**Agenda Item Title:** 5:00 PM Campgrounds Discussion

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Discussion

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**Brief Description of Agenda Item:**

**Reason for Request:**

Commissioners opted to further discuss a text amendment brought before the Board at the June 22, 2020, meeting to address non-conforming campgrounds. Commissioners wanted to better understand language related to FEMA requirements and to consider and discuss language modifications.

**Potential Budget Affect:** N/A

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2854)

**Agenda Item Title:** HPC 20-01 M.C. Poyner House:

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

**Presenter of Item:** Jennie Turner

**Board Action:** Action

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**Brief Description of Agenda Item:**

Anthony Agreste is requesting to designate his property as a historical landmark. The house is located on 1.44 acres and is located at 219 Shingle Landing Road, Moyock, Parcel Identification Number 014B-000-0026-0000, Moyock Township.

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**



**STAFF REPORT**  
**HPC 20-01 M.C. POYNER HOUSE**  
**LOCAL HISTORIC**  
**LANDMARK DESIGNATION**  
**BOARD OF COMMISSIONERS**  
**JULY 20, 2020**

#### APPLICATION SUMMARY

<b>Property Owner:</b> Anthony Agreste 219 Shingle Landing Road Moyock, NC 27958	<b>Applicant:</b> Anthony Agreste 219 Shingle Landing Road Moyock, NC 27958
<b>Case Number:</b> HPC 20-01	<b>Application Type:</b> Local Historic Landmark
<b>Parcel Identification Number:</b> 014B-000-0026-0000 <b>Property Address:</b> 219 Shingle Landing Road	<b>Existing Use:</b> Single-Family Dwelling
<b>Property Listed in Inventory:</b> Yes	<b>Inventory Property Number:</b> CK0237
<b>Property Name:</b> M.C. Poyner House	

Anthony and Virginia Agreste, owners of the M.C. Poyner House have submitted a complete application for Local Historic Landmark Designation.

Staff reviewed the material submitted and issued a Local Landmark Designation Report to the State Historic Preservation Office (the "SHPO") on April 23, 2020. On May 22, 2020 the SHPO issued a letter indicating that the report satisfies all of the requirements outlined in the HPO guidelines and provides sufficient information to determine whether the M.C. Poyner House possesses the requisite special local significance and integrity for local historic landmark designation.

#### Staff Recommendation:

Staff recommends approval of the ordinance designating the M.C. Poyner House at 219 Shingle Landing Road as a Local Historic Landmark.

#### Historic Preservation Commission (HPC):

The HPC held a public hearing on July 1, 2020 at 5:30PM in the Historic Currituck Courthouse. Jennie Turner, Planner II presented the Local Landmark Report and the proposed designating ordinance. Virginia Agreste, property owner, spoke to the commission requesting approval. The HPC recommended that the Board of Commissioners designate the property as a local historic landmark.



## Local Historic Landmark Designation Review Process

### Contact Information

Currituck County  
Planning and Community Development  
153 Courthouse Road, Suite 110  
Currituck, NC 27929

Phone: 252.232.3055  
Fax: 252.232.3026

Website: <http://www.co.currituck.nc.us/planning-community-development.cfm>

### Overview

Currituck County recognizes the value of its historic heritage and has established a Historic Preservation Commission in order to safeguard county heritage by preserving local landmarks. The Historic Preservation Commission maintains an inventory of properties of historical significance that are eligible to apply for local landmark designation. A local historic landmark is a property so designated by the Board of Commissioners as a property of special significance in terms of its historical, prehistorical, architectural, or cultural importance and that possesses integrity of design, setting, workmanship, materials, feeling, and association. Property owners can apply to have their property designated as a local historic landmark.

### Step 1: Pre Application Conference (Optional)

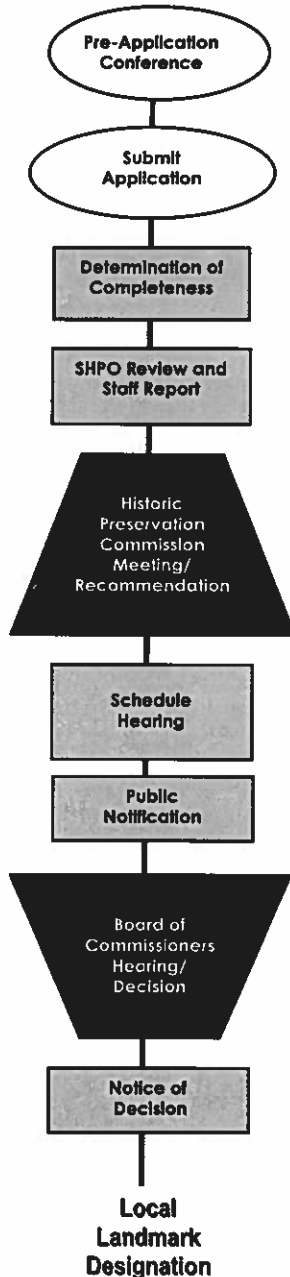
The pre-application conference is an opportunity for the applicant to determine the submittal requirements and the procedures and standards applicable to the Local Historic Landmark Designation and for county staff to offer the applicant guidance and resources for completing the application and Local Landmark Report.

### Step 2: Application Submittal and Acceptance

The applicant must submit a complete application packet. A complete application packet consists of the following:

- Completed Local Historic Landmark Application
- Local Landmark Report (prepared by applicant or consultant) and supporting documentation
- Application Fee (\$100)
- One hard copy of the application, local landmark report, and supporting documentation
- One PDF digital copy of the application, local landmark report, and supporting documentation

On receiving an application, staff shall, within ten business days, determine whether the application is complete or incomplete. A complete application contains all the information and materials listed above and is in sufficient detail to evaluate and determine whether it complies with appropriate review standards. If an application is





determined to be incomplete, the applicant may correct the deficiencies and resubmit the application for completeness determination. Failure to resubmit a complete application within 45 calendar days after being determined incomplete will result in the application being considered withdrawn.

### Step 3: Staff Review and Report

Once an application is determined complete, it will be forwarded to the State Historic Preservation Office (SHPO) for review and comment. Following receipt of comments from SHPO or the expiration of 30 days, staff will prepare a report and draft a proposed designating ordinance.

### Step 4: Advisory Body Review and Recommendation

After the staff report and proposed designating ordinance are prepared, staff shall schedule the ordinance for a public hearing with the Historic Preservation Commission. The applicant must be in attendance at the public hearing. The Historic Preservation Commission shall consider the application, relevant support materials, staff report, and any public comments. It shall then recommend approval, amended approval, or denial of the proposed ordinance. Consideration of an application may be continued to a later meeting in order to seek additional information or for such other reason as the Commission may decide is appropriate. The Historic Preservation Commission shall provide a recommendation on an ordinance it reviews within 60 days from the date of its initial meeting to consider the ordinance.

### Step 5: Public Hearing Procedures, and Decision-Making Body Review and Decision

Staff will forward a summary of information elicited through the public hearing process and a request that the Board of Commissioners (BOC) schedule a public hearing on the proposed ordinance. The applicant must be in attendance at the public hearing. During the public hearing, staff will present the proposed ordinance and recommendation to the BOC. The applicant will then have the opportunity to present any information they deem appropriate. The public may be permitted to speak in accordance with the BOC rules of procedure, or at their discretion, as appropriate, in support of or in opposition to the application.

Following the public hearing the BOC will consider the commission's designation report, its recommendation, the department's recommendation, and comments made at the public hearing and may adopt the ordinance as proposed, adopt the ordinance with amendments, or reject the ordinance.

### Step 6: Local Landmark Ordinance Adoption or Denial

Upon adoption of the local landmark designating ordinance, staff will, within 30 days of adoption, send the owner(s) of the landmark(s) notice of the designation, explaining the substance of the commission's decision, file one copy of the ordinance in the office of the county's register of deeds, and notify the county tax assessor's office of the landmark designation.

Upon disapproval of a designation report, a copy of the minutes of the meeting of the decision to deny will be provided to the owner of the property proposed for designation, together with correspondence explaining the substance of the commission's decision.

### Step 7: Certificate of Appropriateness Requirement

Properties designated as local historic landmarks shall be subject to the certificate of appropriateness review process for any exterior changes made to the property. Applications for certificates of appropriateness may be obtained in the Planning & Community Development Office.



# Local Historic Landmark Designation Application

OFFICIAL USE ONLY:

Date Filed: 2/13/2020  
 Gate Keeper: JT  
 Amount Paid: \$100.00

## Contact Information

### APPLICANT:

Name: Anthony & Virginia Agreste  
 Address: 219 Shingle Landing Road  
Moyock, NC 27958  
 Telephone: 252-339-0461  
 E-Mail Address: anthonyagreste@gmail.com

### PROPERTY OWNER:

Name: Anthony Agreste  
 Address: 219 Shingle Landing Road  
Moyock, NC 27958  
 Telephone: 252-339-0461  
 E-Mail Address: anthonyagreste@gmail.com

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: same

## Request

Landmark Name(s) (Include common and historic names): M. C. Poyner House  
M. C. Poyner House

Street Address: 219 Shingle Landing Road, Moyock, NC 27958

Parcel Identification Number: 014B00000260000 Tax Value of the Property: 220,800

## Acknowledgement

I hereby attest that I have read the attached consequences of Local Historic Landmark Designation and affirm that I do favor having the property defined herein designated as such. For a complete application, ALL owners must sign.

Signature of Owner(s) (Required) Anthony Agreste Date 2/12/20  
 Signature of Owner(s) (Required) Virginia Agreste Date 2-12-20

## Local Landmark Report

*The state enabling legislation requires that a historic landmark property meets two criteria: first, that it is significant and second, that it retains integrity. The submitted report shall contain all of the following information for the application to be considered complete.*

- ☐ Provide a clear summary statement of the property's significance and degree of integrity.
- ☐ Describe the buildings and portion of land that are to be included in the designation including a justification for the proposed boundary. Provide a complete architectural description of the property.
- ☐ Provide a complete and thorough evaluation of the property's integrity of design, setting, workmanship, materials, feeling, and association, fully accounting for all alterations and changes to the property, including those which detract from or do not contribute to the property's significance.
- ☐ Provide a narrative of the property's history that focuses on points relevant to the significance and integrity criteria (include dates of original construction, additions or alterations).
- ☐ Describe historical significance including period and association with a historic event or historically significant person.
- ☐ Describe prehistorical significance.
- ☐ Describe architectural significance including building style, type of construction or engineering, and design elements.
- ☐ Describe archaeological significance.

### Supporting Documentation:

- ☐ Digital photographs that clearly show the overall property in its current condition
- ☐ At least 1 digital photograph of each building side
- ☐ Supporting photographs that illustrate architectural features, spatial relationships, orientation, size, scale, proportion and texture, or which otherwise illustrate context
- ☐ Any additional historic photographs
- ☐ A site plan showing:
  - ☐ the property's location
  - ☐ location of primary structures
  - ☐ location of all outbuildings and appurtenant features (e.g., a well)
  - ☐ major landscape and hardscape features such as large, ancient trees, driveways, and walkways
  - ☐ boundaries of the proposed designation



## Legal Consequences of Local Historic Landmark Designation

### Historic Preservation Commission

This document represents the understanding of the pertinent legislation held by the Currituck County Historic Preservation Commission and in no way represents a legal opinion.

- The owner of a historic landmark may apply for an automatic deferral of 50% of the Ad Valorem taxes on a historic landmark. This deferral persists as long as the property retains its status as a historic landmark. G.S. 105-278.
- The owner of a historic landmark must secure a Certificate of Appropriateness from the Historic Preservation Commission before any material alterations, restoration, removal, or demolition of any exterior feature of a historic landmark may occur. G.S. 160A-400.9.
- A Certificate of Appropriateness for the demolition of a historic landmark, except as specified below, may not be denied. However, the effective date of the Certificate of Appropriateness for the demolition may be delayed for a period of up to 365 days from the date of approval. A Certificate of Appropriateness for the demolition of a historic landmark may be denied if the subject historic landmark is determined by the State Historic Preservation Officer as having state-wide significance as defined by the criteria of the National Register of Historic Places. G.S. 160A-400.14.
- A suitable sign may be placed on a historic landmark or upon a street front property line. G.S. 160A-400.5.

Local Landmark Report for 219 Shingle Landing Road, Moyock, NC  
M. C. Poyner House

Prepared by Virginia & Anthony Agreste, property owners

We would like to present 219 Shingle Landing Road in Moyock as a designated landmark property because of its historical and architectural significance. Located in Moyock Village, it was built in 1899—as per several clippings found in the local newspaper—by Martin C. Poyner for his family. M. C. Poyner (1847-1906) was a prominent store owner, farmer, and land owner in Moyock. He also served as US Postmaster for a time. His second general store still stands today, facing Caratoke Highway. The home he built on the property is a stick-built, two-story, 2,059 square foot home built in the high Victorian style—a unique design for the area—seated on a 1.44-acre parcel of land. The property also includes a large, two-story tin-roofed barn that was built at the same time as the house and is the only other remaining building of historical importance within the property's boundary, which is delineated much as it was in 1899. The north and northwest side of the property line sits directly along Shingle Landing Creek, which was historically an important waterway for transporting goods to and from the area.

219 Shingle Landing Road is an important property to Moyock and Currituck County. The house and barn maintain the majority of their historical integrity. The designation as a historical landmark would focus on the exterior of the buildings on the property.

Mr. Poyner and his wife Mollie clearly had the means to build his family this lovely Queen Anne-style home with much extra ornamentation. Today, all original ornamentation (gingerbread trim) still remains in place, a fact backed up by several historic photographs of the house. The house maintains the vast majority of its integrity. The elaborately trimmed wraparound porch in the front and side of the house looks as it did when built, retaining the same columns, sunburst brackets, and railing. The house siding is still the original pine Dutch lap novelty siding and no original windows or ornamental trim have been lost. Three years ago, the beadboard ceiling of the first-story wraparound front porch was replaced by like materials and the missing original wooden front storm door was replaced with a similar one.

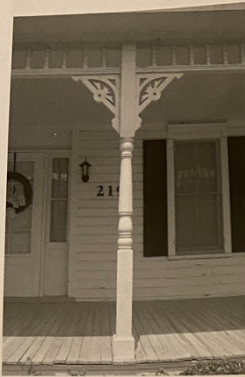
The loss of a separate kitchen building many decades ago—circa 1960—is perhaps the most major change from its original appearance. The two brick chimneys had also been removed from the roof after 1987. A large wooden tin-roofed shed close to the creek and a boathouse (pictured on the cover of the book *Moyock* by Marion Fiske-Welch) were also lost to time and deterioration; the shed in 2014 and the boathouse unknown. The concrete block footprint for the shed, which was not as old as the barn, remains. A small, stand-alone boiler shed was added near the back of the house, circa 1940, based on the style of its siding. The composite shingle roof looks similar to the original cedar (or possibly Cyprus) shakes used. The original wooden front steps have been replaced with brick ones. There are no particular trees or hardscaping on the property that seem to remain from the original state of the property.

The interior is mostly original, with the original floor plan being much the same. The downstairs back porch was enclosed much earlier than even that to create a small room and bathroom, circa 1920-1940. Enclosure of the upstairs sleeping porch in the back of the house was done circa 1980, and about 4 feet of the original balustrade remains above the back door. The room that was originally the library became the kitchen circa 1960 and at that point its northwest-facing window was shortened in length. We are in the process of restoring the interior; repairing plaster and applying new wallpaper in each room. The house has much of its original Victorian feel. It was owned by four generations of the Poyner family when we purchased it, and we are fortunate they were content to only minimally alter this architecturally significant home.

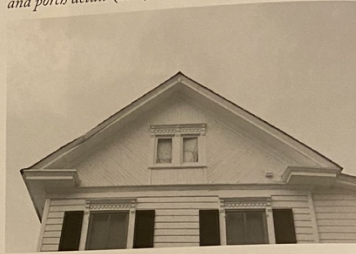
Supporting Documentation for M. C. Poyner House  
219 Shingle Landing Road, Moyock, NC

- Images of pg 130-131 from ***The Goodliest & Most Pleasing Territory: A Building Survey of Currituck County and the Northern Outer Banks*** by Meg Greene. Includes photographs of ornamental trim.
- Historic photographs of the house and property
- Historic newspaper clippings regarding the house
- Survey of the property (Note that the “Wood Barn” closest to creek no longer stands as it was deemed unsafe by the insurance company at the time and ordered to be torn down in 2014.)
- Digital photographs of property taken Feb 12, 2020





*Martin C. Poyner House (MGM), roof detail (MGM), and porch detail (SRC)*



center entrance is a four-paneled, single-leaf wood door with a single-light transom and narrow, two-light, raised paneled sidelights. Attached to the rear of the house is a one-story, side-gable roof, frame, and weatherboard addition that was most likely a detached kitchen.

J. W. Poyner was a merchant and owner of the Poyner General Store in the area of Shingle Landing Road and Oak Street in Moyock. By 1920 he built a new house on Tulls Creek Road. The house on Oak Street was then passed on to Poyner's brother Richard and his descendants.

#### *Martin C. Poyner House* Moyock

In Moyock, four consecutive generations of the Martin C. Poyner family have called a rambling, two-story Queen Anne dwelling home. Built in 1899, the house is T-shaped and covered with novelty siding, similar in plan and footprint to dwellings seen in the southern part of the county, particularly in the slightly projecting two-story front-gable roof bay block on the façade. However, these other buildings are modest, even restrained, compared with the Eastlake influences and



Queen Anne exuberance of the Poyner dwelling. The hipped roof wraparound porch has a spindle frieze and unusually detailed milled and pierced brackets. Another unusual bracket styling is seen underneath the corner edges of the projecting two-story, front gabled bay block. The north, south, and west gable ends of the building are also highly ornate in style. In addition to the molded cornice and returns, the gables have narrow, diagonally cut wood strips arranged in a sunburst pattern. Anchoring the gable ends are paired, single-light hinged windows that have molded drip hoods and sawtooth ornament. The pattern is repeated with the building's 2/2 wood sash windows, also with heavy, scrolled, console-like brackets.

#### *Miller House* Moyock

The Miller House, on the northwest corner of Oak and Church streets, is another example of the I-house and rear ell form in the village of Moyock. Built in 1890, this two-story, five-bay, L-shaped block dwelling sits on a spacious lot enclosed by a white picket fence. Although covered with vinyl, the building retains many original features. The side-gable roof has overhanging eaves, a molded cornice, and returns. Two engaged parged flue



## Poyner and Maggie

Just across the dirt street from my home there sat a rambling Victorian house of yellow clapboard, with elaborate gingerbread trim and white lattice work around the veranda. A white picket fence enclosed the garden, and the left lawn sloped down to the edge of Shingle Landing Creek. Little blue, grape hyacinths bordered the walk to the entrance, and across the lattice trimming on the porch was entwined the radiant Sunburst rose. Under the shade trees grew red bud (Judas Tree), cape jessamine, and lilac.

Here lived my very first adult friends, Poyner and Maggie. Mollie Gaskins Poyner was the widow of Martin Poyner, and Maggie Hinton was her unmarried cousin from Elizabeth City who came to live with Poyner when her husband died.

Poyner, a diminutive lady of charm, was like a perfect miniature who, it seemed, stepped out of a gold-leaf frame into my life one day. She never spoke to me or treated me as one would a child, and this gave me a feeling of security and confidence. I was met at the front door, invited in, and given all the attention that might have been given any of her adult friends. Somehow she could sense my moods, and, knowing my love of music, she would insist that I go into the parlor and play the piano, assuring me that all of my performance would be in private.

Across the soft Brussels carpet I would glide, being ever so careful not to step on the deep rose cabbage roses, shrinking a little from the soft gaze of the life-size portraits of Poyner's parents, the Gaskins, on each side of the mantel. Then I would stop and absorb the atmosphere of the entire room, its Victorian furnishings sending little chills up and down my spine, the walnut "what-not" laden with miniature Dresden and copper lustre *objets d'art*. I just couldn't waste my practice time by simply sitting on the velvet cushions and touching the marble-top table, however tempting, for I must be about my improvising. What a happy hour it was, the proper setting and no intrusions; but what discords must have emanated from that room, for at that time I did not own a piano, had had no lessons, and did not play by ear.

On rainy days, Tom, the eldest of the four sons, would entertain me in the library. From shelves and shelves lined with books, Tom, who I believed must have read them all, would lead me into the world of poesy and into little dells where fairies dwell. His memory was astounding, and I never tired of hearing him read a story, or recite a poem.

On other days Maggie would be my hostess as I travelled from Niagara Falls to the Great Plains with the aid of the stereoscope.

Sometimes both Poyner and Maggie would explain to me the intricate steps of some needlework or handicraft which they were beginning. This entertaining was always done in the sitting room, the big calendar clock ticking away the minutes of my allotted time. Pluto, the big black cat coiled around the nickel-plated kerosene lamp on the drop-leaf table spread with a red-checked table cloth, purred the minutes also.

Poyner always sat in a platform rocket, and in her corner by a quaint little desk was her favorite poem, "I Love Old Things." I was never allowed to dine at Poyner's; and in that restriction I'm sure my parents were wise, for I would have become a nuisance. I could never have resisted an invitation to eat in the little dining room which was reached by







*Poyner and Maggie. Photograph courtesy of Genevieve Holleman West*

crossing a vine-covered porch leading from the sitting room. Ella Wilson, the cook, prepared the meals in the adjoining kitchen, and, from the tantalizing aroma, what sumptuous feasts they must have been.

There came from that same dining room my first acquaintance with death. One night as the family, which included Poyner, her four sons, Tom, Will, Fred, and Charlie, Maggie, and Poyner's brother-in-law, Jim, began their evening meal, Maggie took her seat at one end of the table facing Poyner. Just as many grand dames throughout the land have graciously served four o'clock tea, Maggie picked up the ironstone pitcher; but, it dropped from her hand; the tea spilled; her glass broke; and Maggie, limp as her silken sleeve, fell from her chair lapsing immediately into a coma and dying within a very short time.

I shall always remember where I was sitting on my back steps when I first heard this news. It was unthinkable—living without Maggie.

Poyner and Maggie are no more. Gone are Jim and the four sons. Only the house by the creek remains haunting me with visions of a time that has passed.



*The Martin and Mollie Poyner home. The house is now owned and occupied by Mollie's and Martin's grandson, Richard "Dickie" Poyner and his family. Photograph courtesy of Genevieve Holleman West*



Historic images of house and property 219 Shingle Landing Road



Historic images of house and property 219 Shingle Landing Road



Attachment: 2 Local Landmark Application (HPC 20-01 M.C. Poyner House Historic Designation)



Historic images of house and property 219 Shingle Landing Road



**Figure 1: Willie Barnes, William Creekmore, Leroy Powers, Uncle Noah in background, Moyock Creek (Single Landing Creek) 1951**





Historic images of house and property 219 Shingle Landing Road



## Historic newspaper clippings regarding 219 Shingle Landing Road

Newspapers.com

<http://www.newspapers.com/image/62738101>

Fisherman and Farmer (Edenton, North Carolina) · Fri, Feb 3, 1899 · Page 1

Page 2

Downloaded on Jun 8, 2015

9, 2015

The workmen are still at work on Mr. M. C. Poyner's new house which seems hard to finish on account of the bad weather.

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Newspapers.com

<http://www.newspapers.com/image/64470999>

Fisherman and Farmer (Edenton, North Carolina) · Fri, Nov 18, 1898 · Page 2

Downloaded on Aug 19, 2015

Mr. M. C. Poyner's new house is in the hands of the painters.

Newspapers.com

<http://www.newspapers.com/image/62738148>

Fisherman and Farmer (Edenton, North Carolina) · Fri, Mar 10, 1899 · Page 2

Downloaded on Aug 19, 2015

M. C. Poyner's handsome new home was finished last week and is now ready for occupancy. It is a credit to the village.



## Historic newspaper clippings regarding 219 Shingle Landing Road

**Newspapers**  
.com

Fisherman and Farmer (Edenton, North Carolina) · Fri, Apr 28, 1899 · First Edition · Page 1

Downloaded on May 2, 2017

Mr. M. C. Poyner has just finished a nice new fence around his new house.

**Newspapers**  
.com

<http://www.newspapers.com/image/64064480>

Daily Economist (Elizabeth City, North Carolina) · Mon, Feb 19, 1906 · Page 1  
 Downloaded on Jun 9, 2015

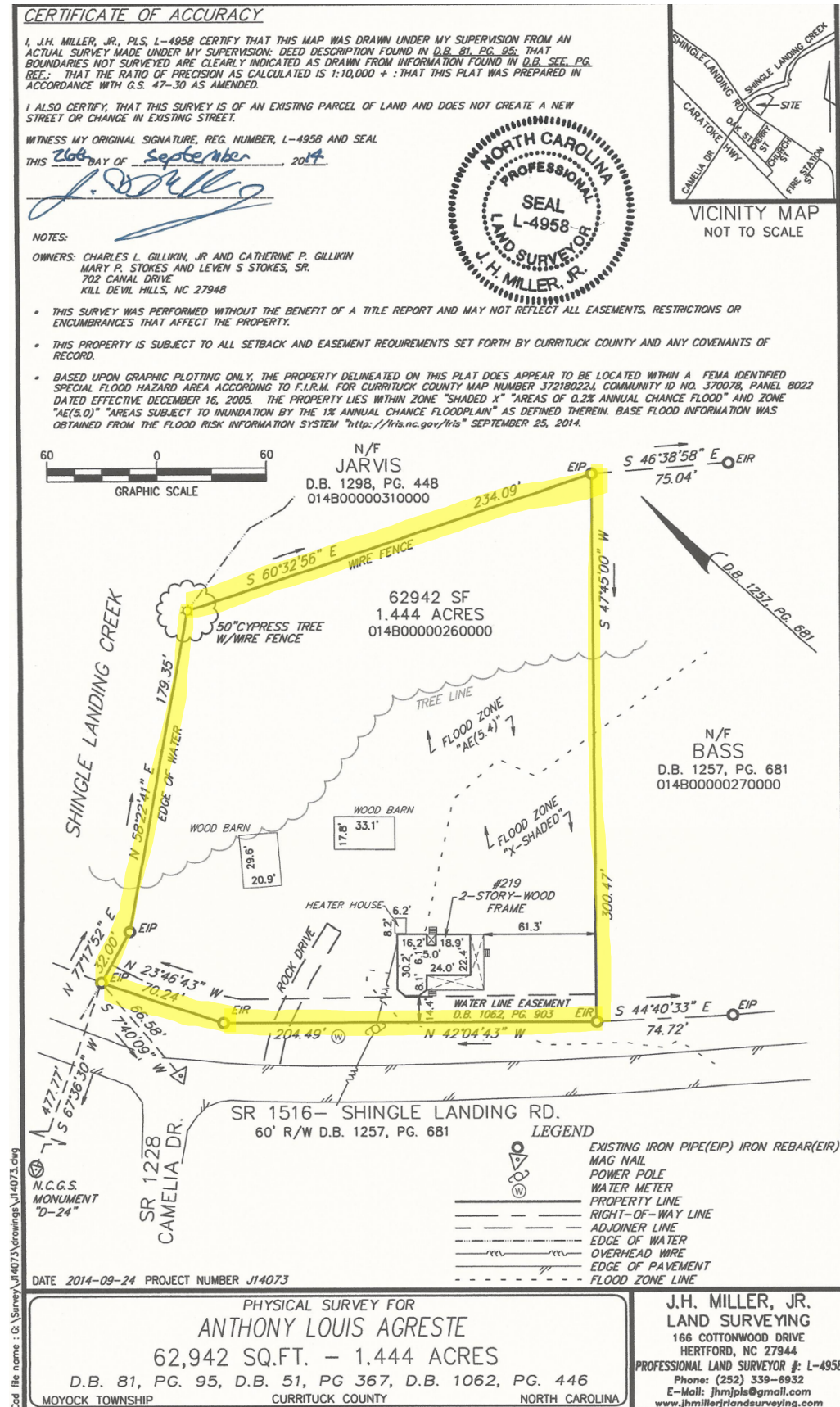
## Mr. Martin C. Poyner Dead

Died at his home in Moyock, Currituck county, N. C., on February 6th, after a lingering and painful illness, Mr. Martin C. Poyner, in the 59th year of his age.

Mr. Poyner was one of the most prominent, and highly respected citizens of Moyock township, was a successful farmer, and for many years conducted a large mercantile establishment.

He leaves a wife and four sons to whom he had always been a devoted husband and father.

## Survey for 219 Shingle Landing Road, Moyock



Note: Highlighted boundary line is requested for landmark designation.

Wood barn closest to the creek was demolished in 2012.



Images of 219 Shingle Landing Road, house and supporting barn, taken Feb 12, 2020



Attachment: 2 Local Landmark Application (HPC 20-01 M.C. Poyner House Historic Designation)



Images of 219 Shingle Landing Road, house and supporting barn, taken Feb 12, 2020





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## Bibliography

Greene, Meg. *The Goodliest & Most Pleasing Territory: A Building Survey of Currituck County and the Northern Outer Banks*. NC: Currituck County Historical Society and Currituck County, 2017

Fiske Welch, Marion. *Moyock, a pictorial and folk history, 1900-1920*. Norfolk, VA: Donning, 1982.

*Fisherman and Farmer*. Edenton, NC. 1898-1899

*Daily Economist*. Elizabeth City, NC. 1906





**M.C. Poyner House  
219 Shingle Landing Road  
Moyock, NC 27958**

**Local Landmark Report**

**Historic Name of Property**

M.C. Poyner House

**Amount of land/acreage to be designated:**

1.44 acres

**Address of Property**

219 Shingle Landing Road

**Interior to be designated:**

No

**PIN #**

014B00000260000

**Property Owner's Address, Phone & Email:**

Anthony and Virginia Agreste  
219 Shingle Landing Road  
Moyock, NC 27958  
252-339-0461

**DEED BOOK:** 1306 **PAGE:** 246

[anthonyagreste@gmail.com](mailto:anthonyagreste@gmail.com)  
[vbserpico@gmail.com](mailto:vbserpico@gmail.com)

**PLAT CABINET:** 1306 **SLIDE:** 251

**ZONING:**

Single-Family Residential – Mainland



### Statement of Significance

The M.C. Poyner House is being proposed for designation because of its local **architectural** significance as an excellent example of Queen Anne style with Eastlake influence in Currituck County. Martin C. Poyner (1847-1906), who originally lived in the house, built it for his family. He was a prominent store owner, farmer and land owner in Moyock. Construction of the house began in 1898<sup>1</sup> and was completed in March of 1899.<sup>2</sup> The house retains many of its original architectural details as evidenced by historic and current photos. The majority of Queen Anne houses in Currituck County are best described as vernacular, as they lack the complexity of form and roofline that identifies high-style examples more commonly found in urban areas.<sup>3</sup> The M.C. Poyner House is one of several of the more high-style interpretations of the Queen Anne style seen in Currituck County.<sup>4</sup>

### Archeological Comments

No known archaeological features are present.

### Integrity Statement

- **Location:** The M.C. Poyner House remains in its original location adjacent to Shingle Landing Creek at the intersection of Camelia Drive and Shingle Landing Road in the heart of Historic Moyock Village.
- **Design:** The house incorporates Eastlake Influence and Queen Anne exuberance.
- **Setting:** The house's setting has remained mostly unchanged. The house still fronts Shingle Landing Road and is adjacent to Shingle Landing Creek with the north lawn sloping down to the creek.
- **Workmanship:** The exterior architectural details show a high level of craftsmanship and design, specifically the wraparound porch's spindle frieze and detailed milled and pierced brackets, the bracket styling underneath the corner edges of the front gabled bay block, the gable end molded cornice and returns, the sunburst pattern of the gables, the molded drip hoods and saw-tooth ornamentation of the original windows and the heavy, scrolled, console-like brackets of each original window.
- **Materials:** Most of the original materials from the M.C. Poyner House's original construction are still present. The house siding is original pine Dutch lap novelty siding, all original windows and ornamental trim remain. The composite shingle roof looks similar to the original cedar (or possibly cypress) shakes. The original front steps have been replaced with brick ones. In 2017, the beadboard ceiling of the first-story wraparound front porch was replaced with like materials and the missing original wooden front storm door was replaced with a similar one.

<sup>1</sup> *Fisherman and Farmer*, November 16, 1898.

<sup>2</sup> *Fisherman and Farmer*, March 10, 1899.

<sup>3</sup> Meg Greene Malvasi, Penne Smith Sandbeck, and Barbara Snowden. *The Goodliest & Most Pleasing Territory: A Building Survey of Currituck County and the Northern Outer Banks*. (NC: Currituck County Historical Society and Currituck County, 2017), 76.

<sup>4</sup> *Ibid*, 78.

The original wooden shutters are not installed; however, the owners still have a majority of the original shutters stored on the property.

- **Feeling:** The feeling of the house and property remains as many of its important Queen Anne Style architectural elements have been preserved.
- **Association:** The M.C. Poyner House is associated with the Historic Moyock Village as an exuberant example of the Queen Anne Style architecture in one of the oldest and previously affluent village areas of Currituck County. It is still used as a single-family dwelling. The M.C. Poyner House is associated with the original owner, Martin C. Poyner, who was a prominent store owner in Moyock. One of his general stores built several blocks from the home in 1902<sup>5</sup>, still stands today facing Caratoke Highway.

### Proposed Boundary Justification

The proposed boundary for Local Landmark Designation is the property's current 1.44 acre parcel (PIN: 014B00000260000). The boundary is the homestead parcel that is bordered by Shingle Landing Road to the west, Shingle Landing Creek to the north and low lying swamp areas adjacent to Shingle Landing Creek to the east.

### Architectural Assessment

#### *Architectural Importance*

The M.C. Poyner House is locally significant in Currituck County because it is a fine example of residential architecture in the Queen Anne style with Eastlake Influence. The property has retained a high level of integrity.

Historically, the Tulls Creek Road area in Moyock was considered the wealthier street in the village, particularly three homes on the northeast side of the road, all encompassing a diverse representation of late-nineteenth-century and early-twentieth-century architecture.<sup>6</sup>

The M.C. Poyner House is associated with the Historic Moyock Village as an exuberant example of the Queen Anne Style architecture in one of the oldest and previously affluent village areas of Currituck County.

Mr. Poyner and his wife Mollie clearly had the means to build their family this lovely Queen Anne-style home with much extra ornamentation. Today, all original ornamentation (gingerbread trim) still remains in place, a fact backed up by several historic photographs of the house.

The M.C. Poyner House is stick-built, 2,059 square feet, T-shaped, with a slightly projecting two-story front-gable roof bay block with cutaway bay windows on the front façade. It exhibits Eastlake influence and Queen Anne exuberance including a hipped wraparound porch with a spindle frieze and unusually detailed milled and

<sup>5</sup> A. Burgess Jennings. *Images of America Currituck County*. (Charleston, SC: Arcadia Publishing, 2012), 13.

<sup>6</sup> Malvasi, Sandbeck, & Snowden. *The Goodliest & Most Pleasing Territory: A Building Survey of Currituck County and the Northern Outer Banks*, 131.

pierced brackets, and an unusual bracket style underneath the corner edges of the projecting two-story, front-gabled bay block.<sup>7</sup>

The north, south, and west gable ends of the building are highly ornate with molded cornice and returns, narrow, diagonally cut wood strips arranged in a pattern that simulates a sunburst, and paired, single light, hinged windows. The sunburst pattern was achieved by installing the wood strips diagonally on each side of the paired, single-light hinged windows and installing the wood strips vertically above and below the windows. Trim boards extend from the outermost vertical trim board of each window to the molded cornice of the gable. The gable windows have molded drip hoods, scrolled, console-like brackets and sawtooth ornament.<sup>8</sup>

The molded drip hoods, sawtooth ornamentation and heavy, scrolled, console-like brackets are repeated on the 2/2 original wood sash windows of each facade. The east facade of the building has a remaining example of the detailed milled brackets and balustrade detail of the former sleeping porch.

### *Architectural Context*

The Queen Anne Style (1880-1900) is a most varied and decoratively rich style.<sup>9</sup> According to Virginia McAlester's *A Field Guide to American Houses*, identifying features of Queen Anne Style include a steeply pitched roof of irregular shape, usually with a dominant front-facing gable; patterned shingles; cutaway bay windows, and other devices used to avoid a smooth walled appearance; asymmetrical facade with a partial or full width porch which is usually one story high and extended along one or both side walls.<sup>10</sup>

The M.C. Poyner House has many of these elements including a steep pitched roof, a dominant front-facing gable with two story cutaway bay windows, patterned stick-work and gingerbread ornamentation on three gable pediments; an asymmetrical facade with a one story high partial front wraparound porch extended around the south side. The M.C. Poyner House has a cross-gabled roof and a T-shaped ground plan which is described by McAlester as one of the principal shape subtypes of the Queen Anne Style.<sup>11</sup>

McAlester further writes that the Queen Anne Style can also be distinguished on the basis of decorative detailing. SPINDLEWORK—About 50 percent of Queen Anne houses have delicate turned porch supports and spindlework ornamentation made possible by machine lathes. This most commonly occurs in porch balustrades or as a frieze suspended from the porch ceiling. Spindlework detailing is also used in gables and under the wall overhangs left by cutaway bay windows. Lacy, decorative spandrels and knob-like beads are also common ornamental elements in this subtype as is incised decorative detail. Spindlework detailing is sometimes referred to as

<sup>7</sup> Ibid, 131-2.

<sup>8</sup> Ibid.

<sup>9</sup> John J.-G. Blumenson. *Identifying American Architecture: A Pictorial Guide to Styles and Terms, 1600-1945*. (Tennessee: American Association for State and Local History, 1977), 63.

<sup>10</sup> Virginia McAlester. *A Field Guide to American Houses: The Definitive Guide to Identifying and Understanding America's Domestic Architecture* (New York: Alfred A. Knopf, 2019), 345.

<sup>11</sup> Ibid, 346.

gingerbread ornamentation, or as Eastlake detailing (after Charles Eastlake, an English furniture designer who advocated somewhat similar design elements).<sup>12</sup>

The M.C. Poyner House has delicate turned porch supports, spindlework frieze ornamentation on the wraparound porch and unusual spindlework detail on the brackets under the front wall overhang by the cutaway bay windows. These are all indicative of the spindlework decorative detailing subtype of the Queen Anne Style.

Eastlake (1870-1890) was a popular decorative style of ornamentation found on houses of various other styles, e.g. Victorian Gothic, Stick Style and Queen Anne. This decorative style is named for Charles Locke Eastlake (1833-1906), an English interior designer and critic of Gothic Revival style. Porch posts, railings, balusters and pendants were characterized by a massive and robust quality. These members were worked or turned on a mechanical lathe, giving the appearance of heavy legged furniture of the period. Large curved brackets, scrolls and other stylized elements often are placed at every corner, turn or projection along the façade. Perforated gables and pediments, carved panels, and a profusion of spindles and lattice work found along porch eaves add to the complexity of the façade. These lighter elements combined with the heavier and oversized architectural members exaggerated the three-dimensional quality.<sup>13</sup>

The scrolled console-like brackets on the window trim, spindle frieze on the wraparound porch, turned porch posts, cutout pattern of the rear porch balustrade, and the unusual turned bracket style at the corner edges of the front projecting gable are indicative of Eastlake influence on the M.C. Poyner House.

## **Architectural Description**

### *Landscape*

There are no particular trees or hardscaping on the property that remain from the original state of the property adjacent to the house; however, the rear of the property still contains a low swampy area with dense trees including cypress trees.

### *Front (Southwest) Elevation*

The M.C. Poyner House is two-story, side facing, T-shaped with a cross gabled roof and a one story hipped porch that wraps around the front façade and the southeast facing façade. The front façade faces Shingle Landing Road and features a two-story projecting gabled bay block to the left (northwest) of the main entrance; the six-panel wood front door is tucked under the hipped unenclosed, wraparound porch and it features a detailed replacement wooden storm door (Fig. 1). The front door features side lights on each side and a transom; under the side lights on each side is a rectangular molded wooden panel (Fig. 2). There are two symmetrical rectangular side lights above the panel on each side of the door and a transom over the door includes three rectangular lights (Fig. 3). The two-story projecting gabled bay block features a

<sup>12</sup> McAlester, *A Field Guide to American Houses: The Definitive Guide to Identifying and Understanding America's Domestic Architecture*, 346.

<sup>13</sup> Blumenson. *Identifying American Architecture: A Pictorial Guide to Styles and Terms, 1600-1945*, 59.

gable end with molded cornice and returns with centered paired single-light hinged windows with molded drip hoods, saw tooth ornament, and scrolled brackets. The gable pediment features cut wooden strips installed in a sunburst pattern. The sunburst pattern was achieved by installing the wood strips diagonally on each side of the paired, single-light hinged windows and installing the wood strips vertically above and below the windows. Trim boards extend from the outermost vertical trim board of each window to the molded cornice of the gable. At the bottom corners of the gable end are brackets of an unusual style (Fig. 4). The brackets have turned Eastlake style details. The two-story projecting bay block features three bay 2/2 windows on each floor with the same window trim of molded drip hood, saw tooth ornament, and scrolled brackets. The southeast facing wall of the front gable block includes one 2/2 window on the second floor and one 2/2 window on the first floor under the hipped wraparound porch, both windows feature the same original trim (Fig. 5). Above the front door and wraparound porch on the second floor are three windows (2/2) with the same original window trim detail. One window is over the front door, and the other two are in line with the windows on the first floor wraparound porch. To the right of the front door under the wraparound porch are two windows (2/2) directly below each window on the second floor. The wraparound porch features a spindle frieze and pierced brackets; there are four turned spindle porch posts on the front façade and eight decorative brackets (Fig. 6, Fig. 7 & Fig. 8). The porch includes molded trim under the outermost edge of the wood tongue and groove porch flooring (Fig. 8). The entry consists of three brick steps directly in line with the front door. Leading up to the front steps from the road is a narrow gravel path.

#### *Northwest Side Elevation*

The northwest façade is the widest, flattest elevation of the house (Fig. 9). It features a nearly centered (slightly to the east) gable and the same gable-end style as the front and south façade with molded cornice, molded returns, the starburst patterned stick work, and paired, hinged, single light windows with molded drip edge, sawtooth ornament and scrolled console like brackets. There are two windows (2/2) on the second floor below each gable return. The first floor has a 2/2 window below the western second story window. The northeastern most window of the first floor is 2/2 but smaller and more square, this window was shortened in 1960 when the library became the kitchen. The kitchen window is located below the northeastern most second story window. All original windows have the same window trim previously described (Fig. 10 & Fig. 11).

#### *Southeast Side Elevation*

The southeast façade features a gable end and hipped wraparound porch (Fig. 12). The wraparound porch includes four turned posts (including the corner post that is shared by the front elevation) and six pierced brackets consistent with those of the front elevation (Fig. 13). The easternmost post of the porch is square, not turned, and the two brackets under the spindle frieze match those found on the second story porch of the northeast elevation (Fig. 14). The gable end features the same style, trim and

hinged paired single light windows with the same original window trim previously described (Fig. 15 & Fig. 16). On the second floor façade, below the gable end, inside of each gable return are two 2/2 windows with the same original window trim previously described. On the first floor, there is a 2/2 window below the southwestern most second floor window and a door below the northeastern most second floor window. The door is wooden and it features eight square divided lights and the door trim is the same trim used on the original windows previously described (Fig. 17). On the second story, a shed roof extends (slightly recessed from the exterior wall) from the gable eave to the northeast to cover what was a second story porch (slightly recessed). This portion of the house is enclosed with similar siding to the original and includes one narrow, horizontally installed vinyl window. Below the enclosed porch on the first floor the wall has the typical cladding and no windows and is also slightly recessed from the wall of the first floor.

#### *Rear (Northeast) Elevation*

The northeast façade (rear elevation) features the rear T gable, the gable end does not repeat the sunburst pattern, the pediment is horizontal siding (Fig. 18). The gable end does not feature a molded cornice but it does feature molded returns and the same centered paired single-light hinged windows with molded drip hoods, saw tooth ornament, and scrolled brackets. Under the paired single-light hinged windows of the gable end, are centered 2/2 windows on the second and first floor. To the southeast of the gable end and wall on the first story is a rear entrance covered by a shed style roof with asphalt shingles. Above the covered rear entrance, approximately the same width (4') is the remaining balustrade and decorative brackets of the original second floor porch (Fig. 19). To the left of the remaining porch opening and balustrade are four six over one vinyl windows, the windows are not original and do not have notable trim. The enclosed porch includes similar siding as the original. Under the enclosed porch on the first floor are two windows with 2/2 horizontal panes, the window on the right is smaller than the one on the left. The end of the wrap around porch is cladded and the features a spindle railing.

#### *Contributing Barn*

The property includes a two story tin-roofed wooden barn that was built at the same time as the house and is the only other remaining building of historical importance within the property's boundary (Fig. 21, Fig. 22 & Fig. 23). The barn sits to the rear (northeast) of the main house. The barn consists of three bays and a hayloft with cutout door in the gable over the middle bay. All sides of the barn are sided with no additional openings.

#### **Construction Timeline & Narrative**

1898-1899 Original Construction  
 Circa 1920-1940 Rear first level porch enclosed  
 Circa 1940 Boiler shed added  
 Circa 1960 Loss of kitchen building



Circa 1980 Upstairs sleeping porch enclosed  
 After 1987 Two brick chimneys removed  
 Unknown Date Loss of boathouse  
 2014 Shed adjacent to creek – lost to time and deterioration

Construction of the house was completed in 1899. The downstairs back porch was enclosed circa 1920-1940 to create a small room and bathroom. A small, stand-alone boiler shed was added near the back of the house, circa 1940, based on the style of its siding. The loss of a separate kitchen building many decades ago –circa 1960- is perhaps the most major change from its original appearance. The interior is mostly original, with the original floor plan being much the same. The room that was originally the library became the kitchen circa 1960 and at that point one northwest-facing window was shortened in length. Enclosure of the upstairs sleeping porch in the back of the house was done circa 1980, about four feet of the original balustrade remains above the back door. The two brick chimneys were removed from the roof sometime after 1987. The composite shingle roof looks similar to the original cedar (or possibly cypress) shakes. The original front steps have been replaced with brick ones. In 2017, the beadboard ceiling of the first-story wraparound front porch was replaced with like materials and the missing original wooden front storm door was replaced with a similar one.

The owners are in the process of restoring the interior; repairing plaster and applying new wallpaper in each room. The house has much of its original Victorian feel. It was owned by four generations of the Poyner family when the current owners purchased it, and fortunately, they were content to only minimally alter this architecturally significant home.

A large wooden tin-roofed shed close to the creek and a boathouse (pictured on the cover of the book *Moyock* by Marion Fiske-Welch) were also lost to time and deterioration; the shed in 2014 and the boathouse unknown. The concrete block footprint for the shed, which was not as old as the barn, remains.

### ***Historical Significance***

The M.C. Poyner House is also proposed for its local **historical** significance. The Poyner family has been in Currituck County since the very beginning of the 1700's. M.C. Poyner was a seventh generation Poyner in Currituck County.<sup>14</sup>

The M.C. Poyner House is associated with the original owner, Martin C. Poyner. Martin C. Poyner (1847-1906), who originally lived in the house, built it for his family. Martin Carney Poyner and his wife Mollie Poyner were the original owners of the home. Construction of the house began in 1898<sup>15</sup> and was completed in March of

<sup>14</sup> Jo Anna Heath Bates (Ed.), *The Heritage of Currituck County North Carolina*. (Winston-Salem, NC: The Albemarle Genealogical Society, Inc. in cooperation with The Currituck County Historical Society, Inc. and Hunter Publishing Company, 1985), 356.

<sup>15</sup> *Fisherman and Farmer*, November 16, 1898.

1899.<sup>16</sup> M.C. Poyner was a prominent and highly respected citizen of Moyock, NC.<sup>17</sup> He was a successful farmer and store owner. His store M.C. Poyner Groceries and Liquors also included a post office and was the center of the community.<sup>18</sup> He was the postmaster in Moyock as evidenced by the Post-Office Department records in 1881<sup>19</sup>, 1885<sup>20</sup> and 1899.<sup>21</sup> M.C. Poyner carried the mail and delivered newspapers by boat in the 1880's.<sup>22</sup> One of his general stores, built in 1902<sup>23</sup>, still stands today several blocks from the home facing Caratoke Highway.

The M.C. Poyner House is adjacent to Shingle Landing Creek, which was historically an important waterway for transporting goods to and from the area.

<sup>16</sup> *Fisherman and Farmer*, March 10, 1899.

<sup>17</sup> "Mr. Martin C. Poyner Dead," *Daily Economist*. February 19, 1906.

<sup>18</sup> Jennings. *Images of America Currituck County*, 13.

<sup>19</sup> The Post-Office Department and The Postal Service compiled under the direction of the Secretary of the Interior. *Official Register of the United States Containing a List of the Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1881. Volume II.* (Washington: Government Printing Office 1881), 518.

<sup>20</sup> The Post-Office Department and The Postal Service compiled under the direction of the Secretary of the Interior. *Official Register of the United States Containing a List of the Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1885. Volume II.* (Washington: Government Printing Office 1885), 584.

<sup>21</sup> J.G. Ames, Superintendent of Documents. The Post-Office Department and The Postal Service compiled under the direction of the Secretary of the Interior. *Official Register of the United States Containing a List of the Officers and Employees in the Civil, Military, and Naval Service on the First of July, 1889; Together with a List of Vessels Belonging to the United States. Volume II.* (Washington: Government Printing Office 1890), 679.

<sup>22</sup> Jennings. *Images of America Currituck County*, 13.

<sup>23</sup> *Ibid.*



## ***Bibliography***

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Currituck County, North Carolina Deed Book 87, Page E/37

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### **Newspapers/ Online News Articles**

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## Supporting Photographs & Documentation

Fig. 1: Front (Southwest) Elevation



Fig. 2: Front Door





Fig. 3: Storm Door, Sidelights & Transom



Fig. 4: Bracket under Front Gable



Fig. 5: Front Southeast Facing Wall





Fig. 6: Wraparound Porch



Fig. 7: Spindle Frieze and Brackets



Fig. 8: Turned Porch Spindles, Porch Floor and Trim





Fig. 9: Northwest Elevation



Fig. 10: Molded drip edge, sawtooth ornament and scrolled, console like brackets





Fig. 11: Original Window Trim



Fig. 12: Southeast Elevation





Fig. 13: Southeast Wraparound Porch



Fig. 14: Square Porch Post & Brackets



Fig. 15: Gable End



Fig. 16: Gable End Starburst Pattern





Fig 17: Southeast Porch Door



Fig. 18: Rear (Northeast) Elevation



Fig. 19: Rear Elevation





Fig. 20: Balustrade and Bracket Detail



Fig. 21: Contributing Barn - Southwest Elevation





Fig. 22: Contributing Barn - Northeast Elevation



Fig.23: Contributing Barn – Northeast Elevation (rear) with view of bridge and creek.





Setting:

View from north side of bridge



View from intersection of Camelia Drive & Shingle Landing Road





Rear yard



Rear yard







**North Carolina Department of Natural and Cultural Resources  
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper  
Secretary Susi H. Hamilton

Office of Archives and History  
Deputy Secretary Kevin Cherry

May 22, 2020

Jennie Turner  
Currituck County Historic Preservation Commission  
153 Courthouse Road, Suite 110  
Currituck, NC 27929

**RE: Proposed designation of the M. C. Poyner House, 219 Shingle Landing Road, Moyock, Currituck County**

Dear Ms. Turner:

Thank you for the report concerning the M. C. Poyner House, 219 Shingle Landing Rd., Moyock, Currituck County. We have reviewed the information in the report and offer the following comments in accordance with North Carolina General Statute 160A-400.6.

The M.C. Poyner House, located in the Town of Moyock at 219 Shingle Landing Road was built in 1899 and appears to be an intact and excellent example of the Queen Anne style of architecture with Eastlake decorative elements. The Poyner House retains many of its original architectural details. The majority of Queen Anne style houses in Currituck County are best described as vernacular, as they lack the complexity of form and roofline that identifies high-style examples more commonly found in urban areas. The M.C. Poyner House is one of a small class of the more high-style interpretations of the Queen Anne in Currituck County and the best preserved example in Moyock. Given the preserved state of the M.C. Poyner House, it appears to be a good candidate for local landmark designation.

We commend the commission for submitting an investigative report that satisfies all of the requirements outlined in the HPO Guidelines and believe the data therein provides the local governing board with sufficient information to determine whether the M. C. Poyner House possesses the requisite special local significance and integrity for local historic landmark designation.

Landmark historic designation means the community recognizes an area is worthy of preservation because of its special significance to the local community. Any substantial changes in design, materials, and appearance to property would be subject to design review procedures of the preservation commission.

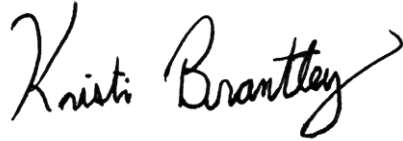
Thank you for the opportunity to comment on the report. Please note, our comments are advisory only and therefore, non-binding. Once the governing board has received a recommendation from the Currituck



County Historic Preservation Commission, it should proceed in the same manner as would otherwise be required for an amendment to the zoning ordinance. Once the decision has been made, please return a completed copy of the enclosed form to our office.

This letter serves as our comments on the proposed designation of the M.C. Poyner House. Please contact me at 919-814-6576 should you have any questions about our comments.

Sincerely,

A handwritten signature in black ink that reads "Kristi Brantley". The signature is fluid and cursive, with the first name "Kristi" and last name "Brantley" clearly legible.

Kristi Brantley  
Local Preservation Commissions/CLG Coordinator

CC: Commission Chair

Enclosure

Attachment: 4 SHPO Letter (HPC 20-01 M.C. Poyner House Historic Designation)



## **COUNTY OF CURRITUCK**

### **ORDINANCE DESIGNATING A LOCAL HISTORIC LANDMARK M.C. POYNER HOUSE 219 SHINGLE LANDING ROAD, MOYOCK, NORTH CAROLINA**

WHEREAS, Chapter 160A-400.5 of the North Carolina General Statutes provides for the designation of historic landmarks; and

WHEREAS, Currituck County has created a Historic Preservation Commission (the “commission”) as a historic preservation commission having the authority to exercise the powers and duties conferred by Section 2-266 of the Currituck County Code of Ordinances; and

WHEREAS, the M.C. Poyner House is located at 219 Shingle Landing Road in Moyock, North Carolina and bearing tax parcel number 014B-000-0026-0000 (“the Property”); and

WHEREAS, the Property is owned by Anthony and Virginia Agreste who consented to the landmark designation; and

WHEREAS, the commission issued a Local Landmark Designation Report in June 2020, recommending designation of the Property as a local historic landmark; and

WHEREAS, as set forth in the detail in the Local Landmark Designation Report, the commission has determined that the Property is of special significance in terms of its historical and architectural importance and possesses integrity of design, setting, workmanship, materials, feelings, and association; and

WHEREAS, the Landmark Designation Report was submitted to the State Historic Preservation Office (“SHPO”) of the North Carolina Department of Cultural Resources for review and comment; and

WHEREAS, the SHPO reviewed the Local Landmark Designation Report and issued a letter of comment dated May 22, 2020 in which it noted that the “M.C. Poyner House located in the Town of Moyock at 219 Shingle Landing Road was built in 1899 and appears to be an intact and excellent example of the Queen Anne style of architecture with Eastlake decorative elements. The Poyner House retains many of its original architectural details.” And the “M.C. Poyner House is one of the small class of the more high-style interpretations of the Queen Anne in Currituck County and the best preserved example in Moyock.” and

WHEREAS, the commission held a duly-noticed public hearing on July 1, 2020, with respect to this ordinance and designation of the Property as a local historic landmark as contemplated herein, and following said hearing voted to confirm its recommendation that the



Currituck County Board of Commissioners designate the Property as a local historic landmark; and

WHEREAS, the Currituck County Board of Commissioners held a duly-noticed public hearing on July 20, 2020, with respect to this ordinance and designation of the Property as a local historic landmark as contemplated herein, and following said hearing voted to confirm its recommendation that the Currituck County Board of Commissioners designate the Property as a historic landmark; and

WHEREAS, the Currituck County Board of Commissioners has taken into full consideration any information offered at the public hearing and the information contained in the commission's Landmark Designation Report; and

WHEREAS, the Currituck County Board of Commissioners finds that the Property is of special historical, architectural, and cultural significance, and possesses integrity of design, setting, workmanship, materials, feelings, and/or association, as described in the Landmark Designation Report and the SHPO comment letter; and

WHEREAS, the Currituck County Board of Commissioners finds the Property's preservation should be encouraged and ensured.

NOW, THEREFORE, BE IT ORDAINED as follows:

**Section 1:** Currituck County Board of Commissioners hereby designates the M.C. Poyner House located at 219 Shingle Landing Road in Moyock, North Carolina as a Local Historic Landmark, to include the entire parcel and all exterior features of the Property.

**Section 2:** The review process provided by Section 2-271 of the Currituck County Code of Ordinances as amended shall be observed prior to demolition, alteration, rehabilitation, restoration, or removal of any exterior elements of the designated Property.

**Section 3:** In the event relocation, demolition or destruction of the Property is authorized as provided by law, such action may be delayed up to 365 days as provided by Section 2-274 of the Currituck County Code of Ordinances.

**Section 4:** Nothing herein shall be construed to prevent or delay the ordinary maintenance or repair or any exterior feature of a historic local landmark, provided such maintenance or repair does not involve a change in design, material or appearance of the historic local landmark; the construction, alteration, relocation, or demolition of any feature, building or structure when the chief building inspector certifies to the commission that action is necessary to the public health or safety because of unsafe or dangerous conditions; or the maintenance of, or, in the event of an emergency, the immediate restoration of any existing above ground utility structure without approval by the commission.

**Section 5:** Nothing herein shall be construed to prevent the owner of the historic landmark from making any use of the historic landmark not prohibited by other statutes, ordinances or regulations. Owners of locally designated historic landmarks are expected to be familiar with and to follow the *Currituck County Historic Landmark Design Guidelines*, the guidelines used by the commission to evaluate proposed alterations or additions.

**Section 6:** That a suitable sign or plaque may be posted indicating that said property has been designated as a local historic landmark.

**Section 7:** That the owners of the local historic landmark known as the M.C. Poyner House shall be given notice of this ordinance as required by applicable law and that copies of this ordinance be filed and indexed in the office of the Currituck County Register of Deeds as required by applicable law.

**Section 8:** That which is designated as a local historic landmark shall be subject to Chapter 160A, Article 19, Part 3C of the General Statutes of North Carolina as amended.

ADOPTED and effective the \_\_\_\_ day of \_\_\_\_\_, 2020.

\_\_\_\_\_  
Robert White, Chairman  
Board of Commissioners

ATTEST:

\_\_\_\_\_  
Clerk to the Board of Commissioners

(COUNTY SEAL)





## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2852)

**Agenda Item Title:** PB 19-14 Moyock Farms:

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

**Presenter of Item:** Laurie LoCicero

**Board Action:** Action

---

**Brief Description of Agenda Item:**

Request for an amended Preliminary Plat/Use Permit for a 31 lot Traditional Development located at 1216 Caratoke Highway, Parcel Identification Number 0023-000-0007-0000, Moyock Township.

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**



**STAFF REPORT  
PB 19-14 MOYOCK FARMS  
PRELIMINARY PLAT/USE PERMIT  
BOARD OF COMMISSIONERS  
JULY 20, 2020**

### APPLICATION SUMMARY

<b>Property Owner:</b> Eagle Auto Auction 2035 Dewald Rd Chesapeake VA 23322	<b>Applicant:</b> Moyock Farms LLC Sam Miller 111 Currituck Commercial Dr Suite B Moyock NC 27958
<b>Case Number:</b> PB 19-14	<b>Application Type:</b> Amended Preliminary Plat/Use Permit
<b>Parcel Identification Number:</b> 0023-000-0007-00000	<b>Existing Use:</b> Cultivated Farmland
<b>Land Use Plan Classification:</b> Full Service	<b>Parcel Size (Acres):</b> 100
<b>Moyock Small Area Plan Classification:</b> Limited Service	<b>Zoning:</b> General Business (GB)
<b>Number of Units:</b> 31	<b>Project Density:</b> .31 units/acre
<b>Required Open Space:</b> 30%	<b>Provided Open Space:</b> 30.07%

### ADEQUATE PUBLIC FACILITIES – SCHOOLS<sup>1</sup>

School	Actual Capacity <sup>2</sup>	Committed Capacity <sup>2</sup>	Proposed Capacity Changes
			Number of Students
Moyock Elementary Shawboro Elementary Central Elementary	92%	118%	+7.75
Moyock Middle Currituck Middle	82%	96%	+2.48
Currituck High JP Knapp Early College	84%	104%	+4.34

<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 the 2021 classroom standards



SURROUNDING PARCELS		
	Land Use	Zoning
North	Proposed high residential density/limited commercial planned development (Fost)	PD-R & AG
South	Low density residential	SFM
East	Low density residential/cultivated farmland	AG
West	Low density residential/proposed high residential density/limited commercial planned development	PD-R & SFM

### STAFF ANALYSIS

The Board of Commissioners originally approved the preliminary plat/use permit (attached) for this 31 lot residential development on August 5, 2019. The applicant is requesting amended preliminary plat/use permit approval to remove the subdivision's access to Caratoke Highway. The subdivision will have access through the Fost Development to the north. It is important to note that the subdivisions still exceeds the minimum Connectivity Index Score with removal of this access. The subdivision consists of 100 acres and proposes a minimum lot size of 2 acres with over 30 acres reserved for open space to be reforested. The residential lots will have access to county water and will use on-site septic.

A "Right of Access for Subdivision Entrance" agreement has been reached with the developer of Fost, a copy of which is attached to this staff report. Acquiring access through Fost and eliminating the Caratoke Highway access has alleviated the Technical Review Committee's safety concerns regarding a new, potentially unsignalized, railroad crossing to Caratoke Highway. A Connection Detail where the two subdivisions join is included on Sheet 4 of the attached plan set.

There are no other requested changes. All other infrastructure and design elements remain the same.

INFRASTRUCTURE	
Water	Public
Sewer	Septic
Transportation	Pedestrian: 5' ADA compliant sidewalks on both sides of all streets Connectivity Score: Minimum = 1.4 Proposed = 2
Stormwater/Drainage	Vegetative conveyances, vegetative buffers, wet-detention BMPs, lot line swales to NCDOT designed roads
Lighting	None proposed
Landscaping	Street trees, major arterial streetscape (where visible from highway), Type B perimeter buffer along all property lines except the Railroad/Caratoke Highway property line.
Parking	Off-street on individual lots based on bedroom count
Recreation and Park Area Dedication	The county will be accepting a fee-in-lieu of recreation and park area dedication.

## RECOMMENDATIONS

### TECHNICAL REVIEW COMMITTEE

The Technical Review Committee recommends adoption of the use permit and approval of the preliminary plat subject to the following conditions of approval:

1. The application complies with all applicable review standards of the UDO
2. The applicant demonstrates the proposed use will meet the use permit review standards of the UDO.
3. The conditions of approval necessary to ensure compliance with the review standards of the UDO and to prevent or minimize adverse effects of the development application on surrounding lands include:
  - a. Install perimeter ditches in a way that both serves the new subdivision and improves conditions for Ranchland.
  - b. Deepen, lay back (6:1 slopes), and put existing ditch on proper grade where permission can be obtained from the adjoining property owners. If permission is not forthcoming, install a parallel ditch as approved by stormwater staff.

### USE PERMIT REVIEW STANDARDS

**A use permit shall be approved on a finding that the applicant demonstrates the proposed use will meet the below requirements. It is staff's opinion that the evidence in the record, prepared in absence of testimony presented at a public hearing, supports the preliminary staff findings**

*The use will not endanger the public health or safety.*

Preliminary Staff Findings:

1. Acquiring access through Fost and eliminating the Caratoke Highway access has alleviated the Technical Review Committee's safety concerns regarding a new Rail Road crossing to Caratoke Highway.

Applicant Findings:

1. Stormwater management will be provided in accordance with the current Currituck County stormwater manual and the UDO. Two large stormwater retention ponds will be constructed to manage and retain stormwater in excess of the referenced requirements. Surrounding drainage ditches will be improved and/or new ditches constructed in parallel to improve existing drainage conditions.
2. Albemarle Regional Health Services has evaluated each of the 31 lots for suitability for wastewater disposal and has established criteria for the approval of wastewater disposal system for each lot.
3. The project is being designed in accordance with the NC Department of Energy, Mineral, and Land Resources sedimentation and erosion control standards, and will therefore minimize erosion and will contain siltation on site.
4. The subdivision entrance that involved a railroad crossing has been eliminated. Roadway connectivity is being provided to the adjacent Fost property.



The use will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located.

Preliminary Staff Findings:

1. The density is similar to that of Ranchland Subdivision and the proposed residential subdivision will be surrounded by residential uses, so it will be in harmony with the area in which it is located.

Applicant Findings:

1. Land to the west and south has been developed into single family homes; the land to the north has been approved for a Planned Development; land to the east across Caratoke Highway is farmland and single family lots. This tract will be developed into lots that are larger than the adjacent Ranchland subdivision; in addition, over 30% of the land will be preserved as open space. Drainage improvements will be made that will benefit both the new subdivision and the existing subdivision. The use will not injure the value of adjoining or abutting lands, and will be in harmony with the surrounding area, and it is believed will be a benefit to the value of the adjacent community.

The use will be in conformity with the Land Use Plan or other officially adopted plans.

Preliminary Staff Findings:

1. The Moyock Small Area Plan classifies this area as Limited Service. The proposed development density of .31 units per acre is well below the 1-1.5 units per acre envisioned in the Moyock Small Area Plan
2. The Land Use Plan classifies this area as Full Service. The proposed density is only .31 units per acre, well below the densities of 2-4 units per acre envisioned in the Land Use Plan.

Relevant MSAP and 2006 LUP Policies:

1. MSAP Policy TR2: Ensure that all development is designed with an interconnected, multi-modal transportation network between neighborhoods, activity centers, and other destinations to improve mobility and emergency access. Development of an interconnected road network for local residential traffic is strongly encouraged. (The development is connecting streets and sidewalks to the Fost Planned Development.)
2. MSAP Policy IS4: Ensure that stormwater runoff, soil erosion, and sedimentation is properly managed to reduce nuisance flooding and pollution of sensitive environmental areas. (Stormwater staff has expressed a concern for ponding on the site. The developer has a plan to improve drainage on this site and areas of Ranchland subdivision.)
3. MSAP Policy FLU1: Promote compatibility between new development and existing development to avoid adverse impacts to the existing community. (The development has similar densities to existing surrounding subdivisions and the applicant is proposing to reforest open space to add a visual buffer around the sides and rear of the property.)
4. MSAP Policy CC1: Encourage and foster development that is compatible with rural atmosphere, transitional areas, and a small town main street fell consistent with the vision, policies, and future land use of this plan. (The development is rural in nature with two plus acre lots and over 30% open space.)
5. LUP Policy ES1: New development shall be permitted to locate only in areas with SUITABLE SOIL and where ADEQUATE INFRASTRUCTURE is available. For existing development located on poor soils and where sewage treatment upgrades are necessary, engineer solutions may be supported, provided that environmental concerns are fully addressed. (County water is available to the site and ARHS is requiring engineered designed septic systems for each lot.)
6. LUP Policy HN1: Currituck County shall encourage development to occur at densities appropriate for the location. (At .31 units per acre, the density well below the 2-4 units per acre allowed in the LUP.)

7. LUP Policy TR4: ACCESS TO THE COUNTY'S MAJOR ROADWAYS shall be managed so as to preserve the intended purpose of the highway, protect taxpayer dollars invested, and minimize hazardous turning movements in and out of traffic flows.
8. LUP Policy TR8: Local streets shall be designed and built to allow for convenient CIRCULATION WITHIN AND BETWEEN NEIGHBORHOODS and to encourage mobility by pedestrians and bicyclists. (The development is connecting its roads and sidewalks to the Fost Planned Development.)
9. LUP Policy PP2 Currituck County shall continue to implement a policy of ADEQUATE PUBLIC FACILITIES, sufficient to support associated growth and development. (Schools are at or over planned capacity in Moyock. The BOC may require phasing of the project and limit the number of lots allowed within each phase. Other public facilities are sufficient to serve the development.)

The use will not exceed the county's ability to provide adequate public facilities, including, but not limited to: schools, fire and rescue, law enforcement, and other county facilities. Applicable state standards and guidelines shall be followed for determining when public facilities are adequate.

Preliminary Staff Findings:

1. Schools are at or over the 2021 committed capacity in Moyock in the elementary and high school groups. The BOC may propose additional conditions of approval such as timing limits on residential building lots or units available for occupancy to ensure adequate public facilities remain sufficient to serve the development.
2. Other public facilities are sufficient to serve the development.

Applicant Findings:

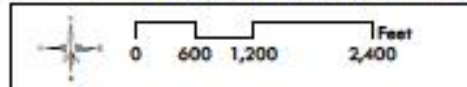
1. Currituck County has adequate public facilities to serve the proposed subdivision.

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)





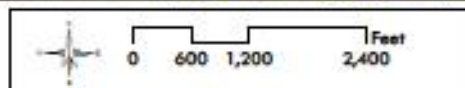
PB 19-14 Moyock Farms  
Preliminary Plat/Use Permit  
2016 Aerial Photography



Currituck County  
Planning and  
Community Development

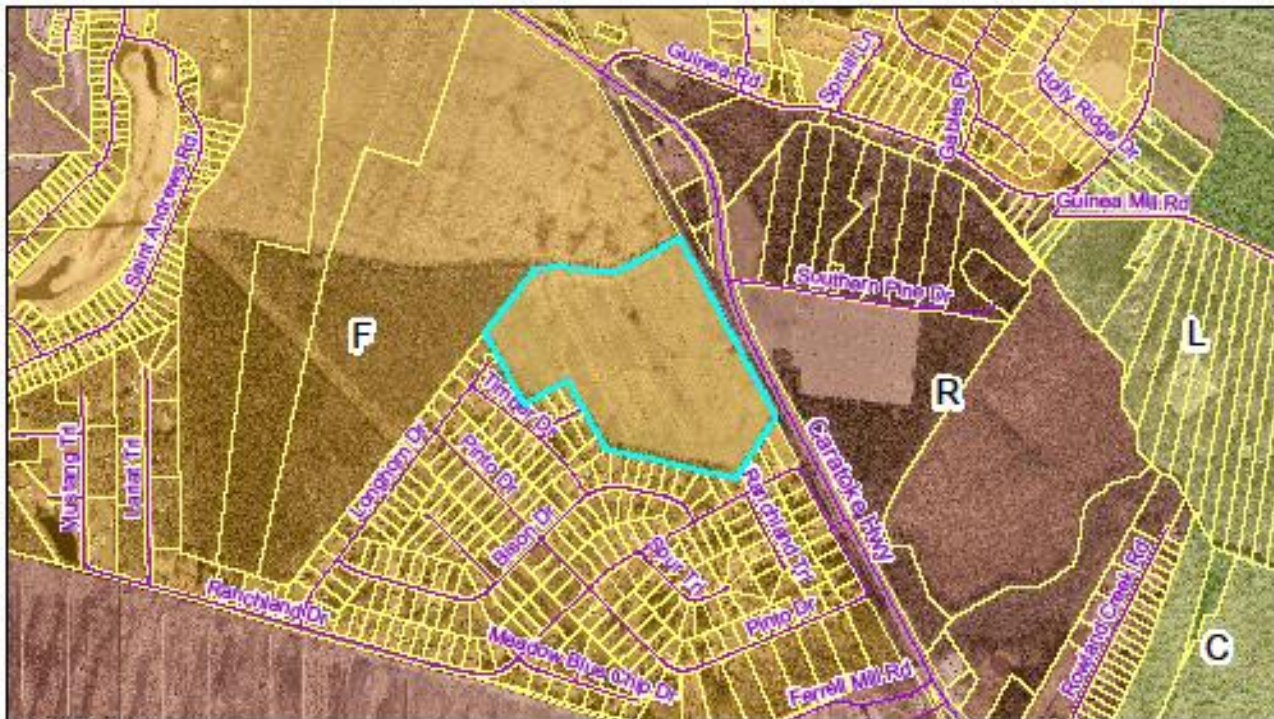


PB 19-14 Moyock Farms  
Preliminary Plat/Use Permit  
Zoning Map

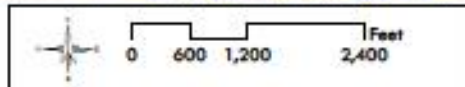


Currituck County  
Planning and  
Community Development

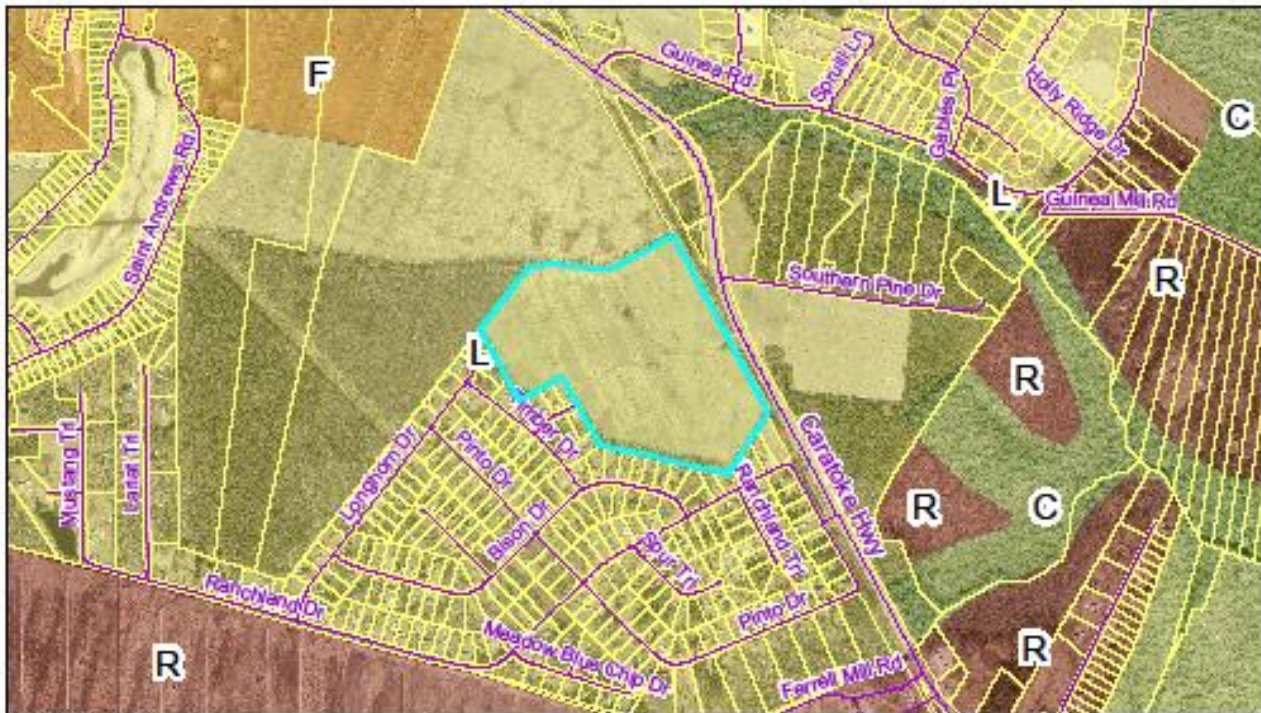




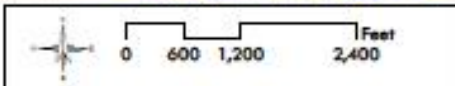
PB 19-14 Moyock Farms  
Preliminary Plat/Use Permit  
2006 LUP Classification



Currituck County  
Planning and  
Community Development

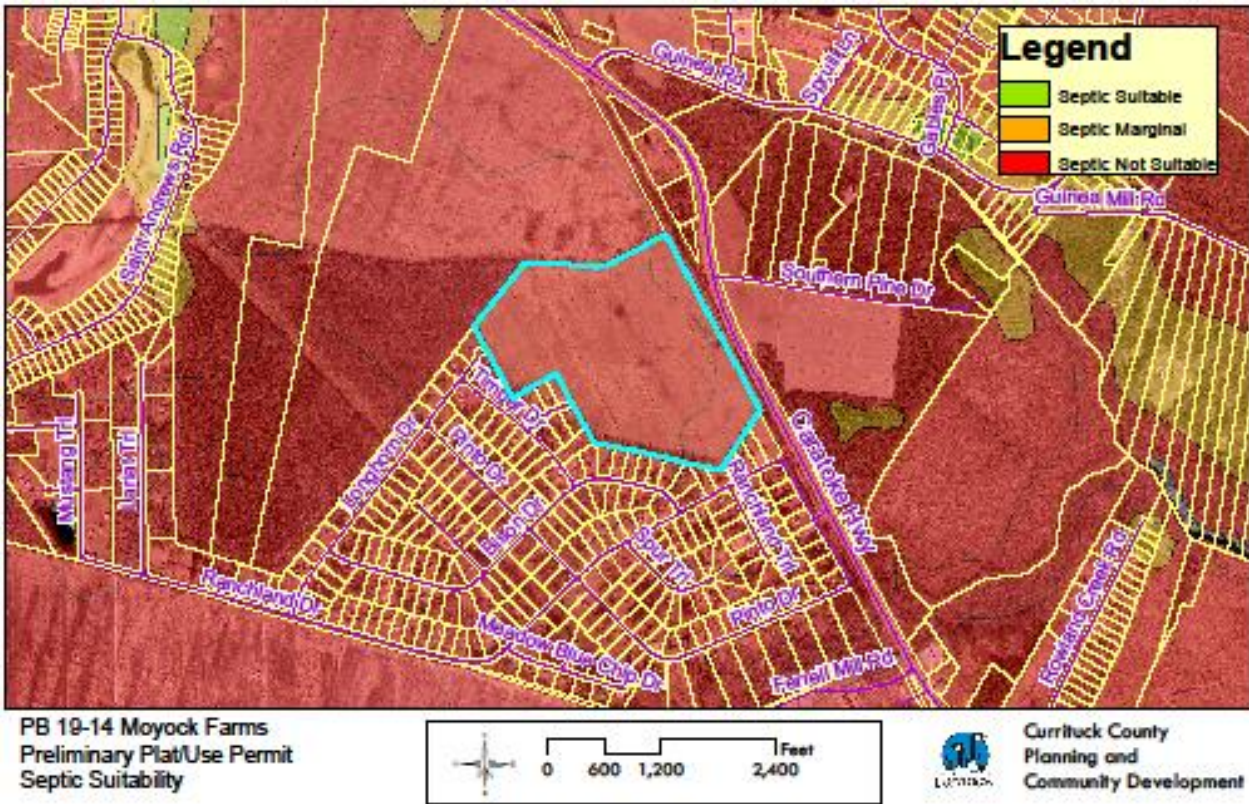


PB 19-14 Moyock Farms  
Preliminary Plat/Use Permit  
Moyock SAP Classification



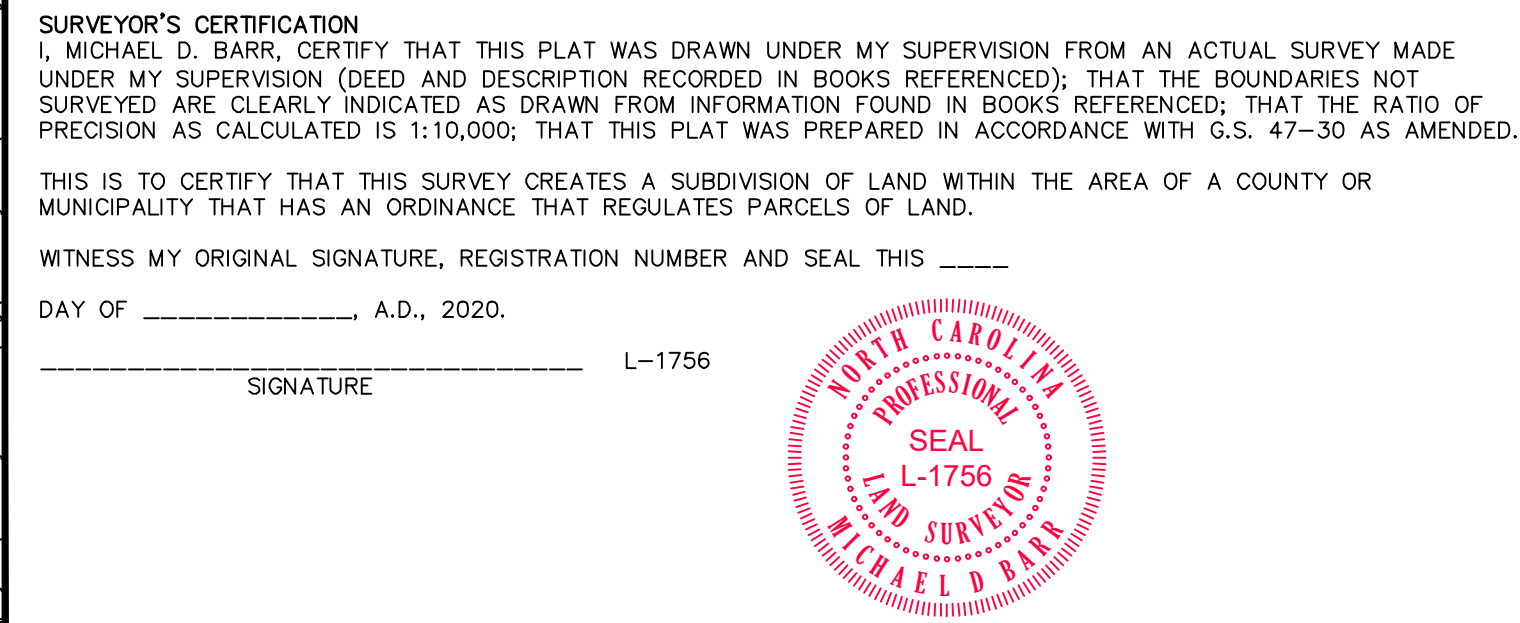
Currituck County  
Planning and  
Community Development





Attachment: 1 PB 19-14 Moyock Farms PP UP Staff Report BOC 8-5-19 (PB 19-14 Moyock Farms)



Sheet  
Number

5

## TYPICAL WASTEWATER SYSTEM & SITE CONSTRUCTION DETAILS

TOTAL TRACT AREA:	100.00 AC.
PROPOSED LOT AREA:	63.67 AC.
PROPOSED R/W AREA:	6.26 AC.
REQUIRED OPEN SPACE (30%):	30.00 AC.
OPEN SPACE PROVIDED:	30.07 AC. (30.07%)
(PRIMARY CONSERVATION AREA):	0.00 AC.
(REFORESTATION AREA):	30.07 AC.
# OF PROPOSED LOTS:	31 LOTS
AVERAGE LOT AREA:	90.576% S.F.
PROPOSED RIGHT-OF-WAY WIDTH:	60 FT.
PROPOSED PAVED ROADWAY WIDTH:	20 FT. E.O.P.-E.O.P.
LINEAR FEET OF ON-SITE ROADWAY:	4,567 L.F.±
<b><u>LOT DEVELOPMENT CONFIGURATION:</u></b>	
LOT AREAS: VARY FROM 76,278 S.F.	TO 97,483 S.F.
MINIMUM LOT WIDTH:	125 FT.
SETBACKS:	
FRONT:	25 FT.
SIDE:	15 FT.
BACK:	25 FT.
CORNER SIDE YARD:	25 FT.

RECREATION/PARKLAND FEE-IN-LIEU IS \$8,401.43. (TOTAL TAX VALUE \$1,062,800/100 = 10,628 PER ACRE X (31 LOTS X 0.0255 AC./LOT) = \$8,401.43.

DATE \_\_\_\_\_ REGISTERED LAND SURVEYOR/ENGINEER \_\_\_\_\_

REGISTRATION NUMBER \_\_\_\_\_

AS OF THE RECORDED DATE OF THIS PLAT, SOME PORTIONS OF THIS DEVELOPMENT ADJOIN LAND USED FOR ACTIVE AGRICULTURE PURPOSES THAT IS ANTICIPATED TO GENERATE NOISE, LIGHT, DUST, OR VIBRATION AS PART OF ITS NORMAL OPERATION.

THIS SUBDIVISION CONTAINS A RIGHT-OF-WAY THAT IS PLATTED WITH THE INTENT OF BEING EXTENDED AND CONTINUED TO AND FROM ADJOINING PROPERTIES. ACCESS WITHIN THE RIGHT-OF-WAY FOR STREETS AND UTILITIES SHALL NOT BE RESTRICTED.

I HEREBY CERTIFY THAT THE SUBDIVISION SHOWN ON THIS PLAT IS IN ALL RESPECTS IN COMPLIANCE WITH THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE AND, THEREFORE, THIS PLAT HAS BEEN APPROVED BY THE CURRITUCK COUNTY TECHNICAL REVIEW COMMITTEE AND SIGNED BY THE ADMINISTRATOR, SUBJECT TO ITS BEING RECORDED IN THE CURRITUCK COUNTY REGISTRY WITHIN 90 DAYS OF THE DATE BELOW.

ADMINISTRATOR

NO MORE THAN 24% OF ANY LOT SHALL BE COVERED BY IMPERVIOUS STRUCTURES AND MATERIALS, INCLUDING ASPHALT, GRAVEL, CONCRETE, BRICK STONE, SLATE, OR SIMILAR MATERIAL, NOT INCLUDING WOOD DECKING OR THE WATER SURFACE OF SWIMMING POOLS. THIS COVENANT IS INTENDED TO ENSURE COMPARABLE LOT WATERWAY PERMIT NUMBER \_\_\_\_\_ ISSUED BY THE STATE OF NORTH CAROLINA THE COVENANT MAY NOT BE CHANGED OR DELETED WITHOUT THE CONSENT OF THE STATE, FILLING IN OR PIPING OF ANY VEGETATIVE CONVEYANCES (DITCHES, SWALES, ETC.) ASSOCIATED WITH THIS DEVELOPMENT, EXCEPT FOR AVERAGE DRIVEWAY CROSSINGS, IS STRICTLY PROHIBITED BY ANY PERSON. THE LOT COVERAGE ALLOWANCES PROVIDED IN THE CURRENTLY ADOPTED UNIFIED DEVELOPMENT ORDINANCE MAY BE DIFFERENT THAN THE NC STATE STORMWATER PERMIT. THE MOST RESTRICTIVE LOT COVERAGE SHALL APPLY.

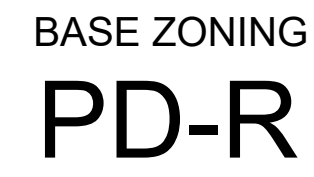
PUBLIC STREETS DIVISION OF HIGHWAY DISTRICT ENGINEER CERTIFICATE  
I HEREBY CERTIFY THAT THE PUBLIC STREETS SHOWN ON THIS PLAT  
ARE INTENDED FOR DEDICATION AND HAVE BEEN DESIGNED OR  
COMPLETED IN ACCORDANCE WITH AT LEAST THE MINIMUM  
SPECIFICATIONS AND STANDARDS OF THE NC DEPARTMENT OF  
TRANSPORTATION FOR ACCEPTANCE OF SUBDIVISION STREETS ON THE  
NC HIGHWAY SYSTEM FOR MAINTENANCE.

