



Town of Clayton
Town of Clayton Planning Board Agenda
Monday, November 27, 2023 @ 6:00 PM
Town Council Chambers

<https://www.youtube.com/TownofClaytonNC>

IN PERSON TOWN COUNCIL / ADVISORY BOARD MEETING PROCEDURES

- **ALL persons attending must wear a mask.**
- We will be following proper social distancing at all times.
- Hand sanitizer will be available, both in the lobby and council chambers.
- Podium/microphone will be sanitized after each speaker.

**Face Masks May Be Removed When Speaking.*

1. CALL TO ORDER

2. ADJUSTMENT OF THE AGENDA

3. APPROVAL OF MINUTES

- a. October's Minutes delayed until December's Planning Board meeting.

4. PUBLIC HEARINGS

- a. 2022-195-CZM Vinson Road Conditional Rezoning with Master Plan
Presenter: Bruce Venable, CZO, Planner I
[2022-195-CZM Vinson Road Conditional Rezoning with Master Plan - Planning - Pdf](#)

POTENTIAL ACTION: Provide Recommendation for Approval or Denial to Town Council.

b.

5. NEW BUSINESS

6. INFORMAL DISCUSSION AND PUBLIC COMMENT

7. ADJOURN



Planning Board Agenda Cover Sheet

Meeting Date

November 27, 2023

Agenda Location

PUBLIC HEARINGS

Item Title

2022-195-CZM Vinson Road Conditional Rezoning with Master Plan

Presenter(s)

Bruce Venable, CZO, Planner I

Suggested Action

Other - Provide Recommendation for Town Council

Strategic Priorities Alignment



☐
Think Clayton
(Administrative)



☐
Think Arts &
Culture



☐
Think
Downtown



☐
Think
Economic
Development



☒
Think Land
Use &
Housing



☐
Think
Mobility



☐
Think Parks,
Recreation
& Natural
Resources



☐
Think Public
Services &
Infrastructure

Public Hearing: No

If Approved, Will Document Require Recordation? Yes

Does This Item Require a Communication Plan?

- ☒ Public Hearing (Required by GS)
- ☒ Newspaper Notice (Required by GS)
- ☐ Public Forum/Input Session
- ☐ E-News Distribution
- ☐ Social Media
- ☒ Special Mailing

- ☐ Public Hearing (Not Required by GS)
- ☐ Newspaper Notice (Not Required by GS)
- ☐ Press Release
- ☒ Website
- ☐ Survey
- ☐ None Required

Other/Special Instructions: Public Notice Sign posted at site.

Summary

The site is located off Vinson Road outside the Town's ETJ. The applicant has also petition for annexation into the Town has requested to rezone the above referenced parcel from Johnston County's Agricultural Residential (AR) to Conditional Zoning-Residential Zoning District (CZ-R), which is approximately +/- 146.26 acres in size. The Conditional Zoning District would allow for up to 457 units, or a density of 3.13 units per acre. This site is located within the Watershed Protection Overlay District.

Background/History

The Planning Board Continued this item until November 27th to allow the applicant to adjust their proposal to be more aligned with the surrounding area. The applicant has provided a revised copy of their Master Plan and Narrative. A copy of the newest plan and narrative are located at the end of this packet. The proposed changes include a reduction in the number of proposed townhomes from 207 units to now 91 units. Single-Family units have changed from 250 to 315 units. Additionally the applicant is now proposing changes to the lot dimensions:

Min. 6,000 s.f. for the 52' wide single family detached (SFD) lots
Min. 7,000 s.f. for the 62' wide SFD lots
Min. 8,000 s.f. for the 72' wide SFD lots
Min. 21' wide lots for townhomes

The new proposed density for the project shall not exceed 2.78 units per acre.

Funding Source

N/A

Corresponding Documentation

[01 Application 2022-195-CZM Vinson Road](#)
[02 Conditional Zoning Master Plan Narrative ORIGINAL 09.12.2023](#)
[03 4th Submittal -Master Plan ORIGINAL Vinson Road 08.08.2023](#)
[04.01 Neighborhood Meeting Letter & Meeting Summary](#)
[04.02 Adjacent Property Owner List 2022-195-CZM](#)
[05 TIA - Vinson Road - 2022](#)
[06 Vinson Road TIA Review](#)
[07 Appendix - Vinson Road Development](#)
[09 Wastewater Allocation Request 2022-195-CZM](#)
[10 Staff Report Maps - 2022-195-CZM Vinson Rd](#)
[11 2022-195-CZM Vinson Rd Conditional Zoning Staff Report](#)

[REVISED Recommended Conditions Document_Vinson Road Conditional Zoning District_11-13 \(signed\) 11.16.2023](#)

[Conditional Zoning Master Plan Set REVISED 10.30.2023](#)

[Conditional Zoning Master Plan Narrative REVISED 10.30.2023](#)

[2022-195-CZM Conditional Zoning Petition NEIGHBORING PROPERTY OWNERS](#)

Submitted By: Bruce Venable, Planning

Reviewed By:

Conrad Olmedo, Planning Director

Approved - Nov 17 2023

Steven Mott, Planner II

Approved - Nov 17 2023

Bruce Venable, Planner

Approved - Nov 17 2023



TOWN OF CLAYTON
Planning Department
111 E. Second St., P.O. Box 879
Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

Conditional Zoning w/Master Plan Application

Conditional Rezoning w/Associated Site Plan Fee: \$1000 + \$5.00 per acre
Advertising Fee: \$200.00

SITE INFORMATION

Name of Project: Vinson Road
Acreage of Property: 146.26 Zoning District: AR (County)
County Tag #: 05J05011V & 05J05030F NC Pin #: 168800-63-9159 & 168800-64-5370
Address/Location: Vinson Road across from Windsor Green Estates
Existing Zoning District: AR (County) Proposed Zoning District: CZ-R (Town)

APPLICANT INFORMATION

Applicant: TMTLA Associates
Mailing Address: 5011 Southpark Drive, Ste. 200 Durham, NC 27713
Phone Number: 919-484-8880 Fax: n/a
Contact Person: Pamela Porter
Email Address: pam@tmtla.com

PROPERTY OWNER INFORMATION

Name: (1) Poole Farm LLC / (2) Rocky Branch Farm LLC
Mailing Address: (1) 16 Oakmont Court, Clayton NC / (2) 230 Summit Street, Clayton NC
Phone Number: (1) Pool Farm: 919-320-4900
(2) Rocky Branch: 919-291-5817 Fax: n/a
Email Address: (1) artfrankie@embarqmail.com / (2) heidiwoodphotography@gmail.com

OFFICE USE ONLY

Date Received: NOV 30 2017

Amount Paid: \$1935⁰⁰

File Number: 2022-195-CZM

January 2021 TOWN OF CLAYTON
PLANNING DEPARTMENT

EXPLANATION OF PROJECT

Please provide detailed information concerning all requests. Attach additional sheets if necessary.

Our request is to rezone the two parcels from AR (Johnston County) zoning to CZ-R (Town of Clayton zoning) to allow for the development of single family homes and townhomes, An annexation to bring these two parcels into the Town limits will be required in addition to the rezoning.

APPROVAL CRITERIA – REZONING

All applications for a Conditional Rezoning must address the following Approval Criteria:

1. Consistency with the adopted plans of the Town.
We are consistent with the adopted plans of the Town, which indicated the desire for a mix of quality housing while at the same time protecting environmentally sensitive areas, providing applicable sections or trail/greenway along the Neuse River, and providing park and open space area for the Town. We will be providing these items.
2. Suitability of the subject property for uses permitted by the current vs. the proposed conditional district.
This is currently zoned AR (County) only permits a density of 1.45 dwelling units per acre. Our proposed rezoning (and annexation into the Town limits) will allow for us to double the density while clustering development around the environmentally sensitive areas on our development. Will will also have access to utilities that will serve our need.
3. Whether the proposed change tends to improve the balance of uses, or meets specific demand in the Town.
As has been prevalent over the last 1-2 years there is a shortage of available housing stock in the Triangle area and beyond. Our proposed development will bring a mix of quality housing (which help increase housing availability and affordability) in a location surrounded by existing density while also protecting environmentally sensitive areas.
4. The capacity of adequate public facilities and services including schools, roads, recreation facilities, wastewater treatment, water supply facilities and stormwater drainage facilities is available for the proposed conditional district.
The existing public facilities are adequate fur our proposal.
5. It has been determined that the legal purposes for which zoning exists are not violated.
No zoning violations are present.
6. It has been determined that there will be no adverse effect upon adjoining property owners unless such effect can be justified by the overwhelming public good or welfare.
There will be no adverse effects to any of the surrounding properties, which are either vacant or already developed as residential.

-
7. It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.

No one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.

APPROVAL CRITERIA- MASTER PLAN

All associated Master Plans must address the following Approval Criteria:

1. Compliance with code section 155.203(L) and all other applicable requirements of this chapter, or analysis and justification if it deviates from the requirements of this chapter.

We will be compliant with code section 155.203(L) and all other applicable requirements of this chapter.

2. Consistency with the Clayton General Design guidelines.

We will be consistent with the Clayton General Design Guidelines.

3. Conformance of the proposal with the stated purpose of the requested conditional zoning district.

Our proposal is for residential development and we are requesting a zoning district that allows residential development.

4. Compatibility of the proposed development with the adjacent community.

The development proposed is compatible with the character of surrounding land uses and maintains and enhances the value of surrounding properties.

5. The quality of design intended for each component of the project and the ability of the overall development plan to ensure a unified, cohesive environment at full build-out.

The homes in the proposed development will be high quality and, coupled with open space and amenities, will create a unified, cohesive environment at full build-out.

6. Compatible relationships between each component of the overall project.

Each component of the development will be compatible. We are only planning on including residential uses and uses that are complementary to residential, such as open space and amenities.

7. Self-sufficiency of each phase of the overall project.

Each phase will be able to stand on it's own.

8. Documentation that the proposed infrastructure improvements accommodate the additional impacts caused by the development, or documentation to assure that the development, as proposed, will not overtax the existing public infrastructure systems.

We are completing a sanitary sewer capacity study on the existing lift stations and related gravity sewer system downstream from our site. Upgrades will be made, as required, to ensure the impacts from the proposed infrastructure improvements will not overtax the existing public infrastructure.

9. The fiscal impact of the proposal and the proposed financing of required improvements.

We estimate that to be in the neighborhood of 175,000,000 (465 units X \$375,000 {average tax value per unit}).

Private funding will be utilized for the required improvements.

10. The success of the proposal in providing adequate pedestrian and bicycle links within the development and with the adjacent community.

Our development will provide the a portion of the Clayton Riverwalk greenway along the our frontage on the Neuse River, which is also part of the Mountains to Sea trail. This will help to link residents to Downtown Clayton and beyond.

11. The effectiveness with which the proposal protects and preserves the ecologically sensitive areas within the development.

Our development contains various stream buffers and wetlands that we are developing - less a handful of needed stream crossings. Our development will preserve over 40% as open space with much of that being untouched environmentally sensitive areas.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Town Council of the Town of Clayton to amend the Zoning Ordinance and change the Official Zoning Map of the Town of Clayton as requested.. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina, and will not be returned.

Pamela Porter
Print Name


Signature of Applicant

11/8/2022
Date

Conditional Zoning Master Plan Narrative Vinson Road

Clayton, North Carolina

Date: November 1, 2022
Revised: February 15, 2023
Revised: May 15, 2023
Revised: August 8, 2023
Revised: September 12, 2023

Applicant/Lead Consultant:

TMTLA Associates
5011 Southpark Drive, Ste. 200
Durham, NC 27713
(919) 484-8880



Civil Engineering:

Timmons Group
5410 Trinity Road, Ste. 102
Raleigh, NC 27607
(919) 866-4951



Developer:

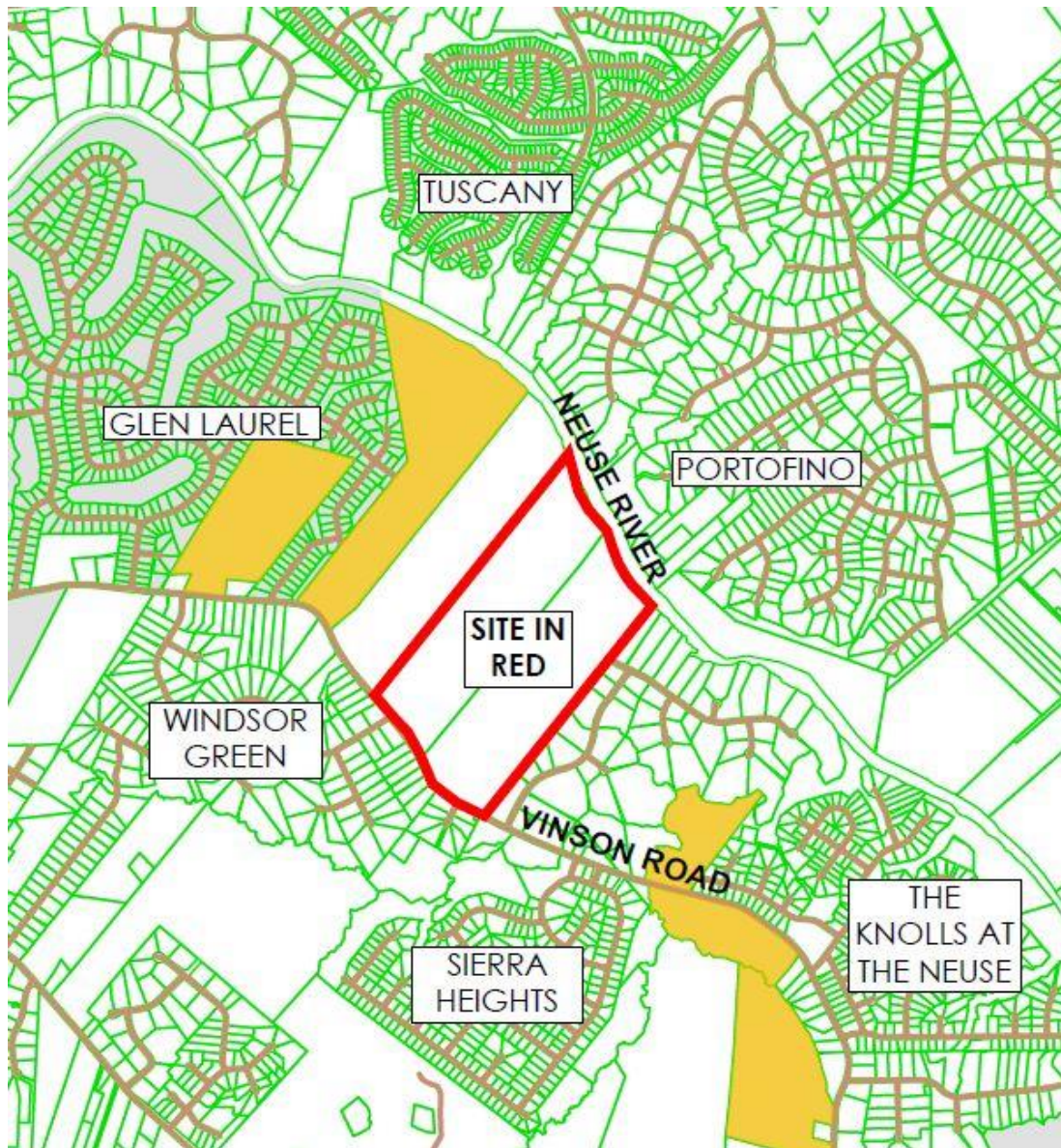
Hopper Communities
2403 Medway Drive
Raleigh, NC 27608
(919) 618-9929



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Section 1: Vicinity Map



Section 2: Purpose and Intent Statement

The Vinson Road development is a proposed community that will be comprised of single family detached homes and townhomes. The project is bounded to the north by the Neuse River and to the south by Vinson Road. The Hidden Valley neighborhood is located to the east and two vacant parcels, followed by Glen Laurel and the Neuse River Golf Club, to the west. Our proposed development is currently located in Johnston County, so part of our request includes annexation into the Town of Clayton. The Town's future land use map does not currently include our development, but it has been indicated to us by the Planning Department that the map would show our development as low density residential. The proposed zoning designation sought is CZ-R. This will be an open space development.

The purpose of the proposed Vinson Road Planned Development is to provide a mix of high-quality housing arranged around the environmentally sensitive areas within the boundaries of our development while also providing opportunities for gathering and recreation. The commitment to preservation of open space and providing a variety of amenities is to reconnect people within the community to nature as well as each other.

Transportation patterns are proposed to provide a network of streets and sidewalks with limited use of dead-end streets, connections to adjacent neighborhoods and provisions for future development. The promotion of active lifestyles is a key component of the Vinson Road Development.

The Vinson Road development will be sensitive to and compatible with surrounding uses and proposed development character. The development will enhance the value of surrounding property values.

This development is proposed to be developed in 2-3 phases. Please see master plan for phasing plan.

The Vinson Road Conditional Zoning meets the required approval criteria:

- (1) Consistency with the adopted plans and policies of the town.
The Vinson Road conditional zoning request is either consistent with, or in the spirit of, all adopted plans and policies of the Town. Our proposal is asking for a maximum of 3.12 dwelling units per acre, which is just slightly higher than the Low-Density Residential threshold. We understand that this exceeds the threshold for density noted in the 2045 Growth Plan, but our development includes roughly 40% open space. Vinson Road strives to balance the need for both quantity and a mix of housing types with preservation of open space. See Sec. 12 and 13 of this narrative for more information.
- (2) Suitability of the subject property for uses permitted by the current versus the proposed conditional district.
The subject property is suitable for the proposed uses. This proposed development is in an area where other existing residential development are located to the north, south, east, and west of our proposal. Policy LU 3.1 encourage a range of housing types – we are filling that need with the inclusion of both single family detached and townhome units. The two lots that are part of our proposal are both currently zoned RA and are located in the County. In addition to our proposed rezoning request, we are also requesting annexation into the Town limits. Although the county zoning would allow for less density overall, bringing these two lots into the Town of Clayton town limits will allow for development to occur that is similar to other existing developments in the area.
- (3) Whether the proposed change tends to improve the balance of uses, or meets a specific demand in the town.
Policy LU 3.1 encourage a range of housing types – we are filling that need with the inclusion of both single family detached and townhome units. We are filling a need the Town has noted in the Town of Clayton 2045 Growth Plan.
- (4) The capacity of adequate public facilities and services including schools, roads, recreation facilities wastewater treatment and water supply facilities and stormwater drainage facilities for the proposed conditional district.
Adequate facilities are either existing or will be improved to meet the demands of our proposal.

Schools: Our development is expected to feed into the Johnston County School System. According to the Johnston County Public Schools website, our project would be district for the following schools: Powhatan Elementary, Riverwood Middle School, and Clayton High School. Riverwood Elementary and Clayton High School are both on the 2023-2024 Capped Schools list for Johnston County. Powhatan Elementary was removed from the 2023-2024 Capped Schools list.

Roads: *The road network internal to our development will be public and all roads will be designed to the Town of Clayton specifications for roadway design. We have an alternate road section for our stream crossing, which will allow for residents at the back of the development to exit the development should one of the lanes be blocked. Our development provides a stub to the vacant property to the west for connection upon development, as well as a stub to the existing neighborhood to the east (should that neighborhood want to connect to our development in the future).*

Recreational Facilities: *Our request will meet or exceed the requirement for recreational facilities for our development. Our proposal commits to including a cabana/pool amenity area, as well as a minimum of two of the following amenities: dog park, tot lot/playground, multi-use field, picnic gazebo, disc golf, pickle ball court, tennis court, mini park, plaza, square, green, private greenway or trails, or community garden.*

With regard to open space as a whole, our development will have over 40% open space. This is due to the protection of various environmental features on this development, such as stream buffers and floodplain.

With regard to the public recreation open space requirement, this development shall utilize the Fee-In-Lieu. Fee in lieu amount shall be as noted in the Unified Development Code (UDC) at time of first plat.

Wastewater Treatment and Water Supply Facilities: *This development has access to water via the 8" Johnston County water line that exists in Vinson Road. As part of our zoning request, we are adding the following condition to address wastewater treatment:*

Prior to the approval of construction drawings, the developer shall validate the adequate capacity in the downstream wastewater infrastructure, pump stations and forcemain, to accommodate the proposed flow for the project. If adequate downstream capacity is not available, the applicant will complete any pump station or forcemain improvements in coordination with Town staff to accommodate the proposed flow.

Stormwater Drainage Facilities: *The Vinson Road development will meet all applicable requirements and standards as described in the Town of Clayton Stormwater Design Manual and Town of Clayton Stormwater Ordinance, as well as meet all State regulations for stormwater management.*

- (5) It has been determined that the legal purposes for which zoning exists are not contravened.
The legal purposes for which zoning exists are not being contravened as a result of our rezoning request.

- (6) It has been determined that there will be no adverse effect upon adjoining property owners unless such effect can be justified by the overwhelming public good or welfare.
This project will have no adverse effect upon adjoining property owners. The surrounding properties are either residential or vacant. Our development includes townhomes, to help diversify the type of housing available in Clayton, but we've purposefully located the townhomes in the middle of our project to buffer from adjacent existing single family detached development.
- (7) It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.
No group will benefit materially to the detriment of the general public from this Rezoning request nor development of the Property.

Section 3: Project Data

PROJECT DATA	
COUNTY TAG:	05J05011V & 05J05030F
DEVELOPMENT NAME:	VINSON ROAD
PROPERTY OWNERS:	POOLE FARM LLC & ROCKY BRANCH FARM LLC
EXISTING LAND USE:	VACANT
TOTAL SITE ACREAGE:	146.26 AC
PROPOSED LAND USE:	RESIDENTIAL; SINGLE FAMILY AND TOWNHOMES
PROPOSED ZONING:	CZ-R

Section 4: Permitted Uses

Permitted uses shall be as follows:

- 1) Single Family Detached and permitted accessory uses
- 2) Townhomes and permitted accessory uses
- 3) Amenities associated with neighborhood development, including but not limited to community pool and cabana, dog park, and tot lot.

Dwelling units may be front or rear loaded.

Section 5: Design Controls

Residential:	146.26 acres
Townhomes Area:	21.46 acres
Single Family Area:	124.80 acres
Units:	457 dwelling units max. <i>max. 207 townhomes</i> <i>max. 250 single family</i>
Density:	3.12 dwelling units per acre (overall)
Building Height:	35' for single family 45' for townhomes
Building Setbacks:	see below
Single Family:	Front: Min. 20' Garage setback: 25' Min. Rear: 15' Min. Side: 6' Min. Side Street: 10' Min.
Townhomes:	Front: 25' Min. Rear: 15' Min. Side Interior: 6' Min. Side Street: 10' Min.
Lot Dimensions:	Min. 6,000 s.f. for single family detached homes Min. 21' wide lots for townhomes
Buffers:	Min. 15' wide Class "C" buffer around entire development with opaque screening

Note: All streetscape and perimeter buffers shall be in accordance with the Town of Clayton Development Code

Section 6: Architectural Standards

Standard Rezoning Conditions

The style of buildings will be any variety of the following: Craftsman, Traditional, Colonial, Neoclassical. The intent is to foster multiple styles to create a community that is not monotonous.

Predominant exterior building materials shall be high quality materials, including brick, wood, stone, fiber cement, and/or wood composite. The front façade of all units shall have a minimum of 25% masonry (brick or stone). Vinyl siding shall be prohibited but vinyl accents, such as windows, shall be permitted.

Foundations for single family detached shall be crawl space or stem wall.

Townhomes shall have slab on grade foundation.

A varied color palette shall be utilized on homes throughout the subdivision and shall include siding, trim, shutter, and accent colors complementing the siding colors.

Single Family Detached: No two consecutive single-family homes shall contain the exact same front elevation with regard to materials or color palette. Single family homes directly across the street from each other shall not have identical façades with regard to materials or color palette.

Townhomes: No two consecutive townhome buildings shall contain the exact same front elevation with regard to materials or color palette.

Cabana (or clubhouse) shall contain a minimum of 15% masonry on the front façade.

A mail kiosk for the single family detached units shall be located adjacent to the pool and cabana pending USPS approval.

Section 7: Parking and Loading

All parking and loading areas shall comply with all applicable requirements of the Town of Clayton Development Code.

Section 8: Signs

All signage shall comply with applicable standards and requirements of the Town of Clayton Development Code.

Section 9: Public Facilities

All lots shall be served with public water and sewer and shall conform to the Town of Clayton Public Works and Utilities Department requirements. This site is currently outside of the existing Town of Clayton water system service

area so project will need to be annexed before connection to the Town water system will be permitted.

This development will utilize the Johnston County 8" public water line along Vinson Road. With regard to sewer access, this development will access sewer via the Summerlyn Pump Station. There is a new pump station planned (which will either be sized for this basin or a regional station for the Town) which will allow for future expansion of the sewer basin.

All streets and roadways shall be in conformance with Town of Clayton Standards and Specifications.

This development shall utilize the Fee-In-Lieu option for the public recreation open space requirement. Fee in lieu amount shall be as noted in the Unified Development Code (UDC) at time of first plat.

Section 10: Natural Resource and Environmental Data

Watershed: This site is located in the Neuse River watershed and is also located in the Town of Clayton Watershed Protection Overlay

FEMA Floodplain: This site contains floodplain per FIRM map 3720168800K, effective 6/20/2018

Stream Buffers: This site contains stream buffers

Wetlands: This site contains wetlands

This development is designed to have minimal impacts on the environmentally sensitive areas on our site. The site is designed in a manner that clusters development around existing stream buffers, wetlands, and floodplain. Approximately 40% of our site will remain as open space, and of that approximately half of that will be untouched environmentally sensitive areas. The remaining open space shall count towards the recreation open space requirement.

Section 11: Stormwater Management

The Vinson Road development will meet all applicable requirements and standards as described in the Town of Clayton Stormwater Design Manual and Town of Clayton Stormwater Ordinance, as well as meet all State regulations for stormwater management. This project will meet all stormwater reduction requirements including limiting the post-development stormwater flows to not exceed the pre-development stormwater runoff.

The Vinson Road development will use approved devices to control the stormwater and sediment runoff. These devices may include detention ponds, retention ponds, bio-retention areas, or any other approved SCM stormwater control.

Section 12: Consistency with Town of Clayton 2045 Growth Plan and Land Use Map

Town of Clayton 2045 Growth Plan:

The Vinson Road development is consistent with the Town of Clayton 2045 Growth Plan. Below are specific items that this development is aligned with.

Growth Plan Policy	Development Conformance
Policy LU 1.1 Manage future growth and encourage quality development through the implementation of the Comprehensive Plan, the Unified Development Code (UDC), and other plans and regulations adopted by the Town Council.	We are supporting residential development by adding varying densities (via our lot widths and dwelling types) (<i>Strategy LU 1.1.2</i>) and we are asking for annexation into the Town limits which will expand the ETJ (<i>Strategy LU 1.1.4</i>).
Policy LU 1.2 Encourage developments which incorporate high quality design and enhance the quality of life for existing and future residents of the Town.	This development will include high quality design and materials, and will preserve a significant amount of open space. (<i>Strategy LU 1.2.2</i>)
Policy LU 1.6 Promote location and intensity of development that mitigates impacts to the transportation network and leads to reduced vehicle trips and/or shorter trip lengths, enhanced circulation, and increased public safety.	Our development is proposing to have two entrances along Vinson Road as well as a stub to the vacant property to the west for future connection. (<i>Strategy LU 1.6.2</i>)
Policy LU 3.1 Encourage a range of housing types based on the availability of infrastructure, proximity to services and amenities, and compatibility with existing development as described in the Future Land Use map.	We are including a mix of lot sizes and unit types within the development. (<i>Strategy LU 3.1.4</i>)
Policy PR 3.1 Develop and enhance active and passive recreation facilities that serve local neighborhoods and attract regional users.	This development saves a significant amount of open space – with some of this open space being reserved for both active and passive recreation. (<i>Strategy PR 3.1.4</i>)
Policy PR 3.3 Increase the amount of integrated, usable, high-quality, and connected open space in new developments.	This development saves a significant amount of open space – with some of this open space being reserved for both active and passive recreation. (<i>Strategy PR 3.1.4</i>)
Policy NR 1.1 Preserve key natural areas	Our site contains riparian buffers, floodplain, and

while accommodating new development.	wetlands. This development, less the two necessary stream crossings, works around the environmentally sensitive areas of this site. (<i>Strategy NR 1.1.1</i>)
Policy NR 2.1 Protect water quality and quantity in the Neuse River and major tributaries.	Given the development's proximity to the Neuse River, best practices in sedimentation control and design/construction of stormwater will be implemented. (<i>Strategy NR 2.1.1</i>)
Policy M 1.2 Plan for the construction of priority road improvements, sidewalks, greenways, bike facilities, and transit facilities.	This development will include sidewalks throughout as well as a sidewalk along Vinson Road (<i>Strategy M 1.2.2</i>)

Town of Clayton Land Use Map:

The Vinson Road development is located outside of the Town of Clayton ETJ but annexation will be permitted per discussions with Town Staff. The Glen Laurel neighborhood sits to the west of the Vinson Road development and has a future land use designation of Low Density Residential, which allows for a maximum of 3 dwelling units per acre. Our proposal is asking for a maximum of 3.12 dwelling units per acre, which is just slightly higher than the Low-Density Residential threshold. We understand that this exceeds the threshold for density noted in the 2045 Growth Plan, but our development includes roughly 40% open space. Vinson Road strives to balance the need for both quantity and a mix of housing types with preservation of open space.