REVIEW OFFICER OF CURRITUCK COUNTY, CERTIFY THAT THE MAP OR PLAT TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

DATE \_\_\_\_\_ REVIEW OFFICER \_\_\_\_\_

Attachment: 2 6-19-20 4672 Revised Preliminary Plans (PB 19-14 Movock Farms)





NOW OR FORMERLY  
 IRIS ANN OCONNOR  
 D.B. 117, PG. 196  
 P.C. D, SL. 315

**FEMA ZONE: X**

NOW OR FORMERLY  
IRIS ANN OCONNOR  
D.B. 117, PG. 196  
P.C. D, SL 315

LOT 43  
MB 6, PG 42

LOT 45  
MB 6. PG 42

US HWY. 168  
VARIABLE R/W

## CHESAPEAKE & ALBEMARLE RAILROAD

FEMA ZONE: X

R.U.O.S. ACCESS EASEMENT

FEMA ZONE: X

BASE ZONING  
GB

BASE ZONING  
**SFM**

~~Ca~~

1"=120'  
GRAPHIC SCALE

REVISIONS		
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**PRELIMINARY**  
FOR REVIEW  
PURPOSES ONLY

DATE: 05/16/19	SCALE: 1"=120'
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG

SHEET:  
2 OF 5

CAD FILE:  
467200PP1

PROJECT NO:  
4672

## EXISTING CONDITIONS & SITE FEATURES PLAN

PROJECT: **MOYOCK FARMS**  
 MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA  
 AMENDED PRELIMINARY LAND DEVELOPMENT PLAN

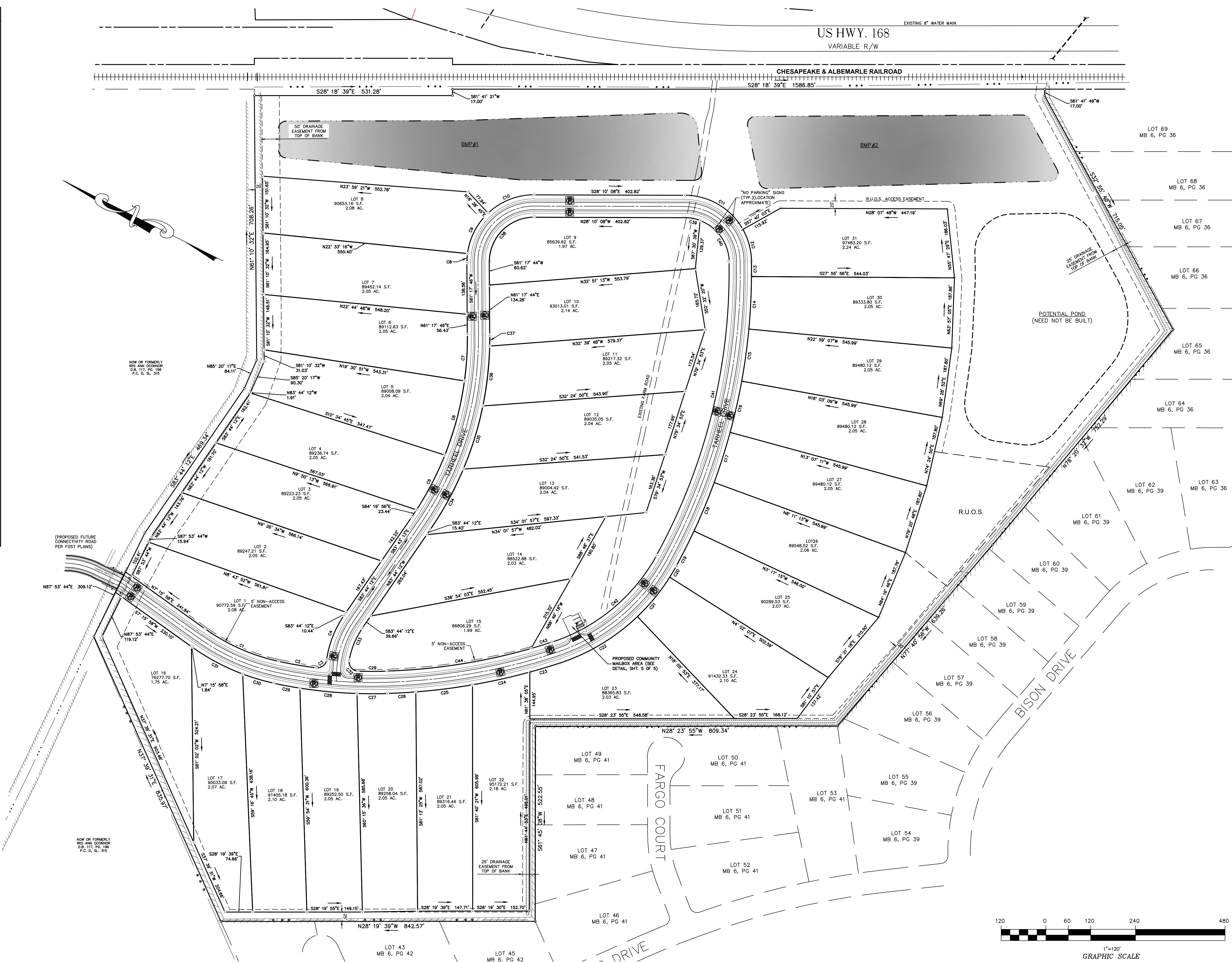
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**BISSELL**  
PROFESSIONAL GROUP

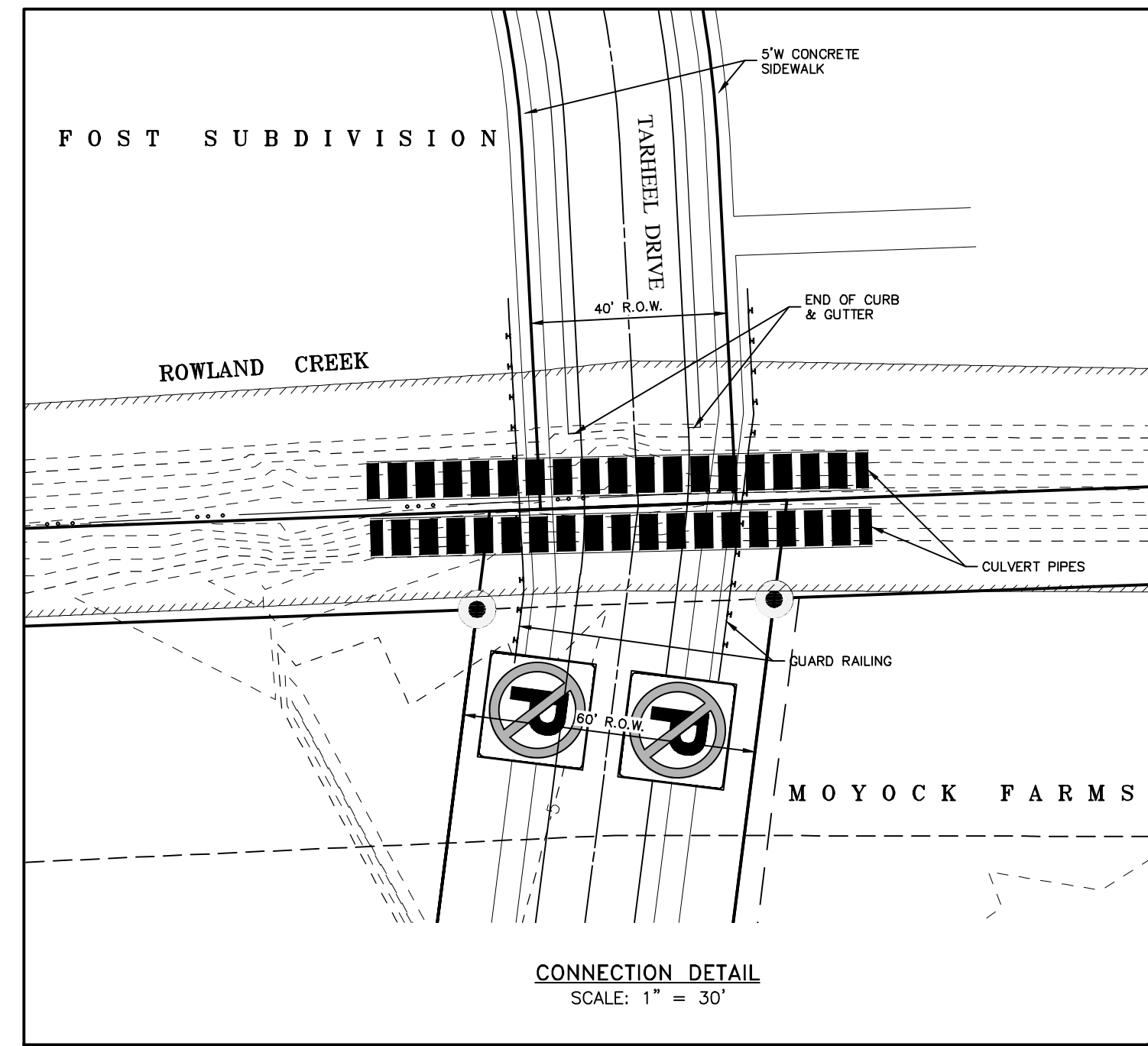
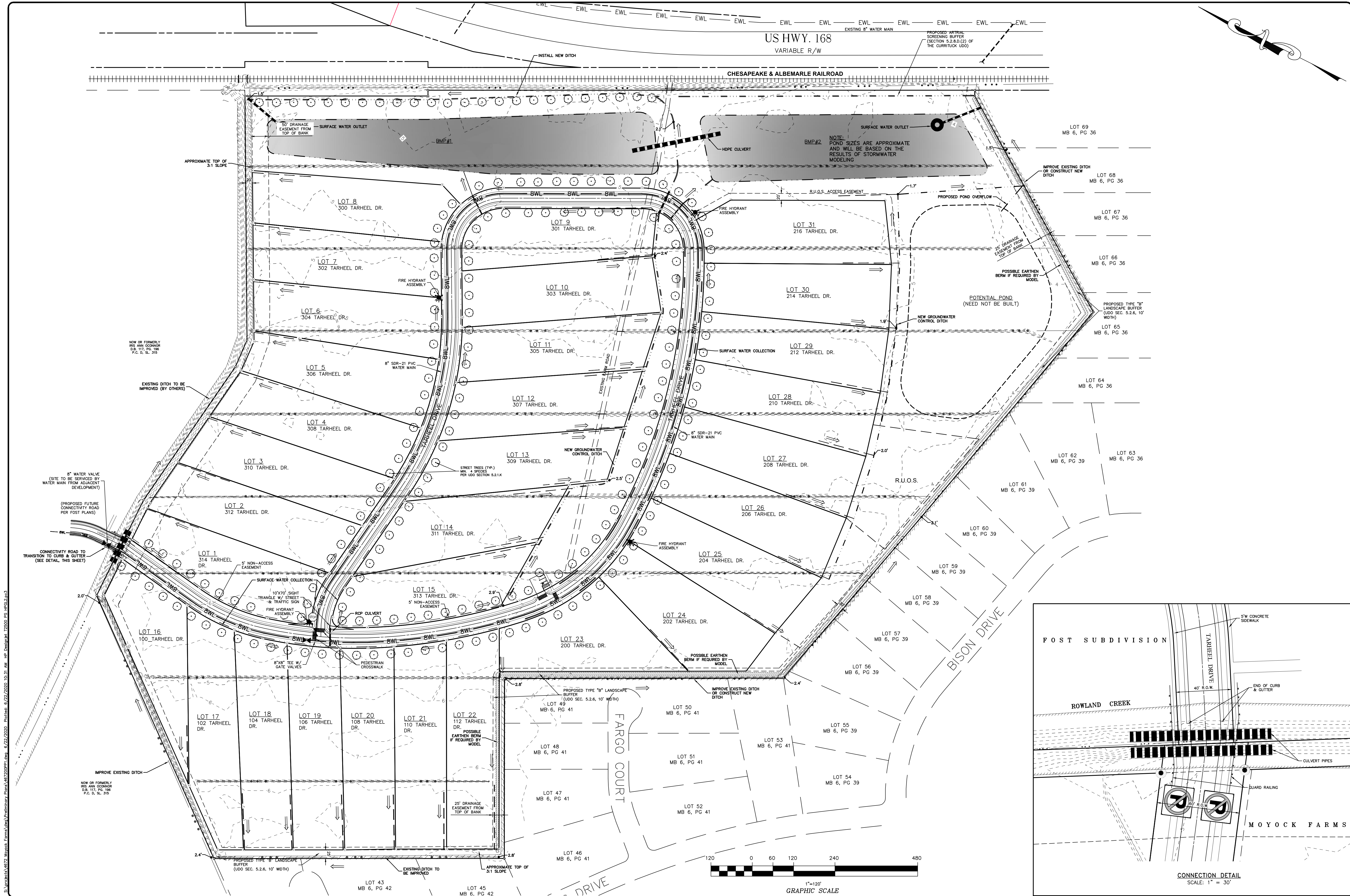
Bissell Professional Group  
Firm License # C-956  
3512 North Croatan Highway  
P.O. Box 1068  
Kitty Hawk, North Carolina 27949  
(252) 261-3266  
FAX (252) 261-1780



CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD	BEARING	DELTA
C1	216.68'	530.00'	215.17'	S4° 26' 45"E	23°25'26"
C2	102.18'	1198.00'	102.15'	S18° 36' 05"E	4°53'13"
C3	38.85'	25.00'	35.06'	S65° 33' 38"E	89°01'54"
C4	128.72'	280.00'	127.59'	N83° 05' 36"E	26°20'23"
C5	165.39'	845.00'	165.12'	S89° 04' 02"W	11°12'51"
C6	206.29'	845.00'	205.78'	N76° 27' 59"E	13°59'15"
C7	122.36'	845.00'	122.26'	N65° 19' 26"E	8°17'49"
C8	24.39'	180.00'	24.37'	N65° 10' 41"E	7°45'50"
C9	124.03'	180.00'	121.59'	N88° 48' 03"E	39°28'53"
C10	136.00'	180.00'	132.79'	S49° 48' 49"E	43°17'23"
C11	190.07'	180.00'	181.36'	S2° 04' 54"W	60°30'05"
C12	88.94'	180.00'	88.04'	S46° 29' 16"W	28°18'40"
C13	41.08'	1636.00'	41.08'	S61° 21' 46"W	1°26'19"
C14	140.85'	1636.00'	140.81'	S64° 32' 54"W	4°55'58"
C15	140.85'	1636.00'	140.80'	S69° 28' 52"W	4°55'58"
C16	140.85'	1636.00'	140.80'	S74° 24' 50"W	4°55'58"
C17	140.85'	1636.00'	140.80'	S79° 20' 48"W	4°55'58"
C18	141.13'	1627.39'	141.09'	S84° 17' 27"W	4°58'08"
C19	105.43'	1621.03'	105.41'	S88° 35' 35"W	3°43'35"
C20	34.14'	555.00'	34.13'	N87° 47' 23"W	3°31'28"
C21	136.83'	555.00'	136.48'	N78° 57' 53"W	14°07'33"
C22	247.16'	555.00'	245.12'	N59° 08' 39"W	25°30'55"
C23	81.59'	1650.00'	81.58'	N44° 58' 11"W	2°50'00"
C24	157.04'	1650.00'	156.98'	N40° 49' 36"W	5°27'11"
C25	153.54'	1650.00'	153.48'	N35° 26' 03"W	5°19'54"
C26	75.43'	1650.00'	75.42'	N31° 27' 32"W	2°37'09"
C27	82.22'	1258.00'	82.20'	N28° 16' 37"W	3°44'40"
C28	153.98'	1258.00'	153.89'	N22° 53' 53"W	7°00'47"
C29	71.00'	1258.00'	70.99'	N17° 46' 29"W	3°14'01"
C29	77.62'	1198.00'	77.60'	N28° 17' 35"W	3°42'44"
C30	86.99'	590.00'	86.91'	N11° 56' 02"W	8°26'53"
C31	154.21'	590.00'	153.78'	N0° 13' 19"W	14°58'33"
C32	42.95'	25.00'	37.86'	N22° 46' 47"E	98°26'00"
C33	93.18'	220.00'	92.48'	N84° 07' 47"E	24°16'01"
C34	186.05'	905.00'	185.72'	S89° 37' 34"E	11°46'44"
C35	177.36'	905.00'	177.08'	S78° 52' 12"W	11°13'44"
C36	161.33'	905.00'	161.12'	S68° 08' 55"W	10°12'50"
C37	29.47'	904.96'	29.47'	N62° 06' 32"E	1°51'56"
C38	189.62'	120.00'	170.50'	N73° 26' 12"W	90°32'08"
C39	43.44'	120.00'	43.20'	N17° 47' 58"W	20°44'20"
C40	143.86'	120.00'	135.40'	S26° 17' 56"W	68°41'20"
C41	819.82'	1576.00'	810.61'	S75° 32' 45"W	29°48'17"
C42	372.92'	495.00'	364.17'	N67° 58' 09"W	43°09'56"
C43	58.55'	1590.00'	58.55'	N45° 19' 53"W	2°06'36"
C44	392.04'	1590.00'	391.05'	N37° 12' 46"W	14°07'39"







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

**STORMWATER DRAINAGE, WATER  
SERVICE & LANDSCAPING PLAN**

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**MOYOCK FARMS**  
CURRITUCK COUNTY  
NORTH CAROLINA

**AMENDED PRELIMINARY LAND DEVELOPMENT PLAN**

NO.	DATE	DESCRIPTION	BY	CHKD.
1	5/17/20	DESIGN	BPG	MSB
2	5/27/20	PRE-APPLICATION MEETING COMMENTS	BPG	MSB
3	6/22/20	INC. COMMENTS	BPG	MSB

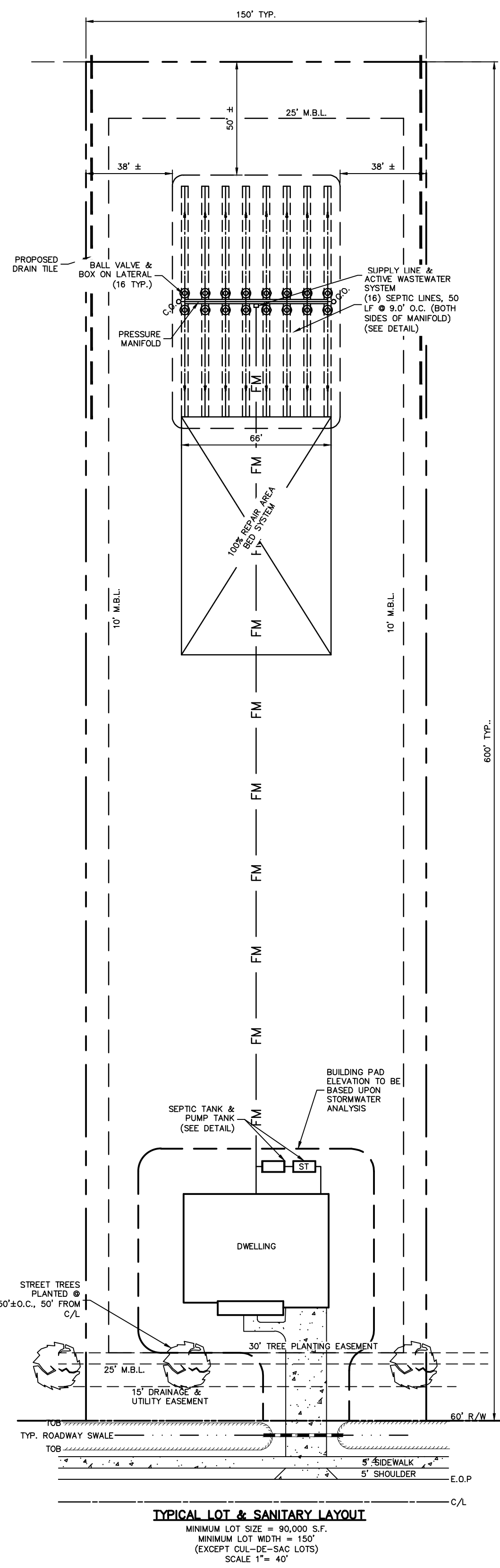
**PRELIMINARY  
FOR REVIEW  
PURPOSES ONLY**

DATE: 05/16/19 SCALE: 1"=120'  
DESIGNED: BPG CHECKED: MSB  
DRAWN: KFW APPROVED: BPG  
SHEET: 4 OF 5

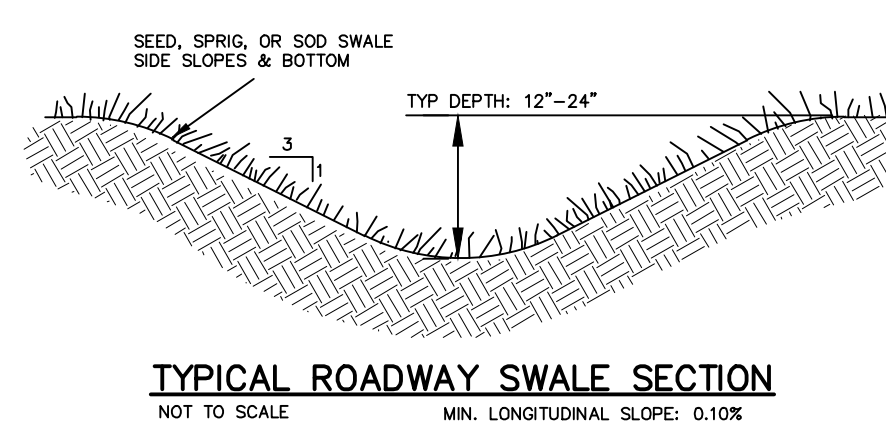
CAD FILE: 467200PP1  
PROJECT NO: 4672

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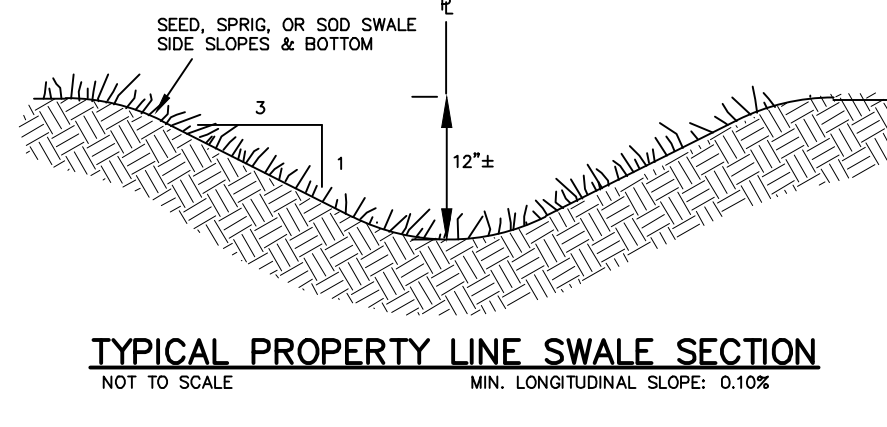




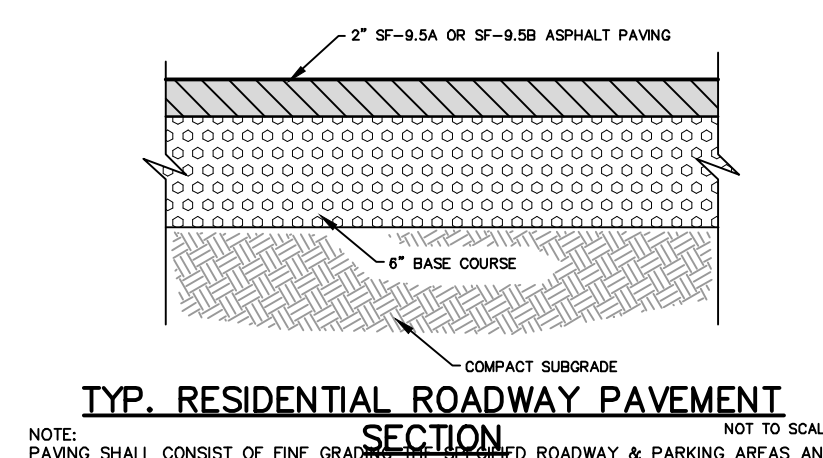
**TYPICAL LOT & SANITARY LAYOUT**  
MINIMUM LOT SIZE = 90,000 S.F.  
MINIMUM LOT WIDTH = 150'  
(EXCEPT CUL-DE-SAC LOTS)  
SCALE 1" = 40'



**TYPICAL ROADWAY SWALE SECTION**  
NOT TO SCALE MIN. LONGITUDINAL SLOPE: 0.10%



**TYPICAL PROPERTY LINE SWALE SECTION**  
NOT TO SCALE MIN. LONGITUDINAL SLOPE: 0.10%

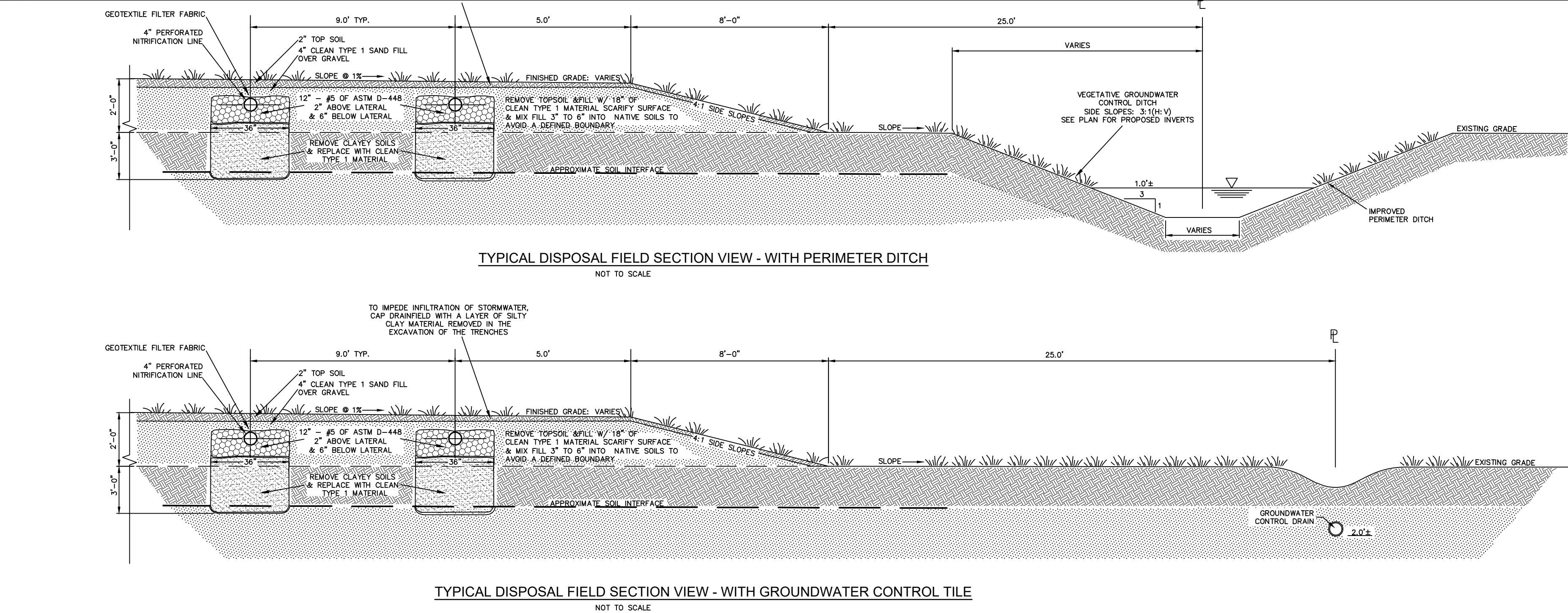


**TYP. RESIDENTIAL ROADWAY PAVEMENT**  
**SECTION**

NOTE: NOT TO SCALE

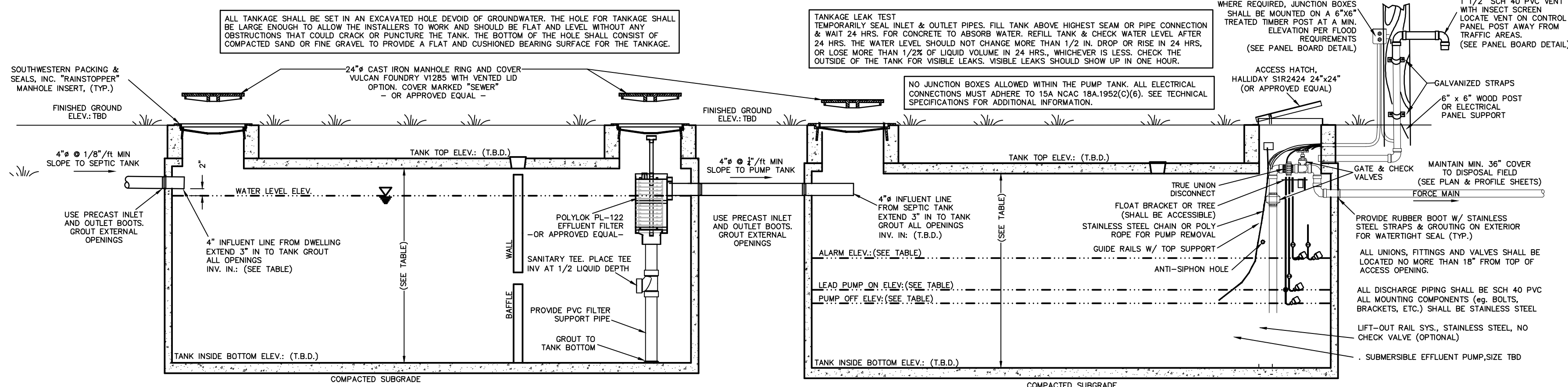
**SECTION**

PAVING SHALL CONSIST OF FINE GRADING, THE SLOPED ROADWAY & PARKING AREAS AND  
 INSTALLING 2" SF-9.5 OR SF-8.5B ASPHALT CONCRETE SURFACE COURSE IN  
 CONSTRUCTION WHITE BASE COURSE. THE TOTAL SUBGRADE DEPTH SHALL BE  
 PAVEMENT SHALL BE COMPACTED TO AT LEAST 95% OF SOI D 698 PRIOR TO ANY  
 PLACEMENT OF SUBBASE FILL OR STONE BASE COURSE. ALL SITE PREPARATION AND  
 THE DESIGN AND CONSTRUCTION OF ALL FOUNDATIONS, GROUND SLABS, AND PAVEMENTS SHALL  
 BE IN ACCORDANCE WITH RECOMMENDATIONS PROVIDED BY A GEOTECHNICAL ENGINEER.



TYPICAL DISPOSAL FIELD SECTION VIEW - WITH PERIMETER DITCH

TYPICAL DISPOSAL FIELD SECTION VIEW - WITH GROUNDWATER CONTROL TILE



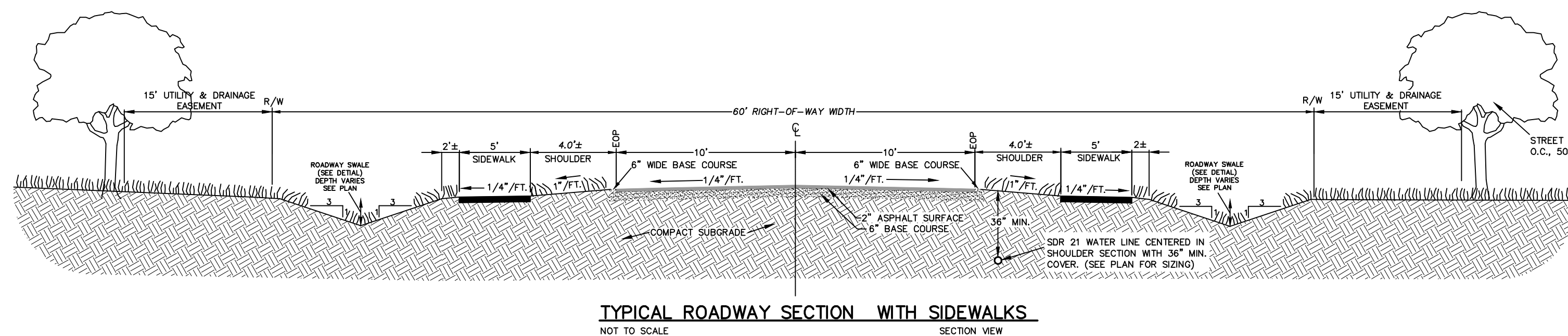
### SEPTIC TANK DETAIL

1,000 GALLON PRE-CAST SEPTIC TANK  
(CONTACT ENGINEER IF ALTERNATE TANK IS  
UTILIZED)

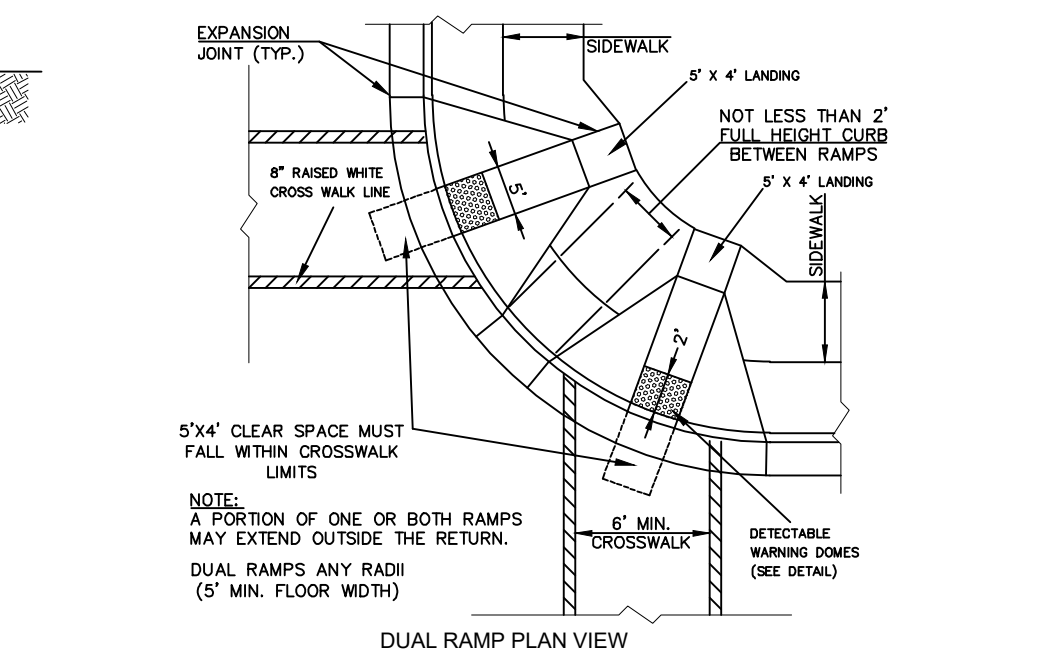
### PUMP TANK DETAIL

1,000 GALLON PRE-CAST SEPTIC TANK  
(CONTACT ENGINEER IF ALTERNATE TANK IS  
UTILIZED)

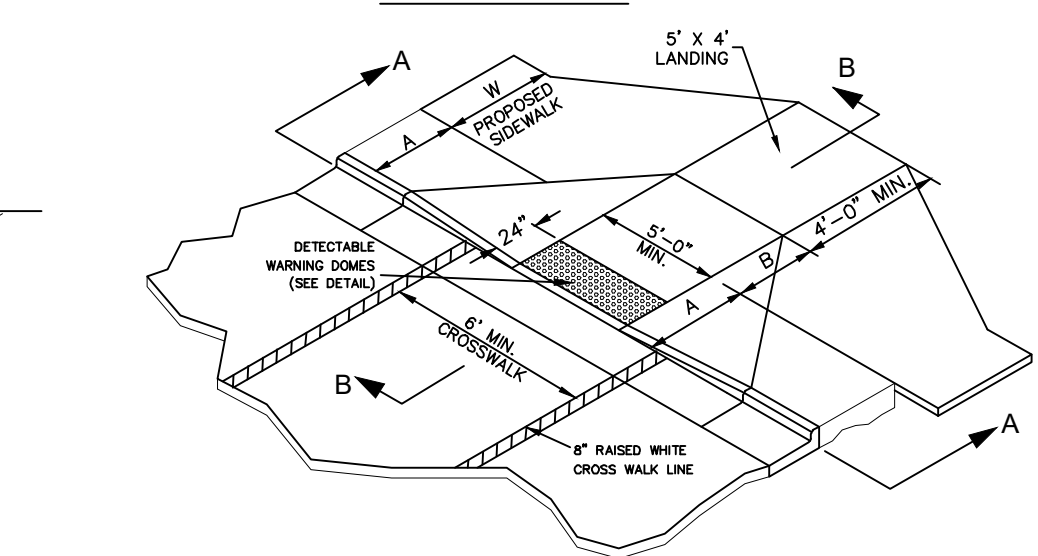
FLOAT ELEVATIONS		
DOSING FLOAT DESCRIPTION	HEIGHT	LOCATION
PUMP OFF FLOAT	TBD	ABOVE TANK FLOOR
LEAD PUMP ON FLOAT	TBD	ABOVE TANK FLOOR
HIGH WATER LEVEL FLOAT	TBD	ABOVE TANK FLOOR



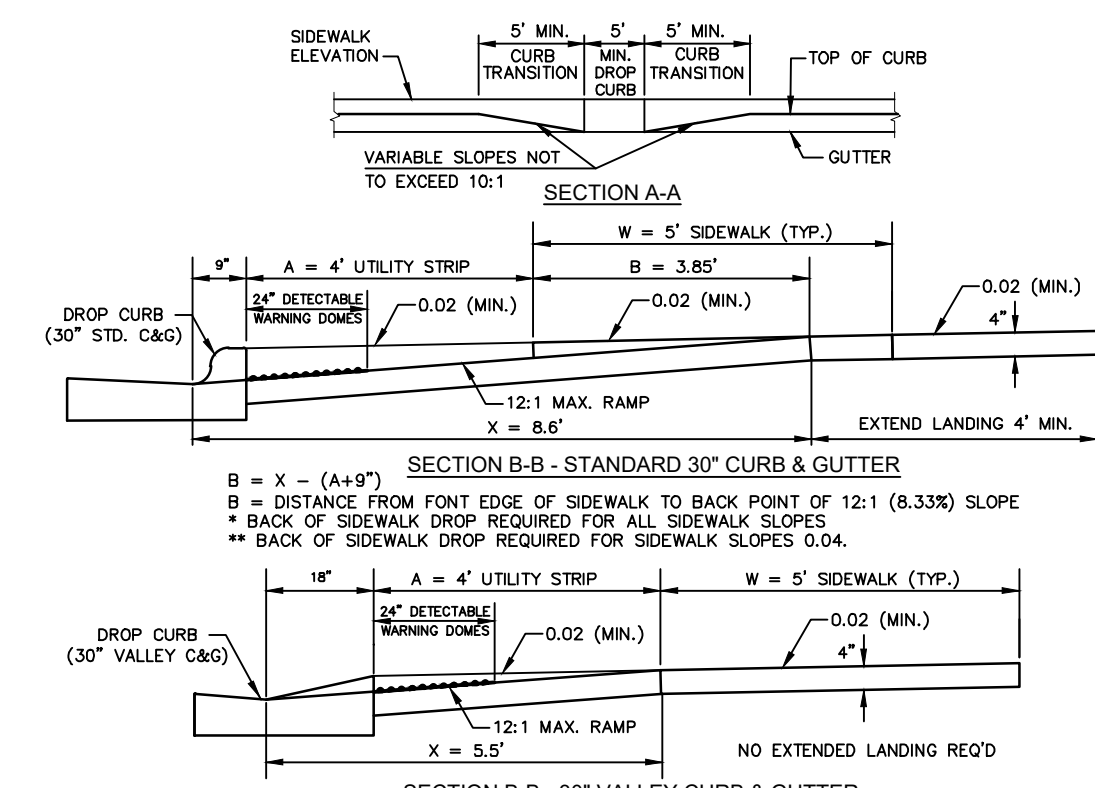
**TYPICAL ROADWAY SECTION WITH SIDEWALKS**  
NOT TO SCALE SECTION VIEW



### MP PLAN VIEW



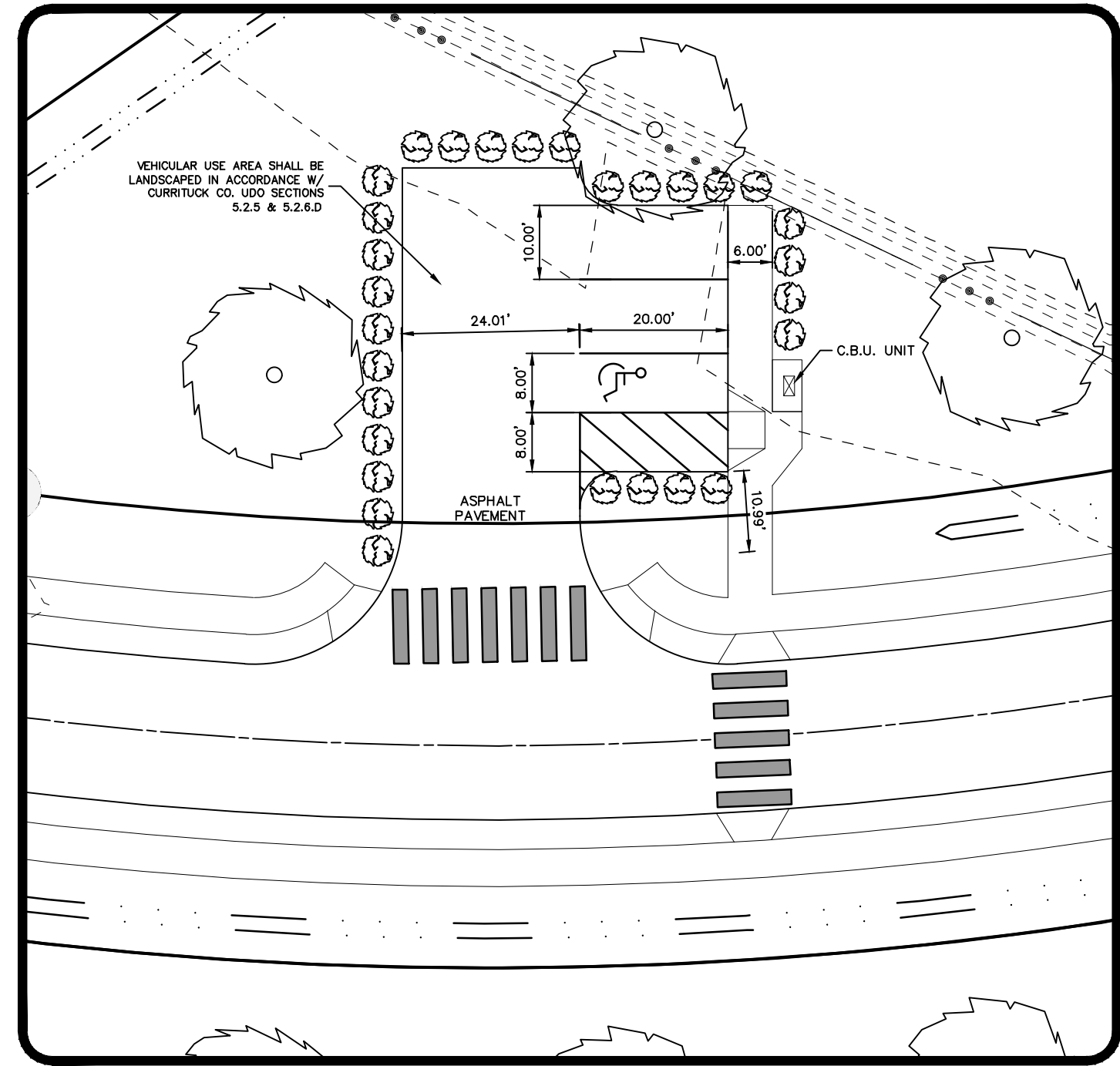
### STANDARD CURB RAMP ISOMETRIC VIEW



## SECTION

### WHEEL CHAIR RAMP GENERAL NOTES

1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM AND SUFF. RESISTANCE. CONSTRUCT THE CURB RAMP TYPE AS SHOWN ON PLANS.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS WHERE SHOWN ON PLANS, WHEN FIELD ADJUSTMENTS ARE REQUIRED.
3. COORDINATE THE CURB RAMP AND CROSSWALK MARKING SO A 4'-X4" CLEAR SPACE AT THE BASE OF THE RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK MARKING.
4. SETBACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. SETBACK DISTANCE FROM INSIDE CROSSWALK MARKING TO THE RAMP IS 12'-0" MINIMUM.
6. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
7. ALLOW SIDE SLOPE TO RAMP A MAXIMUM OF 10% TO THE STREET OR SIDEWALK.
8. CONSTRUCT THE COUNTER SLOPE OF THE CUTTER OR STREET AT THE BASE OF THE RAMP A MAXIMUM OF 5% AND MAINTAIN MINIMUM 12'-0" SETBACK.
9. CONSTRUCT LANDSCAPING FOR SIDEWALK A MINIMUM OF 4'-X4" WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
10. CONSTRUCT THE COUNTER SLOPE OF THE CUTTER OR STREET AT THE BASE OF THE RAMP A MAXIMUM OF 5% AND MAINTAIN MINIMUM 12'-0" SETBACK.
11. PLACE A 2' LANDING JUNCTION WHERE THE CONCRETE CURB RAMP JOINS THE CURB AND AS SHOWN ON DTD. 84-8.01.



### C.B.U. PARKING FIELD DETAIL

SCALE: 1" = 20'



**Right of Access for Subdivision Entrance**

I, Justin M. Old, Manager of Moyock Development, LLC, owner of parcel no. 0015-000-0086-0000, also known as The Fost Tract, located on Caratoke Highway in Moyock, North Carolina, do hereby grant to Moyock Farms, LLC, its successors and assigns, permission to use the roadways that are to be improved within the Fost development, including but not limited to Tarheel Drive, as the primary means of ingress and egress to a proposed subdivision known as Moyock Farms, located on parcel no. 0023-000-0007-0000. This right of access includes the right to construct roadways, drainage and utility improvements for the Moyock Farms development and to connect said improvements to roadways and utilities that are being constructed on The Fost tract. Any additional traffic or site study that is required in connection with Moyock Farms will be the responsibility of the requesting applicant Moyock Farms, LLC.

Agreed this 22<sup>nd</sup> day of June, 2020.

By. \_\_\_\_\_

Justin M. Old, Manager  
Moyock Development, LLC  
417-D Caratoke Highway  
Moyock, NC 27958

**Currituck County**  
**Preliminary Engineering Stormwater Management**  
**Plan Report**

**Narrative and Basis of Design**

***Project:***

***Moyock Farms Subdivision***

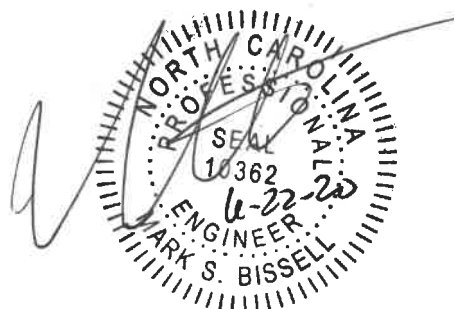
Moyock Township, Currituck County, North Carolina

***Prepared By:***

***Bissell Professional Group***

P.O. Box 1068  
3512 N. Croatan Highway  
Kitty Hawk, North Carolina 27949

Amended June 22, 2020





**STORMWATER MANAGEMENT NARRATIVE:****PROPOSED DEVELOPMENTAL ACTIVITIES**

The intent of the stormwater management design, to the maximum extent possible, is to employ best management practices through the use of vegetative conveyances, vegetative buffers and wet-detention BMP's to serve the proposed development. As a whole, the development will consist of 31 residential single family home lots served by standard swale-section NCDOT roads located on an existing 100 acre tract of land. The proposed Moyock Farms subdivision will be accessed via connectivity to the adjacent Fost tract. The tract adjoins the Ranchland Subdivision in Moyock Township, Currituck County, North Carolina.

The proposed developmental activities include the following:

- a) Construction of 31 single family residential home parcels with a 2+ acre average lot size
- b) Construction of about 4,567 l.f. of typical asphalt subdivision road
- c) Waterline Improvements
- d) Drainage and Stormwater BMP Improvements
- e) Sidewalks and street trees

**SITE SOILS**

The following is a summary of the soils typically found within the project boundary limits.

**SOIL DESCRIPTION**

The eastern 20% of the site is composed of:

Ro: Roanoke Fine Sandy Loam: Nearly level, poorly drained soil on broad flats and in slightly depressed waterways. Permeability is slow with a seasonal high water table at or near the surface. Permeability in the first 45" of soil is described as being 0.06 in/hr – 0.2 in/hr.

The remainder of the site has been mapped:

Ca: Cape Fear loam: Nearly level, very poorly drained soil on broad flats and narrow strips adjacent to small drainageways. Permeability is slow with a seasonal high water table at or near the surface. Slopes range from 0 to 2 percent.

- *Information referenced from United States Department of Agriculture, Soil Conservation Service, Soil Survey of Currituck County, North Carolina*

## EXISTING SITE TOPOGRAPHY AND DRAINAGE FEATURES

The site's topography is gently sloping toward the east typically from about 6' to 6.5' msl down to about 4' at the eastern edge of the site near the railroad. The site is surrounded on 3 sides by property line ditches, as follows:

The Rowland Creek Canal runs along the northern property line and then crosses under Caratoke Highway and past Rowland Creek Estates and then becomes free flowing.

The Ranchland Outlets run along the northwest, west, south and southeast property lines. The northwestern portion connects to Rowland Creek; the southern portion flows under Caratoke Highway and eventually connects to Guinea Mill Canal.

On site, there is a series of 2- to 3-foot deep farm ditches which run north to south, draining the larger part of the existing farmland to the existing property line ditches.

Land use in the area is a combination of farming and residential development.

## METHODOLOGY OF MANAGING STORMWATER RUNOFF

In addition to NCDEQ's low-density permitting requirements, the development will also be designed in accordance with Currituck County's UDO and the Stormwater Management Plan requirements for Major Subdivisions as outlined in the County's Stormwater Manual and as follows.

"Currituck County requires that all major subdivisions provide adequate stormwater controls to retain the post development 10-year, 24-hour peak discharge so that it does not release a peak discharge greater than the 2-year, 24 hour peak discharge using a wooded site condition, regardless of actual pre-development site conditions."

## STORMWATER RUNOFF COLLECTION AND MANAGEMENT

Based on existing site conditions and the layout of the proposed development, drainage will be collected and run into two stormwater basins, labeled BMP-1 and BMP-2 on the attached overview sheet. The two BMP's will be interconnected with a culvert running north-south parallel to the railroad to allow the basins to work together as a unit. An outlet control structure will be installed in each BMP. A third pond may be constructed if needed to balance cut and fill, but will not be needed to attenuate the rate of runoff. The third pond, if constructed, will drain to the Ranchland Outlet ditch.

The building areas of the lots (front portion of each lot) will drain to the roadway swales and then will be directed into the BMP's. Groundwater control ditches will be constructed around the back of the lots to control water levels in the septic system areas in accordance with the soil scientist's recommendations.

The Rowland Creek canal and the portion of the Ranchland Outlet that adjoins the Fost property has been committed for improvement by the developer of that property. The right of entry has been granted for that purpose. If the Ranchland property owners agree, the remainder of the Ranchland Outlets that run along the Moyock Farms property line will be deepened as necessary to make the site drainage system function properly, including putting them on a positive grade and laying back the side slopes, at least on the Moyock Farms side of the property line. If no agreement is forthcoming, a new parallel ditch will be constructed entirely on the Moyock Farms property.



In general, rainfall runoff from the residential lots will sheet flow overland into vegetative side property line swales. Runoff from the roadways will be collected by typical roadway swales. The property line and roadway swales will convey runoff to the wet-detention BMP's, and drawdown from the BMP's will be handled via typical drawdown devices with orifices and overflow be will be managed through typical spillways. Discharge from both drawdown devices, and the overflow spillways will be directed into the adjacent ditches which will convey it to existing outlets to the east.

Property line swales will act as broad, shallow, vegetative filters, constructed with side slopes of 3:1 or greater and vegetated with grass. Longitudinal slopes are being kept relatively flat, to provide for low velocity flows, thereby aiding infiltration and sediment removal. This practice is also described as passive in accordance with best management practices.

## STORMWATER MANAGEMENT OVERVIEW

The following information is in conformance with the Currituck County Unified Development Ordinance:

- 1) Proposed impervious coverage of less than 24% for each residential lot.
- 2) Provision of vegetative conveyance swales along proposed property lines and roadway swales to collect and transport stormwater runoff from all impervious surfaces to the two proposed BMPs.
- 3) Provision of two wet-detention BMP's with a drawdown devices and overflow spillways that outlet to adjacent ditches. The property line ditches will be evaluated and improved as necessary and permitted to improve their flow characteristics. The BMP's will be designed to manage the design storm plus 6" of freeboard.
- 4) Minimum Building Pad Elevations will be prescribed lot by lot based on exceeding the backwater elevations based on the stormwater modeling that will be performed at the construction drawing stage.
- 5) Minimum First Floor Elevations will also be prescribed by lot based on exceeding the stormwater flood stage elevation plus freeboard.

## OPERATION & MAINTENANCE

### SCHEDULE OF COMPLIANCE

The developer shall maintain the responsibility for the stormwater management system until at which time a Property Owner's Association assumes responsibility. The stormwater measures are to be installed and maintained as follows:

- A. The BMPs, swales and other vegetated conveyances shall be constructed, vegetated, and maintained to be operational.
- B. During construction, erosion shall be kept to a minimum and any eroded areas of the swales or other vegetated conveyances will be repaired immediately.
- C. The following operation & maintenance measures must be performed on all stormwater management measures for optimum efficiency of the stormwater management system;
  1. Inspections- at least (1) every 6 months or after any significant rainfall event.
  2. Sediment Removal - at least (1) every 6 months or after any significant rainfall.
  3. Mowing, and revegetating of the side slope once a month.
  4. Immediate repair of eroded slopes.
  5. General maintenance of side slopes in accordance with approved plans & specs.

## PRELIMINARY STORMWATER MANAGEMENT CALCULATIONS

### **BMP-1:**

**SURFACE AREA – APPROX 162,700 SQ FT = 3.7 ACRES**

**AVAILABLE VOLUME FROM 3.0' TO 4.0' = 160,000 CUBIC FEET**

### **BMP-2:**

**SURFACE AREA – APPROX 142,800 SQ FT = 3.27 ACRES**

**AVAILABLE VOLUME FROM 3.0' TO 4.0' = 140,000 CUBIC FEET**

**COMBINED VOLUME BELOW FREEBOARD LEVEL: APPROX. 300,000 CUBIC FEET**

### **RUNOFF FROM DEVELOPED AREAS:**

<b>ROADWAY SURFACES:</b>	<b>91,340 SQ. FT.</b>
<b>SIDEWALKS:</b>	<b>45,670 SQ. FT.</b>
<b>CBU AREA:</b>	<b>2,500 SQ. FT.</b>
<b>LOT COVERAGE: 31 x 4,000 =</b>	<b><u>124,000 SQ. FT.</u></b>
<b>TOTAL:</b>	<b>263,510 SQ. FT.</b>

### **10-YEAR RUNOFF VOLUME FROM IMPERVIOUS AREAS:**

**$263,510 \times 0.5' = 131,755 \text{ CU. FT.}$**

**CAPTURING ALL RUNOFF FROM IMPERVIOUS AREAS WILL RAISE WATER LEVEL IN COMBINED BMP'S ABOUT 0.44 FT.**

**MODELING WILL BE BASED ON CAPTURING THE DIFFERENCE BETWEEN THE RUNOFF FROM A 2-YEAR WOODED CONDITION SITE AND A 10-YEAR DEVELOPED SITE, AND FINAL BMP DESIGN TAILORED ACCORDING TO THE MODEL RESULTS.**





To: Mark Bissell, PE  
Bissell Professional Group

Date: June 22, 2020

## Memorandum

Project #: 39134.00

From: Lyle Overcash, PE

Re: Moyock Farms Traffic Assessment

This memorandum summarizes the peak hour impacts of the proposed Moyock Farms Subdivision on the surrounding roadway network based on recent changes made to the site plan. Originally, plans for Moyock Farms included an access driveway along NC 168 (Caratoke Highway) and a cross-connection to the proposed Fost Tract Development. Plans now will remove the proposed access driveway along NC 168 (Caratoke Highway), which will route all vehicles to use the cross-connection through Fost Tract and the new proposed traffic signal at NC 168 (Caratoke Highway) via future Fost Boulevard. This memorandum evaluates the potential additional vehicular delay impact this change in access may have on the proposed Fost Boulevard intersection.

### Trip Generation and Distribution

The trip generation for the Moyock Farms Subdivision was calculated using LUC 210 (Single-Family Detached Housing) within the *ITE Trip Generation Manual, 10<sup>th</sup> Edition*. Trip generation results are depicted in Table 1. As shown in Table 1, the Moyock Farms Subdivision is expected to generate 354 daily trips with 27 trips (7 entering, 20 exiting) occurring during the AM peak hour and 33 trips (21 entering, 12 exiting) occurring during the PM peak hour.

**Table 1: Moyock Farms Trip Generation Results**

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	31 du	354	7	20	27	21	12	33
Development Total			354	7	20	27	21	12	33

Notes:

1. Land Use Code and trip generation rates are determined based on *ITE Trip Generation, 10<sup>th</sup> Edition*
2. Total site trips are determined based on the suggested method in the NCDOT Rate Vs Equation Spreadsheet

The site generated trips were distributed based on percentages that were used within the Flora Farms TIA. It is expected that these site trips would follow the same pattern due to both sites having similar land uses. Trip assignment percentages used within this analysis are shown in the Figures at the end of this memorandum.

### Capacity Analysis Results

The No-Build (2026) analysis from the Flora Farms TIA and Build (2026) scenarios with and without the future Moyock Farms Subdivision were analyzed to confirm that the recommendations for the intersection of NC 168 (Caratoke Highway) and future Fost Boulevard would accommodate the change in access within the Moyock Farms Subdivision. The updated Build (2026) volumes were calculated by utilizing the peak hour volumes analyzed within the Flora Farms TIA and adding the site generated trips from the Moyock Farms Subdivision. The volume development for this analysis is shown in the Figures. Once new peak hour volumes were calculated, the analysis was updated within *Synchro 10* to determine new level of service (LOS) results. The peak hour LOS results for the No-Build (2026) and updated Build (2026) scenarios are shown in Table 2. Detailed reports showing the Synchro results are located at the end of this memorandum.

Attachment: 5 Moyock Farms Traffic Memorandum (PB 19-14 Moyock Farms)

**Table 2: Summary LOS Results**

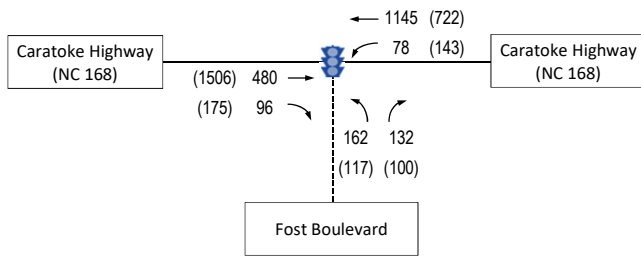
Intersection and Approach	No-Build (2026)		Build (2026)		Build (2026) with Moyock Farms	
	AM	PM	AM	PM	AM	PM
<b>NC 168 (Caratoke Highway) at Fost Boulevard</b>	<b>B (11.1)</b>	<b>B (11.3)</b>	<b>B (13.9)</b>	<b>B (14.1)</b>	<b>B (14.8)</b>	<b>B (14.5)</b>
Eastbound	C-30.5	D-38.2	C-30.2	D-43.7	C-30.1	D-45.2
Northbound	A-9.5	B-11.1	B-11.6	B-13.3	B-12.1	B-13.0
Southbound	A-4.6	A-8.0	A-9.4	A-9.9	B-11.2	B-10.2

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

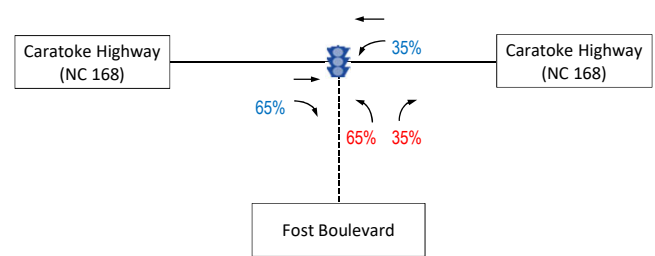
As shown in Table 2, the future traffic signal at the intersection of NC 168 (Caratoke Highway) and Fost Boulevard is projected to operate at LOS B during both peak hours. No significant delays or queues are projected for any approaches. Therefore, the original recommendations for the intersection can remain the same, and no impacts are expected on the surrounding roadway network from this addition of site traffic on to Fost Boulevard. The proposed lane geometrics and traffic control for the intersection are shown in the Figures.



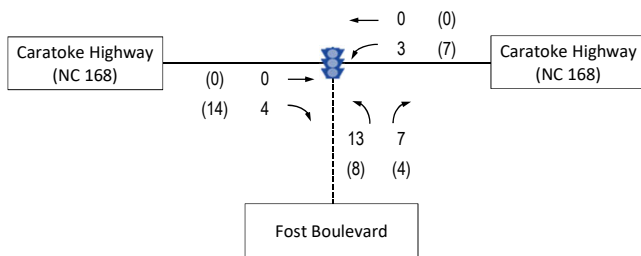
## No-Build (2026) Peak Hour Volumes



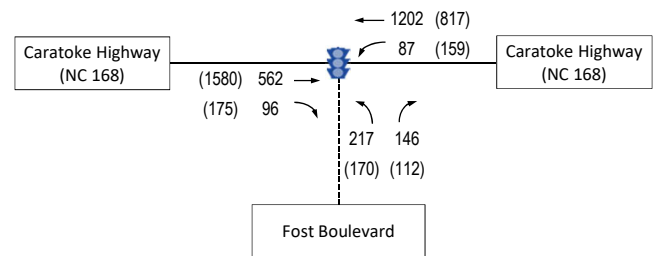
## Peak Hour Trip Assignment Percentages



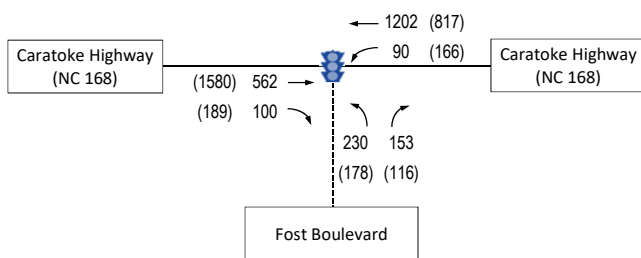
## Moyock Farms Peak Hour Site Trips



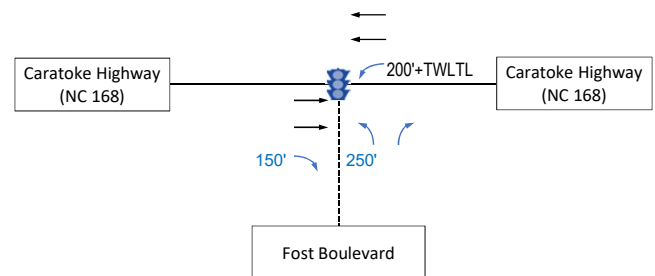
## Build (2026) Peak Hour Volumes - from Flora TIA



## Build (2026) Peak Hour Volumes with Moyock Farms Trips



## Future (2026) Lane Geometrics and Traffic Control



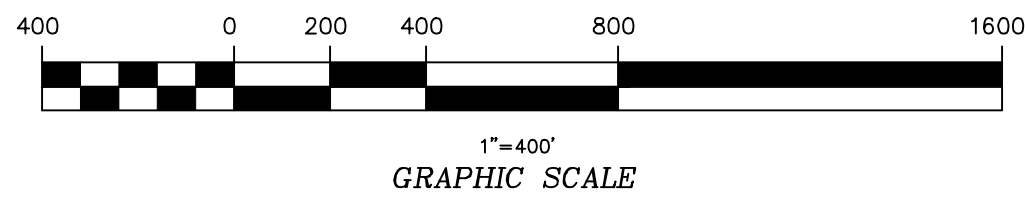
LEGEND	
—	Existing Roadway
- -	Future Roadway
←	Turning Movement/Lane Geometric
→	Proposed Lane Geometric
STOP	Existing Stop-Controlled Approach
⬢	Existing Signalized Intersection
⬢	Fost Tract Signalized Intersection
XX%	Entering Trip Distribution Percentage
XX%	Exiting Trip Distribution Percentage
XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume



## Moyock Farms Traffic Assessment Figures

Moyock Farms  
Subdivision  
Moyock, NC





DATE: 05/20/20	SCALE: 1" = 400'
DESIGNED: BPG	CHECKED: MSB
DRAWN: KFW	APPROVED: BPG
SHEET:  1 OF 1	
CAD FILE: 4680COMBO	
PROJECT NO: 4680	

**BISSELL**  
PROFESSIONAL GROUP

Engineers, Planners, Surveyors  
and Environmental Specialists













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

No-Build (2026) AM

06/22/2020

						
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 Effect 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 1

Attachment: 5 Moyock Farms Traffic Memorandum (PB 19-14 Moyock Farms)

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

No-Build (2026) AM

06/22/2020

						
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

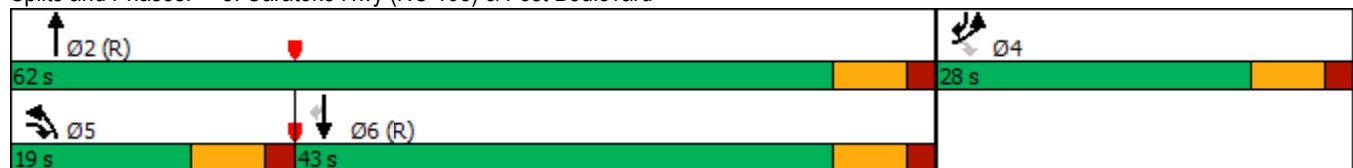
Intersection Capacity Utilization 49.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

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

















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

No-Build (2026) PM

06/22/2020

						
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 1

Attachment: 5 Moyock Farms Traffic Memorandum (PB 19-14 Moyock Farms)

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

No-Build (2026) PM  
06/22/2020

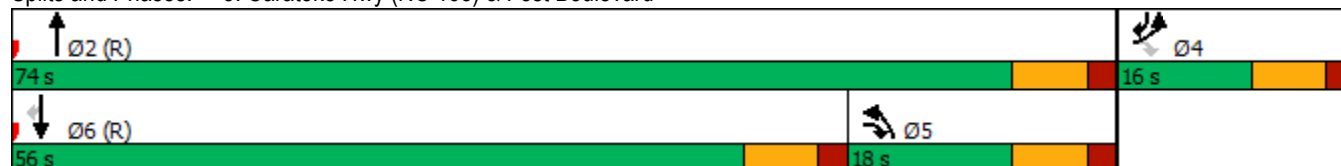
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	16.0	18.0	18.0	74.0	56.0	16.0
Total Split (%)	17.8%	20.0%	20.0%	82.2%	62.2%	17.8%
Maximum Green (s)	9.0	11.0	11.0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

Build (2026) AM  
06/22/2020

						
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	

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

Build (2026) AM  
06/22/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	125	59	51	183	87	10
Queue Length 95th (ft)	186	83	94	295	66	8
Internal Link Dist (ft)	477			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	493	661	260	2386	1738	1290
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.25	0.37	0.56	0.36	0.08

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 72 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.9

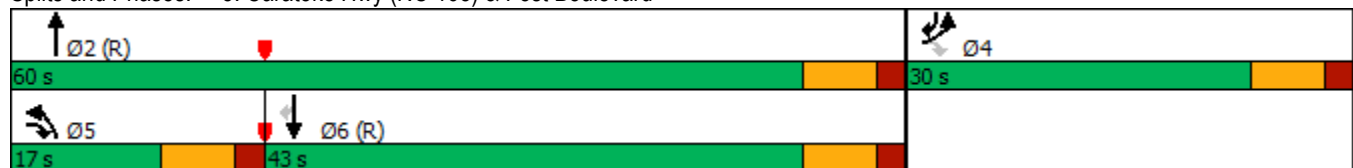
Intersection LOS: B

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15

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

















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

Build (2026) AM













06/22/2020

						
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			

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

Build (2026) PM

06/22/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	170	112	159	817	1580	175
Future Volume (vph)	170	112	159	817	1580	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	586			859	1116	
Travel Time (s)	16.0			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	189	124	177	908	1756	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	124	177	908	1756	194
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	18.0	17.0	17.0	72.0	55.0	18.0
Total Split (%)	20.0%	18.9%	18.9%	80.0%	61.1%	20.0%
Maximum Green (s)	11.0	10.0	10.0	65.0	48.0	11.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	12.8	29.7	11.9	67.2	50.3	68.1
Actuated g/C Ratio	0.14	0.33	0.13	0.75	0.56	0.76
v/c Ratio	0.75	0.24	0.76	0.34	0.89	0.16
Control Delay	57.2	23.3	59.3	4.3	10.8	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	23.3	59.3	4.3	10.8	1.3
LOS	E	C	E	A	B	A
Approach Delay	43.7			13.3	9.9	
Approach LOS	D			B	A	

Build (2026) PM - Improved.syn  
VHB







Synchro 10 - Report  
Page 1

Attachment: 5 Moyock Farms Traffic Memorandum (PB 19-14 Moyock Farms)



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

Build (2026) PM  
06/22/2020

						
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) & Fost Boulevard



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

Build (2026) PM

06/22/2020













						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	170	112	159	817	1580	175
Future Volume (veh/h)	170	112	159	817	1580	175
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	124	177	908	1756	194
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	257	440	238	2646	1974	1110
Arrive On Green	0.14	0.14	0.13	0.74	0.56	0.56
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	189	124	177	908	1756	194
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	9.1	5.5	8.6	7.9	39.1	3.8
Cycle Q Clear(g_c), s	9.1	5.5	8.6	7.9	39.1	3.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	257	440	238	2646	1974	1110
V/C Ratio(X)	0.73	0.28	0.75	0.34	0.89	0.17
Avail Cap(c_a), veh/h	257	440	238	2646	1974	1110
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	25.5	37.5	3.9	17.6	4.6
Incr Delay (d2), s/veh	10.4	0.3	12.0	0.4	6.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	5.4	4.3	1.6	14.1	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.2	25.8	49.6	4.3	24.1	5.0
LnGrp LOS	D	C	D	A	C	A
Approach Vol, veh/h	313			1085	1950	
Approach Delay, s/veh	38.8			11.7	22.2	
Approach LOS	D			B	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.0		18.0	17.0	55.0
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		65.0		11.0	10.0	48.0
Max Q Clear Time (g_c+l1), s		9.9		11.1	10.6	41.1
Green Ext Time (p_c), s		6.5		0.0	0.0	5.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			20.3			
HCM 6th LOS			C			



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

Build (2026) AM with Moyock Farms

06/22/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	230	153	90	1202	562	100
Future Volume (vph)	230	153	90	1202	562	100
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)	574			870	1060	
Travel Time (s)	15.7			10.8	13.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	256	170	100	1336	624	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	256	170	100	1336	624	111
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	18.0	18.0	60.0	42.0	30.0
Total Split (%)	33.3%	20.0%	20.0%	66.7%	46.7%	33.3%
Maximum Green (s)	23.0	11.0	11.0	53.0	35.0	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)	20.1	37.5	12.4	59.9	42.5	67.6
Actuated g/C Ratio	0.22	0.42	0.14	0.67	0.47	0.75
v/c Ratio	0.65	0.26	0.41	0.57	0.37	0.09
Control Delay	38.9	16.7	39.9	10.0	12.9	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	16.7	39.9	10.0	12.9	1.7
LOS	D	B	D	B	B	A
Approach Delay	30.1			12.1	11.2	
Approach LOS	C			B	B	

Build (2026) AM - Improved.syn  
VHB







SimTraffic 10 - Report  
Page 1

Attachment: 5 Moyock Farms Traffic Memorandum (PB 19-14 Moyock Farms)

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

Build (2026) AM with Moyock Farms

06/22/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	133	61	53	190	92	11
Queue Length 95th (ft)	194	85	97	303	72	8
Internal Link Dist (ft)	494			790	980	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	496	684	270	2364	1703	1279
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	0.52	0.25	0.37	0.57	0.37	0.09

## 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: 0.65

Intersection Signal Delay: 14.8

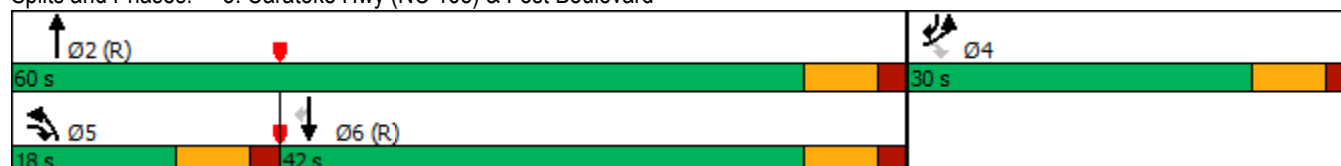
Intersection Capacity Utilization 54.3%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

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

















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

Build (2026) PM with Moyock Farms

06/22/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	178	116	166	817	1580	189
Future Volume (vph)	178	116	166	817	1580	189
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)	569			842	1114	
Travel Time (s)	15.5			10.4	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	198	129	184	908	1756	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	198	129	184	908	1756	210
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	18.0	18.0	72.0	54.0	18.0
Total Split (%)	20.0%	20.0%	20.0%	80.0%	60.0%	20.0%
Maximum Green (s)	11.0	11.0	11.0	65.0	47.0	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		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 Effct Green (s)	12.9	30.6	12.7	67.1	49.4	67.3
Actuated g/C Ratio	0.14	0.34	0.14	0.75	0.55	0.75
v/c Ratio	0.78	0.24	0.74	0.34	0.90	0.18
Control Delay	59.9	22.6	55.8	4.3	11.3	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	22.6	55.8	4.3	11.3	0.9
LOS	E	C	E	A	B	A
Approach Delay	45.2			13.0	10.2	
Approach LOS	D			B	B	

Build (2026) PM - Improved.syn  
VHB







Synchro 10 - Report  
Page 1

Attachment: 5 Moyock Farms Traffic Memorandum (PB 19-14 Moyock Farms)

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

Build (2026) PM with Moyock Farms

06/22/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	110	52	101	76	50	5
Queue Length 95th (ft)	#218	95	#197	98	#75	m6
Internal Link Dist (ft)	489			762	1034	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	255	525	255	2639	1942	1167
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	0.78	0.25	0.72	0.34	0.90	0.18

## 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: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 14.5

Intersection LOS: B

Intersection Capacity Utilization 75.2%

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







## 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:** Sam Miller, Miller Homes and Building  
 Mark Bissell, Bissell Professional Group

**From:** Planning Staff

**Date:** June 11, 2020

**Re:** Moyock Farms, Amended Preliminary Plat/Use Permit

The following comments have been received for the June 9, 2020 TRC meeting. In order to be scheduled for the July 14, 2020 Planning Board meeting, please address all comments and resubmit a corrected plan by 3:00 p.m. on June 22, 2020. TRC comments are valid for six months from the date of the TRC meeting.

#### **Planning, (Tammy Glave, 252-232-6025)**

Approved with comments

1. The primary entrance of this subdivision is through another subdivision that is not developed. Provide documentation that authorizes the construction access through another subdivision. What is the anticipated timing of construction (Fost/Moyock Farms) and the dedication of right of way to the state road?
2. Final plat approval for this subdivision cannot be granted until Tarheel Drive in the Fost Development is installed and found compliant by NCDOT.
3. It would be helpful to show sidewalks and the street tree planting easement on the typical lot detail.
4. Label blue line ditch easements. (UDO Section 7.4.10/Administrative Manual)
5. Since this project is entirely accessed through the Fost development, provide traffic data on how or if this will affect the TIA improvements for Fost/Flora developments.
6. Is there any opportunity to provide Ranchland with an alternate access?
7. Provide construction details of the street interconnection to Tarheel Drive (Fost) crossing Rowland Creek and transition to Moyock Farms.

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

Approved with corrections:

1. Still need to address 2" water main typo on plans at lot #5. Blue reflectors at fire hydrants in the street, no parking signage (No Street Parking) at entrance to neighborhood spaced throughout and within 50' of intersections to deter on street parking.

Attachment: 6 Moyock Farms 6-10-2020 TRC Comments (PB 19-14 Moyock Farms)

**Currituck County Economic Development Director (Larry Lombardi, 252-232-6015)**

Reviewed without comment.

**Currituck County GIS (Harry Lee, 252-232-4039)**

Reviewed with comments:

1. Revised Address Assignment for Moyock Farms subdivision:

Lot 1: 314 Tarheel Dr  
 Lot 2: 312 Tarheel Dr  
 Lot 3: 310 Tarheel Dr  
 Lot 4: 308 Tarheel Dr  
 Lot 5: 306 Tarheel Dr  
 Lot 6: 304 Tarheel Dr  
 Lot 7: 302 Tarheel Dr  
 Lot 8: 300 Tarheel Dr  
 Lot 9: 301 Tarheel Dr  
 Lot 10: 303 Tarheel Dr  
 Lot 11: 305 Tarheel Dr  
 Lot 12: 307 Tarheel Dr  
 Lot 13: 309 Tarheel Dr  
 Lot 14: 311 Tarheel Dr  
 Lot 15: 313 Tarheel Dr  
 Lot 16: 100 Tarheel Dr  
 Lot 17: 102 Tarheel Dr  
 Lot 18: 104 Tarheel Dr  
 Lot 19: 106 Tarheel Dr  
 Lot 20: 108 Tarheel Dr  
 Lot 21: 110 Tarheel Dr  
 Lot 22: 112 Tarheel Dr  
 Lot 23: 200 Tarheel Dr  
 Lot 24: 202 Tarheel Dr  
 Lot 25: 204 Tarheel Dr  
 Lot 26: 206 Tarheel Dr  
 Lot 27: 208 Tarheel Dr  
 Lot 28: 210 Tarheel Dr  
 Lot 29: 212 Tarheel Dr  
 Lot 30: 214 Tarheel Dr  
 Lot 31: 216 Tarheel Dr

**Currituck County Parks and Recreation (Jason Weeks, 252-232-3007)**

Reviewed without comment.

**Currituck Soil and Stormwater (Dylan Lloyd, 252-232-3360)**

Reviewed with comment:

1. Are the existing farm ditches being filled in and their capacity to retain or convey water being calculated into the overall BMP design?
2. Please provide an update to the stormwater narrative with the name change and the potential future pond is labeled as such.
3. How will the 3rd drainage pond - even if unplanned at this time - be tied in and interconnected to the existing drainage system?



4. Plans do not show a berm on southern edge of property; particularly behind lots and BMPs adjacent to Ranchland.

**Currituck County Public Utilities, Water (Will Rumsey, 252-232-6065 and Dave Spence 252-232-4152)**

Reviewed without comment.

**NCDOT (David Otts, 252-331-4737)**

Reviewed with comment.

1. Typical Roadway Section with Sidewalks on Sheet 5 of 5 shows the sidewalks adjacent the roadway (separated by a 5' shoulder), followed by a ditch parallel to - and apparently draining - the roadway on a "15' Utility and Drainage Easement. As you know, we don't maintain sidewalks. In the event they are placed on the r/w, they are there by encroachment. With this in mind, the setup seems backwards as homeowner's would expect the Department to maintain this ditch, especially since it conveys our stormwater. The sidewalk in between would likely be damaged in the event that ditch maintenance is required as 4" of concrete isn't adequate to support heavy equipment.
2. The Department would need full control of the ditch (on r/w rather than an easement) if we are to maintain. An easement would allow the adjacent owner to perform work within this area (such as pipe in their yard) without our permission. The typical section for road side ditches are shown in an easement. NCDOT would rather have ditches within its right-of-way if they are to maintain.

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

Reviewed without comment.

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

Reviewed with comment:

1. DEVELOPER/OWNER WILL NEED TO CONSULT WITH KEVIN CARVER RS AT 252-232-6603 CONCERNING SEPTIC SYSTEM APPROVAL FOR EACH LOT THAT MAKES UP THIS PROPOSED SUB-DIVISION.

**Mediacom (252-482-5583)**

See attached letter.

**US Post Office**

Contact the local post office for mail delivery requirements.

**The following items are necessary for resubmittal:**

- 3 - full size copies of revised plans.
- 10 - 11"x17" copies of revised plans.
- 1- 8.5"x11" copy of all revised plans.
- 1- PDF digital copy of all revised documents and plans.

A use permit hearing is an evidentiary hearing where the Board of Commissioners must make a Quasi-Judicial Decision.

- An evidentiary hearing will be held for the Board of Commissioners to gather competent, material and substantial evidence to establish the facts of the case.
- All testimony is made under oath.
- The applicant or opposing parties shall establish written findings of fact and conclusions of law.
- Parties with standing may participate fully in the evidentiary hearing, including presenting evidence, cross-examining witnesses, objecting to evidence, and making legal arguments.
- Non-parties may present competent, material, and substantial evidence that is not repetitive.

#### Typical Use Permit (Quasi-Judicial) Hearing at BOC

- Swearing in of witnesses/speakers
- Presentation by County Staff on Application
- Required Presentation by Applicant or Authorized Agent (20-25 minutes)
  - Applicant to Present Findings of Fact
- Public Comment Period (typically 3 minutes each)
- Applicant Rebuttal (typically 5 minutes)
- BOC Deliberation & Decision





**Kim Mason, NC Area Director**

[kmason@mediacomcc.com](mailto:kmason@mediacomcc.com)

216 B Shannonhouse Road

Edenton NC, 27932

Edenton: 252-482-5583

Plymouth: 252-793-2491

Mobile: 252-497-0328

RE: New Build & Development

Dear Development manager;

As you know the key need for all homes in this 21<sup>st</sup> Century is a solid internet connection, be it for business, education or entertainment, the public demand is here.

With this in mind, as you plan for your development and build out, we would like to encourage you to reach out to us, as you do for other essential utilities. It is most economical and reasonable for you to work with us and have this valuable infrastructure in advance of selling and building the homes. Any build out costs can easily be recouped as the lots are developed and make your neighborhoods more appealing to families and professionals.

We invite, you to partner with us and contact us locally. We will process a ROI for your location to determine partnership feasibility and estimated cost to ensure your development has access to the best internet services available.

Our key contacts are, Kim Mason, Director for North Carolina – information above and our construction coordinator Nathaniel Harris at 252- 793-5256 or 252-339-9375.

Mediacom launched 1-Gig broadband speeds in the following areas of North Carolina and operates customer service offices in Edenton and Plymouth.

<b>Bertie County</b>	<b>Martin County</b>	<b>Chowan County</b>	<b>Perquimans County</b>
Colerain	Jamesville	Arrowhead / Chowan Beach	Hertford
Kelford	<b>Northampton County</b>	Edenton	Winfall
Lewiston	Conway	<b>Currituck County</b>	<b>Tyrrell County</b>
Powellsville	Galatia	Barco	Columbia
Roxobel	Jackson	Currituck	<b>Washington County</b>
Windsor	Rich Square	Grandy	Creswell
<b>Camden County</b>	Seaboard	Moyock	Plymouth
Camden	Severn	Point Harbor	Roper
Shiloh	Woodland	Poplar Branch	
South Mills		Tulls Bay	

**About Mediacom Communications**

Mediacom Communications Corporation is the 5<sup>th</sup> largest cable operator in the U.S. serving over 1.3 million customers in smaller markets primarily in the Midwest and Southeast. Mediacom offers a wide array of information, communications and entertainment services to households and businesses, including video, high-speed data, phone, and home security and automation. Through Mediacom Business, the company provides innovative broadband solutions to commercial and public sector customers of all sizes and sells advertising and production services under the OnMedia brand. More information about Mediacom is available at [www.mediacomcable.com](http://www.mediacomcable.com).

We look forward to partnering with you to ensure your projects are successful and your development has the best services available for your buyers.

Best regards,

*Kim Mason*

Kim Mason

Operations Director, North Carolina

Attachment: 6 Moyock Farms 6-10-2020 TRC Comments (PB 19-14 Moyock Farms)



June 22, 2020

Planning Staff  
Currituck Department of Planning and  
Community Development  
153 Courthouse Road, Suite 110  
Currituck, NC 27929

Re: Moyock Farms Amended Preliminary Plat/Use Permit

Dear Staff,

We have reviewed the TRC comments dated June 11, 2020 and are providing this response to the comments:

Planning (Tammy Glave)

1. A copy of an agreement from the developer of the Fost Subdivision to provide access thru that subdivision to Moyock Farms is attached. The current Fost phasing plan calls for the phase that includes the Tarheel Drive connection to Moyock Farms to be recorded in August, 2022. The Moyock Farms construction will be completed in advance of this date and be recorded after the dedication of the right of way.
2. It is understood that Final Plat approval cannot be granted until Tarheel Drive has been accepted by NCDOT as meeting its construction standards.
3. Sidewalks and a street tree planting easement have been added to the typical lot detail.
4. Blue line ditch easements are shown on sheets 3 & 4 and labeled on sheet 3; the labels have also been added to sheet 4 for clarity.
5. The Traffic Engineering Firm VHB has provided traffic data for the proposed Moyock Farms development and determined that it will have minimal impact on the Fost development. No additional improvements are proposed or required. A copy of the VHB memo is attached.
6. We have not found an opportunity to provide Ranchland with an alternate access.
7. A typical detail has been provided showing how the transition will be accomplished in Fost to the Tarheel Drive in Moyock Farms as it crosses Rowland Creek.

Currituck County Building and Fire Inspections (Bill Newns)

1. The plan has been corrected to remove any reference to a 2" water main.
2. The reflectors at fire hydrants will be provided at construction, and "no parking" signs have been added at intervals on the plan.

Currituck County GIS (Harry Lee)

1. The revised street addresses that have been assigned have been added to the plan.

Currituck Soil and Stormwater (Dylan Lloyd)

1. Yes, the existing farm ditches are being filled in and their capacity to retain or convey water will be calculated into the overall stormwater model.
2. The stormwater narrative has been updated as requested to remove any references to the former Moyock Meadows name and to label the potential future pond.

P.O. Box 1068 • 3512 N. Croatan Hwy. • Kitty Hawk, NC 27949

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3. If the third drainage pond is constructed, it will be connected to the Ranchland outlet as shown on the updated plan sheet.
4. The need for construction of berms will be determined once the final stormwater modeling for the property has been completed. The location for a possible berm has been shown adjacent to Ranchland, but the need for this berm is not yet known.

NCDOT (David Otts)

1. After discussion with Mr. Otts, it was agreed that sidewalks will remain between the roadway pavement and the swales in order to keep each lot from needing to pipe its lot line swale under the sidewalk to the roadway ditch.
2. The proposed street right-of-way has been increased from 50' to 60' in order to have the roadway ditches within the right-of-way rather than in a drainage easement. It should also be noted that the NCDEQ permit will prevent property owners from piping in their ditches.

Albemarle Regional Health Services (Joe Hobbs)

1. Kevin Carver has issued acceptable site evaluation reports for all of the 31 lots that make up this proposed subdivision.

US Post Office

1. The local post office has been contacted and provided an updated plan showing the final configuration of the CBU mail area.

We are providing 3 full size copies, 10 11x17 copies, and one 8.5x11 copy of all revised plans and a .pdf digital copy of all revised plans and documents.

It is our understanding that this request will not need to go the Planning Board, but should be available to be heard by the County Commissioners at their regular meeting on July 20, 2020.

Please let me know if any additional information is needed in order to move this request forward to that agenda.

Sincerely,  
BISSELL PROFESSIONAL GROUP



Mark S. Bissell, P.E.

Cc: Mr. Sam Miller



## **COUNTY OF CURRITUCK**

Planning and Community Development Department  
*Planning and Zoning Division*  
 153 Courthouse Road, Suite 110  
 Currituck, North Carolina 27929  
 Telephone (252) 232-3055 / Fax (252) 232-3026

### **USE PERMIT GRANTED**

On the date(s) listed below, the Board of Commissioners for the County of Currituck met and held a public hearing to consider the following application:

Property Owner: Eagle Auto Auction  
 2035 Dewald Road  
 Chesapeake, VA 23322

Applicant: Miller Homes & Building, LLC  
 111 Currituck Commercial Drive, Suite B  
 Moyock, NC 27958

Property Location: Caratoke Highway, Northwest of Ranchland  
 Tax Map 23, Parcel 7, Moyock Township

Project: PB 19-14 Moyock Farms – Preliminary Plat/Use Permit

Proposed Use: 31 Residential Lots

Meeting Dates: August 5, 2019 – Board of Commissioners' Public Hearing/Action

Having heard all the evidence and argument presented at the hearing, the Board of Commissioners finds that the application is complete, that the application complies with all of the applicable requirements of the Currituck County Unified Development Ordinance for the development proposed, and that therefore the application to make use of the above described property for the purpose indicated is hereby approved subject to all applicable provisions of the Unified Development Ordinance and the following conditions:

- (A) The applicant shall complete the development strictly in accordance with the plans submitted to and approved by this Board, a copy of which is filed in the office of the Planning and Community Development Department.
- (B) If any of the conditions affixed hereto or any part thereof shall be held invalid or void, then this permit shall be void and of no effect.
- (C) This permit is valid for three years and will expire on August 5, 2022, if a final plat is not submitted within three years after the date of approval of the preliminary plat authorized by this use permit.



### Use Permit Approval Standards

(D) The use will not endanger the public health or safety.

**Preliminary Staff Findings:**

1. Staff is concerned about traffic safety of the railroad crossing.
2. Staff is concerned about backing into the street from the community mailbox area.
3. Staff is concerned about ponding stormwater on the site and drainage in and around the site.
4. Staff is concerned that Albemarle Regional Health Services (ARHS) classified all 31 lots as unsuitable for a conventional septic system due to the poor soils and high groundwater. ARHS commented that "It appears onsite septic systems have the potential to perform properly." An NC Professional Engineer must provide a plan showing septic area, original grade and proposed finished elevations, ditching depths to be excavated to, and outlet elevations. ARHS suggests the following improvements may allow the property to be reclassified as provisionally suitable:
  - a. Fill area 120 ft. by 86 ft. with 24 in. of sand
  - b. Groundwater Lowering Device
  - c. Sand Backfill Trenches to a depth of 4.5 ft.

**Applicant Findings:**

1. Stormwater management will be provided in accordance with the current Currituck County stormwater manual and the UDO. Two large stormwater retention ponds will be constructed to manage and retain stormwater in excess of the referenced requirements. Surrounding drainage ditches will be improved and/or new ditches constructed in parallel to improve existing drainage conditions.
2. Albemarle Regional Health Services has evaluated each of the 31 lots for suitability for wastewater disposal and has established criteria for the approval of wastewater disposal system for each lot.
3. The project is being designed in accordance with the NC Department of Energy, Mineral, and Land Resources sedimentation and erosion control standards, and will therefore minimize erosion and will contain siltation on site.
4. The subdivision entrance will involve improving an existing railroad crossing in accordance with NCDOT and Genesee & Wyoming standards. Roadway connectivity is also being provided to the adjacent Fost property.

(E) The use will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located.

**Preliminary Staff Findings:**

1. The density is similar to that of Ranchland Subdivision and the proposed residential subdivision will be surrounded by residential uses, so it will be in harmony with the area in which it is located.

**Applicant Findings:**

1. Land to the west and south has been developed into single family homes; the land to the north has been approved for a Planned Development; land to the east across Caratoke Highway is farmland and single family lots. This tract will be developed into lots that are larger than the adjacent Ranchland subdivision; in addition, over 30% of the land will be preserved as open space. Drainage improvements will be made that will benefit both the new subdivision and the existing subdivision. The use will not injure the value of adjoining or abutting lands, and will be in harmony with the surrounding area, and it is believed will be a benefit to the value of the adjacent community.

(F) The use will be in conformity with the Land Use Plan or other officially adopted plans.

**Preliminary Staff Findings:**

1. The Moyock Small Area Plan classifies this area as Limited Service. The proposed development density of .31 units per acre is well below the 1-1.5 units per acre envisioned in the Moyock Small Area Plan
2. The Land Use Plan classifies this area as Full Service. The proposed density is only .31 units per acre, well below the densities of 2-4 units per acre envisioned in the Land Use Plan.

**Relevant MSAP and 2006 LUP Policies:**

1. MSAP Policy TR2: Ensure that all development is designed with an interconnected, multi-modal transportation network between neighborhoods, activity centers, and other destinations to improve mobility and emergency access. Development of an interconnected road network for local residential traffic is strongly encouraged.
2. MSAP Policy IS4: Ensure that stormwater runoff, soil erosion, and sedimentation is properly managed to reduce nuisance flooding and pollution of sensitive environmental areas.
3. MSAP Policy FLU1: Promote compatibility between new development and existing development to avoid adverse impacts to the existing community.
4. MSAP Policy CC1: Encourage and foster development that is compatible with rural atmosphere, transitional areas, and a small town main street feel consistent with the vision, policies, and future land use of this plan.
5. LUP Policy ES1: New development shall be permitted to locate only in areas with SUITABLE SOIL and where ADEQUATE INFRASTRUCTURE is available. For existing development located on poor soils and where sewage treatment upgrades are necessary, engineer solutions may be supported, provided that environmental concerns are fully addressed.
6. LUP Policy HN1: Currituck County shall encourage development to occur at densities appropriate for the location.
7. LUP Policy TR4: ACCESS TO THE COUNTY'S MAJOR ROADWAYS shall be managed so as to preserve the intended purpose of the highway, protect taxpayer dollars invested, and minimize hazardous turning movements in and out of traffic flows.
8. LUP Policy TR8: Local streets shall be designed and built to allow for convenient CIRCULATION WITHIN AND BETWEEN NEIGHBORHOODS and to encourage mobility by pedestrians and bicyclists.
9. LUP Policy PP2 Currituck County shall continue to implement a policy of ADEQUATE PUBLIC FACILITIES, sufficient to support associated growth and development.

(G) The use will not exceed the county's ability to provide adequate public facilities, including, but not limited to: schools, fire and rescue, law enforcement, and other county facilities. Applicable state standards and guidelines shall be followed for determining when public facilities are adequate.

**Preliminary Staff Findings:**

1. Schools are at or over the 2021 committed capacity in Moyock in the elementary and high school groups. The BOC may propose additional conditions of approval such as timing limits on residential building lots or units available for occupancy to ensure adequate public facilities remain sufficient to serve the development.
2. Other public facilities are sufficient to serve the development.

**Applicant Findings:**

1. Currituck County has adequate public facilities to serve the proposed subdivision.

### Conditions of Approval

1. The application complies with all applicable review standards of the UDO
2. The applicant demonstrates the proposed use will meet the use permit review standards of the UDO.
3. The conditions of approval necessary to ensure compliance with the review standards of the UDO and to prevent or minimize adverse effects of the development application on surrounding lands include:
  - a. A signalized railroad crossing installed, compliant with NCDOT and the Genesee and Wyoming Railroad design standards.
  - b. Investigate necessity of deceleration lane for southbound traffic turning into the development since only one vehicle can occupy the queuing area if a train is crossing, depending on requirements from NCDOT and the Genesee and Wyoming Railroad. Install deceleration lane if determined necessary.
  - c. According to requirements from NCDOT and Genesee and Wyoming railroad, clear the sight lines when approaching the entrance to the railroad crossing from Caratoke Highway both north and southbound.
  - d. Install perimeter ditches in a way that both serves the new subdivision and improves conditions for Ranchland.
  - e. Deepen, lay back (3:1 slopes), and put existing ditch on proper grade where permission can be obtained from the adjoining property owners. If permission is not forthcoming, install a parallel ditch as approved by stormwater staff.
  - f. Install community mailbox area compliant with NCDOT design standards.