Annexation into the Town of Clayton town limits will be required prior to approval of this conditional zoning.

Section 13: Compliance with the UDC

The Project will comply with all other relevant portions of the Town of Clayton Unified Development Code (UDC).

Section 14: Zoning Conditions

Note: Italicized items are items that are tied to points on the Wastewater Allocation form.

1. Uses shall be limited to single family detached, single family attached, and permitted accessory uses. *This will be a mixed residential project.*
2. Maximum density shall not exceed 3.12 dwelling units per acre.
3. Modified setback per Section 5 of this document.
4. Minimum heated square feet for the single family detached homes shall be 2,000 square feet.
5. The minimum heated square feet for the townhomes shall be 1,500 square feet.
6. The minimum lot size for a single family detached lot shall be 6,000 s.f..
7. The minimum lot width for a townhome lot shall be 21'.
8. *Each single family detached home shall have a minimum 2 car garage.*
9. Each townhome shall have a min. 1 car garage.
10. *Development shall include a cabana/pool amenity area.* In addition to the cabana/pool amenity area, a minimum of two of the following amenities shall be provided: dog park, tot lot/playground, multi-use field, picnic gazebo, disc golf, pickle ball court, tennis court, mini park, plaza, square, green, private greenway or trails, or community garden.
11. Predominant exterior building materials shall include brick, wood, stone, fiber cement, and/or wood composite. The front façade of all units shall have a minimum of 25% masonry (brick or stone). Vinyl siding shall be prohibited but vinyl accents, such as windows, shall be permitted. *All residential units shall have a minimum of 25% masonry on the front façade.*
12. *Development shall include sustainable/high efficiency products and appliances, including: low E/insulated windows, Energy Star dishwasher, low VOC paint, and fiber cement siding.*
13. Single family detached homes shall have either a crawl space foundation or a stem wall foundation.
14. Townhomes shall have a slab on grade foundation.
15. Vinson Road shall be a minimum 3-lane cross section with bicycle lanes, curb & gutter, and sidewalk.
16. Third site access: A gated entrance only to be used for emergencies shall be provided on Vinson Road. This access shall

be coordinated with the appropriate municipalities and respective departments. Access shall be gated at all times unless being used by emergency vehicles.

17. Prior to approval of the Construction Drawings, the developer shall validate the adequate capacity in the downstream wastewater infrastructure, pump stations and forcemain, to accommodate the proposed flow for the project. If adequate downstream capacity is not available, the applicant will complete any pump station or forcemain improvements in coordination with Town staff to accommodate the proposed flow.
18. A modified street section for stream crossing noted on the plan sheet L-2 shall be provided.
19. Road Improvements from TIA prepared by Ramey Kemp Associates (with NCDOT approval) to be constructed prior to the recordation of first final plat:

NC 42 and Glen Laurel Road

- Coordinate with NCDOT to develop a signal modification plan to allow for an eastbound right-turn lane overlap phase.

Glen Laurel Road and Vinson Road

- Provide an exclusive southbound left-turn lane with at least 500 feet of full width storage with appropriate deceleration and taper if right-of-way is available.
- Provide an exclusive northbound left-turn lane with at least 275 feet of full width storage with appropriate deceleration and taper if right-of-way is available.

Vinson Road and Windsor Green Drive / Site Drive 1

- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).

Vinson Road and Rainwater Court / Site Drive 2

- Construct Site Drive 2 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 2).

VINSON ROAD

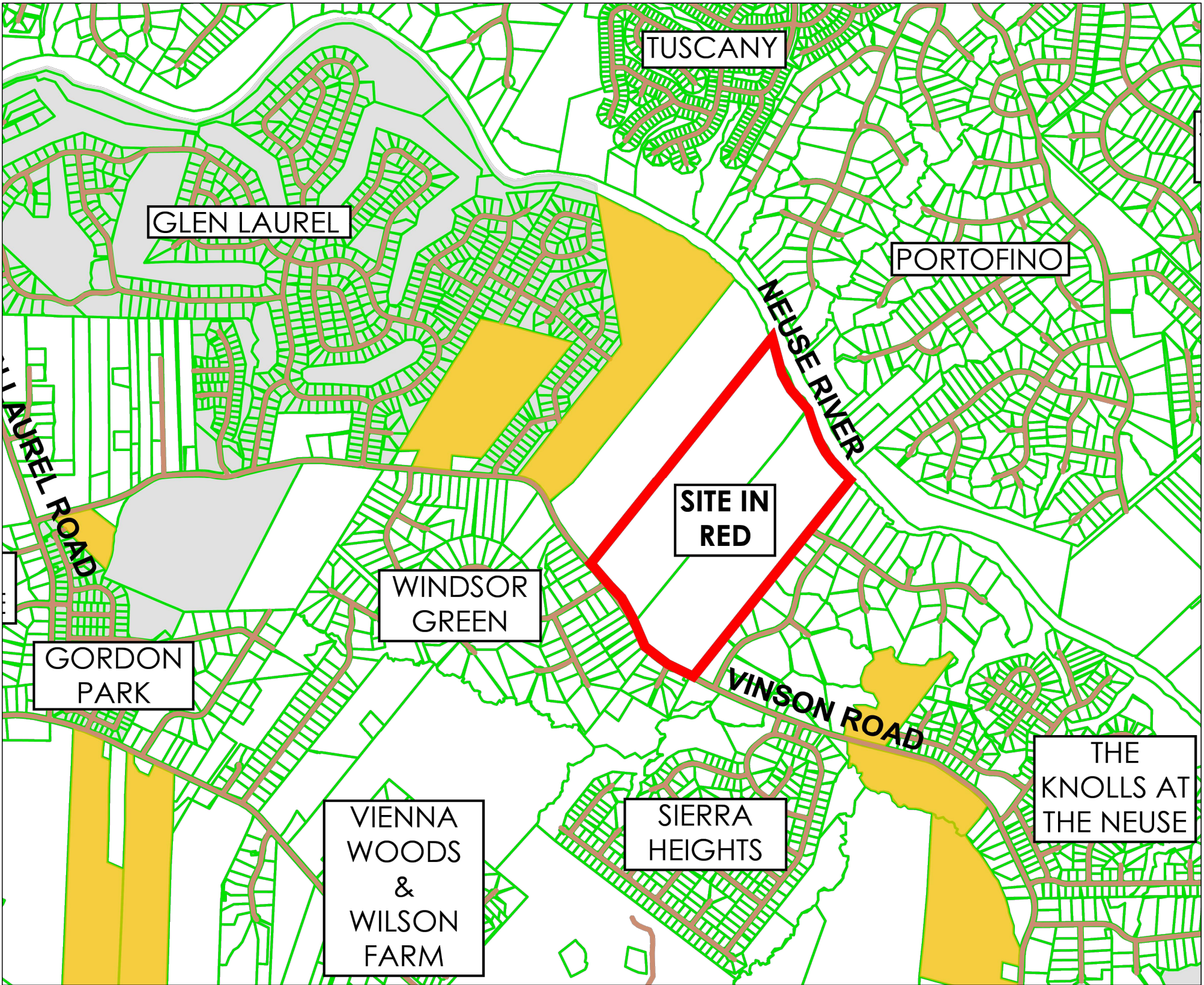
TOWN OF CLAYTON, JOHNSTON COUNTY, NORTH CAROLINA

CONDITIONAL REZONING APPLICATION

SUBMITTALS	
First Submittal	11/28/2022
Second Submittal	2/15/2023
Third Submittal	5/15/2023
Fourth Submittal	8/8/2023

SHEET INDEX	
Cover	COVER
Boundary Survey	L-1.1
Boundary Survey	L-1.2
Master Plan	L-2
Phasing Plan	L-3

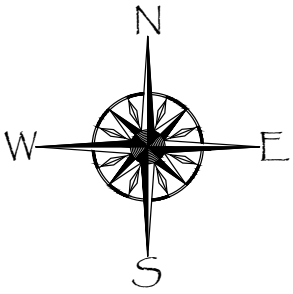
CONTACT INFORMATION	
LANDSCAPE ARCHITECT/APPLICANT: TMTLA Associates (Contact: Pam Porter) 5011 Southpark Drive, Ste. 200 Durham, NC 27713 (919) 484-8880	
CIVIL ENGINEERS/SURVEYOR: Timmons Group (Contact: Patrick Barbeau) 5410 Trinity Road, Ste. 102 Raleigh, NC 27607 (919) 866-4512	
OWNER: Poole Farm, LLC 16 Oakmont Court Clayton, NC 27520 (919) 320-4900	
OWNER: Rocky Branch Farm LLC 230 Summit Street Clayton, NC 27520 (919) 291-5817	
DEVELOPER: Hopper Communities (Contact: Bill Harrell) 2403 Medway Drive Raleigh, NC 27608 (919) 618-9929	
PLANNING DEPARTMENT: Town of Clayton Planning Department E. Second Street Clayton, NC 27520 (919) 553-5002	



VICINITY MAP (SITE OUTLINED IN RED)

1" = 1,200'

PROJECT DATA	
COUNTY TAG:	05J05011V & 05J05030F
DEVELOPMENT NAME:	VINSON ROAD
PROPERTY OWNERS:	POOLE FARM LLC & ROCKY BRANCH FARM LLC
EXISTING LAND USE:	VACANT
TOTAL SITE ACREAGE:	146.26 AC
PROPOSED LAND USE:	RESIDENTIAL; SINGLE FAMILY AND TOWNHOMES
PROPOSED ZONING:	CZ-R



TMTLA ASSOCIATES
LANDSCAPE ARCHITECTURE & LAND PLANNING
5011 SOUTH PARK DRIVE, STE. 200-DURHAM, NC 27713
p: (919) 484-8880 e: info@tmtla.com



REVISIONS:

COVER
VINSON ROAD
CLAYTON, NC

SCALE:
AS NOTED
DRAWN BY:
PMP
PROJECT #
22126
DATE:
9/13/2022

SHEET

COVER
OF

LEGEND

CP/X-CALCULATED POINT

IPF-IRON PIPE FOUND

IPFC-IRON PIPE FOUND IN CONCRETE

RBS-REBAR SET

DRWMF-DISTURBED RIGHT OF WAY MONUMENT FOUND

RWMF-RIGHT OF WAY MONUMENT FOUND

RBF-REBAR FOUND

UGFOM-UNDERGROUND FIBER OPTIC MARKER

PP-POWER POLE

TP-TELEPHONE POLE

OHPL-OVERHEAD POWER LINE

OHPL-OVERHEAD PHONE LINE

OHPL-OVERHEAD POWER AND PHONE LINE

OHSL-UNDERGROUND SUPPORT LINE

OW-GUY WIRE

EOP-EDGE OF PAVEMENT

BC-BACK OF CURB

PB-PHASE BOX

WV-WATER VALVE

WVOM-WATER VALVE MONUMENT

WVWP-WATER VALVE WITNESS POST

WM-WATER METER

FH-FIRE HYDRANT

TS-TRAFFIC SIGN

MB-MAIL BOX

RCP-REINFORCED CONCRETE PIPE

CAB-CABLE BOX

UGCAB-UNDERGROUND CABLE BOX

BWF-BAREWIRE FENCE

CLF-CHAINLINK FENCE

CRK-CENTERLINE CREEK

CLD-CENTERLINE DITCH

TOS-TOP OF BANK

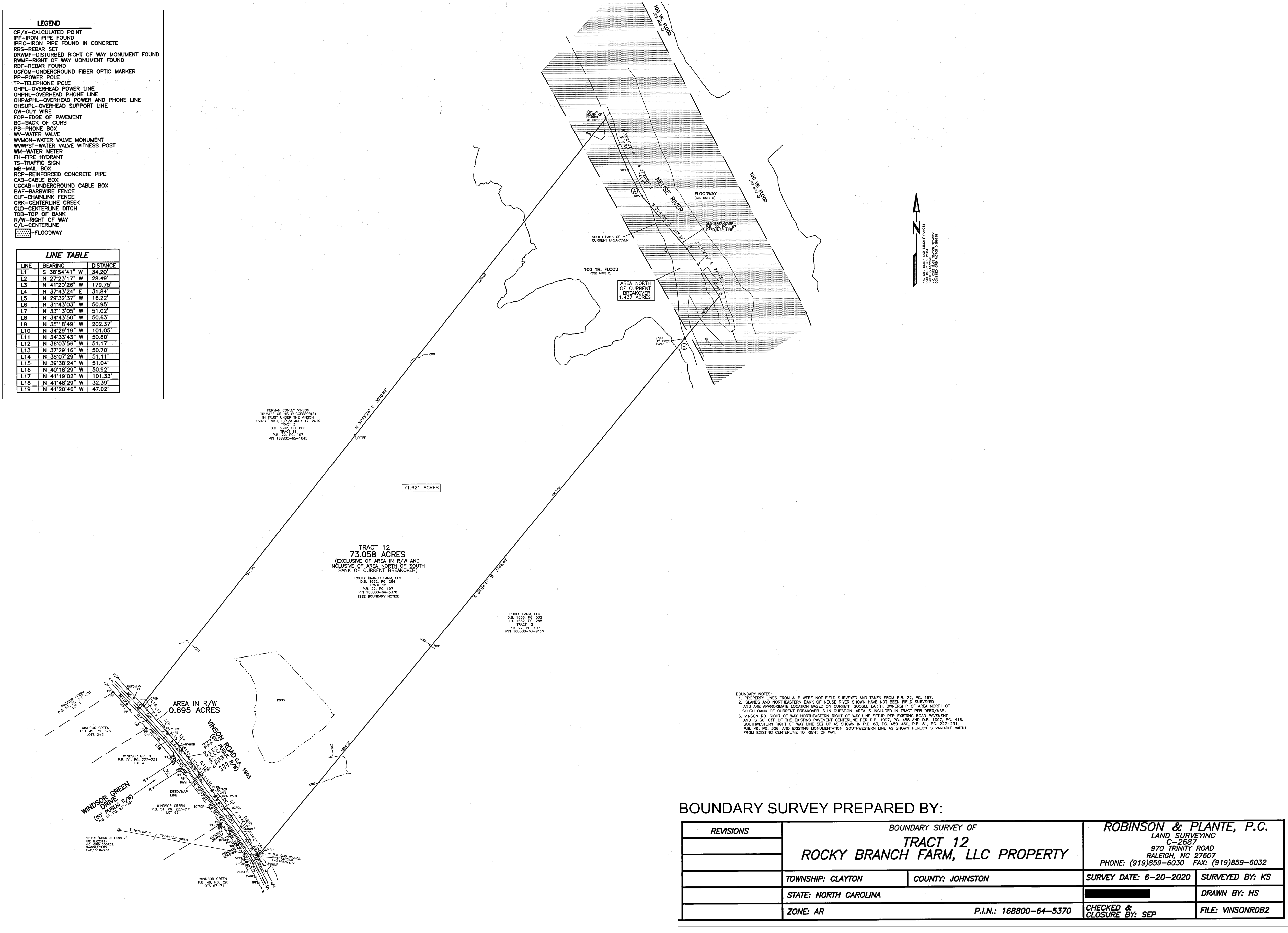
R/W-RIGHT OF WAY

C/L-CENTERLINE

FLOODWAY

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 38°54'41" W	34.20
L2	N 27°23'17" W	28.49
L3	N 41°20'28" W	179.75
L4	N 37°43'24" E	31.84
L5	N 29°32'37" W	16.22
L6	N 31°43'03" W	50.85
L7	N 33°13'05" W	51.02
L8	N 34°43'50" W	50.63
L9	N 35°18'49" W	202.37
L10	N 34°29'19" W	101.05
L11	N 34°33'43" W	50.60
L12	N 36°03'56" W	51.17
L13	N 37°29'16" W	50.70
L14	N 38°07'29" W	51.11
L15	N 39°38'24" W	51.04
L16	N 40°18'29" W	50.92
L17	N 41°19'02" W	101.33
L18	N 41°48'29" W	32.30
L19	N 41°20'46" W	47.02



TMTLA ASSOCIATES

LANDSCAPE ARCHITECTURE & LAND PLANNING

5011 SOUTH PARK DRIVE, STE. 200-DURHAM, NC 27713

p: (919) 484-8880 e: info@tmtla.com

FOR REVIEW ONLY

REVISIONS:

SURVEY VINSON ROAD

CLAYTON, NC

SCALE: 1" = 200'

DRAWN BY: PMP

PROJECT # 22126

DATE: 9/13/2022

SHEET L-1.1

OF

BOUNDARY SURVEY PREPARED BY:

REVISIONS	BOUNDARY SURVEY OF		ROBINSON & PLANTE, P.C.	
	TRACT 12		LAND SURVEYING	
	ROCKY BRANCH FARM, LLC PROPERTY		C-2687	
			970 TRINITY ROAD	
			RALEIGH, NC 27607	
			PHONE: (919)859-6030 FAX: (919)859-6032	
	TOWNSHIP: CLAYTON	COUNTY: JOHNSTON	SURVEY DATE: 6-20-2020	SURVEYED BY: KS
	STATE: NORTH CAROLINA			DRAWN BY: HS
	ZONE: AR	P.I.N.: 168800-64-5370	CHECKED & CLOSURE BY: SEP	FILE: VINSONRDB2

LEGEND

CP/X-CALCULATED POINT

IPF-IRON PIPE FOUND

IPFC-IRON PIPE FOUND IN CONCRETE

RES-REBAR SET

DRWMF-DISTURBED RIGHT OF WAY MONUMENT FOUND

RWMF-RIGHT OF WAY MONUMENT FOUND

RBF-REBAR FOUND

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OHPL-OVERHEAD PHONE LINE

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OHUSPL-OVERHEAD SUPPORT LINE

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WV-WATER VALVE

WVWV-WATER VALVE MONUMENT

WVWST-WATER VALVE WITNESS POST

WM-WATER METER

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UGCAB-UNDERGROUND CABLE BOX

BWF-BARBWIRE FENCE

CLF-CHAINLINK FENCE

CRK-CENTERLINE CREEK

CLD-CENTERLINE DITCH

TOS-TOP OF BANK

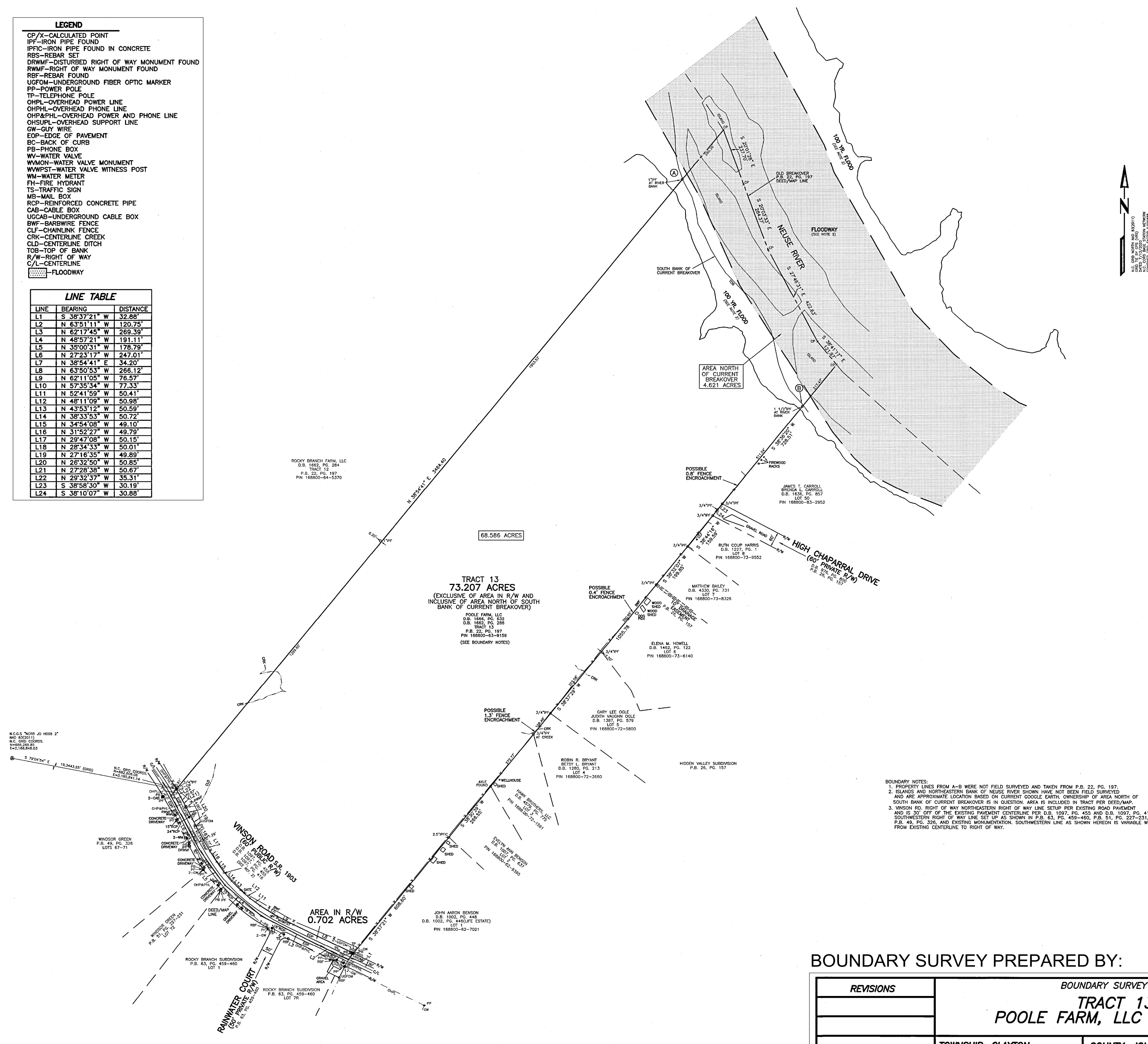
R/W-RIGHT OF WAY

C/L-CENTERLINE

FLOODWAY

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 38°37'21" W	32.68'
L2	N 63°51'11" W	120.75'
L3	N 62°17'45" W	269.39'
L4	N 48°57'21" W	191.11'
L5	N 35°00'31" W	178.79'
L6	N 27°23'17" W	247.01'
L7	N 38°54'41" E	34.20'
L8	N 63°50'53" W	286.12'
L9	N 62°11'05" W	76.57'
L10	N 57°35'34" W	77.33'
L11	N 52°41'59" W	50.41'
L12	N 48°11'09" W	50.98'
L13	N 43°53'12" W	50.59'
L14	N 38°33'53" W	50.72'
L15	N 34°54'08" W	49.10'
L16	N 31°52'27" W	49.79'
L17	N 29°47'08" W	50.15'
L18	N 28°34'14" W	50.01'
L19	N 27°16'35" W	49.89'
L20	N 26°32'50" W	50.85'
L21	N 27°28'38" W	50.67'
L22	N 29°32'37" W	35.31'
L23	S 38°58'30" W	30.19'
L24	S 38°10'07" W	30.88'



BOUNDARY SURVEY PREPARED BY:

REVISIONS	BOUNDARY SURVEY OF		ROBINSON & PLANTE, P.C.	
	TRACT 13		LAND SURVEYING	
	POOLE FARM, LLC PROPERTY		C-2687	
	TOWNSHIP: CLAYTON	COUNTY: JOHNSTON	SURVEY DATE: 6-10-2020	SURVEYED BY: KS
	STATE: NORTH CAROLINA			DRAWN BY: HS
	ZONE: AR		P.I.N.: 168800-63-9159	CHECKED & CLOSURE BY: SEP
				FILE: VINSONRDB1

TMTLA ASSOCIATES

LANDSCAPE ARCHITECTURE & LAND PLANNING

5011 SOUTH PARK DRIVE, STE. 200-DURHAM, NC 27713

p: (919) 484-8880 e: info@tmtla.com

FOR REVIEW ONLY

N

W

E

S

REVISIONS:

SURVEY VINSON ROAD

CLAYTON, NC

SCALE: 1" = 200'

DRAWN BY: PMP

PROJECT # 22126

DATE: 9/13/2022

SHEET L-1.2

OF

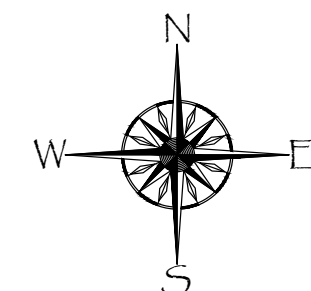
VINSON ROAD MASTER PLAN
SITE AREA: 146.26 ACRES
DENSITY: 3.12 DU/AC

LOT KEY	
	PROPOSED 72' WIDE LOTS
	PROPOSED 62' WIDE LOTS
	PROPOSED 52' WIDE LOTS
	PROPOSED TOWNHOMES

PROJECT DATA	
COUNTY TAG:	05J05011V & 05J05030F
DEVELOPMENT NAME:	VINSON ROAD
PROPERTY OWNERS:	POOLE FARM LLC & ROCKY BRANCH FARM LLC
EXISTING LAND USE:	VACANT
TOTAL SITE ACREAGE:	146.26 AC
PROPOSED LAND USE:	RESIDENTIAL; SINGLE FAMILY AND TOWNHOMES
PROPOSED ZONING:	CZ-R
PROPOSED SETBACKS:	SEE NARRATIVE
PROPOSED BUFFERYARDS:	CLASS "C" BUFFER AROUND ENTIRE PROJECT
PARKING REQUIREMENTS:	SEE NARRATIVE
BUILDING HEIGHT RESTRICTION:	35' MAX. FOR SINGLE FAMILY 45' MAX. FOR TOWNHOMES
MAXIMUM DENSITY:	3.12 DU/AC
MAXIMUM NUMBER OF UNITS:	457

LEGEND	
	STREAM BUFFER
	WETLANDS
	100 YEAR FLOODPLAIN
	GIS TOPO; 2' CONTOURS
	AREAS WITH SLOPES GREATER THEN 25%

TMTLA ASSOCIATES
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5011 SOUTH PARK DRIVE, STE. 200 DUNHAM, NC 27713
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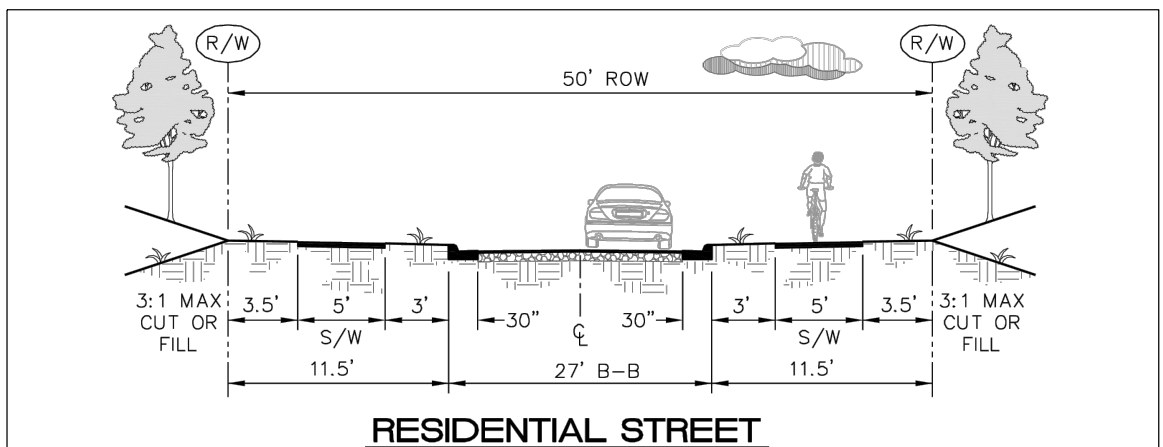
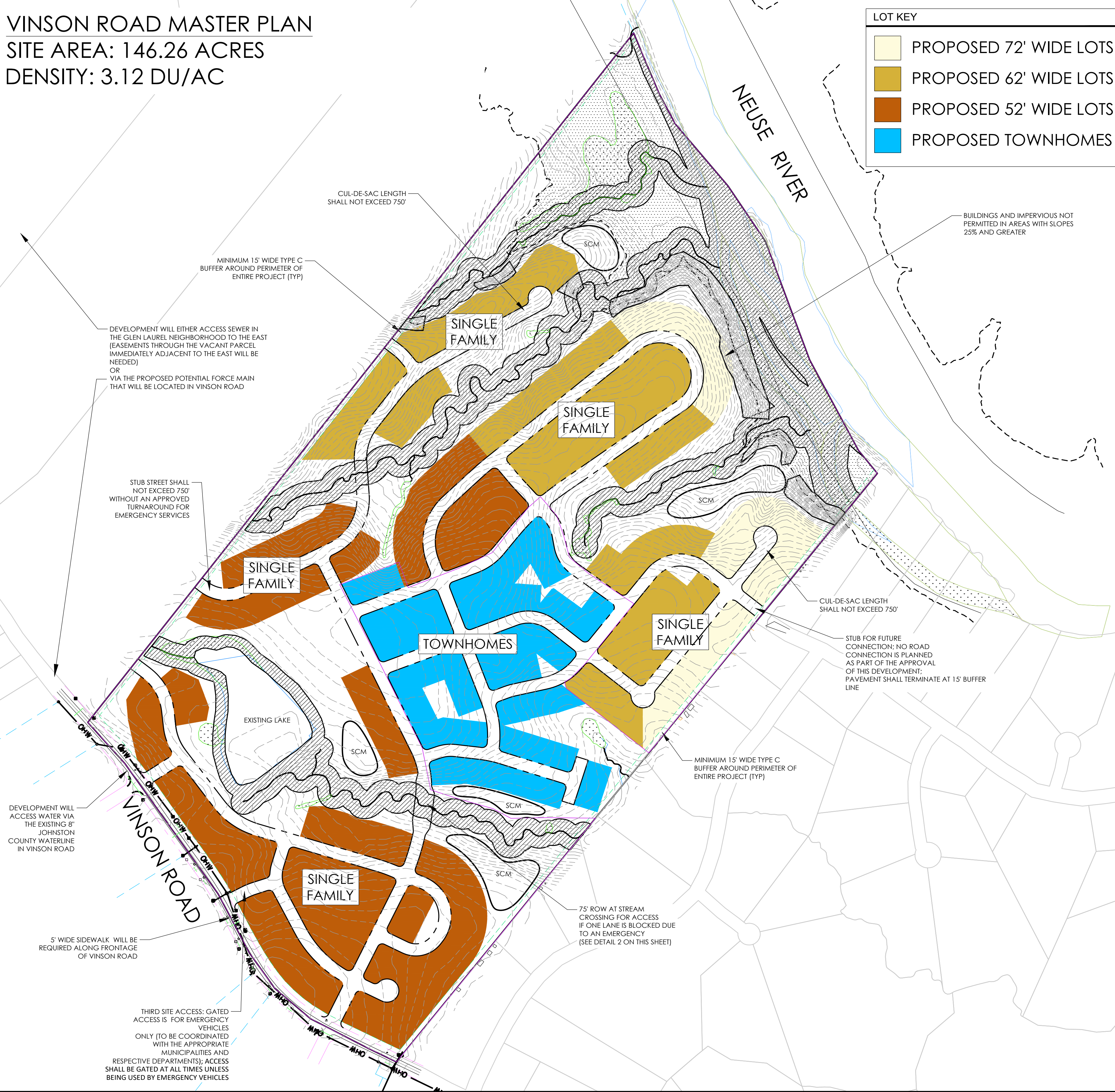


REVISIONS:

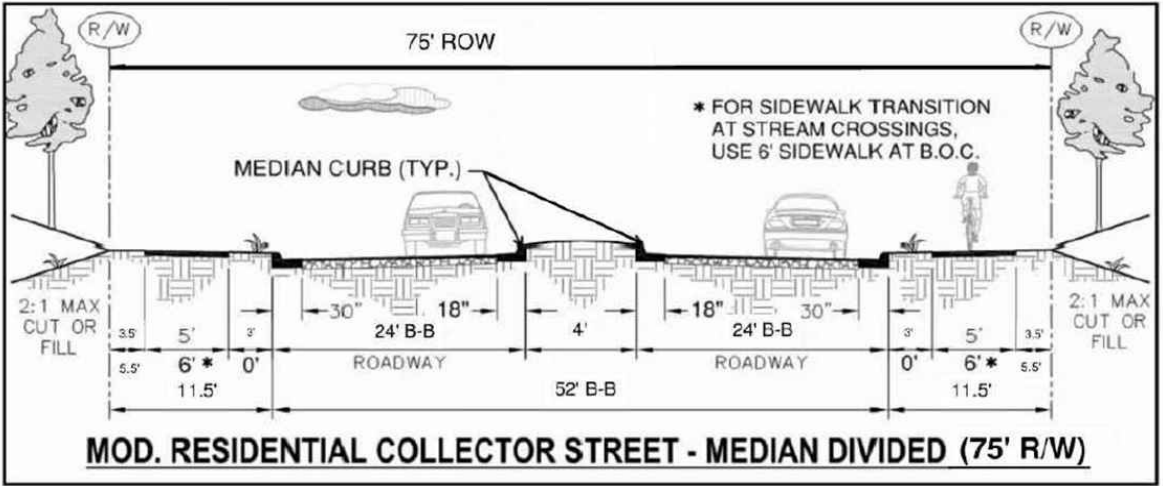
MASTER PLAN
VINSON ROAD
CLAYTON, NC

SCALE:
1" = 200'
DRAWN BY:
PMP
PROJECT #
22126
DATE:
9/13/2022

SHEET
L-2
OF

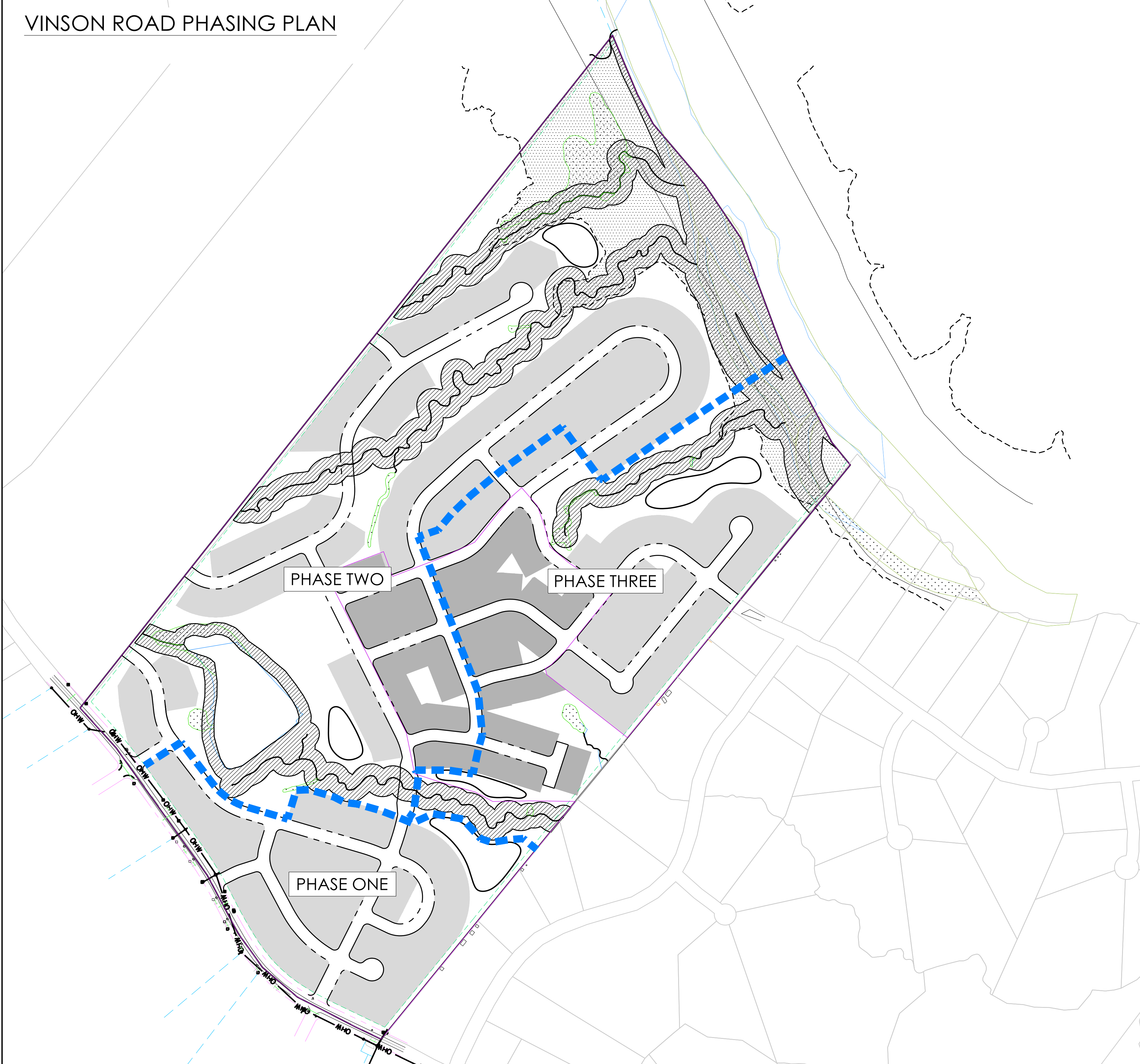


(1) TYPICAL STREET SECTION FOR ALL INTERNAL STREETS EXCEPT IF OTHERWISE NOTES



(2) TYPICAL STREET SECTION FOR STREAM CROSSING ONLY

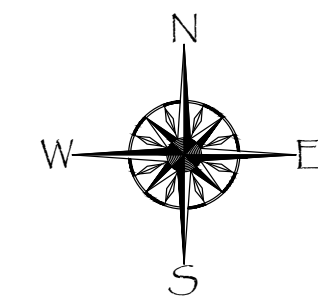
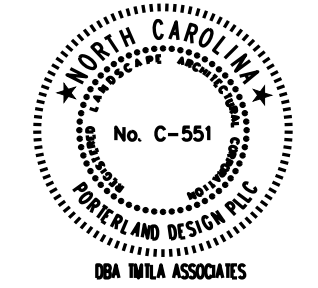
VINSON ROAD PHASING PLAN



LEGEND

- STREAM BUFFER
- WETLANDS
- 100 YEAR FLOODPLAIN
- PHASE LINE
- PROPOSED SINGLE FAMILY DETACHED
- PROPOSED TOWNHOMES

TMTLA ASSOCIATES
LANDSCAPE ARCHITECTURE & LAND PLANNING
5011 SOUTH PARK DRIVE, STE. 200-DURHAM, NC 27713
p: (919) 484-8880 e: info@tmtla.com



REVISIONS:

PHASING PLAN
VINSON ROAD
CLAYTON, NC

SCALE:
1" = 200'
DRAWN BY:
PMP
PROJECT #
22126
DATE:
9/13/2022

SHEET
L-2
OF



September 6, 2022

Dear Clayton Area Property Owner:

The purpose of this letter is to notify you of an application filed with the Town of Clayton for a land use change and development proposal involving property adjacent to, or in close proximity to property shown in your ownership by Johnston County tax records. Per Town of Clayton regulations, a Neighborhood Meeting must be held to provide information to area residents about the proposal. Due to current social distancing resulting from COVID-19, the Town of Clayton has authorized temporary use of Virtual Neighborhood Meetings. This letter includes instructions on how to access the virtual neighborhood meeting for this application. A representative of the applicant will coordinate this meeting and explain the application, answer questions, and solicit comments.

Meeting Date & Time: **September 21st 2022, 6-8pm**

Meeting Location: **virtual Zoom Meeting** (see link and information below to register)

Type of Application: **Conditional Rezoning**

Project/proposal property address: **Vinson Rd** (see attached map)

Description of project/proposal: **Proposed rezoning to allow for the development of a new neighborhood consisting of single-family homes and townhomes.**

Upcoming public meeting schedules that may be applicable for this application:

Planning Board: November 28th, 2022, Town Council: December 19th, 2022

Planning Board: December 20th, 2022, Town Council: January 16th, 2023

The following will be available for your review virtually at the Neighborhood Meeting:

1. A copy of the project application.
2. A schedule of all upcoming public meetings for the application.
3. A map at a scale that is appropriate to the project and shows neighboring properties and roads.
4. A map, drawing, or other depiction of the proposed land use change or development proposal.

If you have any questions prior to or after this meeting, you may contact us at (919) 484-8880 or email me at pam@tmtla.com.

You may also contact the Town of Clayton Planning Department at 919-553-5002.

Thank you,
Pamela Porter, PLA, LEED AP
President
TMTLA Associates
P: (919) 484-8880
E: pam@tmtla.com

Cc: Town of Clayton Planning Department

TMTLA Associates
5011 Southpark Drive Suite 200 - Durham, NC 27713
p: (919) 484-8880 - e: info@tmtla.com



How to Register for and Participate in the September 21st 2022 Neighborhood Meeting:

To Participate by PC, Mac, iPad, iPhone, or Android Device:

NOTE: This meeting will require registration prior to attending if participating by video.

- Go to the following website to attend the meeting: <https://zoom.us/>
- Click on the "Join A Meeting" link at the top of the website.
- Enter the following information where prompted:
 - Meeting ID: **820 4660 7957**
- Once you enter the Meeting ID and click "Join" you will be prompted to register for the meeting. Fill out the required information. After you register for the meeting, you will receive an email with a link to join the meeting.

To Participate by Phone:

- Dial the following number: **(929) 205-6099**
- Enter the following information when prompted:
 - Meeting ID: **820 4660 7957**
- After you enter the Meeting ID please press # to enter the meeting. There is no passcode for this meeting.
- If you are participating by phone all graphics to be discussed during the meeting can be mailed to you.

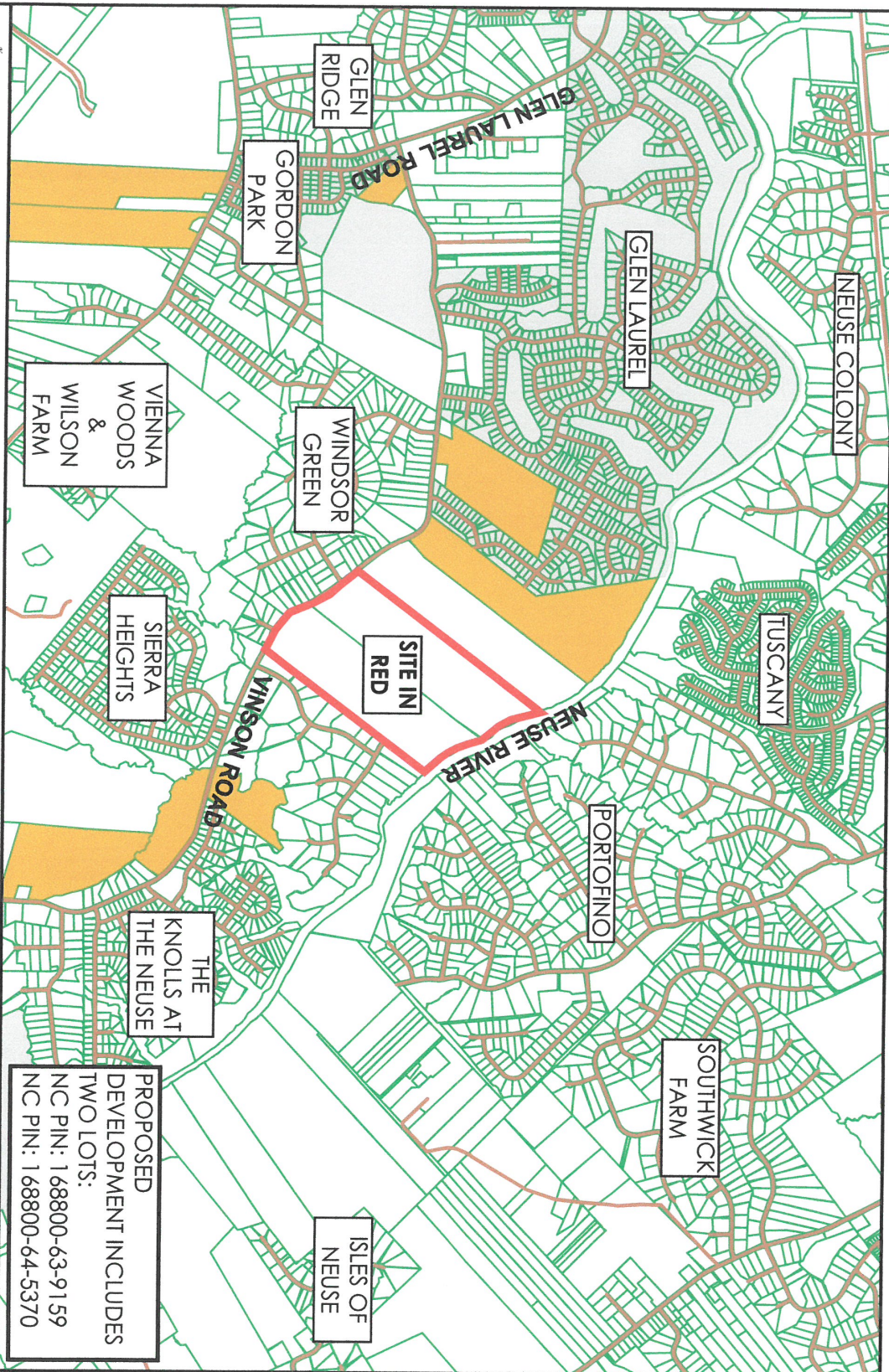
Once the meeting has started and attendance has been taken, all participants will be muted to allow for presentation by the meeting host. Please note that participants' video will be off by default, as well, so meeting host can display the below maps during the meeting. **Please note this meeting will be recorded.**

During the call attendees are asked to use the raise hand function to ask questions. This can be done by using the Raise Hand function if joining by video or by dialing *9 if joining by telephone.

We look forward to discussing our proposal with you.

TMTLA Associates
5011 Southpark Drive Suite 200 - Durham, NC 27713
p: (919) 484-8880 - e: info@tmtla.com

*** DISCLAIMER ***
Johnston County assumes no legal responsibility for the information represented here.



Scale: 1:26136 - 1 in. = 2178.03 feet
(The scale is only accurate when printed landscape on a 8 1/2 x 11 size sheet with no page scaling.)

PROPOSED
DEVELOPMENT INCLUDES
TWO LOTS:
NC PIN: 168800-63-91 59
NC PIN: 168800-64-5370

VINSON ROAD

CONCEPTUAL SITE PLAN

N.T.S.

PROJECT AREA: 146 ACRES

- PROPOSED 72' WIDE LOTS
- PROPOSED 62' WIDE LOTS
- PROPOSED 52' WIDE LOTS
- PROPOSED TOWNHOMES
- PROPOSED OPEN SPACE

TOWNHOMES IN
CENTER
OF DEVELOPMENT

AMENITY

NEUSE RIVER

EXISTING LAKE

VINSON ROAD

LARGEST
PROPOSED
LOTS ADJACENT
TO
EXISTING
RESIDENTIAL
DEVELOPMENT

TWO PROPOSED
ACCESS POINTS ON
VINSON ROAD

NOTE: LAYOUT IS SUBJECT TO
CHANGE WHEN SITE PLAN IS FULLY
ENGINEERED

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

Project: Vinson Road
Application: Conditional Use Rezoning
Location/Date: Virtual - 9/21/2022 @ 6:00 pm

NAME	ADDRESS
1	Please see attached attendance list
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Neighborhood Meeting Attendance Roster

Name	Address	Email	Phone
Patrick Murray	22 Rainwater Court, Clayton	pxm2214@gmail.com	9197404363
Aretha Williams	55 Rainwater Ct, Clayton	arethawilliams45@gmail.com	9194803995
Lorie Murray	22 Rainwater Ct, Clayton	mizmrs@gmail.com	9197407082
Art Holder	16 Oakmont Court, Clayton	artfrankie@embarqmail.com	9193204900
Barbara Wolfgang	1635 vinson road, Clayton	wolfy5510@yahoo.com	9195507556
Gary Ogle	2101 Hidden Valley Drive, Clayton	garyl14@yahoo.com	9198855468
Kayla & Taylor Poulos	101 Windsor Green Drive, Clayton	kpoulos2@gmail.com	9193980063
Jerry Dodson	2105 Hidden Valley Drive, Clayton	jerrydodson52@gmail.com	9195538210
Basil Tsiaousopoulos	238 Hawkesburg Drive, Clayton NC	Btsiaous@gmail.com	9842444498

Development Team

Pam Porter - TMTLA Associates
 Pat Barbeau - Timmons Group
 Bill Harrell - Hopper Communities

NEIGHBORHOOD MEETING SUMMARY FORM

FILL OUT THE FOLLOWING:

Application: Conditional Zoning with Master Plan

Date of Mailing: 9/7/2022

Date of Meeting: 9/21/2022

Time of Meeting: 6pm-8pm

Location of Meeting: virtual (see letter)

I hereby attest that letters were mailed to the addresses listed on the Adjacent Property Owners List (attached) ten days prior to the Neighborhood Meeting, and that all required information was presented at the Meeting:

Printed Name: Pamela Porter

Signature:



Meeting Summary/Minutes: *provide a summary of the discussion held at the meeting, including issues raised and any resolution discussed, and any changes made to the application as a result of the meeting.*

Please see attached meeting minutes for list of concerns brought up by neighbors and our responses.

Please write clearly (or submit a typed summary). Use additional sheets if necessary.



Vinson Road Neighborhood Meeting Minutes – Concerns and Responses

Location of Entrances: Question about where entrances are going to be located. It was noted that we are showing two entrances to Vinson Road across with existing roads across the street, we have one stub to the west property that is vacant, and we are showing a connection to the stub on the east side of the site. A neighbor noted the existing stub on the east is a private road so there was question on if we would be making that connection. Same neighbor noted that the neighbors in that adjacent neighborhood pay to maintain their roads and do not want added traffic from our development going through their neighborhood.

Annexation: A neighbor asked if any properties, other than the two that are part of the proposed development, would be included in the annexation request. It was noted that the only lots being annexed as part of our request are the two lots that are part of the rezoning.

Fencing: Concern with too many fence types throughout the development. It was noted by the Developer that the HOA will regulate fence types and there will likely be a couple of options for homeowners to choose from that are acceptable which will have a more uniform look.

Traffic/Road Improvements: Neighbors were concerned about this development, adding traffic to Vinson Road, which is already a busy road. At the time of the neighborhood meeting the TIA was not complete so we were not able to give definitive answers about roadway improvements but it was noted that turn lanes with tapers would likely be a requirement. We did note during the call that we waited to get the TIA complete until after school was back in session to get a more realistic idea of traffic counts.

Site Distance: A neighbor was concerned about sight distance as our entrances are on a curved part of Vinson Road and asked if we would be realigning Vinson Road to improve this. We responded that there are no plans to realign Vinson Road as this is an NCDOT maintained road, and this is likely not a priority for them. We did note again that the TIA, once received, will shed light on the road improvements that will be required along this development's frontage but realigning Vinson Road would most likely not be on that list of improvements.

Home Price: Someone asked about home prices. It was noted that it's hard to predict the cost of the homes with the cost of land, infrastructure, and building materials. The goal is for the townhomes to be in the \$300K and single family detached in the upper \$400K, if not higher. It was mentioned again since construction won't start for at least 1.5-2 years that these prices are not set in stone and subject to change.

TMTLA Associates
5011 Southpark Drive Suite 200 - Durham, NC 27713
p: (919) 484-8880 - e: info@tmtla.com



Flooding: A neighbor who lives in the neighborhood to the east noted there were areas in their neighborhood close to the shared property line that experienced standing water during storm events. Neighbors were concerned with our development dumping water onto adjacent properties to make flooding situation worse. We did note that as part of our plan we have to capture and treat the stormwater for our project – meaning we can’t exacerbate an existing flooding issue. We made a note of this location on our call to see what, during site plan (which this gets fully engineered), we can do to assist with this on our side of the development.

Neighborhood Lighting and Impact on Adjacent Properties: A neighbor was concerned that our development was going to add light pollution to this rural area. It was noted that we will be required to provide streetlights with this development but based on light pole spacing, and location of lights within the neighborhood, the light levels should still be relatively low.

Removal of Existing Trees on Site: A neighbor asked about tree removal on site during construction. It was noted that trees would need to be removed to accommodate the new homes but there was no plan to remove vegetation in the stream buffers or wetlands less the two stream crossings we are showing. The intent is to preserve the tree canopy in those environmentally sensitive areas. It was also noted that the proposal sets aside roughly half of the development in open space.

Sewer for Our Proposed Development: A neighbor was asking about where lift station would be located and if there would be capacity to service this development. It was noted that it would be located on the low spot of the site, which is at the rear of the site adjacent to the Neuse River. It was also noted that upgrades to existing off-site pump stations may be required to help with capacity.

Impact on Existing Wells: A neighbor asked about if our development would impact existing wells on adjacent properties. The neighbor noted adjacent wells are roughly 75’ – 100’ deep. It was noted that the depth of those existing wells are deep enough where there shouldn’t be an impacts to those wells.