IN WITNESS WHEREOF, the County has caused this permit to be issued in its name, and the property owners/applicants of the property above described, do hereby accept this Use Permit together with all its conditions, as binding on them and their successors in interest.

ATTEST:

  
Clerk to the Board

  
Chairman  
Board of Commissioners

9.3.19

Date

(Seal)



(NOT VALID UNTIL FULLY EXECUTED)

Attachment: 8 PB 19-14 Moyock Farms - Use Permit (Approved BOC 8-5-19) (PB 19-14 Moyock Farms)





## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2853)

**Agenda Item Title:** PB 19-24 New Bridge Creek Estates:

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

**Presenter of Item:** Donna Voliva

**Board Action:** Action

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**Brief Description of Agenda Item:**

Request for a Preliminary Plat/Use Permit for a 37 lot Conservation Subdivision located off Caratoke Highway, Parcel Identification Number 0031-000-064N-0000, Moyock Township.

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**



# STAFF REPORT

## PB 19-24 NEW BRIDGE CREEK ESTATES PRELIMINARY PLAT/USE PERMIT BOARD OF COMMISSIONERS JULY 20, 2020

### APPLICATION SUMMARY

<b>Property Owner:</b> New Bridge Creek, LLC PO Box 505 Moyock, NC 27958	<b>Applicant:</b> New Bridge Creek, LLC PO Box 505 Moyock, NC 27958
<b>Case Number:</b> PB 19-24	<b>Application Type:</b> Preliminary Plat/Use Permit
<b>Parcel Identification Number:</b> 0031-000-064C-0000; 0031-000-064D-0000; 0031-000-064K-0000; 0031-000-064L-0000; 0031-000-064M-0000; 0031-000-064N-0000	<b>Existing Use:</b> Active Agricultural/Wetlands  <b>Proposed Use:</b> Low Density Residential Subdivision, Type II
<b>2006 Land Use Plan Classification:</b> Rural/Conservation	<b>Parcel Size (Acres):</b> 104.09 development area 99.67 acres (excludes 4.42 ac CAMA wetlands)* 109.06 acres (includes minor subdivisions)*
<b>2014 Moyock Small Area Plan Classification:</b> Rural/Conservation	
<b>Zoning:</b> Agriculture (AG)	<b>Development Type:</b> Type II - Conservation Maximum 0.40 du/ac with 60% open space
<b>Number of Units:</b> 37 residential lots	<b>Project Density:</b> 0.37 dwelling unit/acre
<b>Required Open Space:</b> 62.45 acres (60%)* <small>*63.05 acres includes minor subdivision lot with residential use</small>	<b>Provided Open Space:</b> 64.46 acres (61%)*

\*Two minor subdivisions were created within five years of the major subdivision submittal. The two subdivisions include:

- January 17, 2017 – 1 minor subdivision lot zoned GB contains 43,560 square feet
- January 28, 2020 - 2 minor subdivision lots zoned GB contain 172,780 square feet

### SURROUNDING PARCELS

	Land Use	Zoning
North	Rowland Creek	N/A
South	Residential/Woodland/Farmland	AG/GB
East	Creek	N/A
West	Residential	AG

### STAFF ANALYSIS

#### Application Summary

- The applicant, New Bridge Creek, LLC, is requesting preliminary plat/use permit approval of a 37 lot residential subdivision.
- The proposed development is a Type II conservation subdivision requiring 60% open space for a maximum development density of 0.40 dwelling units per acre.
- The base zoning of the property is Agriculture (AG) and the minimum lot size for a conservation subdivision is 30,000 square feet.

4. The properties included in the major subdivision application consist of five exempt subdivision lots and the residual parcel (Ferebee Acres, LLC).

#### Development Summary

1. The property contains 47.51 acres of US Army Corps of Engineers jurisdictional wetlands (preliminary jurisdictional determination) and approximately 4.42 acres of coastal wetlands. The wetlands and riparian buffer will be located in open space.
2. The conservation development theme is wetland preservation, and the primary conservation area consists of 64.46 acres.
3. The existing elevations of the proposed residential lots are between 1-5 feet above mean sea level. Tides and storm events inundate portions of the proposed development with water.
4. The applicant is proposing water access for the subdivision including a five foot wide walkway to the water's edge.
5. The proposed streets are designed to be 20' in pavement width and a roadside swale within a 50' right of way. A five foot wide sidewalk is proposed within the street right of way; between the pavement and the roadside swale.
6. The subject property contains an existing access easement for an exempt division (lots greater than 10 acres in area) located to the northwest. Improved interconnectivity is proposed to the northwest property line. Utilities and the sidewalk will extend to the property line.
7. The Soil Survey of Currituck County, North Carolina identifies the proposed residential lots are predominately located in Roanoke fine sandy loam (Ro) soils. The remaining lot area is identified as Wahee fine sandy loam (Wa), and the wetlands along the creek are identified as Conaby Muck (Cb) and Currituck Muck Peat (Cu). The soil survey indicates Roanoke soils are frequently flooded for brief periods. The soils of the proposed developed areas are poorly suited for urban and recreation uses because of flooding, wetness, slow permeability, and low strength.
8. The wooded area located to the rear of the development (open space) is identified as the Lower Tull Creek Woods and Marsh significant heritage area.
9. A two lot minor subdivision was created for the General Business (GB) properties. The recorded subdivision indicated the two lots would have a shared access. An amended minor subdivision plat is being reviewed that includes a dedicated right of way and deceleration lane on Caratoke Highway. The minor subdivision dedicated right of way is approximately 600' south of the existing private, unpaved road (easement). NCDOT issued a driveway permit for the minor subdivision road, and the permit shall be modified to include the deceleration lane required by the UDO. The proposed 37 lot subdivision includes right of way dedication and improvement for the existing, private, unpaved road. The minimum intersection spacing for a local street intersecting a major arterial street is 1,000 feet.
10. The 10<sup>th</sup> edition of the *ITE Trip Generation Manual* states a single family dwelling generates 10 trips per day, and the proposed 37 lot development will generate 370 vehicles per day.
11. A community meeting was held September 20, 2019 at the Moyock Library. Nearby property owners asked questions regarding the lot size, schools, water access, and stormwater.



INFRASTRUCTURE	
<b>Water</b>	Proposed Public Water Supply
<b>Sewer</b>	On-site septic
<b>Transportation</b>	Pedestrian: Sidewalks on both sides of the street Connectivity Score: N/A
<b>Stormwater/Drainage</b>	Property line vegetative swales will convey runoff to two stormwater basins. Existing internal farm ditches will be filled and stormwater will be redirected. An existing ditch located along the proposed Cowells Creek Road conveys water through this property.
<b>Lighting</b>	No street lighting proposed.
<b>Landscaping</b>	A 25' streetscape shall be provided (Caratoke Highway). Street trees will be provided.
<b>Compatibility</b>	The adjacent land uses are generally residential.
<b>Recreation and Park Area Dedication</b>	The applicant proposes 1.02 acre for recreation and park area dedication that includes a portion of the pond and wetlands. The location of the proposed dedication does not provide adequate access, and the recreation and park needs can be better met by development outside of the subdivision. Payment in lieu of dedication will be accepted.
<b>Riparian Buffers</b>	A 30' riparian buffer will be provided adjacent to all wetland boundaries. The buffer is located in open space.

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%	9 students
Shawboro Elementary	87%	90%		
Central Elementary	77%	85%		
Griggs Elementary	57%	59%	96%	
Jarvisburg Elementary	88%	95%		
Knotts Island Elementary	36%	38%	38%	
Moyock Middle	94%	83%	96%	3 students
Currituck Middle	70%			
Currituck High	84%	85%	103%	5 students
JP Knapp Early College	88%			

<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

## RECOMMENDATIONS

### TECHNICAL REVIEW COMMITTEE

The Technical Review Committee recommends adoption of the use permit and approval of the preliminary plat subject to the following conditions of approval:

1. The application complies with all applicable review standards of the UDO provided the following items are addressed:
  - a. The existing property elevations along with tidal and periodic storm events inundate the site with water. The applicant indicates the anticipated grade of the development will be designed in accordance with Section 7.3.4 of the UDO and will meet the regulatory flood protection elevations. An assessment of the existing drainage, storm events and the tidal influences should be evaluated at the construction drawing process to ensure adverse impacts are mitigated. (LUP NH1)
  - b. The existing lots located between Caratoke Highway and the proposed Cowells Creek Road convey stormwater through this property by a series of existing culverts and farm ditches. Most of the existing farm ditches will be filled and the stormwater will be redirected. The applicant indicated no changes are proposed to the ditch. A detailed stormwater evaluation of the existing drainage patterns shall be provided at the construction drawing process to ensure the existing drainage patterns will not be negatively impacted by the new drainage system designed for this subdivision.
  - c. Conservation subdivisions require the incorporation of a 25' vegetative buffer comprised of new or existing trees and shrubs that provides an opaque screen of the development to a height of 10 feet or more as seen from major arterial streets within 1,000 feet of the development. A note was added to the preliminary plat indicating 1) existing trees along property line/right of way to be used to satisfy both the street tree and major arterial screening requirements (north of the New Bridge Creek Road entrance), and 2) a 25' vegetative buffer for major arterial screening shall form an opaque screen to a height of 10 feet or more on an adjacent property. The applicant indicates the 25' vegetative buffer will be provided along the rear of the minor subdivision lots. Typically, the buffer is located within the boundary of the proposed subdivision, but in this instance it is unclear how the applicant can guarantee compliance off site and meet the requirements of the UDO.
2. Provided the applicant can demonstrate major arterial streetscape can be guaranteed, the proposed use will meet the use permit review standards of the UDO.
3. The conditions of approval necessary to ensure compliance with the review standards of the UDO and to prevent or minimize adverse effects of the development application on surrounding lands include:
  - a. An assessment of the existing drainage, storm events, and the tidal influences should be evaluated at the construction drawing process to ensure adverse impacts are mitigated. (LUP NH1)
  - b. A detailed stormwater evaluation of the existing drainage patterns shall be provided at the construction drawing process to ensure the existing drainage patterns will not be negatively impacted by the new drainage system designed for this subdivision.
  - c. A 25' vegetative buffer comprised of new or existing trees and shrubs that provides an opaque screen of the development to a height of 10 feet or more as seen from major arterial streets within 1,000 feet of the development. Provide documentation that will ensure the installation and maintenance of the required streetscape that meets the minimum requirements of the UDO.
  - d. No parking signs shall be placed along the street at intersections and the entrance (approximately 4-5 signs).

## USE PERMIT REVIEW STANDARDS

A use permit shall be approved on a finding that the applicant demonstrates the proposed use will meet the below requirements. It is staff's opinion that the evidence in the record, prepared in absence of testimony presented at a public hearing, supports the preliminary staff findings

The use will not endanger the public health or safety.

Preliminary Applicant Findings:

1. The proposed use of a single family residential dwelling subdivision will not endanger the public health or safety. The proposed subdivision will benefit the public health and safety by:
  - a. Constructing a watermain extension to serve the proposed lots with domestic water supply;
  - b. Installing fire protection methods, such as fire hydrants and proper access for emergency vehicles, to adjacent lots that currently do not have such amenities;
  - c. Managing stormwater runoff per the Currituck Stormwater Manual and/or state stormwater requirements to provide management of stormwater runoff flooding and quality;
  - d. Laying out proposed lot lines to best suit the on-site wastewater evaluations provided by ARHS. Each lot will acquire an on-site wastewater improvement permit prior to construction commencement; and,
  - e. Obtaining review and approval of necessary NCDOT permits such as right of way encroachment agreements and street and driveway access permits. Since NCDOT will have an opportunity to review the subdivision, the owner will have the chance to address any safety or health concerns they may have.

The use will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located.

Preliminary Applicant Findings:

1. The adjacent and abutting lands consist mostly of single family residence and residential subdivision of same characteristics as the proposed residential subdivision. The proposed lots are similar in size to the adjacent subdivision and residential lots. Proposing a subdivision of such similar nature as adjacent lands and development will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located.

The use will be in conformity with the Land Use Plan or other officially adopted plans.

Preliminary Staff Findings:

1. The 2006 Land Use Plan classifies this site as Rural and Conservation land use classifications in the Moyock subarea.
2. The area intended for residential lots is predominately in the Rural land use classification. The Rural and Conservation areas contemplate a residential density of one unit per three acres.
3. The policy emphasis for Moyock subarea indicates residential development densities should be limited to 1-3 units per acre in areas where on-site wastewater is proposed and other county services are may be limited.
4. The proposed use is in keeping with the policies of the plan, some of which are:
 

POLICY ES2: NON-COASTAL WETLANDS, including FRESHWATER SWAMPS, AND INLAND, NON-TIDAL WETLANDS, shall be conserved for the important role they play in absorbing floodwaters, filtering pollutants from stormwater runoff, recharging the ground water table, and providing critical habitat for many plant and animal species. Currituck County supports the efforts of the U.S. Army Corps of Engineers in protecting such wetlands through the Section 4042 permit program of the Clean Water Act, as well as Section 4013 water quality certifications by the State of North Carolina.

POLICY ES3: COASTAL WETLANDS shall be conserved for the valuable functions they perform in protecting water quality and in providing critical habitat for the propagation and



survival of important plant and animal species. CAMA use standards and policies for coastal wetlands shall be supported. Uses approved for location in a coastal wetland must be water dependent (i.e. utility easements, bridges, docks, and piers) and be developed so as to minimize adverse impacts.

POLICY WQ5: Development that preserves the NATURAL FEATURES OF THE SITE, including existing topography and significant existing vegetation, shall be encouraged. If COASTAL AND NON-COASTAL WETLANDS are considered part of a lot's acreage for the purpose of determining minimum lot size or development density, Low Impact Development techniques or appropriate buffers shall be integrated into the development. Open space developments shall be encouraged to REDUCE IMPERVIOUS SURFACE AREAS associated with new development and redevelopment.

POLICY ES8: Areas of the County identified for significant future growth shall avoid NATURAL HERITAGE AREAS (e.g. Great Marsh on Knotts Island, Currituck Banks/Swan Island Natural Area, Currituck Banks Corolla Natural Area, Pine Island/Currituck Club Natural Area, Northwest River Marsh Game Land, and may other marsh areas on the mainland).

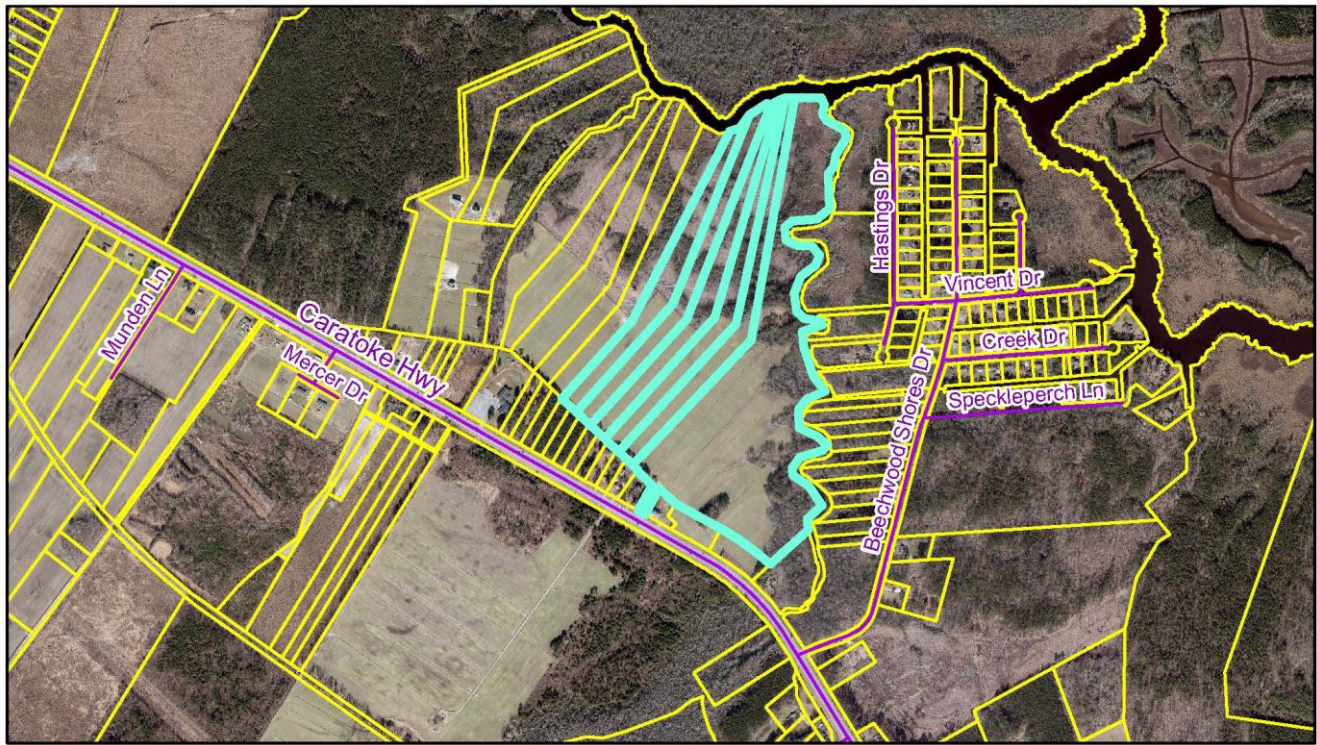
5. The Moyock Small Area Plan, an official adopted plan, classifies the site as Rural and Conservation on the future land use map. The rural designation provides for low density at less than one unit per acre. The property is near an industrial activity center. The proposed development density is 0.37 units per acre.
6. The proposed use is in keeping with the following policy in the Moyock Small Area Plan:  
FLU 1: 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 plan measures that encourage harmony.

The use will not exceed the county's ability to provide adequate public facilities, including, but not limited to: schools, fire and rescue, law enforcement, and other county facilities. Applicable state standards and guidelines shall be followed for determining when public facilities are adequate.

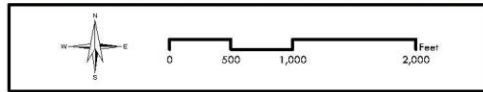
#### Preliminary Staff Findings:


1. The proposed subdivision contains 37 residential lots.
2. The projected daily project water demand is 29,600 gpd. Public water is available for this development and capacity is reserved through August 16, 2020.
3. Based on the Student Generation Rate study prepared by Tischler and Associates, Inc. (2004), the proposed subdivision will generate the following students:
  - a. 9 elementary school students;
  - b. 3 middle school students; and,
  - c. 5 high school students
4. According to Currituck County Schools, the proposed subdivision is located in the following school districts:
  - a. Shawboro Elementary
    - i. 87% 2019-2021 actual capacity based on January 2020 ADM
    - ii. 90% 2021-2022 actual capacity based on January 2020 ADM
  - b. Moyock Middle School
    - i. 94% 2019-2021 actual capacity based on January 2020 ADM
  - c. Currituck High School
    - i. 84% 2019-2021 actual capacity based on January 2020 ADM

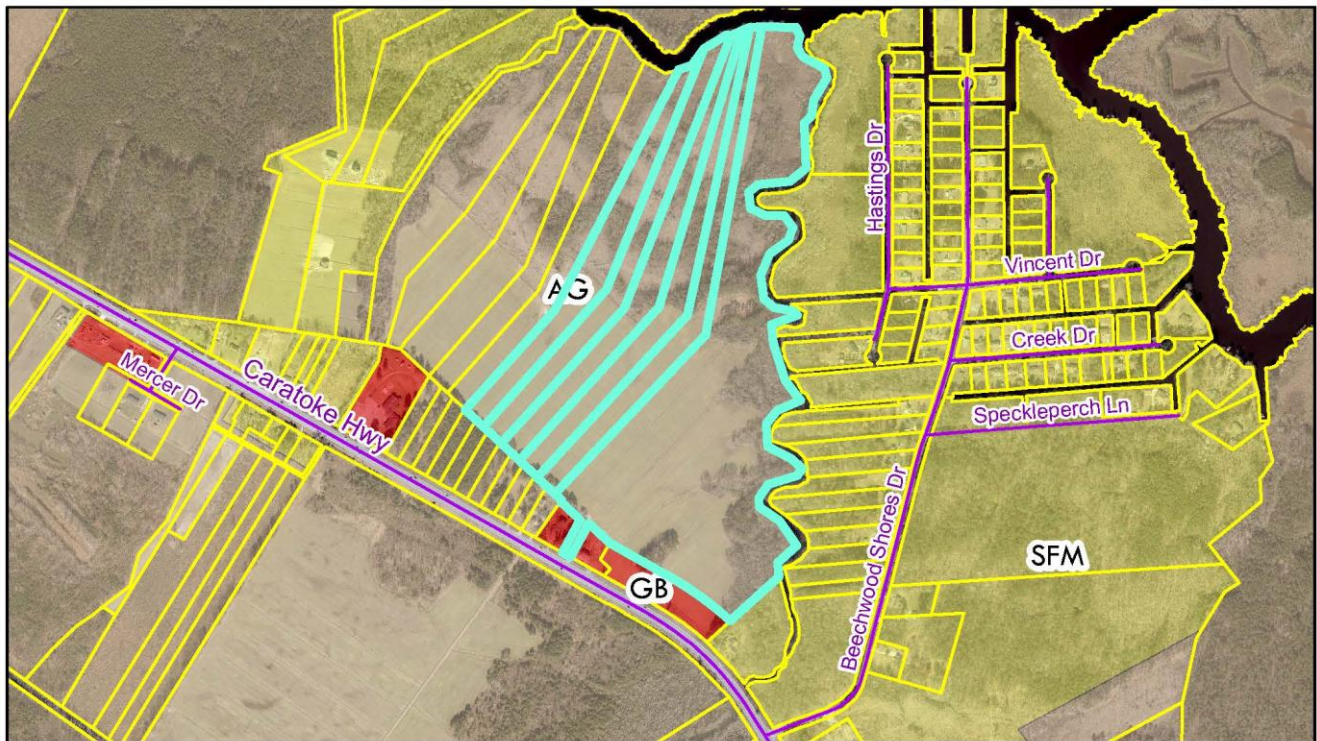




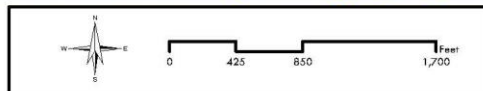
PB 19-24  
New Bridge Creek Estates  
Aerial




 Currituck County  
Planning and Community  
Development

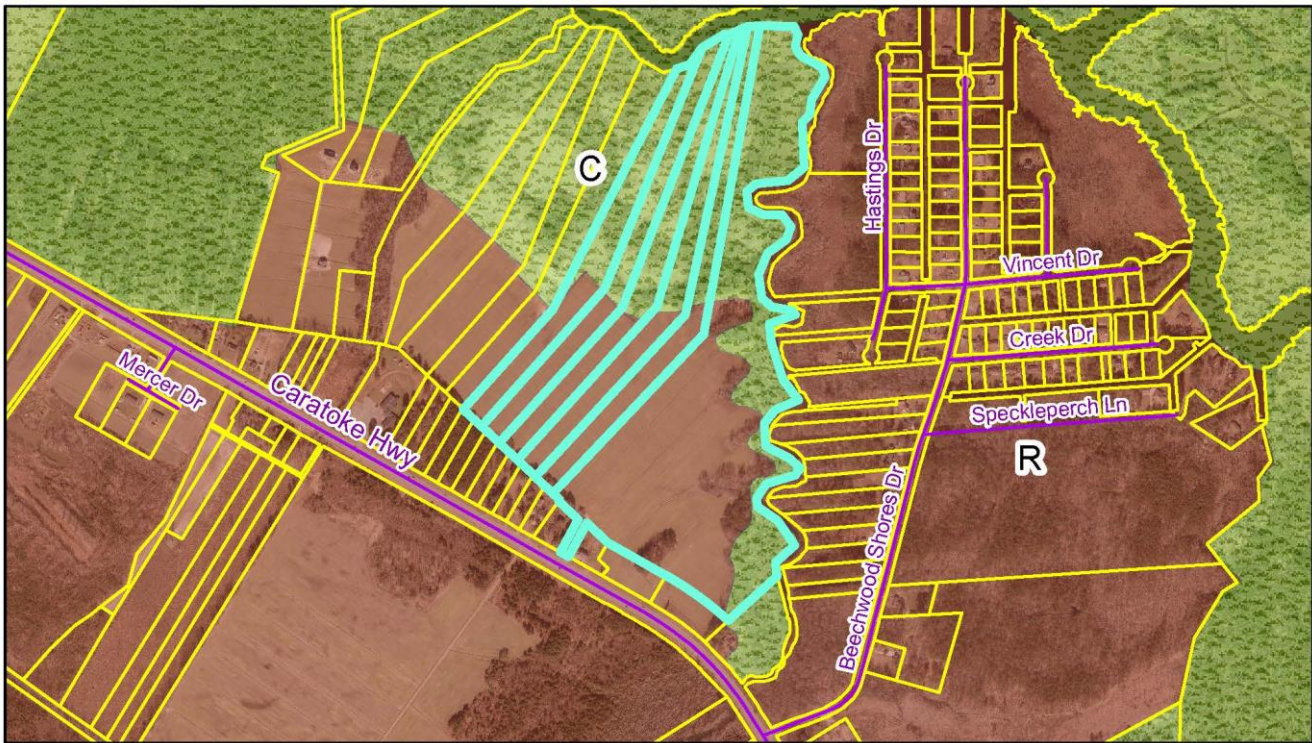


PB 19-24  
New Bridge Creek Estates  
Zoning

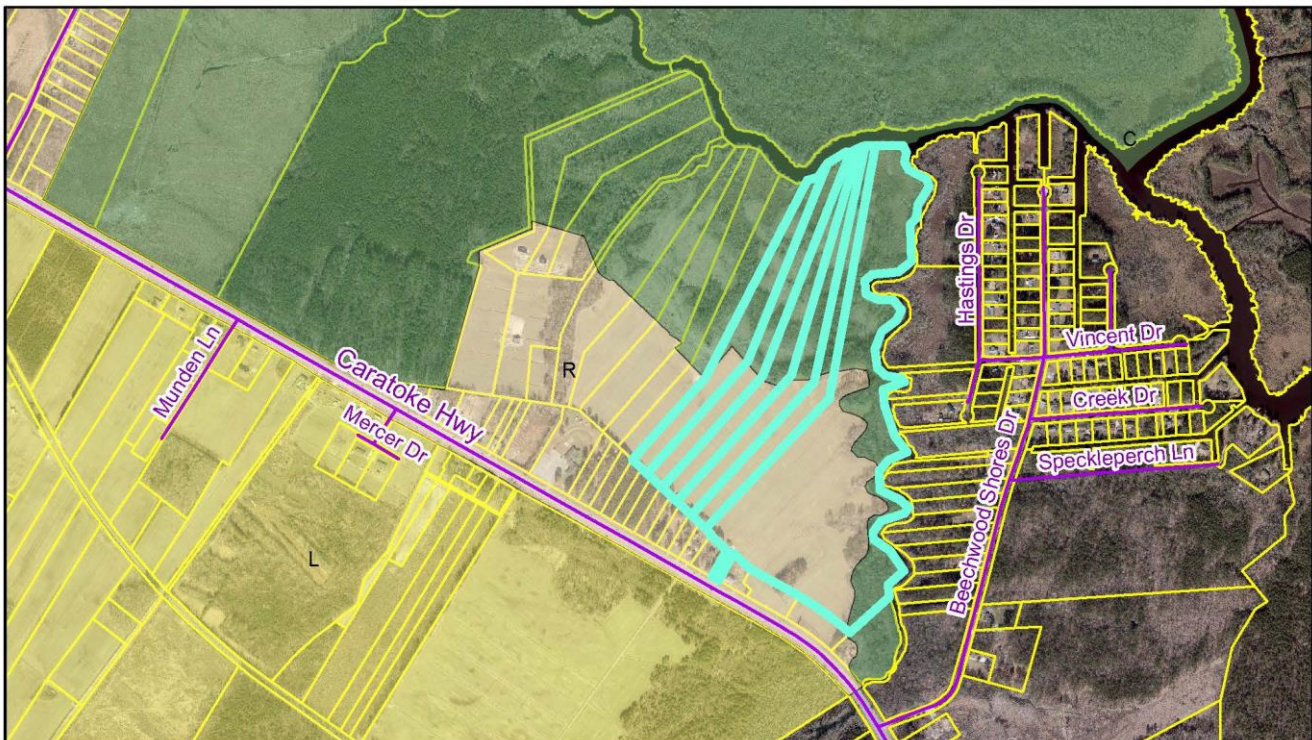
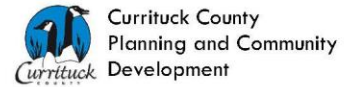
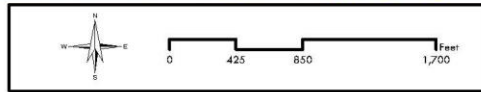


 Currituck County  
Planning and Community  
Development

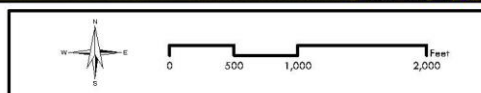




**PB 19-24**  
New Bridge Creek Estates  
2006 Land Use Plan



**PB 19-24**  
New Bridge Creek Estates  
Moyock Small Area Plan





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)

Attachment: 1 New Bridge Creek Estates PP UP Staff Report (PB 19-24 New Bridge Creek Estates)

OWNERSHIP & DEDICATION CERTIFICATE

I HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED HEREON, WHICH PROPERTY IS LOCATED WITHIN THE SUBDIVISION JURISDICTION OF CURRITUCK COUNTY, THAT I HEREBY FREELY ADOPT THIS PLAT OF SUBDIVISION AND DEDICATE TO PUBLIC USE ALL AREAS SHOWN ON THIS PLAT AS STREETS, UTILITIES, ALLEYS, WALKS, RECREATION AND PARKS, OPEN SPACE AND EASEMENTS, EXCEPT THOSE SPECIFICALLY INDICATED AS PRIVATE AND THAT I WILL MAINTAIN ALL SUCH AREAS UNTIL THE OFFER OF DEDICATION IS ACCEPTED BY THE APPROPRIATE PUBLIC AUTHORITY OR HOME OWNER'S ASSOCIATION. ALL PROPERTY SHOWN ON THIS PLAT AS DEDICATED FOR PUBLIC USE SHALL BE DEEMED TO BE DEDICATED FOR ANY OTHER PUBLIC USE AUTHORIZED BY LAW WHEN SUCH USE IS APPROVED BY THE APPROPRIATE PUBLIC AUTHORITY IN THE PUBLIC INTEREST.

OWNER DATE

NOTARY CERTIFICATE

I, \_\_\_\_\_, A NOTARY PUBLIC OF \_\_\_\_\_ COUNTY NORTH CAROLINA, DO HEREBY CERTIFY THAT \_\_\_\_\_ PERSONALLY APPEARED BEFORE ME THIS DATE AND ACKNOWLEDGE THE DUE EXECUTION OF THE FOREGOING CERTIFICATE.

WITNESS MY HAND AND SEAL THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2019.

NOTARY PUBLIC DATE

PUBLIC STREETS DIVISION OF HIGHWAY DISTRICT ENGINEER CERTIFICATE

I HEREBY CERTIFY THAT THE PUBLIC STREETS SHOWN ON THIS PLAT ARE INTENDED FOR DEDICATION AND HAVE BEEN DESIGNED OR COMPLETED IN ACCORDANCE WITH AT LEAST THE MINIMUM SPECIFICATIONS AND STANDARDS OF THE NC DEPARTMENT OF TRANSPORTATION FOR ACCEPTANCE OF SUBDIVISION STREETS ON THE NC HIGHWAY SYSTEM FOR MAINTENANCE.

DATE DISTRICT ENGINEER

EASEMENT ESTABLISHMENT STATEMENT

A 10 FOOT EASEMENT FOR UTILITIES AND DRAINAGE ALONG REAR AND SIDE PROPERTY LINES AND A 15 FOOT EASEMENT ALONG THE FRONT PROPERTY LINE IS HEREBY ESTABLISHED.

ALL SIDEWALK AREAS ARE HEREBY ESTABLISHED AS PEDESTRIAN EASEMENTS.

FLOODWAY/FLOODPLAIN STATEMENT

USE OF LAND WITHIN A FLOODWAY OR FLOODPLAIN IS SUBSTANTIALLY RESTRICTED BY CHAPTER 7 OF THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE.

STORMWATER STATEMENT

NO MORE THAN 30% OF TOTAL PARCEL SHALL BE COVERED BY IMPERVIOUS STRUCTURES AND MATERIALS, INCLUDING ASPHALT, GRAVEL, CONCRETE, BRICK STONE, SLATE, OR SIMILAR MATERIAL, NOT INCLUDING WOOD DECKING OR THE WATER SURFACE OF SWIMMING POOLS. THIS COVENANT IS INTENDED TO ENSURE COMPLIANCE WITH THE STORMWATER PERMIT NUMBER ISSUED BY THE STATE OF NORTH CAROLINA. THE COVENANT MAY NOT BE CHANGED OR DELETED WITHOUT THE CONSENT OF THE STATE. FILLING IN OR PIPING OF ANY VEGETATIVE CONVEYANCES (DITCHES, SWALES, ETC.) ASSOCIATED WITH THIS DEVELOPMENT, EXCEPT FOR AVERAGE DRIVENWAY CROSSINGS, IS STRICTLY PROHIBITED BY ANY PERSON. THE LOT COVERAGE ALLOWANCE PROVIDED IN THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE MAY BE DIFFERENT THAN THE NC STATE STORMWATER PERMIT. THE MOST RESTRICTIVE LOT COVERAGE SHALL APPLY.

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QUIBLE & ASSOCIATES, P.C. DOES NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF ANY INFORMATION IN THIS DOCUMENT AND IS NOT RESPONSIBLE FOR ANY ERROR OR OMISSION OR ANY LOSSES OR DAMAGES RESULTING FROM THE USE OF THIS INFORMATION.

NOTES:

- CURRENT OWNER: NEW BRIDGE CREEK LLC / DEVELOPER PO BOX 505 MOYOCK, NC 27958
- PROPERTY INFORMATION: 6 EXISTING PARCELS  
PIN: 8050-02-8530, 8050-03-5263, 8050-03-3582, 8050-03-3582, 8050-03-2696 & 8050-03-1852  
PID: 0031000064H0000, 00310000064M0000, 00310000064L0000, 00310000064K0000, 00310000064C0000 & 00310000064D0000.  
ADDRESS: CARATOKE HWY  
ZONED: AGRICULTURE (AG)
- SUBJECT REFERENCES: DB 1491, PG 740; PG O, SL 158, 159 & 168; PG Q, SL 168.
- TOTAL PARCELS AREA = 4,534,184.91 SF / 104.09 AC  
UPLANDS = 2,212,264.94 SF / 50.26 AC  
404 WETLANDS = 2,069,430.26 SF / 47.51 AC  
COASTAL WETLANDS = 142,489.71 SF / 4.42 AC  
(AREAS BY COORDINATE METHOD)
- PROPOSED 37 LOT CONSERVATION RESIDENTIAL SUBDIVISION (WETLAND THEME)  
LOTS ALLOWED = (104.09 AC - 4.42 AC) x 0.4 LOTS/AC = 39 LOTS
- DEVELOPMENT AREA = 1,726,246.19 SF / 39.63 AC  
PROPOSED LOT AREA = 1,484,100.20 SF / 34.19 AC  
PROPOSED R/W AREA = 2,371,451.94 SF / 54.44 AC
- PROPOSED CONSERVATION OPEN SPACE = 2,807,438.72 SF / 64.46 AC (61.9%)  
REQUIRED OPEN SPACE = 4,534,184.91 SF x 60% = 2,720,510.95 SF
- THIS SUBDIVISION IS DESIGNED FOR SINGLE FAMILY DWELLINGS 2 STORIES OR LESS AND EFFECTIVE FIRE AREA LESS THAN 4,800 sq.ft. AND SEPARATION BASED ON AVAILABLE FIRE FLOW OF 420 GPM AT 20 PSI.
- SOIL TYPES: ROANOKE FINE SANDY LOAM (Ro), WAHEE FINE SANDY LOAM (Wa), CONABY MUCK (Cb) & CURRITUCK MUCK PEAT (Cw).
- BOUNDARY & 404 WETLAND INFORMATION SHOWN BASED ON PG O, SL 168, ELECTRONIC DATA RECEIVED FROM E.T. HYMAN SURVEYING, DATED 07/23/2018, AND FIELD SURVEYS BY QUIBLE & ASSOCIATES, PC, DATED OCTOBER 2017. COASTAL WETLANDS SHOWN BASED ON DELINEATION BY QUIBLE & ASSOCIATES, PC AND APPROVED BY NCDWM ON 04/21/20.
- TOPOGRAPHIC INFORMATION SHOWN BASED ON FIELD SURVEYS BY QUIBLE & ASSOCIATES, PC, DATED OCTOBER 2017, APRIL 2018 & JUNE 2018. VERTICAL DATUM NAVD 1988.
- PROPERTY IS LOCATED IN NEIP FLOODS AS SHOWN AND SUBJECT TO CHANGES, BASED ON COMMUNITY CID NO. 370078, PANEL 8040; SUFFIX K. (MAP NUMBER 3721804000K) EFFECTIVE DATE: 12/21/2018.
- THIS PLAN SUBJECT TO ANY FACTS, INCLUDING BUILDING SETBACK RESTRICTIONS, EASEMENTS, COVENANTS, ETC., THAT MAY BE REVEALED BY A FULL AND ACCURATE TITLE SEARCH.

PUBLIC DEDICATION OF RECREATION AND PARK AREA STATEMENT

A PAYMENT-IN-LIEU OF RECREATION AND PARK AREA DEDICATION HAS BEEN PROVIDED IN ACCORDANCE WITH THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE. PAYMENTS-IN-LIEU RECEIVED BY THE COUNTY SHALL BE USED ONLY FOR THE ACQUISITION OR DEVELOPMENT OF RECREATION AND PARK AREAS, AND OPEN SPACE SITES CONSISTENT WITH THE REQUIREMENTS OF NORTH CAROLINA GENERAL STATUTES SECTION 153A-331.

APPROVAL CERTIFICATE

I HEREBY CERTIFY THAT THE SUBDIVISION SHOWN ON THIS PLAT IS IN ALL RESPECTS IN COMPLIANCE WITH THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE AND, THEREFORE, THIS PLAT HAS BEEN APPROVED BY THE CURRITUCK COUNTY ADMINISTRATOR, SUBJECT TO ITS BEING RECORDED IN THE OFFICE OF THE CURRITUCK COUNTY REGISTER OF DEEDS WITHIN NINETY (90) DAYS OF THE DATE BELOW.

ADMINISTRATOR DATE

REVIEW OFFICER'S CERTIFICATE

STATE OF NORTH CAROLINA  
COUNTY OF CURRITUCK

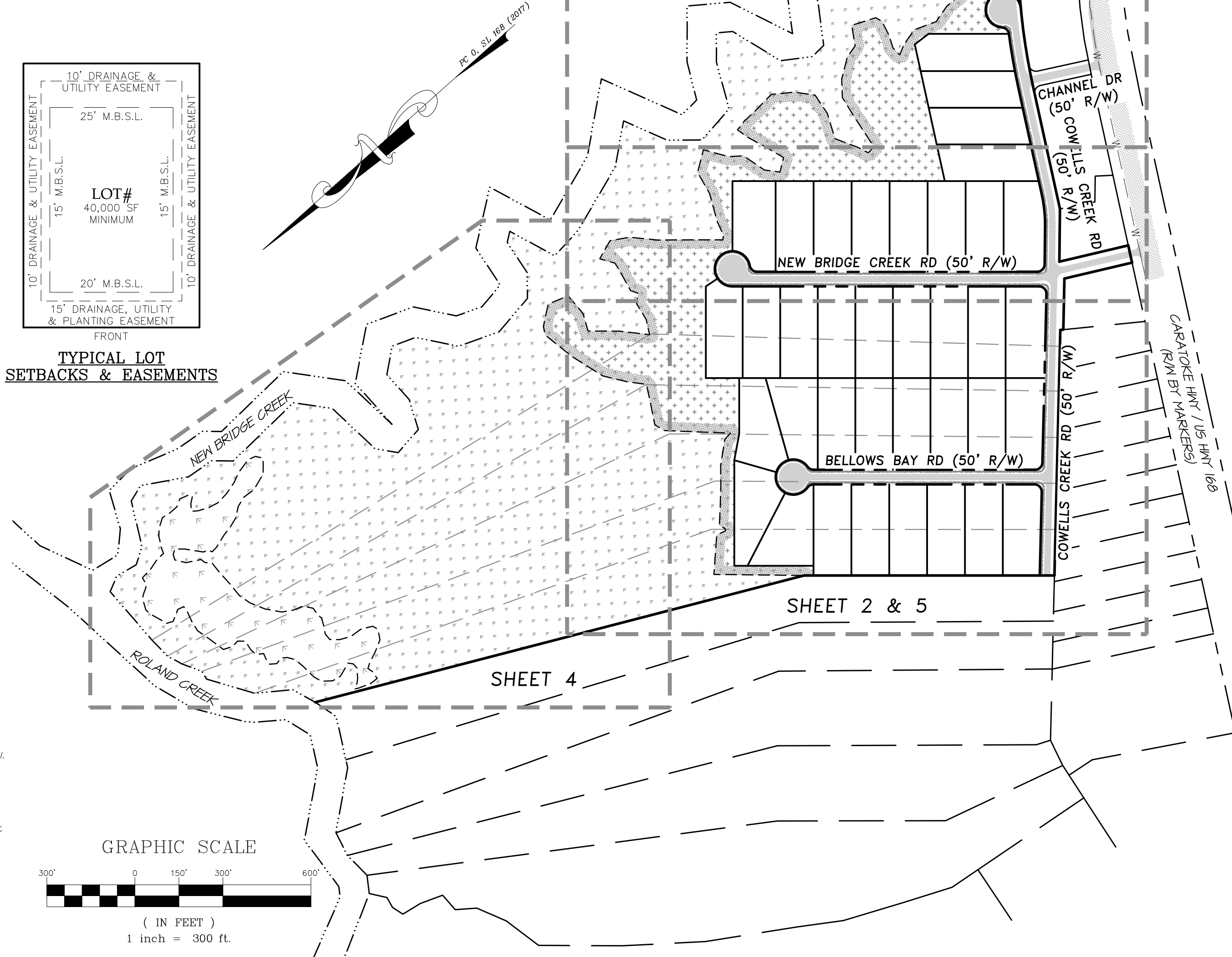
I, \_\_\_\_\_, REVIEW OFFICER OF CURRITUCK COUNTY, CERTIFY THAT THE MAP OR PLAT TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

REVIEW OFFICER DATE

IMPROVEMENTS CERTIFICATE

I HEREBY CERTIFY THAT ALL IMPROVEMENTS REQUIRED BY THE CURRITUCK COUNTY UNIFIED DEVELOPMENT ORDINANCE HAVE BEEN INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PREPARED BY QUIBLE & ASSOCIATES, P.C., AND SAID IMPROVEMENTS COMPLY WITH CURRITUCK COUNTY SPECIFICATIONS.

REGISTERED ENGINEER, DATE



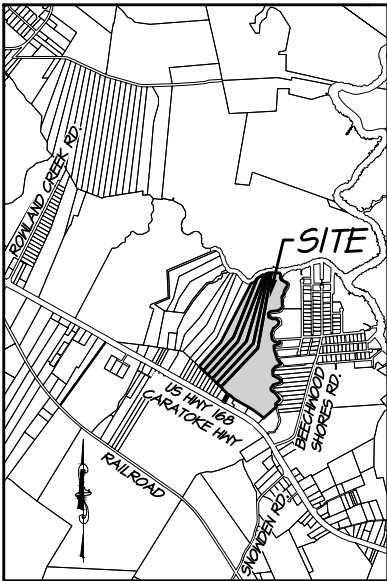
SURVEYOR'S CERTIFICATE

I, JOHN M. HURDLE, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (SEE NOTES); THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS DASHED LINES AND ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND IN (SEE NOTES); THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000+; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 41-30 AS AMENDED.

THIS SURVEY CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND.

WITNESS MY ORIGINAL SIGNATURE, REGISTRATION AND SEAL THIS 22ND DAY OF JUNE, 2020, A.D.

JOHN M. HURDLE, PLS NC L-52049



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ENVIRONMENTAL SCIENCES \* SURVEYING\*\*  
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POWELL'S POINT, NC 27966  
Phone: (252) 491-8147  
Fax: (252) 491-8146  
administrator@quible.com

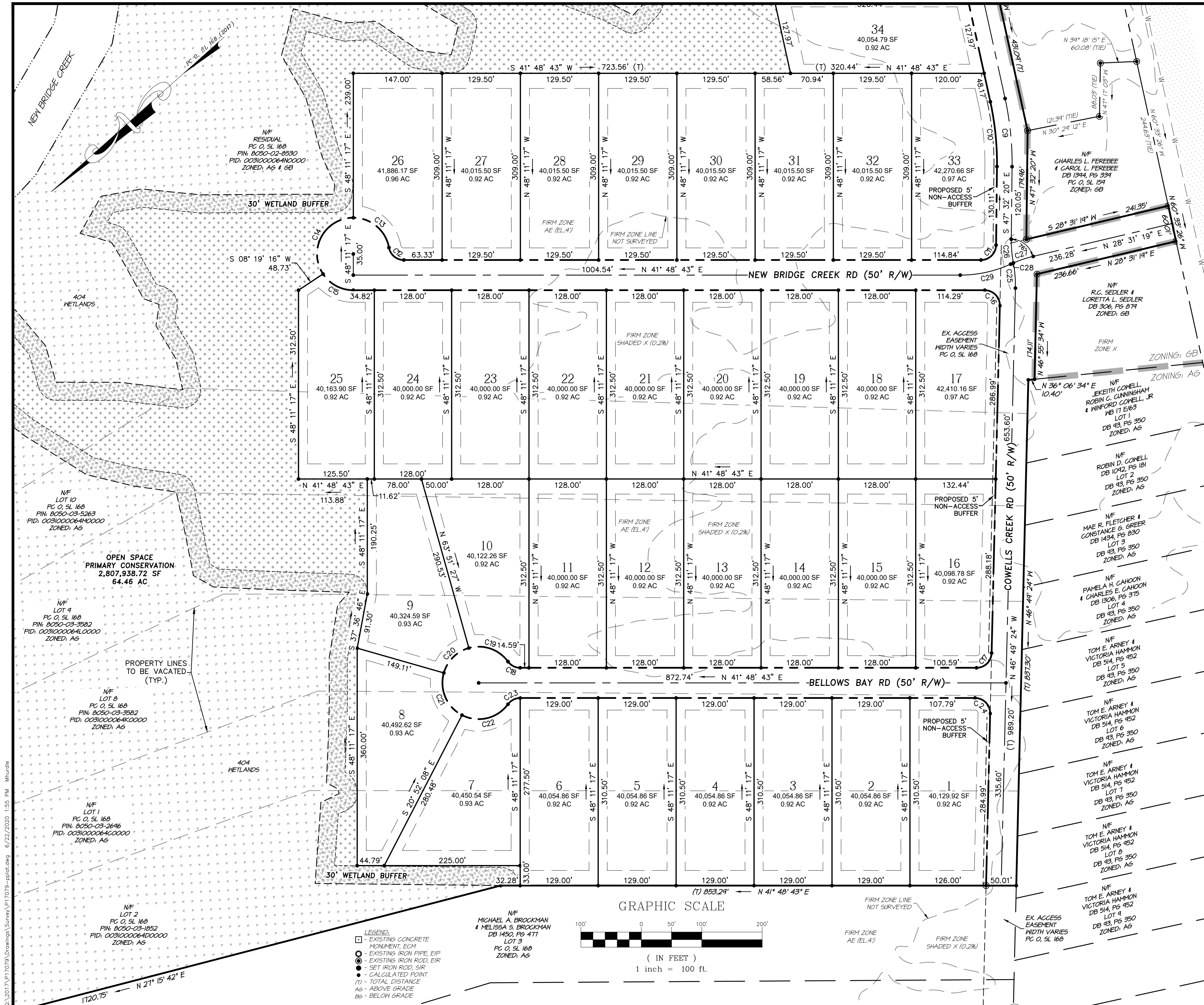
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PRELIMINARY PLAT - (1 of 6)  
**NEW BRIDGE CREEK ESTATES**  
**WETLAND CONSERVATION THEME**  
MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

COMMISSION NO. P17079  
DRAWN BY JMH  
CHECKED BY DLT/JMH  
SCALE 1"=300'  
ISSUE DATE 06/22/20





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Fax: (828) 491-8146  
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## PRELIMINARY PLAT - (2 of 6)

### NEW BRIDGE CREEK ESTATES

#### WETLAND CONSERVATION THEME

MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

COMMISSION NO. **P17079**

DRAWN BY **JMH**

CHECKED BY **DLT/JMH**

SCALE **1"=100'**

ISSUE DATE **06/22/20**



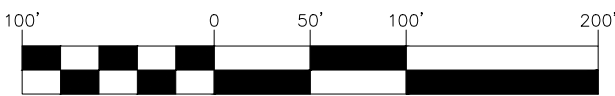
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CURVE TABLE				
CURVE#	LENGTH	RADIUS	CHD LENGTH	CHD BEARING
C1	485.70'	2170.00'	484.69'	N 54° 08' 42" W
C2	219.45'	2170.00'	219.36'	N 50° 37' 48" W
C3	273.22'	60.00'	91.31'	N 03° 58' 54" W
C4	34.37'	25.00'	31.73'	N 84° 56' 49" E
C5	269.32'	2195.00'	269.15'	N 57° 02' 32" W
C6	266.25'	2170.00'	266.09'	N 57° 02' 32" W
C7	128.65'	2220.00'	128.63'	N 57° 19' 48" W
C8	60.72'	2220.00'	60.72'	N 59° 46' 25" W
C9	113.61'	500.00'	113.36'	N 54° 02' 53" W
C10	107.93'	475.00'	107.70'	N 54° 02' 53" W
C11	38.99'	25.00'	35.15'	N 02° 51' 48" W
C12	34.83'	25.00'	32.08'	N 81° 43' 48" E
C13	83.60'	60.00'	77.00'	N 81° 43' 48" E
C14	129.32'	60.00'	105.70'	N 19° 56' 00" W
C15	59.18'	60.00'	56.81'	S 70° 04' 00" W

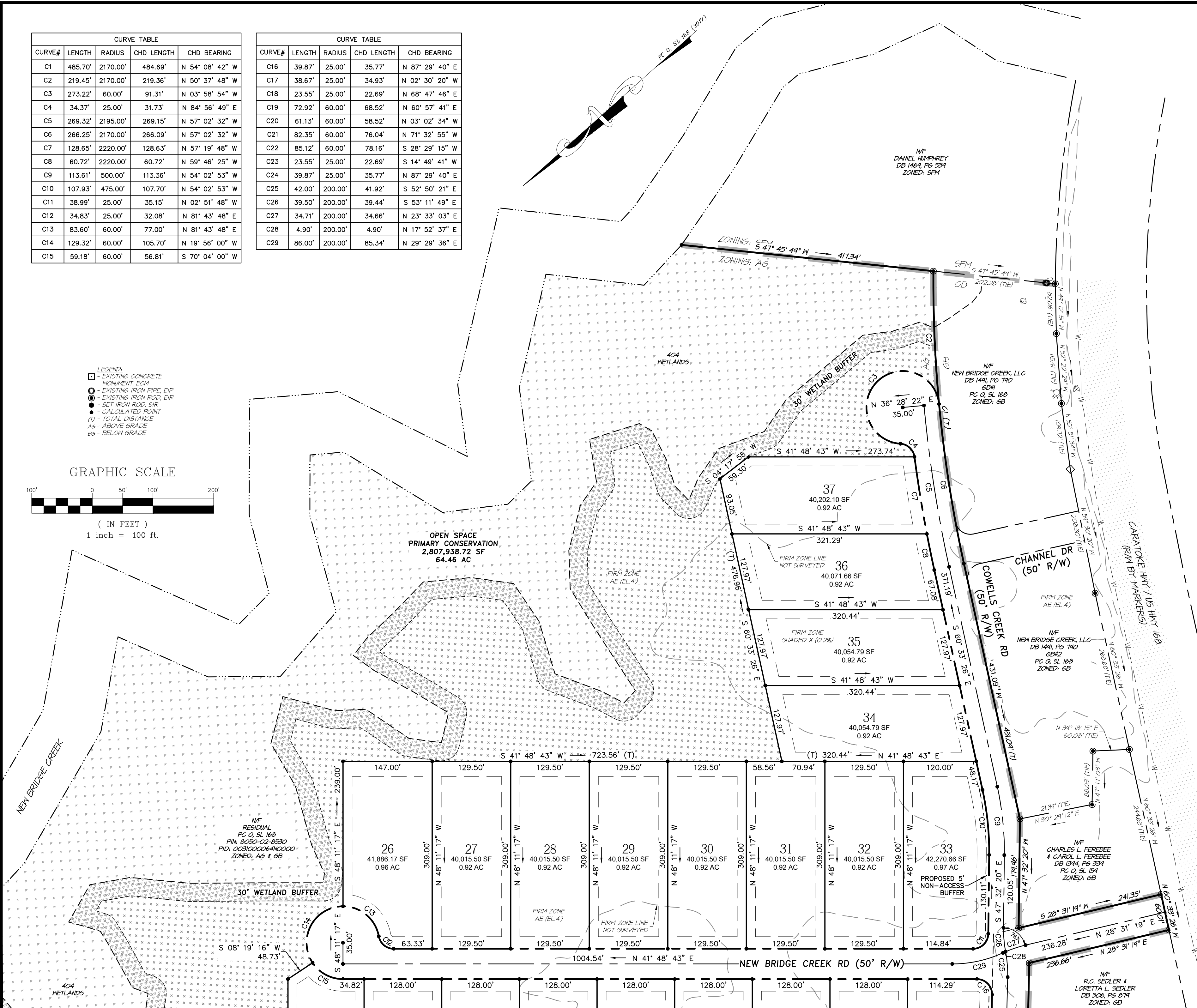
CURVE TABLE				
CURVE#	LENGTH	RADIUS	CHD LENGTH	CHD BEARING
C16	39.87'	25.00'	35.77'	N 87° 29' 40" E
C17	38.67'	25.00'	34.93'	N 02° 30' 20" W
C18	23.55'	25.00'	22.69'	N 68° 47' 46" E
C19	72.92'	60.00'	68.52'	N 60° 57' 41" E
C20	61.13'	60.00'	58.52'	N 03° 02' 34" W
C21	82.35'	60.00'	76.04'	N 71° 32' 55" W
C22	85.12'	60.00'	78.16'	S 28° 29' 15" W
C23	23.55'	25.00'	22.69'	S 14° 49' 41" W
C24	39.87'	25.00'	35.77'	N 87° 29' 40" E
C25	42.00'	200.00'	41.92'	S 52° 50' 21" E
C26	39.50'	200.00'	39.44'	S 53° 11' 49" E
C27	34.71'	200.00'	34.66'	N 23° 33' 03" E
C28	4.90'	200.00'	4.90'	N 17° 52' 37" E
C29	86.00'	200.00'	85.34'	N 29° 29' 36" E

- LEGEND:
- EXISTING CONCRETE MONUMENT, ECM
  - EXISTING IRON PIPE, EIP
  - EXISTING IRON ROD, EIR
  - SET IRON ROD, SIR
  - CALCULATED POINT
  - (T) - TOTAL DISTANCE
  - AG - ABOVE GRADE
  - BG - BELOW GRADE

GRAPHIC SCALE



( IN FEET )  
1 inch = 100 ft.



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administrator@quible.com

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## PRELIMINARY PLAT - (3 of 6)

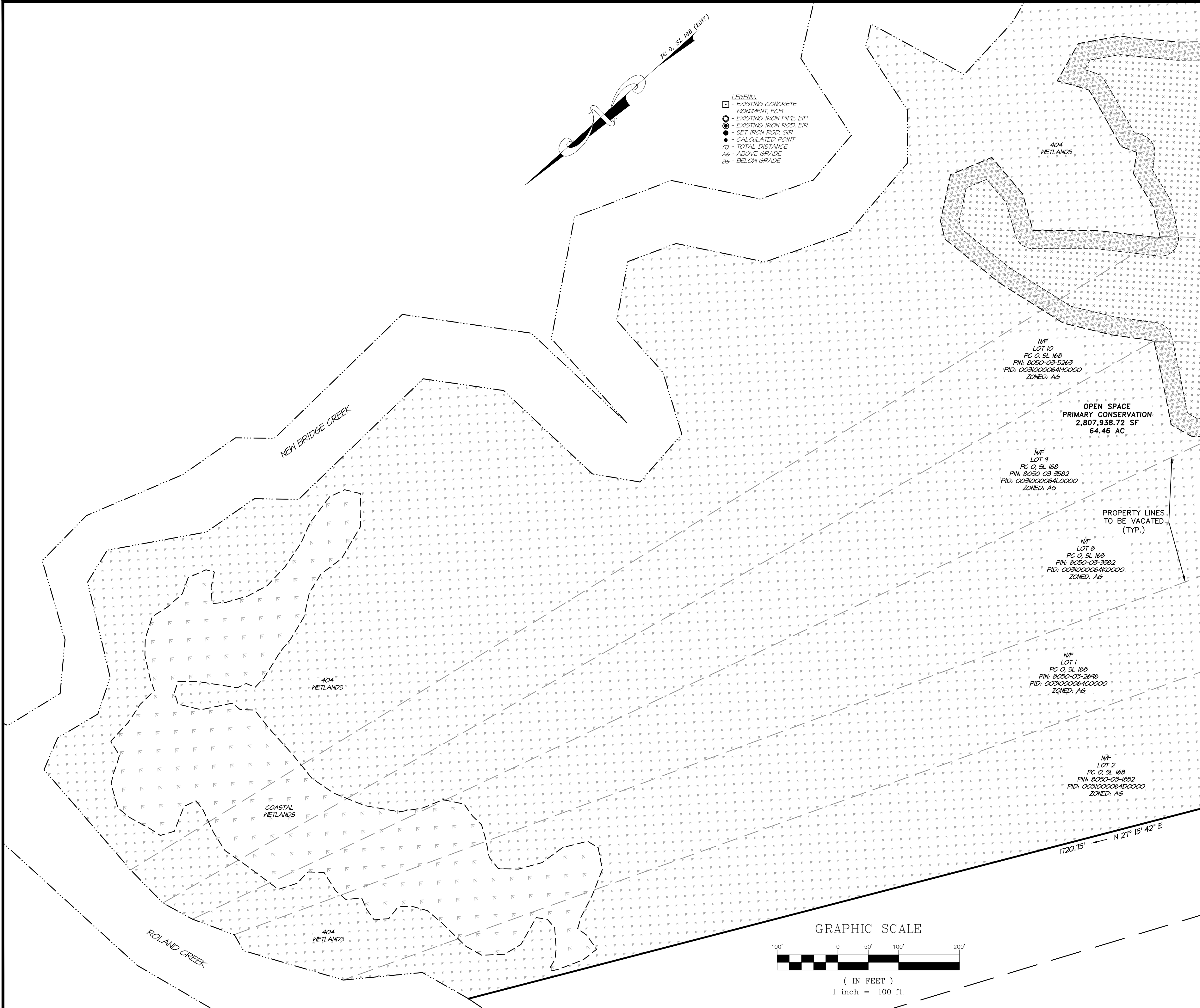
### NEW BRIDGE CREEK ESTATES WETLAND CONSERVATION THEME

MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

COMMISSION NO.	P17079
DRAWN BY	JMH
CHECKED BY	DLT/JMH
SCALE	1"=100'
ISSUE DATE	06/22/20



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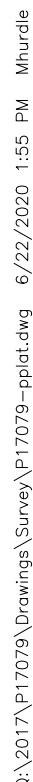
**PRELIMINARY PLAT - ( 4 of 6 )**

**NEW BRIDGE CREEK ESTATES**  
**WETLAND CONSERVATION THEME**

MOYOCK TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA

COMMISSION NO.	<b>P17079</b>
DRAWN BY	<b>JMH</b>
CHECKED BY	<b>DLT/JMH</b>
SCALE	<b>1"=100'</b>
ISSUE DATE	<b>06/22/20</b>





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CONVEYANCES  
OR SALES

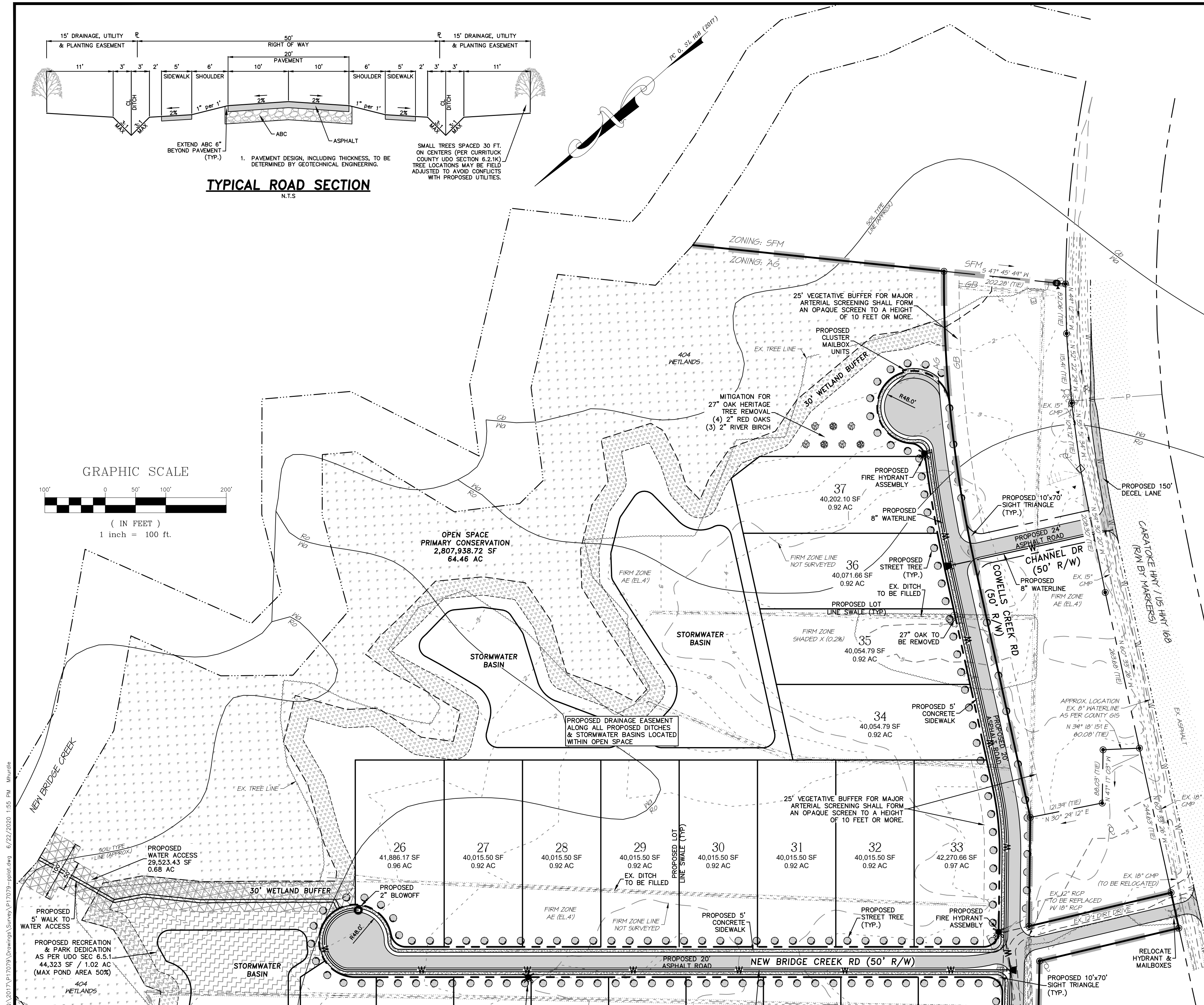
**PRELIMINARY PLAT - (5 of 6)**

***NEW BRIDGE CREEK ESTATES***

***WETLAND CONSERVATION THEME***

COMMISSION NO.	P17079
DRAWN BY	JMH
CHECKED BY	DLT/JMH
SCALE	1"=100'
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**PRELIMINARY PLAT - (6 of 6)**

**NEW BRIDGE CREEK ESTATES  
WETLAND CONSERVATION THEME**

NORTH CAROLINA

CURRITUCK COUNTY

MOYOCK TOWNSHIP

COMMISSION NO.

P17079

DRAWN BY

JMH

CHECKED BY

DLT/JMH

SCALE

1"=100'

ISSUE DATE

06/22/20





## Major Subdivision Application

**OFFICIAL USE ONLY:**

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

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

Name: New Bridge Creek, LLC  
 Address: PO Box 505  
Moyock, NC 27958  
 Telephone: (252) 207-3002  
 E-Mail Address: jerry@currituckhomes.com

**PROPERTY OWNER:**

Name: New Bridge Creek, LLC  
 Address: PO Box 505  
Moyock, NC 27958  
 Telephone: (252) 207-3002  
 E-Mail Address: jerry@currituckhomes.com

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Same

**Request**

Physical Street Address: Caratoke Highway

Parcel Identification Number(s): 0031000064N0000, 0031000064M0000, 0031000064L0000, 0031000064K0000,  
0031000064C0000 & 0031000064D0000

Subdivision Name: New Bridge Creek Estates

Number of Lots or Units: 37

Phase: 1

**TYPE OF SUBMITTAL**

- ☐ Conservation and Development Plan  
☐ Amended Sketch Plan/Use Permit  
☒ Preliminary Plat (or amended)  
     ☐ Type I OR ☒ Type II  
☐ Construction Drawings (or amended)  
☐ Final Plat (or amended)

**TYPE OF SUBDIVISION**

- ☐ Traditional Development  
☒ Conservation Subdivision  
☐ Planned Unit Development  
☐ Planned Development

I hereby authorize county officials to enter my property for purposes of determining compliance with all applicable standards. All information submitted and required as part of this process shall become public record.

[Signature]  
 Property Owner(s)/Applicant\*

9.20.19  
 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.**

**Community Meeting, if applicable**

Date Meeting Held: 9/20/19

Meeting Location: Moyock Public Library

**Use Permit Review Standards, if applicable***PUD Amended Sketch Plan/Use Permit, Type II Preliminary Plat*

Purpose of Use Permit and Project Narrative (please provide on additional paper if needed): \_\_\_\_\_  
 This project proposes a 37 lot conservation subdivision on an existing 104.09 acres of land in Moyock, Currituck County.

The applicant shall provide a response to the each one of the following issues. The Board of Commissioners must provide specific findings of fact based on the evidence submitted. All findings shall be made in the affirmative for the Board of Commissioners to issue the use permit.

- A. The use will not endanger the public health or safety.  
 Please see the attached Use Permit Review Standards Application Continued sheet.

- B. The use will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located.  
 Please see the attached Use Permit Review Standards Application Continued sheet.

- C. The use will be in conformity with the Land Use Plan or other officially adopted plan.  
 Please see the attached Use Permit Review Standards Application Continued sheet.

- D. The use will not exceed the county's ability to provide adequate public facilities, including, but not limited to, schools, fire and rescue, law enforcement, and other county facilities. Applicable state standards and guidelines shall be followed for determining when public facilities are adequate.  
 Please see the attached Use Permit Review Standards Application Continued sheet.

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.

  
 \_\_\_\_\_  
 Property Owner(s)/Applicant\*

9.20.19  
 \_\_\_\_\_  
 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.

Major Subdivision Application  
 Page 6 of 12

Revised 8/29/2018

Attachment: 3 New Bridge Creek Estates App (PB 19-24 New Bridge Creek Estates)



New Bridge Creek Estates  
 Moyock, Currituck County  
 Use Permit Review Standards Application (Continued)

**A. The use will not endanger the public health or safety.**

The proposed use of a single family residential dwelling subdivision will not endanger the public health or safety. The proposed subdivision will benefit the public health and safety by:

- constructing a watermain extension to serve the proposed lots with domestic water supply;
- installing fire protection methods, such as fire hydrants and proper access for emergency vehicles, to adjacent lots that currently do not have such amenities.
- managing stormwater runoff per the Currituck County Stormwater Manual and/or State Stormwater requirements to provide management of stormwater runoff flooding and quality.
- laying out proposed lot lines to best suit the onsite wastewater evaluations provided by ARHS. Each lot will acquire an onsite wastewater improvement permit prior to construction commencement;
- Obtaining review and approval of necessary NCDOT permits such as Right of Way Encroachment Agreements and Street and Driveway Access Permits. Since NCDOT will have an opportunity to review the subdivision, the owner will have the chance to address any safety or health concerns they may have.

**B. The use will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located.**

The adjacent and abutting lands consist mostly of single family residences and residential subdivision of same characteristics as the proposed residential subdivision. The proposed lots are similar in size to the adjacent subdivision and residential lots. Proposing a subdivision of such similar nature as adjacent lands and development will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located.

**C. The use will be in conformity with the Land Use Plan or other officially adopted plan.**

The proposed conservation subdivision is in general conformance with the County's Land Use Plan and current UDO. The proposed subdivision will be held to the UDO standards for layout, screening, and other requirements. The Moyock Future Land Use Map classifies the area of the proposed lots of this subdivision as Rural.

**D. The use will not exceed the county's ability to provide adequate public facilities, including, but not limited to, schools, fire and rescue, law enforcement, and other county facilities. Applicable state standards and guidelines shall be followed for determining when public facilities are adequate.**

Utility services are available to the site and onsite wastewater disposal will be designed and permitted in accordance with the State Rules and Standards. The location of the proposed subdivision is already within defined school, fire & rescue, and law enforcement areas. At the time of the pre-application meeting for this project, the elementary school district for this area will be Shawboro Elementary School, which we understand to be under the maximum capacity allowed for the school. The proposed subdivision layout is designed to conform with the North Carolina Fire Code and the County Fire Official's preferred hydrant location and reaches. The proposed subdivision will not exceed the County's ability to provide adequate public facilities.

## Major Subdivision Submittal Checklist – Preliminary Plat

Staff will use the following checklist to determine the completeness of your application for preliminary plat 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.

# Major Subdivision Submittal Checklist – Preliminary Plat

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

TRC Date: \_\_\_\_\_

Project Name: New Bridge Creek Estates

Applicant/Property Owner: New Bridge Creek, LLC

### Major Subdivision – Preliminary Plat Submittal Checklist

1	Complete Major Subdivision application	✓
2	Complete Use Permit Review Standards, if applicable	✓
3	Application fee at Preliminary Plat (\$100 per lot or \$250 for amended plats)	✓
4	Community meeting written summary, if applicable	✓
5	Preliminary Plat with professional's seal	✓
6	Existing features plan	✓
7	Proposed landscape plan, including common areas, open space set-aside configuration and schedule, required buffers, fences and walls, and tree protection plan	✓
8	Stormwater management narrative and preliminary grading plan	✓
9	Completely executed street name approval form	✓
10	Septic evaluations by ARHS for each individual lot or letter of commitment from centralized sewer service provider	✓
11	Letter of commitment from centralized water provider, if applicable	✓
12	Wetland certification letter and map, if applicable	✓
13	Geological analysis for development or use of land containing a significant dune, if applicable	N/A
14	Economic and public facilities impact narrative, if required by administrator	N/A
15	Conservation Subdivision: Approved conservation and development plan	✓
16	3 copies of plans	✓
17	1- 8.5" x 11" copy of plan	✓
18	2 hard copies of ALL documents	✓
19	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

Department of Planning and Community Development  
 153 Courthouse Road, Suite 110  
 Currituck, North Carolina 27929  
 252-232-3055  
 FAX 252-232-3026

### MEMORANDUM

**To:** Quible and Associates, PC  
 New Bridge Creek Estates, LLC

**From:** Planning Staff

**Date:** October 9, 2019 and UPDATED June 16, 2020

**Re:** PB 19-24 New Bridge Creek Estates, TRC Comments

~~The Technical Review Committee met on October 9, 2019 to review New Bridge Creek Estates, preliminary plat. At this time, the application is determined incomplete and may not proceed further until:~~

- ~~1. The minor subdivision creating GB #1 and GB#2 and removing the area from the subdivision notes.~~
2. Changes to The conservation and development plan must be approved.

The Technical Review Committee met on October 9, 2019 to review the New Bridge Creek Estates, preliminary plat. Normally TRC comments are valid for six months. However, due to COVID-19 the county extended the TRC review comments for three additional months. The applicant submitted revised plans addressing the TRC comments from October 9, 2019 and the updated comments are provided for the revised plans. The TRC comments indicated as strick through text indicate the the TRC commend was addressed on the revised plan and the new comments are underlined text.

### **Planning and Community Development (Donna Voliva 252-232-6032)**

#### Application Incomplete Reviewed

- ~~1. The application is considered incomplete for the following reasons:~~
  - ~~a. The minor subdivision creating GB #1 and GB#2 and removing the area from the subdivision notes. This would also include notes referencing N/F Residual lot information. Conservation subdivisions are not permitted in the GB zoning district.~~
  - b. Changes to The conservation and development plan must be approved.
- ~~2. Provide verification of CAMA wetlands from the Division of Coastal Management. CAMA designated wetlands are not included in total land area calculation for residential density.~~
- ~~3. Identify the CAMA AEC.~~
4. The reserve utility open space shall be shown on the preliminary plat. The BOC will hold a public hearing and potential action on June 22, 2020 for a text amendment to modify the reserve utility open space requirement.
5. The recreation and park area dedication consistent with the UDO, Section 6.5, shall be shown on the preliminary plat for review by the TRC.
- ~~6. Note #5 indicates 42 lots are allowed, but based on the development area calculation it should be 41 lots (pending CAMA wetland verification).~~
- ~~7. Note #5 indicates historic farmland is a secondary theme. While the prime agricultural lands are identified as a secondary conservation area, it is not appear to be conserved farmland. Please clarify. The wetland theme is sufficient to meet the conservation theme requirement.~~
- ~~8. ARHS lot evaluations are not referenced by the same sequence of lot numbers shown on the preliminary plat. Provide a cross reference or plan representing the evaluations. Lot A is~~

~~determined unsuitable by ARHS. This lot must be deemed suitable or provisional suitable in order to be shown as a lot on the preliminary plat.~~

9. Provide major arterial screening.
10. Street trees are required along both sides of all streets.
11. The entrance road does shall align with New Bridge Creek Road and have the same road name, or meet the intersection spacing requirements and have a separate name.
12. The existing farm ditches (majority) will be filled. The adjacent properties located on Caratoke Highway appear to have rear ditches that connect to this ditch system. What improvements will be made to maintain and connect the existing drainage to the outlet?
13. Identify ditches that drain more than five acres.
14. ~~Provide a detail sheet for the remaining acreage of the parcel (development) or include property data on Sheet 1.~~
15. Double frontage lots are not permitted unless it is necessary to avoid direct access to lots onto major arterial streets. Is it intended for lots located along Caratoke Highway to have access to the interior road?
16. ~~What are the minimum dimensional standards proposed for the development? Include all minimum dimensional standards on the plat.~~
17. Are heritage trees on the property (improvement areas)?
18. Provide drainage easements over open space.
19. Existing elevations are between 2-5 feet and the property has experienced tidal and storm flooding. What is the anticipated grade of the development?
20. There are staff concerns for the type of construction (slab) and loading of some areas of the lower elevations. What are the anticipated improvements to address the site conditions?
21. The wooded area in the rear of the development is identified as the Lower Tull Creek Woods and Marsh significant heritage area. It appears this area is identified as open space.
22. Provide the sight triangle at intersections.
23. The revised plan provides two right of way dedications (access roads) on Caratoke Highway. The proposed dedication includes a right of way between the General Business (2 nonresidential lots) identified as Channel Drive that requires a deceleration lane on Caratoke Highway. The placement of this new street does not meet the minimum intersection spacing on a major arterial. Consult with NCDOT to address the reduced intersection spacing in accordance with Section 6.2.1.C.
24. The proposed amendment of the minor subdivision provides a 50' right of way dedication (see note 23). Minor subdivisions do not allow for public right of way dedication.

#### **Currituck County Building and Fire Inspections (Jason Corbell 252-232-6029)**

##### **Reviewed**

1. Max dead end street of 150'. If road extends it must be certified to hold a load of 75,000 pounds or provide a turnaround. The north road extension exceeds 150 feet. How will this be addressed?
2. Cluster mailboxes are to be ADA accessible and should be installed to DOT standards.
3. Detectable warnings are to be installed at all crosswalks.
4. Soil engineering required. Compaction test possible as well.
5. Install blue hydrant markers.
6. Walkways shall be ADA accessible and built to commercial standards.

#### **Currituck County GIS (Harry Lee 252-232-4039)**

##### **Reviewed**

1. Please propose a street name for the short entrance street. (i.e. Channel, Point Bar, etc.)
2. Please propose a street name for the eastern section shown as Cowells Creek Rd that runs from the entrance street and terminates in the cul-de-sac. Cowells Creek Rd can remain the section from the entrance street running west and beyond Bellows Bay Rd.
3. Call GIS for clarification if needed.
4. Addresses will be assigned by GIS during Final Plat TRC review.

#### **Currituck County Parks and Recreation (Jason Weeks 252-232-3007)**



No Comment

**NC Division of Coastal Management (Charlan Owens 252-264-3901)**

Reviewed

1. All of the proposed development besides the walkway is outside of our 30' buffer.
2. The walkway leading to the water will need to be issued under a CAMA Minor Permit through Currituck County. If any part of the walkway crosses over into the Public Trust Shoreline the structure will be considered water dependent and will need to be issued through a CAMA General Permit.

**Albemarle Regional Health Services (Joe Hobbs 252-232-6603)**

Reviewed

1. Each proposed lot which makes up this proposed sub-division will need to be evaluated for sewage treatment and disposal approval by the Currituck County Health Dept.(ARHS/CURRITUCK). Please call Kevin Carver RS at 252-232-6603

**Currituck County Engineer (Eric Weatherly 252-232-6035)**

Approval with Corrections

1. Many of the areas in the back of the subdivision are at 0' msl or a few feet above.
  - a. How will the stormwater systems function in periods of tidal flooding?
  - b. How will fill be determined on the lots and streets to take into account septic systems as well as tidal flooding?
2. Clean out existing ditches along property lines.
3. How will the BMP's volume be designed, is it to meet the state standards and to utilize the county stormwater volume alternatives? The basins on the preliminary plat seem larger than required for state standards.

**Currituck County Public Utilities, Water (Yama Jones 252-232-2769)**

Reviewed

Dave Spence provided no new comments

1. A water service line is planned (installed) to the southern lot of Ferebee Acres (10 acre exempt parcel). Verify the location and protection of the line.
2. The waterline extension to the northern property boundary should be an eight inch line.
3. Development fees are due at building permit.

Comments were not received:

**Currituck County Public Utilities, SOBWS (Benjie Carawan 252-453-2370)**

**Currituck County Public Utilities, Wastewater (Glenn Vance 252-6062)**

**The following items are necessary for resubmittal:**

- 3 - full size copies of revised plans.
- 1- 8.5"x11" copy of all revised plans.
- 1- PDF digital copy of all revised documents and plans.

September 25, 2019

Jennie Turner, CZO, CFM  
Currituck County Planning and Community Development  
153 Courthouse Road, Suite 110  
Currituck, NC 27929

**RE: Community Meeting Report**

Major Subdivision Preliminary Plat Application

Lots 1, 2, 8, 9, 10 and the Residual Parcel, Ferebee Acres LLC Exempt Subdivision

PID: 0031000064N0000, 0031000064M0000, 0031000064L0000, 0031000064K0000,  
0031000064C0000 and 0031000064D0000

Moyock, Currituck County, NC

Ms. Turner,

A community meeting for the proposed Major Subdivision Preliminary Plat Application of the above referenced parcels located in Moyock, Currituck County was held on Friday, September 20, 2019 at 1:30 pm in the Moyock Public Library's Meeting Room located at 126 Campus Drive, Moyock, NC. The meeting was conducted by Quible & Associates, P.C. (Quible) on behalf of the owner, New Bridge Creek, LLC. A representative from New Bridge Creek, LLC and representatives from Currituck County Planning Department were also in attendance.

## Purpose

The purpose of the meeting was to inform the community in the vicinity of the subject parcels of the intent to apply for a Preliminary Plat Application to allow for a conservation subdivision design. The existing parcels consists of vacant land, two (2) billboards, agricultural fields, woods and wetlands. The parcel currently has two zones throughout it, GB and AG. A minor subdivision plat is proposed to be submitted concurrently with the Major Subdivision application to propose two minor subdivision lots within the GB zoning district. This Type II, Major Subdivision Preliminary Plat Application will propose a 37 lot conservation subdivision.

## Meeting synopsis

The Meeting Room was opened to the public prior to the meeting and guest/representatives started arriving at 1:25 pm. Prior to the 1:30 start time, the Subdivision Sketch Plan could be viewed in an "open house" setting. Along with the Sketch Plan, copies of the meeting agenda, printouts of all the surrounding zoning district regulations from the Currituck County UDO, and blank comments sheets were available on the front table. As attendees arrived, they were asked to provide their contact information on the sign-in sheet that was located on the front table as well. Attendees were advised that comments could be received by either email, telephone, or comment sheet provided on the front table.

At 1:35 pm a presentation of the proposed Preliminary Plat Application was provided by Quible. Attendees were introduced to Quible, the Owner, and the representatives from Currituck County



Planning. Attendees were reminded to fill out their contact information on the sign-in sheet and to pick up copies of the meeting agenda as well as the comment form, if they would like. The presentation followed the outline of the Agenda that was provided (Attachment 1).

The presentation contained a brief description of the purpose for the community meeting, the proposed project and the County procedures. The subject parcels were described and identified on the exhibit as well as the surrounding lands. A subdivision sketch of the proposed subdivision concept was shown to the attendees. It was noted that the shown subdivision sketch was not fully complete and could vary once further design took place. It was explained that the proposed conservation subdivision would be in compliance with the Bulk Dimensional requirements specified in the Currituck County UDO under the AG district requirements.

At the conclusion of the presentation, the floor was open for questions from the audience. Comments and questions received during the meeting are outlined as follows:

1. An attendee asked what size are the proposed lots.  
*Quible responded stating that all of the proposed lots are equal to or greater than 40,000 square feet.*
2. An attendee asked about a requirement from the Currituck County UDO to access the creek and would that be private for the property owners or open to the public.  
*Quible consulted with representatives of Currituck County for this question. Neither Quible nor Currituck County Staff had a copy of the Currituck County UDO on hand. The County Staff stated that they would research this and find out whether the access would be public or private to property owners within the subdivision. Quible agreed to fulfill the UDO requirements at the time of Preliminary Plat design.*
3. An attendee that recently purchased one of the adjacent, 10 acre parcels stated that they were not pleased with the preliminary plat proposal since they were of the understanding that they were moving into a home surrounded by 10 acre lots and that this proposed subdivision would reduce their privacy. They stated that they purchased the 10 acres to have adequate room for riding four-wheelers and shooting guns in their backyard and that this subdivision will prevent them from doing so due to increased density. They went on to state that the discussions they had with the seller led them to believe that the lots surrounding their property would remain 10 acre lots.  
*Quible acknowledged their concerns but stated that a Conservation Subdivision with detached, single family dwellings was a permissible use in this zone. Any discussion about surrounding properties during the time of purchase between the attendee and their seller was not a part of this community meeting.*
4. An attendee asked what sort of uses are allowed in the two General Business (GB) zones that are intended to be divided via a minor subdivision application concurrently with this major subdivision proposal.  
*Quible stated that they did not have the Currituck County UDO Zoning Use Table in front of them at the meeting, but concluded that the name of the zone mostly spoke for itself. The zone is intended to accommodate some commercial and/or office services to residents and visitors, generally along Caratoke Highway. Quible consulted with the representatives present from Currituck County to verify this statement and they agreed.*


5. An attendee asked what elementary school this subdivision would go to.  
*Quible stated that to the best of our knowledge, this subdivision would be assigned to Shawboro Elementary School and it is the understanding of Quible that this school is currently under it's maximum capacity count.*
6. The attendee that earlier complained about losing the 10 acre neighboring lots also questioned whether or not their address would change. They currently access their landlocked property through an easement that is not named, to Caratoke Highway. Due to this, they stated that mail delivery and emergency services have a difficult time finding their property which is addressed as along Caratoke Highway. It appears that having a more accurate street name would help these services find their property more effectively.  
*The Currituck County Staff that were present answered the question stating that it would be up to the GIS and Emergency Management Departments about whether the address would change or not.*
7. An attendee addressed a question to the County Staff asking how they plan to maintain stormwater awareness and address the need for larger and larger storms as time goes on. They asked what was being done on the planning side for storms that are much larger than Currituck County Stormwater Manual design requirements.  
*County staff responded that they stay up to date with FEMA, as well as many other government agencies, and their research/requirements. They also stated that Currituck County's stormwater requirements are much more rigorous than neighboring Counties and Towns.*

Upon conclusion of the discussions, attendees were again reminded that any further questions or comments not addressed at the meeting could be forwarded to Quible and the meeting was adjourned. It was Quible's understanding that the majority of the attendees did not show any opposition to the proposed Preliminary Plat. Most of the questions and discussions that took place reflected curiosity more than anything else.

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

Please do not hesitate to contact me by phone at (252) 491-8147 or dtillet@quible.com should you have any questions.

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



Dylan L. Tillett, P.E.

cc: New Bridge Creek, LLC  
 File



Attachment 1  
Community Meeting Agenda



**Community Meeting for the Preliminary Plat of a Conservation Subdivision  
Lots 1, 2, 8, 9, 10, & Residual Lot – Ferebee Acres LLC Exempt Subdivision  
Parcel Identification Numbers 0031000064C0000, 0031000064D0000,  
0031000064K0000, 0031000064L0000, 0031000064M0000, & 0031000064N0000  
Moyock, Currituck County, NC**

September 20, 2019

**AGENDA**

**1. General Introduction**

- a. Quible & Associates, P.C.
- b. New Bridge Creek, LLC
- c. Currituck County
- d. Sign In Sheet

**2. Existing Information**

- a. Location:
  - i. Lots 1, 2, 8, 9, 10, & Residual Parcel of Ferebee Acres LLC Exempt Subdivision
  - ii. Approximately 1,200 ft northward of the intersection of Beechwood Shores Dr. and Caratoke Hwy.
- b. Current Land Use: Vacant/Agricultural
- c. Site Zoning: AG; Agricultural, & GB; General Business
- d. The existing site consists of a vacant lot without existing improvements.

**3. Discussion**

- a. Apply for a Preliminary Plat Application for a Conservation Subdivision. A community meeting to inform owners and occupants of nearby lands about the application for a Preliminary Plat is required by the Currituck County Unified Development Ordinance.
- b. The Sketch Plan shown demonstrates the proposed Conservation Subdivision design that will be proposed during Preliminary Plat submittal.

**4. Questions & Comments**

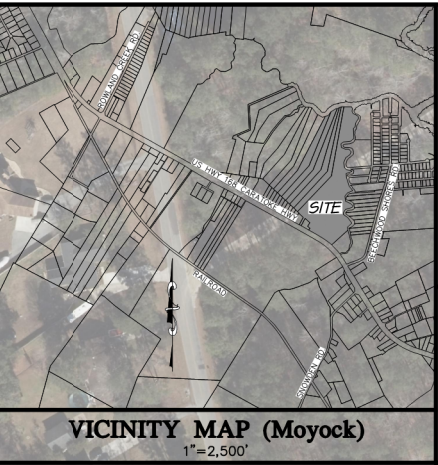
- a. Quible & Associates and the owners are available to answer questions and comments.
- b. Comments can be provided in writing on Comment Forms provided or they can be sent to Dylan L. Tillett, P.E. of Quible & Associates, P.C. by email at [dtillet@quible.com](mailto:dtillet@quible.com) or by phone at 252-491-8147.



Attachment 2  
Subdivision Sketch Plan



C:\Users\j\OneDrive\Documents\17079-Subdiv\17079-Subdiv.dwg 9/9/2019 3:49 PM D:\dwg



NOTES:

TOTAL PARCEL AREAS = 4,706,965.87 SF / 108.06 AC  
RESIDENTIAL = 4,534,184.91 SF / 104.09 AC  
COMMERCIAL = 172,780.96 SF / 3.97 AC

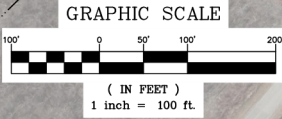
OPEN SPACE REQUIRED: 104.09 AC x 60% = 62.45 AC  
OPEN SPACE PROVIDED = 64.46 AC (61.9%)

PROPOSED LOT COUNT = 37 RESIDENTIAL & 2 COMMERCIAL

NOTE:  
THE DATA GIVEN ON THESE PLANS IS BELIEVED TO BE ACCURATE, BUT THE ACCURACY IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL LEVELS, LOCATIONS, TYPES, AND DIMENSIONS OF THE EXISTING UTILITIES PRIOR TO CONSTRUCTION. IF A DISCREPANCY IS FOUND, WORK SHALL CEASE AND THE ENGINEER NOTIFIED. WORK MAY CONTINUE UPON ENGINEER'S NOTICE TO PROCEED.



Know what's below.  
Call before you dig.



NC License# C-0208  
SINCE 1959

**Quible & Associates, P.C.**  
ENGINEERING • CONSULTING • PLANNING  
ENVIRONMENTAL SCIENCES • SURVEYING  
1448 SANDHILL HWY.  
POWELL'S POINT, NC 27866  
Tel: (252) 491-8146  
Fax: (252) 491-8146  
admin@quible.com

CERTIFICATION

COMMISSION NO. **P17079**  
DESIGNED BY **DLT/JMH**  
DRAWN BY **JMH**  
CHECKED BY **DLT**  
ISSUE DATE **09/09/19**

CONCEPTUAL LOT LAYOUT

**LOTS 1-2, 8-10 & RESIDUAL (FEREBEE ACRES)  
CONSERVATION SUBDIVISION**

MOYOCK TOWNSHIP    CURRITUCK COUNTY    NORTH CAROLINA

SHEET NO.

**1**

Packet Pg. 144



Attachment 3  
Copy of Blank Comment Sheet



Attachment 4  
Meeting Sign-In Sheet





**Community Meeting for Preliminary Plat - Lots 1, 2, 8, 9, 10, &  
 Residual Lot - Ferebee Acres LLC Exempt Subdivision  
 Moyock, Currituck County, North Carolina**

Quible & Associates Project No. 17079

Community Meeting Sign In: Friday, September 20, 2019 at 1:30 PM

#	Name	Company / Organization / Address	Telephone No.	Fax No.	Email
1.	Dylan L. Tillett, P.E.	Quible & Associates, P.C.	(252) 491-8147	(252) 491-8146	dtillet@quible.com
2.	Joe Dennicki		252-232-2748	—	—
3.	Anthony Cahoon		757 577 6927		TTcahoon@aol.com
4.	Melissa Brockman		757-201-1826		
5.	Laurie Lolicero	Currituck County	(252) 232-6028		laurie.lolicero@currituckcounty.gov
6.	Jake Hair	Currituck County	252-232-6066		Jake.hair@currituckcounty.gov
7.	Dan Humphrey	Pango Elec & Const Co	757-235-3344		danhumphrey@aol.com
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					

Attachment 5  
Example of Adjacent Property Owner Letter

# Quible

Quible & Associates, P.C.