S.NO	PARCEL ID	NAME 1	NAME2	ADDRESS1	CITY	STATE	ZIP
1	05J05012V	WOLFGANG, JAMES E	WOLFGANG, BARBARA L	1635 VINSON ROAD	CLAYTON	NC	27527-0000
2	05J05015A	WISE, KAYLA MARIE	POULOS, TAYLOR SHEA	101 WINDSOR GREEN DR	CLAYTON	NC	27527-5012
3	05J05012T	LACCABUE, IDA E	LACCABUE, STEVEN E	1785 VINSON RD	CLAYTON	NC	27527-6096
4	05J05030C	VINSON LIVING TRUST	COX, CAROLINE TRUSTEE	1004 LOCH LOMOND DR	CLAYTON	NC	27520-5946
5	05J05012W	FLORES, YVONNE	MONTANO, MANUEL	1615 VINSON RD	CLAYTON	NC	27527-0000
6	05J05013	KEHRER, ROBERT	KEHRER, JENNIFER	100 WINDSOR GREEN DRIVE	CLAYTON	NC	27527
7	05J05011V	POOLE FARM, LLC		16 OAKMONT CT	CLAYTON	NC	27527-6602
8	05J05012X	KOEMPEL, CYNTHIA A.		1595 VINSON RD	CLAYTON	NC	27527-7568
9	05J05012U	COOPER, MARK E COOPER	HOLLY A	1765 VINSON RD	CLAYTON	NC	27527-0000
10	05J05200G	CARROLL, JAMES T	CARROLL, BRENDA L	1925 HIGH CHAPARRAL DRIVE	CLAYTON	NC	27527-0000
11	05J05012Y	CRUZ, FREDDY JR		1575 VINSON RD	CLAYTON	NC	27527-7568
12	05J05012Z	COLEY, SETH MICHAEL JOINT TENANTS (WROS)	FRUDENRICH, SHARA JOINT TENANTS (WROS)	1555 VINSON RD	CLAYTON	NC	27527-7568
13	05J05032S	TURNER, MICHAEL		21 RAINWATER CT	CLAYTON	NC	27527-5085
14	05J05200A	BENSON, JOHN AARON		P O BOX 325	WILSONS MILLS	NC	27593-0000
15	05J05032J	MURRAY, PATRICK JOSEPH	MURRAY, LORAINE	22 RAINWATER CT	CLAYTON	NC	27527-5085
16	05J05032U	CALTON, KENNETH WAYNE		71 RAINWATER CT	CLAYTON	NC	27527-5085
17	05J05015B	GENSEL, JUANITA C	GENSEL, LARRY D	1545 VINSON ROAD	CLAYTON	NC	27527-0000
18	05J05200H	BENSON, JOHN AARON		PO BOX 325	WILSONS MILLS	NC	27593-0325
19	05J05011I	BAILEY, MATTHEW		2350 BAKERS CHAPEL RD	SMITHFIELD	NC	27577-8654
20	05J05030F	ROCKY BRANCH FARM LLC		230 SUMMIT ST	CLAYTON	NC	27520-1643
21	05J05011F	BRYANT, ROBIN R	BRYANT, BETSY L	2015 HIDDEN VALLEY DR	CLAYTON	NC	27527-0000
22	05J05012X	KOEMPEL, CYNTHIA A.		1595 VINSON RD	CLAYTON	NC	27527-7568
23	05J05198F	DODSON, ELENA MARIE	DODSON, JERRY MILTON	2105 HIDDEN VALLEY DR	CLAYTON	NC	27527-9251
24	05J05200	OGLE, GARY LEE	OGLE, JUDITH VAUGHAN	2101 HIDDEN VALLEY DR	CLAYTON	NC	27527-0000
25	05J05200K	HARRIS, RUTH COUP		1924 HIGH CHAPARRAL DR	CLAYTON	NC	27527-0000
26	05J05200U	HAWK BROTHERS LLC		4196 ZACKS MILL RD	ANGIER	NC	27501-9340
27	05G04052F	HATCH, JOSEPH K	HATCH, CHRISTY J	P O BOX 1662	CLAYTON	NC	27528-1650

RAMEY KEMP ASSOCIATES

TOGETHER WE ARE LIMITLESS



Vinson Road Development **Traffic Impact Analysis** **Clayton, North Carolina**



**TRAFFIC IMPACT
ANALYSIS**

FOR

VINSON ROAD DEVELOPMENT

LOCATED

IN

CLAYTON, NC

Prepared For:
HOPPER COMMUNITIES
2403 Medway Drive
Raleigh, NC

Prepared By:
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NOVEMBER 2022



11/10/2022

Caroling Cheeves

RKA Project No. 22388

Prepared By: VT

Reviewed By: CC

**TRAFFIC IMPACT ANALYSIS
VINSON ROAD DEVELOPMENT
CLAYTON, NORTH CAROLINA**

EXECUTIVE SUMMARY

1. Development Overview

A Traffic Impact Analysis (TIA) was conducted for the proposed Vinson Road development in accordance with the Clayton (Town) Unified Development Code (UDC) and North Carolina Department of Transportation (NCDOT) capacity analysis guidelines. The proposed development is to be located west of Hidden Valley Drive and north of Vinson Road in Clayton, North Carolina. The proposed development is expected to consist of 255 single-family homes and 210 townhomes. The residential development is estimated to be built out in 2030. Site access is proposed via two (2) full movement driveways along Vinson Road. The full movement driveways along Vinson Road are expected to align with Windsor Green Drive and Rainwater Court. It should be noted that interconnectivity is expected to the development to the south via High Chaparral Drive; however, this interconnectivity was not considered as part of this TIA and is expected to provide conservative results at the main access points.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2022 Existing Traffic Conditions
- 2030 No-Build Traffic Conditions
- 2030 Build Traffic Conditions
- 2030 Build with Improvements Traffic Conditions

2. Existing Traffic Conditions

The study area for the TIA was determined through coordination with the Town and NCDOT and consists of the following intersections:

- NC 42 and Glen Laurel Road
- Glen Laurel Road and Vinson Road
- Glen Laurel Road and Powhatan Road



- Vinson Road and Windsor Green Drive / Site Drive 1
- Vinson Road and Rainwater Court / Site Drive 2

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersection listed below, in September of 2022 during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- NC 42 and Glen Laurel Road
- Glen Laurel Road and Vinson Road
- Glen Laurel Road and Powhatan Road
- Vinson Road and Windsor Green Drive
- Vinson Road and Rainwater Court

Traffic volumes were balanced between study intersections, where appropriate.

3. Site Trip Generation

The proposed development is assumed to consist of 255 single-family homes and 210 townhomes. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE Trip Generation Manual, 11th Edition. Table E-1 provides a summary of the trip generation potential for the site.

Table E-1: Site Trip Generation

LAND USE (ITE Code)	INTENSITY	DAILY TRIPS (VPD)	WEEKDAY AM PEAK HOUR (VPH)		WEEKDAY PM PEAK HOUR (VPH)	
			Enter	Exit	Enter	Exit
Single Family Detached Housing (210)	255 units	2,387	42	130	151	89
Single Family Attached Housing (215)	210 units	1,150	32	72	70	52
Total Trips		3,937	77	202	221	141

4. Future Traffic Conditions

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 2% would be used to generate 2030 projected weekday AM and PM peak hour traffic volumes. Based on coordination with the Town and NCDOT, it was determined that there were no adjacent developments to consider with this study.

5. Capacity Analysis Summary

The analysis considered weekday AM and PM peak hour traffic for 2022 existing, 2030 no-build, and 2030 build conditions. Refer to Section 7 of the TIA for the capacity analysis summary performed at each study intersection.

6. Recommendations

Based on the findings of this study, specific geometric and traffic control improvements have been identified at study intersections. The improvements are summarized below and are illustrated in Figure E-1.

Improvements by NCDOT

Glen Laurel Road and Vinson Road

- Install a signal.

Recommended Improvements by the Vinson Road Development

NC 42 and Glen Laurel Road

- Coordinate with NCDOT to develop a signal modification plan to allow for an eastbound right-turn lane overlap phase.

Glen Laurel Road and Vinson Road

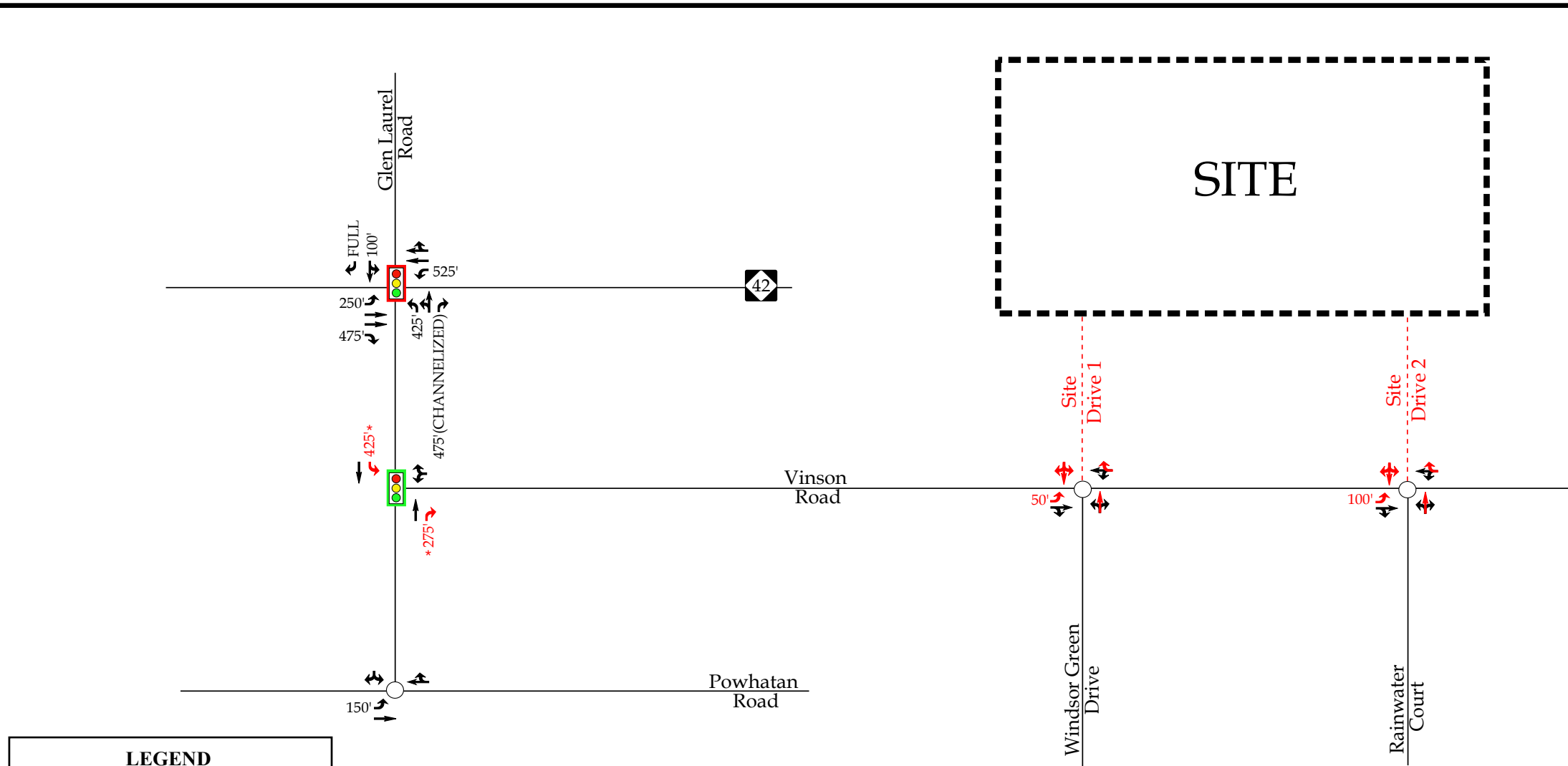
- Provide an exclusive southbound left-turn lane with at least 425 feet of full width storage with appropriate deceleration and taper if right-of-way is available.
- Provide an exclusive northbound left-turn lane with at least 275 feet of full width storage with appropriate deceleration and taper if right-of-way is available.

Vinson Road and Windsor Green Drive / Site Drive 1

- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 50 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).

Vinson Road and Rainwater Court / Site Drive 2

- Construct Site Drive 2 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 2).



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- Existing Lane
- Signal Installation by NCDOT
- Signal Phasing and Timing Modifications by Developer
- Improvement by Developer
- x' Storage (In Feet)

* If right-of-way is available.



Vinson Road Development
Johnston County, NC

Recommended Lane
Configurations

Scale: Not to Scale Figure E-1

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TECHNICAL APPENDIX

Appendix A:	Scoping Documentation
Appendix B:	Traffic Counts
Appendix C:	Capacity Calculations – NC 42 and Glen Laurel Road
Appendix D:	Capacity Calculations – Glen Laurel Road and Vinson Road
Appendix E:	Capacity Calculations – Glen Laurel Road and Powhatan Road
Appendix F:	Capacity Calculations – Vinson Road and Windsor Green Drive / Site Drive 1
Appendix G:	Capacity Calculations – Vinson Road and Rainwater Court / Site Drive 2
Appendix H:	SimTraffic Queuing Reports
Appendix I:	Turn Lane Warrants

**TRAFFIC IMPACT ANALYSIS
VINSON ROAD DEVELOPMENT
CLAYTON, NORTH CAROLINA**

1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Vinson Road development to be located west of Hidden Valley Drive and north of Vinson Road in Clayton, North Carolina. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

The proposed development, anticipated to be completed in 2030, is assumed to consist of the 255 single family homes and 210 townhomes.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2022 Existing Traffic Conditions
- 2030 No-Build Traffic Conditions
- 2030 Build Traffic Conditions

1.1. Site Location and Study Area

The development is proposed to be located west of Hidden Valley Drive and north of Vinson Road in Clayton, North Carolina. Refer to Figure 1 for the site location map. The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and the Town of Clayton (Town) and consists of the following intersections:

- NC 42 and Glen Laurel Road
- Glen Laurel Road and Vinson Road
- Glen Laurel Road and Powhatan Road
- Vinson Road and Windsor Green Drive / Site Drive 1
- Vinson Road and Rainwater Court / Site Drive 2

Refer to Appendix A for the approved scoping documentation.

1.2. Proposed Land Use and Site Access

The site is expected to be located west of Hidden Valley Drive and north of Vinson Road. The proposed development, anticipated to be completed in 2030, is assumed to consist of 255 single family homes and 210 townhomes.

Site access is proposed via two (2) full movement driveways along Vinson Road. The full movement driveways along Vinson Road are expected to align with Windsor Green Drive and Rainwater Court. It should be noted that interconnectivity is expected to the development to the south via High Chaparral Drive; however, this interconnectivity was not considered as part of this TIA and is expected to provide conservative results at the main access points. Refer to Figure 2 for a copy of the preliminary site plan.

1.3. Adjacent Land Uses

The proposed development is located in an area consisting primarily of residential development and office development.

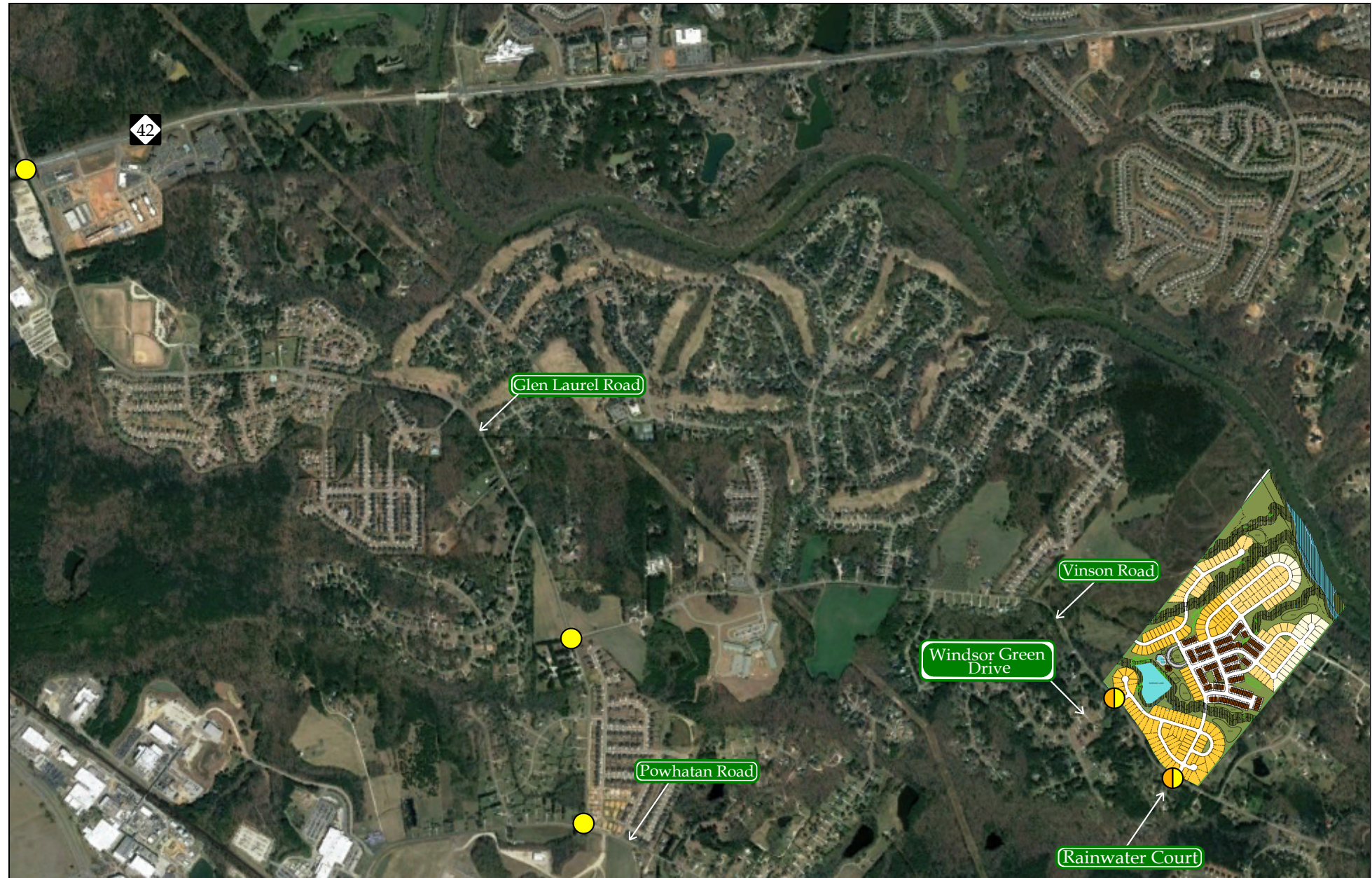
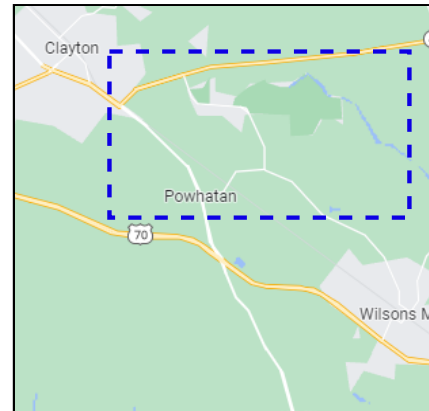
1.4. Existing Roadways

Existing lane configurations (number of traffic lanes on each intersection approach), speed limits, storage capacities, and other intersection and roadway information within the study area are shown in Figure 3. Table 1, on the following page, provides a summary of this information, as well.

Table 1: Existing Roadway Inventory

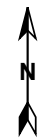
Road Name	Route Number	Typical Cross Section	Speed Limit	2019 AADT (vpd)
NC 42		4-lane divided	55 mph	24,500
Glen Laurel Road	SR 1902	2-lane undivided	45 mph	4,400
Vinson Road	SR 1903	2-lane undivided	45 mph	6,080*
Powhatan Road	SR 1901	2-lane undivided	45 mph	11,000
Windsor Green Drive	SR 2049	2-lane undivided	25 mph	350*
Rainwater Court	N/A	2-lane undivided	Not Posted	90*

*ADT based on the traffic counts from 2022 and assuming the weekday PM peak hour volume is 10% of the average daily traffic.



LEGEND

- Study Intersection
- Proposed Site Access
- Study Area



Vinson Road Development
Johnston County, NC

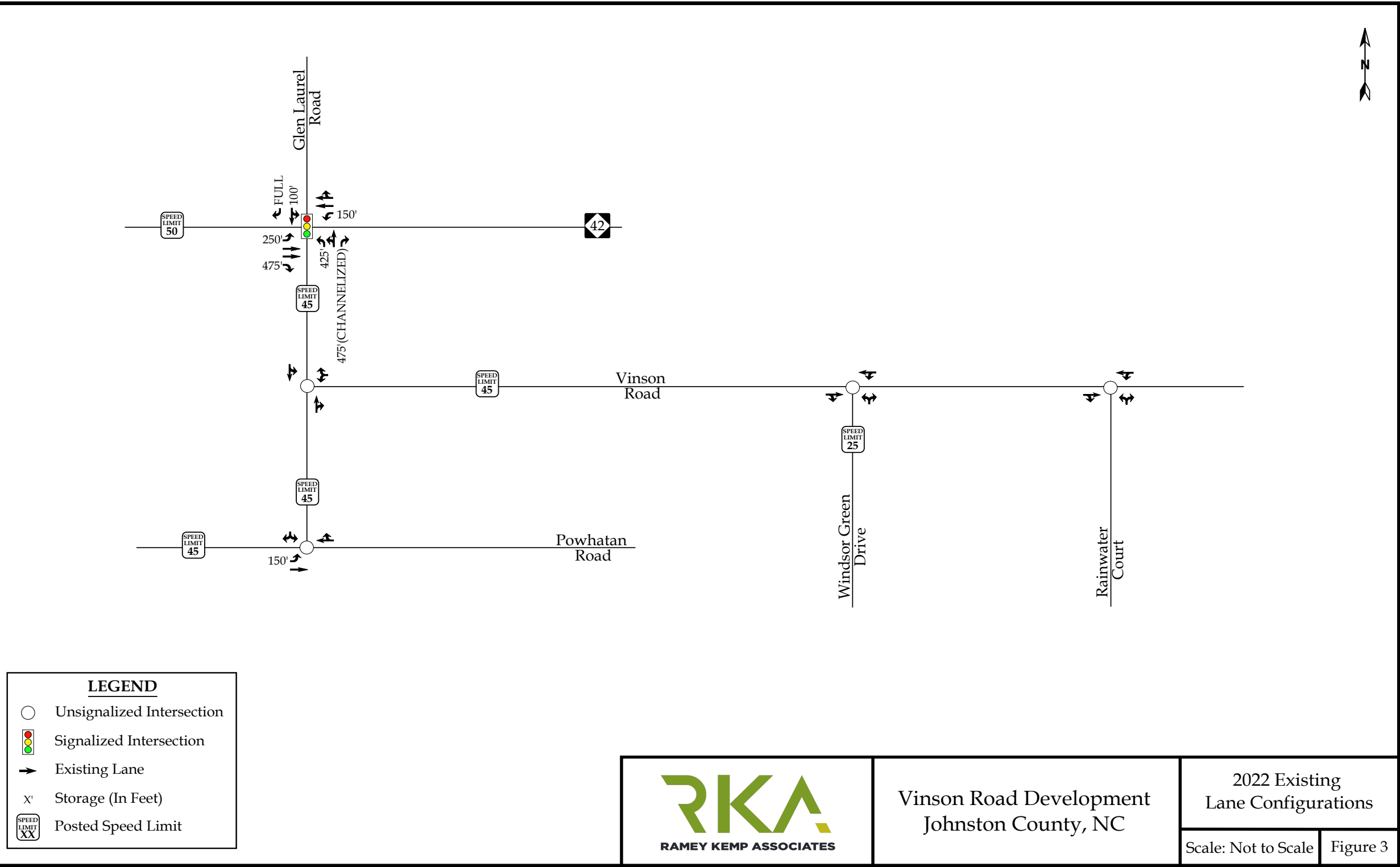
Site Location Map

Scale: Not to Scale

Figure 1

VINSON ROAD CONCEPTUAL SITE PLAN





2. 2022 EXISTING PEAK HOUR CONDITIONS

2.1. 2022 Existing Peak Hour Traffic Volumes

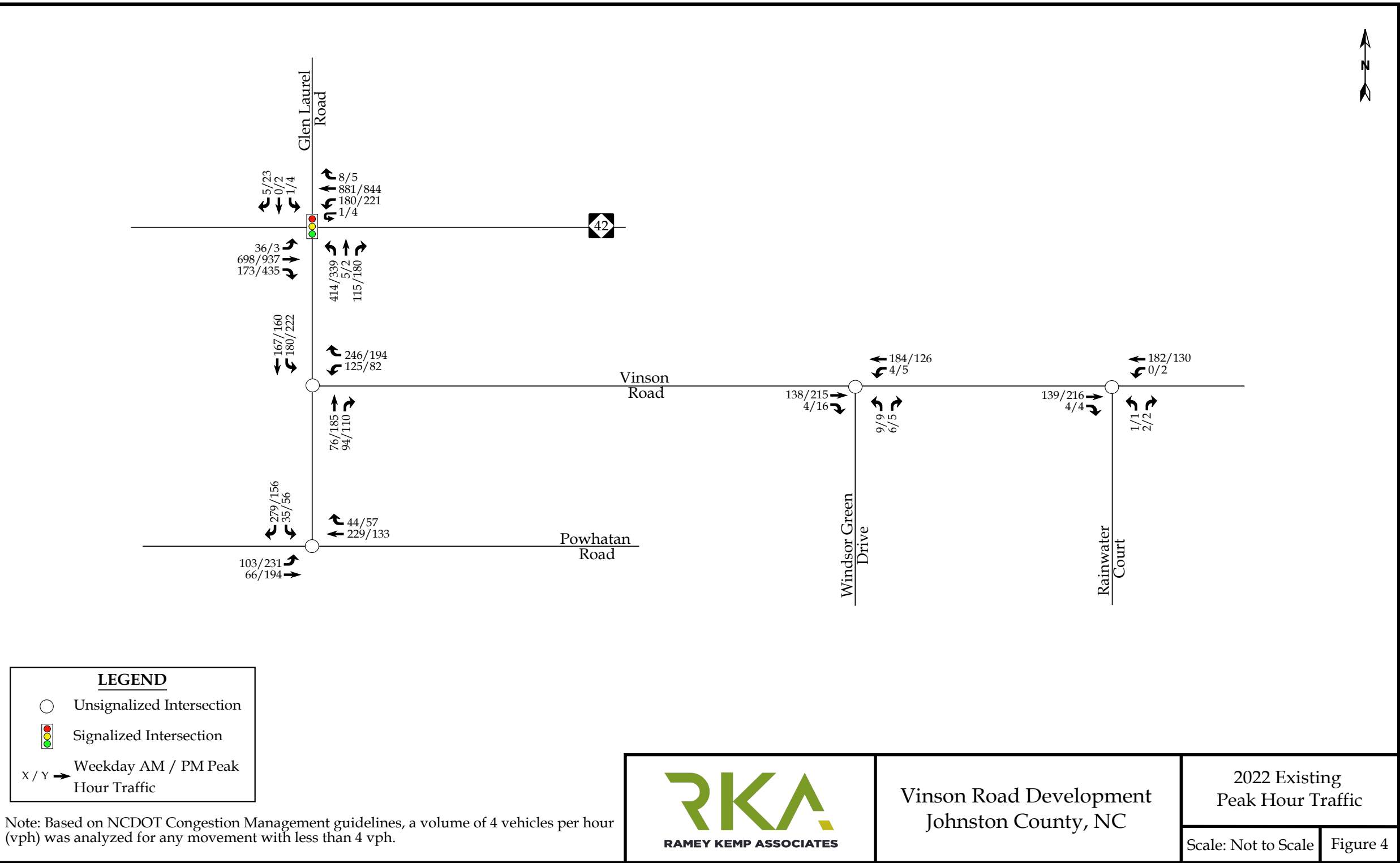
Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in September 2022 during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- NC 42 and Glen Laurel Road
- Glen Laurel Road and Vinson Road
- Glen Laurel Road and Powhatan Road
- Vinson Road and Windsor Green Drive
- Vinson Road and Rainwater Court

Weekday AM and PM traffic volumes were balanced between study intersections, where appropriate. Refer to Figure 4 for 2022 existing weekday AM and PM peak hour traffic volumes. A copy of the count data is located in Appendix B of this report.

2.2. Analysis of 2022 Existing Peak Hour Traffic Conditions

The 2022 existing weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. Signal information was obtained from NCDOT and is included in Appendix C. The results of the analysis are presented in Section 7 of this report.



3. 2030 NO-BUILD PEAK HOUR CONDITIONS

In order to account for growth of traffic and subsequent traffic conditions at a future year, no-build traffic projections are needed. No-build traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether or not the proposed development is constructed. No-build traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments.

3.1. Ambient Traffic Growth

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 2% would be used to generate 2030 projected weekday AM and PM peak hour traffic volumes.

3.2. Adjacent Development Traffic

Based on coordination with the NCDOT and the Town, it was determined there were no adjacent developments to consider with this study.