ENGINEERING • ENVIRONMENTAL SCIENCES • PLANNING • SURVEYING  
SINCE 1959

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

September 9, 2019

Laurie LoCicero  
Currituck County Planning  
153 Courthouse Road, Suite 110  
Currituck, NC 27929

Re: **Notice of Community Meeting**  
Preliminary Plat Application for a Conservation Subdivision  
Moyock, Currituck County, NC

Dear Property Owner(s),

Please be advised that on behalf of New Bridge Creek, LLC, Quible & Associates, P.C. will conduct a community meeting on Friday, September 20<sup>th</sup> at 1:30 p.m. at the Moyock Public Library located at 126 Campus Drive, Moyock, NC 27958.

The purpose of this meeting is to inform the community of a proposed preliminary plat submittal for a conservation subdivision application for Lots 10, 9, 8, 1, 2, & the Residual Parcel of Ferebee Acres LLC Exempt Subdivision.

The subject parcels are identified by Parcel ID Numbers 0031000064N0000, 0031000064M0000, 0031000064L0000, 0031000064K0000, 0031000064C0000 and 0031000064D0000. The project is located approximately 1,200 feet NW of the intersection of Beechwood Shores Dr. and Caratoke Hwy in Moyock, Currituck County.

All persons having an interest in this matter are invited to attend the informational meeting. Further information regarding the application may be obtained by contacting Dylan L. Tillett, P.E. of Quible & Associates, P.C. by phone at 252-491-8147 or by email at dtillett@quible.com.

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



Dylan L. Tillett, P.E.

Cc: New Bridge Creek, LLC  
File

Attachment: 5 Community Meeting Report pkg (PB 19-24 New Bridge Creek Estates)



Attachment 6  
Photo of Community Meeting Sign





## COMMUNITY MEETING

WHAT: PRELIMINARY PLAT APPLICATION FOR A CONSERVATION SUBDIVISION

WHEN: SEPTEMBER 20, 2019 1:30 P.M.

WHERE: MOYOCK PUBLIC LIBRARY (MEETING ROOM)  
126 CAMPUS DRIVE  
MOYOCK, NC 27958

PARCEL PID: 0031000064N0000, 0031000064M0000,  
0031000064L0000, 0031000064K0000,  
0031000064C0000, & 0031000064D0000

CONTACT: QUIBLE & ASSOCIATES, P.C.  
ATTN: DYLAN L. TILLET, P.E.  
252.491.8147



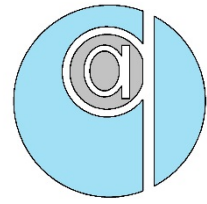


Attachment 7  
Photo of Community Meeting Room









# Stormwater Management Plan Narrative

## New Bridge Creek Estates

September 25, 2019

### General

This narrative will detail the Conservation and Development Plan for the New Bridge Creek Estates Subdivision located along Croatan Highway in Moyock, Currituck County.

The proposed subdivision parent parcels total approximately 104.09 acres and is formerly known as the residual and lots 1, 2, 8, 9, and 10 of Ferebee Acres Exempt Subdivision. The location is approximately 0.2 miles northward of the intersection of Beechwood Shores Road and Catatoke Highway in Moyock, Currituck County. The existing land is vacant and consists of farmland and wetland. There are agricultural drainage ditches throughout the parcels that collect and direct stormwater runoff from the existing farm fields to the wetlands onsite. Runoff from this site eventually makes its way to New Bridge Creek.

The owner is proposing a 37-lot conservation subdivision with associated improvements such as streets, sidewalks, stormwater management control measures, domestic water supply, and other associated utilities. A minor subdivision with two general business lots will be submitted concurrently and will remove approximately 3.97 acres from the residual tract. This minor subdivision boundary will follow the zoning line between GB and AG. Section 6.4.5 of the Currituck County UDO identifies the conservation areas and provides a list of Primary and Secondary Conservation Themes. The subject parcels of this subdivision consist of farmland and wetlands. The USACE 404 wetlands will be considered the primary conservation area. The portion of conservation areas that aren't in the wetland will be considered historic farmland and will be the secondary conservation areas. The USACE 404 wetland conservation area is approximately 51.93 acres and the historic farmland conservation area is approximately 12.53 acres. The remaining portion of the property is 39.63 acres and will be the development area of the subdivision. This development area will consist of the right of ways and the residential lots.

The runoff from impervious surfaces in this subdivision will be conveyed via overland flow and lot line swales to the roadside swales which ultimately will direct runoff to the onsite wet detention basins located within the property.

The following narrative sections will detail the parameter of the proposed Conservation Subdivision and its compliance with County requirements.

### Summary of Existing Conditions

As stated above, the subject parcel is vacant and consists of farmland and wetlands. There are interior ditches that run through the property and direct stormwater runoff from the existing farm fields into the adjacent wetlands. Eventually the runoff is directed from the wetland and into New Bridge Creek. The subject parcels currently have no existing impervious surfaces or improvements.

### Summary of Proposed Conditions

As previously mentioned, the project proposes a 37 lot conservation subdivision on 104.09 acres of land with associated improvements such as streets, sidewalks, stormwater management, wet detention basins, domestic water supply and other associated utilities.

The conservation themes for this project will be USACE 404 wetlands and historic farmland, being primary and secondary themes respectively. The 404 wetlands total to be 51.93 acres and the historic farmland totals to be 12.53 acres. The remaining portion of the parcels outside of the conservation area will be the development area, which is proposed to be 39.63 acres in size. The development area will include the proposed right of way and 37 residential lots.

Section 7.1.3 C. (3) of the Currituck County UDO states that "Lands set aside as open space shall be compact and contiguous unless the land is used as a continuation of an existing trail, or specific natural or topographic features require a different configuration". The open space proposed for this subdivision will be proposed to be completely contiguous.

Stormwater management improvements will be needed to control the runoff from the proposed impervious surfaces. Runoff from the proposed impervious surfaces will be collected and conveyed via lot line swales and property line swales to the proposed wet detention basins located throughout the project.

The internal ditches inside of the property that currently exist in the development area will be proposed to be filled and replaced with the lot line/roadside swale ditches mentioned above. All internal ditches that are outside of the proposed development area will likely remain in place and will not be disturbed. Existing runoff from the farm fields that remain in place will be collected by the existing ditches that will not be disturbed and conveyed downstream.

The drainage areas for this subdivision will closely follow the residential property lines on all sides and end near the rear of the development, close to the wetlands. Stormwater draining from impervious surfaces will be directed to the lot line and property line swales via overland sheet flow and then conveyed to the wet detention basins. The vegetated swale's bottom and side slopes will be grassed according to the general seeding specifications and the runoff will undergo filtration of fine particulates and pollutants by the vegetation within it. The filtration by vegetation is considered the primary method of treatment. A secondary method of treatment is also available when the stormwater runoff is discharged into the wet detention basins. The forebay and main pool of the detention basins will be designed in accordance with the State Stormwater and Currituck County Stormwater Manual requirements. Suspended solids will settle in the wet detention basins and the vegetation surrounding the perimeter will provide nutrient uptake as well.

The storage in the ponds will be sized large enough to satisfy the requirements of the Currituck County Stormwater Manual and the State Stormwater regulations. The wet detention basins will be sized using the County's alternative stormwater runoff analysis demonstrating that the rise in the downstream water surface elevation is less than 0.01 feet when compared to the proposed project and the existing conditions. The wet detention basins will also meet the State stormwater quality measures of storing the required volume set by the NCDEQ to capture the first 1.5 inch rainfall event. Disposal of the storage will be via a drawdown orifice in the pond to achieve a drawdown from the temporary pool to the permanent pool between 2 to 5 days.



## Soils

Quible & Associates performed an onsite soil boring to verify soil characteristics and determine elevations of mean high seasonal water table. Information collected onsite generally agrees with the United States Department of Agriculture, Soil Conservation Service Soil Survey of Currituck County, which maps the site as follows:

Ro – Roanoke Fine Sandy Loam – 0 to 2 percent slopes  
Wa – Wahee Fine Sandy Loam – 0 to 2 percent slopes

## Conclusions

The proposed conservation subdivision will provide a design that will comply with the NCDEQ and Currituck County's regulations.

# U.S. ARMY CORPS OF ENGINEERS WILMINGTON DISTRICT

Action Id. SAW-2018-00505 County: Currituck County U.S.G.S. Quad: Currituck

## NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Applicant: Ferebee Acres, LLC  
Mr. Don Williams  
Address: P.O. Box 310  
Moyock, NC 27959

Size (acres) 72.56  
Nearest Waterway New Bridge Creek  
USGS HUC 03010205

Nearest Town Moyock  
River Basin Albemarle-Chowan  
Coordinates Latitude: 36.4687  
Longitude: -76.10597

**Location description:** The 72.56-acre review area for this Jurisdictional Determination is located along and to the northeast of Hwy 168, approximately 800 feet north of Beechwood Shore Road, in the town Moyock, Currituck County, NC. The review area is part of a larger property that abuts New Bridge Creek and Roland Creek. The review area contains 18.18 acres of wetlands and 54.38 acres of uplands.

### Indicate Which of the Following Apply:

#### **A. Preliminary Determination**

- There are waters, including wetlands, on the above described project area, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The waters, including wetlands, have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.
- There are wetlands on the above described property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the waters, including wetlands, have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the waters, including wetlands, at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

#### **B. Approved Determination**

- There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☒ **There are wetlands on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.**

- We recommend you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

**SAW-2018-00505**

☐ The waters of the U.S., including wetlands, on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☒ The wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on **September 7, 2018**. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☒ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Elizabeth City, NC, at (252) 264-3901 to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Billy Standridge at (910) 251-4595 or [Billy.W.Standridge@usace.army.mil](mailto:Billy.W.Standridge@usace.army.mil)**.

**C. Basis For Determination:** The wetlands within the project area were delineated using the Corps of Engineers 1987 Wetland Delineation Manual and the Atlantic and Gulf Coastal Plain Regional Supplement Version 2.0. The wetlands within the project area abut a relatively permanent water that flows to Tull Bay, a Section 10 Navigable Water.

**D. Remarks:** The wetland boundary is accurately depicted on the attached plat dated July 23, 2018 entitled "Wetland Survey for Ferebee Acres, LLC." This determination is limited to the 72.56-acre review area identified on the plat.

### **E. Attention USDA Program Participants**

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

### **F. Appeals Information for Approved Jurisdiction Determinations (as indicated in Section B. above)**

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers  
South Atlantic Division  
Attn: Jason Steele, Review Officer  
60 Forsyth Street SW, Room 10M15  
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **November 7, 2018**.

**It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.**

Corps Regulatory Official: **STANDRIDGE.BILLY.WAYNE.1240687956**  
**WAYNE.1240687956**

Digitally signed by  
STANDRIDGE.BILLY.WAYNE.1240687956  
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI,  
ou=USA, cn=STANDRIDGE.BILLY.WAYNE.1240687956  
Date: 2018.09.07 11:14:17 -0400

Date: **September 7, 2018**

Expiration Date: **September 7, 2023**

Attachment: 7 New Bridge Creek Estates Wetland (PB 19-24 New Bridge Creek Estates)



SAW-2018-00505

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=136:4:0](http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0).

Copy Furnished:

Atlantic Environmental Consultants, LLC

Mr. Doug Dorman

Post Office Box 3266

Kitty Hawk, NC, 27949

Attachment: 7 New Bridge Creek Estates Wetland (PB 19-24 New Bridge Creek Estates)

SAW-2018-00505

## NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: <b>Don Williams, Ferebee Acres, LLC</b>	File Number: <b>SAW-2018-00505</b>	Date: <b>September 7, 2018</b>
--	------------------------------------	--------------------------------

Attached is:	See Section below
<input type="checkbox"/> INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/> PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/> PERMIT DENIAL	C
<input checked="" type="checkbox"/> APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/> PRELIMINARY JURISDICTIONAL DETERMINATION	E

**SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision.**  
 Additional information may be found at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or  
 Corps regulations at 33 CFR Part 331.

**A: INITIAL PROFFERED PERMIT:** You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT:** You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

Attachment: 7 New Bridge Creek Estates Wetland (PB 19-24 New Bridge Creek Estates)

SAW-2018-00505

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

## SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

### POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,  
Attn: Billy Standridge**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal Review Officer  
CESAD-PDO  
U.S. Army Corps of Engineers, South Atlantic Division  
60 Forsyth Street, Room 10M15  
Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137**

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

<p>_____ Signature of appellant or agent.</p>	<p>Date:</p>	<p>Telephone number:</p>
---	--------------	--------------------------

**For appeals on Initial Proffered Permits send this form to:**

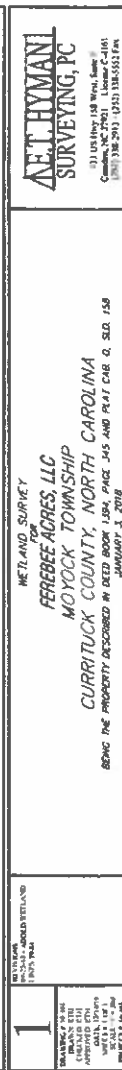
**District Engineer, Wilmington Regulatory Division, Attn: Billy Standridge, 69 Darlington Avenue, Wilmington, North Carolina 28403**

**For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:**

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137**

Attachment: 7 New Bridge Creek Estates Wetland (PB 19-24 New Bridge Creek Estates)







## Currituck County Water System Reservation Form

### County Contact Information

Superintendents or Utilities Director  
Yama E. Jones

Phone: 252-232-6061 Ext. 6061

Fax: 252-453-3721

Website: <https://co.currituck.nc.us/departments/water/>

### Request

This request is reserve:

☒ Residential

☐ Non-residential

### Owner Information

Name(s): New Bridge Creek, LLC

Mailing Address: PO Box 505, Moyock, NC 27958

E-Mail Address: jerry@currituckhomes.com

Phone Number: 252-232-3925

### Applicant Information (if different from Owner)

Name(s): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Attachment: 8 New Bridge Creek Estates Water (PB 19-24 New Bridge Creek Estates)

## Parcel Information

0031000064N0000, 0031000064M0000, 0031000064L0000, 0031000064K0000,  
PIN(s): 0031000064C0000, and 0031000064D0000

Street Address: Caratoke Hwy, Moyock, NC 27958


## Project Information

Number of Units: 37 Lots Projected Daily Project Demand (gpd): 29,600 gpd

Anticipated Water Access Date: Spring/Summer 2020

## Applicant's Signature

I declare, that to the best of my knowledge, the information provided herein is true, correct, and complete.

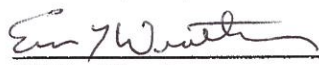
  
\_\_\_\_\_  
Property Owner/Applicant Signature

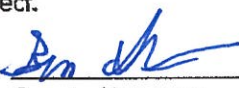
8.14.19  
\_\_\_\_\_  
Date

## For Office Use Only

☒ Water capacity is available for this project.

☐ Water capacity is not available for this project.

  
\_\_\_\_\_  
Utilities Director      Date 8-16-19

  
\_\_\_\_\_  
County Manager      Date 8-16-19

This commitment is good through: 8-16-20  
\_\_\_\_\_  
Date





## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – 2819

**Agenda Item Title:** 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

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

**Item Type:** Legislative

**Presenter of Item:** Laurie LoCicero

**Board Action:** Action

**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, 00150000085C, 0015000085A0000, Moyock Township.

**Planning Board Vote:** Approved 3-2

**Planning Board Recommendation:** Approval

**Staff Recommendation:** Denial

**TRC Recommendation:** Denial



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

### APPLICATION SUMMARY

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

**ZONING DISTRICT COMPARISON**

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

\*Assumes 10% area for infrastructure.

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

**REQUEST**

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



**SURROUNDING PARCELS**

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

**COMMUNITY MEETING**

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

**TRANSPORTATION**

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

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

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

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

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

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

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

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

Caratoke Highway and Survey Road (unsignalized)

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

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

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

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

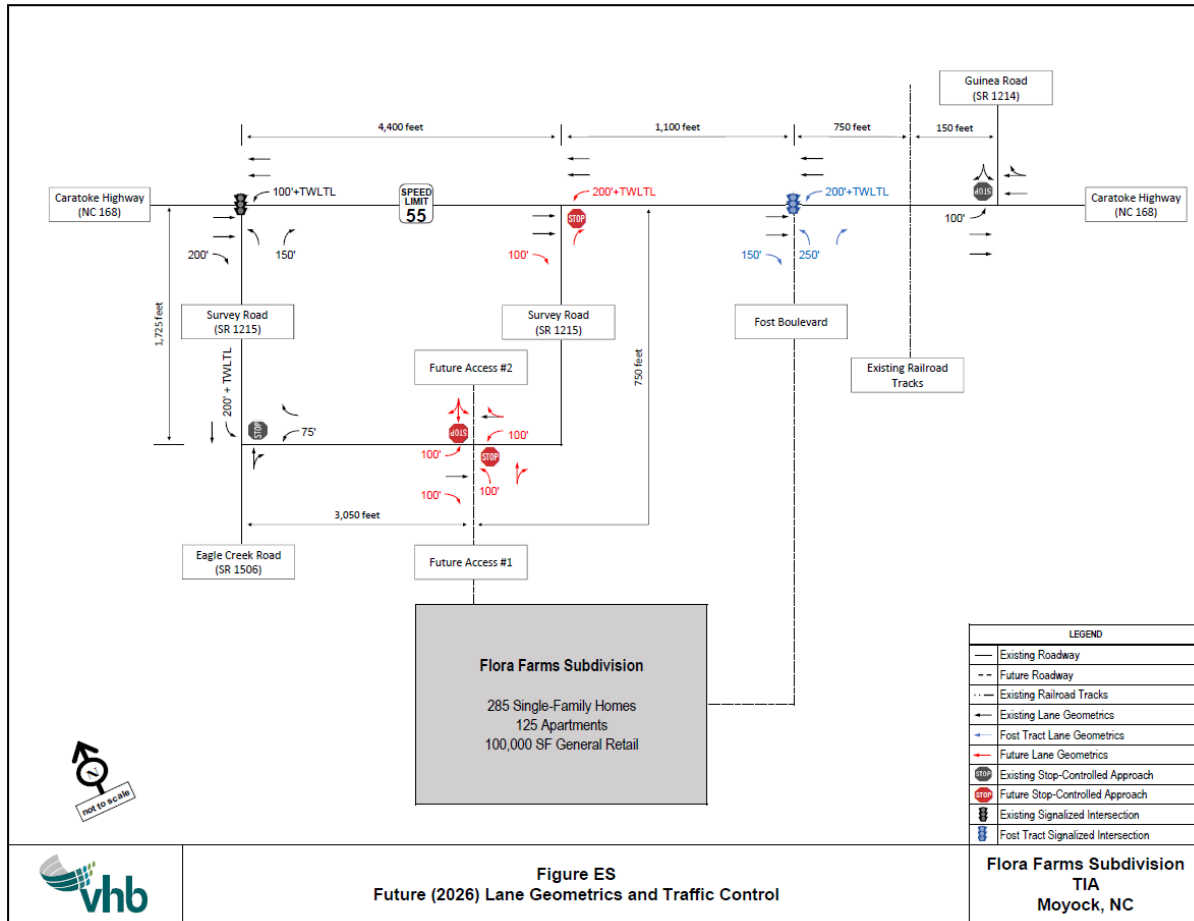
The proposed stop-controlled driveways are projected to operate at acceptable levels of service during peak hours under Build (2026) conditions. The following driveway configuration for both access driveways should be considered to enhance traffic operations and safety:

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

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

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





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

## TRAFFIC IMPACT ANALYSIS

Table ES-1 Summary Level of Service Table

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

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

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

### Utilities

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

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

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

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

## Drainage

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

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

The mitigate drainage concerns, the developer offers the following:

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



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

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

## Schools

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

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

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

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

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

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

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

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

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

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

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

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

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



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

## LAND USE PLAN

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

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

## MOYOCK SMALL AREA PLAN

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

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

## RECOMMENDATION

### Technical Review Committee

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

Planning

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



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

## CONSISTENCY AND REASONABLENESS STATEMENT

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

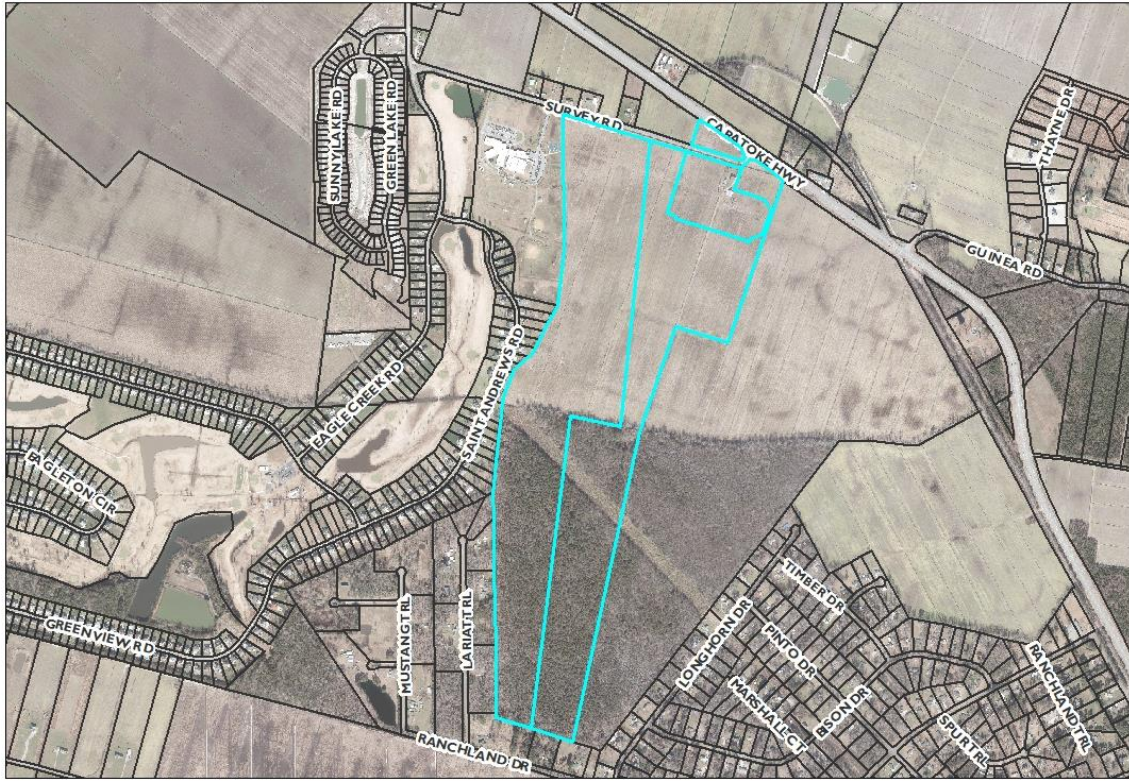
This planned development rezoning request is inconsistent with the below applicable review standards from 2.4.3.C:

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

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

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

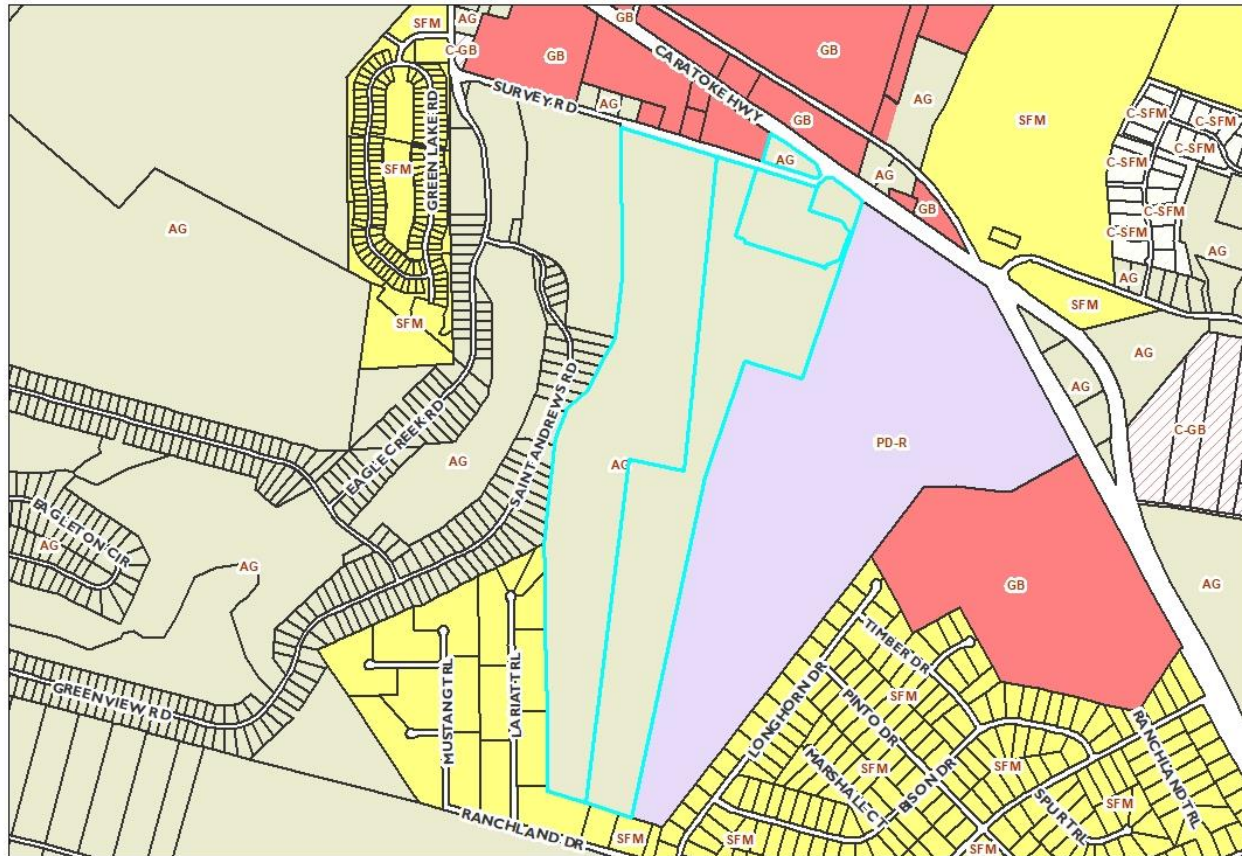
Board of Commissioners: [www.co.currituck.nc.us/planning-board-minutes-current.cfm](http://www.co.currituck.nc.us/planning-board-minutes-current.cfm)



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

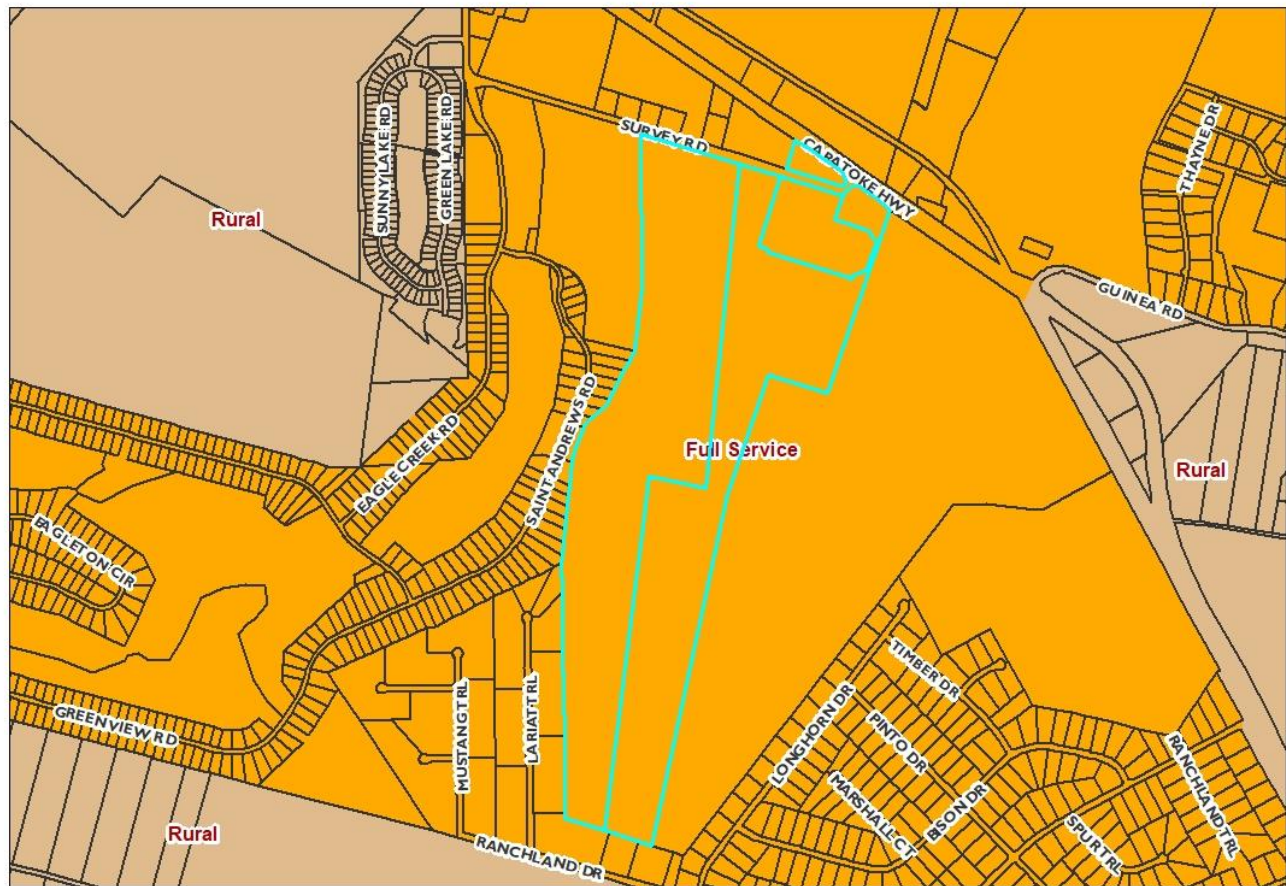






**PB 19-20 Flora Farm  
Zoning Base Districts**

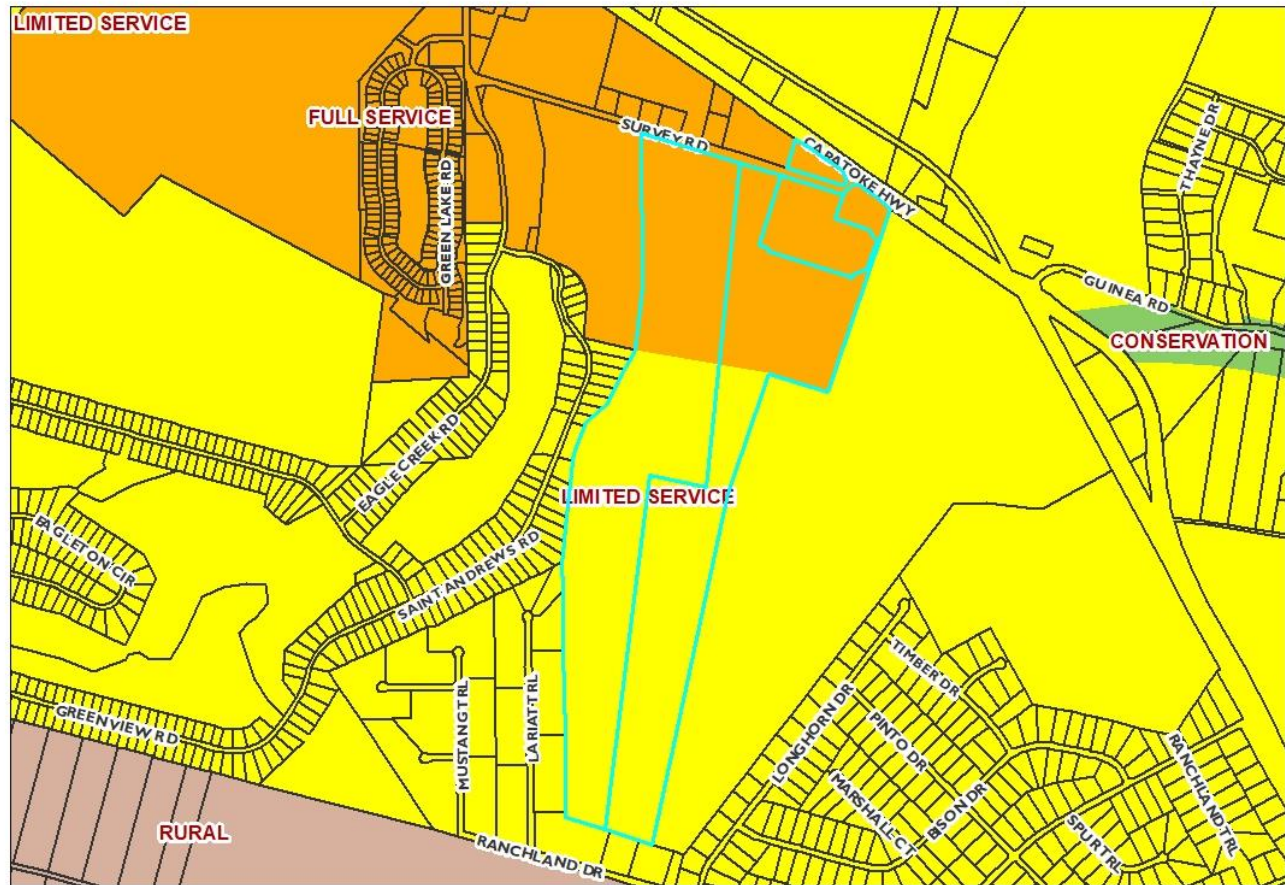




**PB 19-20 Flora Farm  
2006 Land Use Plan Classifications**







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





## Flora Farm Rezoning PB 19-20

## Planning Board Staff Report

June 9, 2020

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

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

# Flora Farm Rezoning PB 19-20

## Planning Board Staff Report

June 9, 2020

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

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

## Flora Farm Rezoning PB 19-20

## Planning Board Staff Report

June 9, 2020

RED TEXT = STAFF RESPONSES 6/10/2020

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



# Flora Farm Rezoning PB 19-20

## Planning Board Staff Report

June 9, 2020

RED TEXT = STAFF RESPONSES 6/10/2020

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

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

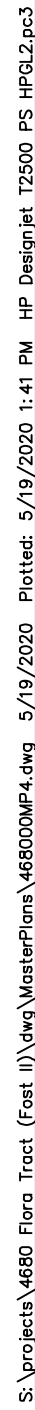
**Flora Farm Rezoning PB 19-20**

## Planning Board Staff Report

June 9, 2020

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

	<b><i>THE MOYOCK SCHOOL DISTRICT AS REQUIRED BY THE UDO AND LAND USE PLAN.</i></b>
--	--



**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.**

SCALE: 1" = 5000'

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)

**Flinnell Professional Group**  
 10000 Highway 195  
 P.O. Box 1000  
 "The Cove", North Carolina 27449  
 Phone (252) 281-1760  
 Fax (252) 281-1760



**PROFESSIONAL GROUP**

Engineers, Planners, Surveyors  
 Environmental Specialists

**COVER SHEET, DEVELOPMENT  
 NOTES & SITE LOCATION**

**FLORA FARM PD-R SUBDIVISION**

MOYOCK TOWNSHIP      CURRITUCK COUNTY      NORTH CAROLINA

**PRELIMINARY MASTER PLAN**

**REVISIONS**

NO.	DATE	BY	REVISION
1	05/24/20	MSB	Address: 38C Comments
2	05/27/20	WGY	Address Additional Site Comments

**PRELIMINARY FOR REVIEW PURPOSES ONLY**

DATE: 01/23/20	SCALE: N/A
DESIGNED: MSB	CHECKED: MSB
DRAWN: KFW, WGY	NOTED: BPG

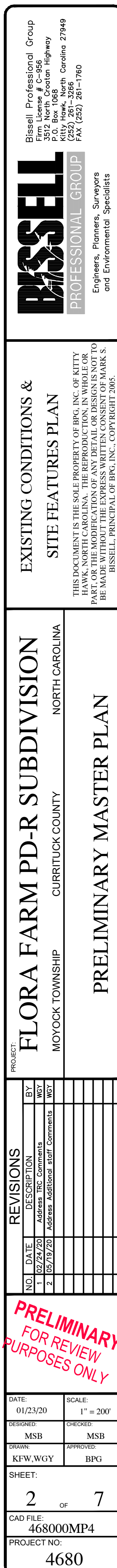
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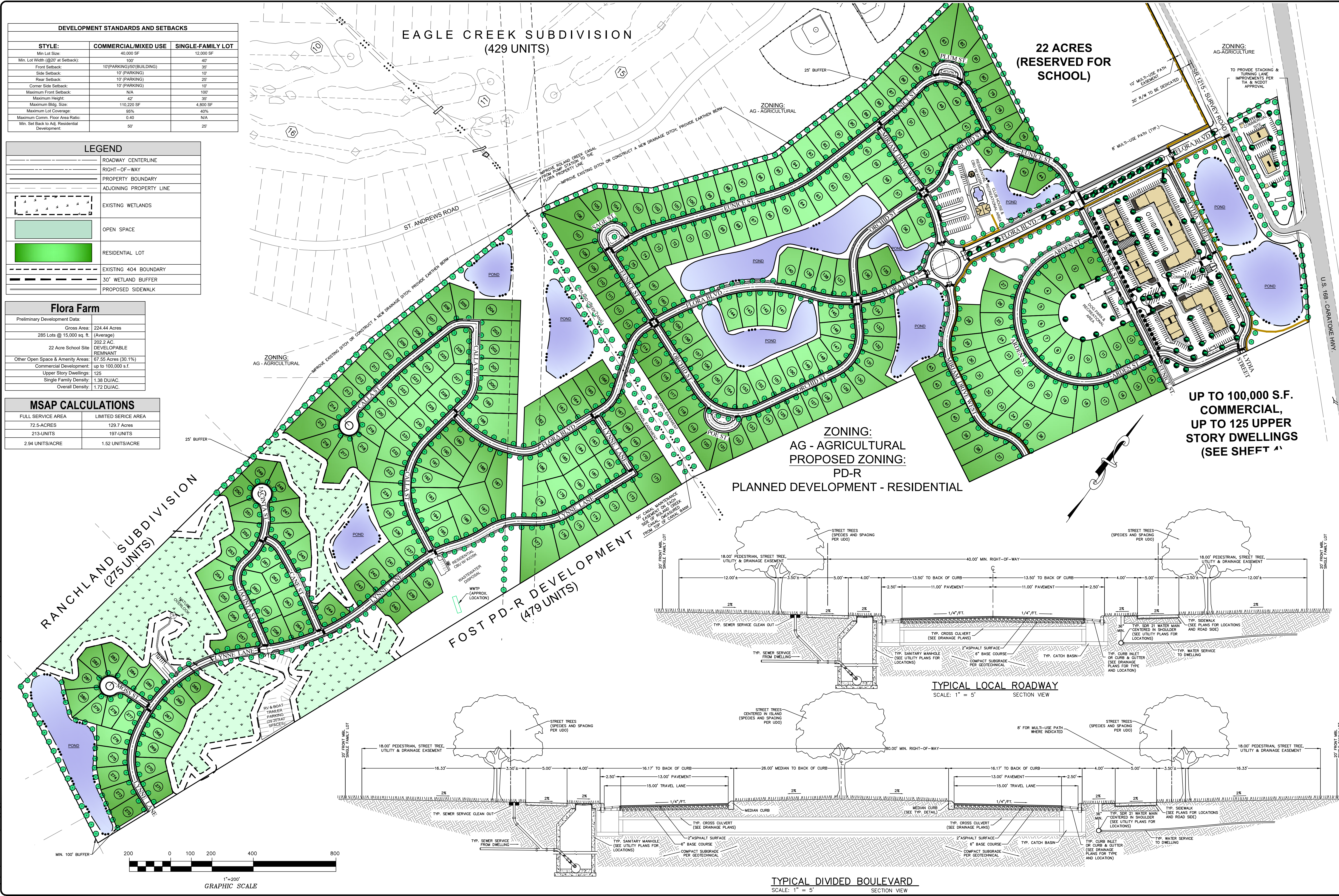
PROJECT NO: 4680

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 27549  
Tel: (252) 281-1760  
Fax: (252) 281-1760

**PRELIMINARY MASTER PLAN - OVERALL**

THIS PLAN IS THE SCALE PRELIMINARY PLAN. NO CITY, TOWN, OR COUNTY OFFICIALS HAVE REVIEWED OR APPROVED THIS PLAN. NO PART OF THE MODIFICATION OF ANY DETAIL OR DESIGN IS NOT TO BE MADE WITHOUT THE WRITTEN CONSENT OF THE DESIGNER.

**PRELIMINARY MASTER PLAN**

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

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

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

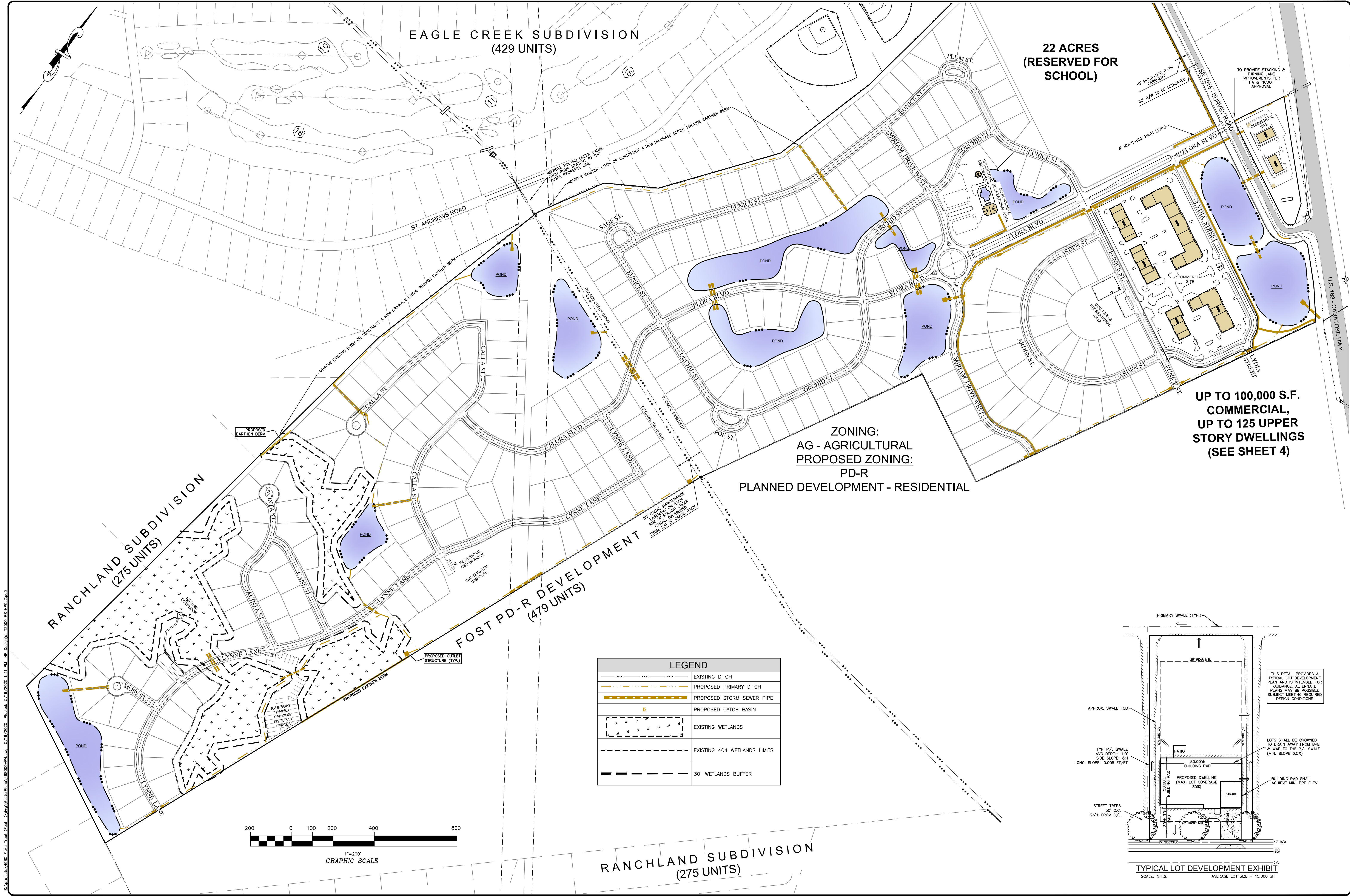
**PRELIMINARY FOR REVIEW PURPOSES ONLY**

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		









Bissell Professional Group  
Firm License # C-956  
P.O. Box 1068  
Charlotte, North Carolina 27249  
Tel: (704) 366-1760  
Fax: (704) 366-1760

**BISSELL**  
PROFESSIONAL GROUP

Engineers, Planners, Surveyors  
and Environmental Specialists

**PRELIMINARY STORMWATER  
MANAGEMENT PLAN**

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

**PRELIMINARY MASTER PLAN**

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

**PRELIMINARY FOR REVIEW PURPOSES ONLY**

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

DESIGNED: MSB CHECKED: MSB

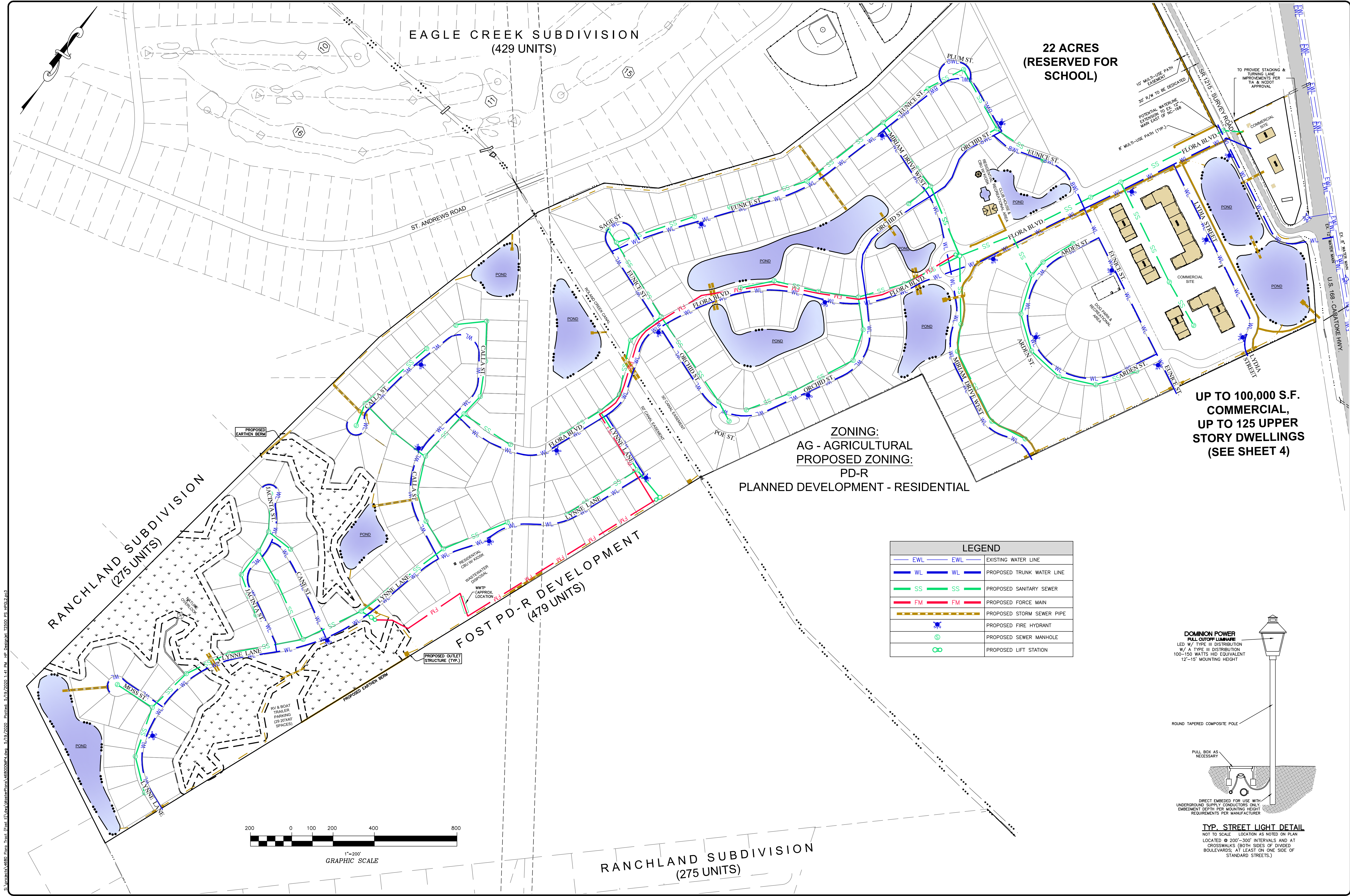
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SHEET: 5 OF 7

CAD FILE: 468000MP4

PROJECT NO: 4680





**Bissell Professional Group**  
Firm License # C-955  
P.O. Box 108  
Cary, NC 27513  
Tel: (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**  
CURRICK COUNTY  
MOYOCK TOWNSHIP  
NORTH CAROLINA

**PRELIMINARY MASTER PLAN**

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

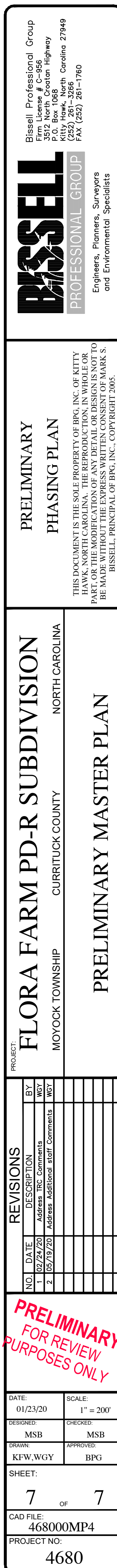
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CHECKED: MSB  
DRAWN: KFW:WGY  
SHEET: 6 OF 7

SCALE: 1" = 200'

APPROVED: BPG

CAD FILE: 468000MP4  
PROJECT NO: 4680







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

## SCHEDULE A

DEVELOPMENT STANDARDS & SETBACKS

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

SCHEDULE C  
ROADWAY  
STANDARDS

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



## Flora Farm • Draft Terms and Conditions

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

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

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

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

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

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

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

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

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

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

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

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

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



SCHEDULE A

DEVELOPMENT STANDARDS & SETBACKS

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

SHEDULE B						
PHASING SCHEDULE						
RESIDENTIAL						
PHASE	OPEN SPACE (AC.)	UNITS	ESTIMATED FINAL PLAT RECORDING DATE	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	OTHER IMPROVEMENTS
1	8.9	58	AUG. 2021	43.8	1.32	MAIL KIOSK & RV/BOAT PARKING
2	28.6	62	APR. 2022	53.8	1.15	NATURE OVERLOOK & CLUBHOUSE
3	9.3	53	FEB. 2023	30.3	1.75	DOG PARK, REC. AREA & POOL
4	10.1	66	AUG. 2023	37.7	1.75	MULTI-USE PATH
5	8.0	46	JAN. 2024	24.0	1.92	-
SUBTOTAL	64.9	285	-	189.6	1.50	-
COMMERCIAL						
PHASE	OPEN SPACE (AC.)	UNITS	AREA (AC.)	DEVELOPMENT INTENSITY (D.U./AC.)	COMM. S.F.	MAXIMUM COMMERCIAL FLOOR AREA RATIO
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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

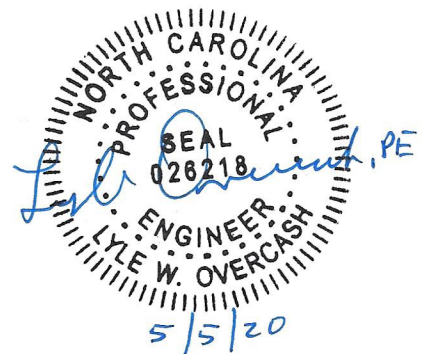
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## PREPARED BY

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

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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.

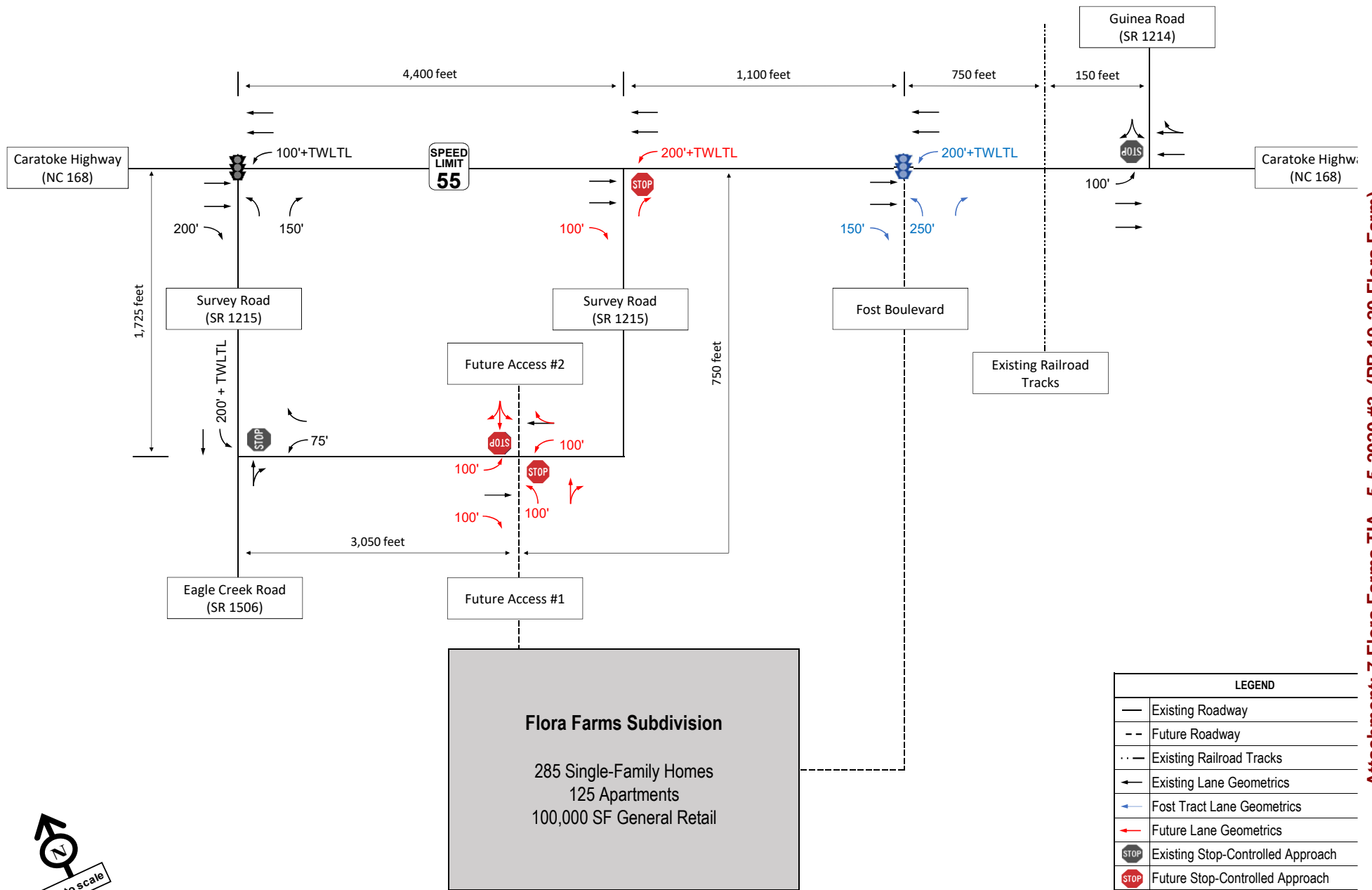
The other intersections within the study area are projected to remain acceptably once the development is completed, therefore no additional offsite lane geometric improvements are recommended.

**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





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

**Flora Farms Subdivision**

**TIA**

**Mo Packet Pg. 214**

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

**Appendix C: Intersection Capacity Analysis**

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# 1

## Introduction

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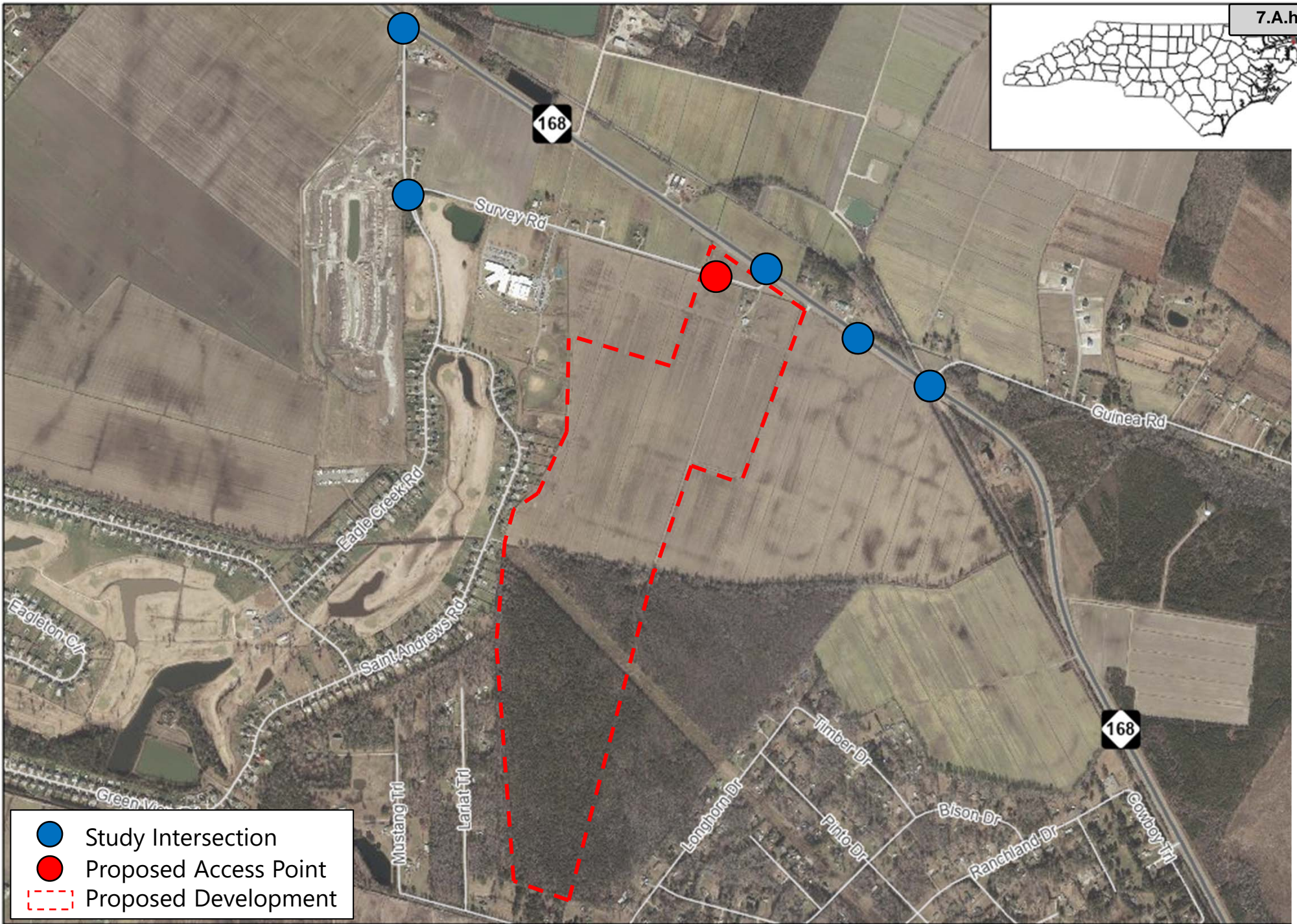
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- › Caratoke Highway (NC 168) and Fost Boulevard (future signalized)
- › Survey Road (SR 1215) and Future Access #1/Future Access #2 (future unsignalized)

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

Scale  
0 1,000 2,000  
Feet

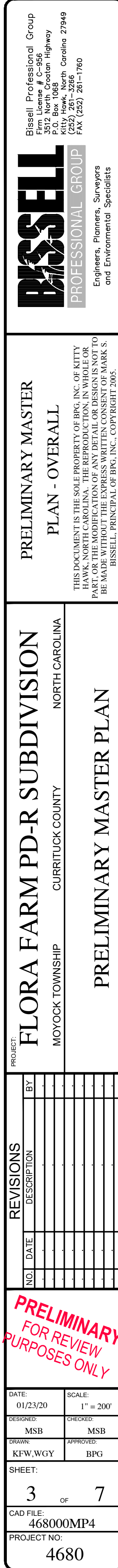


Figure 1:  
Vicinity Map

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)**

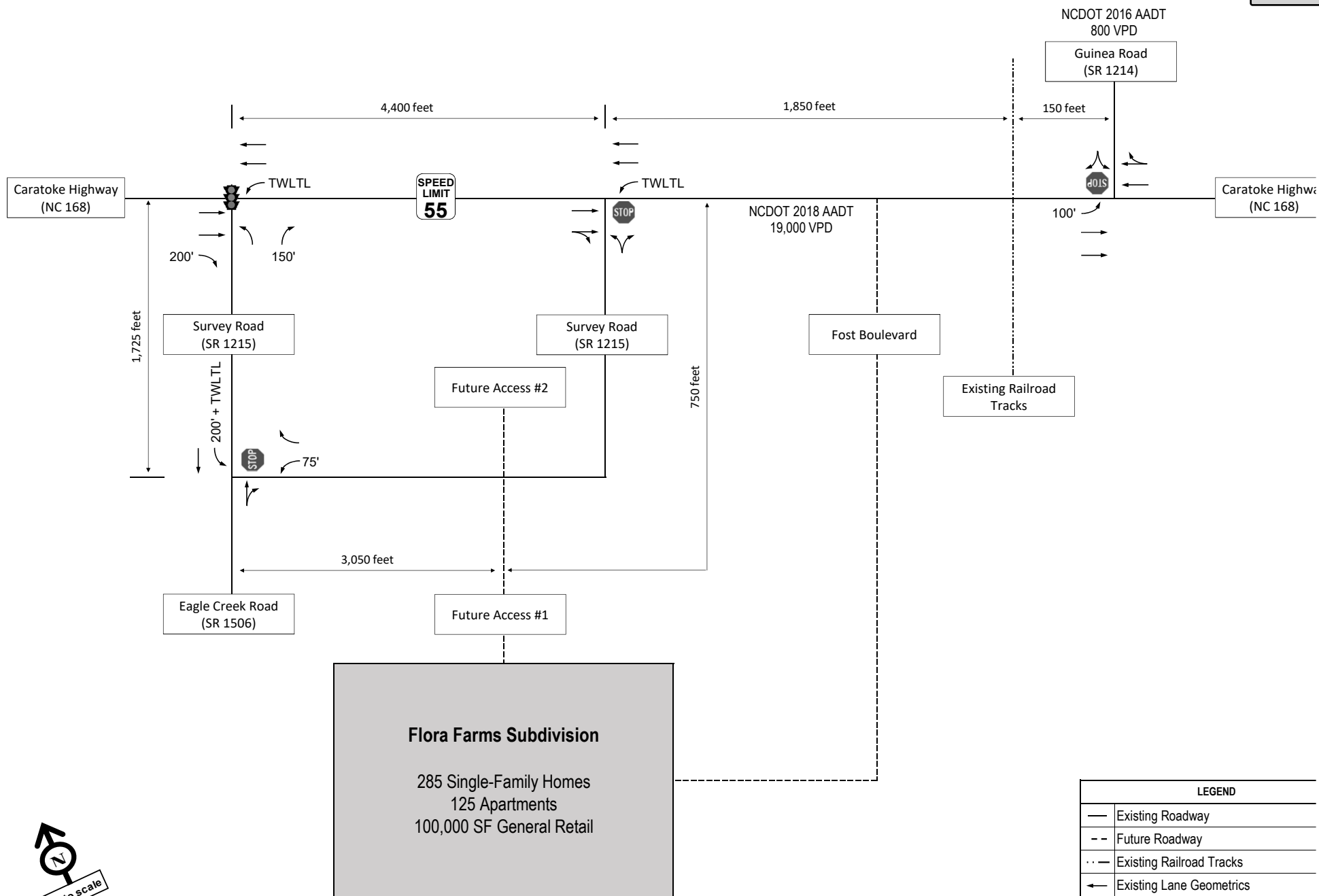
- › Within the study area limits, Survey Road (SR 1215) is a two-lane undivided roadway with no posted speed limit.
- › The land uses along Survey Road (SR 1215) are primarily residential and commercial within the study area limits. Survey Road (SR 1215) provides direct access to Moyock Middle School.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

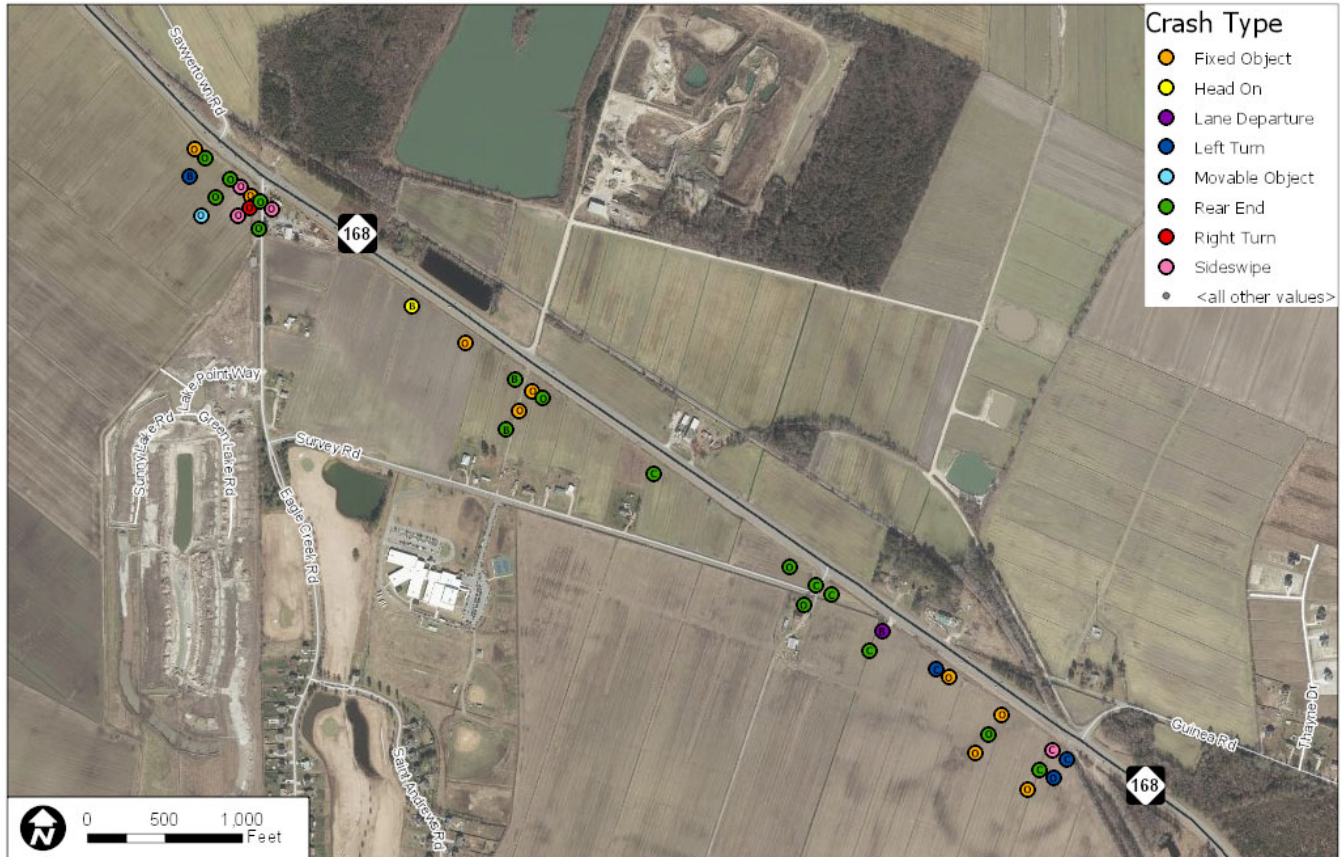
**Table 1 Weekday Peak Hour Turning Movement Count Schedule**

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

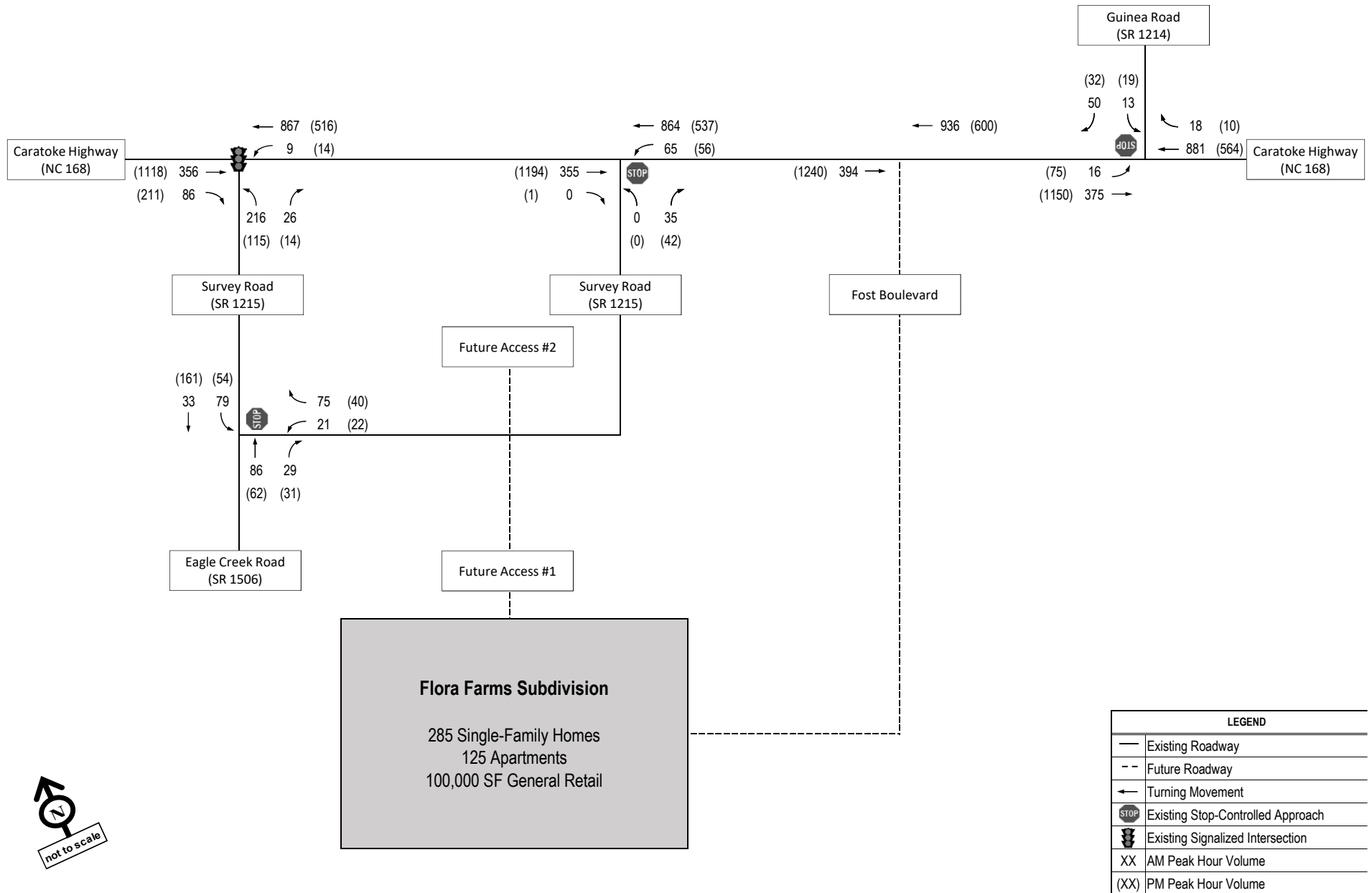
Intersection levels of service analyses were performed for the typical weekday AM and PM peak hour using *Synchro/SimTraffic Professional Version 10*. A summary of the findings for the Existing (2019) scenario LOS analysis can be found in Table 3 and the full *Synchro* output can be found in Appendix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





# 3

## No-Build (2026) Conditions

### Background Growth and Development

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

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

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



## Level of Service Analysis

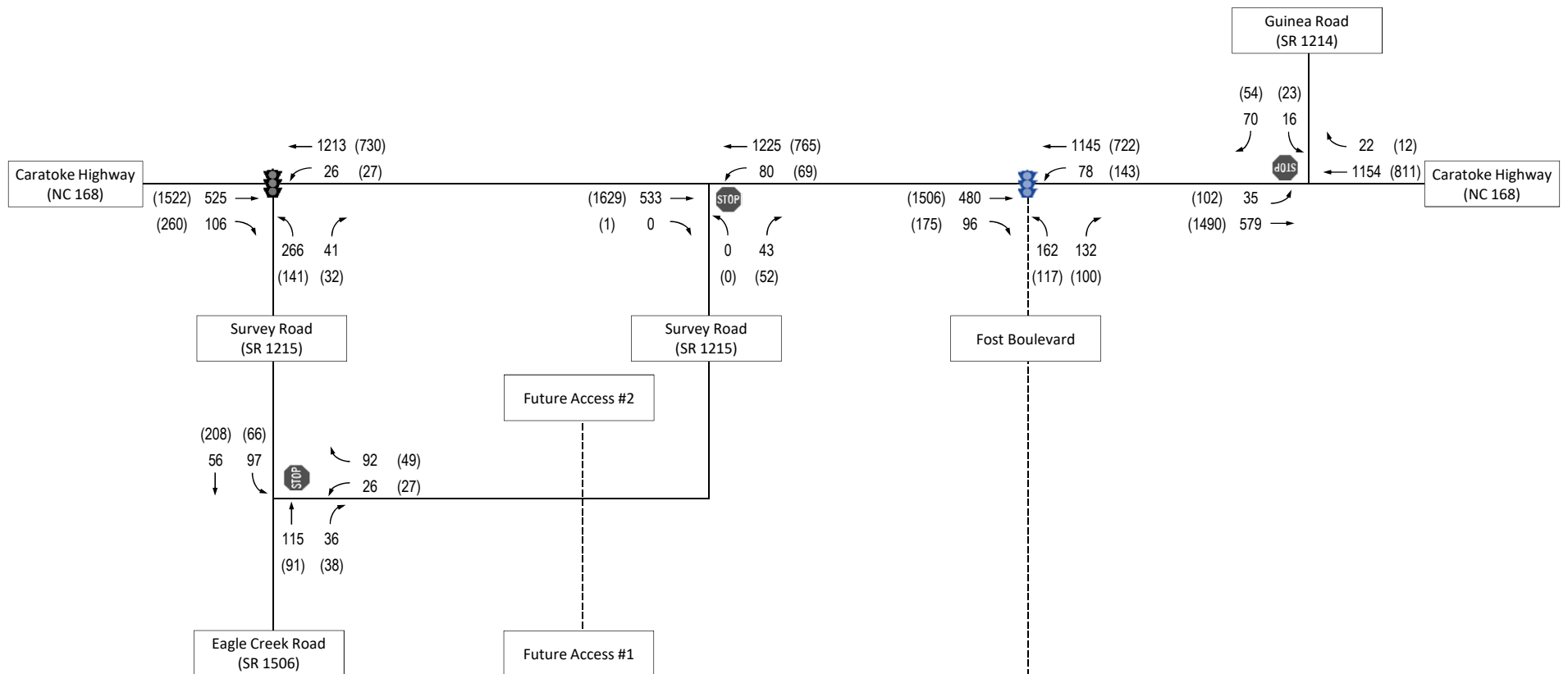
Intersection levels of service analyses were performed for the typical weekday AM and PM peak hours using *Synchro/SimTraffic Professional Version 10*. A summary of the findings for the No-Build (2026) scenario LOS analysis can be found in Table 4 and the full *Synchro* output can be found in Appendix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

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

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

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

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

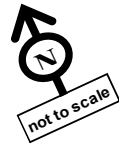


LEGEND	
—	Existing Roadway
- -	Future Roadway
←	Turning Movement
STOP	Existing Stop-Controlled Approach
⬇	Existing Signalized Intersection
⬆	Fost Tract Signalized Intersection
XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume



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

**Flora Farms Subdivision**  
**TIA**  
**Moyock, NC**







# 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

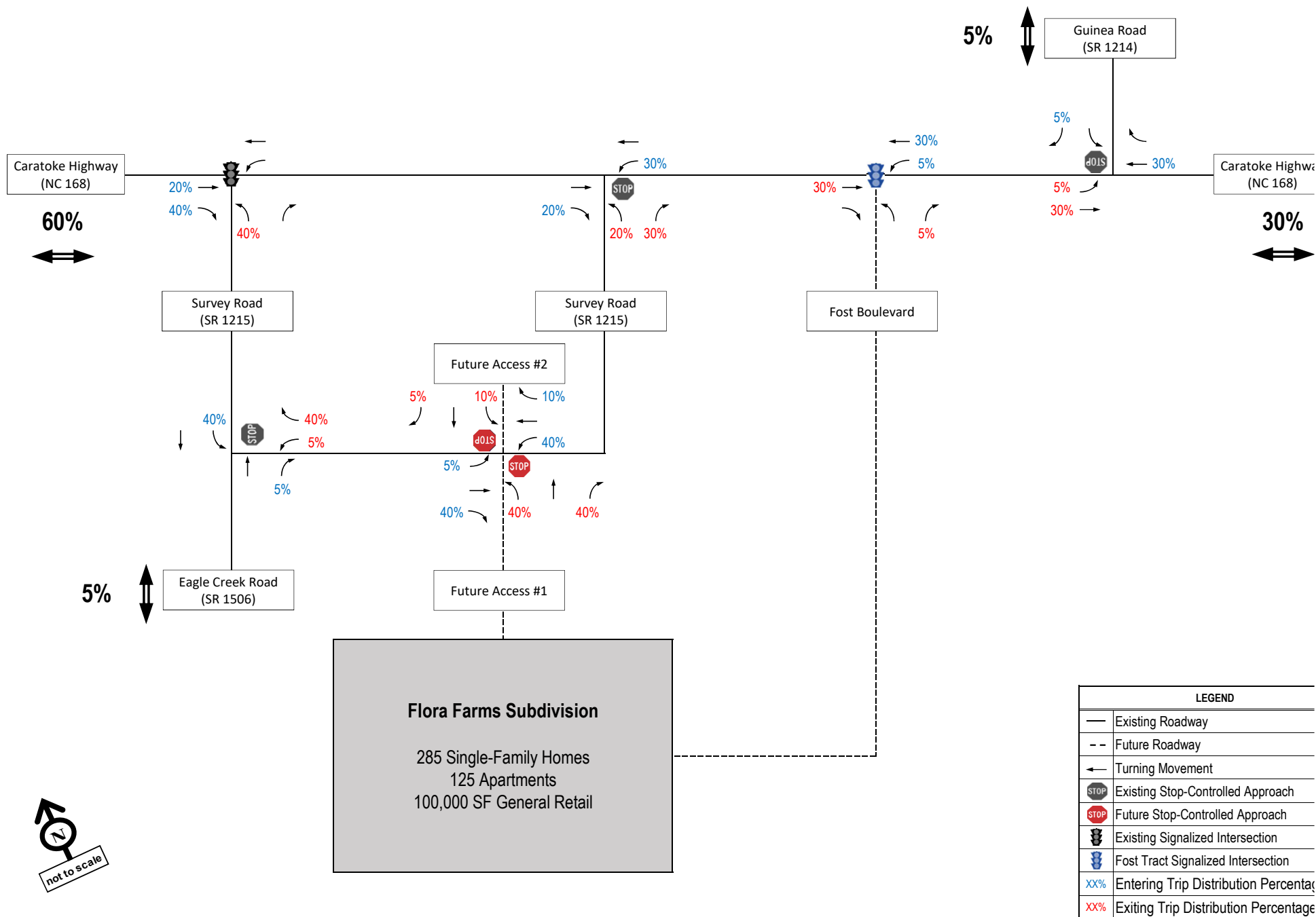
The proposed development will construct two access driveways as a four-leg intersection along Survey Road. A total of four (4) cross-connections are also planned between the proposed Flora Farms Subdivision and the future Fost Tract Development. The generated site trips were distributed in accordance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

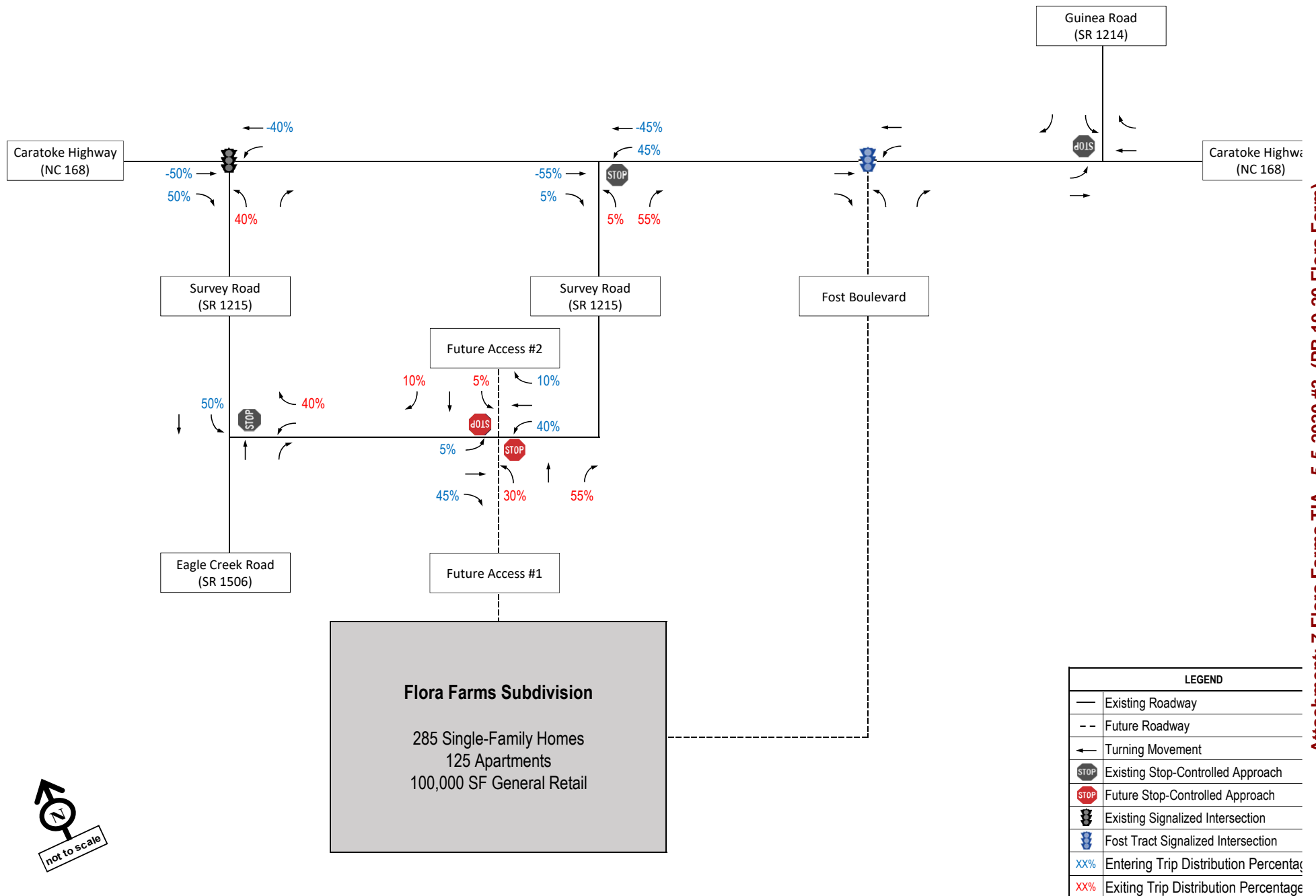


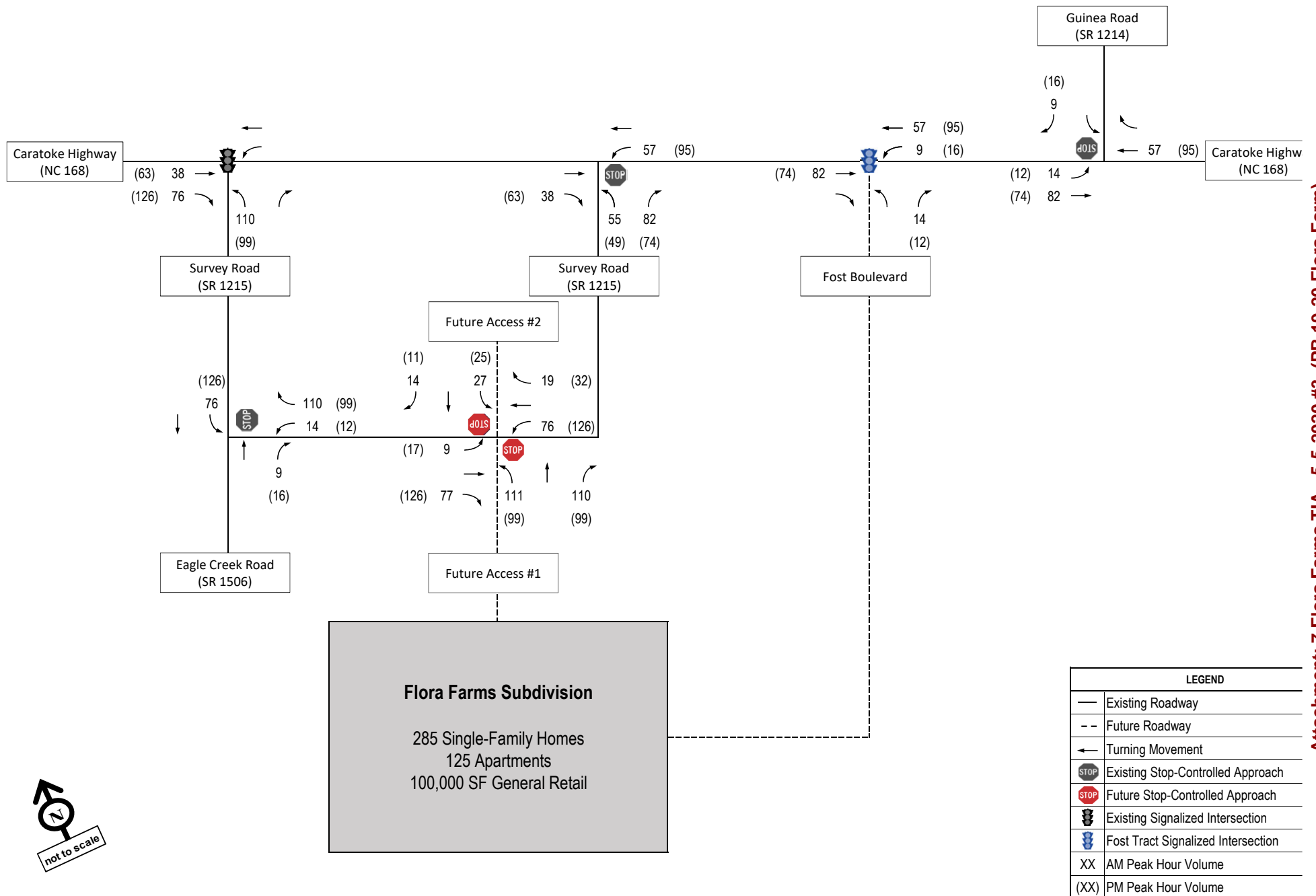


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



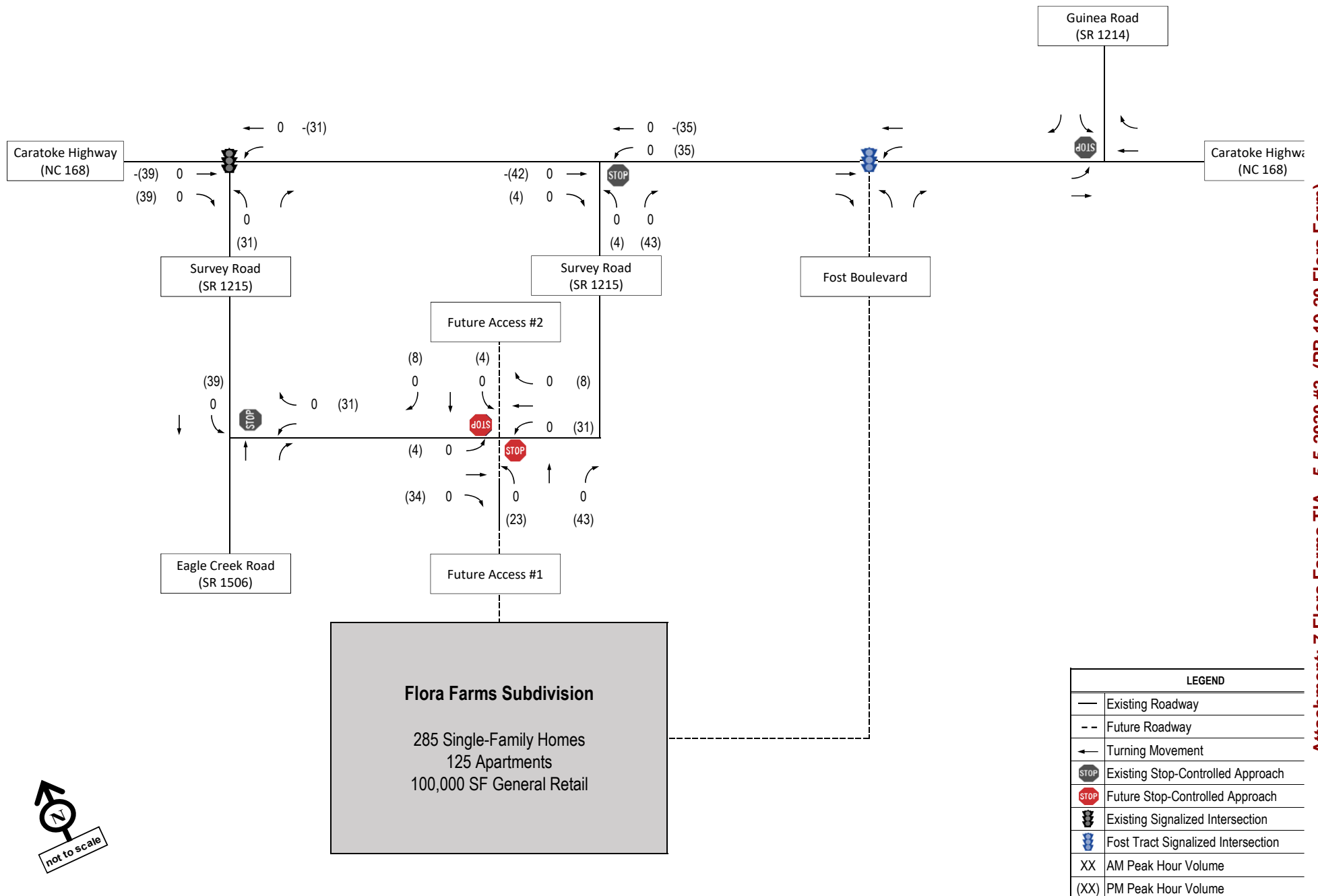
**Figure 7**  
**Non-Pass-By Peak Hour Trip Distribution Percentages**