3.3. Future Roadway Improvements

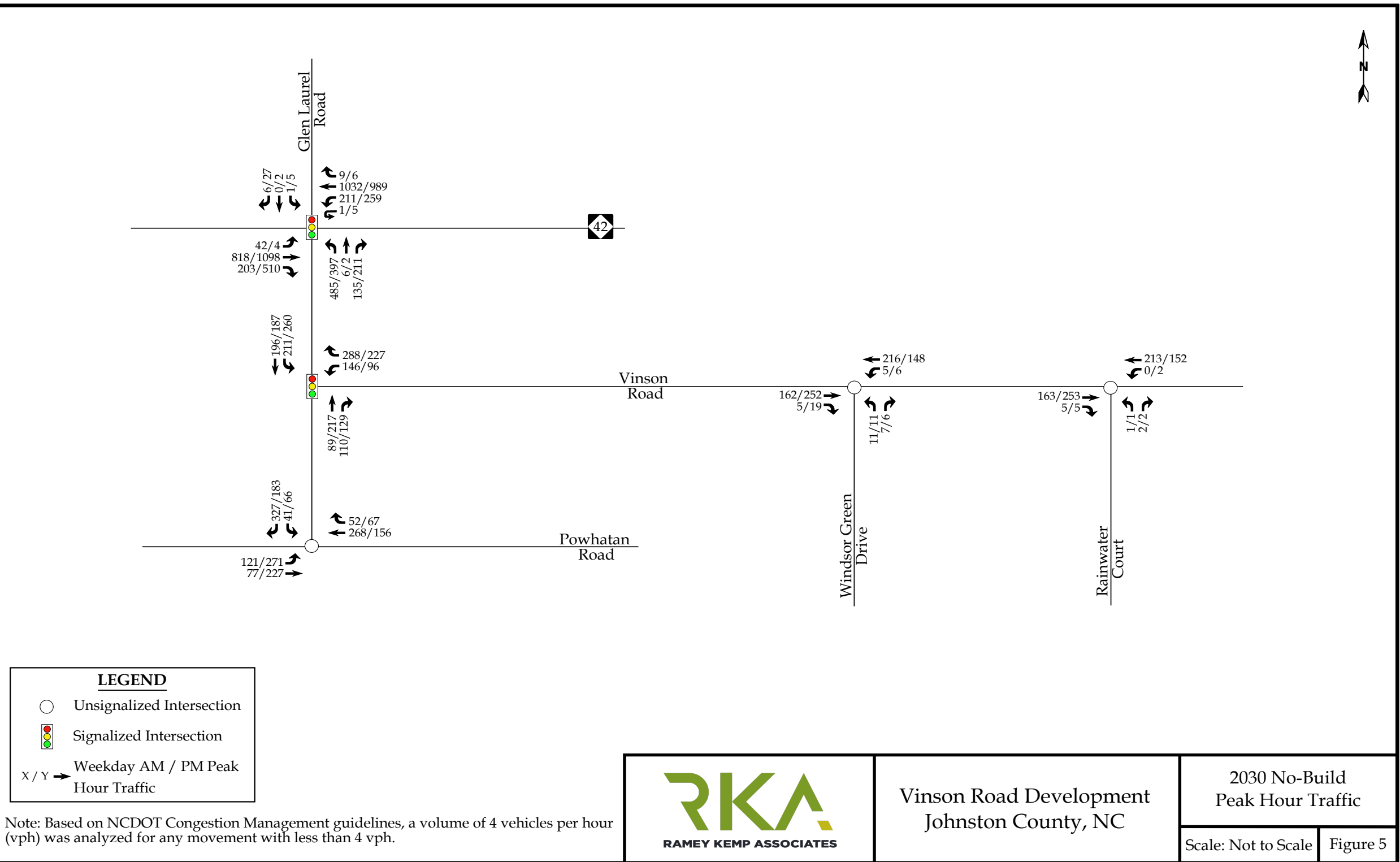
Based on coordination with the NCDOT and the Town, it was determined there were no future roadway improvements to consider with this study.

3.4. 2030 No-Build Peak Hour Traffic Volumes

The 2030 no-build traffic volumes were determined by projecting the 2022 existing peak hour traffic to the year 2030. Refer to Figure 5 for an illustration of the 2030 no-build peak hour traffic volumes at the study intersections.

3.5. Analysis of 2030 No-Build Peak Hour Traffic Conditions

The 2030 no-build AM and PM peak hour traffic volumes at the study intersections were analyzed with future geometric roadway conditions and traffic control. The analysis results are presented in Section 7 of this report.



4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

The proposed development is assumed to consist of 255 single-family homes and 210 townhomes. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the *ITE Trip Generation Manual*, 11th Edition. Table 2 provides a summary of the trip generation potential for the site.

Table 2: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single Family Detached Housing (210)	255 units	2,387	42	130	151	89
Single Family Attached Housing (215)	210 units	1,150	32	72	70	52
Total Trips		3,937	77	202	221	141

It is estimated that the proposed development will generate approximately 3,937 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 279 trips (77 entering and 202 exiting) will occur during the weekday AM peak hour and 362 trips (221 entering and 141 exiting) will occur during the weekday PM peak hour.

4.2. Site Trip Distribution and Assignment

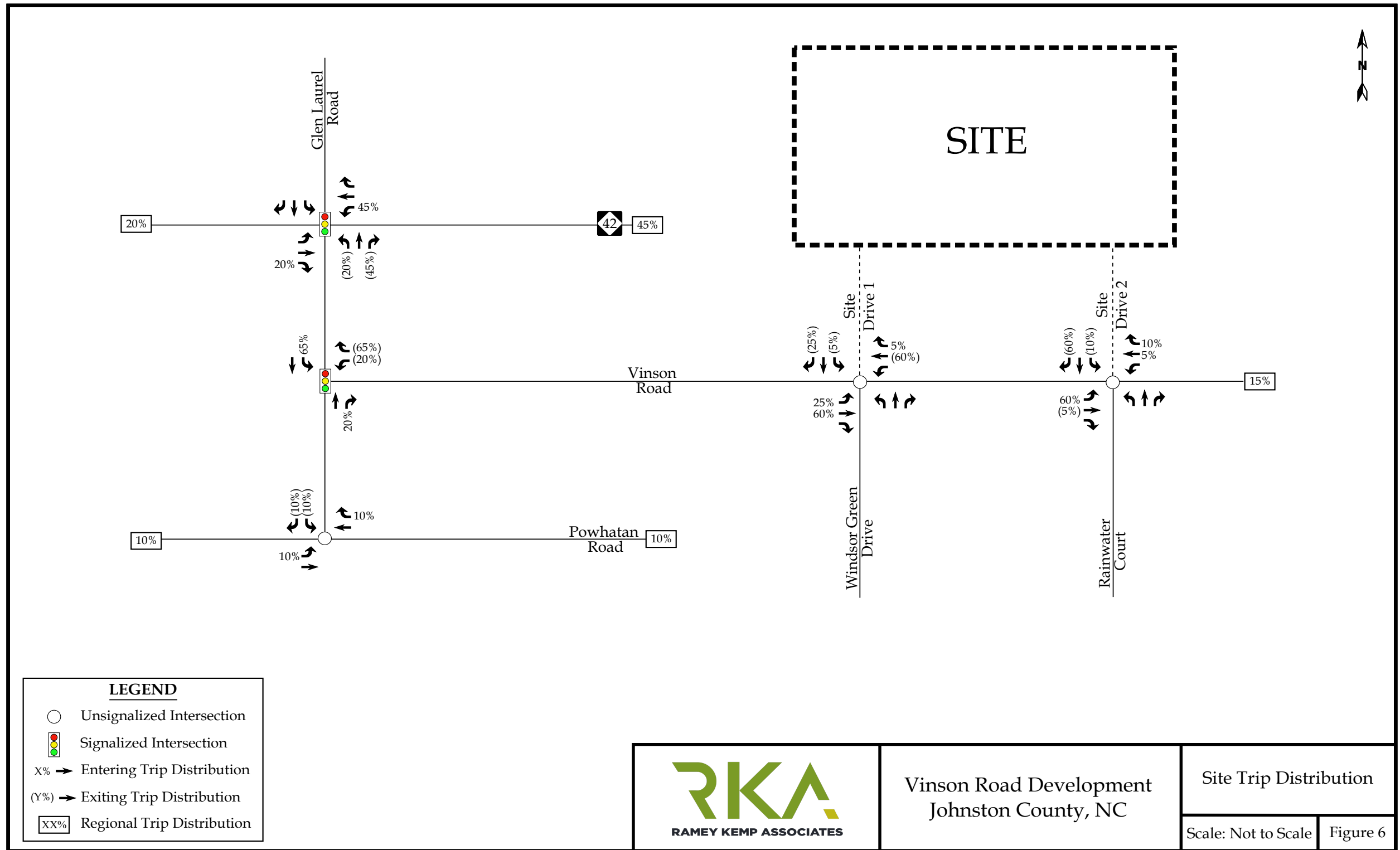
Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment.

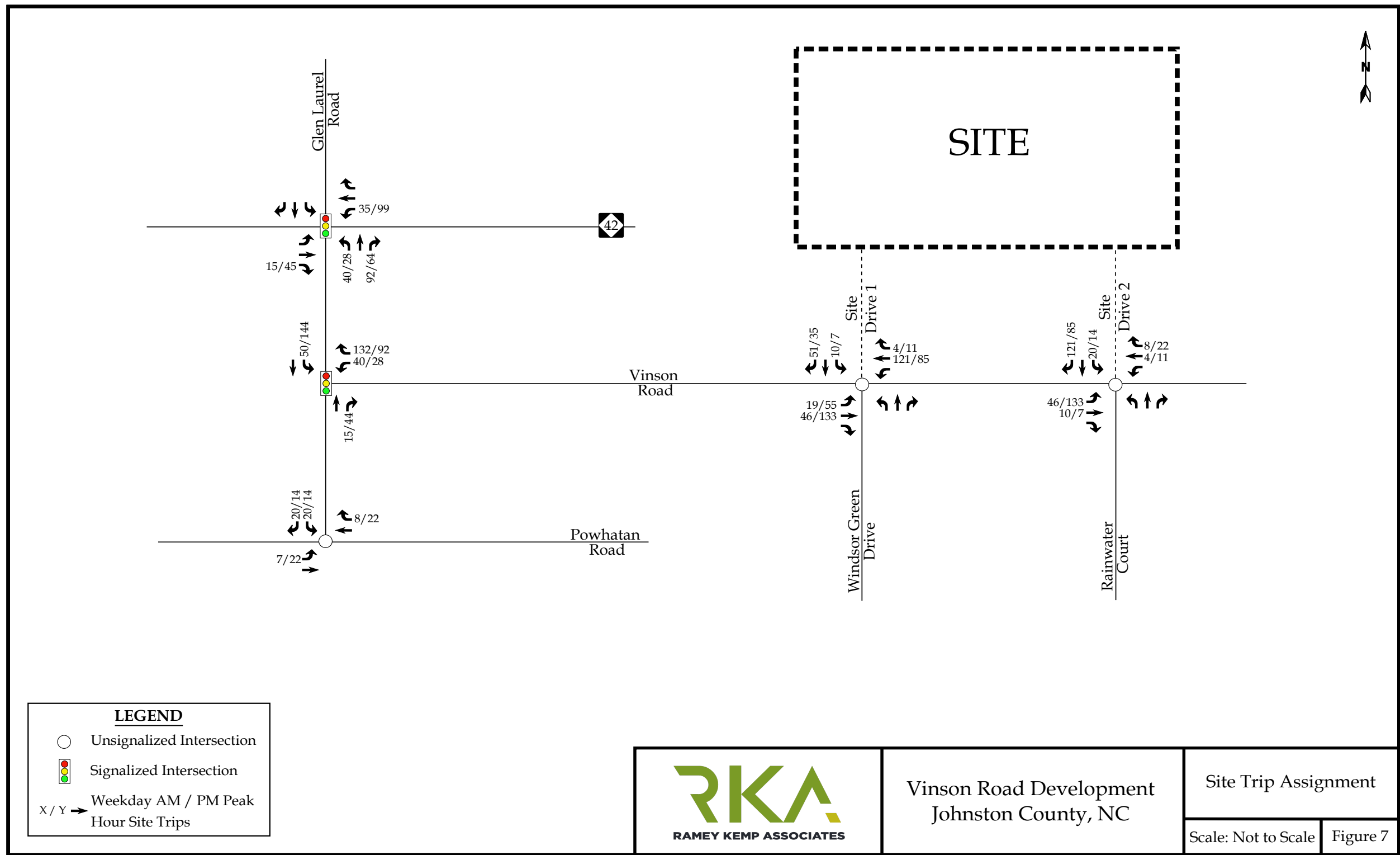
It is estimated that the site trips will be regionally distributed as follows:

- 45% to/from the east via NC 42
- 20% to/from the west via NC 42

- 15% to/from the east via Vinson Road
- 10% to/from the east via Powhatan Road
- 10% to/from the west via Powhatan Road

The site trip distribution is shown in Figure 6 and the site trip assignment is shown in Figure 7.





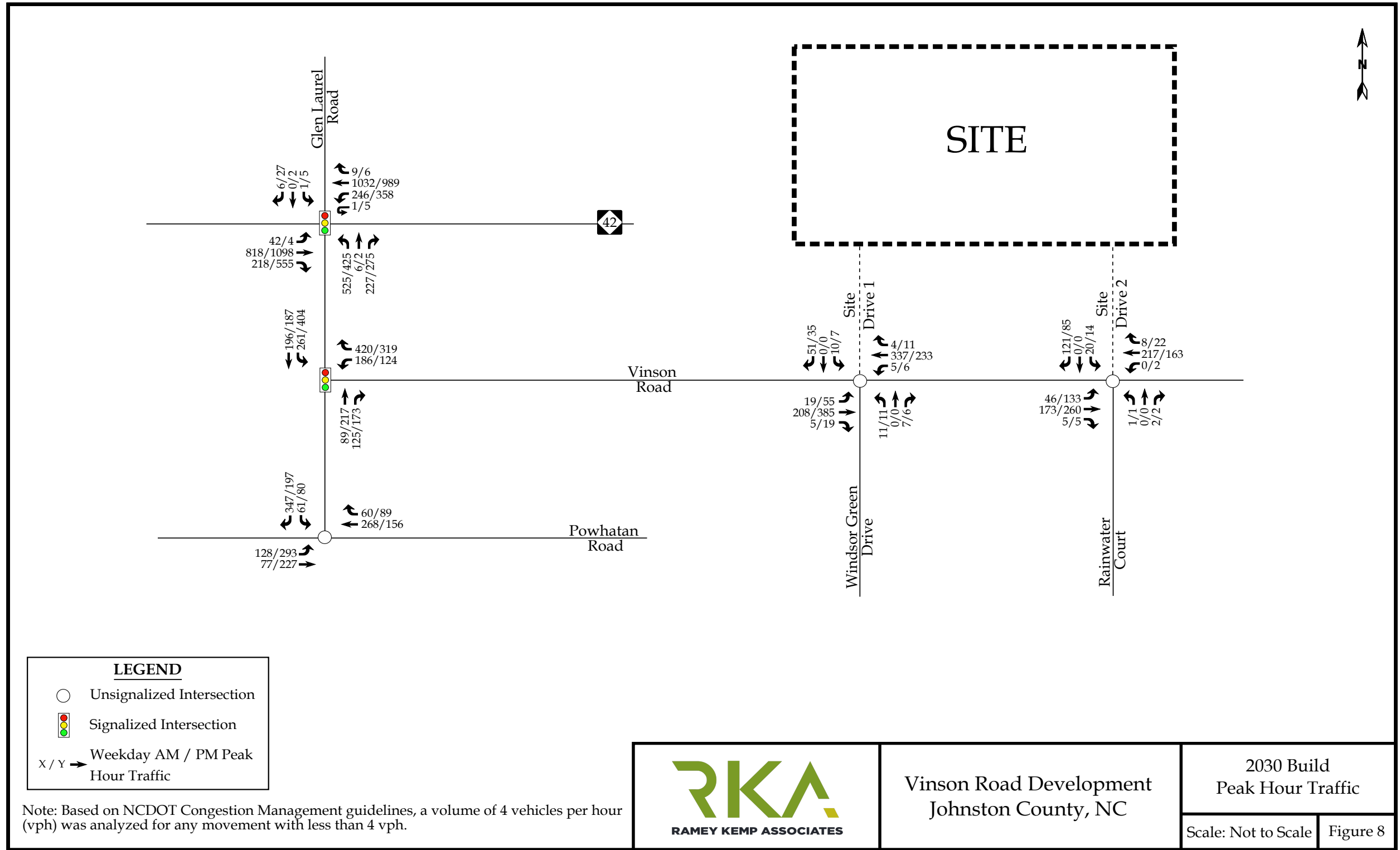
5. 2030 BUILD TRAFFIC CONDITIONS

5.1. 2030 Build Peak Hour Traffic Volumes

To estimate traffic conditions with the site fully built-out, the total site trips were added to the 2030 no-build traffic volumes to determine the 2030 build traffic volumes. Refer to Figure 8 for an illustration of the 2030 build peak hour traffic volumes with the proposed site fully developed.

5.2. Analysis of 2030 Build Peak Hour Traffic Conditions

Study intersections were analyzed with the 2030 build traffic volumes using the same methodology previously discussed for existing and no-build traffic conditions. Intersections were analyzed with improvements necessary to accommodate future traffic volumes. The results of the capacity analysis for each intersection are presented in Section 7 of this report.



6. TRAFFIC ANALYSIS PROCEDURE

Study intersections were analyzed using the methodology outlined in the *Highway Capacity Manual* (HCM), 6th Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 10.3), was used to complete the analyses for the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.” Level of service (LOS) is a term used to represent different driving conditions and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers.” Level of service varies from Level “A” representing free flow, to Level “F” where breakdown conditions are evident. Refer to Table 3 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay”. An average control delay of 50 seconds at a signalized intersection results in LOS “D” operation at the intersection.

Table 3: Highway Capacity Manual – Levels-of-Service and Delay

UNSIGNALIZED INTERSECTION		SIGNALIZED INTERSECTION	
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)
A	0-10	A	0-10
B	10-15	B	10-20
C	15-25	C	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

6.1. Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to the Town’s UDC (Unified Development Code) and NCDOT Congestion Management Guidelines.

7. CAPACITY ANALYSIS

7.1. NC 42 and Glen Laurel Road

The existing signalized intersection of NC 42 and Glen Laurel Road was analyzed under 2022 existing, 2030 no-build, and 2030 build traffic conditions with the lane configurations and traffic control shown in Table 4. Refer to Table 4 for a summary of the analysis results. Refer to Appendix C for the Synchro capacity analysis reports and Appendix H for the SimTraffic queuing reports.

Table 4: Analysis Summary of NC 42 and Glen Laurel Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB	1 LT, 2 TH, 1 RT	C		C	
	WB	1 LT, 1 TH, 1 TH-RT	B		B	
	NB	1 LT, 1 LT-TH, 1 RT	D		D	
	SB	1 LT-TH, 1 RT	D	(27)	D	(28)
2030 No-Build	EB	1 LT, 2 TH, 1 RT	C		D	
	WB	1 LT, 1 TH, 1 TH-RT	C		C	
	NB	1 LT, 1 LT-TH, 1 RT	D		D	
	SB	1 LT-TH, 1 RT	D	(31)	D	(33)
2030 Build	EB	1 LT, 2 TH, 1 RT	C		D	
	WB	1 LT, 1 TH, 1 TH-RT	C		C	
	NB	1 LT, 1 LT-TH, 1 RT	D		D	
	SB	1 LT-TH, 1 RT	D	(33)	D	(40)
2030 Build with Improvements*	EB	1 LT, 2 TH, 1 RT	C		D	
	WB	1 LT, 1 TH, 1 TH-RT	C		C	
	NB	1 LT, 1 LT-TH, 1 RT	D		D	
	SB	1 LT-TH, 1 RT	D	(31)	D	(35)

Improvements by the developer are shown in bold.

*Signal phasing (eastbound overlap) and timing modifications.

Capacity analysis of 2022 existing, 2030 no-build, and 2030 build traffic conditions indicates the intersection of NC 42 and Glen Laurel Road is expected to operate at an overall LOS C during the weekday AM peak hour and LOS D or better during the weekday PM peak hour. Based on SimTraffic queuing reports, the eastbound right-turn lane is expected to exceed the existing storage provided; therefore, signal phasing and timing modifications were

considered. Signal phasing and timing modifications in the form of an overlap phase for the eastbound right-turn movement were analyzed. With this signal phasing and timing modification, under 2030 build with improvements traffic conditions, this intersection is expected to operate at an overall LOS C during the weekday AM and PM peak hours. All approaches are expected to operate at LOS D or better during the weekday AM and PM peak hours. Based on SimTraffic simulations, this signal modifications are expected to reduce queuing on the eastbound approach. Additionally, it is expected that many drivers will utilize right-turn on-red (RTOR) which is expected to decrease queuing lengths and improve overall delays at this intersection. It is recommended that the development coordinate with NCDOT to develop a signal modification plan at this intersection.

7.2. Glen Laurel Road and Vinson Road

The existing unsignalized intersection of Glen Laurel Road and Vinson Road was analyzed under 2022 existing, 2030 no-build, and 2030 build traffic conditions with the lane configurations and traffic control shown in Table 5. Based on coordination with NCDOT, this intersection is funded for signal by or before the build-out of this development; therefore, this intersection was analyzed as a signalized intersection under 2030 no-build and 2030 build traffic conditions. Refer to Table 5 for a summary of the analysis results. Refer to Appendix D for the Synchro capacity analysis reports and Appendix H for the SimTraffic queuing reports.

Table 5: Analysis Summary of Glen Laurel Road and Vinson Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	D ² A ¹ --	N/A	D ² A ¹ --	N/A
2030 No-Build Permitted	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	C B C	C (23)	C A C	C (25)
2030 No-Build Split	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	D D D	D (45)	E D D	D (50)
2030 Build Permitted	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	D B D	D (44)	F A F	F (92)
2030 Build Split	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	E E E	E (72)	F F F	F (103)
2030 Build with Improvements	WB NB SB	1 LT-RT 1 TH, 1 RT 1 LT, 1 TH	C C D	C (32)	D D D	D (45)

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Permitted Phasing is shown in **green**.

Split Phasing is shown in **blue**.

Improvements by the developer are shown in **bold**.

Capacity analysis of 2022 existing traffic conditions indicates the minor-street approach is expected to operate at LOS D and the major-street left-turn movement is expected to operate

at LOS A during the weekday AM and PM peak hours. Based on coordination with NCDOT, this intersection is funded for a signal by or before the build-out of this development; therefore, under 2030 no-build and 2030 build traffic conditions, the intersection was analyzed as a signalized intersection under permitted and split phasing. It should be noted that the southbound left-turn / through movement along Glen Laurel Road was analyzed with split phasing, per NCDOT Congestion Management guidelines. Split phasing was used for both peak hours for conservative analysis even though the cross-product rule was not met for the weekday AM peak hour under 2030 no-build traffic conditions. The intersection is expected to operate at an overall LOS D during the weekday AM and PM peak hours under 2030 no-build permitted traffic conditions. The intersection is expected to operate at an overall LOS D during the weekday AM peak hour and an overall LOS F during the weekday PM peak hour under 2030 no-build split and 2030 build permitted traffic conditions. Under 2030 build split traffic conditions, the intersection is expected to operate at an overall LOS E during the weekday AM peak hour and an overall LOS F during the weekday PM peak hour.

Due to failing levels of service during the weekday PM peak hour under 2030 no-build and 2030 build traffic conditions geometric improvements were considered. Based on the SimTraffic simulations and capacity of the intersection, an exclusive southbound left-turn lane and northbound right-turn lane are recommended. A southbound left-turn lane with 425 feet of full width storage and a northbound right-turn lane with 275 feet of full width storage are recommended at this intersection if right-of way is available.

Under 2030 build with improvements traffic conditions, the intersection is expected to operate at an overall LOS C during the weekday AM peak hour and an overall LOS D during the weekday PM peak hour.

7.3. Glen Laurel Road and Powhatan Road

The existing unsignalized intersection of Glen Laurel Road and Powhatan Road was analyzed under 2022 existing, 2030 no-build, and 2030 build traffic conditions with the lane configurations and traffic control shown in Table 6. Refer to Table 6 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports and Appendix H for the SimTraffic queuing reports.

Table 6: Analysis Summary of Glen Laurel Road and Powhatan Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB	1 LT, 1 TH	A ¹	N/A	A ¹	N/A
	WB	1 TH-RT	--		--	
	SB	1 LT-RT	B ²		B ²	
2030 No-Build	EB	1 LT, 1 TH	A ¹	N/A	A ¹	N/A
	WB	1 TH-RT	--		--	
	SB	1 LT-RT	C ²		C ²	
2030 Build	EB	1 LT, 1 TH	A ¹	N/A	A ¹	N/A
	WB	1 TH-RT	--		--	
	SB	1 LT-RT	C ²		C ²	

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Capacity analysis of 2022 existing, 2030 no-build, and 2030 build traffic conditions indicates the minor-street movement and major-street left-turn movement are expected to operate at LOS C or better during the weekday AM and PM peak hours. Based on SimTraffic queuing reports, existing storages are expected to accommodate future traffic volumes.

Due to acceptable levels of service and existing storages accommodating future traffic volumes, no improvements are recommended at this intersection by the developer.

7.4. Vinson Road and Windsor Green Drive / Site Drive 1

The existing unsignalized intersection of Vinson Road and Windsor Green Drive was analyzed under 2022 existing, 2030 no-build, and 2030 build traffic conditions with the lane configurations and traffic control shown in Table 7. Refer to Table 7 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports and Appendix H for the SimTraffic queuing reports.

Table 7: Analysis Summary of Vinson Road and Windsor Green Drive / Site Drive 1

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB	1 TH-RT	--	N/A	--	N/A
	WB	1 LT-TH	A ¹		A ¹	
	NB	1 LT-RT	B ²		B ²	
2030 No-Build	EB	1 TH-RT	--	N/A	--	N/A
	WB	1 LT-TH	A ¹		A ¹	
	NB	1 LT-RT	B ²		B ²	
2030 Build	EB	1 LT, 1 TH-RT	A ¹	N/A	A ¹	N/A
	WB	1 LT-TH-RT	A ¹		A ¹	
	NB	1 LT-TH-RT	B ²		C ²	
	SB	1 LT-TH-RT	B ²		B ²	

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Improvements by the developer are shown in bold.

Capacity analysis of 2022 existing 2030 no-build, 2030 build traffic conditions indicate the major-street left-turn movements and minor-street approaches of Vinson Road and Windsor Green Drive / Site Drive 1 are expected to operate at LOS C or better during the weekday AM and PM peak hours.

Exclusive left- and right-turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. An exclusive eastbound left-turn lane is recommended with at least 50 feet of full width storage with appropriate deceleration and taper.

7.5. Vinson Road and Rainwater Court / Site Drive 2

The existing unsignalized intersection of Vinson Road and Rainwater Court was analyzed under 2022 existing, 2030 no-build, and 2030 build traffic conditions with existing lane configurations and traffic control shown in Table 8. Refer to Table 8 for a summary of the analysis results. Refer to Appendix G for the Synchro capacity analysis reports and Appendix H for the SimTraffic queuing reports.

Table 8: Analysis Summary of Vinson Road and Rainwater Court / Site Drive 2

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB	1 TH-RT	--	N/A	--	N/A
	WB	1 LT-TH	A ¹		A ¹	
	NB	1 LT-RT	A ²		B ²	
2030 No-Build	EB	1 TH-RT	--	N/A	--	N/A
	WB	1 LT-TH	A ¹		A ¹	
	NB	1 LT-RT	B ²		B ²	
2030 Build	EB	1 LT , 1 TH-RT	A ¹	N/A	A ¹	N/A
	WB	1 LT-TH- RT	A ¹		A ¹	
	NB	1 LT-TH-RT	B ²		C ²	
	SB	1 LT-TH-RT	B ²		B ²	

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Improvements by the developer are shown in bold.

Capacity analysis of 2022 existing 2030 no-build, 2030 build traffic conditions indicate the major-street left-turn movements and minor-street approaches of Vinson Road and Rainwater Court / Site Drive 2 are expected to operate at LOS C or better during the weekday AM and PM peak hours.

Exclusive left- and right-turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. An exclusive eastbound left-turn lane is recommended with at least 100 feet of full width storage with appropriate deceleration and taper.

8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed development, west of Hidden Valley Drive and north of Vinson Road in Clayton, North Carolina. The proposed development is expected to be a residential development and be built out in 2030. Site access is proposed via two (2) full movement driveways along Vinson Road. The full movement driveways along Vinson Road are expected to align with Windsor Green Drive and Rainwater Court. It should be noted that interconnectivity is expected to the development to the south via High Chaparral Drive; however, this interconnectivity was not considered as part of this TIA and is expected to provide conservative results at the main access points.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- 2022 Existing Traffic Conditions
- 2030 No-Build Traffic Conditions
- 2030 Build Traffic Conditions

Trip Generation

It is estimated that the proposed development will generate approximately 3,937 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic, it is estimated that the proposed development will generate approximately 279 trips (77 entering and 202 exiting) will occur during the weekday AM peak hour and 362 trips (221 entering and 141 exiting) will occur during the weekday PM peak hour.

Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to NCDOT Congestion Management Guidelines. Refer to section 6.1 of this report for a detailed description of any adjustments to these guidelines made throughout the analysis.

Intersection Capacity Analysis Summary

All the study area intersections (including the proposed site driveways) are expected to operate at acceptable levels-of-service under existing and future year conditions with the exception of the intersections listed below. A summary of the study area intersections that are expected to need improvements are as follows:

NC 42 and Glen Laurel Road

Based on SimTraffic queuing reports, the eastbound right-turn lane is expected to exceed the existing storage provided; therefore, signal phasing and timing modifications were considered. Signal phasing and timing modifications in the form of an overlap phase for the eastbound right-turn movement were analyzed. With this signal phasing and timing modification, under 2030 build with improvements traffic conditions, this intersection is expected to operate at an overall LOS C during the weekday AM and PM peak hours. All approaches are expected to operate at LOS D or better during the weekday AM and PM peak hours. Based on SimTraffic simulations, this signal modifications are expected to reduce queuing on the eastbound approach. Additionally, it is expected that many drivers will utilize right-turn on-red (RTOR) which is expected to decrease queuing lengths and improve overall delays at this intersection. It is recommended that the development coordinate with NCDOT to develop a signal modification plan at this intersection.

Glen Laurel Road and Vinson Road

Due to failing levels of service during the weekday PM peak hour under 2030 no-build and 2030 build traffic conditions geometric improvements were considered. Based on the SimTraffic simulations and capacity of the intersection, an exclusive southbound left-turn lane and northbound right-turn lane are recommended. A southbound left-turn lane with 425 feet of full width storage and a northbound right-turn lane with 275 feet of full width storage are recommended at this intersection. Under 2030 build with improvements traffic conditions, the intersection is expected to operate at an overall LOS C during the weekday AM peak hour and an overall LOS D during the weekday PM peak hour.

Vinson Road and Windsor Green Drive / Site Drive 1

Capacity analysis of 2022 existing 2030 no-build, 2030 build traffic conditions indicate the major-street left-turn movements and minor-street approaches of Vinson Road and Windsor Green Drive / Site Drive 1 are expected to operate at LOS C or better during the weekday AM and PM peak hours. Exclusive left- and right-turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. An exclusive eastbound left-turn lane is recommended with at least 50 feet of full width storage with appropriate deceleration and taper.

Vinson Road and Rainwater Court / Site Drive 2

Capacity analysis of 2022 existing 2030 no-build, 2030 build traffic conditions indicate the major-street left-turn movements and minor-street approaches of Vinson Road and Rainwater Court / Site Drive 2 are expected to operate at LOS C or better during the weekday AM and PM peak hours. Exclusive left- and right-turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. An exclusive eastbound left-turn lane is recommended with at least 100 feet of full width storage with appropriate deceleration and taper.

9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 9 for an illustration of the recommended lane configuration for the proposed development.

Improvements by NCDOT

Glen Laurel Road and Vinson Road

- Install a traffic signal.

Recommended Improvements by Developer

NC 42 and Glen Laurel Road

- Coordinate with NCDOT to develop a signal modification plan to allow for an eastbound right-turn overlap phase.

Glen Laurel Road and Vinson Road

- Provide an exclusive southbound left-turn lane with at least 425 feet of full width storage with appropriate deceleration and taper if right-of-way is available.
- Provide an exclusive northbound right-turn lane with at least 275 feet of full width storage with appropriate deceleration and taper if right-of-way is available.

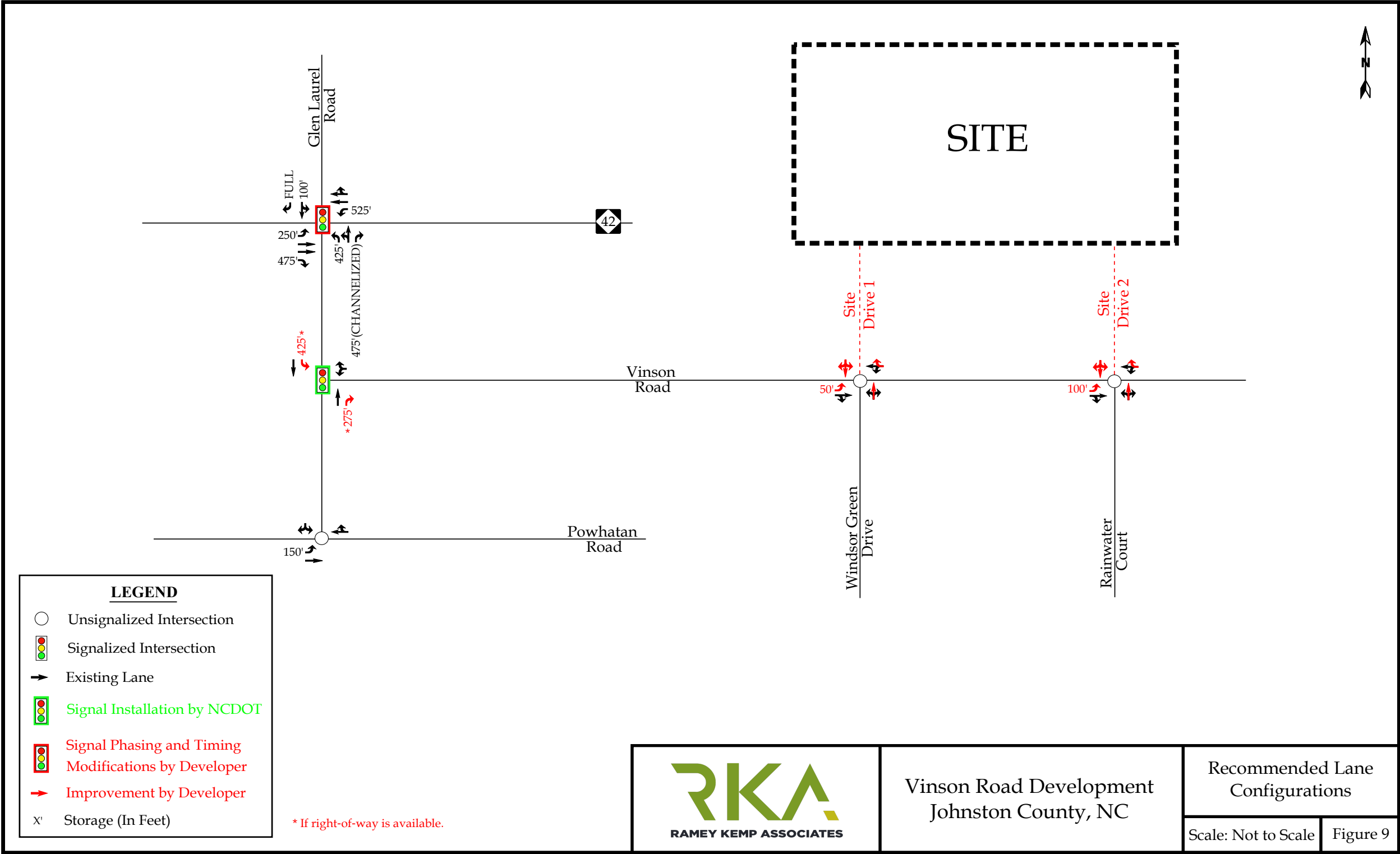
Vinson Road and Windsor Green Drive / Site Drive 1

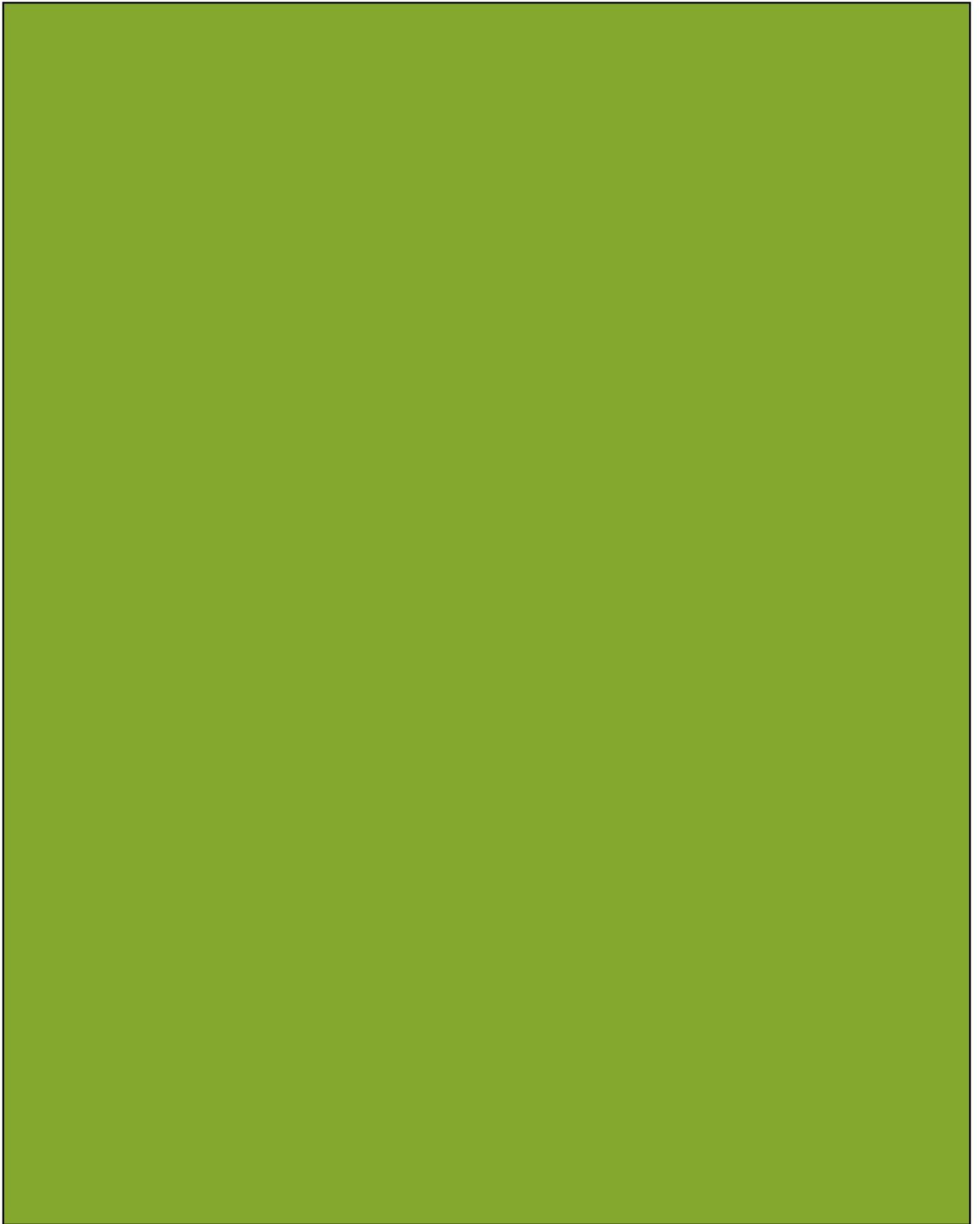
- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 50 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).

Vinson Road and Rainwater Court / Site Drive 2

- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.

- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).







STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

DELIVERY VIA EMAIL

November 29, 2022

Jonathan K. Jacobs, PE
Assistant Town Engineer - Town of Clayton
111 E. Second Street
Clayton, NC 27528

COUNTY: Johnston

SUBJECT: **TIA Review of Proposed Vinson Road Development**

Dear Mr. Jacobs,

Highway Division Four (Division) has reviewed the Traffic Impact Analysis (TIA) for the subject development. Please accept this letter as concurrence with the TIA and the attached TIA Review Report performed by the Congestion Management Section of the Transportation Mobility and Safety Division of NCDOT. Any comments below are in addition to the requirements that are included in the actual TIA or Traffic Impact Analysis Review. All requirements or recommendations included herein are based off current Department and Division policies. This review should not be mistaken for approval of the driveway permit, design/construction plans, final plat, site plans, or access locations. A driveway permit must be obtained prior to construction and NCDOT will approve site plan and access locations during this review. All design aspects of any submitted plans shall comply with current NCDOT Standard Specifications for Roads and Structures and Policy on Street and Driveway Access to North Carolina Highways.

GENERAL COMMENTS

- Any roadway improvements and right-of-way dedication necessary to accommodate the road construction shall be the responsibility of the owner/developers. All required ROW shall be dedicated as public ROW in the final plat. Installation of right turn lanes will typically require at least 15' of dedication.
- Lane Closures for required improvement construction will only be permitted under restricted hours due to heavy traffic volumes in the vicinity of the proposed development. These restrictions will be determined during the driveway permitting application and approval.
- These conditions are based on current traffic volumes and projected growth for the study area. If the proposed build out year for this development, as stated in the TIA, varies more than one year an addendum or revised TIA may be required.
- Improvements being identified by a TIA for an adjacent development does not dismiss or release this development from installation and/or participation of these improvements. It

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS | DIV. 4 DIST. 3
2671 US 70 WEST
GOLDSBORO, NC 27530

Telephone: (919) 739-5300
Fax: (919) 731-2017
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
2671 US 70 WEST
GOLDSBORO, NC 26730

is recommended that the Developers coordinate this installation with other committed developments. The Department will not participate in determining the value of each individual contribution to this roadway improvement.

- Any additional improvements that are constructed after the completion of this TIA must be maintained while constructing the improvements required by this letter.

Additional Requirements

- All driveways for this site on NCDOT ROW must be spaced 600' on secondary and 1,000' on primary routes. This is measured along the ROW line between the tangent projection of the inside edges of adjacent driveways apart measuring the distance between the radiuses of both driveways.
- All left and right turns installed on NCDOT ROW at will required a minimum of 100' of storage if located at a site driveway. If any left turn lane taper overlaps with any existing or proposed middle turn lane or taper, the entire section will need to be widened to three lanes.

Feel free to contact me if you have any additional questions or concerns.

Sincerely,



Sam Lawhorn, PE
District Engineer

cc: Keith Eason, PE - Division Engineer
Paul Marak, PE - Division Traffic Engineer
Charles Sorrell - Congestion Management Engineer
Caroline Cheeves, PE – Ramey Kemp
Driveway Permit File



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

November 29, 2022

Vinson Road Development

Traffic Impact Analysis Review Report Congestion Management Section

TIA Project: SC-2022-332
Division: 4
County: Johnston



Clarence B. Bunting, IV, P.E. Regional Engineer
Charles Sorrell, Project Design Engineer

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION MOBILITY & SAFETY DIVISION
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Website: www.ncdot.gov

Location:
750 N. GREENFIELD PARKWAY
GARNER, NC 27529

Vinson Road Development TIA

SC-2022-332

Clayton

Johnston County

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Date Initially Received by CMS	11/10/22	Date of Site Plan	6/28/22
Date of Complete Information	11/10/22	Date of Sealed TIA	11/10/22

Proposed Development

The TIA assumes the development is to be completed by 2030 and consist of the following:

Land Use	Land Use Code	Size
Single Family Detached Housing	210	255 units
Single Family Attached Housing	215	210 units

Trip Generation - Unadjusted Volumes During a Typical Weekday			
	IN	OUT	TOTAL
AM Peak Hour	77	202	279
PM Peak Hour	221	141	362
Daily Trips			3,937

General Reference

For reference to various documents applicable to this review please reference the following link: <https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx>

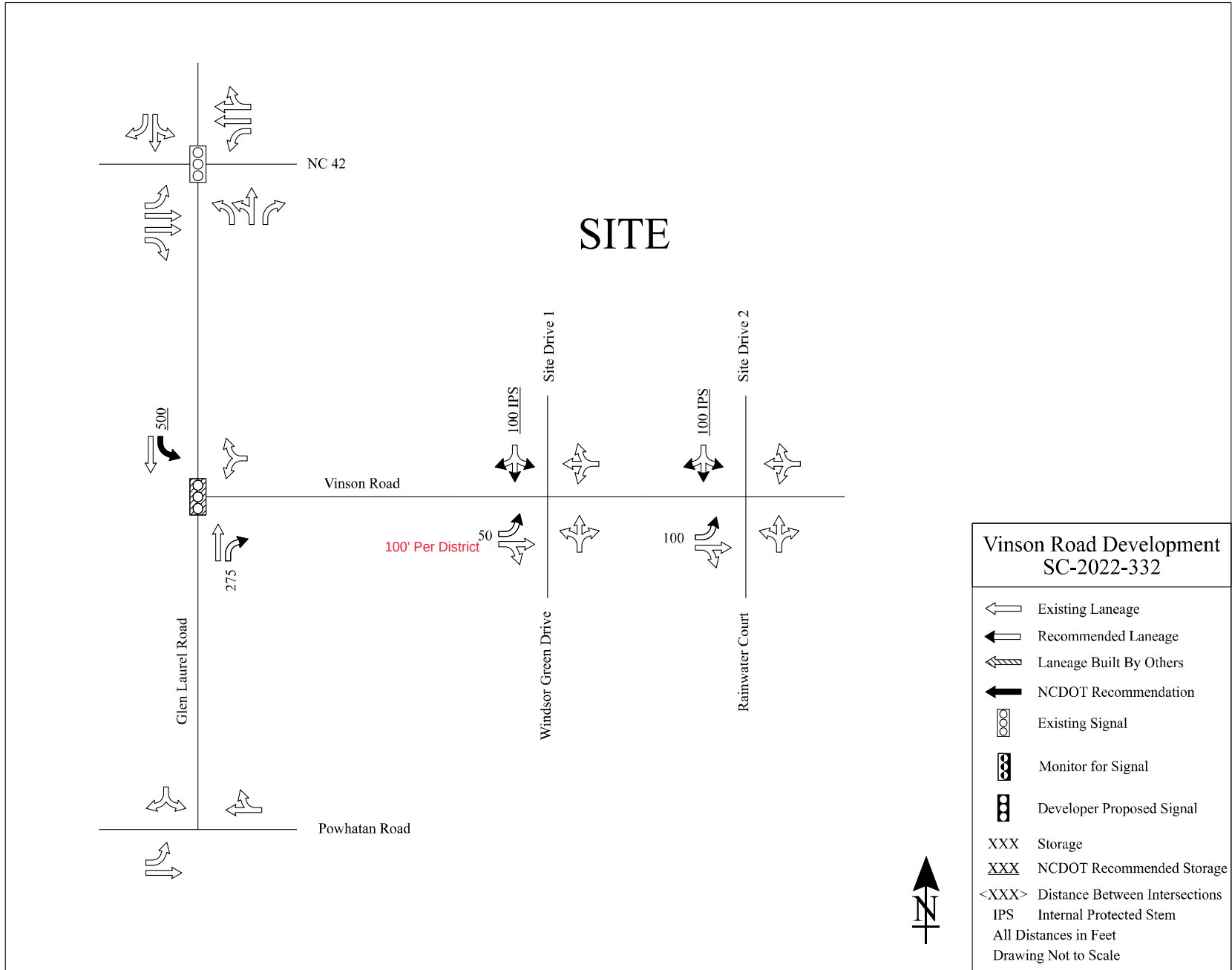
Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.

Signalization

We defer to the District Engineer, the Division Traffic Engineer, and the Regional Traffic Engineer for final decisions regarding signalization.

Improvements By Others

The analysis includes background improvements by others. If these improvements are not in place at the time of construction, the site should provide these improvements or analysis demonstrating mitigation is not necessary.



TECHNICAL APPENDIX

APPENDIX A

SCOPING DOCUMENTATION



NCDOT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need
Screening



TIA
Scoping



TIA
Submittal



A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Name: Vinson Road Development **Previous Name:** If Applicable _____

Location: West of HiddenValleyDr& North of VinsonRd **County:** Johnston **Municipality:** Clayton

Project Description: Residential development consisting of 210 townhomes and 255 single-family homes. Site access is proposed via 2 full movement drives along Vinson Road & interconnectivity through the res dev to the east

Project Contact:	Applicant	TIA Consultant
Company Name	Hopper Communities	Ramey Kemp & Associates, Inc.
Contact Person	Bill Harrell	Caroline Cheeves, PE
Phone Number	919-618-9929	919-872-5115
Email	Bharrell@hoppercommunities.com	ccheeves@rameykemp.com
Mailing Address	2403 Medway Drive Raleigh, NC 27608	5808 Faringdon Place, Suite 100 Raleigh, NC 27609

Site Plan Prepared By: _____ **Site Plan Date:** 06/2022

See site plan/vicinity map requirements on page 2.

Parcel Size: 146.26 Acre(s) **Anticipated Build-Out Year:** 2030

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
210	SingleFamDetached	255	DU	2387	Adj. Street	45	130	175	151	89	240	ITE Equation
215	SingleFamAttached	210	DU	1550	Adj. Street	32	72	104	70	52	122	ITE Equation
Total		465	DU	3937		77	202	279	221	141	362	X

Refer to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#) for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used: _____

- ☒ The estimated site trips meet NCDOT's TIA trip threshold of 3,000 daily trips.
- ☒ The estimated site trips meet the municipal TIA trip threshold of 1000 daily, 100 peak hour (County)
- ☐ This project is located in a known [STIP](#) and/ or local CIP project #
- ☐ This project includes a rezoning request.
- ☐ The proposed site access is located within 1,000 feet of an interchange.
- ☐ The Applicant requests for a new or modified control-of-access break.
- ☐ The Applicant requests for a new or modified median break.

Applicant's Signature	Caroline Cheeves, PE Print Name	10/4/2022 Date
Effective Date: 10/01/2017 (Version 17-721)		Page 1 of 2



NCDOT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need
Screening



TIA
Scoping



TIA
Submittal



Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: Vinson Road Development **Project Reference Number:** 22388

☒ **A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.

☒ **A TIA is Required by NCDOT,** per the [Policy on Street and Driveway Access to North Carolina Highways](#).

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

☐ **A TIA is NOT required.** This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.

Additional Comments:

The TIA need decision is made by the NCDOT Division _____ District _____ on _____.

NCDOT District Representative's Signature
Email concurrence may be used in lieu of the signature.

Print Name

Effective Date: 10/01/2017 (Version 17-721)

Page 2 of 2



NCDOT TIA Scoping Checklist



Project Name: Vinson Road Development

TIA Scoping Date: 10/4/2022

☒ **TIA Need Screening Forms are Attached.** Project Reference #: 22388 Decision Date: _____

☒ **Site Plan and Access**

☒ Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.

Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Vinson Road	Conventional Full-Mvmt	2-Way Stop			Windsor Green Dr
Access B	Vinson Road	Conventional Full-Mvmt	2-Way Stop			Rainwater Court
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1			Please Select	Connector 1	High Chaparral Dr*	N/A
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

☐ Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

*This interconnectivity point is proposed to not be considered for the purpose of the TIA to provide conservative results at the main access points.

☐ **Proposed K-12 School Site**

☐ NCDOT [MSTA School Traffic Calculator](#) for Select School Type shall be used.

☐ Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).

☐ Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.

☐ Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).



NCDOT TIA Scoping Checklist



☒ Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
210	SingleFamDetached	255	DU	2387	Adj. Street	45	130	175	151	89	240	ITE Equation
215	SingleFamAttached	210	DU	1150	Adj. Street	32	72	104	70	52	122	ITE Equation
Unadjusted Site Trips				3937		77	202	279	221	141	362	X
Internal Capture Trips (Attach Calculation Sheets)												Please Select
Internal Capture % of Unadjusted Site Trips				%		%			%			X
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								X
		Not Applicable		%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)												X
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips												X
Diverted Trips, if Applicable and Justifiable												Please Select

**Explain local or other data sources, if used:

☐ Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												X



NCDOT TIA Scoping Checklist



☒ Trip Distribution

- ☒ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- ☐ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

It should be noted that this distribution is preliminary and may be adjusted depending on traffic data trends once we collect volumes. Any changes to the distribution will be coordinated with review agencies prior to performing analysis.

If required by the District Engineer, the following additional diagrams shall also be submitted:

- ☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- ☐ Inter-Development Trips (if 'internal' trips cross public streets)
- ☐ Pass-By Trips
- ☐ Diverted Trips
- ☐ Each Analysis Period

☐ Mode Split

- ☐ Provide Data Source and Justification

Mode Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

- ☐ Identify proper infrastructure and accommodation for other modes of travel.

☒ Analysis Peak Periods:

- ☒ Weekday AM Peak 7:00-9:00 AM
- ☒ Weekday PM Peak 4:00-6:00 PM
- ☐ Weekday Midday Peak _____
- ☐ Weekday PM School Peak _____
- ☐ Weekend _____ Peak _____
- ☐ Other _____



NCDOT TIA Scoping Checklist



☒ Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under “Site Plan and Access” on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	NC 42	Glen Laurel Road	Signal	Require New Counts			*
#2	Glen Laurel Road	Vinson Road	2-Way Stop	Require New Counts			*
#3	Glen Laurel Road	Powhatan Road	2-Way Stop	Require New Counts			*
#4	Vinson Road	Windsor Green Dr	2-Way Stop	Require New Counts			*
#5	Vinson Road	Rainwater Court	2-Way Stop	Require New Counts			*
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101			Please Select	Please Select		Please Select	
#102							
#103							
#104							
#105							

The following data will be collected:

- ☒ New traffic turning movement counts in ☐ 15-min intervals ☒ 5-min intervals (near schools)
 Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.

- ☐ To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:

intersections numbered: _____

and access points numbered: _____

- ☐ Traffic Forecast Data for TIP: _____

- ☒ Roadway/Intersection Configuration & Traffic Control

- ☐ Traffic Signal Phasing & Timing Data

- ☒ Crash Data: at study intersections Period: most recent 5 years

- ☐ Other:

*Counts will be collected when Johnston County Schools are back in session.

The intersection of Glen Laurel Road and Vinson Road will be analyzed as a signalized intersection under no-build and build traffic conditions.