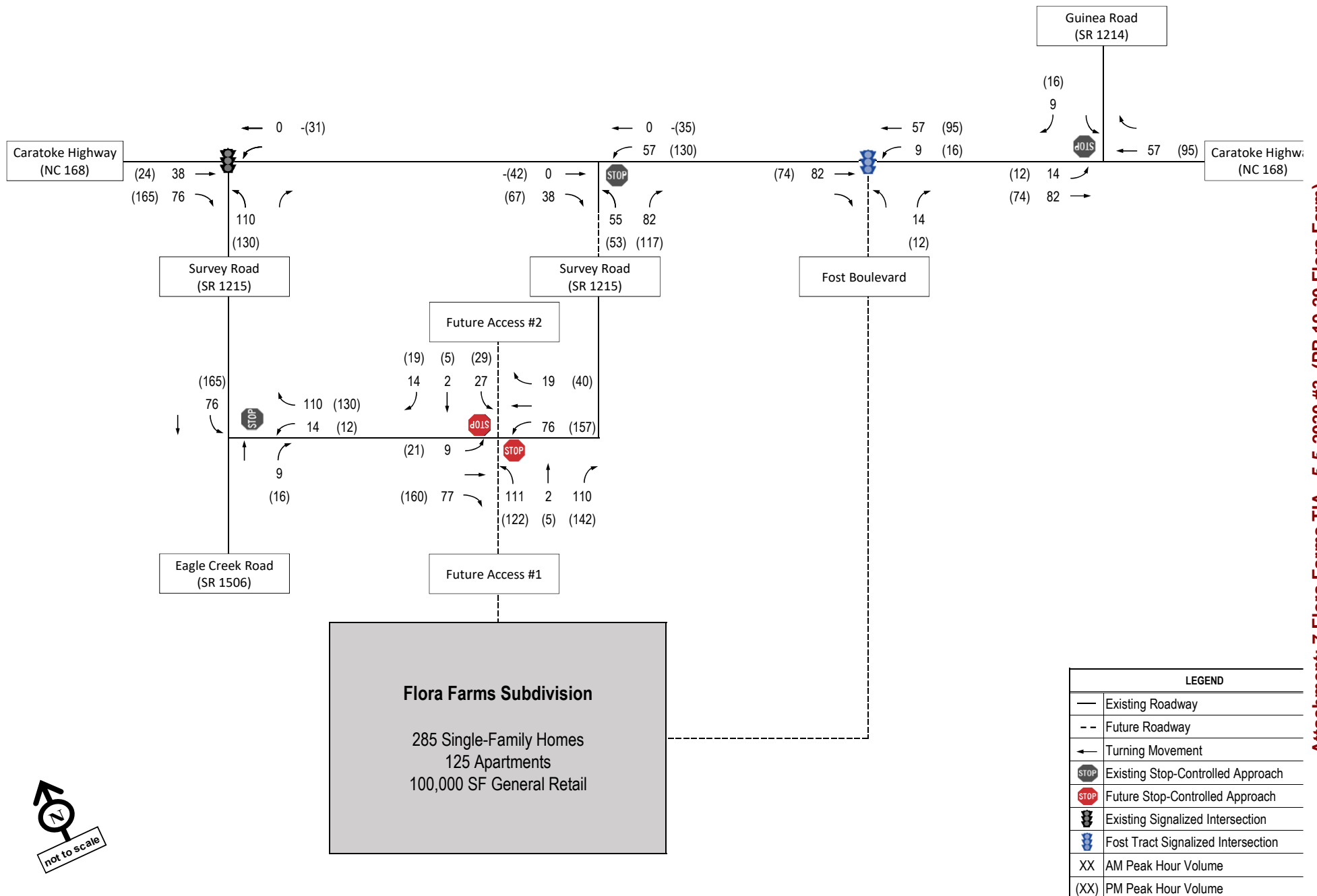




**Figure 9**  
**Non-Pass-By AM and PM Peak Hour Site Trips**







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

**Flora Farms Subdivision**

**TIA**

Mo Packet Pg. 239

## 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.

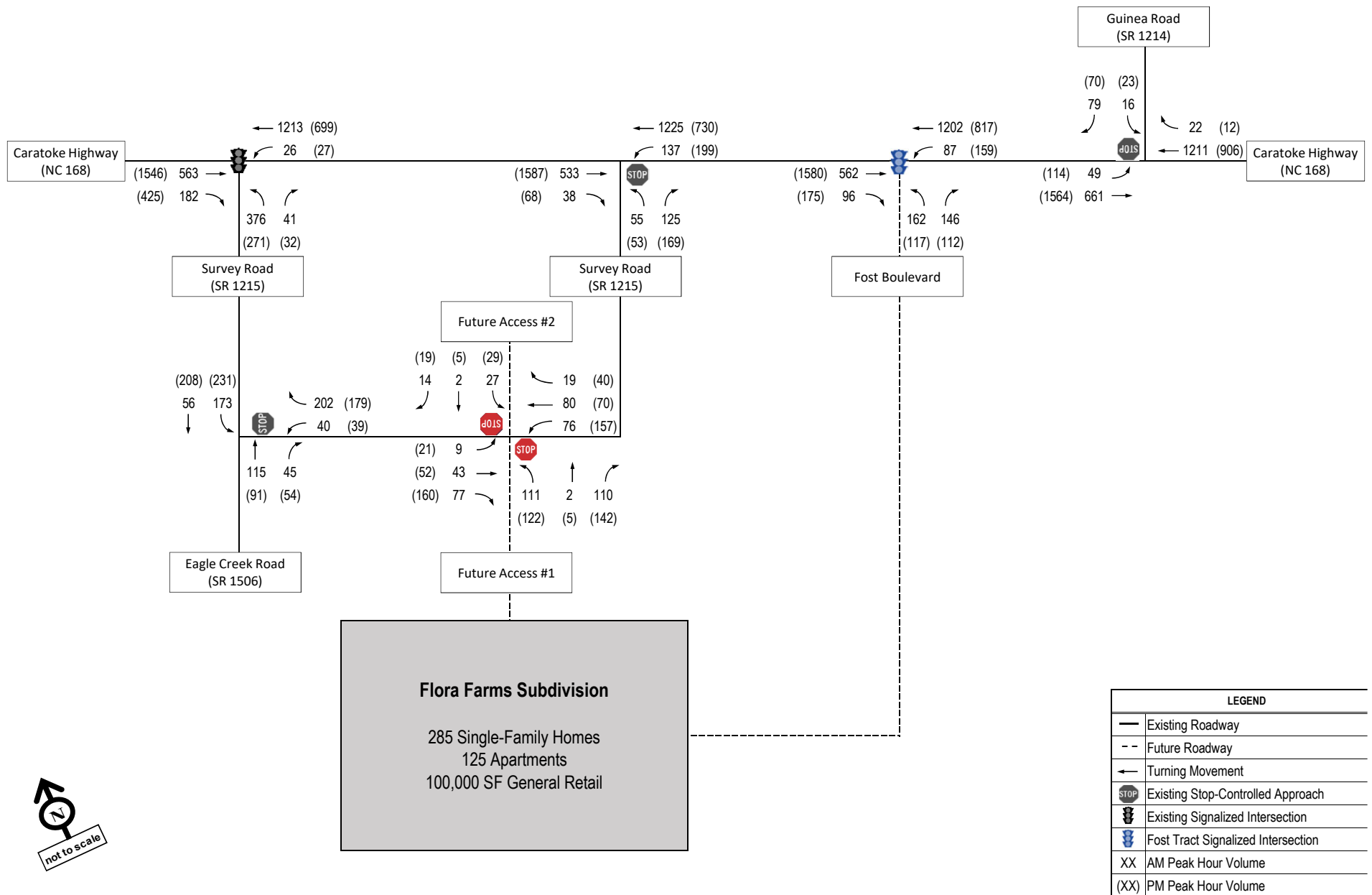
As reported in Table 6, with the addition of site trips, all stop-controlled approaches, except for one, operate at acceptable levels of service during both peak hours. The eastbound Survey Road stop-controlled approach at Caratoke Highway (NC 168) is projected to operate at LOS F during the PM peak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







# 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.

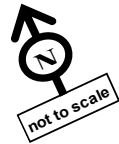
The summary of level of service results is displayed in Table 7, and the proposed Future (2026) lane geometrics and traffic control is displayed in Figure 13. Since the proposed improvements after the full build-out of the site will affect existing traffic patterns in the area, the proposed Build (2026)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

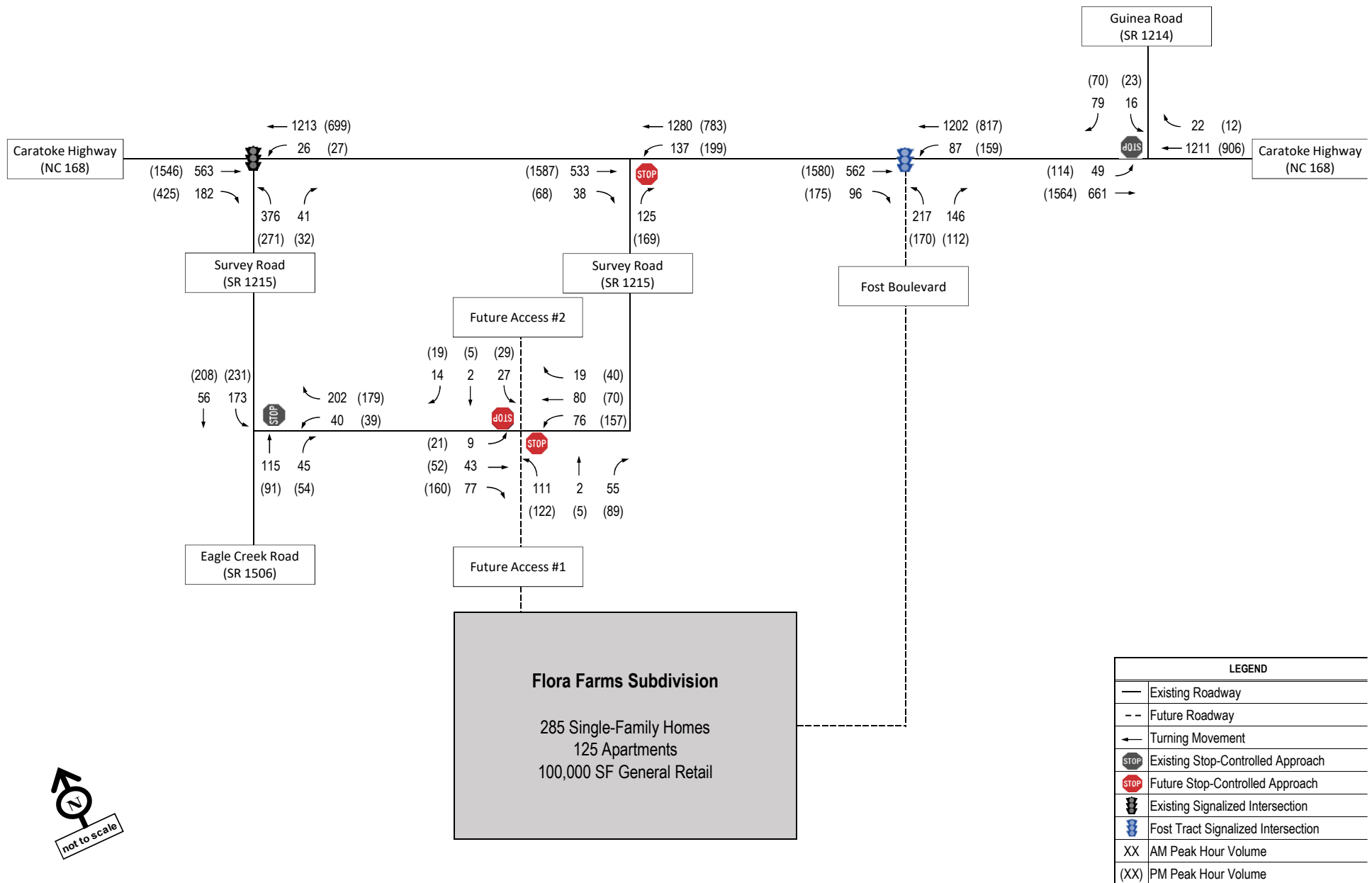


**Table 7 Summary of LOS Results**

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







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## Appendices

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## Appendix A:

# Turning Movement Counts

# VHB Engineering NC, P.C.

7.A.h

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

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

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

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

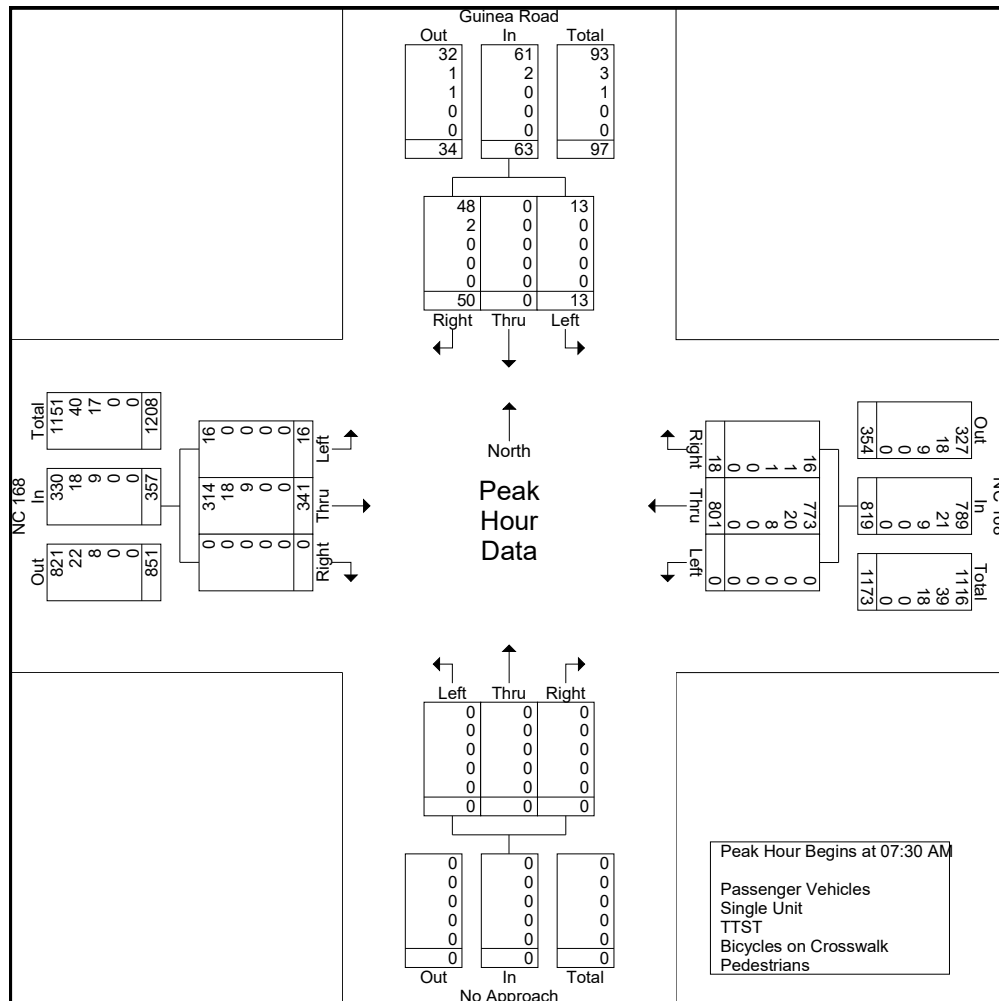
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



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

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

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



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

### 7.A.h

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

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



# VHB Engineering NC, P.C.

7.A.h

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

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

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

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

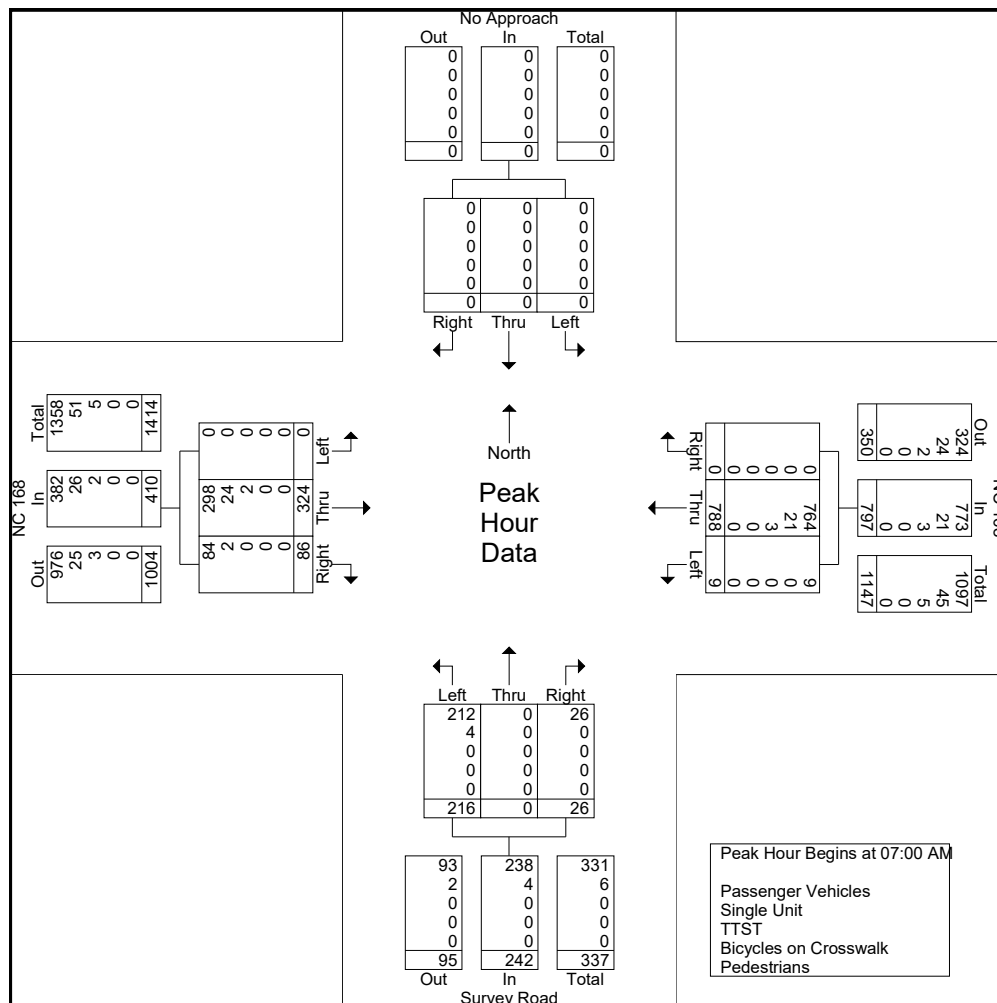
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



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

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

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

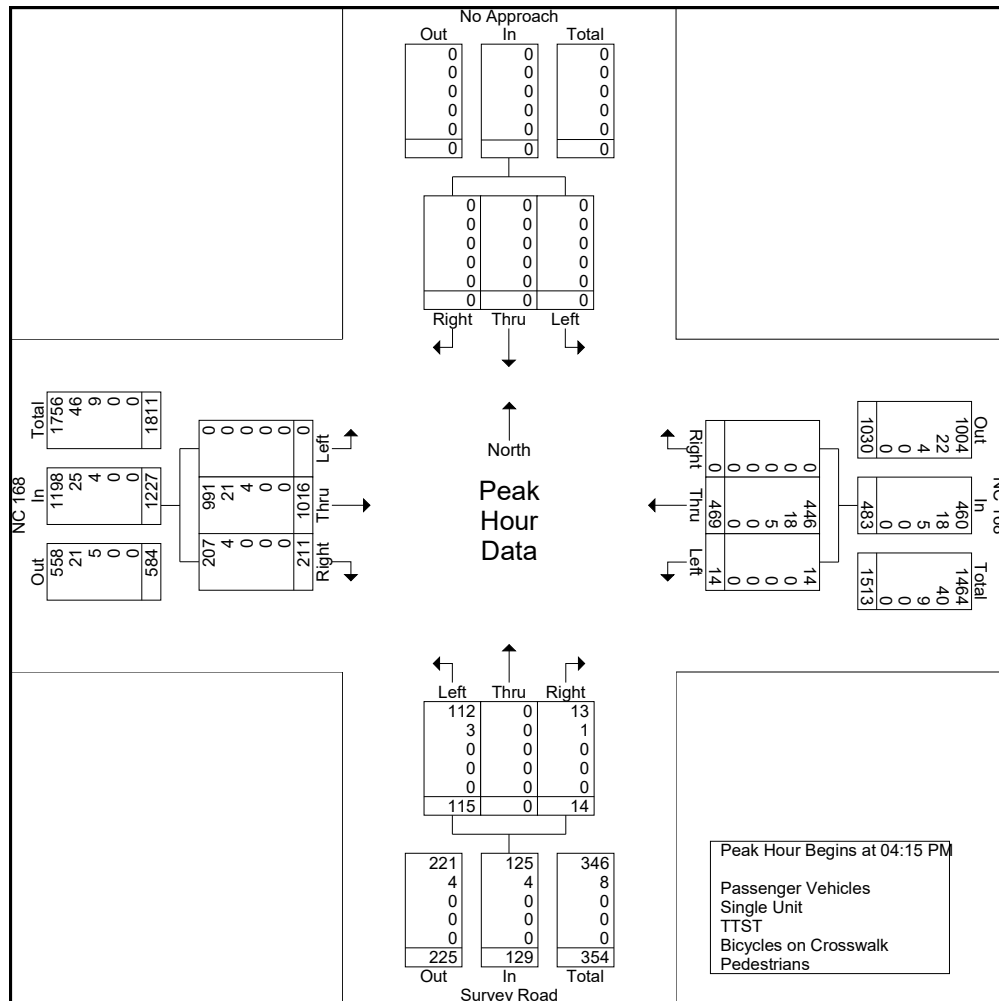


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

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	



# VHB Engineering NC, P.C.

7.A.h

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

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

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

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

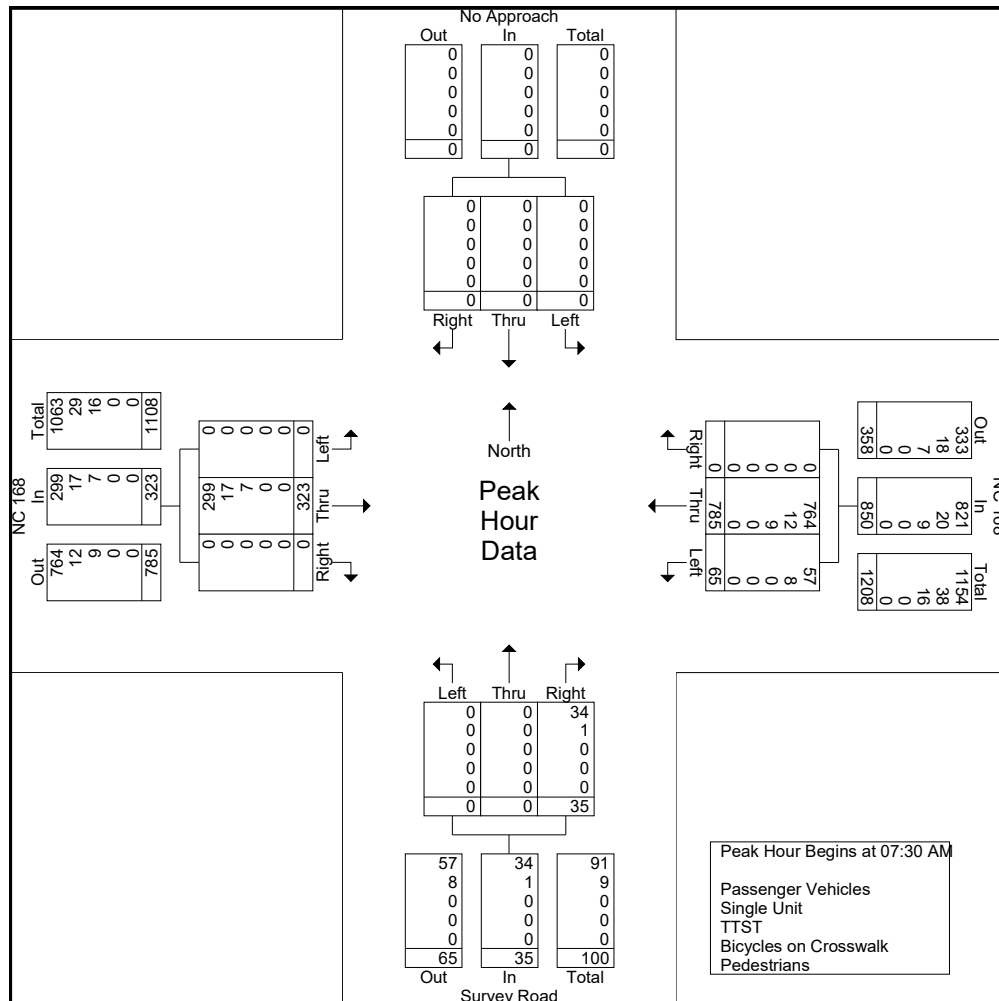
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



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

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

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

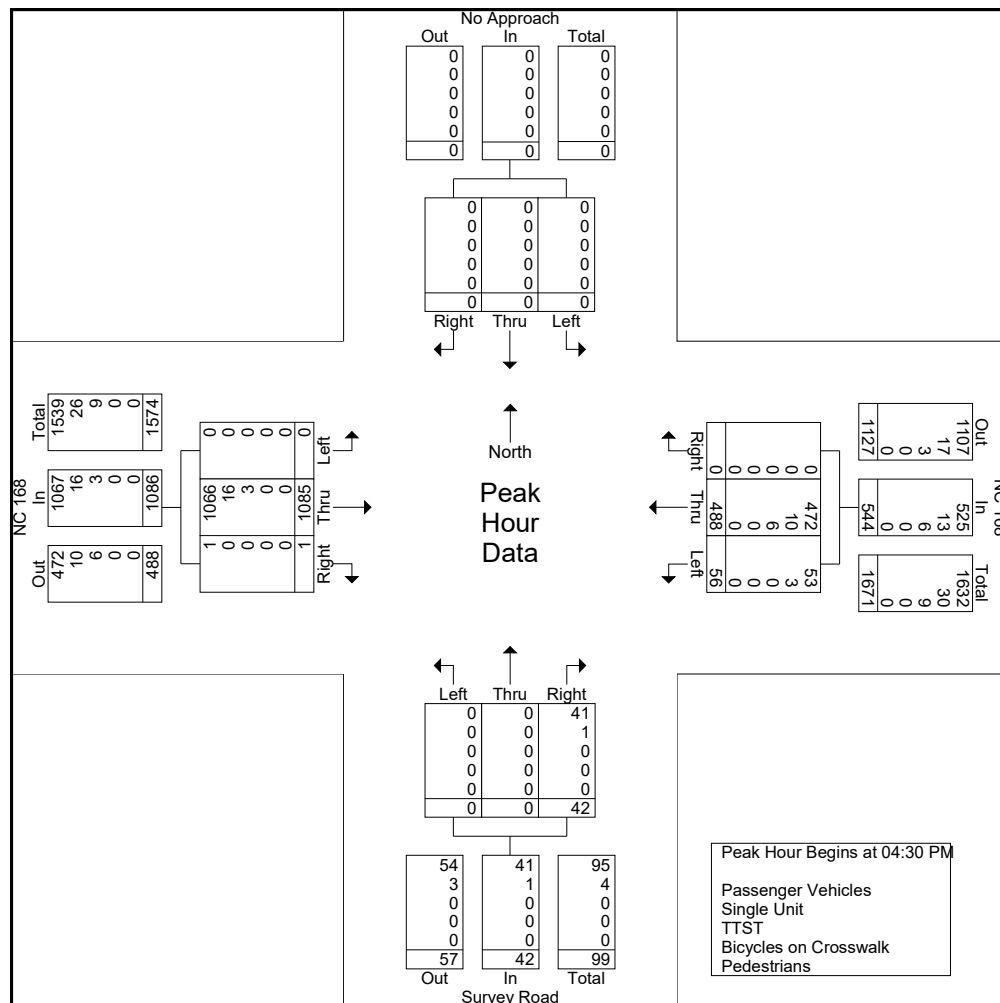


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

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 : 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.

7.A.h

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

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

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

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

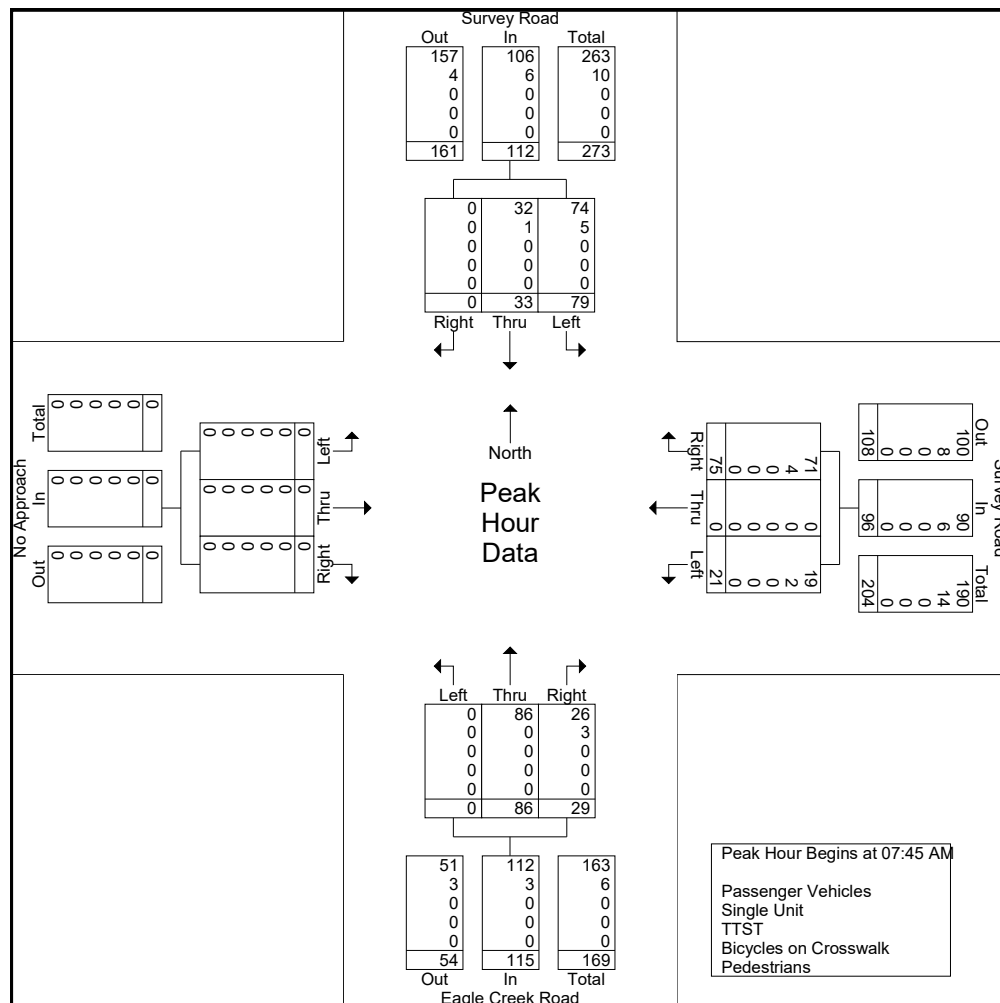
Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)



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

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

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

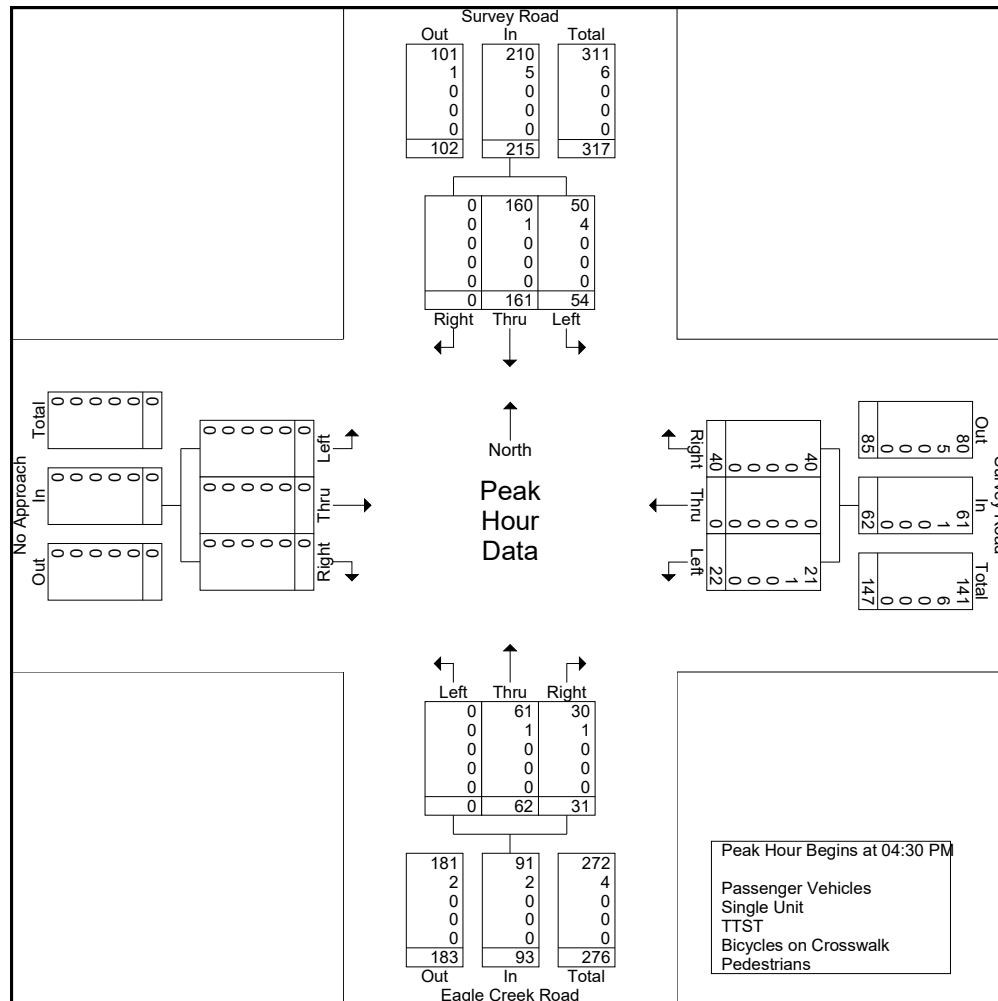


Attachment: 7 Flora Farms TIA - 5-5-2020 #3 (PB 19-20 Flora Farm)

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 : 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)

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## Appendix B:

# NCDOT TEAAS Strip Analysis Report



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

**Study Criteria Summary**

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

**Report Details**

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

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

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

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

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

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

Acc No	Crash ID	Milepost	Date	Accident Type	Total Damage	Injuries				Condition			Road		Trfc Ctl	
						F	A	B	C	R	L	W	Ch	Ci	Dv	Op
18	104405564	14.441	06/06/2015 10:35	REAR END, SLOW OR STOP	\$ 5400	0	0	0	0	1	1	1	1	0	0	
Unit	1 : 4	Alchl/Drugs: 0	Speed: 10 MPH Dir: N	Veh Mnvr/Ped Actn: 1				Obj Strk:								
Unit	2 : 2	Alchl/Drugs: 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/Drugs: 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/Drugs: 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/Drugs: 0	Speed: 55 MPH Dir: NW	Veh Mnvr/Ped Actn: 4				Obj Strk:								
Unit	2 : 4	Alchl/Drugs: 0	Speed: 45 MPH Dir: NW	Veh Mnvr/Ped Actn: 11				Obj Strk:								
Unit	3 : 2	Alchl/Drugs: 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/Drugs: 0	Speed: 55 MPH Dir: N	Veh Mnvr/Ped Actn: 4				Obj Strk:								
Unit	2 : 1	Alchl/Drugs: 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/Drugs: 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/Drugs: 0	Speed: 60 MPH Dir: N	Veh Mnvr/Ped Actn: 4				Obj Strk:								
Unit	2 : 1	Alchl/Drugs: 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/Drugs: 7	Speed: 15 MPH Dir: N	Veh Mnvr/Ped Actn: 5				Obj Strk:								
Unit	2 : 1	Alchl/Drugs: 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/Drugs: 0	Speed: 0 MPH Dir: N	Veh Mnvr/Ped Actn: 1				Obj Strk:								
Unit	2 : 5	Alchl/Drugs: 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/Drugs: 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:					

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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**

<b>Crash Type</b>	<b>Number of Crashes</b>	<b>Percent of Total</b>
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**

<b>Crash Type</b>	<b>Number of Crashes</b>	<b>Percent of Total</b>
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)

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



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

**Miscellaneous Statistics**

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

**Accident Type Summary**

Accident Type	Number of Crashes	Percent of Total
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**

Injury Type	Number of Injuries	Percent of Total
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

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**North Carolina Department of Transportation  
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Strip Analysis Report**

**Monthly Summary**

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

**Daily Summary**

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

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**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

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**North Carolina Department of Transportation  
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Strip Analysis Report**

**Light and Road Conditions Summary**

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

**Object Struck Summary**

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

**Vehicle Type Summary**

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

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

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

**Yearly Totals Summary**

**Accident Totals**

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

**Injury Totals**

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

**Miscellaneous Totals**

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

**Type of Accident Totals**

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

**North Carolina Department of Transportation  
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Strip Analysis Report**

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



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

**Strip Diagram**

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

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

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

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

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

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

**Study Criteria**

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

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

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

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

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

**Fiche Roads**

Name	Code
NC 168	30000168
CARATOK	50037599

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

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

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

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



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## Appendix C:

# Intersection Capacity Analysis

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

Existing (2019) AM

04/10/2020

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







Existing (2019) AM.syn  
VHB

Synchro 10 - Report  
Page 1

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

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

Existing (2019) AM  
04/10/2020

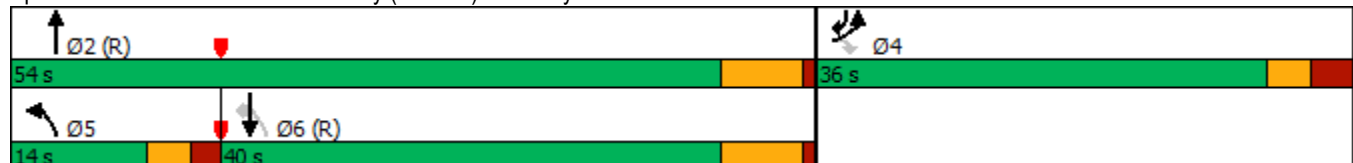
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	46.8	28.5	5.7	6.7	7.1	0.7
LOS	D	C	A	A	A	A
Approach Delay	44.8			6.7	5.9	
Approach LOS	D			A	A	
Queue Length 50th (ft)	130	14	2	101	34	0
Queue Length 95th (ft)	191	34	8	172	93	15
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200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

Intersection Summary

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

Intersection LOS: B  
 ICU Level of Service A

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

















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

Existing (2019) AM

04/10/2020

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

## Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B











## Notes

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

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

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1018	197	394	0	0
Stage 1	394	-	-	-	-
Stage 2	624	-	-	-	-
Critical Hdwy	6.84	6.96	4.34	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.33	2.32	-	-
Pot Cap-1 Maneuver	233	808	1093	-	-
Stage 1	650	-	-	-	-
Stage 2	496	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	218	808	1093	-	-
Mov Cap-2 Maneuver	347	-	-	-	-
Stage 1	607	-	-	-	-
Stage 2	496	-	-	-	-











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

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



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

Existing (2019) AM  
04/10/2020

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

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 35.4%

Analysis Period (min) 15





ICU Level of Service A

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

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

Existing (2019) AM  
04/10/2020

Intersection

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

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












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

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

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Existing (2019) AM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 21.0%

ICU Level of Service A

Analysis Period (min) 15

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








Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Existing (2019) AM

04/10/2020

## Intersection

Int Delay, s/veh 4.7

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

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













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

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

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

Existing (2019) PM

04/10/2020

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







Existing (2019) PM.syn  
VHB

Synchro 10 - Report  
Page 1

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

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

Existing (2019) PM  
04/10/2020

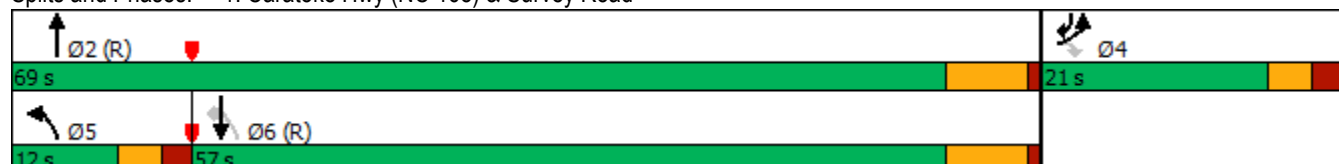
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	47.8	34.0	3.5	3.5	6.7	0.8
LOS	D	C	A	A	A	A
Approach Delay	46.3			3.5	5.8	
Approach LOS	D			A	A	
Queue Length 50th (ft)	70	8	2	37	105	0
Queue Length 95th (ft)	120	26	7	67	283	35
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200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

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 7.8  
 Intersection Capacity Utilization 45.6%  
 Analysis Period (min) 15

Intersection LOS: A  
 ICU Level of Service A

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

















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

Existing (2019) PM

04/10/2020

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

## Intersection Summary

HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

## Notes











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

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

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

Existing (2019) PM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 49.7%

ICU Level of Service A





Analysis Period (min) 15

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

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

Existing (2019) PM  
04/10/2020

Intersection

Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	42	56	537	1194	1
Future Vol, veh/h	0	42	56	537	1194	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	3	2	2
Mvmt Flow	0	47	62	597	1327	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1751	664	1328	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%

Analysis Period (min) 15





ICU Level of Service A

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

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

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

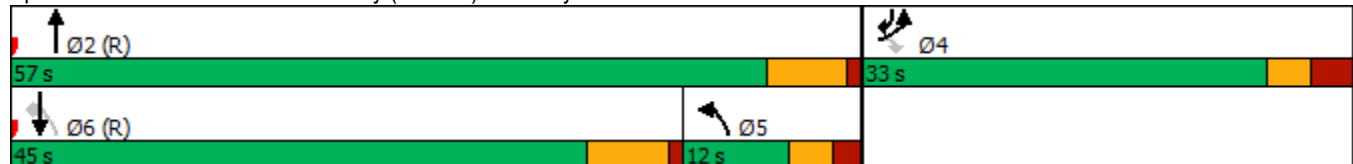
Intersection Capacity Utilization 56.6%

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.

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

# HCM 6th TWSC





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

No-Build (2026) AM

04/10/2020

## Intersection

Int Delay, s/veh 0.7

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

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

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

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













### Lanes, Volumes, Timings

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

No-Build (2026) AM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 44.5%

ICU Level of Service A

Analysis Period (min) 15





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

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

No-Build (2026) AM

04/10/2020

## Intersection

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

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

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












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

# Lanes, Volumes, Timings

## 4: Eagle Creek Road & Survey Road

No-Build (2026) AM

04/10/2020

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

### Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.9%

ICU Level of Service A

Analysis Period (min) 15

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



# HCM 6th TWSC






## 4: Eagle Creek Road & Survey Road

No-Build (2026) AM

04/10/2020

## Intersection

Int Delay, s/veh 4.7

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

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

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













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

# Lanes, Volumes, Timings

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

No-Build (2026) AM

04/10/2020

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

No-Build (2026) AM.syn  
VHB

Synchro 10 - Report  
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

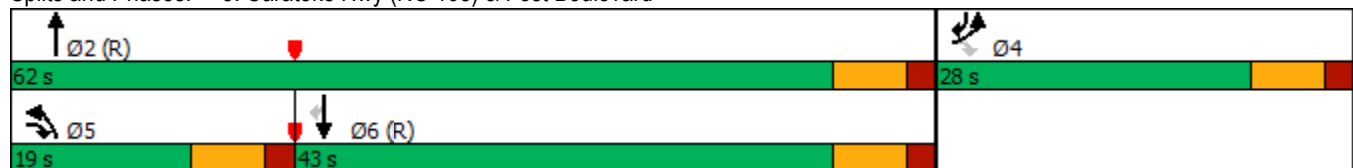
Intersection Capacity Utilization 49.0%

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

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

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

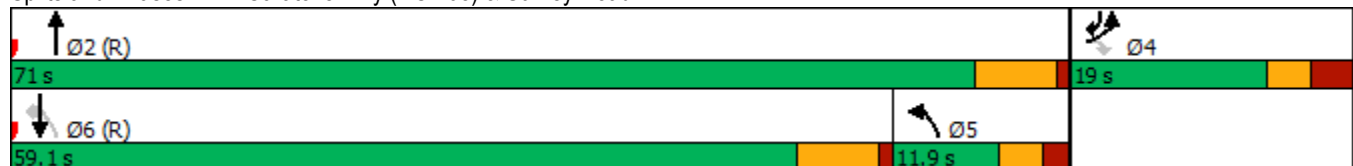
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	19.0	19.0	11.9	71.0	59.1	19.0
Total Split (%)	21.1%	21.1%	13.2%	78.9%	65.7%	21.1%
Maximum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

#### Intersection Summary

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

Intersection LOS: B  
ICU Level of Service B

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

















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

No-Build (2026) PM

04/10/2020

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

## Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B











## Notes

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

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

No-Build (2026) PM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

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





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

No-Build (2026) PM

04/10/2020

## Intersection

Int Delay, s/veh 1

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

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

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











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



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

No-Build (2026) PM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 52.5%

ICU Level of Service A





Analysis Period (min) 15

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

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

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

Intersection

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

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












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

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

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

No-Build (2026) PM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 24.1%

ICU Level of Service A

Analysis Period (min) 15

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








Flora Farms TIA  
4: Eagle Creek Road & Survey Road

No-Build (2026) PM

04/10/2020

## Intersection

Int Delay, s/veh 2.7

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

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













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

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

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

No-Build (2026) PM

04/10/2020

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

No-Build (2026) PM.syn  
VHB







Synchro 10 - Report  
Page 10

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

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

No-Build (2026) PM

04/10/2020

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

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 11.3

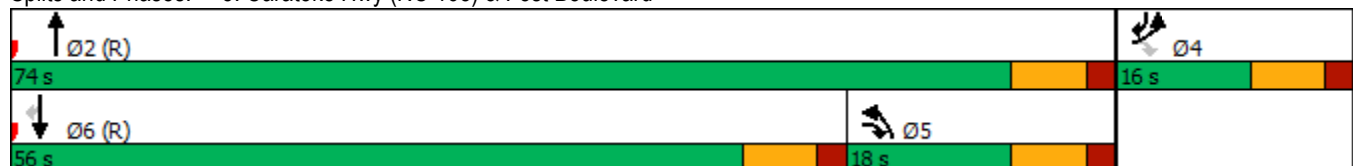
Intersection LOS: B

Intersection Capacity Utilization 68.5%

ICU Level of Service C

Analysis Period (min) 15

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

















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

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+l1), s		7.9		8.3	9.2	39.1
Green Ext Time (p_c), s		5.5		0.1	0.1	7.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			19.0			
HCM 6th LOS			B			

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

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

Build (2026) AM

04/10/2020

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







Build (2026) AM.syn  
VHB

Synchro 10 - Report  
Page 1

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

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

Build (2026) AM  
04/10/2020

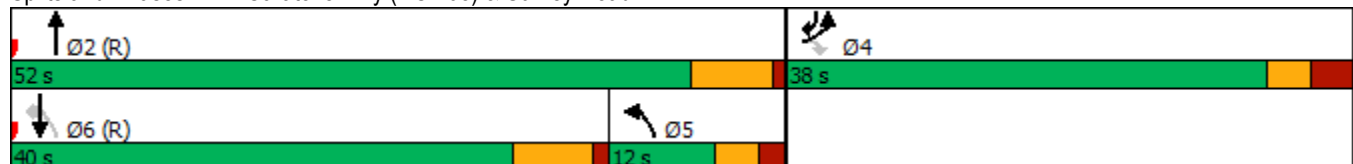
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	43.7	21.7	8.2	9.8	15.4	1.7
LOS	D	C	A	A	B	A
Approach Delay	41.5			9.8	12.0	
Approach LOS	D			A	B	
Queue Length 50th (ft)	220	19	5	151	84	0
Queue Length 95th (ft)	296	40	m11	203	189	31
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200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

Intersection Summary

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

Intersection LOS: B  
 ICU Level of Service B

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

















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

Build (2026) AM

04/10/2020

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

## Intersection Summary

HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C











## Notes

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

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	0	0
Stage 1	613	-	-	-	-
Stage 2	985	-	-	-	-
Critical Hdwy	6.84	6.96	4.34	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.33	2.32	-	-
Pot Cap-1 Maneuver	97	676	880	-	-
Stage 1	503	-	-	-	-
Stage 2	322	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	80	676	880	-	-
Mov Cap-2 Maneuver	201	-	-	-	-
Stage 1	416	-	-	-	-
Stage 2	322	-	-	-	-











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

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



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

Build (2026) AM  
04/10/2020

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

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.1%

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	0	1370
Stage 1	1358	-	-	-	-
Stage 2	475	-	-	-	-
Critical Hdwy	6.84	6.98	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.34	-	-	2.22
Pot Cap-1 Maneuver	68	386	-	-	497
Stage 1	204	-	-	-	-
Stage 2	592	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	61	386	-	-	497
Mov Cap-2 Maneuver	156	-	-	-	-
Stage 1	204	-	-	-	-
Stage 2	527	-	-	-	-

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

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

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM  
04/10/2020

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

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 31.7%

Analysis Period (min) 15

ICU Level of Service A






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



Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM  
04/10/2020

Intersection

Int Delay, s/veh	6.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	202	115	45	173	56
Future Vol, veh/h	40	202	115	45	173	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	75	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	5	2	10	6	3
Mvmt Flow	44	224	128	50	192	62

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	599	153	0	0	178
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

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

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

Build (2026) AM  
04/10/2020

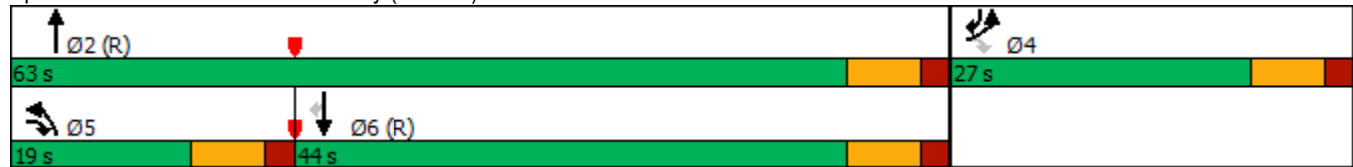
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	94	63	51	160	71	7
Queue Length 95th (ft)	149	91	94	257	56	8
Internal Link Dist (ft)	477			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	432	629	283	2502	1835	1289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0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

Intersection Summary

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

Intersection LOS: B  
ICU Level of Service A

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

















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

Build (2026) AM

04/10/2020

















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

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

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

Build (2026) AM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 37.3%

Analysis Period (min) 15

ICU Level of Service A





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

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

Build (2026) AM  
04/10/2020

Intersection

Int Delay, s/veh 7.3

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

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

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













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



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

Build (2026) PM

04/10/2020

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







Build (2026) PM.syn  
VHB

Synchro 10 - Report  
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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.



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

Build (2026) PM  
04/10/2020

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

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 80.4%

Analysis Period (min) 15





ICU Level of Service D

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

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

Build (2026) PM  
04/10/2020

Intersection

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

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

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











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

Notes

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

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

Build (2026) PM  
04/10/2020

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

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.5%

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	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	NBRWBLn1	WBLn2	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

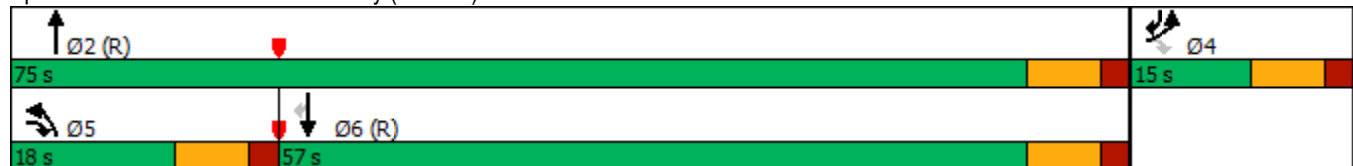
						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	72	52	97	63	42	5
Queue Length 95th (ft)	#150	97	#187	81	49	m7
Internal Link Dist (ft)	506			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	196	491	255	2754	2061	1185
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	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 Capacity Utilization 71.5%  
 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.

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

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+l1), s		8.9		8.3	10.6	38.6
Green Ext Time (p_c), s		6.5		0.0	0.0	8.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			17.2			
HCM 6th LOS			B			

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

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

Build (2026) PM

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15

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

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

Build (2026) PM

04/10/2020

## Intersection

Int Delay, s/veh 10.6

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

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













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

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

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

Build (2026) AM with Improvements

04/10/2020

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

Build (2026) AM - Improved.syn  
VHB

Synchro 10 - Report  
Page 1







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



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

Build (2026) AM with Improvements

04/10/2020

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

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 15.7

Intersection LOS: B

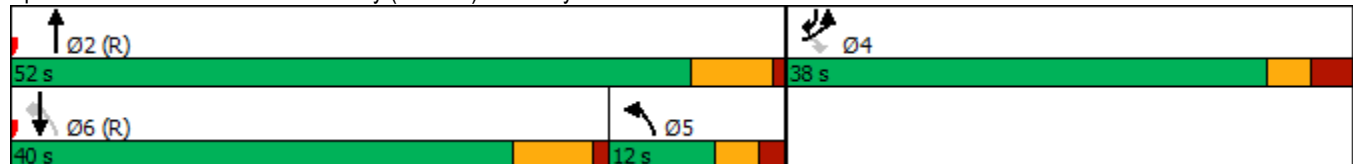
Intersection Capacity Utilization 62.7%

ICU Level of Service B

Analysis Period (min) 15

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













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



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

Build (2026) AM with Improvements

04/10/2020

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

## Intersection Summary

HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C












## Notes

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

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

Build (2026) AM with Improvements

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 38.7%

ICU Level of Service A

Analysis Period (min) 15

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






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

Build (2026) AM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	125	137	1280	533	38
Future Vol, veh/h	0	125	137	1280	533	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	3	12	3	8	2
Mvmt Flow	0	139	152	1422	592	42

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	296	634
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.96	4.34
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.33	2.32
Pot Cap-1 Maneuver	0	697	880
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	697	880
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	1	0
HCM LOS	B		











Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	880	-	697	-	-
HCM Lane V/C Ratio	0.173	-	0.199	-	-
HCM Control Delay (s)	9.9	-	11.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.7	-	-



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

Build (2026) AM with Improvements

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.1%

ICU Level of Service A

Analysis Period (min) 15





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

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

Build (2026) AM with Improvements

04/10/2020

## Intersection

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

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












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

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

Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM with Improvements

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 31.7%

ICU Level of Service A

Analysis Period (min) 15

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






Flora Farms TIA  
4: Eagle Creek Road & Survey Road

Build (2026) AM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 6.5

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

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

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













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



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

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	217	146	87	1202	562	96
Future Volume (vph)	217	146	87	1202	562	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	200			150
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	25			55	55	
Link Distance (ft)	557			859	1116	
Travel Time (s)	15.2			10.6	13.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	241	162	97	1336	624	107
Shared Lane Traffic (%)						
Lane Group Flow (vph)	241	162	97	1336	624	107
Turn Type	Prot	pm+ov	Prot	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	14.0	14.0	14.0	21.0	21.0	14.0
Total Split (s)	30.0	17.0	17.0	60.0	43.0	30.0
Total Split (%)	33.3%	18.9%	18.9%	66.7%	47.8%	33.3%
Maximum Green (s)	23.0	10.0	10.0	53.0	36.0	23.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effct Green (s)	19.4	36.7	12.3	60.6	43.3	67.7
Actuated g/C Ratio	0.22	0.41	0.14	0.67	0.48	0.75
v/c Ratio	0.63	0.25	0.40	0.56	0.37	0.09
Control Delay	39.1	17.1	39.7	9.5	10.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	17.1	39.7	9.5	10.7	1.7
LOS	D	B	D	A	B	A
Approach Delay	30.2			11.6	9.4	
Approach LOS	C			B	A	

Build (2026) AM - Improved.syn  
VHB







Synchro 10 - Report  
Page 10

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

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

Build (2026) AM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	125	59	51	183	87	10
Queue Length 95th (ft)	186	83	94	295	66	8
Internal Link Dist (ft)	477			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	493	661	260	2386	1738	1290
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.25	0.37	0.56	0.36	0.08

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 72 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.9

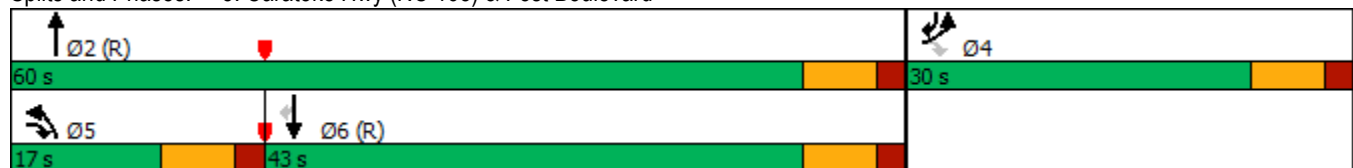
Intersection LOS: B

Intersection Capacity Utilization 53.6%

ICU Level of Service A

Analysis Period (min) 15













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



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

Build (2026) AM with Improvements

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	217	146	87	1202	562	96
Future Volume (veh/h)	217	146	87	1202	562	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	241	162	97	1336	624	107
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	326	437	166	2509	1981	1173
Arrive On Green	0.18	0.18	0.09	0.71	0.56	0.56
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	241	162	97	1336	624	107
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	11.5	7.4	4.7	15.9	8.5	1.7
Cycle Q Clear(g_c), s	11.5	7.4	4.7	15.9	8.5	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	326	437	166	2509	1981	1173
V/C Ratio(X)	0.74	0.37	0.58	0.53	0.32	0.09
Avail Cap(c_a), veh/h	495	588	238	2509	1981	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	26.3	39.1	6.2	10.7	3.3
Incr Delay (d2), s/veh	3.3	0.5	3.2	0.8	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	7.0	2.1	3.9	2.8	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.1	26.8	42.4	7.0	11.1	3.4
LnGrp LOS	D	C	D	A	B	A
Approach Vol, veh/h	403			1433	731	
Approach Delay, s/veh	33.5			9.4	10.0	
Approach LOS	C			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		68.5		21.5	13.4	55.2
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		53.0		23.0	10.0	36.0
Max Q Clear Time (g_c+I1), s		17.9		13.5	6.7	10.5
Green Ext Time (p_c), s		10.8		0.9	0.1	4.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			13.4			
HCM 6th LOS			B			





















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

## Flora Farms TIA

## Build (2026) AM with Improvements

## 6: Future Access #1/Future Access #2 &amp; Survey Road

04/10/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	43	77	76	80	19	111	2	55	27	2	14
Future Volume (vph)	9	43	77	76	80	19	111	2	55	27	2	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	100		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.971			0.855			0.955	
Flt Protected	0.950			0.950			0.950				0.970	
Satd. Flow (prot)	1770	1863	1583	1770	1809	0	1770	1593	0	0	1726	0
Flt Permitted	0.950			0.950			0.950				0.970	
Satd. Flow (perm)	1770	1863	1583	1770	1809	0	1770	1593	0	0	1726	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2903			390			327			235	
Travel Time (s)		56.6			7.6			8.9			6.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	48	86	84	89	21	123	2	61	30	2	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	48	86	84	110	0	123	63	0	0	48	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.7%

Analysis Period (min) 15

ICU Level of Service A

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











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

Build (2026) AM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	43	77	76	80	19	111	2	55	27	2	14
Future Vol, veh/h	9	43	77	76	80	19	111	2	55	27	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	100	100	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	48	86	84	89	21	123	2	61	30	2	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	134	0	0	345	346	48	411	422	100
Stage 1	-	-	-	-	-	-	68	68	-	268	268	-
Stage 2	-	-	-	-	-	-	277	278	-	143	154	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1480	-	-	1451	-	-	609	577	1021	551	523	956
Stage 1	-	-	-	-	-	-	942	838	-	738	687	-
Stage 2	-	-	-	-	-	-	729	680	-	860	770	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1480	-	-	1451	-	-	568	539	1021	491	489	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	568	539	-	491	489	-
Stage 1	-	-	-	-	-	-	935	832	-	733	647	-
Stage 2	-	-	-	-	-	-	673	641	-	801	765	-













Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	3.3	11.7	11.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	568	990	1480	-	-	1451	-	-	583
HCM Lane V/C Ratio	0.217	0.064	0.007	-	-	0.058	-	-	0.082
HCM Control Delay (s)	13.1	8.9	7.4	-	-	7.6	-	-	11.7
HCM Lane LOS	B	A	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.8	0.2	0	-	-	0.2	-	-	0.3

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

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	271	32	27	699	1546	425
Future Volume (vph)	271	32	27	699	1546	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	200			200
Storage Lanes	1	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1752	1509	1770	3438	3505	1583
Flt Permitted	0.950		0.077			
Satd. Flow (perm)	1752	1509	143	3438	3505	1583
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	35			55	55	
Link Distance (ft)	1728			4412	2769	
Travel Time (s)	33.7			54.7	34.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	7%	2%	5%	3%	2%
Adj. Flow (vph)	301	36	30	777	1718	472
Shared Lane Traffic (%)						
Lane Group Flow (vph)	301	36	30	777	1718	472
Turn Type	Prot	Perm	D.P+P	NA	NA	pm+ov
Protected Phases	4		5	2	6	4
Permitted Phases		4	6			6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	14.0	14.0	7.0
Minimum Split (s)	12.9	12.9	11.9	20.4	20.4	12.9
Total Split (s)	23.0	23.0	11.9	67.0	55.1	23.0
Total Split (%)	25.6%	25.6%	13.2%	74.4%	61.2%	25.6%
Maximum Green (s)	17.1	17.1	7.0	60.6	48.7	17.1
Yellow Time (s)	3.0	3.0	3.0	5.4	5.4	3.0
All-Red Time (s)	2.9	2.9	1.9	1.0	1.0	2.9
Lost Time Adjust (s)	-0.9	-0.9	0.1	-1.4	0.0	-0.9
Total Lost Time (s)	5.0	5.0	5.0	5.0	6.4	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	1.0	1.0	1.0	6.0	6.0	1.0
Minimum Gap (s)	0.2	0.2	0.2	3.4	3.4	0.2
Time Before Reduce (s)	0.0	0.0	0.0	15.0	15.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	45.0	45.0	0.0
Recall Mode	None	None	None	C-Min	C-Min	None
Act Effect Green (s)	17.3	17.3	62.4	62.7	54.1	79.9
Actuated g/C Ratio	0.19	0.19	0.69	0.70	0.60	0.89
v/c Ratio	0.89	0.12	0.13	0.32	0.82	0.34
Control Delay	64.8	30.8	6.6	4.7	20.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Build (2026) PM - Improved.syn  
VHB







Synchro 10 - Report  
Page 1

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

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

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	64.8	30.8	6.6	4.7	20.0	2.4
LOS	E	C	A	A	B	A
Approach Delay	61.2			4.8	16.2	
Approach LOS	E			A	B	
Queue Length 50th (ft)	167	17	4	63	435	51
Queue Length 95th (ft)	#309	43	m10	83	#582	79
Internal Link Dist (ft)	1648			4332	2689	
Turn Bay Length (ft)		150	200			200
Base Capacity (vph)	352	302	224	2396	2107	1400
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.12	0.13	0.32	0.82	0.34

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 31 (34%), Referenced to phase 2:NBT and 6:NBSB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 18.0

Intersection LOS: B

Intersection Capacity Utilization 67.2%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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













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



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

Build (2026) PM with Improvements

04/10/2020

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

## Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

## Notes

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












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



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

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	169	199	783	1587	68
Future Volume (vph)	0	169	199	783	1587	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	200			100
Storage Lanes	0	1	1			1
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1611	1719	3505	3539	1583
Flt Permitted			0.950			
Satd. Flow (perm)	0	1611	1719	3505	3539	1583
Link Speed (mph)	35			55	55	
Link Distance (ft)	328			1116	4412	
Travel Time (s)	6.4			13.8	54.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	3%	2%	2%
Adj. Flow (vph)	0	188	221	870	1763	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	188	221	870	1763	76
Sign Control	Stop			Free	Free	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

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






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

Build (2026) PM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 5.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	169	199	783	1587	68
Future Vol, veh/h	0	169	199	783	1587	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	3	2	2
Mvmt Flow	0	188	221	870	1763	76

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	882	1839
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	4.2
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	2.25
Pot Cap-1 Maneuver	0	289	315
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	289	315
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-











Approach	EB	NB	SB
HCM Control Delay, s	37.9	8	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	315	-	289	-	-
HCM Lane V/C Ratio	0.702	-	0.65	-	-
HCM Control Delay (s)	39.4	-	37.9	-	-
HCM Lane LOS	E	-	E	-	-
HCM 95th %tile Q(veh)	5	-	4.2	-	-

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

Build (2026) PM with Improvements

04/10/2020

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

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 55.5%

ICU Level of Service B

Analysis Period (min) 15





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

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

Build (2026) PM with Improvements

04/10/2020

## Intersection

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

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2137	510	0
Stage 1	1014	-	-
Stage 2	1123	-	-
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	40	506	-
Stage 1	304	-	-
Stage 2	266	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	32	506	-
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	NBRWBLn1	WBLn2	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 Effect Green (s)	12.8	29.7	11.9	67.2	50.3	68.1
Actuated g/C Ratio	0.14	0.33	0.13	0.75	0.56	0.76
v/c Ratio	0.75	0.24	0.76	0.34	0.89	0.16
Control Delay	57.2	23.3	59.3	4.3	10.8	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	23.3	59.3	4.3	10.8	1.3
LOS	E	C	E	A	B	A
Approach Delay	43.7			13.3	9.9	
Approach LOS	D			B	A	

Build (2026) PM - Improved.syn  
VHB







Synchro 10 - Report  
Page 10

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

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

Build (2026) PM with Improvements

04/10/2020

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	104	50	98	76	44	5
Queue Length 95th (ft)	#205	94	#198	98	#54	m7
Internal Link Dist (ft)	506			779	1036	
Turn Bay Length (ft)		250	200			150
Base Capacity (vph)	255	523	236	2643	1979	1202
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.24	0.75	0.34	0.89	0.16

## Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 8 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 14.1

Intersection LOS: B

Intersection Capacity Utilization 74.4%

ICU Level of Service D

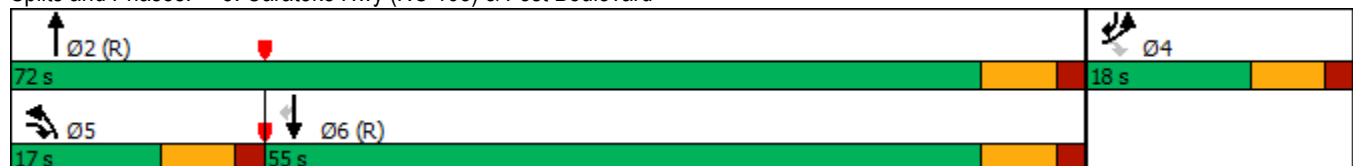
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

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

















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

Build (2026) PM with Improvements

04/10/2020

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	170	112	159	817	1580	175
Future Volume (veh/h)	170	112	159	817	1580	175
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	124	177	908	1756	194
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	257	440	238	2646	1974	1110
Arrive On Green	0.14	0.14	0.13	0.74	0.56	0.56
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	189	124	177	908	1756	194
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	9.1	5.5	8.6	7.9	39.1	3.8
Cycle Q Clear(g_c), s	9.1	5.5	8.6	7.9	39.1	3.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	257	440	238	2646	1974	1110
V/C Ratio(X)	0.73	0.28	0.75	0.34	0.89	0.17
Avail Cap(c_a), veh/h	257	440	238	2646	1974	1110
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	25.5	37.5	3.9	17.6	4.6
Incr Delay (d2), s/veh	10.4	0.3	12.0	0.4	6.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	5.4	4.3	1.6	14.1	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.2	25.8	49.6	4.3	24.1	5.0
LnGrp LOS	D	C	D	A	C	A
Approach Vol, veh/h	313			1085	1950	
Approach Delay, s/veh	38.8			11.7	22.2	
Approach LOS	D			B	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.0		18.0	17.0	55.0
Change Period (Y+Rc), s		7.0		7.0	7.0	7.0
Max Green Setting (Gmax), s		65.0		11.0	10.0	48.0
Max Q Clear Time (g_c+l1), s		9.9		11.1	10.6	41.1
Green Ext Time (p_c), s		6.5		0.0	0.0	5.5
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			20.3			
HCM 6th LOS			C			





















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

## Flora Farms TIA

## Build (2026) PM with Improvements

## 6: Future Access #1/Future Access #2 &amp; Survey Road

04/10/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	52	160	157	70	40	122	5	89	29	5	19
Future Volume (vph)	21	52	160	157	70	40	122	5	89	29	5	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	100		0	100		0	0		0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.946			0.859			0.952	
Flt Protected	0.950			0.950			0.950				0.974	
Satd. Flow (prot)	1770	1863	1583	1770	1762	0	1770	1600	0	0	1727	0
Flt Permitted	0.950			0.950			0.950				0.974	
Satd. Flow (perm)	1770	1863	1583	1770	1762	0	1770	1600	0	0	1727	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2916			377			351			255	
Travel Time (s)		56.8			7.3			9.6			7.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	58	178	174	78	44	136	6	99	32	6	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	58	178	174	122	0	136	105	0	0	59	0
Sign Control		Free			Free			Stop			Stop	

## Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 33.0%

ICU Level of Service A

Analysis Period (min) 15

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









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

Build (2026) PM with Improvements

04/10/2020

## Intersection

Int Delay, s/veh 7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	52	160	157	70	40	122	5	89	29	5	19
Future Vol, veh/h	21	52	160	157	70	40	122	5	89	29	5	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	100	100	-	-	100	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	58	178	174	78	44	136	6	99	32	6	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	122	0	0	236	0	0	566	574	58	694	730	100
Stage 1	-	-	-	-	-	-	104	104	-	448	448	-
Stage 2	-	-	-	-	-	-	462	470	-	246	282	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1465	-	-	1331	-	-	435	429	1008	357	349	956
Stage 1	-	-	-	-	-	-	902	809	-	590	573	-
Stage 2	-	-	-	-	-	-	580	560	-	758	678	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1465	-	-	1331	-	-	373	367	1008	283	298	956
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	367	-	283	298	-
Stage 1	-	-	-	-	-	-	888	796	-	581	498	-
Stage 2	-	-	-	-	-	-	488	487	-	668	667	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	4.8	15.4	16.2
HCM LOS			C	C

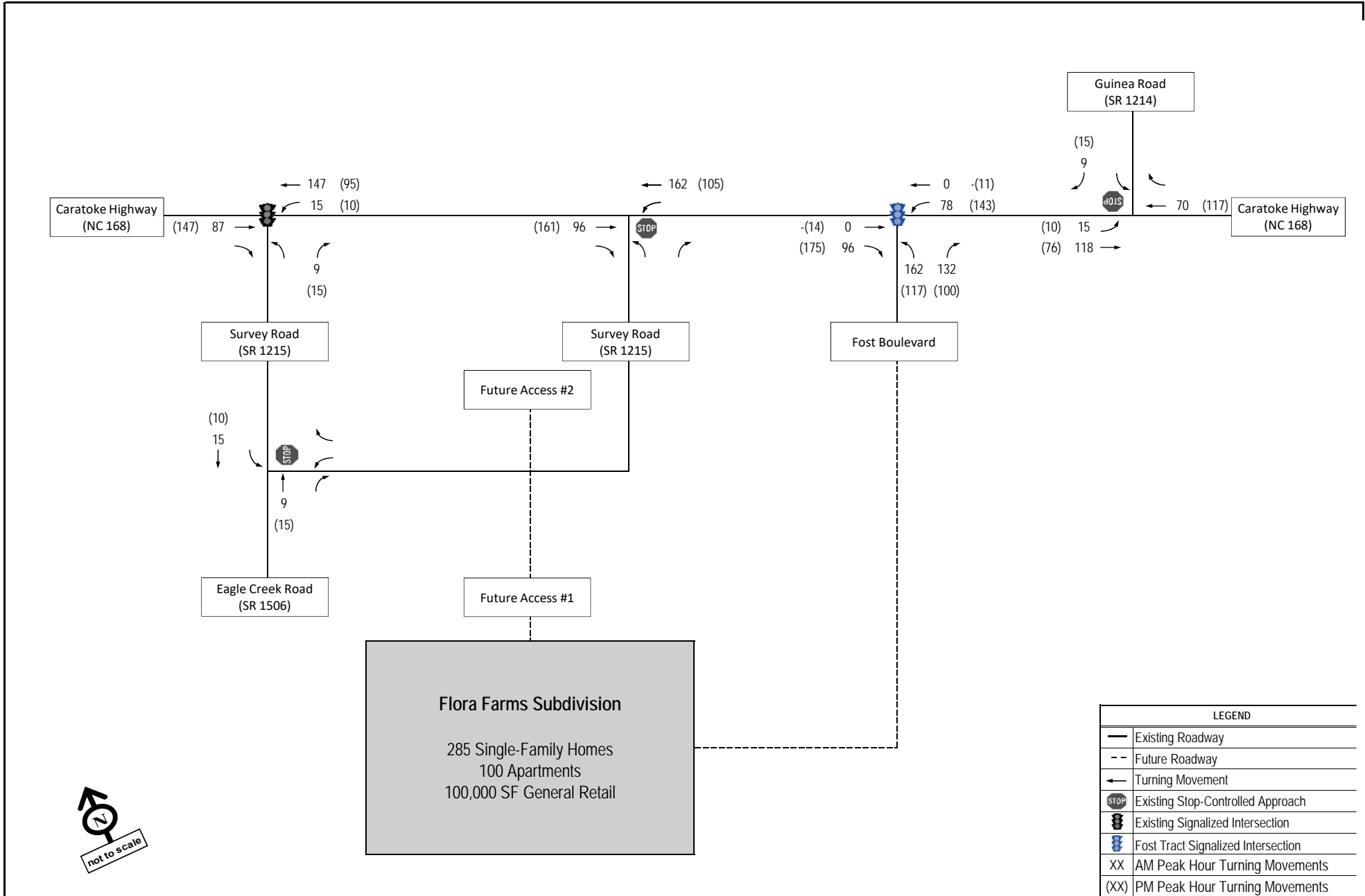
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	922	1465	-	-	1331	-	-	381
HCM Lane V/C Ratio	0.363	0.113	0.016	-	-	0.131	-	-	0.155
HCM Control Delay (s)	20.1	9.4	7.5	-	-	8.1	-	-	16.2
HCM Lane LOS	C	A	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.6	0.4	0	-	-	0.5	-	-	0.5

---

## Appendix D:

# Background Development





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

 **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.





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  
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Packet Pg. 392





# 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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Packet Pg. 393

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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www.coxklier.com • webmaster@coxklier.com  
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Packet Pg. 394





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)





Attachment: 12 Typical Home Elevations (PB 19-20 Flora Farm)

# Flora Tract 4<sup>rd</sup> Community Meeting- Outline of Presentation

January 22, 2020

## A. Housekeeping –

- Please sign-in
- A record of the Community meeting will be provided to Currituck County.  
(concerns raised/ attempts to address concerns)

## B. What is the Request?

- First step in the approval process – for zoning approval for PD-R

## C. The Process:

- Initial Master Plan Design
- Pre-Application conference with staff
- Community meeting (now)
- TRC review
- Planning Board hearing
- BOC hearing/action

Then:

- Preliminary Plat application & approval process
- Construction drawing preparation
- Permit applications
- Construction
- As-Built certifications
- Final plat application

The process will take up to 2 years before you see the first building

## D. Setting (refer to zoning map)

## E. The Plan:

- Previous plan PDR with 446 dwellings;
- New Vision: Create a commercial center in front where we have good visibility from Caratoke Hwy; and an upscale residential community behind it. Dropped lot count to 285. Added mixed use. Well designed and attractive commercial



element, well-amenitized with walking trails, good pedestrian connectivity and good connectivity to adjacent Fost development

- Upper story dwellings above commercial buildings to give a “main street” appearance; with the goal of creating a true Mixed Use community.
- Have open spaces with stormwater ponds to hold 6” +/- of rainfall on site; will model for management of 100 year storm event
- Help adjacent drainage (Rowland; Benefits to Ranchland and Eagle Creek
- Neighborhood commercial (such as coffee shop, brew pub, sandwich shop, internet café, etc.) but also larger commercial that will serve neighboring communities (e.g., no need to go onto 168)
- Highly amenitized; good use of open space areas, park areas, recreation facilities, well-integrated community
- Developing residential in up to 9 phases; commercial in approximately 6 phases
- Finally, Reserving 22 acres for a school site

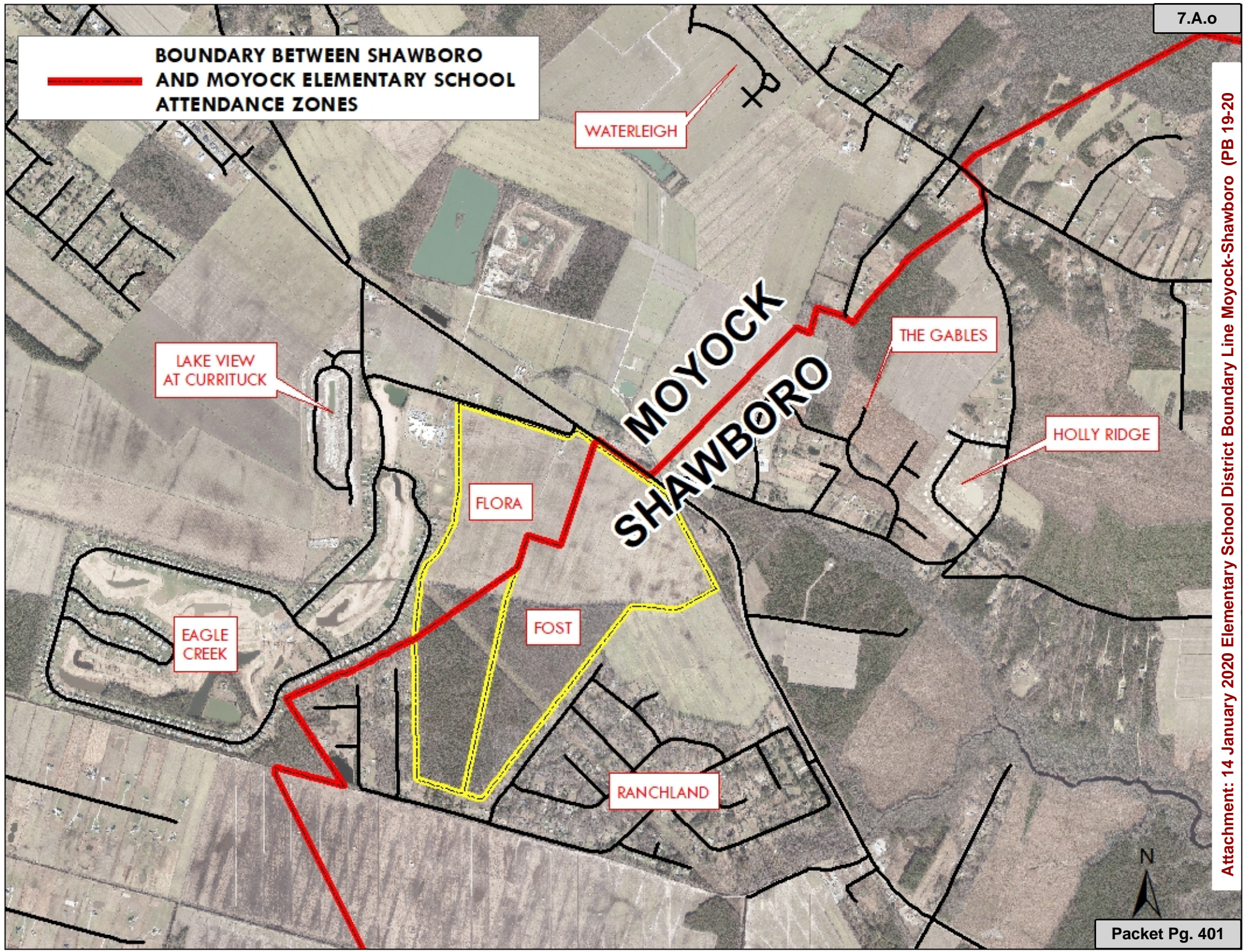
#### F. Comments/Concerns

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

#### G. Invitation to review plans close-up



**BOUNDARY BETWEEN SHAWBORO  
AND MOYOCK ELEMENTARY SCHOOL  
ATTENDANCE ZONES**





## Level of Service Definitions

The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions.

Design requirements for roadways vary according to the desired capacity and level of service. LOS D indicates “practical capacity” of a roadway, or the capacity at which the public begins to express dissatisfaction. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C on new facilities. The six levels of service are described below and illustrated in the following figures.

- **LOS A**: Describes primarily free flow conditions. The motorist experiences a high level of physical and psychological comfort. The effects of minor incidents of breakdown are easily absorbed. Even at the maximum density, the average spacing between vehicles is about 528 ft, or 26 car lengths.
- **LOS B**: Represents reasonably free flow conditions. The ability to maneuver within the traffic stream is only slightly restricted. The lowest average spacing between vehicles is about 330 ft, or 18 car lengths.
- **LOS C**: Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service. Freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local decline in service will be great. Queues may be expected to form behind any significant blockage. Minimum average spacing is in the range of 220 ft, or 11 car lengths.
- **LOS D**: Borders on unstable flow. Density begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow can cause substantial deterioration in service. Freedom to maneuver is severely limited, and the driver experiences drastically reduced comfort levels. Minor incidents can be expected to create substantial queuing. At the limit, vehicles are spaced at about 165 ft, or 9 car lengths.
- **LOS E**: Describes operation at capacity. Operations at this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or changing lanes, requires the following vehicles to give way to admit the vehicle. This can establish a disruption wave that propagates through the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate any disruption. Any incident can be expected to produce a serious breakdown with extensive queuing. Vehicles are spaced at approximately 6 car lengths, leaving little room to maneuver.
- **LOS F**: Describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points.

## Level of Service Illustrations

### Level of Service A



**Driver Comfort:** High

**Maximum Density:**

12 passenger cars per mile per lane

### Level of Service B



**Driver Comfort:** High

**Maximum Density:**

20 passenger cars per mile per lane

### Level of Service C



**Driver Comfort:** Some Tension

**Maximum Density:**

30 passenger cars per mile per lane

### Level of Service D



**Driver Comfort:** Poor

**Maximum Density:**

42 passenger cars per mile per lane

### Level of Service E



**Driver Comfort:** Extremely Poor

**Maximum Density:**

67 passenger cars per mile per lane

### Level of Service F



**Driver Comfort:** The lowest

**Maximum Density:**

More than 67 passenger cars per mile per lane

Source: 2000 Highway Capacity Manual





To: Mark Bissell, PE  
Bissell Professional Group

Date: March 4, 2020

## Memorandum

Project #: 39134.00

From: Lyle Overcash, PE

Re: Flora Farms Subdivision TIA – Phasing Memorandum

VHB Engineering NC, P.C submitted the Flora Farms Subdivision TIA in February 2020 which provided recommendations for area roadways once the Fost Tract Development and Flora Farms Subdivision are constructed. The TIA analyzed the Fost Tract Development as a background project which would be completed prior to the Flora Farms Subdivision. Since the submittal of the TIA, the construction schedules for both projects have shifted, and it is expected that construction for both developments will overlap with each other. The recommended offsite improvements within the TIA for the buildout of both developments are still valid; however, this memorandum provides clarification for how those improvements should be phased as both developments are being constructed.

### Trip Generation

The trip generation for both developments was calculated separately so that internal capture could not be used to reduce the total number of trips generated from each respective development. The Fost Tract Development proposed the construction of 353 single-family homes, 126 townhomes, and up to 22,000 square feet (sf) of general retail space. This will generate approximately 5,978 daily external site trips with 468 occurring during the AM peak hour and 534 occurring during the PM peak hour. The Flora Farms Subdivision development plans to construct 285 single-family homes, 125 apartments, and up to 100,000 sf of general retail space. This will generate approximately 8,380 daily external site trips with 463 trips occurring during the AM peak hour and 717 trips occurring during the PM peak hour.

### Committed Transportation Improvements

Even though the project schedules for the Fost Tract Development and Flora Farms Subdivision have shifted, the list of offsite transportation improvements within the Flora Farms Subdivision TIA should still be implemented as construction proceeds. The following serves as an estimated timeline for when specific offsite recommendations should be implemented during the construction of both developments.

### Fost Tract Development

The Fost Tract Development plans to construct Fost Boulevard, a future driveway that will provide full movement access along NC 168. Initial phases of the Fost Tract Development and Flora Farms Subdivision will utilize this driveway to access NC 168. The following roadway improvements should be implemented with the construction of Fost Boulevard:

#### *NC 168 at Fost Boulevard (future signalized intersection)*

- Construct an eastbound right-turn lane along NC 168 with a minimum of 150 feet of full storage with appropriate taper.
- Stripe out 200 feet of full storage within the existing two-way left-turn lane along NC 168 for an exclusive northbound left-turn lane.
- Provide an exclusive left-turn lane along Fost Boulevard with approximately 250 feet of full storage along with a continuous right-turn lane.
- Install a traffic signal when warranted. The intersection should be monitored once the initial phases of the Fost Tract Development and Flora Farms Subdivision are under construction to determine when a signal will be warranted. Once an estimated 180 single-family homes are occupied between the two developments, it is expected that the traffic along Fost Boulevard will warrant a traffic signal. A new turning movement count and a signal warrant analysis should be completed before the traffic signal is installed.

### Flora Farms Subdivision

Initial phases of the Flora Farms Subdivision will utilize Fost Boulevard to access NC 168. New site access driveways will be constructed along Survey Road during Phase 3 of construction for the Flora Farms Subdivision. The following roadway improvements should be implemented with the construction of future site driveways along Survey Road:

#### *NC 168 at Survey Road (existing unsignalized)*

- Stripe out at least 200 feet of full storage within the existing northbound two-way left-turn lane along NC 168 at Survey Road.

#### *Survey Road at Flora Farms Site Driveways (future unsignalized)*

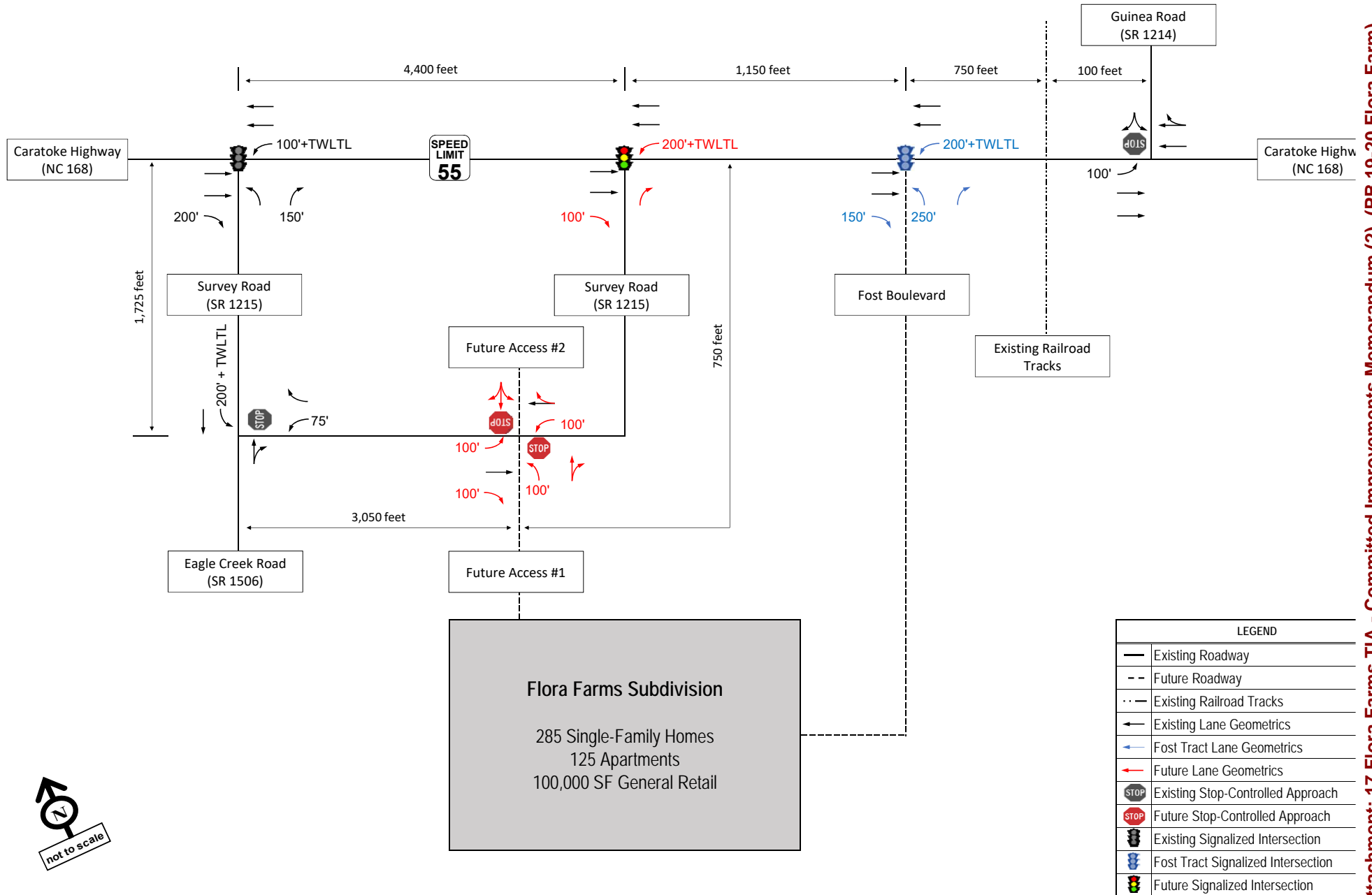
- Construct an exclusive eastbound left-turn along Survey Road at the site driveways with at least 100 feet of full storage and appropriate taper.
- Construct an exclusive eastbound right-turn along Survey Road at the site driveways with at least 100 feet of full storage and appropriate taper.
- Construct an exclusive westbound left-turn along Survey Road at the site driveways with at least 100 feet of full storage and appropriate taper.
- The northbound site driveway should consist of an exclusive northbound right-turn lane with at least 100 feet of full storage with appropriate taper and a continuous thru/right-turn lane.
- The southbound site driveway should consist of a single left/thru/right-turn lane.

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

#### *NC 168 at Survey Road (future signalized)*

- Construct a southbound right-turn lane along NC 168 with a minimum of 100 feet of full storage and appropriate taper.
- Restrict access at the intersection so that the left-turning movement from Survey Road onto NC 168 is no longer allowed. Vehicles wanting to make that left-turning movement can do so at the future signal for Fost Boulevard to the south or the existing signal at Survey Road to the north. The traffic signal at Fost Boulevard can operate acceptably with the additional left-turning traffic.
- It is estimated that once the Flora Farms development is at approximately 50% buildout, a traffic signal will be desired, therefore a signal warrant analysis should be undertaken at that time.

Figure 1 (attached) shows the committed improvements that should be implemented with the full buildout of the Fost Tract Development and Flora Farms Subdivision.



**Figure 1**  
**Future (2026) Lane Geometrics and Traffic Control**





## Planned Development Application

**OFFICIAL USE ONLY:**

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

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

Name: John J. Flora, III/Mary Nell Flora Brumsey

 Address: P.O. Box 369/117 Puddin Ridge Rd.  
 Moyock, NC 27958

Telephone: (252) 232-3005

E-Mail Address: \_\_\_\_\_

**PROPERTY OWNER:**

Name: Same

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Same

**Property Information**

Physical Street Address: US Hwy. 168 and Survey Road

Location: Moyock, NC 27958

Parcel Identification Number(s): 0015000085A0000, 0015000085B0000, 0015000085C0000

Total Parcel(s) Acreage: 224.44 +/-

Existing Land Use of Property: Farmland, Woodlands and Residential

**Request**

Current Zoning of Property: A

**Proposed Zoning District**
☒ Planned Development – Residential (PD-R)

☐ Planned Development – Mixed (PD-M)

☐ Planned Development – Outer Banks (PD-O)

**Amendments**
☐ Amended Master Plan

☐ Amended Terms and Conditions

**Community Meeting**

Date Meeting Held: 01-22-2020

Meeting Location: Eagle Creek Event Pavilion

**Planned Development Request**

It is understood and acknowledged that if the property is rezoned as requested, the property involved in this request will be perpetually bound to the master plan, terms and conditions document, use(s) authorized, and subject to such condition(s) as imposed, unless subsequently changed or amended as provided for in the Currituck County Unified Development Ordinance. It is further understood and acknowledged that final plans for any development be made pursuant to any such planned development so authorized and shall be submitted to the Technical Review Committee.

Property Owner (s)

NOTE: Form must be signed by the owner(s) of record. If there are multiple property owners a signature is required for each owner of record.

Date

 Planned Development Application  
 Page 6 of 7

Revised 7/1/2018

Attachment: 18 Signed Application - Flora Farm (PB 19-20 Flora Farm)





## Planned Development Application

**OFFICIAL USE ONLY:**

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

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

 Name: John J. Flora, III / ~~Mary Nell Flora Brumsey~~

 Address: P.O. Box 369 / ~~117 Puddin Ridge Rd.~~  
 Moyock, NC 27958

Telephone: (252) 232-3005

E-Mail Address: \_\_\_\_\_

**PROPERTY OWNER:**

 Name: ~~Same~~ Mary Nell Flora Brumsey

 Address: 117 Puddin Ridge Rd  
 Moyock, NC 27958

Telephone: (252) 202-8694

E-Mail Address: mary.brumsy@yahoo.com

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Same

**Property Information**

Physical Street Address: US Hwy. 168 and Survey Road

Location: Moyock, NC 27958

Parcel Identification Number(s): 0015000085A0000, 0015000085B0000, 0015000085C0000

Total Parcel(s) Acreage: 224.44 +/-

Existing Land Use of Property: Farmland, Woodlands and Residential

**Request**

Current Zoning of Property: A

**Proposed Zoning District**

- ☒ Planned Development – Residential (PD-R)  
☐ Planned Development – Mixed (PD-M)  
☐ Planned Development – Outer Banks (PD-O)

**Amendments**

- ☐ Amended Master Plan  
☐ Amended Terms and Conditions

**Community Meeting**

Date Meeting Held: 01-22-2020

Meeting Location: Eagle Creek Event Pavilion

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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.

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Date

 Planned Development Application  
 Page 5 of 7

Revised 7/1/2018

Attachment: 18 Signed Application - Flora Farm (PB 19-20 Flora Farm)



**Currituck County Schools**  
*A Beacon for Excellence in Education*

**BOARD OF EDUCATION**

KAREN ETHERIDGE, CHAIRMAN • DWAN CRAFT, VICE-CHAIRMAN  
 WILLIAM DOBNEY, EDD • JANET ROSE • WILLIAM CRODICK III

**MARK J. STEFANIK**  
**SUPERINTENDENT**

June 9, 2020

Currituck County Planning Board  
 Currituck County Board of Commissioners

Dear Board Members and Commissioners:

As you know, the Currituck County Board of Education has been evaluating sites for a new elementary school in the Moyock/Shawboro area of the County to address capacity issues associated with this area. We have also examined capacity at the schools within our district, and how we plan to deal with growth in the coming years, including whether the development of new homes and a school on a 224 acre property located on Caratoke Highway in Moyock (the Flora site) would impact capacity. I am writing to inform you of two determinations we have made.

First, on May 29, 2020, the Board voted unanimously to select the Flora site as its primary location for the new elementary school. This was based upon several factors, including its proximity to the existing middle school, and safe access to Caratoke Highway. Its location near the Shawboro Elementary and Moyock Elementary boundary lines gives the Board flexibility in being able to redistrict in a manner that minimizes student disruption. Allied Properties has also offered several other concessions included but not limited to, paying for the stormwater design for the school site, and expanding the private pool to a competition-level pool and allowing designated times for CCHS swim team practices. The School Board also supports the concessions Allied has made in the rezoning case (PB 19-12), including the commitment to 10% of apartment units reserved for workforce housing for teachers, traffic improvements and commitments, and drainage improvements near the school site. These concessions offer a significant public benefit to the County, and respond to school needs in a way that reduces County costs.

Second, we have reviewed the phasing schedule associated with the Flora rezoning. The schedule staggers development by phase, and we note that each phase will be staggered by at least 6 months. The Currituck County School District appreciates the staggered development proposal. As we wait for the completion of the new elementary school, the Currituck County School District will use its resources to serve the students generated from all phases of the Flora project. Once completed, the new school will provide expanded capacity to address the needs of students in the northern part of the county.

Please do not hesitate to call me with any questions.

Sincerely,

*Mark J. Stefanik*

Mark Stefanik

**APPLICANT'S Flora Farm Rezoning  
PB 19-20  
2006 Land Use Plan Consistent Policies**

POLICY AG6	<i>For areas experiencing intense development pressure, new residential development may be allowed to locate in COMPACT, VILLAGE-LIKE CLUSTERS, PREFERABLY NEAR EXISTING, NON-AGRICULTURAL ACTIVITIES AND SERVICES, or in other locations that will not interfere with resource production activities</i>
POLICY HN1	<i>County shall encourage development to occur at densities appropriate for the location. LOCATION AND DENSITY FACTORS shall include whether the development is within an environmentally suitable area, the type and capacity of sewage treatment available to the site, the adequacy of transportation facilities providing access to the site, and the proximity of the site to existing and planned urban services. For example, projects falling within the Full Services areas of the FLUM would be permitted a higher density because of the availability of infrastructure as well as similarity to the existing development pattern. Such projects could be developed at a density of two (2) or more dwelling units per acre</i>
Moyock Area Policy Emphasis	<i>“The policy emphasis of this plan is on properly managing the increased urban level of growth that this area is sure to experience over the next decade and beyond. Residential development densities should be medium to high depending upon available services.”</i>
Summary of Area Character	<i>The Moyock area is the fastest growing part of Currituck County. Development densities currently range from 1 to 3 units per acre depending upon development type. <u>It is coming under increasing development pressure as a “bedroom community” for the Tidewater Area of Virginia. This means that people moving into the Moyock area often work across the state line in Virginia but prefer to have their residence in Currituck County.</u> Heightened development interest in this area has brought with it pressure for more subdivisions, as well as the retail services that follow such development.</i>
POLICY WS7	<i>Currituck County allows for the appropriate use of PACKAGE SEWAGE TREATMENT PLANTS as a means of achieving more efficient land use, while properly disposing of waste. Such systems shall have a permanent organizational ownership to guarantee their proper management, including operation, maintenance and replacement needs. Depending on their location in the county, such systems may be required to have a design that allows for assimilation into a centralized system at a future date</i>
POLICY WQ3	<i>Currituck County supports policies, plans and actions that help protect the water quality of the county’s estuarine system by preventing SOIL EROSION AND SEDIMENTATION, and by controlling the quantity and quality of STORMWATER RUNOFF entering the estuary</i>
POLICY WQ4	<i>RUNOFF AND DRAINAGE from development, forestry and agricultural activities shall be of a quality and quantity as near to natural conditions as possible. Post-development runoff shall not exceed pre-development volumes.</i>
POLICY TR12	<i>New residential developments shall provide for the installation of PAVED PUBLIC ROADWAY AND DRAINAGE INFRASTRUCTURE at the time of development. This policy is intended to prevent the creation of substandard</i>

	<i>developments that must later correct for infrastructure problems that could have been avoided, had they been installed properly from the beginning</i>
POLICY CA1	<i>The important economic, tourism, and community image benefits of attractive, functional MAJOR HIGHWAY CORRIDORS through Currituck County shall be recognized. Such highway corridors, beginning with US 158 and NC 168, shall receive priority attention for improved appearance and development standards, including driveway access, landscaping, buffering, signage, lighting and tree preservation.</i>
POLICY TR8	<i>Local streets shall be designed and built to allow for convenient CIRCULATION WITHIN AND BETWEEN NEIGHBORHOODS and to encourage mobility by pedestrians and bicyclists. Care shall be taken to encourage local street “connectivity” without creating opportunities for cut-through traffic from outside the connected areas.</i>
POLICY AG3	<i>County ACTIONS CONCERNING INFRASTRUCTURE (e.g. schools, parks, and utilities) and regulations shall serve to direct new development first to targeted growth areas near existing settlements identified as Full Service Areas on the FLUM</i>
POLICY SF1	<i>Currituck County shall support and actively engage in ADVANCED PLANNING FOR THE LOCATION OF NEW SCHOOLS. Such locations shall serve to reinforce contiguous growth patterns near existing developments rather than promoting sprawl in more rural locations.</i>
POLICY SF	<i>Currituck County encourages OFFERS OF LAND FOR THE SITING OF NEW SCHOOLS, particularly in conjunction with related community development. Acceptance of such properties shall be based on approved location and design criteria.</i>
LUP Policy 8.3	<i>To provide residents of Currituck highest level of county services and ensure that adequate facilities are available to meet current and long range needs of the County. Strategy 4: A long range facilities plan shall be prepared for Currituck County schools. RESPONSIBLE AGENCY: Board of Commissioners TIME FRAME: 1993 Implementation: Board of Commissioners and Board of Education agreed to approve a 10-year Capital Facilities plan for new school construction and expansion.</i>
Actions Concerning School Facilities	<i>Action SF-1: Form an interdepartmental project team whose purpose is to fully implement County objectives for growth management and adequate public facilities as applicable to schools and parks. Bring together top school administrators, planning department personnel, and the parks department, among others, to prepare a plan of action for review by the School Board and County Commissioners. Who Leads: County Commissioners, County School Board</i>
LUP Appx G, Infrastructure Analysis, Schools	<i>It is essential to remember that all of these students will not be entering the school system at one time</i>





## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2868)

**Agenda Item Title:** Consideration and Possible Action to Adopt the Strategic Plan for Currituck County

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

---

**Brief Description of Agenda Item:**

**Reason for Request:**

During an earlier planning session, goals and priorities for the County and sub-areas within specific regions of the county were established by the Board of Commissioners. Following a work session review of the plan on July 16, 2020, Commissioners directed staff to include the Plan on this meeting agenda to consider official adoption of the strategic plan and to allow staff to proceed with implementation.

**Potential Budget Affect:** N/A

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**

7.16.2020  
Work Session  
Strategic Plan  
Review



# Strategic Plan

Currituck County Government

2020

## What is a Strategic Plan?

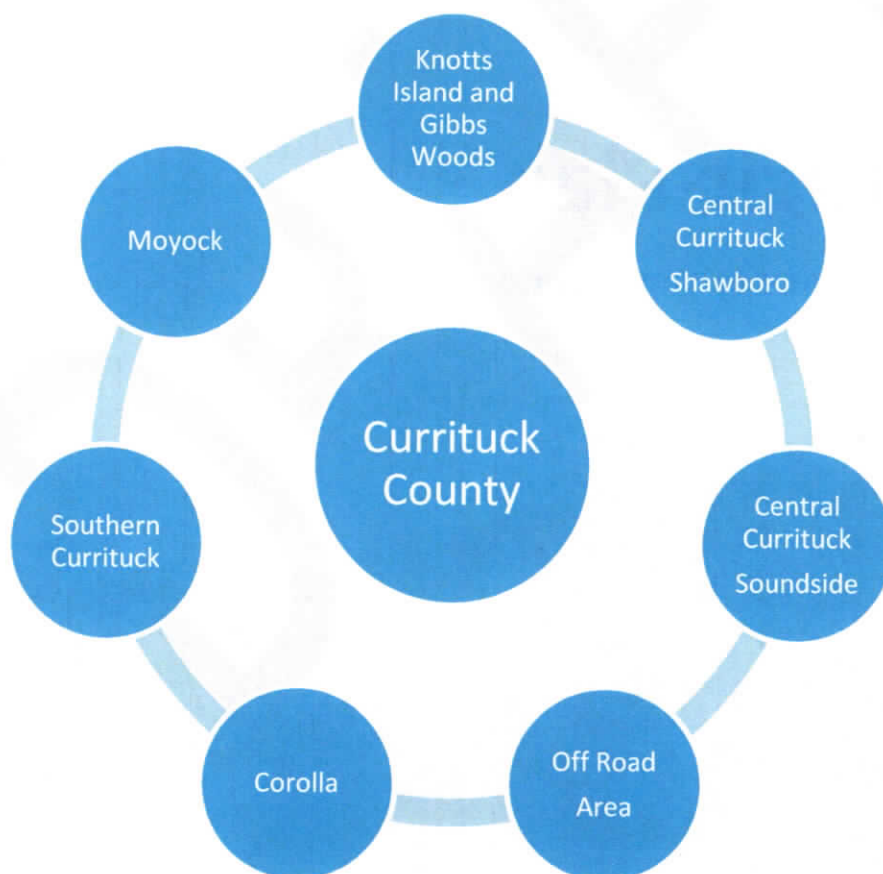
Strategic Planning is defined as a systematic process of envisioning a desired future and translating this vision into a plan that contains broadly defined goals or objectives and a sequence of steps to achieve these goals. Owing to the political nature of local governments, a Strategic Plan should be created with a two to three year timeframe in mind and should be refreshed at the seating of a new Board of Commissioners.

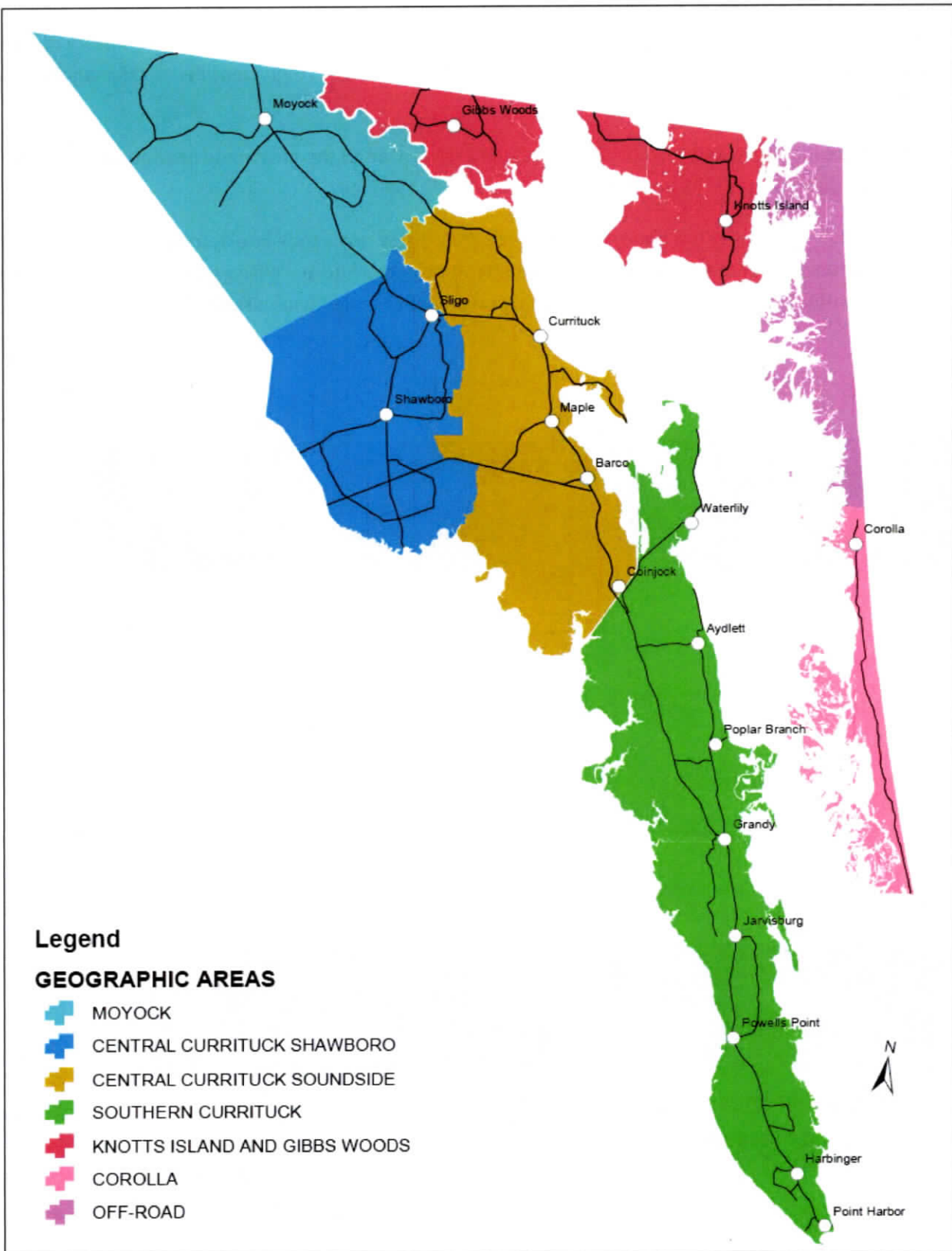
The intention of this original Strategic Plan is to lay the foundation for plans to come. The goals and objectives were determined by the Board of Commissioners during a two-day planning session held on Oct. 15-16, 2019. It will be updated in January of 2021.

## Formulating Goals by Geography

Currituck County has a distinct geography that sets it apart from any other county in North Carolina. We recognize at least seven distinct areas within Currituck County, each with their own identity, needs, and wants. (*map, pg. 3*)

The Strategic Plan also addresses overall goals for Currituck County. Therefore, the Plan includes visions and goals for each of the geographic areas as well as the County as a whole.







## Following a Process

The process used for developing the list of visions and goals began with identifying the significant history of Currituck County and the assets of our County. Strengths, weaknesses, and trends were then identified for the whole County and each of the seven geographic areas.

Current realities were identified and a list of visions was generated. Due to the timeframe of strategic plans, the visions were ranked based on priority and the top two were made the focus.

Goals were then created using the top two visions for each area. These goals took into account the gap from where Currituck County is now to where we want Currituck County to be in the future. These goals do not guarantee that the vision will be completed, but they will put the County on a path to reach these visions.



## GOALS

### Currituck County

#### Pursue a Unified County Government

- Develop the public message.
- Share the public message.

#### Maintain a Community Feel While Managing Business and Residential Growth

- Amend the Unified Development Ordinance.
- Develop master utility plans.
- Phase in additional staff.

## Knotts Island and Gibbs Woods

### Increase County Involvement and Access

- Identify a potential recreation site in Gibbs Woods.
- Hold annual BOC meeting in Knotts Island.
- Increase county presence.

### Maintain Current Culture and Identity

- Encourage Ag-tourism and Eco-tourism.

## Moyock

### Promote Business and Commercial Development

- Develop a small area plan on commercial development.
- Study and amend Unified Development Ordinance.

### Manage and Control Residential Growth

- Hold Town Hall meetings.
- Conduct a Citizen's Academy on the mainland.

## Central Currituck – Shawboro

### Promote Agricultural and Rural Preservation

- Research feasibility of incubator farms and nursery operations.

## Central Currituck – Soundside

### Promote a Diversified Workforce and Opportunities for Young Professionals

- Evaluate programs in schools and COA to connect with businesses.
- Hold public events at Currituck Regional Airport.
- Evaluate covenants of Maple Commerce Park.

### Promote Hotel, Motel, and Restaurant Development

- Create a hotel recruitment plan.

## Southern Currituck

### Promote Business and Commercial Development

- Address shortfalls in the Unified Development Ordinance.
- Clean up highway corridor - identify and remove code violations.
- Expand waste water infrastructure in Lower Currituck.
- Develop a policy to incentivize and promote business growth.

### Create a Recreational Zone for Hotels, Motels, and Vacation Amenities

- Structure staff to allow time for planning of Lower Currituck.

## Corolla

### Plan for Year Round Residents and Businesses

- Conduct a Citizen's Academy in Corolla.
- Hold annual BOC meeting in Corolla.

### Refine Plan for Mid-Currituck Bridge Terminus

- Examine existing plan for bridge terminus and surrounding area.



## Off-Road Area

### Control Rate of Development to Preserve Character

- Pursue local legislation to prohibit paving roads.

### Improve Roads

- Create a service district for roads and levy taxes to support the district.

## Conclusion

The goals and visions listed in this Strategic Plan provide targeted outcomes and serve as a guide for county staff to work towards during the next two to three years. Each of these items is considered important to the future of Currituck County and, likewise, each geographical area is considered equally significant by the Board of Commissioners. These separate areas will receive the same effort and attention so that Currituck County as a whole will prosper.

As the county faces continued pressures from growth in the coming years, the Strategic Plan will help staff be better prepared to meet the needs of the citizens and provide appropriate services. It is the county's intent to review these goals and objectives every two years to ensure that Currituck County remains on a successful path into the future.

**Currituck County Government  
Strategic Visioning Retreat Wrap Up  
October 15-16, 2019  
Currituck Extension Center  
M. Rodney Sawyer Conference Room  
Prepared by: Cameron Lowe**

Facilitators: Cameron Lowe, CED Currituck; Rebecca Liverman, CED Washington  
Convener: Ben Stikeleather, Currituck County Manager

**Attendance:**

Ben Stikeleather, Kevin McCord, Owen Etheridge, Mike Payment, Ike McCree, Laurie LoCicero, Leeann Walton, Paul Beaumont, Randall Edwards, Selina Jarvis, Bob White, Kitty Etheridge

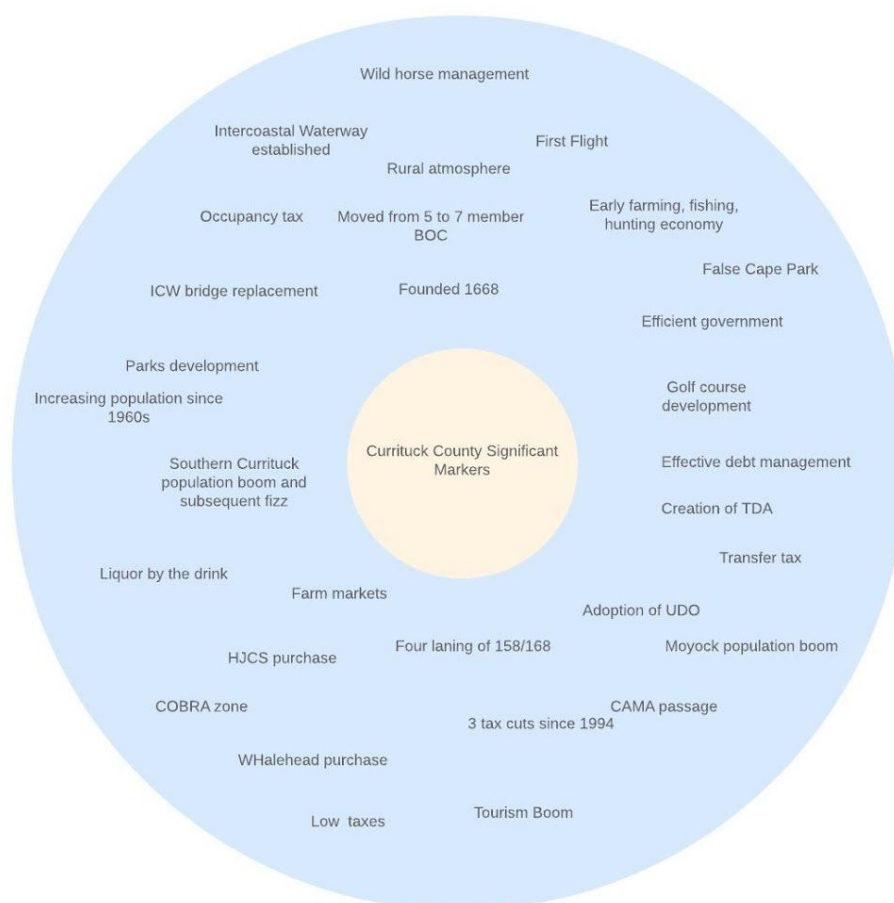
**Intended Outcomes:**

Purpose for the day was discussed with the following central questions identified:

1. What do we want Currituck to be - long term?
2. What steps are we going to take in the next 2-3 years to ensure we get there?

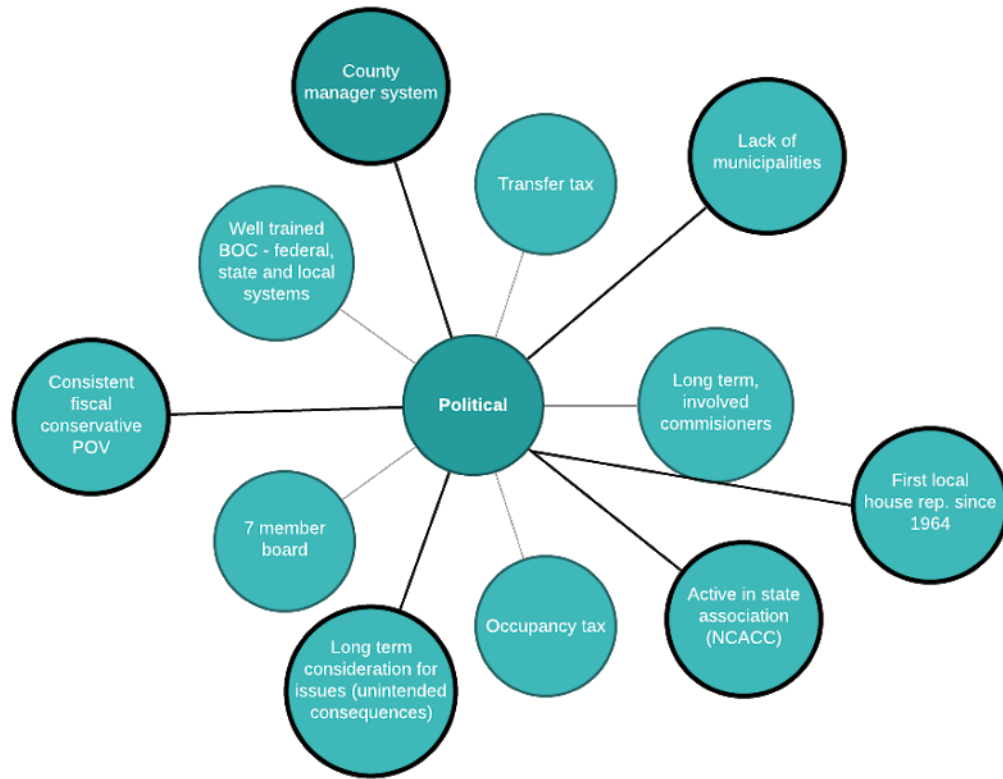
**Assessment and Analysis of Historical and Current Situation:**

Participants brainstormed **key historical markers** and key characteristics that have defined Currituck's direction. These are depicted in the visual below in no significant order.

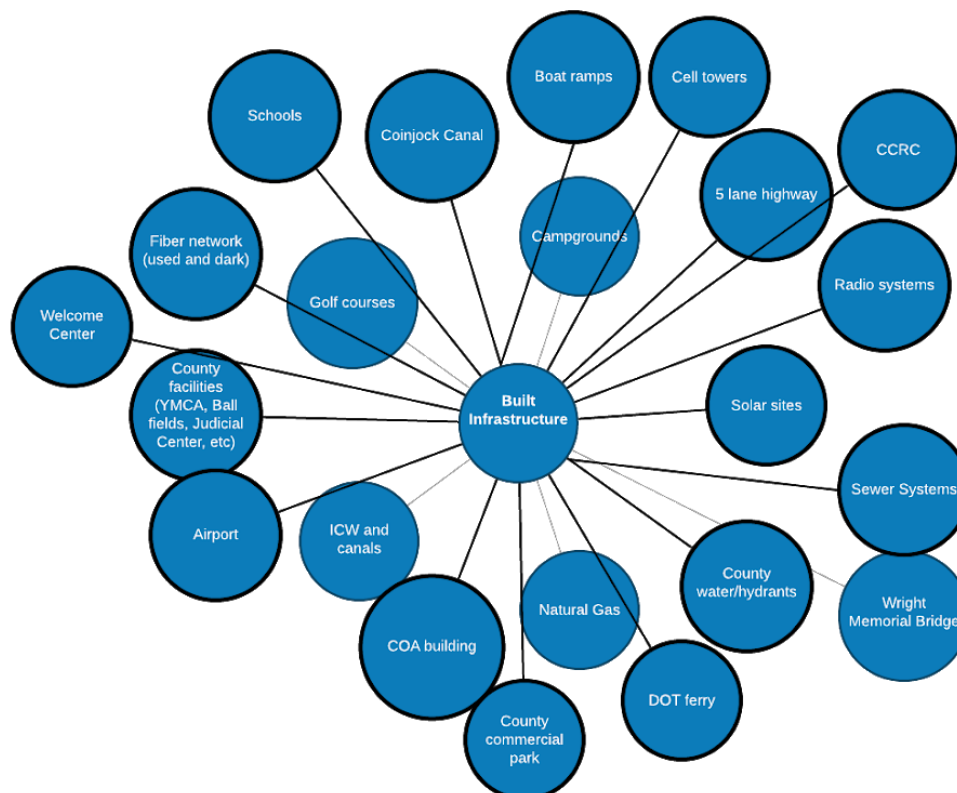


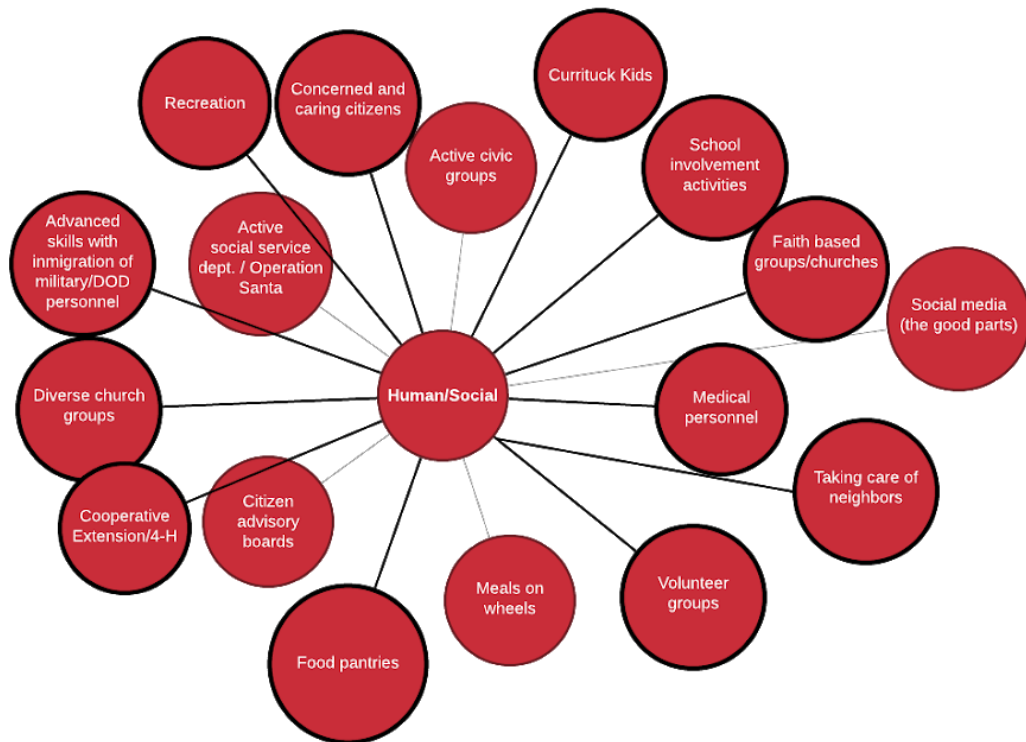
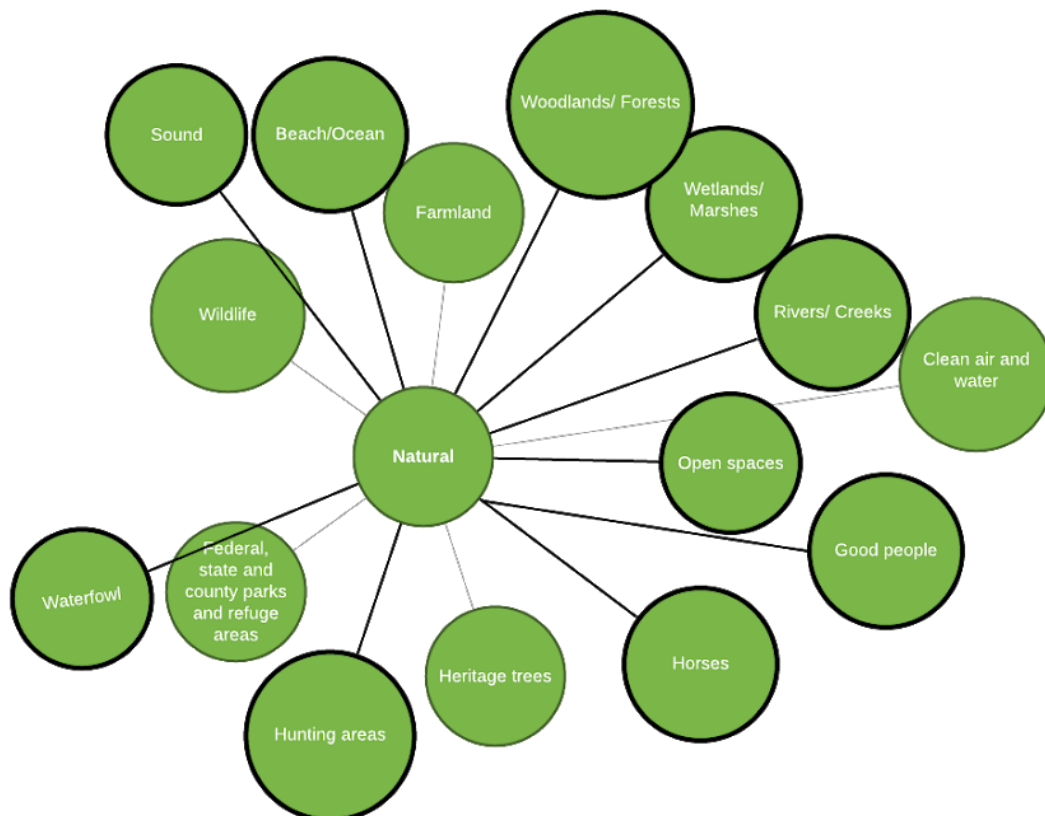
Participants then brainstormed **current community assets** possessed by Currituck in the contexts of political assets, built infrastructure assets, human/social assets, natural assets, financial assets, and cultural assets.

### Political:

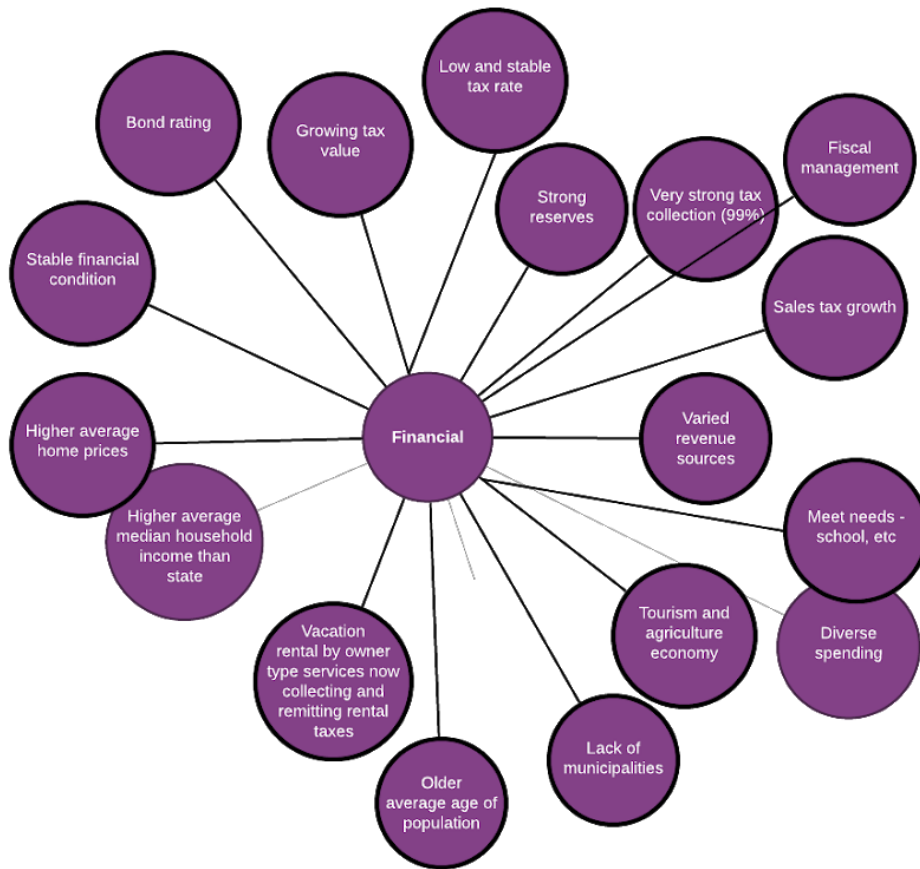
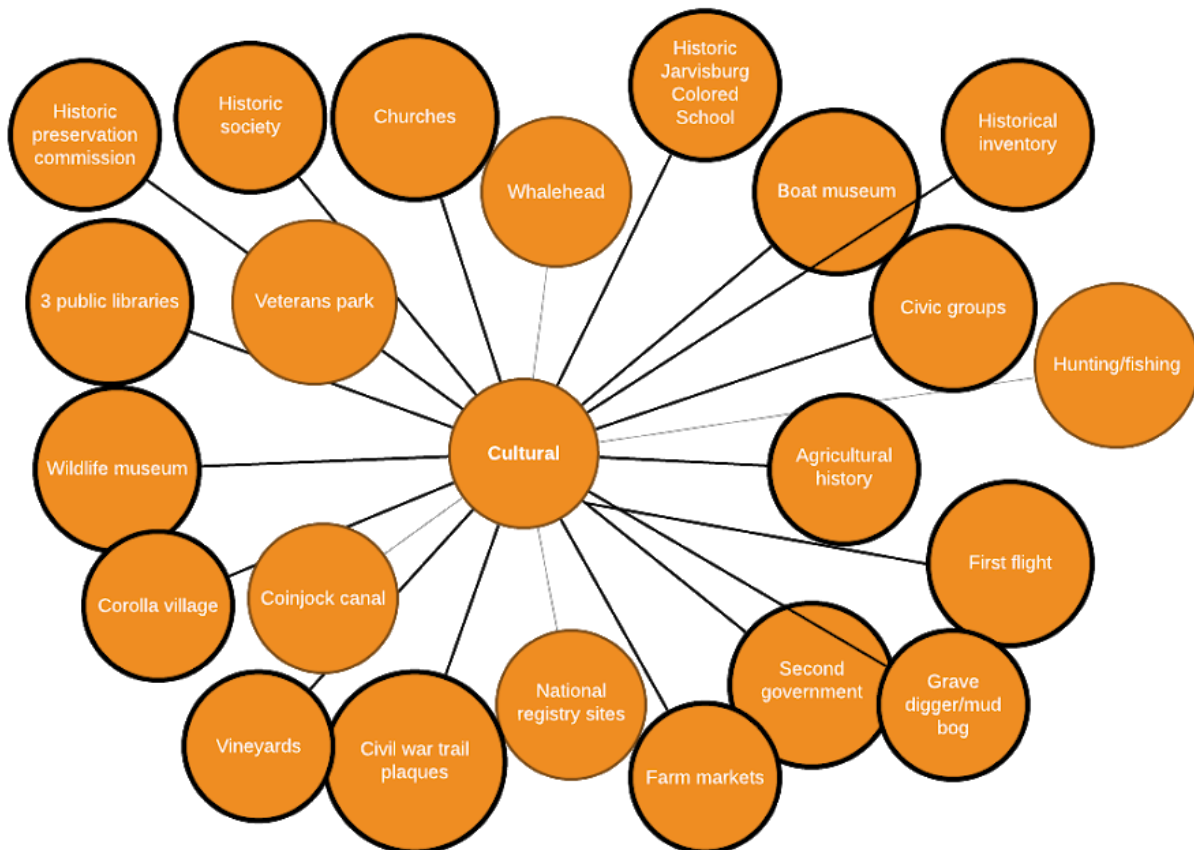


### Built Infrastructure:



**Human/Social:****Natural:**



**Financial:****Cultural:**

Participants analyzed ***strengths, weaknesses and trends*** impacting Currituck as a whole and the various geographical divisions.

***CURRITUCK (Whole County)***

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
Increased expectation for services from new county residents (instant)	Early adopters	No rental housing market
Large Developments	Variety of recreational opportunities	Infrastructure (wastewater, broadband)
Increased tourism in the shoulder season	Single government entity	Geography (diversity) - services provision
Moyock impacting local elections	Good financial situation	Lack of unified government (officially)
Increased vehicular traffic	Educated, experienced and dedicated county staff and manager	Unique challenges of each geographic subset
Suburb of Virginia (bedroom community)	Commitment to building on our assets	Increased cost of doing business
Increasing impact of social media	Proximity to Hampton Roads	Pace of growth challenges for services
Relatively cheap land	Tax source (OBX)	Attracting young professionals
Conversion of vacation homes to retirement residences	Beach tourism boom	Lack of diverse housing options
Environmental changes (wetland migration, erosion, storm frequency)	First responders	Traffic
Continued pressure on services (schools, public safety, county government)	Board of commissioners	Lack of Currituck specific industry
Housing structure is changing	Good road/transport systems	Adequate facilities (crowding)
More commercial growth	Community atmosphere	Quality of education has stagnated at a lower level than historically
Pace of growth	Public perception	Lack of accurate measures for school success (benchmarks)
Outpacing growth projections	Improving communication with citizenry	Still good old boy perception
School board/commissioner relations	School board/commissioner relations	Parenting issues

		Communication with citizenry
		Background of new residents and their service expectations
		Too much commissioner involvement
		Balance of residential and commercial growth
		School board/commissioner relations

**OFF-ROAD AREA**

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
Growth	Unity of community	Access/roads
Properties transitioning from rental to full time residences	Beauty	Lack of services (difficult due to access issues)
Increased need for roads	Tourism/horses	Zoning
Increased need of stormwater management	Isolation	Support services
Greater demand for services	Uniqueness of area	Communication
Mainland residents, building/buying second homes here	Access to recreation	Minority year round residents deciding for property owners
	Tourists love horse tours	Tide limiting access
	Land swap	Isolation
	Service districts	Highly harsh environment
		Tourism
		Caps/commercial vehicles

**CENTRAL CURRITUCK - SHAWBORO**

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
Struggling agricultural operations	Best overall soils in the county for agricultural production	Lack of infrastructure
Increased traffic	Road infrastructure (connections)	Farmland reduction from utilities
Alternative energy production	Community	Increased traffic
More development	Closeness to Elizabeth City	

**CENTRAL CURRITUCK - SOUNDSIDE**

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
Corridor business development	Best water and sewer	Distance from the south, north and Elizabeth City
Growth of second governmental center	Airport	Lack of services (retail)
Educational and training resources	Facilities (a lot to do)	Lack of places to stay (hotel)
Increased traffic	With bridge, primed to grow	"No man's land" (pass through)
	County owned industrial area	Lack of commercial property

**MOYOCK**

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
High population growth	Good median income levels	Transient population (the perception of)
Flooding issues	Older population growth	Lack of space in schools (overcrowding)
Outpacing growth projections	Access to water and recreational facilities	Impatient demands for services without an increase in taxes
Service needs - sewer, schools, water, etc	Waste water facilities	Lack of knowledge about NC government (or desire to change/learn)
Commercial development/diversification	Water availability	Growing pressure to expand service areas (waste water, storm water, water)
Traffic management needs	Concentrated service area	Limited transportation system
Many new families with school-aged children	Service districts providing an advanced level of services	Lack of indoor recreational facilities (Parks and rec basketball)



	More commercial options	Soil
	Wendy's/ Taco Bell	Roads
	Professional residents	

**SOUTHERN CURRITUCK**

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
Stagnant	Recreation options (H2OBX, parks)	Retail leakage to beach
Failed businesses	School capacity	Crime severity
Growing tourism (H2OBX, Sanctuary Vineyards, CCRC)	History	Minimal commercial
Commercial growth	Same people/families (Currituck's Wanchese)	Infrastructure
Housing development	Large lots	Zoning
Traffic problems on weekends	Soils better for drainage	Affordable housing
Lack of infrastructure access	Close to beaches	Dare county bedroom community/service area
Bridge will radically impact	More recreational opportunities	Population density low
Service/support area for Dare county	Marina	Corridor appearance
	Willing to grow	
	Rural character	

**COROLLA**

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
Retirees moving into former vacation rentals	Increased shoulder season	Transportation/traffic issues
More year round population	Higher median incomes	Minority controls the majority
"Territorial" over occupancy tax funds	Diversity of activities	Quick to sue
Often elitist attitude/mentality	Paid EMS/Fire staff	Lack of NC government knowledge
More year-round and shoulder season commercial activities	No municipality	Seasonal mentality of businesses (sidewalks rolled up through March)

Demand for services	Ocean rescue	Small population, feel left out
	More law enforcement 2 to 4	Lack of commercial
	Clean beaches, healthy dunes	No direct physical link to the mainland
	Wide beaches	Seasonal \$\$
	Whalehead	Instability/lack of workforce
	Boat museum	Communication
		Lack of workforce housing

### **KNOTTS ISLAND & GIBBS WOODS**

<b>Trends</b>	<b>Strengths</b>	<b>Weaknesses</b>
Residential growth	Isolated	Isolated
Limited commercial	Strong community (VB)	Lack of growth
"Peachy"	Natural environment (old Currituck - hunting/fishing)	Feel forgotten
Natural resources	KIES has ample capacity	Lack of direct access to Currituck County services
	Paid fire department	Transportation (causeway) poor/at risk
	Boating access to recreation/Carova	Internet
	Cox cable	Little population diversity
	Self sufficient	No middle/high school or county recreational facilities
	Natural beauty	Gibbs Woods - no fire department
	Refuge/reserve areas (Mackey Island)	Cut off - one way in, one way out
	Proximity to Carova	Food options
		VFD Volunteers
		Commissioner is 2 and a half hours away

Participants then brainstormed and listed overall **current realities** in each geographical designation of Currituck County.

### **CURRITUCK as a whole:**

- “Busting at the seams”
- One of the fastest growing counties in NC because of the excellent tax base, quality of living, safety, and rural area; but with that comes growth issues.
- In a race with the future.
- We are surviving and getting by, but everything needs 1 more (staff, services, internet, traffic control, NCDOT, etc).
- Currituck is a historically rural county coming to terms with a shift to more urban, residential development (& all associated needed services), that is outpacing commercial development.
- Fast growing county due to low taxes, good county services, opening land, but changing fast due to what makes us so attractive.
- Growing too fast (residential)
  - Perceived lack of communication
  - Lack of understanding on how NC counties operate.
- Currituck is a highly desirable place to live, because of the attractiveness. The strain of growth puts pressure on the infrastructure which cannot keep pace. The pressure affects services, infrastructure and county staff.
- A traditionally small rural community in the midst of its second major cultural shift in 30 years.
- We are a place people want to live because of low taxes and rural environment, but struggling to keep up with their demands and needs.

Overall theme: Growing and struggling to meet demands while retaining identity.

### **OFF-ROAD AREA:**

- Isolation
- Lack of services
- Increased build out. Corolla is full and spilling over.
- Remote, and the residents like it that way.
- Property owners want accessibility to their rentals during storm events.

### **CENTRAL CURRITUCK - SHAWBORO:**

- Transportation (158, 168, airport)
- Close, but drive through
- Traffic

### **CENTRAL CURRITUCK - SOUNDSIDE:**

- Great infrastructure
- Need hotel
- Great potential for area

### **MOYOCK:**

- Growth, growth, growth that can't keep up with current tax rate or new tax base.
- Uninformed citizens
- Stormwater
- New residents

**SOUTHERN CURRITUCK:**

- Drive by
- Needs growth - residential community
- Needs infrastructure
- Needs zoning
- Exceptional potential - needs big thing to explode
- Bridge
- Steady employment will drive growth.

**COROLLA:**

- Easing toward more year round population
- More territorial than rest of the county
- Needs more infrastructure
- Unwilling to listen
- Communication issues

**KNOTTS ISLAND & GIBBS WOODS:**

- Limited growth, feeling isolated from Currituck county
- Need coast promotion
- Need broadband

***Visioning***

Group analyzed the previous information and **brainstormed** aspects of **vision** (where we want to be) for various areas of the county. They then **multi-voted on top priorities** and consolidated these vision brainstorm into **1-2 broad visions** over the next two to three years.

***Vision Brainstorming:*****CURRITUCK as a whole:**

- Unity (2 votes)
  - All areas feeling valued and needed
  - One Currituck
    - More county interaction
    - Get/unify areas
- Housing (0 votes)
  - Affordable housing throughout the county
  - Diversify housing options
- Unified Government (7 votes)
  - To keep county unified
- Commercial Development (2 votes)
  - Attract a hotel
  - County is so different as you travel through it
    - Lower taxes, smart growth, more commercial
  - Commercial and business growth to provide jobs and taxes
- Responsible growth (7 votes)
  - Maintaining community feel with commercial growth
  - Responsible growth (pace) - business and residential
  - Manage growth
  - Growth at the southern end of county



**Visions:**

1. Pursue unified county government.
2. Maintain community feel while managing business and residential growth.

**OFF-ROAD AREA:**

- Better infrastructure, stormwater management (3 votes)
- Service districts (business) (4 votes)
- More access to roads and services (9 votes)
  - Access points
- Maintain its rustic nature (5 votes)
  - More rules and ordinances (minimal commercial)
  - Control rate of development

**Visions:**

1. Control rate of development to preserve character.
2. Improve roads.

**CENTRAL CURRITUCK - SHAWBORO**

- Remain rural (9 votes)
  - Farmland preservation
  - Managed growth that preserves farming
  - Remain ag/rural

**Visions:**

1. Promote agricultural/rural preservation.

**CENTRAL CURRITUCK - SOUNDSIDE**

- Bridge will dictate (0 votes)
- Diversified workforce (7 votes)
  - Diversified workforce consisting of young professionals
  - Central training and public safety hub
- Restaurants/Hotel/Motel (6 votes)

**Visions:**

1. Promote diversified workforce and opportunities for young professionals.
2. Promote hotel/motel/restaurant development.

**MOYOCK**

- Stormwater management plan (0 votes)
- Business and commercial development (8 votes)
  - Retail and business hub
  - More commercial
  - Business/industrial business
  - Business development
- Manage residential growth (5 votes)
  - Managed growth, both residential and commercial
  - Structured orderly growth - services need to catch up
  - Planned controlled growth - community

**Visions:**

1. Promote business and commercial development.
2. Manage and control residential growth.

## SOUTHERN CURRITUCK

- Commercial development (8 votes)
  - More business friendly zoning
  - More commercial
  - More development
  - Southern infrastructure improvements
  - Commercial and growth
  - Infrastructure in place for business growth
- Recreational (5 votes)
  - Recreational zone with hotels, marina and vacation amenities
  - Stabilize workforce - need the bridge for new opportunities for growth

### Visions:

1. Promote commercial/business development.
2. Create recreational zone with hotels, motels, vacation amenities.

## COROLLA

- Plan for bridge terminus (4 votes)
  - Small area development plan for bridge terminus
- Year round activity (8 votes)
  - More year round residents and businesses
  - More year round business and activities
  - Bridge will stabilize workforce - more year round commercial
  - Remain as a family friendly tourist destination

### Visions:

1. Plan for year round residents and businesses.
2. Refine plan for the bridge terminus.

## KNOTTS ISLAND AND GIBBS WOODS

- Agritourism (1 vote)
- Broadband (2 votes)
- More county involvement (5 votes)
  - Build connection to Knotts Island and Gibbs Woods (One Currituck)
  - More access and inclusion into county functions
- Keep it the same (3 votes)

### Visions:

1. Increase county involvement and access.
2. Help it to stay the same.

## Anticipating Consequences

Group brainstormed **potential complaints** that citizens may have in response to the vision and goals.

### Off-Road area:

- Roads are awful, businesses have been illegal for years and you do nothing.
- Don't do any improvements that bring more people or regulations into the area.
- Don't touch the roads, we know how to drive around.
- Stop horse tours.

- Stormwater plan and limit tourists on the roads.
- We want nothing, leave us alone.
- We want to be left alone and will drive around the huge sink holes.
- Leave us alone.

*Central Currituck - Shawboro:*

- I want the time farmers are in the field controlled.
- I work to develop my land and all you want is agribusiness.
- None
- What happens to the farmland if farming is not profitable?

*Central Currituck - Soundside:*

- Nobody is going to stay in Barco with the beach a few miles away.
- Nobody is going to move back here to work - there's nothing to do.
- There goes the neighborhood.
- Where would they live (young professionals)?
- Would infrastructure support this?
- I want my son to go to UNC Currituck, not a tech school.
- I want a Hilton, not a Super 8.

*Moyock:*

- Traffic, noise of business
- Schools
- We want: grocery store, Taco Bell, Cracker Barrel
- I wanted to be the last one moving here.
- We want a high school
- Never get out on the highway
- Don't "manage growth", stop it now that I am here.
- Picking winners and losers by helping the good old boys
- More development? Why? We can buy it in Virginia.
- Why more, my neighborhood floods?

*Southern Currituck:*

- Picking winners and losers
- I don't want business
- I want a KOA
- Current zoning would limit location. Need infrastructure in place first (business development)
- Where would they live?
- Commercial development will erode the rural feel of the area.
- Keep our family/agricultural traditions
- All we need is more traffic - can't get out of my driveway as it is.

*Corolla:*

- We hate the commissioners. Give us all the occupancy tax.
- We hate the bridge
- Going to make us pay higher taxes
- Bridge will change character
- How do you maintain occupancy revenue if population becomes year round?

- Would need more county services available.
- Road improvements
- You never cared about the tourists spending their money in the county - trying to make it a Sandbridge.

*Knotts Island & Gibbs Woods:*

- We want to be part of Virginia Beach
- The county hates us
- The county never cares about us - roads are horrible
- If you allow more access, how can you keep it the same?

**Gap Analysis**

Participants compared current situation with vision and goals for each geographical area to **determine** what **gaps/hurdles** existed for which **action plans** needed to be built.

**Gaps**

*Currituck as a whole:*

- Citizen pushback
- Have already allowed “big” development
- Land rights issues
- Greater growth than forecasted
- Need to reevaluate the UDO and update our toolbox/rules
- Need to update Moyock Small Area Plan
- Perception is that we are not 1 community
- Sometimes rules are applied inconsistently
- Need to change our playbook
- Perception by community of what multi/diverse/section 8 family housing means
- Community needs to understand unified government (the county cannot lobby for it)
- Community perceives unified government as a power grab
- Lack of infrastructure (sewer, water, broadband)
- Lack of skilled labor
- Keeping the next generation local
- Lack of starter housing
- Community events tie sections of the county together, but not the entire county (communication, visibility)
- Lack of participation in community events
- Strange geography
- Public demands
- School capacity is full
- We are outpacing our planning due to lack of staff
  - Solid waste
  - Public works
  - Animal control
  - Law enforcement
- Need to coordinate adequate public facilities ordinance
- Need monetary resources



*Off-Road area:*

- Development totally platted
- We don't do roads
- Citizens are "hands off our area"
- It is the wild west - a very different population
- They want rules for everyone but them
- Lack of behind the dune road
- Perception that if you fix the roads, more people will use them (perceived expansion of horse tours)
- Fear of commercial development

*Central Currituck - Shawboro:*

- Viability of farming
- Lack of transportation options (roads)
- Diversified crop/niche markets
- "Event type" farm industry is growing in popularity (ex. Morris Farm Market)
- Agritourism
- Railroad plan
- Land rights
- Farmland preservation program
- Farmland is too valuable to farm

*Central Currituck - Soundside:*

- Hotel: No interested developer
- Little to no supporting industries
- Workforce: housing options
- Identify land for hotel and landing a business to put one there
- Until you have business, you don't need a labor force
- Current restrictive covenants in industrial park are over restrictive

*Moyock:*

- Lack of overall community involvement except single issue
- Land rights issues
- Lacking adequate infrastructure
- Lack of commercial plan outside Currituck Station
- Too much, too fast
- Southern Chesapeake/VA
- "Blow the bridge now that I'm here"
- Political pressure is great (perception that they control the elections)
- Lack of knowledge that the rest of the county exists
- Residents want instant solutions/gratification (impatient)
- Expedience with shovel ready, move in ready sites

*Southern Currituck:*

- Lack of infrastructure (water, sewer, broadband)
- Ugly drive through
- Too close to the beach
- H2OBX should be an anchor- leveraging the water park to attract business - hurdle - UDO
- Lower, lower Currituck associates with OBX more than mainland
- Lack of staff to work on plan
- Zoning

- Workforce housing (for Currituck)
- 2 Dollar Generals, no Wal Mart
- Traffic/roads (perception - perhaps due to county messaging - do we need to change the messaging?)
- Lack of troopers (Highway Patrol)

*Corolla:*

- County has limited ability to keep a business open during off season
- Re-evaluate/update terminus plans and surrounding area
- Evaluate additional services required by full time residents
- Medical facilities
- Lack of direct link to mainland
- Transition from resort residential to permanent residential
- Uncertainty of terminus and surrounding area
- Corolla attitude
- Homes (affordable residential units)
- Vacation homes to permanent homes require change/remodel

*Knotts Island & Gibbs Woods:*

- No county facilities (Ruritan Park)
- Population
- Associate with Virginia Beach - Creeds, Pungo
- No Dollar General (business)

## Goal Setting

Group reviewed broad visions, current realities and gaps/hurdles. Using this information, they identified some concrete goals for commissioners and staff to work through in the next 2-3 years.

### *CURRITUCK as a whole:*

#### *Visions:*

1. Pursue unified county government.
2. Maintain community feel while managing business and residential growth.

#### *Goals brainstorming for #1:*

- Commissioner led town hall meetings
- County can educate as unified effort (John Morrison)
- Focus on what we stand to gain
- Video message to educate (Camden as example)
- Try legislation vs. ballot measure
- Set up booths at events
- Political action groups - identify stakeholders
- Social media/PR
- Civic organizations
- Welcome center info
- Develop the message
- Share the message

#### *Goals brainstorming for #2:*

- Increase lot size
- Simplified/localized UDO
- Eliminate planned development residential (PDR)?

- Regional specificity
- Amend UDO
- Develop master utility plans
- Phase in additional staff
- Pursue unified government
- Unify the mainland
- Illustrate the interdependence of communities

#### OFF-ROAD AREA:

##### Visions:

1. Control rate of development to preserve character.
2. Improve roads.

##### Goals brainstorming for #1:

- County acquisition of land or development rights
- Incentivize recombination of smaller lots
- Don't do anything

##### Goals brainstorming for #2:

- Create service district for roads and tax it to support
- Pursue legislation to prohibit paving roads

#### CENTRAL CURRITUCK - SHAWBORO:

##### Visions:

1. Promote agricultural/rural preservation.

##### Goals brainstorming:

- Encourage agri-tourism
- Annual farm expo exploring new industries and technologies (continue to offer)
- Explore nursery industry
- Develop railroad master plan and work with railroad company to promote
- Transfer of development rights (TDR)
- Research feasibility of incubator farms and nursery operations.

#### CENTRAL CURRITUCK - SOUNDSIDE:

##### Visions:

1. Promote diversified workforce and opportunities for young professionals.
2. Promote hotel/motel/restaurant development.

##### Goals brainstorming for #1:

- Evaluate programs in schools and COA that we can connect with business.
- Promote COA opportunities and programs
- Address UDO language and covenants to be less intrusive at airport or in vicinity for housing and business
- Hold events at airport
- Evaluate industrial park covenants

*Goals brainstorming for #2:*

- Actively plan for getting hotel with 30/60/90 day schedule updates
- Have a county “show and tell” for hotel opportunities within county
- Create a hotel recruitment plan

*MOYOCK:**Visions:*

1. Promote business and commercial development.
2. Manage and control residential growth.

*Goals brainstorming for #1:*

- Develop small area plan on commercial development
- Study and amend UDO
- Transfer of development rights (TDR)
- Zoning changes

*Goals brainstorming for #2:*

- Town hall/citizen academy
- Phasing growth
- Increase lot sizes
- Down zoning
- Town hall informational meetings to communicate what county is doing to benefit them
- Video/resident academy to inform

*SOUTHERN CURRITUCK:**Visions:*

1. Promote commercial/business development.
2. Create recreational zone with hotels, motels, vacation amenities.

*Goals brainstorming for #1:*

- Clean up corridor - Identify and remove code violations
- Develop a policy to incentivize and promote business
- Fast track infrastructure improvements
- Expand waste-water in lower Currituck
- Promote current businesses
- Address UDO shortfalls
- Down zoning

*Goals brainstorming for #2:*

- Advertise joint efforts with tourism and H2OBX
- Community meetings/involvement
- Structure staff to allow time for planning of lower Currituck
- Address identity from OBX

*COROLLA:**Visions:*

1. Plan for year round residents and businesses.
2. Refine plan for the bridge terminus.



*Goals brainstorming for #1:*

- Mid county bridge
- Citizen academy
- Proper selection of advisory board members
- Bigger county presence in Corolla
- Better communication
- Hold annual BOC meeting in Corolla

*Goals brainstorming for #2:*

- Examine existing plan for bridge terminus and surrounding area

*KNOTTS ISLAND & GIBBS WOODS:**Visions:*

1. Increase county involvement and access.
2. Help it to stay the same.

*Goals brainstorming for #1:*

- Increase county employee presence
- Better communication - look for opportunities for “inclusive” events
- County recreational site
- Identify potential recreation site in Gibbs Woods
- Hold annual BOC meeting in Knotts Island
- Increase county presence

*Goals brainstorming for #2:*

- Encourage agri-tourism/eco-tourism

**Categorizing Action Steps:**

Group was presented information on developing a “balanced scorecard” to track progress on the goals that were identified. They then categorized them into the scorecard.

**Serve the Community:**

- Citizens Academy (Corolla)
- Citizens Academy (Moyock)
- Hold annual BOC meeting off site (Knotts Island & Corolla)
- Increase county presence (Knotts Island and Gibbs Woods)
- Evaluate programs in schools and COA that can connect with businesses
- Legislation to prohibit paving (Carova)
- Share the message of unified government (Total Currituck)
- Pursue unified government (Total Currituck)
- Expand wastewater (Southern Currituck)
- Develop policy to incentivize and promote businesses (Southern Currituck)
- Clean up corridor of code violations (Southern Currituck)
- Research feasibility of incubator farms and nursery operations (Shawboro)

**Run Operations:**

- Evaluate industrial park covenants (Soundside)
- Identify potential site for recreation in Gibbs Woods (KI & Gibbs Woods)
- Study and amend UDO to manage growth (Moyock)
- Small area plan on commercial development (Moyock)
- Examine existing bridge terminus and surrounding areas (Corolla)
- Establish service district for roads in Carova (Carova)
- Amend UDO (Total Currituck)
- Develop the message of unified government (Total Currituck)
- Expand wastewater (Southern Currituck)
- Structure staff to allow for planning (Southern Currituck)

**Develop Personnel:**

- Increase county presence (KI & Gibbs Woods)
- Phase in additional staff (Total Currituck)

**Manage Resources:**

- Research incubator farms and nursery operations (Shawboro)
- Pursue unified government (Total Currituck)
- Develop master utility plan (Total Currituck)
- Create a service district and tax it (Carova)
- Identify potential site for recreation in Gibbs Woods (KI & Gibbs Woods)
- Hold more events at airport (Soundside)
- Create a serious and aggressive hotel recruitment plan (Soundside)

***General Formative Evaluation of the Process***

Participants were asked to respond to an exit survey and comment on the process. Respondents indicated their level of agreement with the questions based on the scale: 1=poor; 2=fair; 3=satisfactory; 4=good; 5=excellent. Results were as follows:

1. Did we achieve what we needed?
  - a. Good = 3 responses; Excellent = 4 responses
2. Were everyone's ideas heard and considered?
  - a. Good = 1 response; Excellent = 5 responses
3. Did we make well thought out and equitable decisions?
  - a. Good = 2 responses; Excellent = 4 responses

**Comments:**

- Involved, forced to pay attention
- Got a sense of others' thought process
- Pointed out similar goals but different approaches
- Good exercise - took us from broad to narrow
- Would like to repeat as boards change/areas change
- Enhances understanding of the process

### ***Parking Lot Items***

Group wrote several items to address later or at the end of each day. These included:

- Mega-site/Currituck Station
- FD incentive idea
- Surplus vehicles
- Department heads knowing what they get in the budget
- Animal control
- SRO stuff (beach vehicle)?
- School site going forward
- Water - tower capacity
- Historical records - wait for budget
- Benchmarks for schools
- Welcome to Currituck brochure
- Debris pickup schedule
- Impact of bridge?
- Job shadow
- Check executive order on US waters
- Whalehead Club
- Historic landfill (dump)
- GA help
- Light rods - Bill Newns project supervisor
  - Vs non water flow
  - Access point
  - GIS link
- False alarm smoke alarm Duck
- Research park restrictive covenants
- Work session on TDRs

## Outcome Summary - Commissioner Strategic Planning Retreat 2019



### Key Questions:

1. What do we want Currituck to be - long term?
2. What steps are we going to take in the next 2-3 years to ensure we get there?

### Current Situation:

Currituck is growing and struggling to meet demands while retaining identity.

### Visions:

- Pursue unified county government.
- Maintain community feel throughout the county while managing business and residential growth.
- Control rate of development to preserve character in the Off-Road Area.
- Improve roads in the Off-Road Area.
- Promote agricultural/rural preservation in Shawboro.
- Promote diversified workforce and opportunities for young professionals in the Central Currituck Soundside area.
- Promote hotel/motel/restaurant development in the Central Currituck, Soundside area.
- Promote business and commercial development in the Moyock area.
- Manage and control residential growth in the Moyock area.
- Promote commercial/business development in Southern Currituck.
- Create recreational zone with hotels, motels, vacation amenities in Southern Currituck.
- Plan for year round residents and businesses in Corolla.
- Refine plan for the bridge terminus in Corolla.
- Increase county involvement and access in Knotts Island and Gibbs Woods.
- Help Knotts Island and Gibbs Woods to stay the same.

### Key Actions for Board and Staff:

#### Serve the Community:

- Citizens Academy (Corolla)
- Citizens Academy (Moyock)
- Hold annual BOC meeting off site (Knotts Island & Corolla)
- Increase county presence (Knotts Island and Gibbs Woods)
- Evaluate programs in schools and COA that can connect with businesses
- Legislation to prohibit paving (Off-Road Area)
- Share the message of unified government (Total Currituck)
- Pursue unified government (Total Currituck)
- Expand wastewater (Southern Currituck)
- Develop policy to incentivize and promote businesses (Southern Currituck)
- Clean up corridor of code violations (Southern Currituck)
- Research feasibility of incubator farms and nursery operations (Shawboro)



**Run Operations:**

- Evaluate industrial park covenants (Soundside)
- Identify potential site for recreation in Gibbs Woods (KI & Gibbs Woods)
- Study and amend UDO to manage growth (Moyock)
- Small area plan on commercial development (Moyock)
- Examine existing bridge terminus and surrounding areas (Corolla)
- Establish service district for roads in the Off-Road Area (Off-Road Area)
- Amend UDO (Total Currituck)
- Develop the message of unified government (Total Currituck)
- Expand wastewater (Southern Currituck)
- Structure staff to allow for planning (Southern Currituck)

**Develop Personnel:**

- Increase county presence (KI & Gibbs Woods)
- Phase in additional staff (Total Currituck)

**Manage Resources:**

- Research incubator farms and nursery operations (Shawboro)
- Pursue unified government (Total Currituck)
- Develop master utility plan (Total Currituck)
- Create a service district and tax it (Off-Road Area)
- Identify potential site for recreation in Gibbs Woods (KI & Gibbs Woods)
- Hold more events at airport (Soundside)
- Create a serious and aggressive hotel recruitment plan (Soundside)

**Next Steps:**

1. County manager to work with board to create managed scorecard
2. County manager to assign roles and responsibilities to staff
3. County staff to develop success measures



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2857)

**Agenda Item Title:** Consideration and Action on a Resolution to Approve the Regional Hazard Mitigation Plan for Currituck County

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

### **Brief Description of Agenda Item:**

**Reason for Request:** Currituck County is required to have a Hazard Mitigation Plan to remain eligible to receive state and federal assistance in the event of a declared disaster. The plan is updated every five years and requires official adoption by the Board of Commissioners. The plan has already been reviewed and approved by Federal and State agencies. Due to the length of the plan document, portions of the plan relevant to Currituck County are included in the agenda packet, as is the Resolution for adoption of the plan. The full report is available at

<http://www.obx-hmp.com/assets/pdf/documents/Outer%20Banks%20Hazard%20Mitigation%20Plan%22FEMA%20Review%20Draft.pdf>

**Potential Budget Affect:** N/A

**Is this item regulated by plan, regulation or statute?** Yes

**Manager Recommendation:**

**WHEREAS**, CURRITUCK COUNTY is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

**WHEREAS**, the CURRITUCK COUNTY desires to seek ways to mitigate situations that may aggravate such circumstances; and

**WHEREAS**, the development and implementation of a hazard mitigation plan can result in actions that reduce the long-term risk to life and property from natural hazards; and

**WHEREAS**, it is the intent of the Board of Commissioners to protect its citizens and property from the effects of natural hazards by preparing and maintaining a local hazard mitigation plan; and

**WHEREAS**, it is also the intent of the Board of Commissioners to fulfill its obligation under North Carolina General Statutes, Chapter 166A: North Carolina Emergency Management Act and Section 322: Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the CURRITUCK COUNTY; and

**WHEREAS**, CURRITUCK COUNTY, in coordination with Dare County, and the Towns of Duck, Kill Devil Hills, Kitty Hawk, Manteo, Nags Head, and Southern Shores has prepared a regional hazard mitigation plan with input from the appropriate local and state officials;

**WHEREAS**, the North Carolina Division of Emergency Management and the Federal Emergency Management Agency have reviewed the Outer Banks Regional Hazard Mitigation Plan for legislative compliance and has approved the plan pending the completion of local adoption procedures;

**NOW, THEREFORE, BE IT RESOLVED** that the Board of Commissioners of CURRITUCK COUNTY hereby:

1. Adopts the Outer Banks Regional Hazard Mitigation Plan; and
2. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

**ADOPTED** this 20<sup>th</sup> day of July, 2020.

ATTEST:

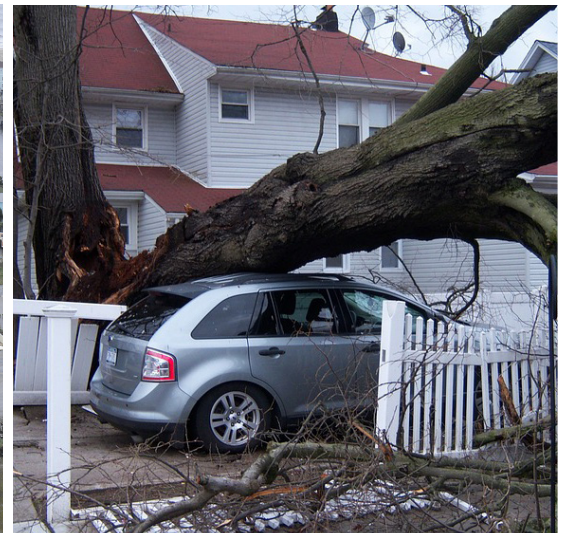
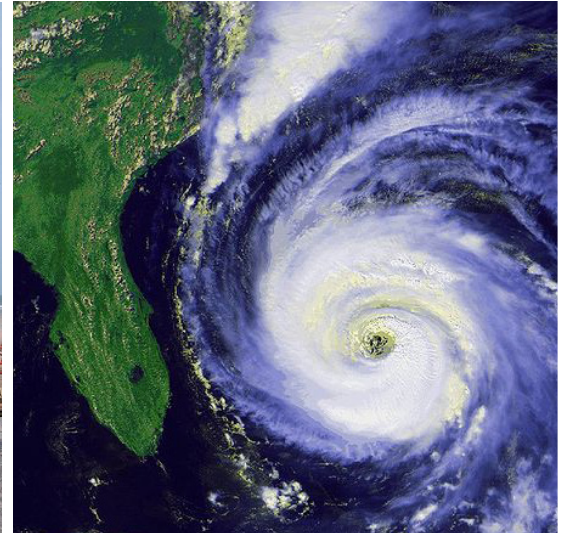
\_\_\_\_\_  
Robert M. White, Chairman

\_\_\_\_\_  
Leeann Walton, Clerk to the Board

Attachment: Resolution-Hazard Mitigation Plan\_2020 (Resolution-Hazard Mitigation Plan)



# Outer Banks Regional Hazard Mitigation Plan





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**SECTION 1: INTRODUCTION**

# 1 Introduction

Section 1 provides a general introduction to hazard mitigation and an introduction to the Outer Banks Regional Hazard Mitigation Plan. This section contains the following subsections:

- ▶ 1.1 Background
- ▶ 1.2 Purpose and Authority
- ▶ 1.3 Scope
- ▶ 1.4 References
- ▶ 1.5 Plan Organization

## 1.1 BACKGROUND

This document comprises a Hazard Mitigation Plan for the Outer Banks Region of North Carolina.

Each year in the United States, natural and human-caused hazards take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. These monies only partially reflect the true cost of disasters because additional expenses incurred by insurance companies and non-governmental organizations are not reimbursed by tax dollars. Many natural hazards are predictable, and much of the damage caused by hazard events can be reduced or even eliminated.

Hazards are a natural part of the environment that will inevitably continue to occur, but there is much we can do to minimize their impacts on our communities and prevent them from resulting in disasters. Every community faces different hazards, has different resources to draw upon in combating problems, and has different interests that influence the solutions to those problems. Because there are many ways to deal with hazards and many agencies that can help, there is no one solution for managing or mitigating their effects. Planning is one of the best ways to develop a customized program that will mitigate the impacts of hazards while accounting for the unique character of a community.

A well-prepared hazard mitigation plan will ensure that all possible activities are reviewed and implemented so that the problem is addressed by the most appropriate and efficient solutions. It can also ensure that activities are coordinated with each other and with other goals and activities, preventing conflicts and reducing the costs of implementing each individual activity. This plan provides a framework for all interested parties to work together toward mitigation. It establishes the vision and guiding principles for reducing hazard risk and proposes specific mitigation actions to eliminate or reduce identified vulnerabilities.

In an effort to reduce the nation's mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) to invoke new and revitalized approaches to mitigation planning. Section 322 of DMA 2000 emphasizes the need for state and local government entities to closely coordinate on mitigation planning activities and makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. These funds include the Hazard Mitigation Grant Program (HMGP), the Pre-Disaster Mitigation (PDM) program, and the Flood Mitigation Assistance (FMA) Program, all of which are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security. Communities with an adopted and federally approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next disaster strikes.

## SECTION 1: INTRODUCTION

This plan was prepared in coordination with FEMA Region IV and the North Carolina Division of Emergency Management (NCEM) to ensure that it meets all applicable federal and state planning requirements. A Local Mitigation Plan Review Tool, found in Appendix A, provides a summary of FEMA's current minimum standards of acceptability and notes the location within this plan where each planning requirement is met.

### 1.2 PURPOSE AND AUTHORITY

This plan was developed in a joint and cooperative manner by members of a Hazard Mitigation Planning Committee (HMPC) which included representatives of County, City, and Town departments, federal and state agencies, citizens, and other stakeholders. This plan will ensure all jurisdictions in the Outer Banks remain eligible for federal disaster assistance including the FEMA HMGP, PDM, and the FMA programs.

This plan has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under Section 104 of the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390 of October 30, 2000, as implemented at CFR 201.6 and 201.7 dated October 2007.

This plan will be adopted by each participating jurisdiction in accordance with standard local procedures. Copies of adoption resolutions are provided in Section 9 Plan Adoption.

### 1.3 SCOPE

The planning area for the Outer Banks Region includes all incorporated municipalities and unincorporated areas in Currituck and Dare Counties. All participating jurisdictions are listed in Table 1.1.

**Table 1.1 – Participating Jurisdictions in the Outer Banks Regional Hazard Mitigation Plan**

<b>Currituck County</b>
<b>Dare County</b>
Town of Duck
Town of Kill Devil Hills
Town of Kitty Hawk
Town of Manteo
Town of Nags Head
Town of Southern Shores

The focus of this plan is on those hazards deemed “high” or “moderate” priority hazards for the planning area, as determined through the risk and vulnerability assessments. Lower priority hazards will continue to be evaluated but will not necessarily be prioritized for mitigation in the action plan.

The Outer Banks Region followed the planning process prescribed by FEMA, and this plan was developed under the guidance of an HMPC comprised of representatives of County, City, and Town departments; citizens; and other stakeholders. The HMPC conducted a risk assessment that identified and profiled hazards that pose a risk to the planning area, assessed the planning area's vulnerability to these hazards, and examined each participating jurisdiction's capabilities in place to mitigate them. The hazards profiled in this plan include:

- ▶ Coastal Hazards (Erosion, Rip Current, and Sea Level Rise)
- ▶ Drought
- ▶ Earthquake
- ▶ Extreme Heat
- ▶ Flood
- ▶ Hurricane & Tropical Storm
- ▶ Severe Weather (Thunderstorm Wind, Lightning, & Hail)

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## SECTION 1: INTRODUCTION

- ▶ Severe Winter Storm
- ▶ Tornado
- ▶ Wildfire
- ▶ Hazardous Materials Incident
- ▶ Radiological Emergency
- ▶ Cyber Threat
- ▶ Terrorism
- ▶ Transportation Infrastructure Failure

### 1.4 REFERENCES

The following FEMA guides and reference documents were used to prepare this document:

- ▶ FEMA 386-1: Getting Started. September 2002.
- ▶ FEMA 386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses. August 2001.
- ▶ FEMA 386-3: Developing the Mitigation Plan. April 2003.
- ▶ FEMA 386-4: Bringing the Plan to Life. August 2003.
- ▶ FEMA 386-5: Using Benefit-Cost Review in Mitigation Planning. May 2007.
- ▶ FEMA 386-6: Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning. May 2005.
- ▶ FEMA 386-7: Integrating Manmade Hazards into Mitigation Planning. September 2003.
- ▶ FEMA 386-8: Multijurisdictional Mitigation Planning. August 2006.
- ▶ FEMA 386-9: Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects. August 2008.
- ▶ FEMA. Local Mitigation Planning Handbook. March 2013.
- ▶ FEMA. Local Mitigation Plan Review Guide. October 1, 2011.
- ▶ FEMA National Fire Incident Reporting System 5.0: Complete Reference Guide. January 2008.
- ▶ FEMA Hazard Mitigation Assistance Unified Guidance. June 1, 2010.
- ▶ FEMA. Integrating Hazard Mitigation into Local Planning: Case Studies and Tools for Community Officials. March 1, 2013.
- ▶ FEMA. Mitigation Ideas. A Resource for Reducing Risk to Natural Hazards. January 2013.

Additional sources used in the development of this plan, including data compiled for the Hazard Identification and Risk Assessment, are listed in Appendix D.

### 1.5 PLAN ORGANIZATION

The Outer Banks Regional Hazard Mitigation Plan is organized into the following sections:

- ▶ Section 2: Planning Process
- ▶ Section 3: Planning Area Profile
- ▶ Section 4: Hazard Identification & Risk Assessment
- ▶ Section 5: Capability Assessment
- ▶ Section 6: Mitigation Strategy
- ▶ Section 7: Mitigation Action Plans
- ▶ Section 8: Plan Maintenance
- ▶ Section 9: Plan Adoption
- ▶ Appendix A: Local Plan Review Tool
- ▶ Appendix B: Planning Process Documentation
- ▶ Appendix C: Mitigation Alternatives
- ▶ Appendix D: References



## SECTION 2: PLANNING PROCESS

## 2 Planning Process

**Requirement §201.6(b): An open public involvement process is essential to the development of an effective plan. To develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:**

- 1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- 2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and nonprofit interests to be involved in the planning process; and
- 3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

**Requirement §201.6(c)(1): The plan shall include the following:**

- 1) Documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

This section provides a review of the planning process followed for the development of the Outer Banks Regional Hazard Mitigation Plan. It consists of the following sub-sections:

- ▶ 2.1 Purpose and Vision
- ▶ 2.2 What's Changed in the Plan
- ▶ 2.3 Preparing the Plan
- ▶ 2.4 Hazard Mitigation Planning Committee
- ▶ 2.5 Meetings and Workshops
- ▶ 2.6 Involving the Public
- ▶ 2.7 Outreach Efforts
- ▶ 2.8 Involving the Stakeholders
- ▶ 2.9 Documentation of Plan Progress

### 2.1 PURPOSE AND VISION

As defined by FEMA, “hazard mitigation” means any sustained action taken to reduce or eliminate the long-term risk to life and property from a hazard event. Hazard mitigation planning is the process through which hazards are identified, likely impacts determined, mitigation goals set, and appropriate mitigation strategies determined, prioritized, and implemented.

The purpose of the Outer Banks Regional Hazard Mitigation Plan is to identify, assess, and mitigate hazard risk to better protect the people and property within Currituck and Dare Counties from the effects of natural and human-caused hazards. This plan documents progress on existing hazard mitigation planning efforts, updates the previous plan to reflect current conditions in the Region including relevant hazards and vulnerabilities, increases public education and awareness about the plan and planning process, maintains grant eligibility for participating jurisdictions, maintains compliance with state and federal requirements for local hazard mitigation plans, and identifies and outlines strategies the Counties and participating jurisdictions will use to decrease vulnerability and increase resiliency.

The Outer Banks Region Hazard Mitigation Planning Committee (HMPC) met on June 4<sup>th</sup> and June 5<sup>th</sup> and representatives discussed their vision for the planning area in terms of hazard mitigation planning. The committee was asked to consider what the successful implementation of the plan would achieve, what outcomes the plan would generate, and what the Outer Banks will look like in five years as a way to brainstorm a vision statement for the plan. The HMPC developed and discussed a list of ideas that were consolidated into the following statement that they agreed should define and guide the planning process and the planning area’s approach to hazard mitigation.

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Regional Hazard Mitigation Plan  
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## SECTION 2: PLANNING PROCESS

The Outer Banks Region will maintain its unique quality of life and sense of place while planning and preparing for resilience in the face of future hazards. The Region will be prepared for and adaptable to hazards, and when confronted with disaster, the Region will recover stronger and smarter in a planned, balanced, sustainable manner that acknowledges the dynamic nature of hazard risks in a changing climate. Through innovation and collaboration, the Outer Banks Region will ensure a thriving, safe environment for residents and visitors.

### 2.2 WHAT'S CHANGED IN THE PLAN

Currituck and Dare Counties and their incorporated jurisdictions were participants in the previously approved Albemarle Regional Hazard Mitigation Plan. This plan was approved by FEMA on June 11, 2015.

For this plan update, Currituck and Dare Counties and their incorporated jurisdictions decided to separate from the Albemarle planning region and create their own Outer Banks Regional Plan in order to better focus on the unique risks, vulnerabilities, and needs of their communities.

This hazard mitigation plan update involved a comprehensive review and update of each section of the existing plan and an assessment of the success of the Counties and participating municipalities in evaluating, monitoring and implementing the mitigation strategy outlined in their existing plans. Only the information and data still valid from the existing plans was carried forward as applicable into this update. The following requirements were addressed during the development of this regional plan:

- ▶ Consider changes in vulnerability due to action implementation;
- ▶ Document success stories where mitigation efforts have proven effective;
- ▶ Document areas where mitigation actions were not effective;
- ▶ Document any new hazards that may arise or were previously overlooked;
- ▶ Incorporate new data or studies on hazards and risks;
- ▶ Incorporate new capabilities or changes in capabilities;
- ▶ Incorporate growth and development-related changes to inventories; and
- ▶ Incorporate new action recommendations or changes in action prioritization.

Section 4.2 provides a comparison of the hazards addressed in the 2018 State of North Carolina HMP and the 2015 Albemarle Regional plan and provides the final decision made by the HMPC as to which hazards should be included in the new 2020 Outer Banks Regional Hazard Mitigation Plan.

In addition to the specific changes in hazard analyses identified in Section 4.2, the following items were also addressed in this 2020 plan update:

- ▶ GIS was used, to the extent data allowed, to analyze the priority hazards as part of the vulnerability assessment.
- ▶ Assets at risk to identified hazards were identified by property type and values of properties based on North Carolina Emergency Management's IRISK Database.
- ▶ A discussion on climate change and its projected effect on specific hazards was included in each hazard profile in the risk assessment.
- ▶ The discussion on growth and development trends was enhanced utilizing 2017 American Community Survey data.

Enhanced public outreach and agency coordination efforts were conducted throughout the plan update process in order to meet the more rigorous requirements of the 2017 CRS Coordinator's Manual, in addition to DMA requirements.

## SECTION 2: PLANNING PROCESS

### 2.3 PREPARING THE PLAN

The planning process for preparing the Outer Banks Regional Hazard Mitigation Plan was based on DMA planning requirements and FEMA's associated guidance. This guidance is structured around a four-phase process:

- 1) Planning Process;
- 2) Risk Assessment;
- 3) Mitigation Strategy; and
- 4) Plan Maintenance.

Into this process, the planning consultant integrated a more detailed 10-step planning process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance (FMA) programs. Thus, the modified 10-step process used for this plan meets the requirements of six major programs: FEMA's Hazard Mitigation Grant Program; Pre-Disaster Mitigation Program; CRS Program; FMA Program; Severe Repetitive Loss Program; and new flood control projects authorized by the U.S. Army Corps of Engineers.

Table 2.1 shows how the 10-step CRS planning process aligns with the four phases of hazard mitigation planning pursuant to the Disaster Mitigation Act of 2000.

**Table 2.1 – Mitigation Planning and CRS 10-Step Process Reference Table**

DMA Process	CRS Process
<b>Phase I – Planning Process</b>	
§201.6(c)(1)	Step 1. Organize to Prepare the Plan
§201.6(b)(1)	Step 2. Involve the Public
§201.6(b)(2) & (3)	Step 3. Coordinate
<b>Phase II – Risk Assessment</b>	
§201.6(c)(2)(i)	Step 4. Assess the Hazard
§201.6(c)(2)(ii) & (iii)	Step 5. Assess the Problem
<b>Phase III – Mitigation Strategy</b>	
§201.6(c)(3)(i)	Step 6. Set Goals
§201.6(c)(3)(ii)	Step 7. Review Possible Activities
§201.6(c)(3)(iii)	Step 8. Draft an Action Plan
<b>Phase IV – Plan Maintenance</b>	
§201.6(c)(5)	Step 9. Adopt the Plan
§201.6(c)(4)	Step 10. Implement, Evaluate and Revise the Plan

In addition to meeting DMA and CRS requirements, this plan also meets the recommended steps for developing a Community Wildfire Protection Plan (CWPP). Table 2.2 below outlines the recommended CWPP process and the CRS step and sections of this plan that meet each step.

**Table 2.2 – Community Wildfire Protection Plan Process Reference**

CWPP Process	CRS Step	Fulfilling Plan Section
Convene decision makers	Step 1	Section 2 – HMPC
Involve Federal agencies	Step 3	Section 2 – Involving Stakeholders
Engage interested parties (such as community representatives)	Step 1, 2, and 3	Section 2 – HMPC, Involving the Public, Involving Stakeholders
Establish a community base map	Step 4	Section 4 – Wildfire
Develop a community risk assessment, including fuel hazards, risk of wildfire occurrence, homes, business and essential infrastructure at risk, other community values at risk, local preparedness, and firefighting capability	Step 4 and 5	Section 4 – Wildfire Section 5 – Capability

## SECTION 2: PLANNING PROCESS

CWPP Process	CRS Step	Fulfilling Plan Section
Establish community hazard reduction priorities and recommendations to reduce structural ignitability	Step 6, 7, and 8	Section 6 – Mitigation Strategy Section 7 – Mitigation Action Plans
Develop an action plan and assessment strategy	Step 8 and 10	Section 7 – Mitigation Action Plans Section 8 – Plan Maintenance
Finalize the CWPP	Step 9	Section 9 – Plan Adoption

The process followed for the preparation of this plan, as outlined in Table 2.1 above, is as follows:

### 2.3.1 Phase I – Planning Process

#### Planning Step 1: Organize to Prepare the Plan

With the Counties' commitment to participate in the DMA planning process, community officials worked to establish the framework and organization for development of the plan. An initial meeting was held with key community representatives to discuss the organizational aspects of the plan development process. The Counties' effort to reorganize and coordinate for the plan update was led by Dare County Emergency Management Director, Drew Pearson, and the Currituck County Emergency Management Director, Mary Beth Newns. Consultants from Wood Environment and Infrastructure Solutions, Inc. assisted by leading the Counties through the planning process and preparing the plan document.

#### Planning Step 2: Involve the Public

Public involvement in the development of the plan was sought using various methods, as detailed in Section 2.6.

#### Planning Step 3: Coordinate

As this plan is the first for the newly established Outer Banks planning region, the participating communities had to establish a new HMPC to lead the planning effort. More details on the HMPC are provided in Section 2.4. Stakeholder coordination was incorporated into the formation of the HMPC and was sought through additional outreach methods. These efforts are detailed in Section 2.8 and documentation of additional stakeholder outreach is provided in Appendix B.

#### *Coordination with Other Community Planning Efforts and Hazard Mitigation Activities*

In addition to stakeholder involvement, coordination with other community planning efforts was also seen as paramount to the success of this plan. Mitigation planning involves identifying existing policies, tools, and actions that will reduce a community's risk and vulnerability to hazards. Communities in the Outer Banks Region use a variety of planning mechanisms, such as Comprehensive Plans, subdivision regulations, building codes, and ordinances to guide growth and development. Integrating existing planning efforts, mitigation policies, and action strategies into this plan establishes a credible and comprehensive plan that ties into and supports other community programs. As detailed in Table 2.3, the development of this plan incorporated information from existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions.

These and other documents were reviewed and considered, as appropriate, during the collection of data to support the planning process and plan development, including the hazard identification, vulnerability assessment, and capability assessment. Data from these sources was incorporated into the risk assessment and hazard vulnerability sections of the plan as appropriate. The data was also used in determining the capability of each jurisdiction to implement certain mitigation strategies. The Capability Assessment can be found in Section 5.