NCDOT TIA Scoping Checklist

TIA Need
Screening



TIA
Scoping



TIA
Submittal



☒ Future Year Conditions

☒ Project Build-Out Year: _____ 2030

☒ Future Analysis Year(s): _____ 2032

☐ Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description		Year Complete
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

☒ Annual Growth Factor: 2 %

Justification/Data Source: Historical AADT data

☐ Local Comprehensive Transportation Plan Compliance

☐ Identify Applicable Local Transportation Planning Documents

☐ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #



NCDOT TIA Scoping Checklist



☒ Study Method

The traffic analysis shall follow the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:
- ☐ 5. TIP Design Year Analysis _____
- ☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- ☐ Signal Warrant Analysis for accesses/intersections _____
- ☐ Multi-Modal Level of Service Analysis
- ☐ School Loading Zone Traffic Simulation
- ☐ Phasing Analysis (scope separately as needed)
- ☒ Safety/Crash Analysis
- ☐ Control-of-Access Modification Justification
- ☐ Median Break / Modification Justification
- ☐ Other _____

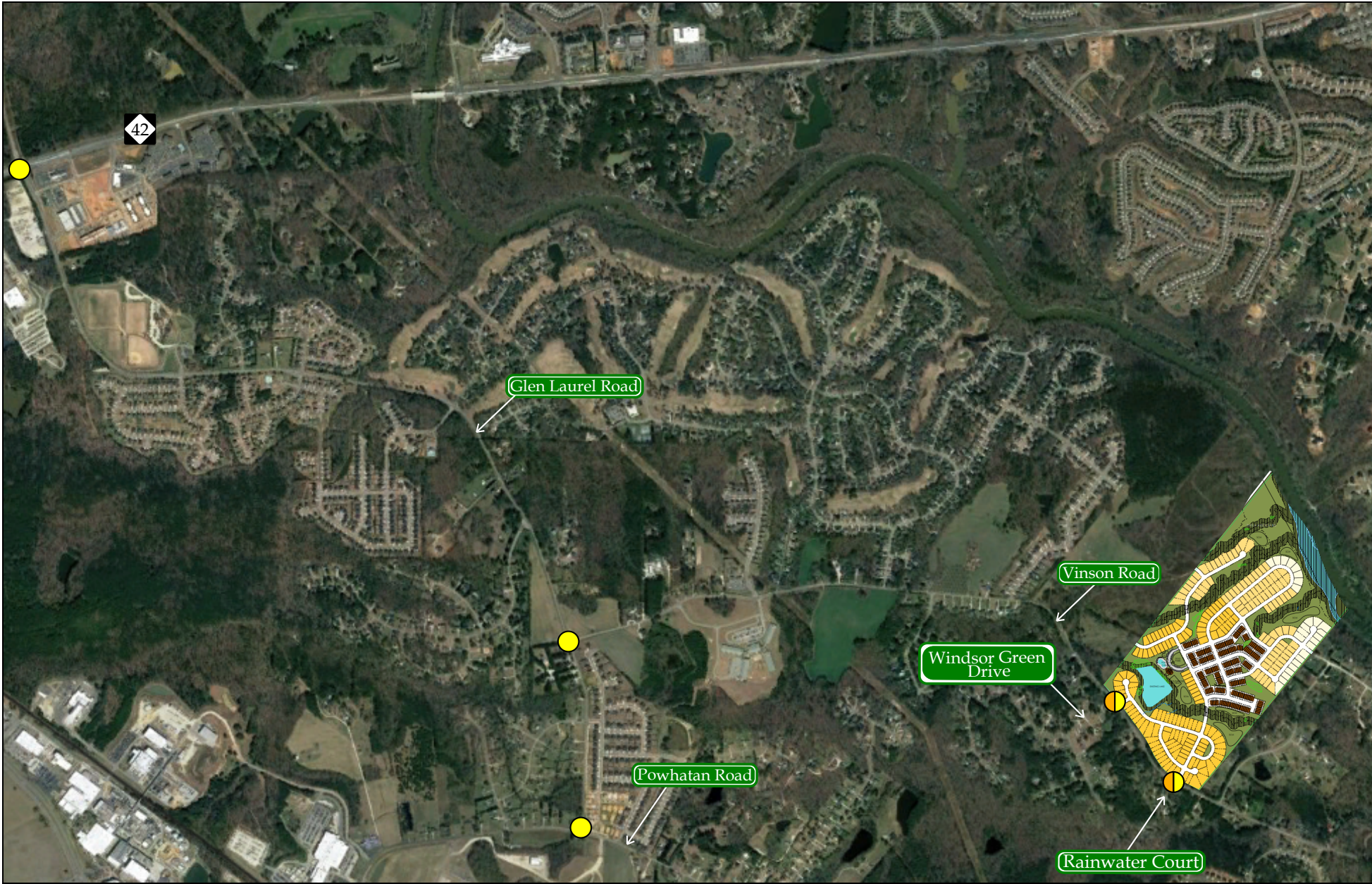
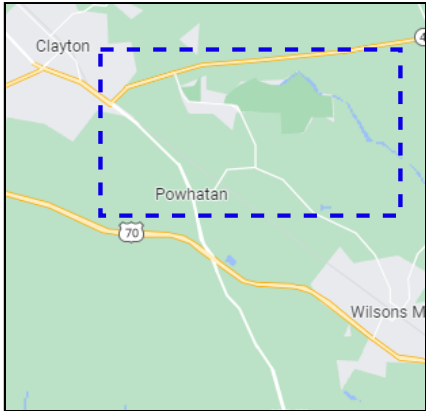
☒ Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

☐ Div. Traffic Engr ☐ Regional Traffic Engr ☐ Congestion Management ☐ Other _____

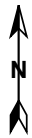
Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

☐ **Additional Comments** (municipal TIA requirements, approved variations from NCDOT guidelines)



LEGEND

- Study Intersection
- Proposed Site Access
- Study Area



RKA
RAMEY KEMP ASSOCIATES

Vinson Road Development
Johnston County, NC

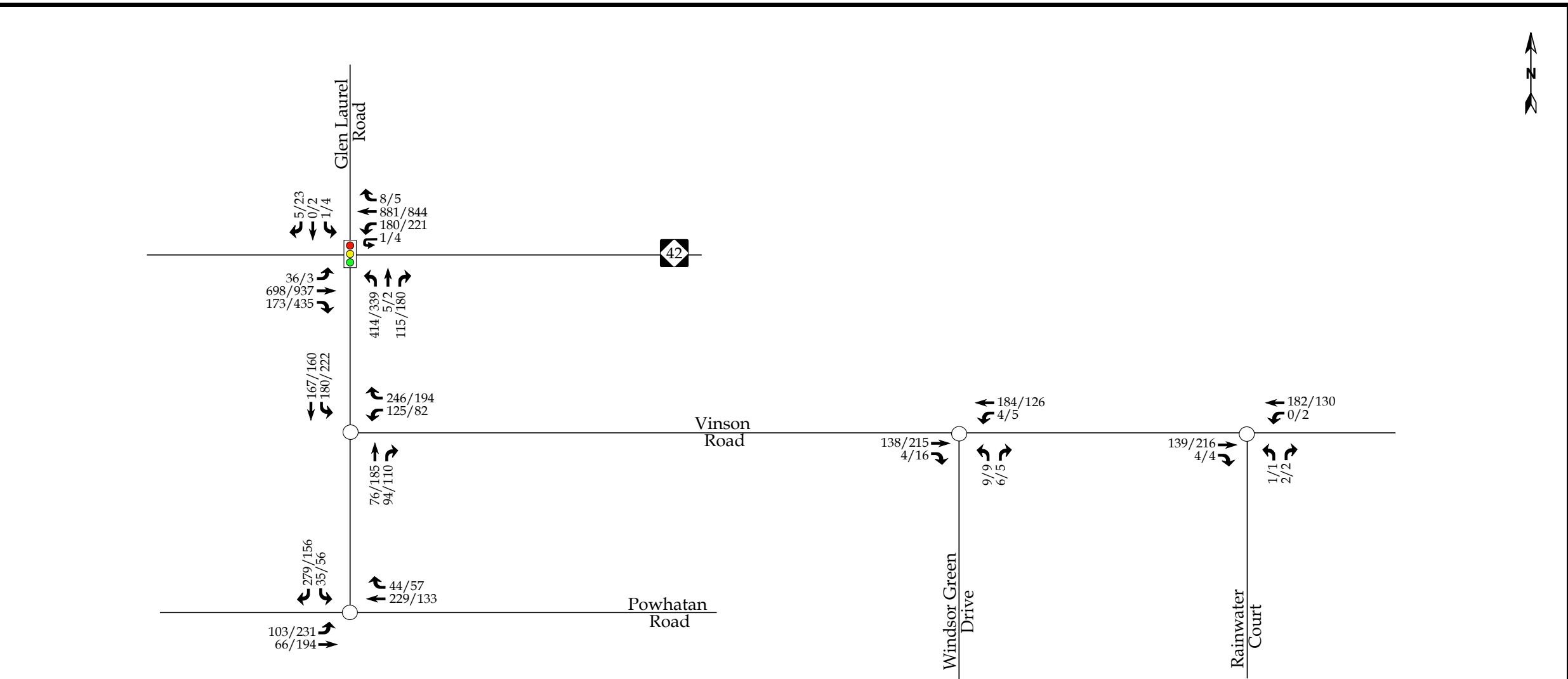
Site Location Map

Scale: Not to Scale	Figure 1
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VINSON ROAD

CONCEPTUAL SITE PLAN





LEGEND

○ Unsignalized Intersection

🚦 Signalized Intersection

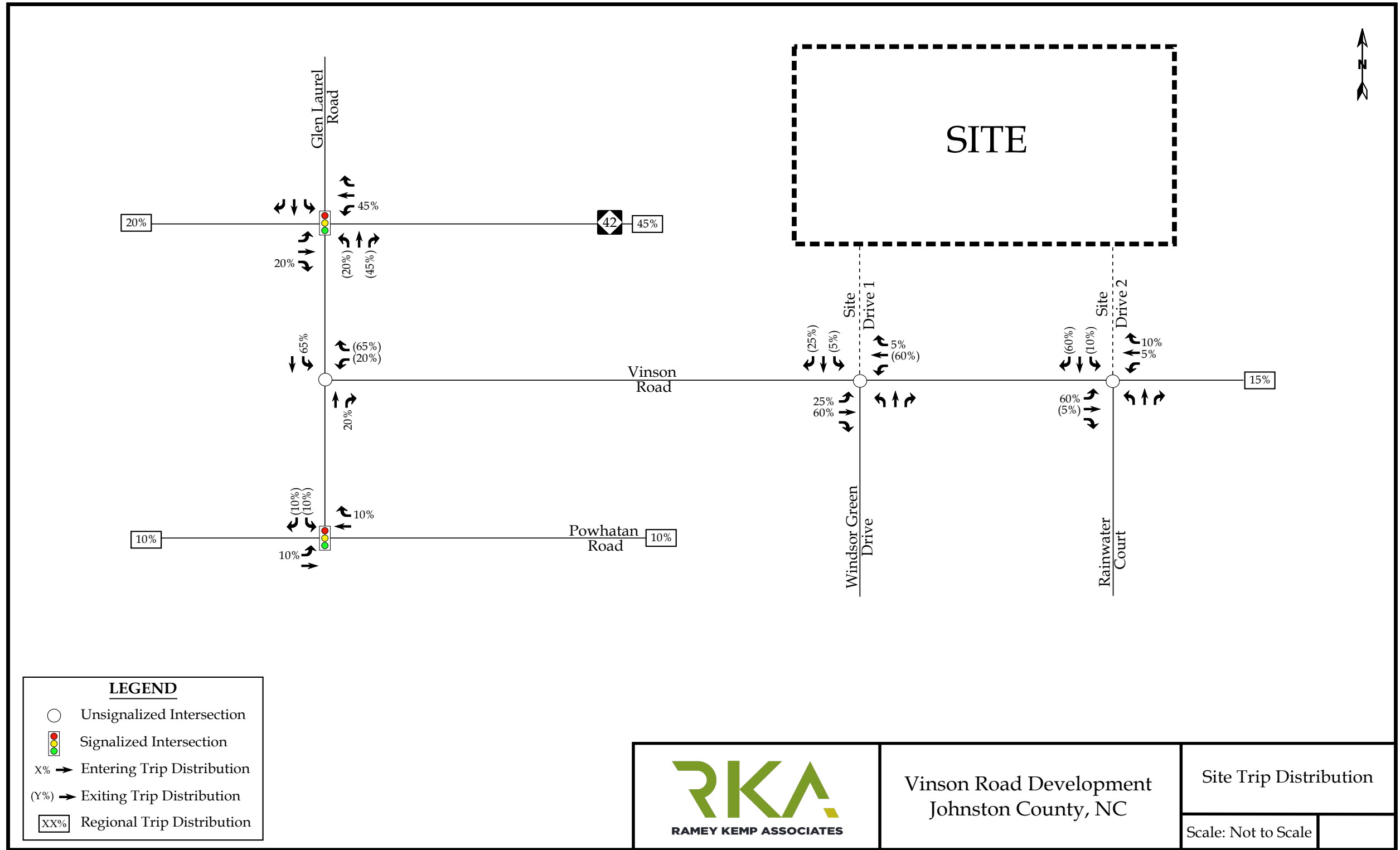
X / Y → Weekday AM / PM Peak Hour Traffic

Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.



Vinson Road Development
Johnston County, NC

2022 Existing Peak Hour Traffic	
Scale: Not to Scale	Figure 4

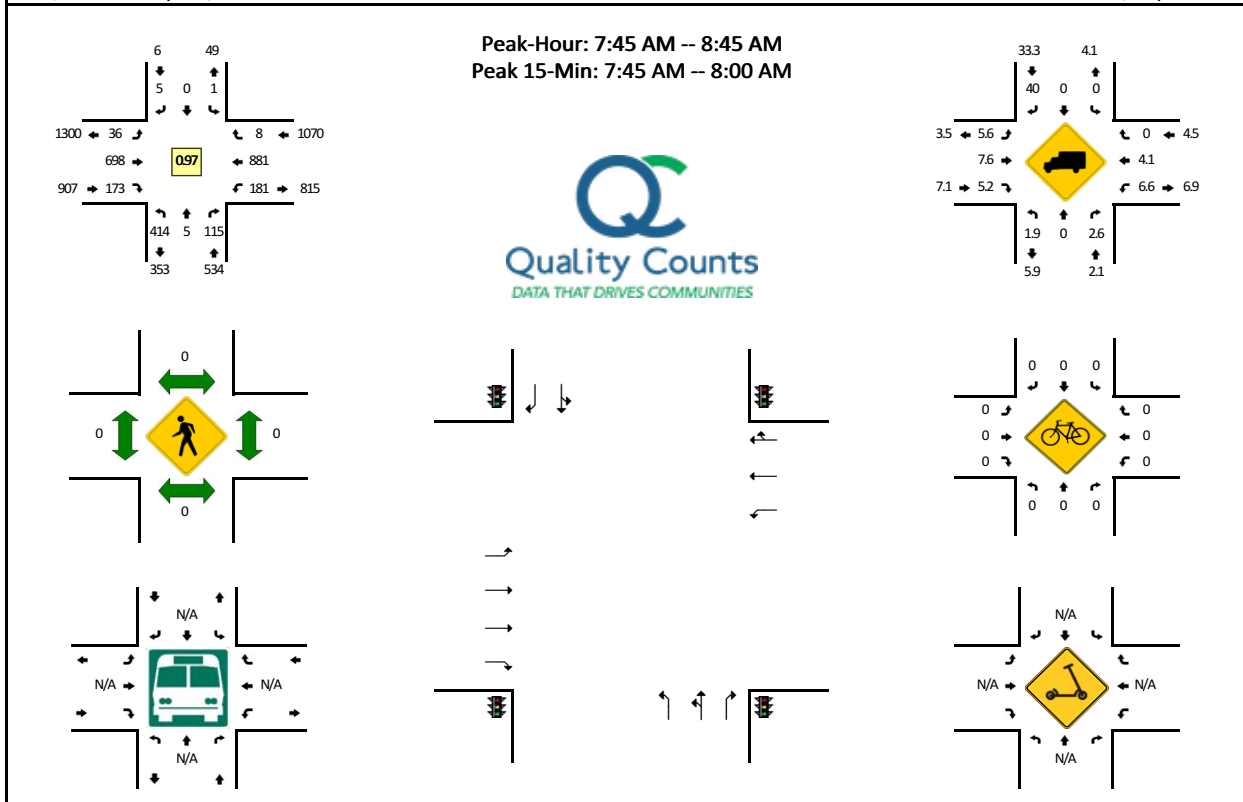


Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- State Hwy 42
CITY/STATE: Clayton, NC

QC JOB #: 15904201
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				State Hwy 42 (Eastbound)				State Hwy 42 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	55	0	5	0	0	0	0	0	2	42	8	0	3	80	0	0	195	
7:05 AM	39	1	10	0	0	0	2	0	2	38	16	0	10	85	0	0	203	
7:10 AM	23	0	13	0	0	0	1	0	2	27	13	0	11	73	0	0	163	
7:15 AM	34	0	9	0	0	0	0	0	6	60	19	0	8	95	0	0	231	
7:20 AM	42	1	13	0	0	0	0	0	2	46	9	0	7	88	0	0	208	
7:25 AM	33	1	12	0	0	0	0	0	4	32	8	0	18	87	2	0	197	
7:30 AM	53	0	16	0	0	0	0	0	6	42	19	0	17	63	0	0	216	
7:35 AM	31	2	10	0	0	0	1	0	0	33	5	1	7	92	2	0	184	
7:40 AM	34	0	11	0	0	0	0	0	3	42	11	0	18	77	0	0	196	
7:45 AM	45	1	11	0	0	0	1	0	5	75	16	0	17	68	1	0	240	
7:50 AM	43	0	11	0	0	0	0	0	3	60	14	0	15	88	0	0	234	
7:55 AM	34	1	5	0	0	0	0	0	4	34	14	0	18	62	2	0	174	2441
8:00 AM	36	1	9	0	0	0	0	0	4	61	17	0	15	71	0	0	214	2460
8:05 AM	20	0	6	0	0	0	0	0	3	67	15	0	27	76	1	0	215	2472
8:10 AM	31	0	13	0	0	0	0	0	1	62	11	0	18	67	0	0	203	2512
8:15 AM	35	1	11	0	1	0	0	0	4	58	14	0	13	66	0	0	203	2484
8:20 AM	25	0	12	0	0	0	1	0	4	65	18	0	17	85	1	0	228	2504
8:25 AM	20	1	11	0	0	0	1	0	2	53	11	0	10	71	1	1	182	2489
8:30 AM	41	0	5	0	0	0	2	0	5	55	15	0	11	71	2	0	207	2480
8:35 AM	45	0	11	0	0	0	0	0	1	40	10	0	8	76	0	0	191	2487
8:40 AM	39	0	10	0	0	0	0	0	0	68	18	0	11	80	0	0	226	2517
8:45 AM	34	0	9	0	0	0	1	0	1	68	13	0	10	78	0	0	214	2491
8:50 AM	51	0	7	0	0	0	0	0	1	65	19	1	10	83	0	0	237	2494
8:55 AM	33	0	8	0	0	0	0	0	2	32	15	0	12	79	0	0	181	2501
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	488	8	108	0	0	0	4	0	48	676	176	0	200	872	12	0	2592	
Heavy Trucks	0	0	0	0	0	0	4	0	4	28	4	0	12	32	0	0	84	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

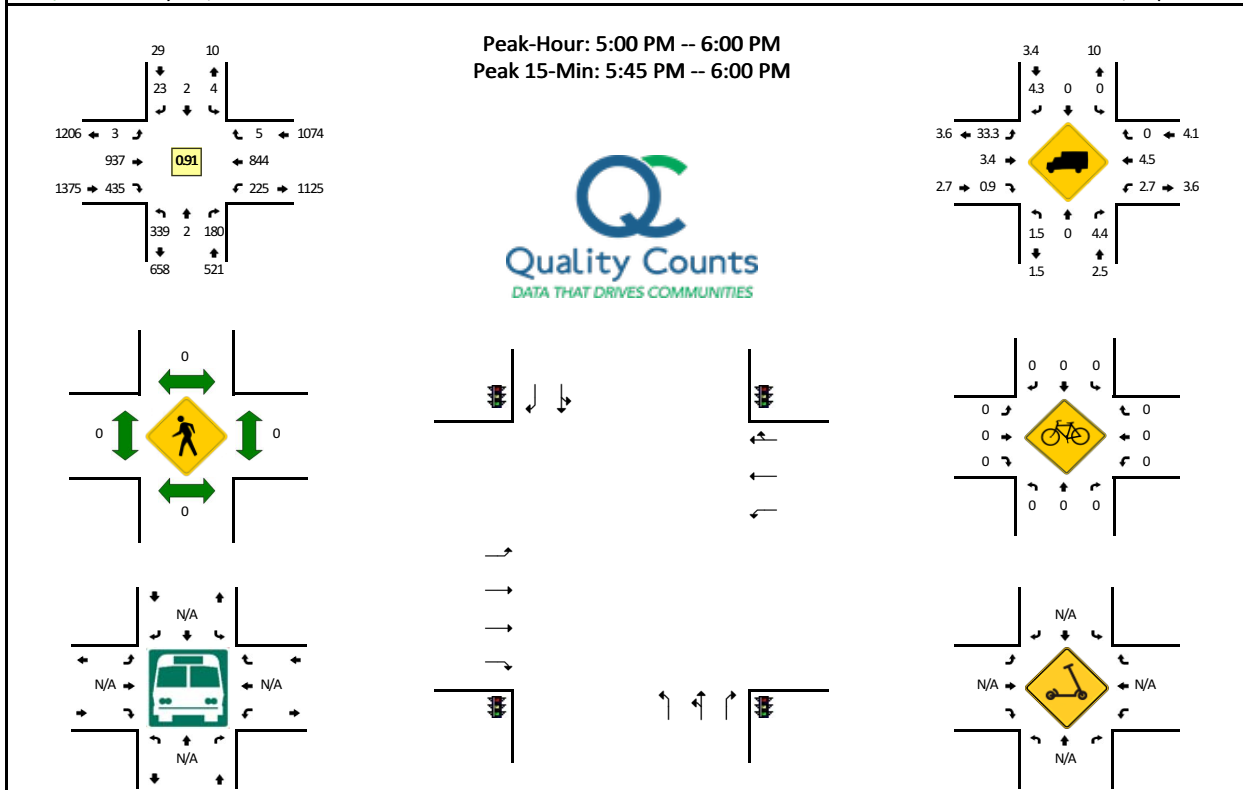
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- State Hwy 42
CITY/STATE: Clayton, NC

QC JOB #: 15904202
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				State Hwy 42 (Eastbound)				State Hwy 42 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	0	19	0	1	0	5	0	0	83	31	0	17	63	0	2	242	
4:05 PM	18	0	22	0	0	0	5	0	0	106	33	0	13	53	1	0	251	
4:10 PM	24	0	19	0	1	0	2	0	1	79	31	0	19	55	0	0	231	
4:15 PM	30	0	11	0	2	1	3	0	0	73	28	0	10	68	0	0	226	
4:20 PM	36	0	18	0	0	0	7	0	0	66	27	0	23	60	1	0	238	
4:25 PM	15	0	16	0	1	0	1	0	0	81	30	0	13	102	0	0	259	
4:30 PM	24	0	18	0	1	0	2	0	0	71	38	0	18	57	0	0	229	
4:35 PM	18	0	16	0	0	2	11	0	1	103	48	0	18	71	0	0	288	
4:40 PM	29	0	15	0	2	3	4	0	0	78	36	0	10	55	0	0	232	
4:45 PM	19	0	19	0	0	1	1	0	0	107	31	0	18	71	0	0	267	
4:50 PM	36	0	10	0	1	0	5	0	0	66	33	0	18	79	0	0	248	
4:55 PM	29	0	15	0	0	0	4	0	0	99	30	0	8	65	0	0	250	2961
5:00 PM	20	1	16	0	0	1	2	0	1	88	32	0	5	69	0	3	238	2957
5:05 PM	21	0	10	0	0	0	1	0	0	78	42	0	21	62	0	0	235	2941
5:10 PM	26	0	21	0	0	1	5	0	0	69	37	0	14	68	0	0	241	2951
5:15 PM	18	0	11	0	0	0	5	0	1	85	38	0	18	69	1	0	246	2971
5:20 PM	28	0	13	0	0	0	0	0	1	78	33	0	23	80	1	0	257	2990
5:25 PM	28	0	22	0	2	0	4	0	0	67	31	0	16	72	0	0	242	2973
5:30 PM	38	0	25	0	0	0	1	0	0	42	35	0	18	61	1	0	221	2965
5:35 PM	20	0	11	0	0	0	1	0	0	103	38	0	18	77	1	0	269	2946
5:40 PM	39	1	19	0	0	0	2	0	0	38	24	0	24	75	0	0	222	2936
5:45 PM	29	0	10	0	0	0	0	0	0	109	46	0	25	71	1	1	292	2961
5:50 PM	31	0	12	0	1	0	2	0	0	101	50	0	16	70	0	0	283	2996
5:55 PM	41	0	10	0	1	0	0	0	0	79	29	0	23	70	0	0	253	2999
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	404	0	128	0	8	0	8	0	0	1156	500	0	256	844	4	4	3312	
Heavy Trucks	8	0	12		0	0	0		0	24	4		0	40	0		88	
Buses																		
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

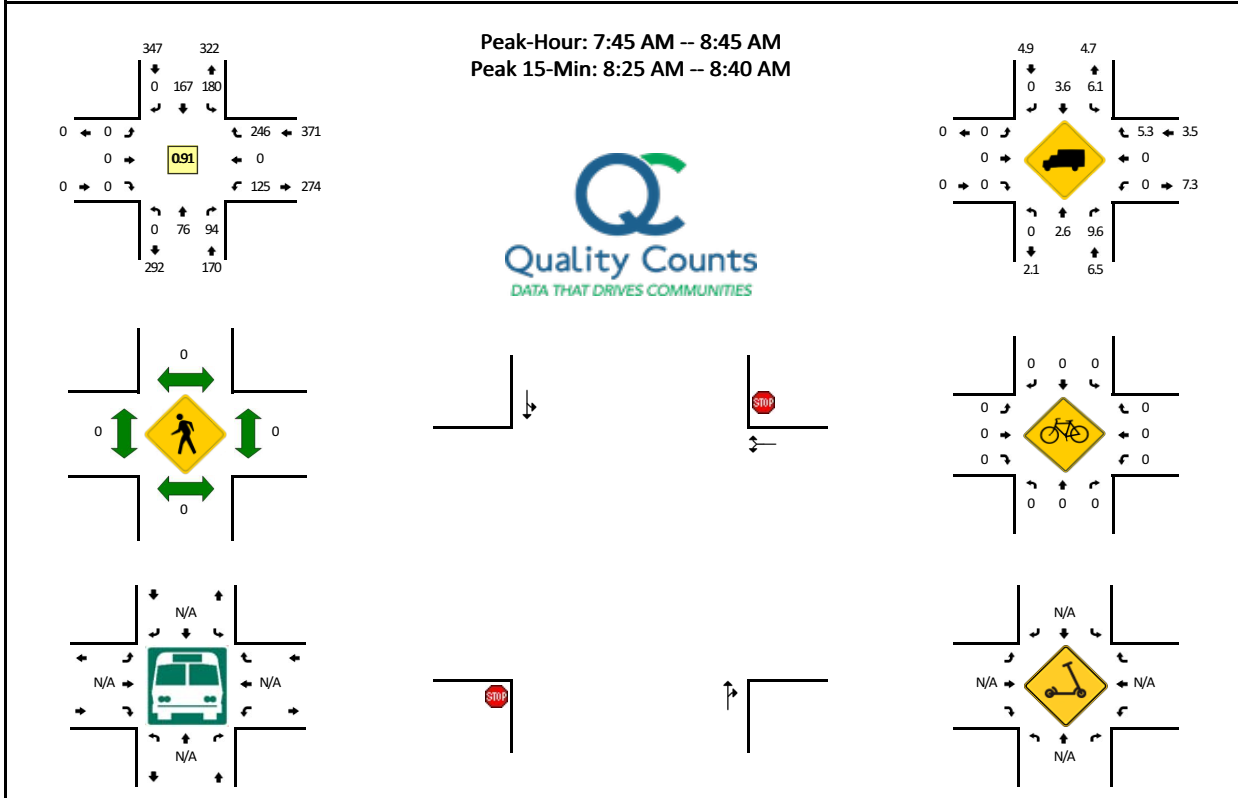
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904203
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	4	2	0	8	15	0	0	0	0	0	0	7	0	14	0	50	
7:05 AM	0	6	7	0	9	16	0	0	0	0	0	0	6	0	14	0	58	
7:10 AM	0	4	4	0	9	8	0	0	0	0	0	0	14	0	26	0	65	
7:15 AM	0	4	3	0	15	14	0	0	0	0	0	0	9	0	11	0	56	
7:20 AM	0	8	4	0	9	19	0	0	0	0	0	0	8	0	24	0	72	
7:25 AM	0	15	8	0	5	8	0	0	0	0	0	0	7	0	29	0	72	
7:30 AM	0	8	11	0	11	19	0	0	0	0	0	0	4	0	17	0	70	
7:35 AM	0	7	4	0	6	21	0	0	0	0	0	0	17	0	23	0	78	
7:40 AM	0	7	7	0	4	14	0	0	0	0	0	0	8	0	25	0	65	
7:45 AM	0	6	6	0	12	23	0	0	0	0	0	0	11	0	21	0	79	
7:50 AM	0	8	6	0	12	13	0	0	0	0	0	0	14	0	16	0	69	
7:55 AM	0	10	6	0	9	17	0	0	0	0	0	0	15	0	19	0	76	
8:00 AM	0	7	9	0	10	14	0	0	0	0	0	0	4	0	14	0	58	810
8:05 AM	0	7	6	0	17	25	0	0	0	0	0	0	8	0	17	0	80	840
8:10 AM	0	5	9	0	16	16	0	0	0	0	0	0	10	0	21	0	77	852
8:15 AM	0	5	7	0	16	13	0	0	0	0	0	0	6	0	20	0	67	863
8:20 AM	0	9	11	0	19	8	0	0	0	0	0	0	5	0	12	0	64	855
8:25 AM	0	6	11	0	16	14	0	0	0	0	0	0	10	0	20	0	77	860
8:30 AM	0	6	9	0	23	8	0	0	0	0	0	0	14	0	21	0	81	871
8:35 AM	0	4	7	0	16	10	0	0	0	0	0	0	18	0	31	0	86	879
8:40 AM	0	3	7	0	14	6	0	0	0	0	0	0	10	0	34	0	74	888
8:45 AM	0	7	7	0	18	7	0	0	0	0	0	0	13	0	27	0	79	888
8:50 AM	0	8	3	0	7	2	0	0	0	0	0	0	14	0	23	0	57	876
8:55 AM	0	12	5	0	8	8	0	0	0	0	0	0	12	0	11	0	56	856
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	64	108	0	220	128	0	0	0	0	0	0	168	0	288	0	976	
Heavy Trucks	0	0	12	0	16	0	0	0	0	0	0	0	0	0	28	0	56	
Buses	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	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 9/14/2022 8:10 AM