## SECTION 2: PLANNING PROCESS

Table 2.3 – Summary of Existing Studies and Plans Reviewed

Resource Referenced	Use in this Plan
Local Comprehensive Plans (Dare County Land Use Plan, Currituck County Land Use Plan, jurisdictional land use/comprehensive plans, etc.)	The Currituck and Dare County land use plans were referenced in the Planning Area Profile in Section 3. Other local comprehensive plans were incorporated into Mitigation Action Plans where applicable in Section 7 and referenced in the Capability Assessment in Section 6. They are also referenced in individual jurisdictional annexes.
Local Ordinances (Flood Damage Prevention Ordinances, Subdivision Ordinances, Zoning Ordinances, etc)	Local ordinances were referenced in the Capability Assessment in Section 6 and where applicable for updates or enforcement in Mitigation Action Plans in Section 7.
Dare County and Incorporated Jurisdictions (09/20/2006) and Currituck County and Incorporated Jurisdictions (12/21/2018) Flood Insurance Studies (FIS), Revised	The FIS reports were referenced in the preparation of the flood hazard profile in Section 4.
Albemarle Hazard Mitigation Plan, 2015	The previous plan was referenced in compiling the Hazard Identification and Risk Assessment in Section 4 and in reporting on implementation status and developing the Mitigation Action Plans in Section 2 and Section 7, respectively.

**2.3.2 Phase II – Risk Assessment****Planning Steps 4 and 5: Identify/Assess the Hazard and Assess the Problem**

The HMPC completed a comprehensive effort to identify, document, and profile all hazards that have, or could have, an impact on the planning area. GIS was used to display, analyze, and quantify hazards and vulnerabilities. A draft of the risk and vulnerability assessment was made available on the plan website for the HMPC, stakeholders, and the public to review and comment.

The HMPC also conducted a capability assessment to review and document the planning area's current capabilities to mitigate risk from and vulnerability to hazards. By collecting information about existing government programs, policies, regulations, ordinances, and emergency plans, the HMPC could assess those activities and measures already in place that contribute to mitigating some of the risks and vulnerabilities identified. A more detailed description of the risk assessment process and the results are included in Section 4 Risk Assessment.

**2.3.3 Phase III – Mitigation Strategy****Planning Steps 6 and 7: Set Goals and Review Possible Activities**

Wood facilitated brainstorming and discussion sessions with the HMPC that described the purpose and process of developing a vision for the planning process and setting planning goals and objectives, a comprehensive range of mitigation alternatives, and a method of selecting and defending recommended mitigation actions using a series of selection criteria. This information is included in Section 6 Mitigation.

**Planning Step 8: Draft an Action Plan**

A complete first draft of the plan was prepared based on input from the HMPC regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7. This draft was shared for HMPC, stakeholder, and public review and comment via the plan website. HMPC, public, and stakeholder comments were integrated into the final draft for the NCEM and FEMA Region IV to review and approve, contingent upon final adoption by the Counties and their participating jurisdictions.

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### 2.3.4 Phase IV – Plan Maintenance

#### Planning Step 9: Adopt the Plan

To secure buy-in and officially implement the plan, the plan will be reviewed and adopted by all participating jurisdictions. Resolutions will be provided in Section 9 Plan Adoption.

#### Planning Step 10: Implement, Evaluate and Revise the Plan

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. Up to this point in the planning process, the HMPC's efforts have been directed at researching data, coordinating input from participating entities, and developing appropriate mitigation actions. Section 8 Plan Maintenance provides an overview of the overall strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The Section also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

## 2.4 HAZARD MITIGATION PLANNING COMMITTEE

This Hazard Mitigation Plan was developed under the guidance of a HMPC. The Committee's representatives included representatives of County and Town departments, federal and state agencies, citizens, and other stakeholders.

To form the planning committee, the Currituck and Dare County Emergency Managers coordinated with County and Town officials to designate representatives for each jurisdiction. Each community was asked to designate a primary and secondary contact for the HMPC. Communities were also asked to identify local stakeholder representatives to participate on the HMPC alongside the County and Town officials to improve the integration of stakeholder input into the plan. The HMPC was comprised of a CRS Steering Committee and a Working Group. Table 2.4 and Table 2.5 detail the HMPC members and the agencies and jurisdictions they represented.

The formal HMPC meetings followed the 10 CRS Planning Steps. Agendas, minutes, and sign-in sheets for the HMPC meetings are included in Appendix B. The meeting dates and topics discussed are summarized in Section 2.5 Meetings and Workshops. All HMPC meetings were open to the public.

The DMA planning regulations and guidance stress that each local government seeking FEMA approval of their mitigation plan must participate in the planning effort in the following ways:

- Participate in the process as part of the HMPC;
- Detail where within the planning area the risk differs from that facing the entire area;
- Identify potential mitigation actions; and
- Formally adopt the plan.

For the Outer Banks Regional HMPC, "participation" meant the following:

- ▶ Providing facilities for meetings;
- ▶ Attending and participating in the HMPC meetings;
- ▶ Collecting and providing requested data (as available);
- ▶ Managing administrative details;
- ▶ Making decisions on plan process and content;
- ▶ Identifying mitigation actions for the plan;
- ▶ Reviewing and providing comments on plan drafts;
- ▶ Informing the public, local officials, and other interested parties about the planning process and providing opportunity for them to comment on the plan;
- ▶ Coordinating, and participating in the public input process; and

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- Coordinating the formal adoption of the plan by local governing bodies.

Detailed summaries of HMPC meetings are provided under Section 2.5 Meetings and Workshops, including meeting dates, locations, and topics discussed. During the planning process, the HMPC members communicated through face-to-face meetings, email, and telephone conversations. This continued communication ensured that coordination was ongoing throughout the entire planning process despite the fact that not all HMPC members could be present at every meeting. Additionally, draft documents were distributed via the plan website so that the HMPC members could easily access and review them and provide comments.

The HMPC was comprised of two groups, a CRS Steering Committee, which led the planning and decision-making efforts throughout the planning process, and a Working Group comprised of additional local staff, which provided information to the CRS Steering Committee.

**Table 2.4 – CRS Steering Committee**

Jurisdiction	Representative	Agency	Position/Title
Currituck County	Mary Newns	Currituck County Emergency Management	Emergency Management/Communications Director
Currituck County	Jason Litteral, CFM	Currituck County Planning and Community Development Department	Planner II
Currituck County	Lora Eddy	The Nature Conservancy	Coastal Engagement Coordinator
Currituck County	Warren Eadus	Quible and Associates, P.C.	President
Currituck County	Anthony Dickinson	Farm Bureau Insurance Group	Agent
Currituck County	Jason Summerton	Twiddy & Company, 4WD Area	Broker-in-Charge
Dare County	Drew Pearson	Dare County Emergency Management	Director
Dare County	Donna Creef	Dare County Planning & Zoning	Planning Director
Dare County	Noah Gillam	Dare County Planning & Zoning	Planner
Dare County	Pat Weston	N/A	Citizen Stakeholder – Hatteras Island
Dare County	Glenn Rainey	N/A	Citizen Stakeholder – Colington
Dare County	Buddy Shelton	N/A	Citizen Stakeholder – Mainland Dare
Dare County	John Finelli	N/A	Citizen Stakeholder – Martin Point
Duck	Joe Heard	Department of Community Development	Director
Duck	Sandy Cross	Department of Community Development	Permit Coordinator/CAMA LPO/CZO/CFM
Duck	Matt Price	--	Community Developer
Duck	Jim Braithwaite	--	Community Developer
Kitty Hawk	Rob Testerman	Kitty Hawk Planning & Inspections	Director
Kitty Hawk	Mike Talley	Kitty Hawk Fire Department	Fire Chief
Kitty Hawk	Mark Bissel	N/A	Citizen Stakeholder
Kill Devil Hills	Meredith Guns	Kill Devil Hills Planning & Inspections	Planning Director
Kill Devil Hills	Cameron Ray	Kill Devil Hills Planning & Inspections	Senior Planner
Kill Devil Hills	Doug Styons	N/A	Citizen Stakeholder
Kill Devil Hills	Mike O'Steen	N/A	Citizen Stakeholder
Kill Devil Hills	Skip Jones	N/A	Citizen Stakeholder

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Jurisdiction	Representative	Agency	Position/Title
Nags Head	Holly White	Nags Head Planning & Development	Principal Planner
Nags Head	Shane Hite	Nags Head Fire Rescue	Deputy Fire Chief
Nags Head	Meade Gwinn	N/A	Citizen Stakeholder
Nags Head	Megan Lambert	N/A	Citizen Stakeholder
Manteo	Melissa Dickerson	Manteo Planning & Zoning	Planner
Manteo	Casey Howell	Manteo Finance Department	Finance Officer
Manteo	Malcolm Fearing	N/A	Citizen Stakeholder
Manteo	Taldage Jones	N/A	Citizen Stakeholder
Southern Shores	Wes Haskett	Southern Shores Administration/Planning & Code Enforcement	Interim Town Manager/Planning Director
Southern Shores	Dabni Shelton	Southern Shores Planning & Code Enforcement	Permit Officer
Southern Shores	Andy Ward	N/A	Citizen Stakeholder

**Table 2.5 – Working Group**

Jurisdiction	Representative	Agency	Position/Title
Currituck County	Rebecca Gay*	Currituck County Emergency Management	Deputy Emergency Management Coordinator
Currituck County	Steven Pyle	Currituck County Emergency Management	Deputy Emergency Management Coordinator
Currituck County	Laurie LoCicero	Currituck County Planning and Community Development Department	Director
Currituck County	Jennie Turner, CFM, CZO	Currituck County Planning and Community Development Department	Planner II
Currituck County	Randall Edwards	Currituck County Public Information Department	Information and Communications Officer
Currituck County	Chandler Sawyer	Engineering	Engineer
Currituck County	Eric Weatherly	Engineering	Engineer
Nags Head	Michael Zehner	Nags Head Planning & Development	Planning Director
Nags Head	Ed Snyder	Nags Head Planning & Development	Code Enforcement

\*Vacated position during the planning process

### 2.5 MEETINGS AND WORKSHOPS

The preparation of this plan required a series of meetings and workshops for facilitating discussion, gaining consensus, and initiating data collection efforts with local government staff, community officials, and other identified stakeholders. More importantly, the meetings and workshops prompted continuous input and feedback from relevant participants throughout the drafting stages of the plan.

Table 2.6 summarizes the key meetings and workshops held by the HMPC during the development of the plan. In many cases, routine discussions and additional meetings were held by local staff to accomplish planning tasks specific to their department or agency. For example, completing the Local Capability Self-Assessment or seeking approval of specific mitigation actions for their department or agency to undertake and include in their Mitigation Action Plan. These meetings were informal and are not documented here.

Public meetings are summarized in subsection 2.6.

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## SECTION 2: PLANNING PROCESS

Table 2.6 – Summary of HMPC Meetings

Meeting Title	Meeting Topic	Meeting Date	Meeting Location
HMPC Mtg. #1 (Kickoff) – Dare County Group	1) Introduction to DMA, CRS, and FMA requirements and the planning process 2) Review of HMPC responsibilities and the project schedule.	March 5, 2019	Dare County Emergency Operations Center, 370 Airport Road, Manteo
HMPC Mtg. #1 (Kickoff) – Currituck County Group		March 6, 2019	Historic Currituck County Courthouse, 2826 Caratoke Hwy, Currituck
HMPC Mtg. #2 – Currituck County Group	1) Review and update plan goals 2) Brainstorm a vision statement 3) Report on status of actions from the 2015 plan 4) Complete the capability self-assessment	June 4, 2019	Lower Currituck Fire Department, 6323 Caratoke Hwy, Grandy
HMPC Mtg. #2 – Dare County Group		June 5, 2019	Dare County Emergency Operations Center, 370 Airport Road, Manteo
HMPC Mtg. #3	1) Review Draft Hazard Identification & Risk Assessment (HIRA) 2) Draft objectives and Mitigation Action Plans	July 24, 2019	Dare County Emergency Operations Center, 370 Airport Road, Manteo
HMPC Mtg. #4 – Currituck County Group	3) Review the Draft Hazard Mitigation Plan 4) Solicit comments and feedback	January 7, 2020	Currituck Courthouse 153 Courthouse Rd, Currituck, NC 27929
HMPC Mtg. #4 – Dare County Group		January 8, 2020	Dare County Emergency Operations Center, 370 Airport Road, Manteo

## 2.6 INVOLVING THE PUBLIC

An important component of any mitigation planning process is public participation. Individual citizen and community-based input provides the entire planning team with a greater understanding of local concerns and increases the likelihood of successfully implementing mitigation actions by developing community “buy-in” from those directly affected by the decisions of public officials. As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community’s overall mitigation strategy aimed at making a home, neighborhood, school, business, or entire planning area safer from the potential effects of hazards.

Public involvement in the development of the plan was sought using various methods including open public meetings, an interactive plan website, a public participation survey, and by making copies of draft plan documents available for public review online and at government offices. Additionally, all HMPC meetings were made open to the public.

All public meetings were advertised on the plan website, which was shared on local community websites, and on local community websites, where possible. Copies of meeting announcements are provided in Appendix B. The public meetings held during the planning process are summarized in Table 2.7.

## Outer Banks

## SECTION 2: PLANNING PROCESS

Table 2.7 – Summary of Public Meetings

Meeting Title	Meeting Topic	Meeting Date	Meeting Location
Public Meeting #1 (Kick-Off) – Dare County	1) Introduction to DMA, CRS, and FMA requirements and the planning process 2) Review of HMPC responsibilities and the project schedule. 3) Review of Hazard Identification 4) Explanation of Mitigation Categories	March 5, 2019	Dare County Admin Building, 954 Marshall C. Collins Drive, Room 168, Manteo, NC, 27954
Public Meeting #1 (Kick-Off) – Currituck County		March 6, 2019	Currituck County Senior Center, 130 Community Way, Barco, NC 27917
Public Meeting #2 – Currituck County	1) Introduction to DMA, CRS, and FMA requirements and the planning process 2) Review of HMPC responsibilities and the project schedule. 3) Review of Hazard Identification 4) Explanation of Mitigation Categories	June 4, 2019	Wildlife Center, 1160 Village Lane, Corolla, NC 27927
Public Meeting #2 – Dare County		June 5, 2019	Fessenden Center Annex, 47017 Buxton Back Road, Buxton, NC 27920
Public Meeting #2 – Dare County		June 6, 2019	102 Town Hall Drive, Commissioners Meeting Room, Kill Devil Hills, NC 27948
Public Meeting #3 – Currituck County	1) Review “Draft” Hazard Mitigation Plan 2) Solicit comments and feedback	January 7, 2020	Currituck Courthouse 153 Courthouse Rd, Currituck, NC 27929
Public Meeting #3 – Dare County		January 8, 2020	Fessenden Center 47017 Buxton Back Road, Buxton, NC 27920
Public Meeting #3 – Dare County		January 9, 2020	Jockey’s Ridge State Park Auditorium 300 W. Carolista Drive, Nags Head, NC 27959

## 2.7 OUTREACH EFFORTS

The HMPC agreed to employ a variety of public outreach methods including established public information mechanisms and resources within the community. The table below details public outreach efforts employed during the preparation of this plan.

Table 2.8 – Public Outreach Efforts

Location	Date	Event/Message
Plan website	Ongoing	Meeting announcements, meeting materials, and description of hazards; contact information provided to request additional information and/or provide comments
Local community websites	Ongoing	Public Meeting announcements posted; Link to the plan website shared to expand reach; Requests for comments on the draft plan

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## SECTION 5: CAPABILITY ASSESSMENT

### 5.4 CONCLUSIONS ON LOCAL CAPABILITY

In order to form meaningful conclusions on the assessment of local capability, a quantitative scoring methodology was designed and applied to results of the Local Capability Assessment Survey. This methodology attempts to assess the overall level of capability of the Outer Banks region to implement hazard mitigation actions.

Table 5.8 shows the results of the capability assessment using the designed scoring methodology. The capability score is based solely on the information provided by local officials in response to the Local Capability Self-Assessment. According to the assessment, the average local capability score for all responding jurisdictions is 147, which falls into the High capability ranking; however, this is somewhat skewed by a few very high-performing jurisdictions. The median score is 92.

**Table 5.8 – Capability Assessment Results**

Jurisdiction	Overall Capability Score	Overall Capability Rating
Currituck County	90	Moderate
Dare County	94	Moderate
Town of Duck	84	Moderate
Town of Kill Devil Hills	80	Moderate
Town of Kitty Hawk	192	High
Town of Manteo	81	Moderate
Town of Nags Head	318	High
Town of Southern Shores	237	High

Source: Local Capability Assessment Survey, NCEM Risk Management Tool

As previously discussed, one of the reasons for conducting a capability assessment is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. These gaps or weaknesses have been identified, for each jurisdiction, in the tables found throughout this section. The participating jurisdictions used the capability assessment as part of the basis for the mitigation actions that are identified in Section 7; therefore, each jurisdiction addresses their ability to expand on and improve their existing capabilities through the identification of their mitigation actions.

## SECTION 6: MITIGATION STRATEGY

## 6 Mitigation Strategy

**Requirement §201.6(c)(3): [The plan shall include] a mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.**

This section describes the process for developing the mitigation strategy for the Outer Banks Regional Hazard Mitigation Plan. It describes how the Region met the requirements for Planning Step 6 (Set Goals), Planning Step 7 (Review Possible Activities), and Planning Step 8 (Draft an Action Plan). This section includes the following sub-sections:

- ▶ 6.1 Goals and Objectives
- ▶ 6.2 Identification & Analysis of Mitigation Activities

### 6.1 GOALS AND OBJECTIVES

**Requirement §201.6(c)(3)(i): [The mitigation strategy section shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.**

Goal setting builds upon the findings of Section 4, which documents the hazards and associated risks that threaten the Outer Banks planning area, and Section 5, which evaluates the capacity of the Region to reduce the impact of those hazards. The intent of Goal Setting is to identify areas where improvements to existing capabilities can be made so that community vulnerability is reduced. Goals are also necessary to guide the review of possible mitigation measures. This plan needs to make sure that recommended actions are consistent with what is appropriate for the Region. Mitigation goals need to reflect community priorities and should be consistent with other local plans.

- ▶ **Goals** are general guidelines that explain what is to be achieved. They are usually broad-based policy type statements, long term and represent global visions. Goals help define the benefits that the plan is trying to achieve.
- ▶ **Objectives** are short term aims that, when combined, form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

#### 6.1.1 Coordination with Other Planning Efforts

The goals of this plan need to be consistent with and complement the goals of other local planning efforts. The primary planning documents that the goals of this plan should complement and be consistent with are the counties’ and participating jurisdictions’ comprehensive plans. Comprehensive plans are important because they are developed and designed to guide future growth within their communities. Keeping the Hazard Mitigation Plan and Comprehensive Plans consistent ensures that land development is done with awareness and understanding of hazard risk and that mitigation projects complement rather than contradict community development objectives.

#### 6.1.2 Goal Setting

At the second planning meetings, held on June 4, 2019 and June 5, 2019, the HMPC reviewed and discussed the goals from the 2015 plan. The goals of the 2015 Albemarle Regional Hazard Mitigation Plan, which included Dare and Currituck counties, were as follows:



## SECTION 6: MITIGATION STRATEGY

#1	Reduce the risk of loss of life and personal injury from natural hazards.
#2	Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.
#3	Maintain critical facilities in functional order.
#4	Protect infrastructure from damage.
#5	Ensure that hazard mitigation is considered when redevelopment occurs after a natural disaster.
#6	Provide education to citizens that empowers them to protect themselves and their families from natural hazards.
#7	Fulfill Federal and State requirements for receipt of future disaster recovery and hazard mitigation assistance.
#8	Improve interjurisdictional cooperation and coordination, especially regarding the reduction of natural hazard impacts.

The HMPC largely approved of the existing goals, but proposed changes to consolidate them into fewer, stronger goals. Goals 1 and 8 were largely maintained, and the sentiment of goals 3 and 4 was combined into one new goal. Goal 5 was maintained and expanded upon, while goals 6 and 7 were essentially removed.

During the second planning meeting, the HMPC also discussed objectives within each goal in order to better facilitate the development of clearly defined mitigation actions.

The revised goals and the new objectives of this plan update are detailed below in Section 6.1.3.

### 6.1.3 Resulting Goals and Objectives

The HMPC agreed upon seven general goals for this planning effort and included specific objectives in support of each goal. The refined goals and objectives are as follows:

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#### Goal 1 – Reduce the risk of loss of life and personal injury from hazards.

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**Objective 1.1:** Educate citizens to encourage individual responsibility to protect themselves and their families from hazards.

**Objective 1.2:** Reduce the risk and impact of future hazards by mitigating risk of development in both known hazard areas and areas expected to face future hazard risk.

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#### Goal 2 – Maintain critical facilities and infrastructure and protect them from damage.

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**Objective 2.1:** Retrofit or otherwise protect critical facilities and infrastructure.

**Objective 2.2:** Increase redundancy of critical systems and services

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#### Goal 3 – Ensure that hazard mitigation practices, construction techniques, policies, and ordinances are integrated for both new development and post-disaster redevelopment to enhance resiliency and enable speedy recovery.

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**Objective 3.1:** Adopt protective development standards and establish post-disaster redevelopment policies.

**Objective 3.2:** Preserve and protect natural and beneficial floodplain functions and key natural resources.

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## SECTION 6: MITIGATION STRATEGY

**Objective 3.3:** Explore, develop, and implement new pre-disaster opportunities that build community resilience.

**Goal 4 – Improve interjurisdictional cooperation and coordination, especially regarding the reduction of hazard impacts.**

**Objective 4.1:** Coordinate development standards across jurisdictions.

**Objective 4.2:** Encourage and enable inter-jurisdictional communication.

### 6.2 IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIVITIES

**Requirement §201.6(c)(3)(ii):** [The mitigation strategy section shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.

To identify and select mitigation projects that support the mitigation goals, each hazard identified in Section 4 Hazard Identification was evaluated. The following were determined based on the Priority Risk Index scores to be high and medium priority hazards:

- ▶ Coastal Hazards
- ▶ Drought
- ▶ Extreme Heat
- ▶ Flood
- ▶ Hurricane & Tropical Storm
- ▶ Severe Weather (Thunderstorm Wind, Lightning, & Hail)
- ▶ Severe Winter Storm
- ▶ Tornado
- ▶ Wildfire
- ▶ Cyber Attack
- ▶ Hazardous Materials Incident
- ▶ Radiological Emergency
- ▶ Terrorism
- ▶ Transportation Infrastructure Failure

Note: While this list contains technological/human-caused hazards, only natural hazards on this list were necessarily prioritized for mitigation. Mitigation action development for technological/human-caused hazards was left to the discretion of each jurisdiction.

Once it was determined which hazards warranted the development of specific mitigation actions, the HMPC analyzed viable mitigation options that supported the identified goals and objectives. The HMPC was provided with the following list of mitigation categories which are utilized as part of the CRS planning process but are also applicable to multi-hazard mitigation.

- ▶ Prevention
- ▶ Property Protection
- ▶ Natural Resource Protection
- ▶ Emergency Services
- ▶ Structural Projects
- ▶ Public Information and Outreach

The HMPC was also provided with examples of potential mitigation actions for each of the above categories. The HMPC was instructed to consider both future and existing buildings in evaluating possible mitigation actions. Facilitated discussions took place to examine and analyze the options. The HMPC also considered which actions from the previous plan that were not already completed should be continued in this action plan.



## CURRITUCK COUNTY NORTH CAROLINA

March 30, 2020

Minutes – Special Meeting of the Board of Commissioners

### WORK SESSION

#### 1. 5:00 PM County Response to Covid-19/General Topics

The Board of Commissioners held a work session at 5:00 PM in a Special Meeting to discuss the county's response to the Covid-19 virus. The work session was held in the Board Meeting Room of the Historic Courthouse, 153 Courthouse Road, Currituck, North Carolina. In addition to Covid-19 related matters, general topics of importance were also planned for discussion.

Chairman White opened the meeting and announced that, due to public access limitations in place during the Covid-19 pandemic, the session was being live streamed and televised.

Currituck County Sheriff, Matt Beickert, began with a review of law enforcement response and departmental activities for enforcing protocols established in the county's emergency declaration and responded to questions posed by Commissioners related to marine patrols, checkpoints at county lines, essential workforce, and enforcement of gathering limitations. Sheriff Beickert said citizens have been complying with the measures in place.

County Manager, Ben Stikeleather, provided information to the Board related to procedural and policy changes for the county's internal operations and staffing. He reported on the Families First Coronavirus Act which changes provisions in the Family Medical Leave Act (FMLA) to include measures to address those affected by Covid-19. Mr. Stikeleather discussed non-resident property owner and visitor access restrictions in Currituck County and the Outer Banks and relayed concerns over limited healthcare resources. He and Commissioner McCord discussed business entry permits and reviewed who is able to pass through checkpoints. Commissioner McCord reviewed law enforcement activities related to boater checks and said the Governor's order would allow residents to recreate on the beach. Commissioners and staff discussed directives in the Governor's Order related to mass gatherings and reporting of violations.

Potential dates for reopening were discussed, and the Board set a target date of April 30, 2020. The Board received guidance from County Attorney, Ike McRee, on remote participation in meetings. Mr. McRee provided suggestions for the Board to consider should they decide to hold a remote meeting, and he reviewed language revising the county code of ordinances to allow remote participation under a state of emergency. Following discussion, the Board chose to include additional discussion on an ordinance amendment at the 6:00 PM meeting following the work session. County staff and Commissioners held general discussion on Covid-19 restrictions, safety protocols and public information resources for citizens and businesses.

### 6:00 CALL TO ORDER

The Currituck County Board of Commissioners met in a Special Meeting at 6:00 PM in the Historic Courthouse Board Meeting Room, 153 Courthouse Road, Currituck, North Carolina. The purpose of the meeting was to discuss, consider or take action necessary in response to federal or state declarations regarding the Covid-19 pandemic and any other matters that may be discussed, considered or acted upon at a regular meeting.

Attendee Name	Title	Status	Arrived
Bob White	Chairman	Present	
Mike H. Payment	Vice Chairman	Present	
Paul M. Beaumont	Commissioner	Present	
J. Owen Etheridge	Commissioner	Present	
Mary "Kitty" Etheridge	Commissioner	Present	
Selina S. Jarvis	Commissioner	Present	
Kevin E. McCord	Commissioner	Present	

Chairman White called the meeting to order. Commissioner Paul Beaumont gave the Invocation and led the Pledge of Allegiance.

#### **A. Approval of Agenda**

Chairman White requested amendments to the agenda. The Commissioner's Report was moved to follow the County Manager's Report and Consideration of an Amendment to the Code of Ordinances to Allow for Virtual Meetings was added as a New Business item.

Commissioner Mary Etheridge made a motion for approval. The motion was seconded by Commissioner McCord. The motion carried and the agenda was approved as amended.

Approved agenda:

#### **Work Session**

5:00 PM County Response to Covid-19/General Topics

#### **6:00 Call to Order**

A) Approval of Agenda

#### **County Manager's Report-Amended**

#### **Commissioner's Report**

#### **New Business**

- 1) Amended Item-Ordinance Amending Section 2-56 to the County Code of Ordinances to Provide for Remote



## Participation at a Meeting During a State of Emergency

### Adjourn

#### Motion to Adjourn Meeting

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

### COUNTY MANAGER'S REPORT-AMENDED

In response to the Covid-19 virus pandemic, Ben Stikeleather, County Manager, asked the Board to consider cancelling all county events through April 30, 2020, except for the free drive through rabies clinic, to coincide with the County's tentative reopening date. The Board agreed to cancel events through April 30, 2020. Mr. Stikeleather reviewed procedural, staffing and operational recommendations for county departments and employees. Mr. Stikeleather responded to questions from Board members related to county construction projects and clarified items regarding staff employment and use of sick leave.

### COMMISSIONER'S REPORT

Chairman White said access to beach properties for owners wanting to act as an owner-contractor to prepare homes for the rental season would not be permitted at this time except in an emergency. He reported the County's tentative reopening date of April 30, 2020 and said it would be reviewed at the next Board of Commissioners meeting. He encouraged people to visit the County website for up-to-date information. Chairman White reviewed the horse fencing project at the off-road ramp. He acknowledged the many emails received from non-resident property owners. He asked for patience, described the reasons behind the county's decision to restrict access, and discussed enforcement efforts.

Commissioner Mary Etheridge offered her thanks to first responders, volunteers, business owners and employees for all of their efforts during this time. She asked the public to stay safe and be patient as the county adjusts to scheduling changes.

Commissioner Payment said the Board is doing their best to make good decisions regarding the current situation. He thanked everyone for their efforts and encouraged support of local businesses. He questioned if Waste Management had plans to change operations at county convenience sites due to Covid-19, and Mr. Stikeleather said no changes have been reported.

Commissioner Beaumont acknowledged county staff and fellow Board members for their efforts. He noted the Wright Memorial Bridge closure by Dare County and highlighted the need to build the mid-Currituck Bridge. He recognized troops deployed overseas and asked they be kept in everyone's prayers.

Commissioner McCord encouraged people to review the Governor's order on-line. He reported on who is able and what type of documentation is needed to access the Outer Banks. He acknowledged the telecommunications staff and provided Currituck County's dispatch contact number if citizens need to call. He talked about trash pickup on the roadways.

Commissioner Jarvis acknowledged the turbulent times and encouraged people to get their information from legitimate sources and not to react to posts on social media. She discussed the current challenges with socializing and alternative ways for people to support each other. She acknowledged a recent event where teachers drove through many neighborhoods in the county to reach out to students. She thanked the county staff and acknowledged those who worked to provide goods and supplies and who volunteered to assist various organizations.

Commissioner J. Owen Etheridge agreed with prior comments. He discussed the empty shelves at the grocery stores and encouraged citizens to check on their neighbors. He addressed the seriousness of the current situation, expressed optimism that we would get through it, and asked for prayers.

Chairman White reminded everyone that the beaches in Corolla and Carova are open but asked that people be responsible and follow safety and social distancing guidelines. Closures of public restrooms and playgrounds were reported.

## **NEW BUSINESS**

### **1. Amended Item-Ordinance Amending Section 2-56 to the County Code of Ordinances to Provide for Remote Participation at a Meeting During a State of Emergency**

County Attorney, Ike McRee, reviewed the current ordinance prohibiting the Board of Commissioners and Advisory Board members from participating in meetings remotely. Mr. McRee said the changes being considered would revise these provisions to allow for remote participation in meetings by Board members during a State of Emergency. Additional considerations pertaining to open meetings law were presented, and Mr. McRee suggested remote meetings be held only in limited circumstances.

Mr. McRee and County Manager, Ben Stikeleather, responded to questions and discussed remote meeting capabilities, computer security, and what business items are likely to be considered at a remote meeting. Mr. Stikeleather recommended against holding public hearings.

Following discussion, Commissioner Beaumont moved to approve the ordinance amendment with added verbiage to include if a physical quorum cannot be met after a survey of attendees by the County Manager and under a State of Emergency. The motion was seconded by Commissioner McCord. The second was withdrawn and the original motion was amended by Commissioner Beaumont to add the motion is applicable to Part 1 of the ordinance amendment as presented, applicable only to the Board of Commissioners. Commissioner McCord seconded the motion. The motion carried.

### **AN ORDINANCE OF THE CURRITUCK COUNTY BOARD OF COMMISSIONERS AMENDING SECTION 2-56 OF THE CURRITUCK COUNTY CODE OF ORDINANCES TO PROVIDE FOR REMOTE PARTICIPATION AT A MEETING DURING A STATE OF EMERGENCY**

WHEREAS, pursuant to N.C. Gen. Stat. §153A-71 a board of commissioners may adopt its own rules of procedure in keeping with the size and nature of the board and in the spirit of generally accepted principles of parliamentary procedure; and

WHEREAS, pursuant to N.C. Gen. Stat. §153A-76 a board of commissioners may change the composition and manner of selection of boards, commissions, and agencies, and

may generally organize and reorganize the county government in order to promote orderly and efficient administration of county affairs.

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

PART I. Section 2-56(c) of the Code of Ordinances, Currituck County, North Carolina is amended to read as follows:

**Sec. 2-56. Regular and special meetings.**

(c) *Meeting attendance.* A board member must be physically present at a regular or special meeting to participate or vote in the meeting except during a state of emergency declared under Chapter 166A of the General Statutes of North Carolina when a majority of the board is unable to be physically present at the meeting.

PART II. All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

PART III. This ordinance is effective immediately upon adoption.

ADOPTED this 30th day of March, 2020.

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

**ADJOURN**

The Board had no further business and Commissioner Beaumont moved to adjourn. The motion was seconded by Commissioner Payment. The motion carried and the Special Meeting of the Board of Commissioners adjourned.

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



## CURRITUCK COUNTY NORTH CAROLINA

June 15, 2020

Minutes – Regular Meeting of the Board of Commissioners

### WORK SESSION

#### 1. 4:00 PM Currituck Station

The Board of Commissioners attended a 4 PM work session in the Sanderlin Auditorium of the Cooperative Education Center, 120 Community Way, Barco, North Carolina. The work session was joined by Mel Price and Peter Johnson of Work Program Architects (WPA), the firm who developed the pattern book for Currituck Station, a 3,000 acre planned, mixed-use development and employment center located in Moyock.

Ms. Price began with a brief company overview and presented the zoning sectors that make Currituck Station and the process used by WPA to develop the design standards Pattern Book. Using a powerpoint, Ms. Price described the look of building designs, public spaces and transportation elements within Currituck Station. Ms. Price responded to questions related to development of mega-site planned communities.

Donna Voliva, Assistant Planning Director, briefly reviewed the text amendment language associated with Currituck Station, initiated and developed based on citizen feedback derived from the 2012 Moyock Small Area Plan. The feasibility study, market analysis, land identification uses and development outside of Currituck Station were reviewed.

Staff reported the purpose of the mega-site, potential commercial and residential development, and rezoning processes for the area. The Work Session concluded at 5:04 PM.

#### 6:00 PM CALL TO ORDER

The Currituck County Board of Commissioners met at 6:00 PM for a regular meeting in the Sanderlin Auditorium at the Currituck Cooperative Extension Center, 120 Community Way, Barco, North Carolina.

Attendee Name	Title	Status	Arrived
Bob White	Chairman	Present	
Mike H. Payment	Vice Chairman	Present	
Paul M. Beaumont	Commissioner	Present	
J. Owen Etheridge	Commissioner	Present	
Mary "Kitty" Etheridge	Commissioner	Present	
Selina S. Jarvis	Commissioner	Present	
Kevin E. McCord	Commissioner	Present	



Chairman White called the meeting to order.

#### **A) Moment of Silence & Pledge of Allegiance**

Commissioner Paul Beaumont offered the Invocation and led the Pledge of Allegiance.

#### **B) Approval of Agenda**

Chairman White amended the agenda to add a Closed Session pursuant to G.S. 143-318.11(a)(3) to preserve the attorney-client privilege in the matters entitled Currituck County v. Letendre and Currituck County v. Costa and Paradise Homes. Two budget amendments were added to Consent Agenda to provide insurance funds for Lower Currituck Volunteer Fire Department.

Commissioner Payment moved for approval of the agenda. Commissioner Jarvis seconded. The motion carried and the agenda was approved as amended.

Approved agenda:

#### **Work Session**

4:00 PM Currituck Station

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

A) Moment of Silence & Pledge of Allegiance

B) Approval of Agenda

#### **Public Comment**

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

#### **Commissioner's Report**

#### **County Manager's**

#### **Report**

#### **Administrative**

#### **Reports**

A) Maritime Museum Exhibits Presentation

B) Stormwater Drainage Analysis for 500-Year Storm Event

**Public Hearings**

- A) **Public Hearing and Possible Action on Annual Budget for the Fiscal Year Ending June 30, 2021.** Required Public Hearing for possible adoption following presentation of the proposed budget at the June 1, 2020, Board of Commissioners Meeting.
- B) **Public Hearing & Possible Action to Authorize an Economic Development Incentive for The Cotton Gin, Jarvisburg, NC**
- C) **PB 20-09 Boswood Estates, Phase 1 & 2: Request for a preliminary plat/use permit for a 14 lot traditional development located at the 3800 block of Caratoke Highway, Maple, Parcel ID 0060000053B0000, Crawford Township.**
- D) **PB 20-07 Currituck County Alternative Water Supply for Fire Flow Text Amendment:** Request to amend the Unified Development Ordinance Chapter 6, Section 6.2.4 to 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 in Chapters 4, 5, and 6 from "Fire Marshal" to "Fire Code Official".
- E) **PB 19-25 Currituck County - Currituck Station:** A request to amend the Unified Development Ordinance, Chapter 1. General Provisions, Chapter 2. Administration, Chapter 3. Zoning Districts, Chapter 4. Use Standards, Chapter 5. Development Standards, Chapter 6. Subdivision Infrastructure Standards, and Chapter 10. Definitions and Measurements for the purpose of implementing the Moyock Mega Site master plan (Currituck Station) and establishing the Planned Development - Currituck Station district and regulations.

**New Business**

- A) **Consideration of Facility Use-Naval Contractor "Jump" Operations at Currituck County Airport**
- B) **Consent Agenda**
  - 1. Approval Of Minutes for June 1, 2020
  - 2. Independent Mailing Systems Lease Agreement-Mail Processing Equipment
  - 3. Amended-Budget Amendments

**Special Meeting of the Tourism Development Authority**

Public Hearing and Possible Adoption of the Tourism Development Authority Budget for Fiscal Year Ending June 30, 2021

**Adjourn****Special Meeting of the Ocean Sands Water & Sewer District Board**

Public Hearing and Possible Adoption of the Ocean Sands Water & Sewer District Budget for Fiscal Year Ending June 30, 2021

**Adjourn****Closed Session**

Amended-Closed Session Pursuant to G.S. 143-318.11(a)(3) to consult with the County Attorney and preserve the attorney-client privilege in the matters entitled Currituck County v. Letendre; and Currituck County v. Cossa and Paradise Homes

**Adjourn**

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

**PUBLIC COMMENT**

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

Chairman White opened the Public Comment period.

Andy Deel, of Deel Engineering, and Dave Klebitz, Engineer with Bissell Professional Group, each commented on the drainage study presentation item on the meeting agenda and said the study would not resolve the county's issues with stormwater. Both suggested a more comprehensive study and analysis for stormwater management in the County.

No others wished to speak and the Public Comment period was closed.

**COMMISSIONER'S REPORT**

Chairman White discussed the Board's decision to move forward with the annual Independence Day celebration and its importance. He announced the Board's earlier work session to discuss Currituck Station and encouraged the public to attend the Board's work sessions.

Commissioner Payment reiterated the importance of celebrating the July 4th holiday and as Commissioner serving on the Albemarle Regional Health Services Board, had discussed

the event with them. He provided an update on Covid cases in the County and encouraged everyone to be careful and practice recommended safety protocols. Commissioner Payment encouraged citizens to get involved with their local volunteer fire departments.

Commissioner Mary Etheridge announced the distribution dates for Knotts Island and Corolla citizens to receive gift cards through Operation Love Thy Neighbor and thanked all who donated to the program.

Commissioner Beaumont reported his attendance at Moyock Volunteer Fire Department's reveal of a new fire apparatus. He said he attended the Currituck County High School graduation ceremony and congratulated the graduates. He acknowledged Principal Matney and the Board of Education for putting together the ceremony during the pandemic.

Commissioner McCord also attended the reveal of the new fire apparatus at Moyock Volunteer Fire Department. He discussed public attendance at the County's upcoming July 4th fireworks and recognized the Board of Education for holding the graduation ceremony. He encouraged everyone to stay safe on the roads with the increase in weekend traffic.

Commissioner J. Owen Etheridge also addressed the County's July 4th celebration as a reminder of the freedoms we have as citizens. He discussed the High School graduation ceremony and appreciated hearing the student addresses and the opportunity provided to them to reclaim some normalcy during this time.

Commissioner Jarvis also discussed the gift card distribution through the Operation Love Thy Neighbor program. She thanked all who donated and encouraged people to continue to do so in the hope of having another distribution during the summer. Commissioner Jarvis quoted the Declaration of Independence and spoke of holding to its principals to overcome the challenges we are facing.

## **COUNTY MANAGER'S REPORT**

County Manager, Ben Stikeleather, discussed the County's decision to cancel youth baseball, softball and T-ball in response to citizen inquiries received by the county. He explained the cancellations were due to a lack of interest, as there were not enough participants registered to form leagues.

## **ADMINISTRATIVE REPORTS**

### **A. Maritime Museum Exhibits Presentation**

Michelle Perry, County Engineer, gave Commissioners an update on the construction progress for the Maritime Museum in Corolla. Ms. Perry introduced Mark Tolliver of Riggs Ward Design, exhibit designer for the Maritime Museum. Mr. Tolliver showed photos and renderings while describing the interior layout, display areas, graphics, exhibits, and interactive components planned for the museum. Following the presentation, Rodney Kite, who serves on the Historic Boat Building Committee, thanked Commissioners for their support of the project, and said the entire County will be proud when it is completed.

### **B. Stormwater Drainage Analysis for 500-Year Storm Event**



County Manager, Ben Stikeleather, summarized discussion at the Board's February retreat related to stormwater and, in response to flooding concerns in the County, the Board had asked for an analysis of the impacts to developers if stormwater pond holding capacity for subdivisions was increased to accommodate a 500-year storm.

Kim Hamby, Engineer with Timmons Group, performed the analysis and presented findings. Ms. Hamby reviewed the data and methods used to develop the analysis and used two subdivisions in the county for modeling. Existing stormwater design plans were reviewed and compared with the findings based on the 500-year storm. Results showed an increased pond size of 2.5 times on average and a 15% lot reduction. Ms. Hamby responded to questions from Commissioners regarding the analysis and results, and Eric Weatherly, County Engineer, provided additional information related to culverts, release rates and ditch maintenance. A summary of findings was presented.

Following presentation, Commissioners considered holding a work session to discuss the issue further. In lieu of a work session, Commissioners directed staff to set up a meeting of stakeholders to provide an opportunity for Commissioners to hear ideas and concerns from the development community. Mr. Stikeleather said he would try to put together a meeting in July.

Discussion concluded and a recess was called at 7:31 PM. The meeting reconvened at 7:44 PM.

## **PUBLIC HEARINGS**

### **A. Public Hearing and Possible Action on Annual Budget for the Fiscal Year Ending June 30, 2021.**

Chairman White opened the Public Hearing to receive comment on the County's annual budget. No one was signed up nor wished to speak and the Public Hearing was closed.

Commissioner Beaumont said Currituck County school representatives will be addressing the Board of Commissioners at the Monday, June 22 Commissioner meeting, and suggested holding off on voting on the county budget so questions related to the school budget can be answered.

County Manager, Ben Stikeleather, said an email was sent to Commissioners to provide additional information on the salary study and Sandra Hill, Finance Director, confirmed minimal impacts to Finance if the Board waited an additional week for adoption of the budget.

Commissioner Beaumont clarified that discussion could take place, but his motion is to not take action on the budget until after the schools presentation at the next meeting. Commissioner J. Owen Etheridge seconded the motion and the motion carried.

Following the vote to delay action, Mr. Stikeleather provided a breakdown for Commissioners on costs to implement the salary study and a Cost of Living increase, and the effects based on a timeline of when the increases occur, and reviewed compression movements and clarified costs related to advanced fire and paramedic

positions. The total cost of salary study is \$811,192.00, cost of living increase is \$564,943.00, resulting in a total cost of \$1,392,358.00. Mr. Stikeleather said there is a savings of \$68,580.00 if the Cost of Living and Salary Study are implemented at the same time.

Mr. Stikeleather provided an explanation of the current pay schedule for fire employees. He said he believes the fire employees do need an increase but recommends a conservative approach with the budget and the unknowns this year. He acknowledged an uptick in vacation rentals on the beach and suggested looking at Occupancy Tax assist with determining where the County sits financially. He recommended assessing finances in September, and if the Board is inclined to move forward with increases, implementing both the cost of living and salary study for all employees. Mr. Stikeleather said selecting departments to receive raises makes it difficult to maintain employee moral.

Commissioner Mary Etheridge expressed concerns with spending from fund balance. She noted rising Covid-19 cases and said the Board needs to wait and see what happens before authorizing increases.

Commissioner McCord said the money will be there, as the beach is packed and the Board should do it now, and not wait.

Commissioner Beaumont agreed the beach is busy, and suggested the Board of Education's spending of fund balance cannot be compared with County spending.

Chairman White believes Covid-19 impacts on sales tax will be significant and cautioned Commissioners about spending out of fund balance and to wait until September.

Commissioner Jarvis said waiting will allow the Board to really fix the problem, to implement the whole salary study and the cost of living, and would allow them to have discussion if the county has the financial means.

Commissioner J. Owen Etheridge suggested making the increase retroactive if the funds are there in September. The County Manager said it would be difficult and doesn't recommend it. Mr. Stikeleather responded to questions related to fire employees, and said the County has listened to their concerns and rectified several issues raised. Commissioner Payment suggested looking at their duties to see if they are being asked to do too much. The County Manager said the call data can be analyzed.

Following discussion Commissioners agreed to come back for a review of funds in September for implementation of an increase October 1. A look-back period to July 1 will be considered.

**Move to Delay Acting on Budget until June 22, 2020 Commissioners Meeting**

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

## **B. Public Hearing & Possible Action to Authorize an Economic Development Incentive for The Cotton Gin, Jarvisburg, NC**

Larry Lombardi, Economic Development Director, spoke to Commissioners on behalf of the Cotton Gin in support of approval of a Resolution that would provide assistance with clearing the property following a fire that destroyed the building. Mr. Lombardi said the business has operated in the county for many decades and the Economic Development Incentive would help with costs to rebuild, thus bringing jobs back to the county. Ben Stikeleather, County Manager, discussed with Commissioners other incentives provided to local businesses, and reviewed the criteria, purpose and benefits resulting from Economic Development incentives.

Following discussion, Chairman White opened the Public Hearing. No one was signed up nor wished to speak and the Public Hearing was closed.

Commissioner Jarvis moved to authorize the Economic Development Incentive for the Cotton Gin in the amount of \$16,365.14. Commissioner Payment seconded the motion. The motion carried.

### **RESOLUTION AUTHORIZING INCENTIVES CONTRACT WITH THE COTTON GIN, INC.**

WHEREAS, Section 158-7.1 of the General Statutes of North Carolina authorizes a county to undertake an economic development project by extending assistance to a company in order to cause the company to locate or expand its operations within the county; and

WHEREAS, the Currituck County Board of Commissioners held a public hearing on June 15, 2020 to receive public comments regarding Currituck County, (the "County"), participation in an economic development project with The Cotton Gin, Inc. by providing The Cotton Gin, Inc. with a portion of the cost required for clearing property in preparation for construction of a new facility; and

WHEREAS, The Cotton Gin, Inc. will make an investment in the county in an approximate amount of between \$2,000,000 and \$3,000,000 to construct a new facility and acquire equipment necessary for its retail operations and return 34 jobs to the community workforce; and

WHEREAS, as proposed The Cotton Gin, Inc.'s investment in the county will stimulate, diversify and help stabilize the local economy, promote business in the

county, increase tourism on the County's mainland and result in the return of jobs in the County; and

WHEREAS, the Currituck County Board of Commissioners will adopt an amendment to the County's budget ordinance appropriating the funds necessary for the project;

NOW, THEREFORE, BE IT RESOLVED by the Currituck County Board of Commissioners that:

Section 1. The County is authorized to expend up to \$16,365.14 from the County's General Fund for the partial cost required for The Cotton Gin, Inc.'s clearance of its property in preparation for construction of its new facility.

Section 2. This resolution and expenditure of funds are contingent on the execution of an incentives contract between the County and The Cotton Gin, Inc. outlining its investment in the county.

Section 3. The Chairman of the Board of Commissioners is authorized to execute the incentives contract and any other documents necessary to the project on behalf of the County.

Section 4. This resolution is effective upon adoption.

Adopted this 15<sup>th</sup> day of June, 2020.

\_\_\_\_\_  
Bob White, Chairman  
Board of Commissioners

ATTEST:

\_\_\_\_\_  
Leeann Walton, Clerk to the Board

(COUNTY SEAL)

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

**C. PB 20-09 Boswood Estates, Phase 1 & 2:**

Communication: Minutes for June 15, 2020 (Approval Of Minutes-Covid-19 Special Meeting 3-30-2020; Regular Meeting 6-15-2020)



APPLICATION SUMMARY	
<b>Property Owner:</b> G. Dodson Mathias 400 Avinger Lane, Villa 609 Davidson, NC 28039	<b>Applicant:</b> Boswood Estates, LLC PO Box 100 Currituck, NC 27929
<b>Case Number:</b> PB 20-09	<b>Application Type:</b> Preliminary Plat/Use Permit
<b>Parcel Identification Number:</b> 0060000053B0000	<b>Existing Use:</b> Active Agricultural/Wetlands
<b>Land Use Plan Classification:</b> Full Service/Conservation	<b>Parcel Size (Acres):</b> 26.94 acres total 20.49 acres (excludes 6.45 ac CAMA wetlands)
<b>Maple/Barco Small Area Plan Classification:</b> Mixed Use	<b>Zoning:</b> General Business (GB)
<b>Number of Units:</b> 14 residential lots (2 phases)	<b>Project Density:</b> 0.68 dwelling unit/acre
<b>Required Open Space:</b> 8.08 acres (30%)	<b>Provided Open Space:</b> 11.05 acres (41%)

SURROUNDING PARCELS		
	LAND USE	ZONING
NORTH	LOW DENSITY RESIDENTIAL	SFM
SOUTH	RESIDENTIAL/AGRICULTURAL	GB
EAST	COINJOCK BAY	N/A
WEST	LOW DENSITY RESIDENTIAL	GB

#### Application Summary

1. The applicant, Boswood Estates, LLC, is requesting preliminary plat approval of a 2 phase 14-lot residential subdivision.
2. The proposed development is a Type II traditional subdivision.
3. The base zoning of the property is General Business and the minimum lot size for a traditional residential subdivision is 40,000 square feet.
4. The property contains 10.66 acres of US Army Corps of Engineers jurisdictional wetlands (preliminary jurisdictional determination) and approximately 6.45 acres of coastal wetlands. The wetlands and riparian buffer will be located in open space. The applicant indicates 9.51 acres of wetlands will be dedicated to a non-profit and the remaining 1.54 acres of open space will be dedicated to the subdivision association.
5. The property contains approximately 772 linear feet of shoreline along the Coinjock Bay. The applicant is not proposing public water access to the abutting public trust waters since the total number of lots is less than 20.
6. The proposed streets are designed to be 20' in pavement width with a roadside swale within a 50' right of way. A 5' wide sidewalk is proposed between the roadside swale and the street trees. The sidewalk will not be located in the street right of way but on private property and within a 25' drainage, landscape, utility and pedestrian easement.

7. Interconnectivity is proposed to the southern property line and adjacent to active agricultural lands with a residential use (previously known as The Palmer Inn, bed and breakfast).
8. The Soil Survey of Currituck County, North Carolina identifies the proposed residential lots predominately State fine sandy loam (StA) soils. A small area near the wetlands is identified as Tomotley fine sandy loam (To) soils. The Soil Survey indicates State (StA) soils are generally sited for most urban and recreational uses; wetness is the main limitation.
9. The entrance road for the proposed development is approximately 380' south of the existing Major's Island Road, a private unpaved road. The minimum intersection spacing for a local street intersecting a major arterial street is 1,000 feet. Due to the lot width of this site and the existing private streets, the applicant is unable to meet the minimum intersection spacing of the UDO. The 10<sup>th</sup> edition of the *ITE Trip Generation Manual* states a single family dwelling generates 10 trips per day, and the proposed 14 lot development will generate a total of 140 vehicles per day. Upon advise of David B. Otts, NCDOT District Engineer, the placement of the proposed entrance road that will generate 140 vehicles per day and is approximately 380' south of the existing Major's Island Road (private), will maintain a satisfactory level of access control on Caratoke Highway. The total number of lots will not require a deceleration lane.
10. A community meeting was not required with this application due to the number of lots proposed.

INFRASTRUCTURE	
<b>WATER</b>	PROPOSED PUBLIC WATER SUPPLY
<b>SEWER</b>	ON-SITE SEPTIC
<b>TRANSPORTATION</b>	PEDESTRIAN: SIDEWALKS ON BOTH SIDES OF THE STREET
	CONNECTIVITY SCORE: MINIMUM = 1.4 PROPOSED = 1.5
<b>STORMWATER/DRAINAGE</b>	PROPERTY LINE VEGETATIVE SWALES WILL CONVEY RUNOFF TO A SWALE/DITCH NEAR THE REAR OF EACH LOT AND THEN TO THE DRAINAGE OUTLET EXISTING INTERNAL FARM DITCHES WILL BE FILLED AND REDIRECTED TO SHALLOW GRASS SWALES
<b>LIGHTING</b>	NO STREET LIGHTING PROPOSED
<b>LANDSCAPING</b>	A 25' STREETSCAPE WILL BE PROVIDED ALONG CARATOKE HIGHWAY. A PERIMETER BUFFER WILL BE PROVIDED ALONG THE PROPERTIES ZONED SFM. THE APPLICANT SELECTED A 10' PERIMETER BUFFER WIDTH. STREET TREES WILL BE PROVIDED.
<b>COMPATIBILITY</b>	A 50' FARMLAND BUFFER WILL BE PROVIDED ALONG THE AGRICULTURAL USE AREA ON THE SOUTHERN PROPERTY LINE.
<b>RECREATION AND PARK AREA DEDICATION</b>	THE 0.36 ACRE PROPOSED DEDICATION IS CONSIDERED TOO SMALL TO PROVIDE ADEQUATE PARK OR RECREATION AREA AND PAYMENT IN LIEU OF THE DEDICATION SHALL BE PROVIDED.
<b>RIPARIAN BUFFERS</b>	A 30' RIPARIAN BUFFER WILL BE PROVIDED ADJACENT TO ALL WETLAND BOUNDARIES. THE BUFFER IS LOCATED IN OPEN SPACE

### 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%	4 students
Shawboro Elementary	87%	90%		
Central Elementary	77%	85%		
Griggs Elementary	57%	59%	96%	
Jarvisburg Elementary	88%	95%		
Knotts Island Elementary	36%	38%	38%	
Moyock Middle	94%	83%	96%	1 student
Currituck Middle	70%			
Currituck High	84%	85%	103%	2 students
JP Knapp Early College	88%			

<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

## RECOMMENDATIONS

### TECHNICAL REVIEW COMMITTEE

**The Technical Review Committee recommends adoption of the use permit and approval of the preliminary plat subject to the following conditions of approval:**

1. The application complies with all applicable review standards of the UDO provided the following items are addressed:
  - a. The applicant selected Option 2 for the perimeter buffer. The width of the buffer is 10 feet and is near overhead power lines and drainage improvements. Staff is concerned that this area may not be sufficient width to accommodate the existing conditions and the proposed improvements, including landscaping. It is recommended that a typical detail of the existing conditions and proposed improvements be submitted to ensure compliance of the UDO and minimize the potential effects on surrounding lands.
2. The applicant demonstrates the proposed use will meet the use permit review standards of the UDO.
3. The conditions of approval necessary to ensure compliance with the review standards of the UDO and to prevent or minimize adverse effects of the development application on surrounding lands include:
  - a. Open space shall be contiguous and shall not contain private walkways or boardwalks.
  - b. A 25' drainage easement shall be provided along all conveyance systems that drain more than 5 acres. The easement shall include the conveyance system and an additional 25' from the top of embankment. This easement will extend onto private lots. In an effort provide awareness and avoid damage to potential private improvements, no septic system or

- structure shall be located the easement. A note shall be added to the final plat.
- c. The applicant selected Option 2 for the perimeter buffer. The width of the buffer is 10 feet and is near overhead power lines and drainage improvements. Staff is concerned that this area may not be sufficient width to accommodate the existing conditions and the proposed improvements, including landscaping. It is recommended that a typical detail of the existing conditions and proposed improvements be submitted to ensure compliance of the UDO and minimize the potential effects on surrounding lands.
  - d. No parking signs shall be placed at along the street at intersections and the entrance (approximately 4-5 signs).

### USE PERMIT REVIEW STANDARDS

A use permit shall be approved on a finding that the applicant demonstrates the proposed use will meet the below requirements. It is staff's opinion that the evidence in the record, prepared in absence of testimony presented at a public hearing, supports the preliminary staff findings

THE USE WILL NOT ENDANGER THE PUBLIC HEALTH OR SAFETY.

#### Preliminary Applicant Findings:

1. The use will be in accordance with county health and safety standards and those recommended by the Albemarle Regional Health Services in regards to on site wastewater systems.

THE USE WILL NOT INJURE THE VALUE OF ADJOINING OR ABUTTING LANDS AND WILL BE IN HARMONY WITH THE AREA IN WHICH IT IS LOCATED.

#### Preliminary Applicant Findings:

1. Lands to the north have been developed for single family homes as well as the properties across the highway.
2. Lot sizes proposed are in keeping with what is adjacent.
3. Wetlands will be preserved.

THE USE WILL BE IN CONFORMITY WITH THE LAND USE PLAN OR OTHER OFFICIALLY ADOPTED PLANS.

#### Preliminary Staff Findings:

1. The 2006 Land Use Plan classifies this site as Full Service and Conservation land use classification in the Barco-Coinjock-Airport subarea.
2. The area intended for residential lots is predominately in the Full Service land use classification. The Full Service area contemplates a residential density (base) to be 2 units per acre.
3. The policy emphasis for Barco-Coinjock-Airport subarea indicates residential development densities should be limited to 1-2 units per acre in areas where on-site wastewater is proposed and other county services are may be limited. The proposed development density is 0.68 units per acre.
4. The proposed use is in keeping with the policies of the plan, some of which are:

POLICY ES2: NON-COASTAL WETLANDS, including FRESHWATER SWAMPS, AND INLAND, NON-TIDAL WETLANDS, shall be conserved for the important role they play in absorbing floodwaters, filtering pollutants from stormwater runoff, recharging the ground water table, and providing critical habitat for many plant and animal species. Currituck County supports the



efforts of the U.S. Army Corps of Engineers in protecting such wetlands through the Section 4042 permit program of the Clean Water Act, as well as Section 4013 water quality certifications by the State of North Carolina.

**POLICY ES3:** COASTAL WETLANDS shall be conserved for the valuable functions they perform in protecting water quality and in providing critical habitat for the propagation and survival of important plant and animal species. CAMA use standards and policies for coastal wetlands shall be supported. Uses approved for location in a coastal wetland must be water dependent (i.e. utility easements, bridges, docks, and piers) and be developed so as to minimize adverse impacts.

**POLICY HN1:** 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 of the site to existing and planned urban services. For example, projects falling within the Full Services areas of the Future Land Use Map would be permitted a higher density because of the availability of infrastructure as well as similarity to the existing development pattern. Such projects could be developed at a density of two (2) or more dwelling units per acre. Projects within areas designated as Limited Service would be permitted a density of one (1) to one and one half (1.5) units per acre depending upon the surrounding development pattern and availability of resources. Projects within areas designated as Rural or Conservation by the Future Land Use Plan would be permitted a much lower density of 1 dwelling unit per 3 acres because of the lack of infrastructure in the area, the existing low density development pattern, and presence of environmentally sensitive natural areas.

**POLICY WQ5:** Development that preserves the NATURAL FEATURES OF THE SITE, including existing topography and significant existing vegetation, shall be encouraged. If COASTAL AND NON-COASTAL WETLANDS are considered part of a lot's acreage for the purpose of determining minimum lot size or development density, Low Impact Development techniques or appropriate buffers shall be integrated into the development. Open space developments shall be encouraged to REDUCE IMPERVIOUS SURFACE AREAS associated with new development and redevelopment.

5. **The Maple-Barco Small Area Plan, an official adopted plan, classifies the site as Mixed Use. The mixed use designation is characterized by a diverse mix of land uses, including residential.**
6. **The proposed use is in keeping with policies in the Maple-Barco Small Area Plan some of which include:**

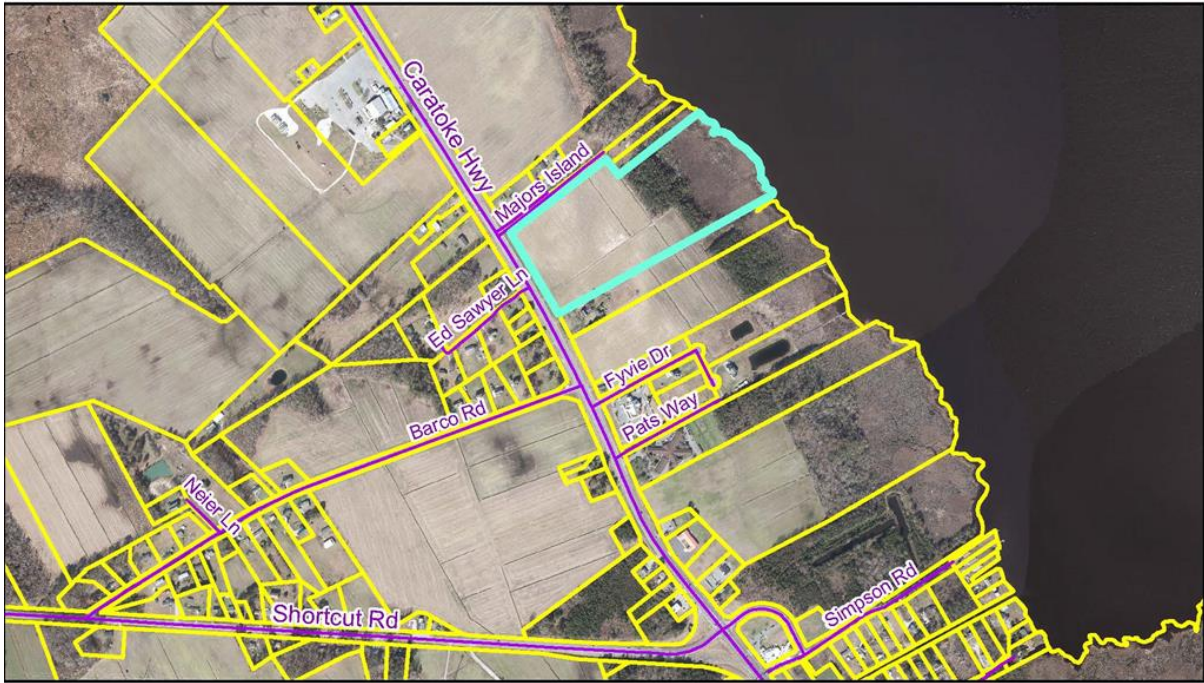
**LU6: Encourage buffers for uses that are developing adjacent to environmentally sensitive areas.**

**LU9: Evaluate development proposals using the future land use map and policies for the Maple – Barco study area to determine the desired density, character of growth, and level of services appropriate for the study area.**

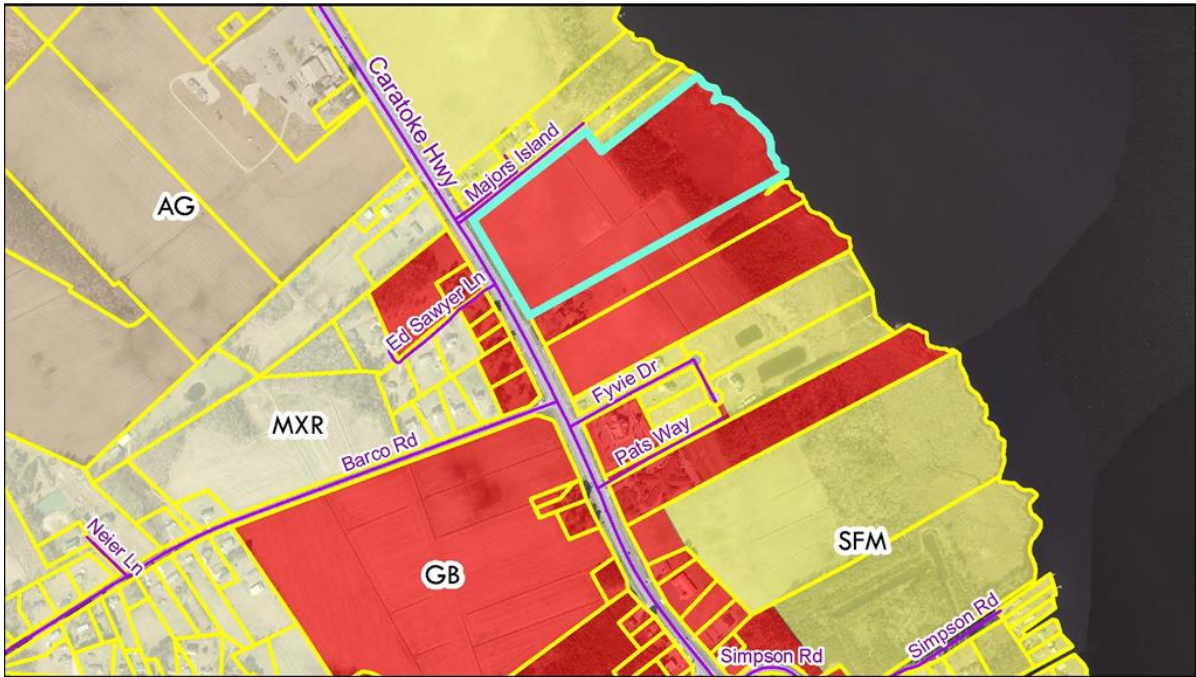
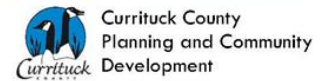
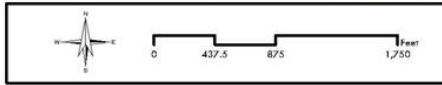
THE USE WILL NOT EXCEED THE COUNTY'S ABILITY TO PROVIDE ADEQUATE PUBLIC FACILITIES, INCLUDING, BUT NOT LIMITED TO: SCHOOLS, FIRE AND RESCUE, LAW ENFORCEMENT, AND OTHER COUNTY FACILITIES. APPLICABLE STATE STANDARDS AND GUIDELINES SHALL BE FOLLOWED FOR DETERMINING WHEN PUBLIC FACILITIES ARE ADEQUATE.

**Preliminary Staff Findings:**

1. The proposed subdivision contains 14 residential lots.
2. Based on the Student Generation Rate study prepared by Tischler and Associates, Inc. (2004), the proposed subdivision will generate the following students:
  - a. 4 elementary school students;
  - b. 1 middle school student; and,
  - c. 2 high school students
3. According to Currituck County Schools, the proposed subdivision is located in the following school districts:
  - a. Central Elementary
    - i. 77% 2019-2021 actual capacity based on January 2020 ADM
    - ii. 85% 2021-2022 actual capacity based on January 2020 ADM
  - b. Currituck Middle School, and
    - i. 70% 2019-2021 actual capacity based on January 2020 ADM
  - c. Currituck High School.
    - i. 84% 2019-2021 actual capacity based on January 2020 ADM



PB 20-09 Boswood Estates  
Preliminary Plat/Use Permit  
Aerial



PB 20-09 Boswood Estates  
Preliminary Plat/Use Permit  
Zoning

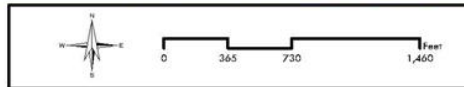


Communication: Minutes for June 15, 2020 (Approval Of Minutes-Covid-19 Special Meeting 3-30-2020; Regular Meeting 6-15-2020)





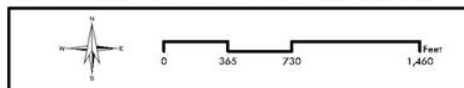
PB 20-09 Boswood Estates  
Preliminary Plat/Use Permit  
2006 Land Use Plan Classifications



Currituck County  
Planning and Community  
Development



PB 20-09 Boswood Estates  
Preliminary Plat/Use Permit  
Maple Barco SAP



Currituck County  
Planning and Community  
Development

Parties were sworn in and Donna Voliva, Assistant Planning Director, reviewed the

Communication: Minutes for June 15, 2020 (Approval Of Minutes-Covid-19 Special Meeting 3-30-2020; Regular Meeting 6-15-2020)



application for the Board of Commissioners. Using a powerpoint, Ms. Voliva displayed overhead maps to display the location, zoning and land use of the site and surrounding areas. The subdivision plat was reviewed. Intended construction phasing, infrastructure, minimum lot size and open space were presented, as were staff concerns with the buffering. Ms. Voliva responded to questions related to the proposed open space and fire apparatus turnaround. The Technical Review Committee (TRC) recommended conditions for approval, use permit review standards, supporting policies and adequate public facilities were presented.

Hood Ellis, Attorney for the applicant, introduced Engineer Jason Mizelle of Timmons Group, who testified to support approval of the request. Mr. Mizelle reviewed stormwater runoff at the site, addressed the fire truck turnaround, and discussed the minimal density and student impacts based on the development's site location in the county. He said the phasing plan addresses any issues with market fluctuations, but the hope is to build out. Connectivity and pedestrian access were reviewed.

Commissioners had no questions and Chairman White opened the Public Hearing.

Mr. Joe Robinson of Maple asked for a clarification from Mr. Mizelle related to ditching.

David Majors, adjoining property owner, wanted assurances that there would be no issues with his existing right of way or any excursion onto his property. Mr. Mizelle described the vegetative buffer they are required to install and confirmed it would be inside the property line. He said they may need to replace a culvert at his property that is not draining properly. Mr. Majors was concerned about damage to his water line. He asked that a copy of the subdivision plat be provided to him.

There were no other speakers and the Public Hearing was closed.

Commissioner Beaumont moved to approve PB 20-09, Boswood Estates, with the TRC conditions of approval because the applicant has demonstrated the proposed use meets the Use Permit Review Standards of the Unified Development Ordinance (UDO). The TRC conditions of approval consisted of:

- Open space shall be contiguous and shall not contain private walkways or boardwalks
- A 25' drainage easement shall be provided along all conveyance systems that drain more than 5 acres. The easement shall include the conveyance system and an additional 25' from the top of embankment. The easement will extend onto private lots. No septic system or structure shall be located in the easement and a note shall be added to the final plat.
- The width of the perimeter buffer will be 10 feet and is near overhead power lines and drainage improvements. The developer will work with County staff to ensure the species of trees selected are conducive to be grown underneath power lines. A typical perimeter buffer detail of the existing conditions and proposed improvements shall be submitted to ensure compliance of the UDO and minimize the potential effects to surrounding lands.
- No parking signs shall be placed along the street at intersections and the entrance, approximately 4 to 5 signs.

The use will not endanger the public safety or health. The use will be in accordance with county health and safety standards and those recommended by the Albemarle Regional Health Services in regards to onsite wastewater systems.

The use will not injure the value of adjoining or abutting lands and will be in harmony with the area in which it is located. Lands to the north have been developed for single family homes as well as the properties across the highway. Lot sizes proposed are in keeping with what is adjacent and the wetlands will be preserved.

The use will be in conformity with the Land Use Plan (LUP) or other officially adopted plans. The 2006 LUP classifies this site as Full Service and Conservation land use classification in the Barco-Coinjock-Airport subarea. The area intended for residential lots is predominantly in the Full Service land use classification. The Full Service area contemplates a residential density base to be 2 units per acre. The policy emphasis for the Barco-Coinjock-Airport subarea indicates residential development densities should be limited to 1-2 units per acre in areas where on-site wastewater is proposed and other county services are or may be limited. The proposed development density is 0.68 units per acre.

The proposed use is in keeping with the policies of the plan, some of which are:

Policy ES2-Non-coastal wetlands, including freshwater swamps and inland, non-tidal wetlands shall be conserved for the important role they play in absorbing floodwaters, filtering pollutants from stormwater runoff, recharging the ground water table, and providing critical habitat for many plant and animal species.

Policy ES3-Coastal wetlands shall be conserved for the valuable functions they perform in protecting water quality and in providing critical habitat for the propagation and survival of important plant and animal species. CAMA use standards and policies for coastal wetlands shall be supported.

Policy WQ5-Development that preserves the natural features of the site, including existing topography and significant existing vegetation, shall be encouraged.

The Maple-Barco Small Area Plan (SAP), an official adopted plan, classifies the site as Mixed Use. The Mixed Use designation is characterized by a diverse mix of land uses, including residential. The proposed use is in keeping with policies in the Maple-Barco Small Area Plan some of which include:

LU6-Encourage buffers for uses that are developing adjacent to environmentally sensitive areas.

LU9-Evaluate development proposals using the future land use map and policies for the Maple-Barco study area to determine the desired density, character of growth, and level or services appropriate for the study area.

The use will not exceed the county's ability to provide adequate public facilities.

- The proposed subdivision contains 14 residential lots
- Based on the Student Generation Rate study prepared by Tischler and Associates in 2004 the proposed subdivision will generate 4 elementary school students to attend Central Elementary, 1 middle school student and 2 high school students, both to attend Currituck Middle and/or Currituck High School.
- According to Currituck County Schools, the occupancy rates of January Average Daily Membership (ADM) are:

Central Elementary

77% 2019-2021 actual capacity based on January 2020 ADM

85% 2021-2022 actual capacity based on January 2020 ADM

Currituck Middle School, and

70% 2019-2021 actual capacity based on January 2020 ADM

Currituck High School

84% 2019-2021 actual capacity based on January 2020 ADM

The motion was seconded by Commissioner Payment. The motion carried.

At 9:11 PM, Chairman White called a brief recess. The meeting reconvened at 9:24 PM.

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

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

To: Planning Board

From: Planning Staff

Date: May 26, 2020

Subject: PB 20-07 Currituck County Text Amendment  
Alternative Water Supply for Fire Flow

The Board of Commissioners directed staff to prepare a text amendment to allow water shuttling as an alternative means to meet required fire flow standards for properties not served by county water.

This text amendment to the Unified Development Ordinance (UDO) allows use of water shuttling as a means of meeting fire flow water supply requirements for lands not serviced by the county water system and revises references in UDO Chapters 4, 5, & 6 from "Fire Marshal" to "Fire Code Official" to be consistent with the North Carolina Fire Code.

### Text Amendment Review Standards

The advisability of amending the text of the UDO is a matter committed to the legislative discretion of the Board of Commissioners and is not controlled by any one factor. In determining whether to adopt or deny the proposed text amendment, the Board of Commissioners may weigh the relevance of and consider whether and the extent to which the proposed text amendment:

1. Is consistent with the goals, objectives, and policies of the Land Use Plan and other applicable county-adopted plans;
2. Is not in conflict with any provision of this Ordinance or the County Code of Ordinances;
3. Is required by changed conditions;
4. Addresses a demonstrated community need;
5. Is consistent with the purpose and intent of the zoning districts in this Ordinance, or would improve compatibility among uses and ensure efficient development within the county;
6. Would result in a logical and orderly development pattern; and
7. Would not result in significantly adverse impacts on the natural environment, including but not limited to water, air, noise, stormwater management, wildlife, vegetation, wetlands, and the natural functioning of the environment.

### Staff Recommendation

Staff recommends approval of the request as submitted and suggests the following Statement of Consistency and Reasonableness:

The requested zoning text amendment is consistent with the goals, objectives, and policies of the 2006 Land Use Plan including:

- POLICY PS2: Currituck County shall support and encourage the development and improvement of FIRE FIGHTING SERVICES that enhance the security and safety of life and property, while resulting in the added benefit of lower property insurance rates. The need for additional fire stations or improvements to existing fire stations shall be examined annually to keep pace with the growth of the area.
- POLICY WS3: Currituck County endorses UTILITIES EXTENSION POLICIES that focus water and sewer services (1) within existing developed areas and in nearby targeted growth areas identified as Full Service and Limited Service areas, (2) where development densities would make the provision of all public services more efficient, (3) where the land is particularly well suited for development and (4) away from environmentally sensitive areas, such as areas with extensive wetlands or the northern beaches of the Outer Banks.
- POLICY WS4: Currituck County endorses utilities extension policies that avoid those parts of the county best suited for agriculture and to PROTECT FARMLAND FROM DEVELOPMENT PRESSURES brought about by such utilities. Exceptions to this policy may include extensions for major economic development initiatives, and extensions to address imminent public health problems or related environmental hazards.

The request is reasonable and in the public interest because:

- It is consistent with the 2006 Land Use Plan, and it is not in conflict with the provisions of the UDO.
- It continues to allow limited development without the requirement for extension of county water lines in farmland and rural areas.

STAFF REPORT PB20-07 CURRITUCK COUNTY  
TEXT AMENDMENT ALTERNATIVE WATER SUPPLY



## FOR FIRE FLOW PLANNING BOARD MAY 28, 2020

Amendment to the Unified Development Ordinance Chapter 4. Use Standards, Chapter 5. Development Standards and Chapter 6. Subdivision and Infrastructure Standards.

BE IT ORDAINED by the Board of Commissioners of the County of Currituck, North Carolina that the Unified Development Ordinance of the County of Currituck be amended as follows:

**Item 1:** That Chapter 6: Subdivision and Infrastructure Standards is amended by adding the following underlined language, deleting the struck-through language and numbering accordingly:

### 6.2.1.6.2.2.6.2.3. Fire Protection Standards

#### **General Provisions**

##### **Fire Lanes**

Where streets or rights-of-way provide insufficient access for firefighting, unobstructed fire lanes with a minimum width complying with the current adopted version of the North Carolina State Fire Code shall be provided. In no instance shall this standard waive the requirement for primary drive aisles constructed in accordance with Section 5.6.8, Primary Drive Aisles, when required by this Ordinance.

##### **Fire Hydrants Required**

All development serviced by the county water supply system shall include a system of fire hydrants sufficient to provide adequate fire protection for the buildings located or intended to be located within the development. Fire hydrants shall be located in a manner that ensures hydrants are spaced a maximum of 1,000 linear feet apart and every portion of lot frontage is within 500 linear feet of a hydrant. The Fire Code Official ~~Marshal~~ may authorize or require a deviation from this standard if, in the opinion of the Fire Code Official ~~Marshal~~, another arrangement ~~more~~ satisfactorily complies with the intent or standards in this Ordinance.

##### **Fire Hydrant Location**

Unless an alternative placement is specified by the State Building Code or the Planning Director, in consultation with the Fire Code Official ~~Marshal~~, fire hydrants shall be

placed six feet behind the curb or within ten feet of the pavement edge of a street without curbing.

#### **Required Hose Connections**

Unless otherwise specified, all fire hydrants shall have the following hose connections:

Two two-and-one-half-inch hose connections at least 21½ inches above ground level; and

One four-and-one-half-inch connection.

All hose connections shall be sized in accordance with national standards.

#### **Water Service Main Size**

Water mains serving fire hydrants shall be at least eight inches in diameter.

#### **Water Supply Source Location**

Water supply sources shall be clearly marked for location purposes with a marker of suitable size and reflective characteristics for daylight, nighttime, and inclement weather operations.

#### **Water Supply for Fire Protection when not Serviced by County Water Supply System**

Development not serviced by the county water system shall provide a supply of water for fire-fighting purposes in accordance with the following standards:

##### **Allowable Sources**

The developer may provide the required water supply from:

~~fire~~ Fire ponds, canals, wells, cisterns, above ground storage tanks, or water lines (where a community water supply system is installed), ~~or~~;

Fire Department mobile water supply approved by the Fire Code Official;

~~or a~~ Any combination of the above these features; or

An alternative means approved by the Fire Code Official.

##### **Location**

Water supply facilities shall be within 2,500 feet of every anticipated building in a development.

Water supply facilities may be located on or off-site, however the developer shall demonstrate a

sufficient legal interest in off-site facilities to ensure they will remain available to serve the development.

Water supply sources shall be so located so that fire-fighting vehicles have ready access to such sources at all times.

#### **Capacity**

A sufficient volume of water shall be available at all times to supply the needed fire flow for the proposed structures based upon guidance from the Insurance Services Office and existing fire-fighting capacity.

Water mains serving a community water supply system shall be sized to allow the future installation of fire hydrants should the development be connected to the county water supply system.

#### **Configuration**

Water supply sources shall be provided with the necessary equipment and connections (e.g., dry hydrants in ponds) to ensure that fire-fighting equipment can draw water in a safe and efficient manner, as determined by the Fire Code Official ~~Marshal~~.

Except within the SFR district, a hard-surfaced roadway shall be provided to the water source as well as a hard-surfaced turnaround area of sufficient dimensions to facilitate access by fire-fighting vehicles.

#### **Maintenance Required**

The developer, or any successor in interest, shall be responsible for ensuring that all water supply sources, access roadways, and other facilities or equipment required by these standards, are maintained.

**Item 2:** That Chapter 4. Use Standards, Chapter 5. Development Standards and Chapter 6. Subdivision and Infrastructure Standards are amended by striking through all references to Fire Marshal and replacing with Fire Code Official.

**Item 3:** Statement of Consistency and Reasonableness:

The requested text amendment is consistent with the goals, policies, and objectives of the 2006 Land Use Plan including:

- POLICY PP2: 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 be limited to water supply, school capacity, park and open space needs, firefighting capability, and law enforcement.
- POLICY WS3: Currituck County endorses UTILITIES EXTENSION POLICIES that focus water and sewer services (1) within existing developed areas and in nearby targeted growth areas identified as Full Service and Limited Service areas, (2) where development densities would make the provision of all public services more efficient, (3) where the land is particularly well suited for development and (4) away from environmentally sensitive areas, such as areas with extensive wetlands or the northern beaches of the Outer Banks.
- POLICY WS4: Currituck County endorses utilities extension policies that avoid those parts of the county best suited for agriculture and to PROTECT FARMLAND FROM DEVELOPMENT PRESSURES brought about by such utilities. Exceptions to this policy may include extensions for major economic development initiatives, and extensions to address imminent public health problems or related environmental hazards.

The request is reasonable and in the public interest because:

- It is consistent with the 2006 Land Use Plan, and it is not in conflict with the provisions of the UDO.
- It continues to allow limited development without the requirement for extension of county water lines in farmland and rural areas.

**Item 4:** The provisions of this Ordinance are severable and if any of its provisions or any sentence, clause, or paragraph or the application thereof to any person or circumstance shall be held unconstitutional or violative of the Laws of the State of North Carolina by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions which can be given effect without the invalid provision or application.

**Item 5:** This ordinance amendment shall be in effect from and after the \_\_\_\_\_ day of \_\_\_\_\_, 2020.

Jennie Turner, Planner, presented the text amendment request, originally discussed by Commissioners at their annual Board Retreat. Ms. Turner reviewed the proposed text amendment language that provides alternatives for water supply to meet fireflow standards, to include Water Shuttling as an allowable water source for fire response, modifies the term reference for a Fire Code Official.

Following review, Ms. Turner responded to questions related to certification for water shuttling operations. Ms. Turner said forms and processes would be developed for approvals of water shuttling operations for the various fire departments.

Ms. Turner reported discussion by the Planning Board over concerns with recertification requirements resulting in the Board's recommendation to strike water shuttling, item B,



from the text amendment language. Ms. Turner said staff supports approval of the text amendment and consistency statements were reviewed.

Chairman White opened the Public Hearing.

Ryland Poyner, Chief of Crawford Township Volunteer Fire Department, voiced concerns with the shifting of responsibility from the developer to the volunteer fire departments. He described joint efforts necessary to get certified for water shuttling, with no guarantees that shuttling certifications will be maintained.

Commissioners clarified that shuttling is used when county water systems are not available.

Ms. Turner clarified the number of lots that could potentially be served by water shuttling if county water is not available and Bill Newns, Chief Inspector, described the trigger for fire flow requirements and an adequate water supply. He said shuttling should not be a main source for fighting fire. Deputy Chief Poulin of Lower Currituck Volunteer Fire Department commented on water shuttling in response to the recent fire at the Cotton Gin.

Pond maintenance, pond inspections and sprinkler systems requirements for residential homes were discussed.

No others wished to speak and the Public Hearing was closed.

Commissioner Beaumont moved to approve PB 20-07 because the request is consistent with the goals, objectives and policies of the 2006 Land Use Plan, including Policy WS4. The request is reasonable and in the public interest. Commissioner McCord seconded the motion. Commissioner McCord rescinded his second and Commissioner Beaumont amended his motion to add clarifying language for approval of the text amendment language as proposed by staff. Commissioner McCord seconded the motion as amended. The motion carried.

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

#### **E. PB 19-25 Currituck County - Currituck Station:**

To: Board of Commissioners

From: Planning Staff

Date: January 28, 2020

Subject: PB 19-25 Currituck County - Currituck Station:

### Background

This text amendment is presented on behalf of Currituck County to implement a long and in depth planning process for a specified area in Moyock known as Currituck Station (previously Moyock Mega Site). In 2012, the Board of Commissioners recognized the steady growth Moyock was experiencing and engaged staff to begin efforts to address growth and development in a comprehensive manner. The planning process began in 2012 with the Moyock Small Area Plan that was later adopted by the Board of Commissioners in 2014. The Moyock Small Area Plan identified an employment activity center for the area identified as Currituck Station. The employment center was intended to have a concentration of uses including commercial, industrial, and residential. The county later adopted a market feasibility study for the employment activity center that identified the market demands for Currituck Station. The master plan was completed in 2017. The proposed text amendment implements the small area plan, market feasibility study and the master plan for Currituck Station.

In summary, the text amendment establishes a new zoning district, Planned Development - Currituck Station District (PD-CS) and associated sub-districts, for lands recognized on the Moyock Mega Site master plan (now Currituck Station) that balances residential, commercial, industrial, and advanced manufacturing land uses. Included with the text amendment is the Currituck Station Pattern Book that establishes the intended character for the district. The pattern book utilizes historical architecture as the foundation to guide development in the district and establish a local identity through building design, massing and external treatments. Although the pattern book is intended to be used in conjunction with the UDO regulations, it is a guide and will not be a regulatory document.

### Text Amendment Review Standards

The advisability of amending the text of the UDO is a matter committed to the legislative discretion of the Board of Commissioners and is not controlled by any one factor. In determining whether to adopt or deny the proposed text amendment, the Board of Commissioners may weigh the relevance of and consider whether and the extent to which the proposed text amendment:

1. Is consistent with the goals, objectives, and policies of the Land Use Plan and other applicable county-adopted plans;
2. Is not in conflict with any provision of this Ordinance or the County Code of Ordinances;
3. Is required by changed conditions;
4. Addresses a demonstrated community need;
5. Is consistent with the purpose and intent of the zoning districts in this Ordinance, or would improve compatibility among uses and ensure efficient development within the county;
6. Would result in a logical and orderly development pattern; and
7. Would not result in significantly adverse impacts on the natural environment, including but not limited to water, air, noise, stormwater management, wildlife, vegetation, wetlands, and the natural functioning of the environment.

### Staff Recommendation

Staff recommends approval of this request subject to the staff suggested Statement of Consistency and Reasonableness listed in the staff report.

1. Is consistent with the goals, objectives, and policies of the Land Use Plan and other applicable county-adopted plans;

- a. This request is consistent with the goals, objectives, and policies of the Land Use Plan, Moyock Small Area Plan, and the Moyock Mega Site Master Plan. Please reference:
  - LUP policies AG3, HN3, CD2, CD8, WS3, and CW1.
  - MSAP policies CC1, CC2, CC3, ST1, BI2, and Actions FLU2A, CC 2A, CC 3B, BI 3B
  - Moyock Mega Site Master Plan Figure ES-1
2. Is not in conflict with any provision of this Ordinance or the County Code of Ordinances;
  - a. The request is in harmony with the UDO and the County Code of Ordinances.
3. Is required by changed conditions;
  - a. The Moyock Small Area Plan, adopted in 2014, identified this area as an employment activity area.
  - b. The 2016 Feasibility Study served as the guide for potential land use demands.
  - c. The master plan development process was designed to produce a market driven plan responsive to projected demand for a mix of land uses specific to the local market and formed by regional influences.
4. Addresses a demonstrated community need;
  - a. It is intended to establish a long-term vision for a mixed use development for approximately 3,500 acres of land that is strategically positioned to serve as a connective center between Virginia and North Carolina.
5. Is consistent with the purpose and intent of the zoning districts in this Ordinance, or would improve compatibility among uses and ensure efficient development within the county;
  - a. The proposed text amendment establishes the district that implements the master plan for the project area.
6. Would result in a logical and orderly development pattern; and
  - a. The standards are developed to provide a mix of uses and densities needed to sustain the mixed use development.
7. Would not result in significantly adverse impacts on the natural environment, including but not limited to water, air, noise, stormwater management, wildlife, vegetation, wetlands, and the natural functioning of the environment.
  - a. It should have no adverse impacts on the natural environment.

#### **Planning Board Recommendation - January 14, 2020**

Mr. Bass motioned to approve the PB-25 Currituck County's request to amend the Unified Development Ordinance, Chapter 1. General Provisions, Chapter 2. Administration, Chapter 3. Zoning Districts Chapter 4. Use Standards, Chapter 5. Development Standards, Chapter 6. Subdivision Infrastructure Standards, and Chapter 10. Definitions and Measurements for the purpose of implementing the Moyock Mega Site master plan (Currituck Station) and establishing the Planned Development - Currituck Station district and regulations with the inclusion of the following staff recommendations:

- Provide a transition from Center Station to Newtown on the south side that does not split property lines
  - Option 1 - Shift the sub-district line - Charter sub-district to include land (now Newtown) to Lazy Corner Road.
  - ~~Option 2 - Modify the use table for Newtown sub-district~~
  - ~~Option 3 - Make no change at this time and update/amend at rezoning.~~
- Pattern book corrections and images for sub-districts
- Remove the suggested materials for each sub-district
- Provide traditional architecture or building form elevations for Center Station and Charter sub-districts

Mr. Thomas seconded the motion and the motion carried unanimously.

RESULT: RECOMMENDED APPROVAL [UNANIMOUS] Next: 2/3/2020 6:00 PM

AYES: C. Shay Ballance, Chairman, Garry Owens, Vice Chairman, K. Bryan Bass, Board Member, David Doll, Board Member, Juanita S Krause, Board Member, J. Timothy Thomas, Board Member

ABSENT: Anamarie Hilgendorf, Board Member

Donna Voliva, Assistant Planning Director, provided a timeline of earlier discussion, public hearings, presentations, and work sessions for consideration of the Currituck Station text amendment. Ms. Voliva reviewed staff comments expressed by stakeholders at earlier meetings related to areas concerns with overlapping districts and recommended corrections and modifications to the pattern book. Elements of the pattern book and zoning sub-areas were displayed on the overhead during review.

Ms. Voliva presented the supporting policies and consistency statements to support staff's recommendation for approval. She responded to questions from Commissioners related to zoning, particularly related to planned developments.

Chairman White opened the Public Hearing. There were no speakers and the Public Hearing was closed.

Commissioner J. Owen Etheridge moved to approve PB 19-25, Currituck Station, because the request is consistent with the Land Use Plan (LUP), Moyock Small Area Plan (MSAP), and Moyock Mega Site Master Plan, and include option three of the staff comments as the option to be utilized, which is to make no change at Newtown Road overlapping district and amend at rezoning).

- LUP Policy AG3 encourages the county to direct new development to targeted growth areas near existing development identified as full service areas.
- LUP Policy HN3 encourages the county to provide for mixed use developments to promote self-supporting community centers served by centralized water and sewer contemplated for the full service areas.
- LUP Policy CD8 encourages mixed-use developments that are properly planned from the outset, and allows for a compatible mixture of residential and non-residential uses with a pedestrian scale and design.
- LUP Policy CW1 recognizes small area plans and allows for incorporation into the LUP as needed for citizen initiated amendments or county led planning efforts for changing demographic, economic or environmental conditions.
- MSAP supplements the LUP to more specifically address the needs and issue of the study area and establishes a new focus for growth and development.
- MSAP, adopted in 2014, identified this area as an employment activity area.
- MSAP Policy CC1 encourages and fosters development that is compatible with rural atmosphere, transition areas, and a small town, main street feel that is consistent with the vision, policies and future land use plan.
- MSAP Policy CC2 encourages non-residential and mixed use development that enhances the community appearance, promotes human scale and creates a unique sense of place including common themed building materials, forms and site amenities.



- MSAP Policy ST1 promotes establishing an area dedicated to community serving businesses that foster a small town, main street feel.
- MSAP Policy BI2 encourages a well-planned mixed use development with a range of intensities and diverse housing types and carefully located to areas supported by the future land use map and adequately served by infrastructure and county services.
- MSAP Action FLU2A explores establishment of a community center district and associated sub-districts that implement the vision and policies of the plan creating development standards specific to the Moyock study area.
- MSAP Action CC2A is to develop regulations and incentives for non-residential and mixed use development that establish design standards specific to each activity center in the plan.
- MSAP Action CC3B is to amend the UDO to create regulations that enhance public investment into entryways.
- MSAP Action BI3B is to develop regulations or incentives that require large scale residential development that utilizes centralized sewer to include a supporting non-residential component and interconnection to existing businesses.
- Moyock Mega Site Master Plan and Figure ES-1.

And the request is reasonable and in the public interest because:

- The Moyock Small Area Plan adopted in 2014 identified this area as an employment activity area.
- The 2016 Feasibility Study served as the guide for potential land use demands.
- Addresses a demonstrated community need because the master plan development process was designed to produce a market driven plan responsive to projected demand for a mix of land uses specific to the local market and formed by regional influences.
- Addresses a demonstrated community need by implementing the MSAP and Moyock Mega Site Master Plan, a long-term vision for a mixed use development for approximately 3,500 acres of land that is strategically positioned to serve as a connective center between the Commonwealth of Virginia and the State of North Carolina, resulting in logical and orderly development patterns.

Commissioner Payment seconded the motion. The motion carried.

(Clerk's Note: The Currituck Station Text Amendment can be accessed via the June 15, 2020 agenda packet or full minutes posted on the Currituck County website: <http://currituckcountync.iqm2.com/Citizens/Calendar.aspx>)

Before moving to the next item, County Manager, Ben Stikeleather, reported on live streaming issues and announced the meeting video would be posted later on YouTube.

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

## NEW BUSINESS

### A. Consideration of Facility Use-Naval Contractor "Jump" Operations at Currituck County Airport

Airport Manager, William Nelson, presented Commissioners with a request from the Navy Seals who wish to use the Currituck County Airport for jump operations. He reviewed the operation and the pros and cons of allowing jump operations to take place. Mr. Nelson said fuel sales would increase, but jump operations can inhibit jet traffic and he does not believe the airport has adequate space to accommodate the request because of the limited airport operations that would result.

Johnny Riddle, active duty Naval Special Development Group, spoke to the Board in support of the request. He described the jump operations and expressed the need initially for twelve consecutive days in July. Commissioners and staff discussed finding an alternate jump location, with shuttling back to the airport for takeoffs and landing. Mr. Riddle said they would need access Monday through Friday and would want to use the airport long term. Aircraft used and operational processes were described.

After discussion of the negative impacts to the airport and airport traffic, Commissioners were not comfortable and chose not to approve jump operations at the airport.

Chairman White called a brief recess at 10:41 PM. The meeting reconvened at 10:48 PM.

### B) Consent Agenda

Commissioner Mary Etheridge moved for approval of the Consent Agenda. The motion was seconded by Commissioner Jarvis. The motion carried.

Following the vote, Chairman White recessed the regular meeting of the Board of Commissioners to hold a Special Meeting of the Tourism Development Authority.

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

**1) Approval Of Minutes for June 1, 2020**

**1. Minutes for June 1, 2020**

**2. Independent Mailing Systems Lease Agreement-Mail Processing Equipment**

**3. Amended-Budget Amendments**

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
12541-554005	Insurance - Lower Currituck VFD	\$ 46,275	
12541-588000	Contingency		\$ 2,588
12390-499900	Appropriated Fund Balance		\$ 43,687
		\$ 46,275	\$ 46,275
<b>Explanation:</b>	Fire Services (12541) - Increase appropriations for insurance renewal for Lower Currituck VFD. Renewal date is June 16 and funds were appropriated for July 1 in the next fiscal year.		
<b>Net Budget Effect:</b>	Fire Services Fund (12) - Increased by \$43,687.		

		Debit	Credit
		Decrease Revenue or Increase Expense	Increase Revenue or Decrease Expense
<u>Account Number</u>	<u>Account Description</u>		
30850-506000	Insurance Expense	\$ 58,000	
30380-481000	Investment Earnings		\$ 24,000
30390-499900	Fund Balance Appropriated		\$ 34,000
		\$ 58,000	\$ 58,000
<b>Explanation:</b>	Post-employment Benefits (30850) - Increase appropriations for retiree insurance expense due to increase in number of retirees this fiscal year.		
<b>Net Budget Effect:</b>	Post-employment Benefits Fund (30) - Increased by \$58,000		

### SPECIAL MEETING OF THE TOURISM DEVELOPMENT AUTHORITY

The Currituck County Board of Commissioners held a Special Meeting during a recess of the 6:00 PM regular meeting of the Board of Commissioners to sit as the Tourism Development Authority. The meeting was held in the Sanderlin Auditorium at Currituck County Cooperative Education Center, 120 Community Way, Barco, North Carolina, for the purpose of holding a Public Hearing and possibly taking action to adopt the TDA annual budget for Fiscal Year 2020-2021.

The meeting was called to order at 10:48 PM.

#### Public Hearing and Possible Adoption of the Tourism Development Authority Budget for Fiscal Year Ending June 30, 2021

Chairman White opened the Public Hearing. There were no speakers and the Public Hearing was closed.

Chairman White moved to take no action and bring the item back to the June 22, 2020, meeting of the TDA for possible adoption. Commissioner Payment seconded the motion and the motion carried.

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

**ADJOURN**



There was no further business and Commissioner McCord moved to adjourn. Commissioner Jarvis seconded the motion. The motion carried and the meeting of the Tourism Development Authority adjourned at 10:49 PM.

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

### **SPECIAL MEETING OF THE OCEAN SANDS WATER & SEWER DISTRICT BOARD**

The Currituck County Board of Commissioners held a Special Meeting during a recess of the 6:00 PM regular meeting of the Board of Commissioners to sit as the Ocean Sands Water and Sewer District Board. The meeting was held in the Sanderlin Auditorium at Currituck County Cooperative Education Center, 120 Community Way, Barco, North Carolina, for the purpose of holding a Public Hearing and possibly taking action to adopt the Ocean Sands Water and Sewer District annual budget for Fiscal Year 2020-2021.

The meeting was called to order at 10:49 PM.

#### **Public Hearing and Possible Adoption of the Ocean Sands Water & Sewer District Budget for Fiscal Year Ending June 30, 2021**

Chairman White opened the Public Hearing. There were no speakers and the Public Hearing was closed.

Chairman White moved to take no action and bring the item back for consideration and possible adoption at the June 22, 2020 meeting of the Ocean Sands Water & Sewer District Board. The motion was seconded by Commissioner McCord. The motion carried.

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

### **ADJOURN**

There was no further business and Commissioner Mary Etheridge moved to adjourn. The motion was seconded by Commissioner Jarvis. The motion carried and the meeting of the Ocean Sands Water and Sewer District Board adjourned at 10:51 PM.

### **CLOSED SESSION**

Following the Special Meetings of the Board of Commissioners, Chairman White reconvened the regular meeting of the Board of Commissioners at 10:51 PM.

1. **Amended-Closed Session Pursuant to G.S. 143-318.11(a)(3) to consult with the County Attorney and preserve the attorney-client privilege in the matters entitled Currituck County v. Letendre; and Currituck County v. Cossa and Paradise Homes**

Chairman White moved the Board into Closed Session pursuant to G.S. 143-318.11(a)(3) to preserve the attorney-client privilege in the matters entitled Currituck County v. Letendre; and Currituck County v. Cossa and Paradise Homes.

## ADJOURN

### Motion to Adjourn Meeting

The Board of Commissioners returned from Closed Session and had no further business. Commissioner Payment moved to adjourn. The motion was seconded by Commissioner Beaumont. The motion carried and regular meeting of the Board of Commissioners adjourned at 10:57 PM.

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



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2861)

**Agenda Item Title:** Surplus Resolution-Commercial Washer, Detention Center

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

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**Brief Description of Agenda Item:**

**Reason for Request:**

Surplus of old industrial/commercial capacity washer.

**Potential Budget Affect:** N/A

**Is this item regulated by plan, regulation or statute?** Yes

**Manager Recommendation:**

## RESOLUTION

**WHEREAS**, THE Board of Commissioners of the County of Currituck, North Carolina during its regularly scheduled meeting authorized the following, pursuant to G.S. 160A and 270(b) that the property listed below will be sold at auction, negotiated sale or will be disposed of if not sellable.

County	Asset	Description	Serial Number	DEPT
		HUEBSCH WASHER	3100222153	DETENTION
		MODEL #HC50MN20U60001		
		15+ years		

**NOW, THEREFORE, BE IT RESOLVED**, that the Board of Commissioners of the County of Currituck reserves the

**ADOPTED**, this      th day of      , 2020.

\_\_\_\_\_  
 Bob White  
 County of Currituck, Board of Commissioners

\_\_\_\_\_  
 LeeAnn Walton  
 Clerk to the Board      (Seal)

Attachment: Surplus Resolution-Detention Washer (Surplus Resolution-Detention Center-Washer)





## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2860)

**Agenda Item Title:** Surplus Resolution-Tourism, Vehicle

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

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**Brief Description of Agenda Item:**

**Reason for Request:**

Tourism Department surplus vehicle

**Potential Budget Affect:** Unknown until sold

**Is this item regulated by plan, regulation or statute?** Yes

**Manager Recommendation:**

## RESOLUTION

**WHEREAS**, THE Board of Commissioners of the County of Currituck, North Carolina during its regularly scheduled meeting authorized the following, pursuant to G.S. 160A and 270(b) that the property listed below will be sold at auction, negotiated sale or will be disposed of if not sellable.

County			
<u>Asset Tag</u>	<u>Description</u>	<u>Serial Number</u>	<u>Dept</u>
4407	1999 Ford Ranger	1FTZR15V2XTA92681	Tourism

**NOW, THEREFORE, BE IT RESOLVED**, that the Board of Commissioners of the County of Currituck reserves the right to reject any and all bids.

**ADOPTED**, this 20th day of July, 2020.

\_\_\_\_\_  
 Robert M. White  
 County of Currituck, Board of Commissioners

\_\_\_\_\_  
 Leeann Walton  
 Clerk to the Board (Seal)

Attachment: SURPLUS RESOLUTION-Tourism-1999 Ford Ranger (Surplus Resolution-Tourism Vehicle)



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2856)

**Agenda Item Title:** Maritime Museum-Change Order #2

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

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**Brief Description of Agenda Item:**

**Reason for Request:**

Various items based on materials/revisions to construction scope as described in summary, attached.

**Potential Budget Affect:** Requested funds are available in project budget.

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**

## Maritime Museum

Change Order #2 Summary

July 20, 2020

RFC 005	Overhead Door	It is recommended to upgrade the overhead door leading from the main museum space to the storage area to better coordinate with the aesthetics of the museum space.	\$ 1,990.28
RFC 008	Time Delays	Additional time due to change order delays, tree trimming to better preserve remaining trees around the site, and weather delays.	\$ 0.00
RFC 009R	Ceiling System and Finish Changes	This includes changes to the ceiling systems (hat channels added and remove PVC panels), additional structural support for the hanging boats in the mezzanine per exhibit design, and an adjustment to the door in the electrical room to better accommodate a Manual Transfer Switch.	\$ 3,138.73
RFC 010	Knox Box	Addition of a knox box required by code.	\$ 681.12
RFC 011	Manual Transfer Switch	At the request of the County, installation of County supplied Manual Transfer Switch and furnish and installation of a connection box. (This will prepare the facility to be served with a portable generator in the event it is needed.)	\$ 23,231.03
	<b>Total Changes</b>		<b>\$ 29,041.16</b>

Staff recommends approval of Change Order #2 in the amount of \$29,041.16 and additional time allowance of 10 days. The funds for this change order are available in the project budget.

Current Contract Amount	\$	3,220,740.41
Change Order	\$	29,041.16
Proposed Contract Amount	\$	3,249,781.57

Attachment: Maritime Museum-Change Order\_2019-045\_CO 002\_Signed (Maritime Museum-Change Order #2)



## CHANGE ORDER NO. CO002

**PROJECT:**  
Whalehead Boat Museum  
1100 Club Road  
Corolla, NC 27927

**CHANGE ORDER**  
**Date:** Jul 07, 2020

**OWNER:** ☒  
**ARCHITECT:** ☒  
**CONTRACTOR:** ☒  
**FIELD:** ☐  
**OTHER:** ☐

**TO CONTRACTOR:**  
Sussex Development Corporation  
109 S. Lynnhaven Road, Suite 200  
Virginia Beach VA 23452

### THE CONTRACT IS CHANGED AS FOLLOWS:

(Include, where applicable, any undisputed amount attributable to previously executed Construction Change Directives)

RFC005	Change AD 3 to Clopay Coachman style door per submittal review comments	\$1,990.28
RFC009	Ceiling System and Finish Changes	\$3,138.73
RFC010	Furnish and install Knox Box	\$681.12
RFC011	Install Owner Furnished ATS	\$23,231.03

The original Contract Sum was	\$3,213,029.49
The net change by previously authorized Change Orders	\$7,710.92
The Contract Sum prior to this Change Order was	\$3,220,740.41
The Contract Sum will be increased by this Change Order in the amount	\$29,041.16
The New Contract Sum Including This Change Order	\$3,249,781.57
The Contract Time will be increased by	10 Days
The date of Substantial Completion as of the date of this Change Order	11/12/2020

### NOTE:

This Change Order does not include changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

### NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER

Beacon Architecture and Design, PLLC	Sussex Development Corporation	County of Currituck
<b>ARCHITECT</b> (Firm name)	<b>CONTRACTOR</b> (Firm name)	<b>OWNER</b> (Firm name)
2400 N Croatan Highway Suite H Kill Devil Hills NC 27948 USA	109 S. Lynnhaven Road, Suite 200 Virginia Beach VA 23452	153 Courthouse Road Currituck NC 27929 USA
<b>ADDRESS</b>	<b>ADDRESS</b>	<b>ADDRESS</b>
Christopher Nason	Harry L. Davis, III	Ben Strikeleather
(Typed Name)	(Typed Name)	(Typed Name)
<b>BY</b> (Signature)	<b>BY</b> (Signature)	<b>BY</b> (Signature)
<b>DATE</b>	<b>DATE</b>	<b>DATE</b>



## REQUEST FOR CHANGE

Project Code: 2019-045

Date: 2020-01-10

Project Name: Whalehead Boat Museum

RFC#: RFC005

Owner: County of Currituck  
153 Courthouse Road Suite 302  
Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

**Scope of Work:**

Change AD 3 to Clopay Coachman style door per submittal review comments

Description	Amount
Change AD 3 to Clopay Coachman style door per submittal review comments	\$ 1,785.00
10% OH&P on Subcontractors	\$ 178.50
Payment and Performance Bond Add	\$ 26.78
<b>TOTAL</b>	<b>\$ 1,990.28</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

Sussex Development Corporation

County of Currituck

DocuSigned by:  


607685073464449

Jim Vachon, Senior Project Manager

Michelle Perry  
or Authorized Signature

Date



## CHANGE ORDER PROPOSAL

1268 BALLENTINE BLVD.\*NORFOLK, VIRGINIA 23504\*PHONE (757) 622-5355\*FAX (757) 623-8797

EMAILED: dhangen@sussexdevelopment.com

December 20, 2019

Sussex Development  
109 S. Lynnhaven Rd., Suite 200  
Virginia Beach, VA 23452

Attention: Ms Danielle Hangen  
Reference: Whalehead Boat Museum  
Our 19-229-4 / Your 2019-045

Dear Ms Hangen;

In the returned submittals there was a request to change the interior door (#3) to a decorative residential carriage house style of appearance. This will provide the eight panel width of the bottom five sections and the twelve panel width in the top section with simulated center meeting stiles. The raised stile and rail appearance is accomplished with an overlay, and the base panels and the overlays are available in four color choices. The overlay may be a contrasting color to the base. All the base sections will be solid insulated steel, and we have retained the high lift track and motor operation from the prior door. We still have the vinyl weatherstripped stop molding (available in various colors) at the head and jambs unless something different is needed.

On this basis we quote an add of \$1,785.00. A brochure on the Clopay Coachman series is attached. Please let us know if wish for us to proceed.

Sincerely Yours,

**DOOR ENGINEERING CORPORATION**

DC/tch  
Cc: [jvachon@sussexdevelopment.com](mailto:jvachon@sussexdevelopment.com)

Duncan Congdon

Attachment: Maritime Museum-Change Order\_2019-045\_CO 002\_Signed (Maritime Museum-Change Order #2)

# COACHMAN®

## collection

4-LAYER CONSTRUCTION



America's Favorite Garage Doors



Attachment: Maritime Museum-Change Order\_2019-045\_CO 002\_Signed (Maritime Museum-Change Order #2)

*Model CGU/CG/GD12 with ARCH3 Windows.  
Shown with Sandtone Steel Base  
and Standard White Composite Overlays;  
Standard Spade Handles and Step Plates.*



# COACHMAN<sup>®</sup> collection

The Coachman<sup>®</sup> Collection gives your home classic elegance while complementing your home's architectural style. With four distinctive series, the Coachman Collection offers the sophisticated expression of a carriage house door with the science of durable steel and composite construction. It's the perfect blend of beauty and practicality—masterful in the details and innovative in design—and it's only from Clopay.

## 4-Layer Construction


**intellcore<sup>®</sup>**  
insulation technology

### Warmer. Quieter. Stronger.

Coachman<sup>®</sup> Collection doors featuring Intellcore<sup>®</sup> insulation technology represent the ultimate smart choice for homeowners. Clopay's Intellcore<sup>®</sup> is a proprietary polyurethane foam that is injected into a garage door, expanding to fill the entire structure. The result is a door with incredible strength and durability. Its dense insulation also produces a quieter door, and with one of the industry's leading R-values of 18.4, it provides year-round comfort and improved energy efficiency. Smart, indeed.



*Composite overlay with beveled coped edge and center groove creates a detailed carriage house look.*

CGU MODELS		CG MODELS		CD MODELS	
	<b>2"</b> POLYURETHANE INSULATION	<b>EFFICIENCY</b> <b>18.4</b> R-VALUE	<b>2"</b> POLYSTYRENE INSULATION	<b>EFFICIENCY</b> <b>9.0</b> R-VALUE	<b>1 3/8"</b> POLYSTYRENE INSULATION
				<b>EFFICIENCY</b> <b>6.5</b> R-VALUE	

Calculated door section R-value is in accordance with DASMA TDS-163.

Model CGU/CG/CD11 with SQ24 Windows.  
Shown with Standard White Steel Base and  
Standard White Composite Overlays;  
Standard Spade Handles and Step Plates.

the look of WOOD  
the ease of STEEL<sup>®</sup>

## Colors

### STEEL BASE DOOR COLORS



Standard White

Almond

Desert Tan

Sandtone

### COMPOSITE OVERLAY COLORS



Standard White

Almond

Desert Tan

Sandtone

*Due to the printing process, colors may vary.*

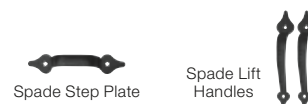
- Composite overlays and steel base are available in Standard White, Almond, Desert Tan and Sandtone. Overlay and steel base colors can be mixed to achieve desired look.
- Coachman<sup>®</sup> Collection doors can be painted using a high-quality exterior latex paint.

**IMPORTANT:** When painting your door, we require use of either a pre-approved paint or paints having a Light Reflective Value (LRV) of 38 or higher. Use of other paints will void the door's warranty.

A list of pre-approved paints can be found at <http://info.garagedoors.com/lrv>

## Decorative Hardware

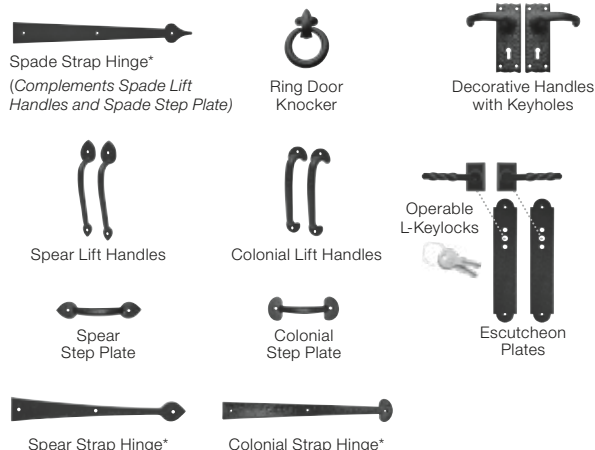
### STANDARD



Spade Step Plate

Spade Lift Handles

### OPTIONAL

Spade Strap Hinge\*  
(Complements Spade Lift Handles and Spade Step Plate)

Ring Door Knocker

Decorative Handles with Keyholes

Spear Lift Handles

Colonial Lift Handles

Operable L-Keylocks

Escutcheon Plates

Spear Step Plate

Colonial Step Plate

Spear Strap Hinge\*

Colonial Strap Hinge\*

\*Door may not open properly if installed near the top depending on opening dimensions and lift type. See your Clopay Dealer for more details.



Model CGU/CG/CD13 with REC14 Windows.  
Shown with Standard White Steel Base  
and Standard White Composite Overlays;  
Standard Spade Handles and Step Plates.



SERIES ONE of the Coachman® Collection proves that in simplicity, there is sophistication. Architectural home designs such as Mission, Shaker, Country and Prairie look beautiful with the understated elegance of this classic look. Your choice of rectangular, square, arched windows or a solid top section provides that finishing touch.

SERIES ONE DESIGNS

	TOP11 (Solid)	TOP12 (Solid)	TOP13 (Solid)	ARCH1 (Solid)	ARCH1 Window	ARCH3 Window	ARCH4 Window	ARCH13 Window	ARCH14 Window	SQ23 Window	SQ24 Window	REC11 Window	REC13 Window	REC14 Window
CGU CG CD 11														
	TOP11 (Solid)	TOP12 (Solid)	TOP13 (Solid)	ARCH1 (Solid)	ARCH1 Window	ARCH3 Window	ARCH4 Window	ARCH13 Window	ARCH14 Window	SQ23 Window	SQ24 Window	REC11 Window	REC13 Window	REC14 Window
CGU CG CD 12														
	TOP11 (Solid)	TOP12 (Solid)	TOP13 (Solid)	ARCH1 (Solid)	ARCH1 Window	ARCH3 Window	ARCH4 Window	ARCH13 Window	ARCH14 Window	SQ23 Window	SQ24 Window	REC11 Window	REC13 Window	REC14 Window
CGU CG CD 13														

9' wide x 7' high; shown with Sandtone base and Standard White overlays. Consult your Clopay Dealer or [clopay.com](http://clopay.com) for additional sizes.

Model CGU/CG/CD21 with ARCH3 Windows.  
Shown with Standard White Steel Base and  
Standard White Composite Overlays;  
Standard Spade Handles and Step Plates.

# Series TWO

SERIES TWO of the Coachman® Collection complements homes with American Country flair. With full or half crossbuck panels and your choice of rectangular, square or arched window styles, it's a classic style that looks as good with Irish Country Pine as it does with Texas Hill Country Chic.

## SERIES TWO DESIGNS

	TOP11 (Solid)	TOP12 (Solid)	TOP13 (Solid)	ARCH1 (Solid)	ARCH1 Window	ARCH3 Window	ARCH4 Window	ARCH13 Window	ARCH14 Window	SQ23 Window	SQ24 Window	REC11 Window	REC13 Window	REC14 Window
CGU CG CD 21														
	TOP11 (Solid)	TOP12 (Solid)	TOP13 (Solid)	ARCH1 (Solid)	ARCH1 Window	ARCH3 Window	ARCH4 Window	ARCH13 Window	ARCH14 Window	SQ23 Window	SQ24 Window	REC11 Window	REC13 Window	REC14 Window
CGU CG CD 22														
	TOP11 (Solid)	TOP12 (Solid)	TOP13 (Solid)	ARCH1 (Solid)	ARCH1 Window	ARCH3 Window	ARCH4 Window	ARCH13 Window	ARCH14 Window	SQ23 Window	SQ24 Window	REC11 Window	REC13 Window	REC14 Window
CGU CG CD 23														

9' wide x 7' high; shown with Sandtone base and Standard White overlays. Consult your Clopay Dealer or [clopay.com](http://clopay.com) for additional sizes.



*Model CGU/CG/CD31 with ARCH1 (Solid) Top Section.  
Shown with Sandtone Steel Base and  
Standard White Composite Overlays;  
Optional Spear Lift Handles and Step Plates.*

# Series THREE

SERIES THREE of the Coachman® Collection delivers solid good looks and is designed to work exceptionally well with today's Country French and Victorian style homes. Fully enclosed to provide maximum privacy, with optional crossbuck bottom panels and square or arched top sections, this series is the architect's choice for a variety of home styles.

## SERIES THREE DESIGNS

CGU CG CD 31	TOP11 (Solid)	ARCH1 (Solid)	CGU CG CD 32	TOP12 (Solid)	ARCH1 (Solid)	CGU CG CD 33	TOP13 (Solid)	ARCH1 (Solid)
CGU CG CD 34	TOP11 (Solid)	ARCH1 (Solid)	CGU CG CD 35	TOP11 (Solid)	ARCH1 (Solid)	CGU CG CD 36	TOP11 (Solid)	ARCH1 (Solid)

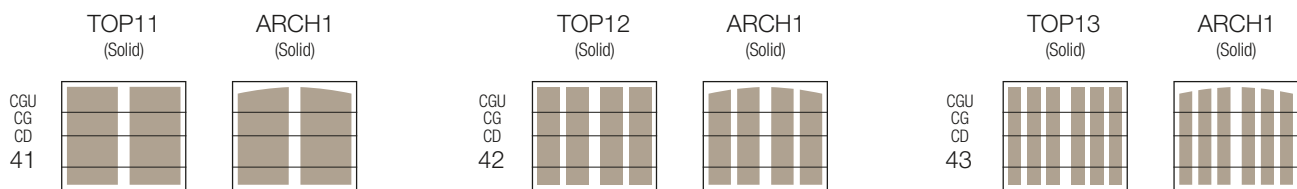
9' wide x 7' high; shown with Sandtone base and Standard White overlays. Consult your Clopay Dealer or [clopay.com](http://clopay.com) for additional sizes.

*Model CGU/CG/CD42 with TOP12 (Solid) Top Section.  
Shown with Desert Tan Steel Base and Desert Tan Composite Overlays;  
Optional L-Keylocks with Escutcheon Plates and  
Standard Spade Step Plates.*

# Series FOUR

SERIES FOUR of the Coachman® Collection is designed specifically for a cleaner, more contemporary look. Clean, simplistic and aesthetically pleasing designs without horizontal lines allow the garage to blend well with surrounding architecture while still retaining the hallmark carriage house appearance unique to Coachman® Collection doors.

## SERIES FOUR DESIGNS



9' wide × 7' high; shown with Sandtone base and Standard White overlays. Consult your Clopay Dealer or [clopay.com](http://clopay.com) for additional sizes.



## Additional Sizes & Windows

Shown at right are common width configurations using 7' high Model CGU/CG/CD12 with ARCH4 windows as an example.

Shown below are additional window/top section options for double car doors.



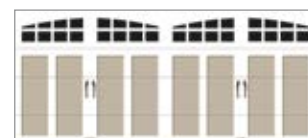
8', 9' Wide Doors



10' Wide Doors



12' Wide Doors



15', 15'6", 16', 18' Wide Doors



ARC1A (Solid); Series 1 and 2 Only



ARC3A Window; Series 1 and 2 Only



ARC13A Window; Series 1 and 2 Only



ARC1A (Solid); Series 3 and 4 Only



ARC1A (Solid); Series 3 and 4 Only



ARC1A Window; Series 1 and 2 Only



ARC4A Window; Series 1 and 2 Only



ARC14A Window; Series 1 and 2 Only



ARC1A (Solid); Series 3 and 4 Only

To visualize on your home, go to [www.clopaydoor.com/DIS/garage-door-imagination-system.aspx](http://www.clopaydoor.com/DIS/garage-door-imagination-system.aspx)

Windows are available single pane or insulated in clear, frosted, seeded, obscure and rain designs.

Additional charges for optional glass apply.



Clear



Frosted



Seeded



Obscure



Rain

## Additional Features

- Standard doors available in four carriage house design series and 15 different models. Custom designs and sizes also available. See your Clopay® Dealer for details.
- Woodgrain embossed, insulated, galvanized steel base door painted front and back for a virtually maintenance-free door. See Colors.
- Windows with complete overlay and true arch designs are available in double strength or obscure glass. Models CGU/CG also available with insulated glass.
- Patented clip-in window grilles are removable for easy cleaning.
- Available with 2" Intellicore® polyurethane (R-value 18.4), 2" bonded polystyrene (R-value 9.0) or 1-3/8" bonded polystyrene (R-value 6.5) insulation and thermal break.
- 10-ball nylon rollers for quiet operation.
- Heavy-duty 14 gauge steel hinges for long-lasting performance.
- Replaceable vinyl bottom weatherseal in a rust-resistant aluminum retainer helps seal out the elements.
- WINDCODE®: 1-3/8" CD Models are available through W5 (single car) WINDCODE and 2" CG Models are available in W5 (double car)/W6/W8 WINDCODE. Some restrictions apply. See your Clopay Dealer for details.
- Product complies with 2015 IECC air infiltration requirement of 0.40 cfm/ft² or less (IECC, Section C402.5.2).

## Warranties



## Environmental Assurance

Clopay doors are compliant with environmental laws and regulations. Clopay doors do not contain HFCs. All Clopay doors are compliant with:

- California SB 1013
- Washington HB 1112 – Hydrofluorocarbon Greenhouse Gas Emissions
- Canadian regulations amending the ozone-depleting substances and halocarbon alternatives regulations

## Size Availability

Some width and height restrictions. See your Clopay Dealer for details.

DOOR HEIGHTS	Series 1, 3 & 4		Series 2 – Design 21		Series 2 – Designs 22 & 23	
	6'0" to 16'0" in 3" increments		6'0" to 8'0" in 3" increments and 8'6", 9'0", 9'6", 10'0"		6'0" to 10'0" in 3" increments	
DOOR WIDTHS	Designs 11, 12, 13, 31, 32, 33, 36, 41, 42, 43		Design 21		Designs 22 & 23	
	Model CD					
	Models CG & CGU					
	6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 12'0", 12'2", 13'0", 13'8", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2"		6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 12'0", 12'2", 13'0", 13'8", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2"		6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2"	
	6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 12'0", 12'2", 13'0", 13'8", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2", 19'0", 20'0"		6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 12'0", 12'2", 13'0", 13'8", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2", 19'0", 20'0"		6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2", 19'0"	
					Designs 34 & 35	
					6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2"	
					6'2", 6'4", 7'0", 7'2", 7'6", 7'8", 8'0", 8'2", 8'6", 9'0", 9'2", 10'0", 14'0", 14'2", 15'0", 15'2", 15'6", 15'8", 16'0", 16'2", 17'0", 18'0", 18'2", 19'0"	



Visit [clopay.com](http://clopay.com) or call 1-800-2CLOPAY (800-225-6729) for more information on Clopay.

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## REQUEST FOR CHANGE

**Project Code:** 2019-045      **Date:** 2020-03-26  
**Project Name:** Whalehead Boat Museum      **RFC#:** RFC008  
**Owner:** County of Currituck  
 153 Courthouse Road Suite 302  
 Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

**Scope of Work:**

Request for schedule extension.

Description	Amount
See attached	\$
<b>TOTAL</b>	\$

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation**

**County of Currituck**

\_\_\_\_\_  
 Jim Vachon, Senior Project Manager

\_\_\_\_\_  
 Michelle Perry  
 or Authorized Signature

\_\_\_\_\_  
 Date



# SUSSEX

20 March 2020

To: Michelle Perry, PE  
Assistant County Engineer

Project: **Whalehead Boat Museum**  
Subject: **Request for Change #008 – Time Extension Request**

SDC Project No.: 2019-045

Dear Ms. Perry,

Sussex development respectfully submits this Request for Change #008 for the County's consideration on this subject project. We are requesting a No-Cost time extension of (2) two work weeks, a total of (10) ten workdays, on this project. There are a few items that have occurred in the first five months of this project that have incurred delays to the critical path schedule.

The team engaged in some initial temporary security screening and controls that were negotiated and added to the project and presented in Request for Change #001. The civil engineer issued a design revision dated 10/21/2019 that removed the bulkhead requirements, changed some grading and infrastructure layout, and rerouted some utilities. The design revision covered the necessary changes due to the unforeseen sanitary sewer line that services the Lighthouse facility. In Request for Change #002 we provided credits for work deleted and adds for new work. The process for the County to review and approve RFC's #1, 2 and 3 took a little longer than expected and we did not request additional time in those RFC's.

Sussex engaged with the County to have some existing trees pruned and properly altered prior to our forces proceeding to properly conduct site utility operations and craning of structural steel operations. The process for the County to review and engage the services of the qualified tree surgeon took a few weeks longer than anticipated to resolve. The necessary tree alterations were completed earlier this week.

During the concrete footings and foundation work in late December and January we encountered some weather delays that impeded progress towards recovering previously lost days as described in the items above. Those weather events were primarily winter rain days and cold temperature days.

In summary, all the events described above have resulted in a concurrent delay on this project, not attributable to the contractor's or owner's sole fault. Sussex requests this (10) ten-day time extension at no-cost in order to reset the critical path of the project schedule to carry a Substantial Completion Date of Thursday November 12<sup>th</sup> 2020.

Sincerely,

Jim Vachon  
Senior Project Manager

Attachment: Maritime Museum-Change Order\_2019-045\_CO 002\_Signed (Maritime Museum-Change Order #2)



## REQUEST FOR CHANGE

**Project Code:** 2019-045

**Date:** 2020-06-12

**Project Name:** Whalehead Boat Museum

**RFC#:** RFC009R

**Owner:** County of Currituck  
153 Courthouse Road Suite 302  
Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

**Scope of Work:**

Coordinated changes to ceiling system components in the Exhibition Hall, Multi-Purpose Room and Upper Mezzanine. Install 7/8" hat channel light-gauge framing to the Z-girts in the roof structure. Install of 5/8" gypsum wallboard as per design. Provide a Level 4 finish in lieu of the original Level 1 finish. Delete the requirement for PVC panels. Install PVC batten strips as per plans. Paint ceiling system as per original plans. Install (8) supports for Boat Crib as per Riggs Ward sketch 4.32 and Engineer's sketch SK-3. Re-frame Door 10 opening at Utility Room per Option 2 sketch to shift opening in coordination with ATS revision.

Description	Amount
(8) Supports for Boat Crib, 7/8" hat channel item	\$ 2,215.00
Re-frame Utility Rm door opening per Sketch Option 2	\$ 600.00
Payment & Performance Bonds	\$ 42.23
10% OH&P on Subcontractors	\$ 281.50
<b>TOTAL</b>	<b>\$ 3,138.73</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation**

**County of Currituck**

DocuSigned by:

607685073484449  
Jim Vachon, Senior Project Manager

Michelle Perry  
or Authorized Signature

Date

Attachment: Maritime Museum-Change Order\_2019-045\_CO 002\_Signed (Maritime Museum-Change Order #2)



## REQUEST FOR CHANGE

**Project Code:** 2019-045

**Date:** 2020-05-20

**Project Name:** Whalehead Boat Museum

**RFC#:** RFC010

**Owner:** County of Currituck  
153 Courthouse Road Suite 302  
Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

**Scope of Work:**


Furnish and install Knox Box

Description	Amount
Knox Box	\$ 517.28
Install Knox Box	\$ 75.00
15% OH&P on Self Performed	\$ 88.84
<b>TOTAL</b>	<b>\$ 681.12</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation**

**County of Currituck**

DocuSigned by:  
  
607685073464449...

Jim Vachon, Senior Project Manager

Michelle Perry  
or Authorized Signature

Date

Attachment: Maritime Museum-Change Order\_2019-045\_CO 002\_Signed (Maritime Museum-Change Order #2)

THAT ENSURE  
FIRST RESPONDERS  
HAVE ACCESS.

COVID-19 guidelines, Knox is taking extra precautions for the health and safety of our customers and status. Buildings and other vital assets must ensure they've installed rapid access products with this important capability.

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## Order Details #640368

### Department Details

Currituck Co Fire - EMS  
153 COURTHOUSE RD STE 303  
CURRITUCK, NC 27929-9734

### Customer Details

dhangen@sussexdevelopment.com  
Danielle Hangen  
109 S LYNNHAVEN RD  
STE 200  
VIRGINIA BCH, VA 23452-7406

#	Image	Model	SKU	Quantity
1		<b>Model 3272 – KnoxBox 3200, Recess Mount, Hinged Door, Aluminum</b> Model: 3272	3272	1
<b>Install at:</b> Whalehead Boat Museum, Bldg: Whalehead Boat Museum, 1140 Village Lane, Corolla, NC 27927				

Sub-total	\$459.00
Shipping	\$29.00
Tax	\$29.28
<b>Total</b>	<b>\$517.28</b>

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Knox Company  
1601 W. Deer Valley Road  
Phoenix, AZ 85027 US  
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FAQs  
How to Buy  
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## REQUEST FOR CHANGE

**Project Code:** 2019-045**Date:** 2020-06-22**Project Name:** Whalehead Boat Museum**RFC#:** RFC011**Owner:** County of Currituck  
153 Courthouse Road Suite 302  
Currituck, NC 27929

Sussex Development Corporation respectfully submits our proposal to provide requested or needed changes to the above referenced project as described below and detailed on the attached supporting documentation:

**Scope of Work:**

Install Owner Furnished ATS

Description	Amount
Electrical	\$ 20,835.00
Payment & Performance Bonds	\$ 312.53
10% OH&P on Subcontractors	\$ 2,083.50
<b>TOTAL</b>	<b>\$ 23,231.03</b>

This proposal is valid for 30 days, or as noted on any supporting documentation. Please sign below acknowledging your formal acceptance of this request and return a copy for our files. I may be contacted at the telephone number listed below if you have any questions or require any additional information.

**Sussex Development Corporation****County of Currituck**

DocuSigned by:

607685073464449

Jim Vachon, Senior Project Manager

Michelle Perry  
or Authorized Signature

Date



*Commercial • Industrial • Service*

White Electric Company  
117 Butternut Lane  
Virginia Beach, VA 23452  
Phone: (757) 431-0123  
Fax: (757) 431-1007  
e-mail: [jkirby@whiteelectric.info](mailto:jkirby@whiteelectric.info)

## QUOTATION

**DATE: 6/22/20**

**TO: SUSSEX DEVELOPMENT**

**ATTN: DANIELLE HANGEN / JIM VACHON**

**RE: HCP BOAT MUSEUM TRANSFER SWITCH**

### **JOB DESCRIPTION:**

INSTALLATION OF (1) OWNER FURNISHED 600 AMP 120/208 VOLT THREE PHASE SERVICE RATED NON-AUTOMATIC TRANSFER SWITCH PER PLAN. THIS INCLUDES THE CONDUITS AND WIRES FROM THE CT CABINET TO THE TRANSFER SWITCH AND FROM THE TRANSFER SWITCH TO THE MDP. THIS QUOTE ALSO INCLUDES A NEMA 3R CONNECTION BOX WITH CAM LOK CONNECTORS LOCATED ON THE EXTERIOR OF THE BUILDING.

**BASE BID \$20,835.00**

***Jamie Kirby***  
**PREPARED BY**

*Va.Lic.# 2701-036736A*

*NC.Lic.# 18828U*

Attachment: Maritime Museum-Change Order\_2019-045\_CO 002\_Signed (Maritime Museum-Change Order #2)



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2858)

**Agenda Item Title:** Corolla ABC Store-Change Order #1

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

---

**Brief Description of Agenda Item:**

**Reason for Request:**

Change order request for additional costs for electrical installations and to revise time allowance for project completion. Summary of items is included in packet documents.

**Potential Budget Affect:** Funds are available in budget, no increase required.

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**

**Corolla ABC Store**

Change Order #1 Summary

July 20, 2020

Item 1	Additional Conduit	Additional conduit installation by the electrical contractor based on the final transformer location identified by Dominion Power.	\$ 3,334.10
Item 2	Time Delays	3 days for the removal of a concrete structure found during clearing that was not shown on the plan, 6 days to resolve a discrepancy in surface grades and bring in additional fill to properly prepare the building pad, and 4 days due to weather.	\$ 0.00
	<b>Total Changes</b>		<b>\$ 3,334.10</b>

Staff recommends approval of Change Order #1 in the amount of \$3,334.10 and additional time allowance of 13 days. The funds for this change order are available in the project budget.

Current Contract Amount	\$	1,761,430.00
Change Order	\$	3,334.10
Proposed Contract Amount	\$	1,764,764.10

Attachment: Corolla ABC Store - CO 1 (Change Order-ABC Store, Corolla)



CURRITUCK COUNTY  
COROLLA ABC STORE

## SECTION 00 6363 – CHANGE ORDER

## Change Order

No. 01Date of Issuance: 7-15-2020

Effective Date: \_\_\_\_\_

Project: Corolla ABC

Owner: Currituck County

Owner's Contract No.: 2063

Contract: \_\_\_\_\_

Date of Contract: 03/11/2020

Contractor: Godfrey Construction, LLC

Engineer's Project No.: 42485**The Contract Documents are modified as follows upon execution of this Change Order:**

## Description:

Price increase due to additional conduit installation by electrical contractor based on Dominion Power's proposed Transformer location and a time extension based on May rainfall and delay in building pad for undercut/backfill.

**Attachments (list documents supporting change):**

Change order request from Godfrey Construction LLC, estimate for additional conduit from Suburban Electric, Climatological Data showing rainfall for the month of May.

**CHANGE IN CONTRACT PRICE:****CHANGE IN CONTRACT TIMES:**

Original Contract Price:

\$1,761,430.00Original Contract Times: ☐ Working days ☒ Calendar daysSubstantial completion (days or date): 300 DaysReady for final payment (days or date): 330 DaysIncrease from previously approved Change Orders No. 01 to No. 01:\$ 0Increase from previously approved Change Orders No. 01 to No. 01:Substantial completion (days): 0Ready for final payment (days): 0

Contract Price prior to this Change Order:

\$1,761,430.00

Contract Times prior to this Change Order:

Substantial completion (days or date): 300Ready for final payment (days or date): 330

Increase of this Change Order:

\$3,334.10

Increase of this Change Order:

Substantial completion (days or date): 13Ready for final payment (days or date): 13

Contract Price incorporating this Change Order:

\$1,764,764.10

Contract Times with all approved Change Orders:

Substantial completion (days or date): 313Ready for final payment (days or date): 343

RECOMMENDED:

By: Kimberly D. Hamby  
Engineer (Authorized Signature)

ACCEPTED:

By: \_\_\_\_\_  
Owner (Authorized Signature)

ACCEPTED:

By: \_\_\_\_\_  
Contractor (Authorized Signature)Date: 7-15-2020

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

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

Approved by Funding Agency (if applicable): \_\_\_\_\_

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

**From:** [Kim Hamby](#)  
**To:** [Michelle Perry](#)  
**Subject:** [EXTERNAL] Corolla ABC Store - Change Order Request #1  
**Date:** Wednesday, July 15, 2020 4:49:43 PM  
**Attachments:** [Corolla ABC Store - Change Order #01.pdf](#)

---

**[CAUTION]:** This email originated from outside of Currituck County's system. Do not click links or open attachments unless you verify that the attachment and contents are safe. Please report any suspicious emails or attachments to [support](#).

Michelle,

Please find attached the form I have prepared for Change Order #1 along with the supporting documentation provided by the contractor. Please note that the initial request was for a time extension of 14 days. We have worked with the contractor to verify that only 13 days can be justified.

The price increase shown is due to the additional conduit installation by the electrical contractor based on the final transformer location identified by Dominion Power. Godfrey Construction has applied the appropriate 10% markup to the subcontractor's price.

The time delay request includes: 3 days for the removal of a concrete structure found during clearing that was not shown on the plan, 6 days to resolve a discrepancy in surface grades and bring in additional fill to properly prepare the building pad, and 4 days due the actual number of rain days in May (10) exceeding the expected number of rain days (6) that were included in the contract documents.

Please let me know if I can provide any additional information to assist you with the processing of this request.

Thank you,

**Kimberly D. Hamby, PE**  
*Senior Project Manager*

**TIMMONS GROUP** | [www.timmons.com](http://www.timmons.com)  
 1805 West City Drive, Unit E | Elizabeth City, NC 27909  
 Office: 252.621.5029 | Fax: 252.562.6974  
 Mobile: 252-340-3264 | [kim.hamby@timmons.com](mailto:kim.hamby@timmons.com)  
*Your Vision Achieved Through Ours*

To send me files greater than 20MB [click here](#).

Attachment: Corolla ABC Store - CO 1 (Change Order-ABC Store, Corolla)

**GODFREY CONSTRUCTION, LLC.**

P.O. Box 694

114 Meadowlark Street

Kill Devil Hills, N.C. 27949

Phone: 252-261-8600 Fax: 252-261-4466 E-Mail: [Godfreyconstruction@gmail.com](mailto:Godfreyconstruction@gmail.com)**Change Order Request**

Change Order # 1 Revised

Date: 07-15-2020

Contract: Currituck County – Corolla ABC Store

**The following changes were made in this contract:**

1. Conduit Extension to Point A per provided detail Timmons Group – Suburban Electric Quote Attached  
Cost + 10% = \$3,334.10
2. Time Extension Request per provided Whitehurst Sand Allowance Schedule & Weather Report for Rain Days  
(14 Days)

Signature of the Customer/Owner indicates their agreement herewith, including any adjustment in the Contract Sum or Contract Time.

The Original (Contract Sum) ..... \$1,761,430.00  
 Net Changes by previously authorized Change Orders ..... \$0  
 The (Contract Sum) prior to this Change Order was ..... \$1,761,430.00  
 The (Contract Sum) will be (Increased) (decreased) (unchanged) by this Change Order. \$3,334.10  
 The New (Contract Sum) including this Change Order will be ..... \$1,764,764.10  
 The Contract Time will be (Increased) (decreased) (unchanged) by (14) Days.

Owner: Currituck County

 Contractor: Godfrey Construction LLC.  
 114 Meadowlark St  
 Kill Devil Hills N.C. 27948

By: \_\_\_\_\_

By: A.R. Kelly

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

Date: 07-15-2020

Attachment: Corolla ABC Store - CO 1 (Change Order-ABC Store, Corolla)



# SUBURBAN ELECTRIC

SUBURBAN ELECTRIC SERVICES, Inc.

1078 Hwy 64

MANTEO, NC 27954

OFF 252-475-1372 / FAX 252-475-1192

NC Unlimited Electrical license 30633U

## Estimate - Corolla ABC Store Relocate Transformer - Add Sign Circuit

**Project Name:** Corolla ABC Store  
**Location:** 998 Ocean Trail, Corolla, NC  
**Issue Date:** 6/8/20  
**Prepared for:** Rick, Godfrey Construction  
**Submitted By:** Mark Melton - General Manager  
**Cell Phone:** 252-473-7561  
**Email:** [mark@suburbanelectricobx.com](mailto:mark@suburbanelectricobx.com)

Suburban Electric Services, Inc. proposes to provide labor and material necessary to accomplish the following:

### Scope of Work:

Extend distance to transformer by 110 feet via trenching through road to opposite side of sidewalk. Install 220 feet of Dominion supplied 4" PVC conduit. Install Sign circuit & 80' 1" conduit to entrance driveway, connect to lighting contactor.

There is 120' of 4" conduit and 60 feet of trenching that is already included in original bid that is not shown in this estimate though it is applied to job as the total distance to point "A" across side walk to CT Cabinet is 168 Feet.

Pick Up Dominion material	\$ 100
Trenching 188 feet	\$ 1692
Labor	\$ 1239

**TOTAL PRICE: \$3031**

I authorize Suburban Electric to access the above location and perform the above described electrical work. I understand by signing below this document becomes a binding contract. Additional charges may apply from changes in Scope of Work from building officials or if previous construction has not been done per industry standards. All charges are due upon completion of work. Suburban Electric is not responsible for patching, painting, or replacing drywall, wood and concrete. A \$50 returned check will apply. Any charges resulting from payment collection will be added to balance due.

**Accepted By** \_\_\_\_\_ **Date** \_\_\_\_\_  
 Owner

**Accepted By** Mark Melton **Date** 6/17/20  
 GM Suburban Electric



## Climatological Data for ELIZABETH CITY COAST GUARD AIR STN, NC - May 2020

Date	Temperature				HDD	CDD	Precipitation	New Snow	Snow Depth
	Maximum	Minimum	Average	Departure					
2020-05-01	69	54	61.5	-1.0	3	0	0.34 1	0.0	0
2020-05-02	71	50	60.5	-2.3	4	0	0.00	0.0	0
2020-05-03	86	59	72.5	9.5	0	8	0.00	0.0	0
2020-05-04	83	61	72.0	8.7	0	7	T	0.0	0
2020-05-05	62	56	59.0	-4.5	6	0	0.06	0.0	0
2020-05-06	71	53	62.0	-1.8	3	0	0.22 2	0.0	0
2020-05-07	67	46	56.5	-7.6	8	0	0.00	0.0	0
2020-05-08	75	51	63.0	-1.3	2	0	T	0.0	0
2020-05-09	62	44	53.0	-11.6	12	0	0.01	0.0	0
2020-05-10	68	46	57.0	-7.9	8	0	0.00	0.0	0
2020-05-11	74	50	62.0	-3.2	3	0	0.00	0.0	0
2020-05-12	65	40	52.5	-12.9	12	0	0.00	0.0	0
2020-05-13	73	45	59.0	-6.7	6	0	0.00	0.0	0
2020-05-14	79	53	66.0	0.0	0	1	0.00	0.0	0
2020-05-15	84	64	74.0	7.7	0	9	0.00	0.0	0
2020-05-16	88	64	76.0	9.4	0	11	0.00	0.0	0
2020-05-17	82	65	73.5	6.6	0	9	0.03	0.0	0
2020-05-18	72	62	67.0	-0.2	0	2	1.71 3	0.0	0
2020-05-19	63	57	60.0	-7.5	5	0	0.26 4	0.0	0
2020-05-20	64	58	61.0	-6.9	4	0	0.08	0.0	0
2020-05-21	71	63	67.0	-1.2	0	2	1.73 5	0.0	0
2020-05-22	84	67	75.5	7.0	0	11	0.24 6	0.0	0
2020-05-23	87	66	76.5	7.7	0	12	0.00	0.0	0
2020-05-24	68	58	63.0	-6.1	2	0	0.00	0.0	0
2020-05-25	71	58	64.5	-5.0	0	0	0.00	0.0	0
2020-05-26	75	63	69.0	-0.8	0	4	T	0.0	0
2020-05-27	83	63	73.0	2.9	0	8	0.29 7	0.0	0
2020-05-28	86	73	79.5	9.1	0	15	0.95 8	0.0	0
2020-05-29	79	73	76.0	5.3	0	11	0.52 9	0.0	0
2020-05-30	86	69	77.5	6.4	0	13	1.15 10	0.0	0
2020-05-31	75	58	66.5	-4.9	0	2	0.00	0.0	0
Sum	2323	1789	-	-	78	125	7.59	0.0	-
Average	74.9	57.7	66.3	-0.5	-	-	-	-	0.0
Normal	76.8	56.7	66.8	-	68	122	3.61	M	-

Observations for each day cover the 24 hours ending  
at the time given below (Local Standard Time).

Max Temperature : midnight

Min Temperature : midnight

Precipitation : midnight

Snowfall : midnight

Snow Depth : 7am

Attachment: Corolla ABC Store - CO 1 (Change Order-ABC Store, Corolla)



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2863)

**Agenda Item Title:** Consideration of an Agreement between Currituck County and FEMA for Integration of Communication Technology and to Authorize County Manager to Execute the Memorandum

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

---

**Brief Description of Agenda Item:**

**Reason for Request:**

**Memorandum of Agreement with FEMA Integrated Public Alert and Warning System Program Management Office for Public Alert and Warning Systems Communications integration. Approval will authorize the County Manager to execute the agreements.**

**Potential Budget Affect:** N/A

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**

**Memorandum of Agreement  
between the  
County of Currituck, North Carolina  
and the**



**Federal Emergency Management Agency  
Integrated Public Alert and Warning System  
(IPAWS) Program Management Office**

---

**Regarding the use of:  
County of Currituck, North Carolina  
Interoperable System(s)  
and  
IPAWS OPEN Platform for Emergency Networks  
(IPAWS-OPEN)**

Version 4.2

19 Jun 2020

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**MEMORANDUM OF AGREEMENT****1.0 SUPERSEDES:** County of Currituck, North Carolina\_MOA-1, signed 09/29/2013**2.0 INTRODUCTION**

The purpose of this memorandum is to establish a management agreement between the County of Currituck, North Carolina hereinafter referred to as the Collaborative Operating Group (COG), and the Federal Emergency Management Agency (FEMA) IPAWS Program regarding the utilization and security of County of Currituck, North Carolina Interoperable System(s) (as shown in Appendix A), which interoperate with the IPAWS-Open Platform for Emergency Networks (IPAWS-OPEN). The expected benefit is to enable information interoperability across emergency response organizations and systems as intended by the FEMA IPAWS Program.

This agreement will govern the relationship between the Collaborative Operating Group and FEMA, including designated managerial and technical staff and system users associated with the aforementioned COG. As indicated within the terms of this agreement, both parties agree to allow system interoperability through the use of SOAP over HTTPS via the public internet. Under this agreement, no direct or networked connection using VPN (or equivalent technology) between the systems named in Appendix A and IPAWS-OPEN is allowed. In the event a direct connection is required, an Interconnection Security Agreement must be executed.

**3.0 AUTHORITY**

The authority for this agreement is based on the Communications Act of 1934, as amended (47 U.S.C § 606) and the implementation of regulation 47 C.F.R § 11 which establishes the statutory basis under which the FEMA IPAWS Program operates emergency alerting systems. In addition, Executive Order 13407 of June 26, 2006, Public Alert and Warning System Executive Order states, "It is the policy of the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the American people...establish or adopt, as appropriate, common alerting and warning protocols, standards, terminology, and operating procedures for the public alert and warning system to enable interoperability and the secure delivery of coordinated messages to the American people". In response, FEMA established the IPAWS Program Management Office (PMO) in April 2007.

**4.0 BACKGROUND**

It is the intent of both parties to this agreement to establish and utilize a standardized web based application interface (as defined by the IPAWS-OPEN Web Service Interface Design Guidance) between the information technology (IT) systems shown below to facilitate the exchange of emergency messages within the production environment. The testing of the interoperability of these systems has been performed through the use of FEMA's Test and Development environment to ensure the transference and receipt of emergency messages using approved messaging standards. The interoperability between these systems is supported by the use of SOAP over HTTPS via the public internet.

**5.0 COMMUNICATIONS**

Frequent formal communications are essential to ensure the successful management and operation of system interoperability. Both parties agree to maintain open lines of communication between designated staff (as indicated in Appendix B) at both the managerial and technical levels. All communications described herein must be conducted in writing and may be disseminated by electronic means unless otherwise noted.

The owners of the respective systems agree to designate and provide contact information for technical leads for their respective systems, and to facilitate direct contacts between technical leads to support the management and operation of system interoperability. To safeguard the confidentiality, integrity, and availability of the systems and the data they store, process, and transmit, both parties agree to provide notice of specific events within the timeframes indicated below:

- **Security Incidents:** Technical, administrative and/or help desk staff will immediately notify their designated counterparts by telephone or e-mail when a security incident(s) is detected and/or a violation of the Rules of Behavior (see Appendix C) has been identified. Both parties agree to make the appropriate technical and administrative individuals available for all necessary inquiries and/or investigations. Containment and/or



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resolution procedures will be documented by the identifying party and after action reports generated and submitted to the system owner and/or designated security officials within five (5) business days after detection of the incident(s).

- **Disasters and Other Contingencies:** The FEMA IPAWS Program Office will notify the COG by telephone, e-mail or other acceptable means in the event of a disaster or other contingency that disrupts the normal operation of IPAWS-OPEN.
- **System Interconnections:** This MOA is intended for systems interoperating with IPAWS-OPEN using SOAP over HTTPS via the public Internet. If in the future, an interconnection (i.e. dedicated system-to-system connection) is required to IPAWS-OPEN, this MOA must be updated and an Interconnection Security Agreement (ISA) must be executed. If a change in status from interoperating to interconnected system is required, the initiating party will notify the other party at least 3 months before the planned interconnection is to be in place.
- **Discontinuation of Use:** In the event the use of IPAWS-OPEN is no longer required, the COG agrees to immediately notify, in writing, the FEMA IPAWS Program Office at which time the COGID and associated access credentials will be deactivated.
- **Personnel Changes:** Both parties agree to provide notification of changes to their respective system owner or technical lead. In addition, both parties will provide notification of any changes in the point of contact information provided in Appendix B. All relevant personnel changes and changes to contact information must be provided within 5 business days of the change.

#### 6.0 TYPE OF INTERCONNECTIVITY

Both parties agree that the COG will utilize only the assigned COGID, associated credentials and digital certificates provided by the FEMA IPAWS Program Office to support interoperability between the system(s) listed in Appendix A and IPAWS-OPEN. In addition, all interoperable systems must be configured to interface with IPAWS-OPEN over the public Internet using only approved web service standards and associated requirements. A listing of approved web service standards and supporting requirements can be obtained from the IPAWS-OPEN Web Service Interface Design Guidance document.

In the event, a dedicated connection is required, both parties will agree to negotiate and execute an Interconnection Security Agreement (ISA) as required per Department of Homeland Security (DHS) policy which must be signed by all required parties before the interconnection is activated. Proposed changes to either system that affect system interoperability will be reviewed and evaluated to determine the potential impact. If the proposed changes impact the agreed upon terms, the MOA will be renegotiated and executed before changes are implemented.

#### 7.0 SECURITY

To ensure the joint security of the systems and the message data they store, process, and transmit, both parties agree to adhere to and enforce the Rules of Behavior (as specified in Appendix C). In addition, both parties agree to the following:

- Ensure authorized users accessing the interoperable system(s) receive, agree to abide by and sign (electronically or in paper form) the IPAWS-OPEN Rules of Behavior as specified in Appendix C. Each jurisdiction is responsible for keeping the signed Rules of Behavior on file or stored electronically for each system user.
- Utilize FEMA approved PKI certificates to digitally sign messages as they are transported over the public Internet.
- Certify that its respective system is designed, managed and operated in compliance with all relevant federal laws, regulations, and policies.
- Document and maintain jurisdictional and/or system specific security policies and procedures and produce such documentation in response to official inquiries and/or requests.

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- Provide physical security and system environmental safeguards for devices supporting system interoperability with IPAWS-OPEN.
- Ensure physical and logical access to the respective systems as well as knowledge of the COGID and associated access criteria are only granted to properly vetted and approved entities or individuals.
- Where applicable, ensure that only individuals who have successfully completed FEMA-required training can utilize the interoperable systems to issue alerts and warnings intended for distribution to the public.
- Where applicable, document and maintain records of successful completion of FEMA-required training and produce such documentation in response to official inquiries and/or requests.

## 8.0 PROFICIENCY DEMONSTRATION

Once enabled, each COG operating under this agreement must demonstrate their ability to compose and send a message through the IPAWS-OPEN system at regular intervals. Such demonstration must be performed on a monthly basis through generation of a message successfully sent through the IPAWS-OPEN Training and Demonstration environment.

## 9.0 ASSOCIATED SOFTWARE REQUIREMENTS

The COG will need to select a software package which will allow the COG to properly populate a Common Alerting Protocol (CAP) message which complies with both the *OASIS Common Alerting Protocol Version 1.2* and the *OASIS Common Alerting Protocol, v. 1.2 USA Integrated Public Alert and Warning System Profile Version 1.0*. With respect to the software and the software vendor selected FEMA expects the selected software to provide the following minimum critical capabilities and services:

- Permissions:
  - The ability to assign and manage user permissions; and
  - The ability to retrieve and view IPAWS Alerting Permissions
- Proficiency:
  - The provision of vendor support, to include user training, and around the clock technical support; and
  - The ability to submit both live and test digital certificates, with clear, easily identifiable information that indicates the environment to which the software is pointed (Live or Test)
- User Interface:
  - The provision of an intuitive user interface, to include help menus; and
  - The ability to notify the user of digital certificate expiration; and
  - The ability to constrain event types and geocodes to user permissions; and
  - The ability to send one alert to multiple channels; and
  - The provision of displays that show required fields based on selected channel; and
  - The ability to pre-populate fields to the greatest extent possible; and
  - The ability to support templates; and
  - The ability to create a polygon or circle, of less than 100 nodes; and
  - The ability to update or cancel an alert, without having to reenter all of the data; and
  - The ability to alert the end user if a software license has expired; and
  - Clear explanations if alert information is case sensitive when entered
- Confirmation and Error Checking:
  - The ability to pre-check an alert message for errors, prior to sending; and
  - The ability to create free-form 90-character WEA text, while preventing prohibited characters; and

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- The provision to IPAWS of alert status codes for any sent alert, with a clear definition of whether the codes are advice codes or error codes, along with the meaning of those codes; and
- The provision of user confirmation of connectivity to IPAWS; and
- The ability for users to see alert history and/or logs

**10.0 COST CONSIDERATIONS**

This agreement does not authorize financial expenditures by the COG on behalf of FEMA. The FEMA IPAWS Program is responsible for the costs associated with developing, operating and maintaining the availability of the IPAWS-OPEN system. The COG is responsible for all costs related to providing their users with access to IPAWS-OPEN via the public Internet. These costs may include hardware, software, monthly Internet charges, completion of security awareness training and other related jurisdictional costs.

**11.0 PROPERTY OWNERSHIP**

Each Party agrees and acknowledges that nothing in this Agreement shall be construed as giving a party any proprietary rights in or to the intellectual property of the other party. Each Party further agrees that nothing in this Agreement shall be construed as creating or granting to a party any implied or express license in or to the intellectual property of the other party.

**12.0 TIMELINE**

This agreement will remain in effect based on the life of the Authority to Operate (ATO) for IPAWS-OPEN or a maximum of three (3) years after the last date on either signature in the signature block below. Upon expiration of the IPAWS-OPEN ATO or after three (3) years (whichever comes first), this agreement will expire without further action and system access privileges will be revoked. If the parties wish to extend this agreement, they may do so by reviewing, updating, and reauthorizing this agreement. This agreement supersedes all earlier agreements, which should be referenced above by title and date. If one or both of the parties wish to terminate this agreement prematurely, they may do so upon 30 days' advanced notice or in the event of a security incident that necessitates an immediate response. This agreement may be suspended by FEMA for failure to perform the Proficiency Demonstration for two consecutive months. A suspended COG may be reinstated upon a completion of a successful Proficiency Demonstration.

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**SIGNATORY AUTHORITY**

I agree to the terms of this Memorandum of Agreement. Noncompliance on the part of either organization or its users or contractors concerning the policies, standards, and procedures explained herein may result in the immediate termination of this agreement.

**County of Currituck, North Carolina Official****Name: Ben Stikeleather****Title: County Manager****Federal Emergency Management Agency****IPAWS-OPEN System Owner****Name: Mark A. Lucero****Title: Chief, IPAWS Engineering**\_\_\_\_\_  
(Signature Date)

**County of Currituck, North Carolina**  
**153 Courthouse Road, Ste. 204**  
**Currituck, NC, 27929**

\_\_\_\_\_  
(Signature Date)

**Attn: IPAWS-OPEN System Owner, Suite 5NW-0309**  
**Federal Emergency Management Agency**  
**500 C Street SW**  
**Washington, D.C. 20472-3153**

Attachment: MOA-FEMA IPAWS OPEN Emergency Networks (MOA-Currituck County and FEMA-Emergency Alert Systems)



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## Appendix A

### Listing of Interoperable Systems

The FEMA IPAWS Program recognizes that Emergency Management organizations may utilize multiple tools to facilitate the emergency management process. As a result, jurisdictions may need to interoperate with IPAWS-OPEN using more than one system. In order to comply with DHS policy, all systems interoperating with IPAWS-OPEN must be documented and supported by a Memorandum of Agreement. As a result this appendix must be completed to identify all systems associated with the COG and used for interoperating with IPAWS-OPEN. This Appendix must be amended as applicable systems are added or removed from operations.

- IPAWS-OPEN**

Function:	IPAWS-OPEN is the backbone system that structures the alert and distributes the message from one interoperating and/or interconnected system (message sender) to another interoperating and/or interconnected system (message recipient).
Location:	Bluemont, VA; Clarksville, VA
Description of data, including sensitivity or classification level:	Messaging data is considered Sensitive But Unclassified (SBU) information and does not contain Personally Identifiable Information (PII), Financial data, Law Enforcement Sensitive Information or classified information. Each message that flows through the IPAWS-OPEN system will be associated to a specifically assigned system User ID and COGID as captured within the message elements. This information will be retained in system logs.

The systems listed below are managed and operated by the COG and are subject to the terms defined within the Memorandum of Agreement including the Rules of Behavior in Appendix C. Each interoperable system will be assigned unique authentication credentials, which must be protected by the COG. In the event these credentials are compromised, the COG is expected to immediately contact the FEMA IPAWS Program Management Office. The systems listed below are only allowed to interoperate with IPAWS-OPEN based on the criteria set forth within the IPAWS-OPEN Web Service Interface Design Guidance.

- Everbridge**

Function:	Send public alerts for major events for dissemination to CMAS
Location:	Burbank, CA; Denver, CO; Amazon West, CA;
Description of data, including sensitivity or classification level:	COTS FOUO Data is comprised of emergency public alert messages

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## **Appendix B**

### **COG Point of Contact Information**

**Designated COG Primary Point of Contact:****Name:** Steven Pyle**Title:** Deputy Emergency Management Coordinator**Business Email Address:** steven.pyle@currituckcountync.gov**Primary Phone Number:** 252-232-2115**Alternate Phone Number:****Organization:** Currituck County Emergency Management**Mailing Address:** 153 Courthouse Road, Suite 122, Currituck, NC, 27929**Designated Alternate Point of Contact:****Name:** Liz Hodgis**Title:** 911 Supervisor**Business Email Address:** liz.hodgis@currituckcountync.gov**Primary Phone Number:** 252-232-6011**Alternate Phone Number:****Organization:** Currituck County Communications**Mailing Address:** 153 Courthouse Road, Suite 301, Currituck, NC, 27929**Designated Technical Point of Contact:****Name:** Steven Pyle**Title:** Deputy Emergency Management Coordinator**Business Email Address:** steven.pyle@currituckcountync.gov**Primary Phone Number:** 252-232-2115**Alternate Phone Number:****Organization:** Currituck County Emergency Management**Mailing Address:** 153 Courthouse Road, Suite 122, Currituck, NC, 27929

Attachment: MOA-FEMA IPAWS OPEN Emergency Networks (MOA-Currituck County and FEMA-Emergency Alert Systems)

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**FEMA: Integrated Public Alert and Warning System  
Open Platform for Emergency Networks (IPAWS-OPEN)**

Contact Name	Contact Number	Email Address	Summary of System Responsibilities
Lytwaive Hutchinson	202-212-2480	lytwaive.hutchinson@fema.dhs.gov	Chief Information Officer, FEMA
Craig Wilson	202-212-1523	craig.wilson@fema.dhs.gov	Acting Chief Information Security Officer
Mark Lucero	202-646-1386	mark.lucero@fema.dhs.gov	System Owner
Gary Ham	703-899-6241	gary.ham@associates.fema.dhs.gov	FEMA PMO - IPAWS-OPEN
Gustavo Barbet	202-212-3586	gustavo.barbet@associates.fema.dhs.gov	FEMA ISSO - IPAWS-OPEN
Neil Bourgeois	703-732-6331	neil.bourgeois@associates.fema.dhs.gov	FEMA-EADIS IPAWS-OPEN Tech Lead

Attachment: MOA-FEMA IPAWS OPEN Emergency Networks (MOA-Currituck County and FEMA-Emergency Alert Systems)

## Appendix C

### IPAWS-OPEN Rules of Behavior

#### 1.0 INTRODUCTION

The following rules of behavior apply to all persons with application access to County of Currituck, North Carolina Interoperable System(s) and/or who have been issued a COGID with associated credentials for IPAWS-OPEN. These individuals shall be held accountable for their actions related to the information resources entrusted to them and must comply with the following rules or risk losing their access privileges. The Rules of Behavior apply to users on official travel as well as at their primary workplace (e.g., Emergency Operations Center – EOC) and at any alternative workplace (e.g., telecommuting from a remote or satellite site) using any electronic device including laptop computers and portable electronic devices (PED's). PED's include personal digital assistants (PDA's) (e.g. Palm Pilots), cell phones, text messaging systems (e.g., Blackberry), and plug-in and wireless peripherals that employ removable media (e.g. CDs, DVDs, etc.). PEDs also encompass USB flash memory (thumb) drives, external drives, and diskettes. These Rules of Behavior are consistent with existing DHS policies and DHS Information Technology (IT) Security directives and are intended to enhance the awareness of each user's responsibilities regarding accessing, storing, receiving and/or transmitting information using IPAWS-OPEN.

#### 2.0 APPLICATION RULES

##### 2.1 Official Use

- IPAWS-OPEN is a Federal application to be used only in the performance of the user's official duties in support of public safety as described in the National Incident Management System (NIMS).
- The use of the IPAWS-OPEN for unauthorized activities is prohibited and could result in verbal or written warning, loss of access rights, and/or criminal or civil prosecution.
- By utilizing IPAWS-OPEN, the user of the interoperable system(s) consents to allow system monitoring to ensure appropriate usage for public safety is being observed.
- County of Currituck, North Carolina will be held accountable for safeguarding all configuration items and information entrusted to them by FEMA. County of Currituck, North Carolina is expected to manage the relationship with supporting vendors, consultants and any other entities providing system support on their behalf. In addition, County of Currituck, North Carolina will be held accountable in the event of a security breach or disclosure of sensitive configuration information such as digital certificates. County of Currituck, North Carolina understands that the use of digital signatures, used on their behalf, is binding and County of Currituck, North Carolina will be held accountable accordingly. In the event sensitive information is mishandled, utilization of IPAWS-OPEN may be immediately revoked by FEMA.
- If software interoperating with IPAWS-OPEN enables users to geo-target public alert messages by means of geospatial polygons or circles, then the user shall restrict any such geospatial boundaries so as to remain within the geographical limits of their public warning authority (or as near as possible), as determined by applicable state and/or local laws and duly adopted operational plans.

##### 2.2 Access Security

- All Email addresses provided in connection with interoperable system(s) user accounts must be associated to an approved email account assigned by the user's emergency management organization. The use of personal email accounts to support emergency messaging through IPAWS-OPEN is prohibited.
- Upon approval of the MOA by FEMA, a COG account with COGID and Digital Certificate will be created and issued to the designated technical representative. All individuals with knowledge of these credentials must not share or alter these authentication mechanisms without explicit approval from the FEMA IPAWS Program.



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- Every interoperable system user is responsible for remote access security as it relates to their use of IPAWS-OPEN and shall abide by these Rules of Behavior.

**2.3 Interoperable System User Accounts and Passwords**

- All users must have a discrete user account ID which cannot be the user's social security number. To protect against unauthorized access, passwords linked to the user ID are used to identify and authenticate authorized users.
- Accounts and passwords shall not be transferred or shared. The sharing of both a user ID and associated password with anyone (including administrators) is prohibited.
- Accounts and passwords shall be protected from disclosure and writing passwords down or electronically storing them on a medium that is accessible by others is prohibited.
- The selection of passwords must be complex and shall:
  - Be at least eight characters in length
  - Contain a combination of alphabetic, numeric and special characters
  - Not the same as any of the user's previous 8 passwords.
- Passwords shall not contain any dictionary word.
- Passwords shall not contain any proper noun or the name of any person, pet, child, or fictional character. Passwords shall not contain any employee serial number, Social Security number, birth date, phone number, or any information that could be readily guessed about the creator of the password.
- Passwords shall not contain any simple pattern of letters or numbers, such as "qwerty" or "xyz123".
- Passwords shall not be any word, noun, or name spelled backwards or with a single digit appended, or with a two-digit "year" string, such as 98xyz123.
- Pass phrases, if used in addition to or instead of passwords, should follow the same guidelines.
- Passwords shall not be the same as the User ID.
- Users shall either log off or lock their workstations when unattended.
- Workstations shall be configured to either log off, or activate a password-protected lock, or password-protected screensaver within fifteen (15) minutes of user inactivity.
- Locked sessions shall remain locked until the user re-authenticates.
- Workstations shall be protected from theft.
- A user's account shall be automatically locked after three consecutive failed logon attempts.
- The automatic lockout period for accounts locked due to failed login attempts shall be set for a minimum of twenty (20) minutes.
- A process shall exist for manually unlocking accounts prior to the expiration of the twenty (20) minute period, after sufficient user identification is established.
- Sessions shall automatically be terminated after sixty (60) minutes of inactivity.
- Users are required to change their passwords at least once every 90 days.

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- Passwords must be promptly changed whenever a compromise of a password is known or suspected.

**2.4 Integrity Controls & Data Protection**

- All computer workstations accessing IPAWS-OPEN must be protected by up-to-date anti-virus software. Virus scans must be performed on a periodic basis and when notified by the anti-virus software.
- Users accessing interoperable system(s) to utilize IPAWS-OPEN must:
  - Physically protect computing devices such as laptops, PEDs, blackberry devices, smartphones, etc;
  - Protect sensitive data sent to or received from IPAWS-OPEN;
  - Not use peer-to-peer (P2P) file sharing, which can provide a mechanism for the spreading of viruses and put sensitive information at risk;
  - Not program computing devices with automatic sign-on sequences, passwords or access credentials when utilizing IPAWS-OPEN.

Users may not provide personal or official IPAWS-OPEN information solicited by e-mail. If e-mail messages are received from any source requesting personal information or asking to verify accounts or other authentication credentials, immediately report this and provide the questionable e-mail to the Local System Administrator and/or the County of Currituck, North Carolina Help Desk.

- Only devices officially issued through or approved by DHS, FEMA and/or approved emergency management organizations are authorized for use to interoperate with IPAWS-OPEN and use of personal devices to access and/or store IPAWS-OPEN data and information is prohibited.
- If a Blackberry, smartphone or other PED is used to access the interoperable system(s) to utilize IPAWS-OPEN, the device must be password protected and configured to timeout or lock after 10 minutes of inactivity.
- If sensitive information is processed, stored, or transmitted on wireless devices, it must be encrypted using approved encryption methods.

**2.5 System Access Agreement**

- I understand that I am given access to the interoperable system(s) and IPAWS-OPEN to perform my official duties.
- I will not attempt to access data, information or applications I am not authorized to access nor bypass access control measures.
- I will not provide or knowingly allow other individuals to use my account credentials to access the interoperable system(s) and IPAWS-OPEN.
- To prevent and deter others from gaining unauthorized access to sensitive resources, I will log off or lock my computer workstation or will use a password-protected screensaver whenever I step away from my work area, even for a short time and I will log off when I leave for the day.
- To prevent others from obtaining my password via "shoulder surfing", I will shield my keyboard from view as I enter my password.
- I will not engage in, encourage, or conceal any hacking or cracking, denial of service, unauthorized tampering, or unauthorized attempted use of (or deliberate disruption of) any data or component within the interoperable system(s) and IPAWS-OPEN.
- I agree to inform my Local System Administrator when access to the interoperable system(s) and/or

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IPAWS-OPEN is no longer required.

- I agree that I have completed Computer Security Awareness training as may be required by my jurisdiction prior to my initial access to the interoperable system(s) and IPAWS-OPEN and that as long as I have continued access, I will complete Computer Security Awareness training on an annual basis. If my jurisdiction does not provide Computer Security Awareness training, I will complete the FEMA self-study course *IS-906: Workplace Security Awareness* (<https://training.fema.gov/is/courseoverview.aspx?code=IS-906>) on an annual basis.

## 2.6 Accountability

- I understand that I have no expectation of privacy while using any services or programs interoperating with IPAWS-OPEN.
- I understand that I will be held accountable for my actions while accessing and using interoperable system(s) and IPAWS-OPEN, including any other connected systems and IT resources.
- I understand it is my responsibility to protect sensitive information from disclosure to unauthorized persons or groups.
- I understand that I must comply with all software copyrights and licenses pertaining to the use of IPAWS-OPEN.

## 2.7 Incident Reporting

- I will promptly report IT security incidents, or any incidents of suspected fraud, waste or misuse of systems to the Local System Administrator and/or the County of Currituck, North Carolina Help Desk.

## 3.0 IPAWS-OPEN Rules of Behavior Statement of Acknowledgement

*I have read and agree to comply with the requirements of these Rules of Behavior. I understand that the terms of this agreement are a condition of my initial and continued access to County of Currituck, North Carolina Interoperable System(s) and IPAWS-OPEN and related services and that if I fail to abide by the terms of these Rules of Behavior, my access to any and all IPAWS-OPEN information systems may be terminated and I may be subject to criminal or civil prosecution. I have read and presently understand the above conditions and restrictions concerning my access.*

Printed Name (as listed in Appendix B): \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2859)

**Agenda Item Title:** Designation of NCACC Voting Delegate and Alternate for Currituck County

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

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**Brief Description of Agenda Item:**

**Reason for Request:**

Designation of Mary Etheridge as voting delegate to represent and cast ballot on behalf of Currituck County at the NC Association of County Commissioners Virtual Business Meeting, to take place on August 6, 2020. Commissioner Selina Jarvis will be designated as alternate in the event Commissioner Etheridge is unable to participate.

**Potential Budget Affect:** N/A

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**





## Designation of Voting Delegate to NCACC Annual Conference

I, Mary R. Etheridge, hereby certify that I am the duly designated voting delegate for Currituck County at the 113<sup>th</sup> Annual Conference of the North Carolina Association of County Commissioners to be held during the **virtual\*** Annual Business Session on August 6, 2020, at 11 a.m.

Voting Delegate Name: Mary R. Etheridge

Title: Currituck County Commissioner

In the event the designated voting delegate is unable to attend, Selina S. Jarvis has been selected as Currituck County's alternate voting delegate.

Alternate Voting Delegate Name: Selina S. Jarvis

Title: Currituck County Commissioner

### Article VI, Section 2 of our Constitution provides:

"On all questions, including the election of officers, each county represented shall be entitled to one vote, which shall be the majority expression of the delegates of that county. The vote of any county in good standing may be cast by any one of its county commissioners who is present at the time the vote is taken; provided, if no commissioner be present, such vote may be cast by another county official, elected or appointed, who holds elective office or an appointed position in the county whose vote is being cast and who is formally designated by the board of county commissioners. These provisions shall likewise govern district meetings of the Association. A county in good standing is defined as one which has paid the current year's dues."

Please return this form to Alisa Cobb via email by **Monday, August 3, 2020** close of business:

Email: [alisa.cobb@ncacc.org](mailto:alisa.cobb@ncacc.org)

**\*Please note – due to the COVID-19 pandemic, the 113<sup>th</sup> NCACC Annual Conference will be held virtually with voting taking place via an electronic platform.**



## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2862)

**Agenda Item Title:** Petition for Road Addition-Kilmarlic Subdivision-Long Point, Sullivans, Dexter, Forbes, Hillock, Duncans Way, Kilmarlic Club

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Action

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**Brief Description of Agenda Item:**

**Reason for Request:** Community led petition to add roads within the Kilmarlic subdivision to state maintenance: Long Point, Kilmarlic Club, Dexter, Sullivans, Duncans, Forbes, and Hillock

**Potential Budget Affect:** None

**Is this item regulated by plan, regulation or statute?** Yes

**Manager Recommendation:**

**North Carolina Department of Transportation  
Division of Highways  
Petition for Road Addition**

**ROADWAY INFORMATION:** (Please Print/Type)

County: CURRITUCK Road Name: LONG POINT CIR ADDITIONAL STREET NAMES  
(Please list additional street names and lengths on the back of this form.)

Subdivision Name: KILMARLIC Length (miles): 6.4 2.6

Number of occupied homes having street frontage: 6 Located (miles): 2.6

miles N ☐ S ☐ E ☐ W ☐ of the intersection of Route \_\_\_\_\_ and Route \_\_\_\_\_  
(Check one) (SR, NC, US) (SR, NC, US)

We, the undersigned, being property owners and/or developers of \_\_\_\_\_ in  
CURRITUCK County, do hereby request the Division of Highways to add the above described road.

**CONTACT PERSON:** Name and Address of First Petitioner. (Please Print/Type)

Name: TOM VOORMEES Phone Number: 757-636-8918

Street Address: 118 DUNCANS WAY POWELLS POINT, NC 27966

Mailing Address: SAME AS ABOVE

**PROPERTY OWNERS**

<u>Name</u>	<u>Mailing Address</u>	<u>Telephone</u>
RONALD CARTER	158 LONG POINT CIR	
RONALD DOUGLAS J POTTER	157 LONG POINT CIR	
ZACHARY LEANES	145 LONG POINT CIR	
RUSSELL KIRK	133 LONG POINT CIR	
JAMES OWENS	100 LONG POINT CIR	
ROBERT FEICKERT	153 LONG POINT CIR	
RONALD GERBER	118 LONG POINT CIR	
KAREN ETHERIDGE	108 LONG POINT CIR	

**INSTRUCTIONS FOR COMPLETING PETITION:**

1. Complete Information Section
2. Identify Contact Person (This person serves as spokesperson for petitioner(s)).
3. Attach two (2) copies of recorded subdivision plat or property deeds, which refer to candidate road.
4. Adjoining property owners and/or the developer may submit a petition. Subdivision roads with prior NCDOT review and approval only require the developer's signature.
5. If submitted by the developer, encroachment agreements from all utilities located within the right of way shall be submitted with the petition for Road addition. However, construction plans may not be required at this time.
6. Submit to District Engineer's Office.

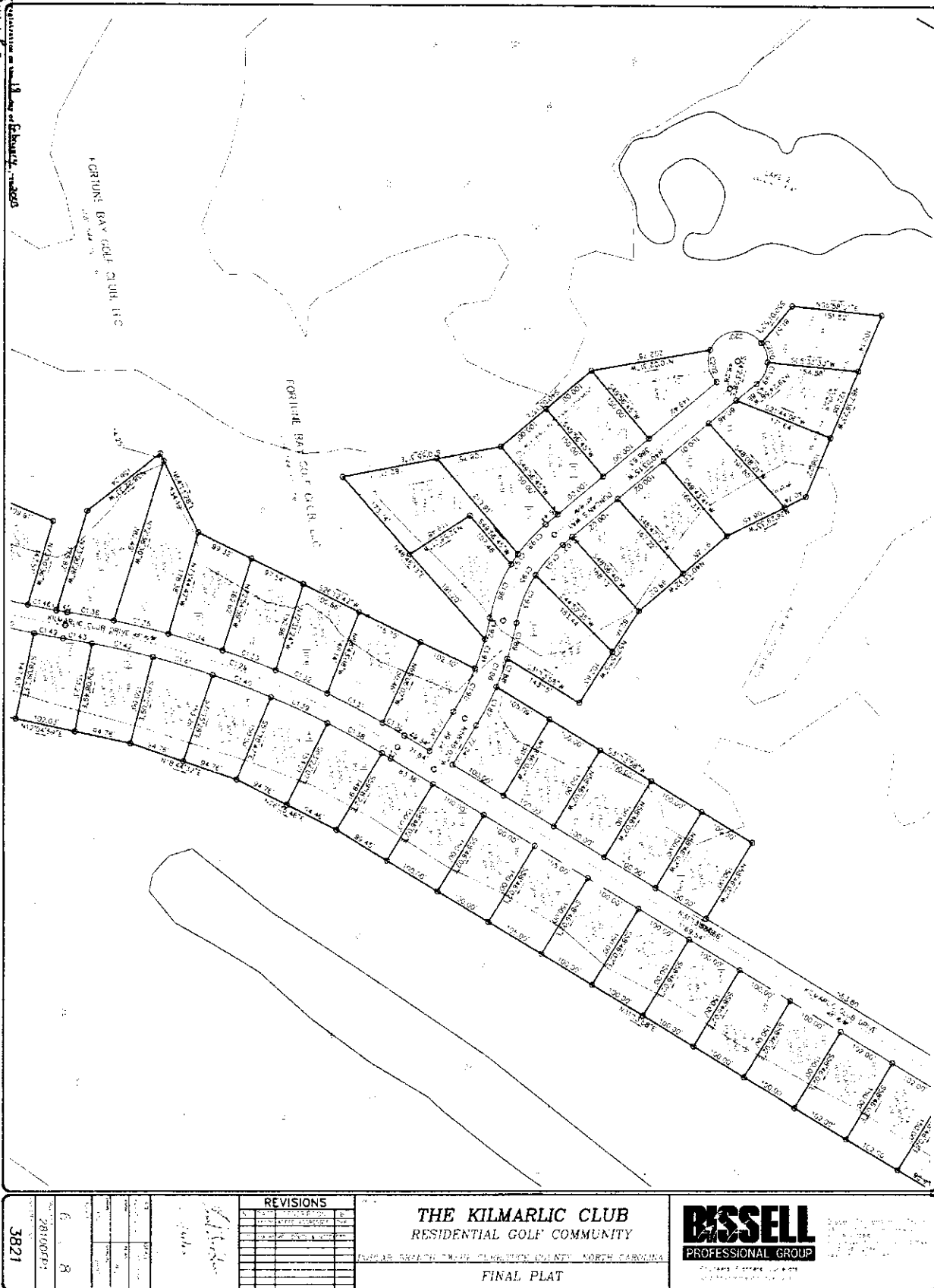
**FOR NCDOT USE ONLY:** Please check the appropriate block
☐ Rural Road    ☐ Subdivision platted prior to October 1, 1975    ☐ Subdivision platted after September 30, 1975
**REQUIREMENTS FOR ADDITION**

If this road meets the requirements necessary for addition, we agree to grant the Department of Transportation a right-of-way of the necessary width to construct the road to the minimum construction standards of the NCDOT. The right-of-way will extend the entire length of the road that is requested to be added to the state maintained system and will include the necessary areas outside of the right-of-way for cut and fill slopes and drainage. Also, we agree to dedicate additional right-of-way at intersections for sight distance and design purposes and execute said right-of-way agreement forms that will be submitted to us by representatives of the NCDOT. The right-of-way shall be cleared at no expense to the NCDOT, which includes the removal of utilities, fences, other obstructions, etc.

General Statute 136-102.6 states that any subdivision recorded on or after October 1, 1975, must be built in accordance with NCDOT standards in order to be eligible for addition to the State Road System.

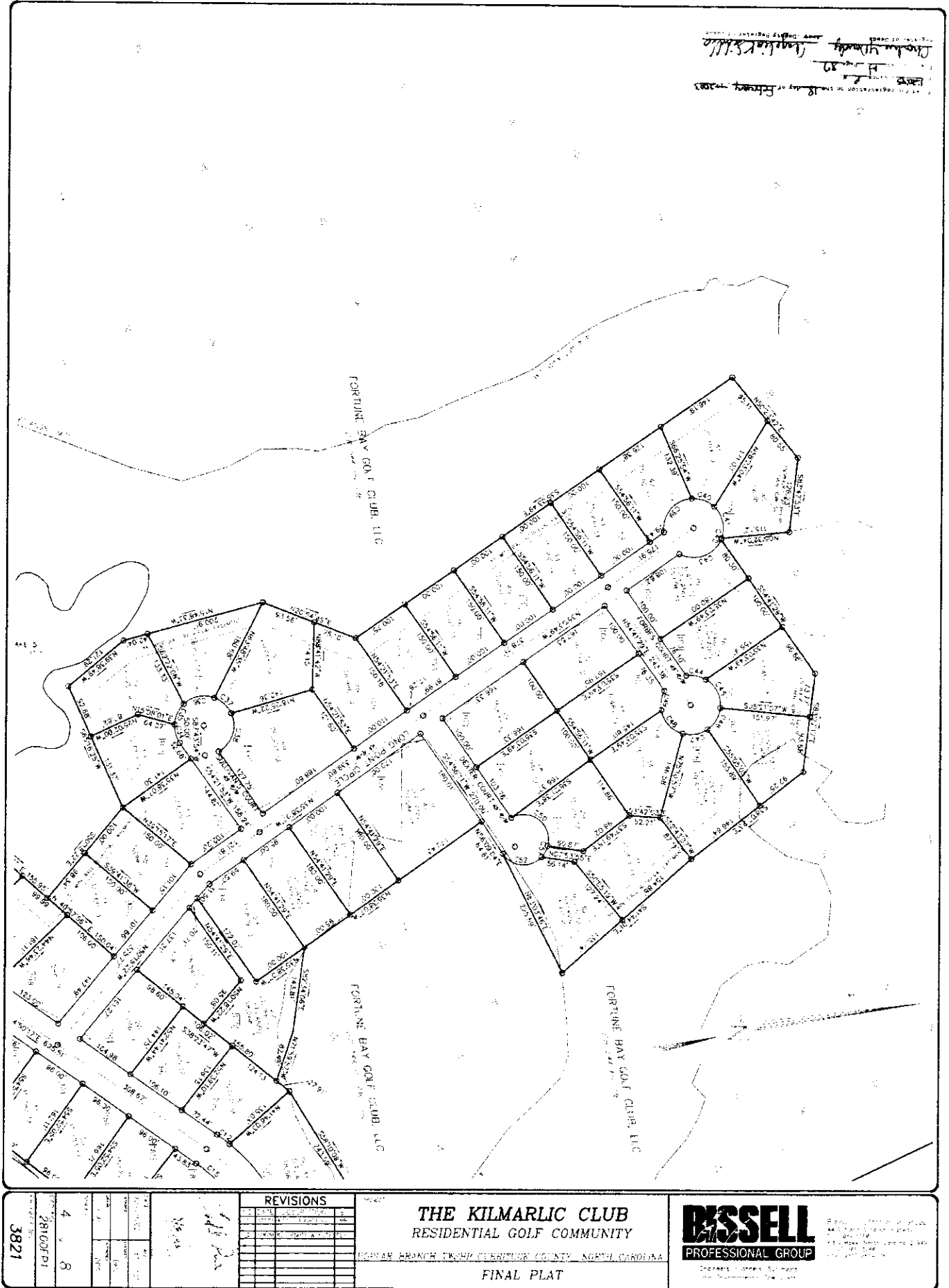
<u>ROAD NAME</u>	<u>HOMES</u>	<u>LENGTH</u>	<u>ROAD NAME</u>	<u>HOMES</u>	<u>LENGTH</u>
SULLIVANS CT	2	.043			
NEXTER CT	Ø	.056			
FORBES CT	2	.050			
HILLOCK DR	Ø	.183			
DUNCANS WAY	4	.171			
KILMARLIC CLUB DR	15	.858			





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## Currituck County Agenda Item Summary Sheet

**Agenda ID Number** – (ID # 2865)

**Agenda Item Title:** Closed Session Pursuant to G.S. 143-318.11(a)(6) to Discuss a Personnel Matter

**Submitted By:** Leeann Walton – County Manager

**Presenter of Item:**

**Board Action:** Information

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**Brief Description of Agenda Item:**

**Reason for Request:**

**Closed Session-Personnel**

**Potential Budget Affect:** N/A

**Is this item regulated by plan, regulation or statute?** No

**Manager Recommendation:**