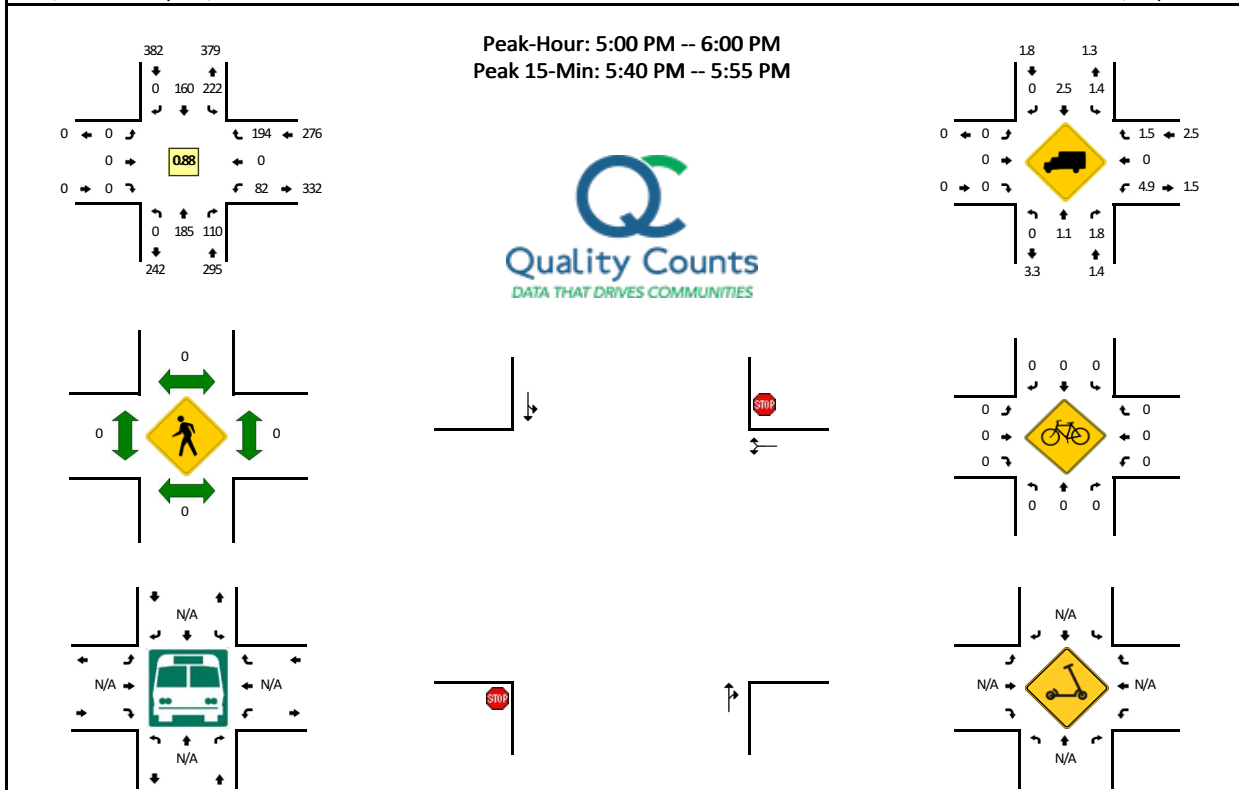
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904204
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	19	15	0	17	4	0	0	0	0	0	0	9	0	19	0	83	
4:05 PM	0	11	9	0	13	6	0	0	0	0	0	0	10	0	24	0	73	
4:10 PM	0	21	6	0	18	8	0	0	0	0	0	0	13	0	23	0	89	
4:15 PM	0	17	10	0	16	3	0	0	0	0	0	0	11	0	19	0	76	
4:20 PM	0	18	4	0	21	13	0	0	0	0	0	0	5	0	19	0	80	
4:25 PM	0	15	10	0	16	4	0	0	0	0	0	0	10	0	13	0	68	
4:30 PM	0	17	7	0	15	14	0	0	0	0	0	0	4	0	12	0	69	
4:35 PM	0	14	3	0	20	28	0	0	0	0	0	0	3	0	12	0	80	
4:40 PM	0	16	10	0	13	21	0	0	0	0	0	0	11	0	13	0	84	
4:45 PM	0	14	8	0	16	10	0	0	0	0	0	0	5	0	13	1	67	
4:50 PM	0	14	12	0	24	10	0	0	0	0	0	0	8	0	12	0	80	
4:55 PM	0	11	9	0	13	11	0	0	0	0	0	0	6	0	13	0	63	912
5:00 PM	0	15	7	0	13	9	0	0	0	0	0	0	9	0	9	0	62	891
5:05 PM	0	14	7	0	25	12	0	0	0	0	0	0	1	0	13	0	72	890
5:10 PM	0	19	9	0	18	12	0	0	0	0	0	0	5	0	14	0	77	878
5:15 PM	0	8	10	0	19	18	0	0	0	0	0	0	8	0	11	0	74	876
5:20 PM	0	15	8	0	30	13	0	0	0	0	0	0	9	0	20	0	95	891
5:25 PM	0	25	4	0	17	16	0	0	0	0	0	0	5	0	15	0	82	905
5:30 PM	0	17	7	0	14	10	0	0	0	0	0	0	3	0	14	0	65	901
5:35 PM	0	12	13	0	18	14	0	0	0	0	0	0	9	0	20	0	86	907
5:40 PM	0	20	11	0	15	14	0	0	0	0	0	0	10	0	22	0	92	915
5:45 PM	0	16	6	0	19	13	0	0	0	0	0	0	12	0	20	0	86	934
5:50 PM	0	10	21	0	20	18	0	0	0	0	0	0	5	0	20	0	94	948
5:55 PM	0	14	7	0	14	11	0	0	0	0	0	0	6	0	16	0	68	953
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	184	152	0	216	180	0	0	0	0	0	0	108	0	248	0	1088	
Heavy Trucks	0	4	4	0	4	4	0	0	0	0	0	0	0	0	8	0	24	
Buses	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	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 9/14/2022 8:10 AM

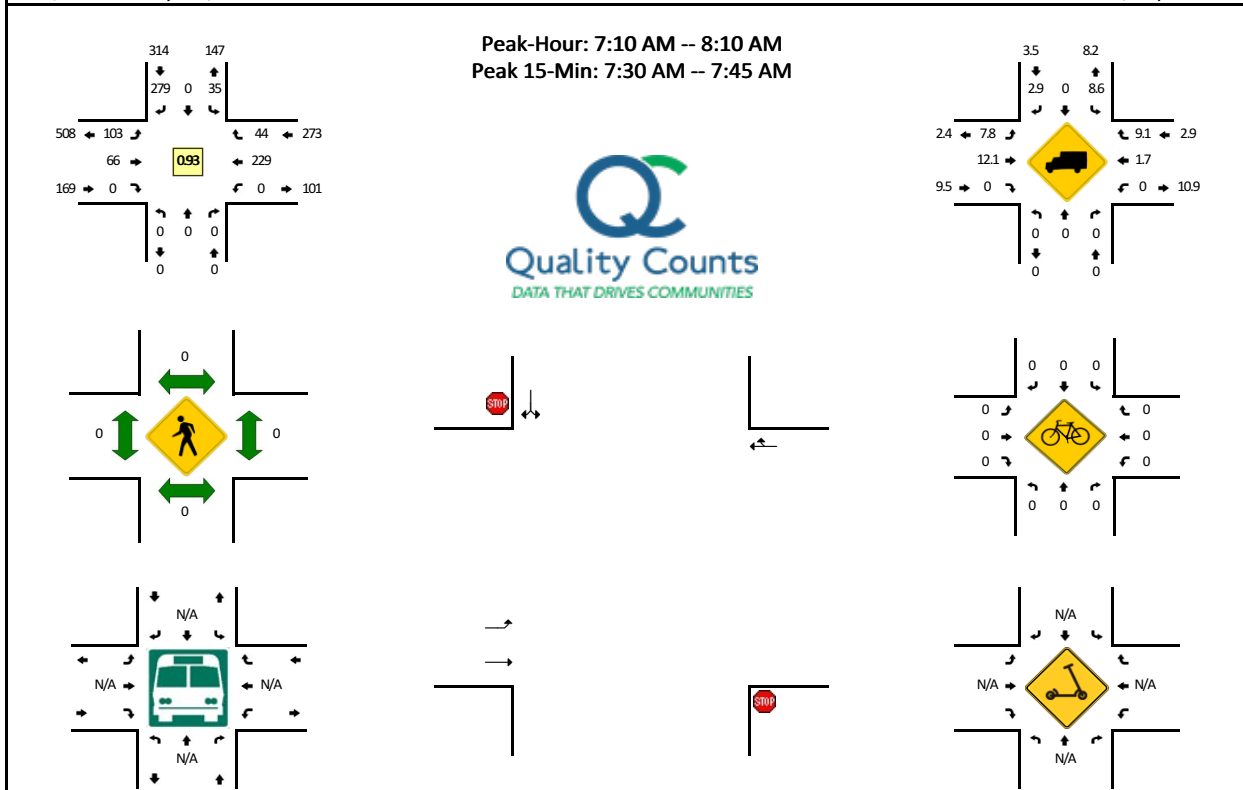
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- Powhatan Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904205
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				Powhatan Rd (Eastbound)				Powhatan Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	5	0	18	0	3	3	0	0	0	20	2	0	51	
7:05 AM	0	0	0	0	4	0	17	0	6	4	0	0	0	16	8	0	55	
7:10 AM	0	0	0	0	2	0	20	0	6	7	0	0	0	18	1	0	54	
7:15 AM	0	0	0	0	3	0	21	0	3	9	0	0	0	17	1	0	54	
7:20 AM	0	0	0	0	4	0	22	0	11	7	0	0	0	15	8	0	67	
7:25 AM	0	0	0	0	1	0	16	0	5	3	0	0	0	16	7	0	48	
7:30 AM	0	0	0	0	2	0	22	0	11	8	0	0	0	21	6	0	70	
7:35 AM	0	0	0	0	5	0	28	0	7	2	0	0	0	26	6	0	74	
7:40 AM	0	0	0	0	4	0	23	0	10	3	0	0	0	18	1	0	59	
7:45 AM	0	0	0	0	1	0	29	0	10	5	0	0	0	20	2	0	67	
7:50 AM	0	0	0	0	6	0	25	0	11	5	0	0	0	19	3	0	69	
7:55 AM	0	0	0	0	1	0	28	0	11	3	0	0	0	18	3	0	64	732
8:00 AM	0	0	0	0	0	0	18	0	9	5	0	0	0	23	3	0	58	739
8:05 AM	0	0	0	0	6	0	27	0	9	9	0	0	0	18	3	0	72	756
8:10 AM	0	0	0	0	3	0	24	0	5	3	0	0	0	15	4	0	54	756
8:15 AM	0	0	0	0	2	0	16	0	5	7	0	0	0	7	3	0	40	742
8:20 AM	0	0	0	0	1	0	13	0	9	3	0	0	0	9	4	0	39	714
8:25 AM	0	0	0	0	2	0	19	0	7	4	0	0	0	11	8	0	51	717
8:30 AM	0	0	0	0	4	0	16	0	6	4	0	0	0	13	6	0	49	696
8:35 AM	0	0	0	0	6	0	18	0	2	5	0	0	0	9	7	0	47	669
8:40 AM	0	0	0	0	6	0	12	0	4	2	0	0	0	10	3	0	37	647
8:45 AM	0	0	0	0	3	0	13	0	8	1	0	0	0	16	5	0	46	626
8:50 AM	0	0	0	0	5	0	11	0	11	3	0	0	0	15	2	0	47	604
8:55 AM	0	0	0	0	1	0	15	0	6	8	0	0	0	9	7	0	46	586
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	44	0	292	0	112	52	0	0	0	260	52	0	812	
Heavy Trucks	0	0	0	0	8	0	8	0	4	0	0	0	0	4	8	0	32	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

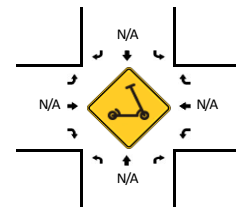
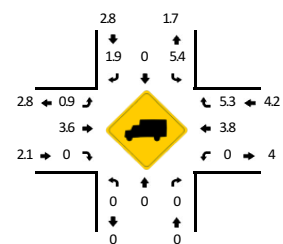
Comments:

Report generated on 9/14/2022 8:10 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Method for determining peak hour: Total Entering Volume

QC JOB #: 15904206
DATE: Thu, Sep 8 2022



Comments:

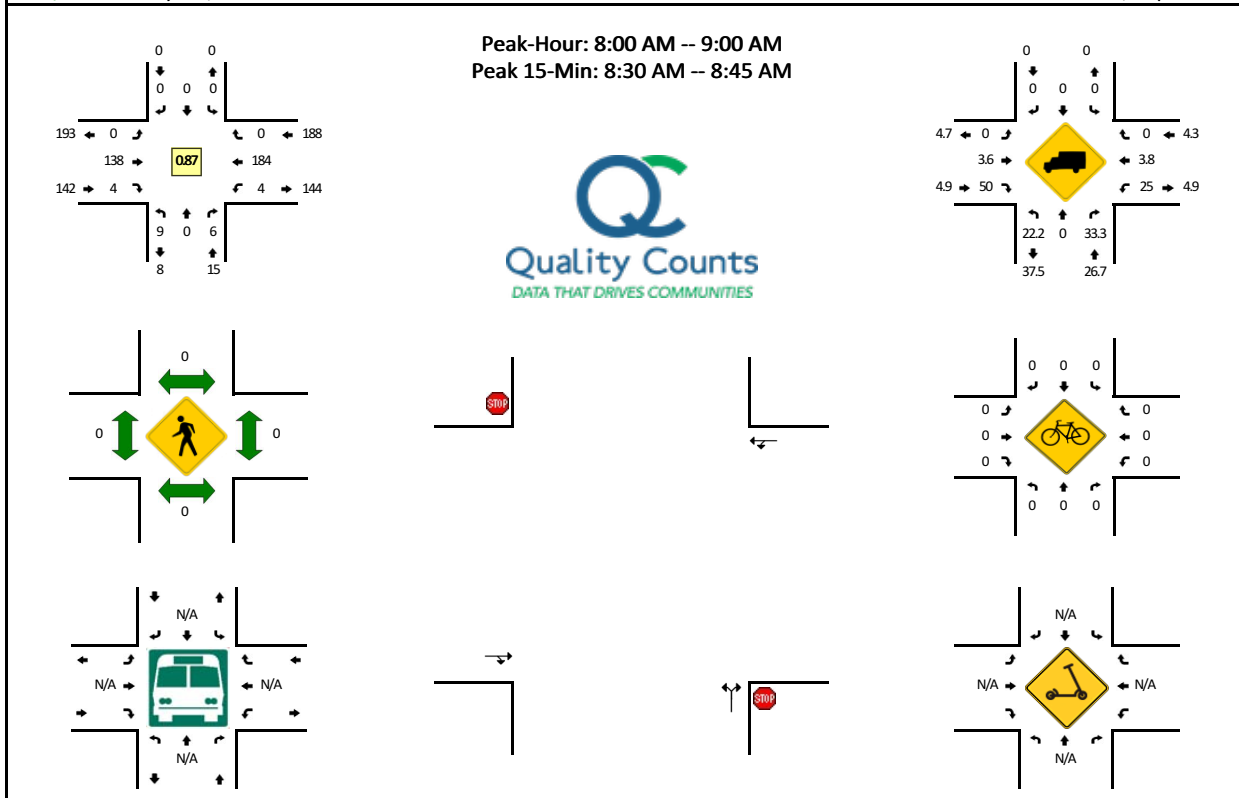
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Windsor Green Dr -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904207
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Windsor Green Dr (Northbound)				Windsor Green Dr (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	0	0	0	0	0	9	0	0	0	8	0	0	18	
7:05 AM	1	0	0	0	0	0	0	0	0	8	0	0	0	15	0	0	24	
7:10 AM	1	0	0	0	0	0	0	0	0	13	2	0	0	13	0	0	29	
7:15 AM	1	0	1	0	0	0	0	0	0	9	0	0	0	16	0	0	27	
7:20 AM	2	0	1	0	0	0	0	0	0	9	0	0	0	18	0	0	30	
7:25 AM	2	0	0	0	0	0	0	0	0	7	1	0	0	13	0	0	23	
7:30 AM	2	0	1	0	0	0	0	0	0	9	0	0	0	12	0	0	24	
7:35 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	19	0	0	29	
7:40 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	19	0	0	22	
7:45 AM	4	0	1	0	0	0	0	0	0	6	0	0	0	13	0	0	24	
7:50 AM	0	0	0	0	0	0	0	0	0	8	2	0	0	15	0	0	25	
7:55 AM	1	0	1	0	0	0	0	0	0	6	0	0	1	13	0	0	22	297
8:00 AM	1	0	0	0	0	0	0	0	0	9	0	0	1	17	0	0	28	307
8:05 AM	0	0	0	0	0	0	0	0	0	11	0	0	1	21	0	0	33	316
8:10 AM	1	0	0	0	0	0	0	0	0	5	0	0	0	20	0	0	26	313
8:15 AM	0	0	0	0	0	0	0	0	0	3	1	0	0	9	0	0	13	299
8:20 AM	2	0	2	0	0	0	0	0	0	10	2	0	1	14	0	0	31	300
8:25 AM	1	0	3	0	0	0	0	0	0	15	0	0	0	16	0	0	35	312
8:30 AM	1	0	0	0	0	0	0	0	0	13	0	0	0	17	0	0	31	319
8:35 AM	0	0	0	0	0	0	0	0	0	19	0	0	0	13	0	0	32	322
8:40 AM	2	0	0	0	0	0	0	0	0	19	0	0	1	14	0	0	36	336
8:45 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	15	0	0	28	340
8:50 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	16	0	0	27	342
8:55 AM	1	0	1	0	0	0	0	0	0	10	1	0	0	12	0	0	25	345
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	0	0	0	0	0	0	0	0	204	0	0	4	176	0	0	396	
Heavy Trucks	4	0	0	0	0	0	0	0	0	8	0	0	0	8	0	0	20	
Buses																		
Pedestrians	0	0			0				0				0				0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

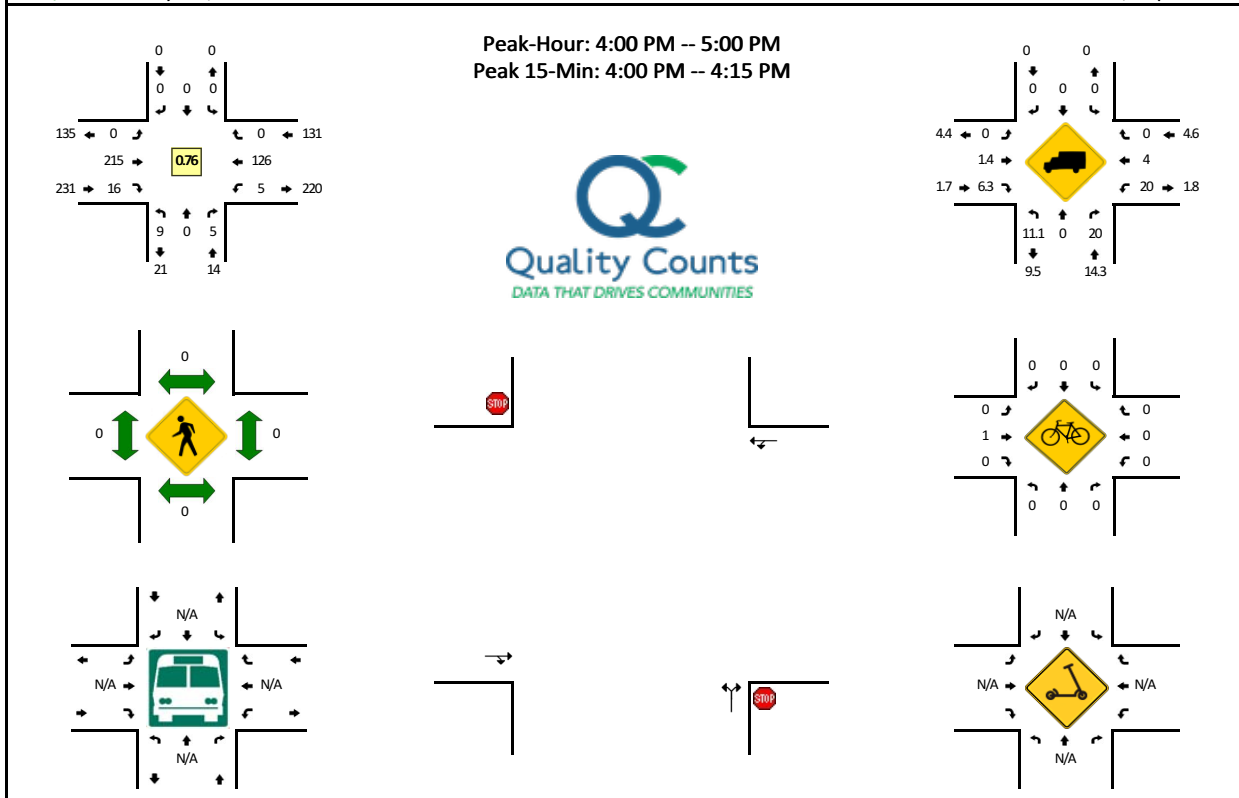
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Windsor Green Dr -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904208
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Windsor Green Dr (Northbound)				Windsor Green Dr (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	0	0	0	0	0	0	0	0	17	0	0	1	18	0	0	39	
4:05 PM	1	0	0	0	0	0	0	0	0	33	3	0	0	10	0	0	47	
4:10 PM	1	0	0	0	0	0	0	0	0	21	3	0	0	12	0	0	37	
4:15 PM	0	0	1	0	0	0	0	0	0	27	1	0	1	8	0	0	38	
4:20 PM	0	0	0	0	0	0	0	0	0	18	2	0	0	7	0	0	27	
4:25 PM	0	0	1	0	0	0	0	0	0	17	0	0	0	13	0	0	31	
4:30 PM	0	0	0	0	0	0	0	0	0	20	0	0	2	8	0	0	30	
4:35 PM	1	0	0	0	0	0	0	0	0	10	1	0	0	12	0	0	24	
4:40 PM	1	0	1	0	0	0	0	0	0	14	0	0	0	8	0	0	24	
4:45 PM	0	0	1	0	0	0	0	0	0	11	4	0	0	10	0	0	26	
4:50 PM	0	0	1	0	0	0	0	0	0	16	1	0	1	11	0	0	30	
4:55 PM	2	0	0	0	0	0	0	0	0	11	1	0	0	9	0	0	23	376
5:00 PM	1	0	0	0	0	0	0	0	0	14	1	0	0	8	0	0	24	361
5:05 PM	0	0	0	0	0	0	0	0	0	15	3	0	0	7	0	0	25	339
5:10 PM	1	0	1	0	0	0	0	0	0	15	3	0	0	13	0	0	33	335
5:15 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	7	0	0	24	321
5:20 PM	1	0	0	0	0	0	0	0	0	21	2	0	0	13	0	0	37	331
5:25 PM	2	0	0	0	0	0	0	0	0	10	2	0	1	8	0	0	23	323
5:30 PM	0	0	0	0	0	0	0	0	0	15	2	0	1	17	0	0	35	328
5:35 PM	0	0	0	0	0	0	0	0	0	12	2	0	1	20	0	0	35	339
5:40 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	17	0	0	34	349
5:45 PM	1	0	1	0	0	0	0	0	0	10	2	0	0	15	0	0	29	352
5:50 PM	0	0	0	0	0	0	0	0	0	22	2	0	0	15	0	0	39	361
5:55 PM	0	0	0	0	0	0	0	0	0	10	0	0	1	7	0	0	18	356
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	0	0	0	0	0	0	0	0	284	24	0	4	160	0	0	492	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	4	0	0	8	0	0	12	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

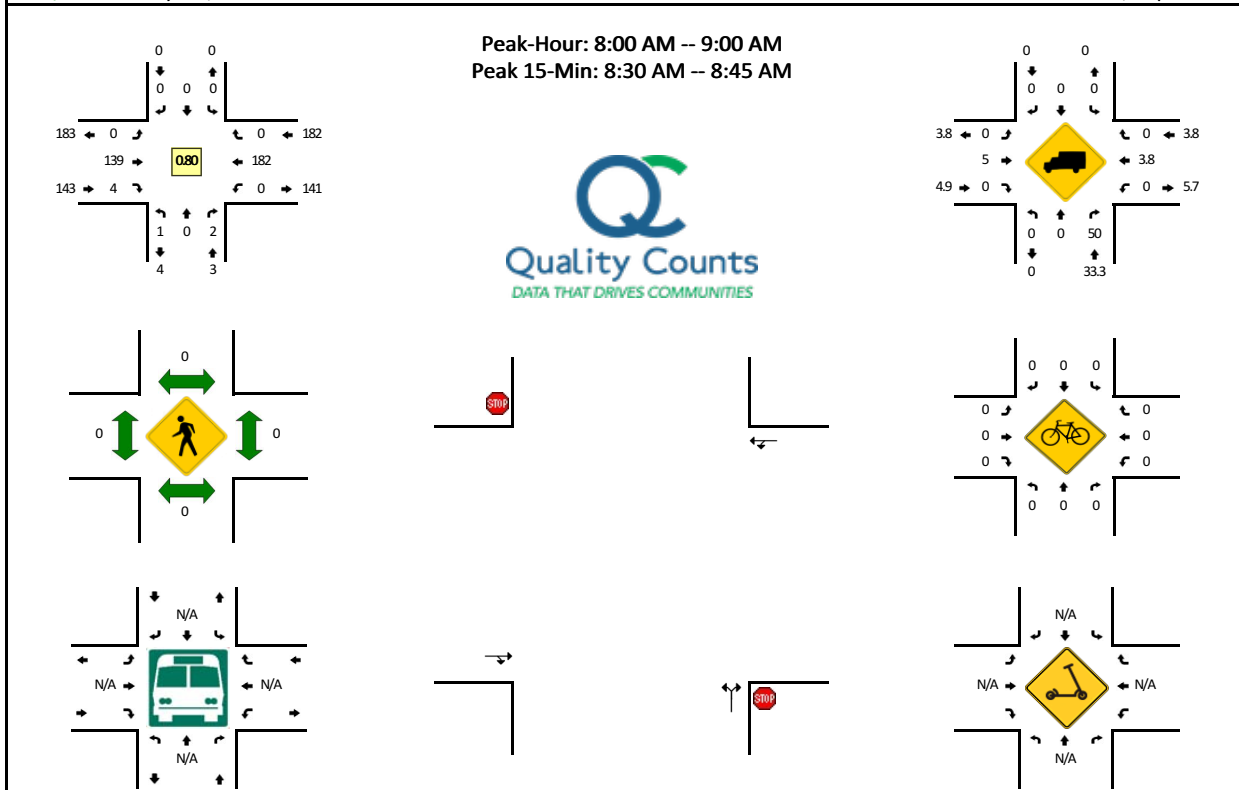
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Rainwater Ct -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904209
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Rainwater Ct (Northbound)				Rainwater Ct (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	0	0	0	0	0	0	0	10	0	0	0	9	0	0	20	
7:05 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	13	0	0	20	
7:10 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	0	25	
7:15 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	17	0	0	27	
7:20 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	1	18	0	31	
7:25 AM	0	0	1	0	0	0	0	0	0	7	0	0	0	12	0	0	20	
7:30 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	11	0	0	19	
7:35 AM	0	0	0	0	0	0	0	0	0	11	1	0	0	21	0	0	33	
7:40 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	18	0	0	20	
7:45 AM	0	0	1	0	0	0	0	0	0	6	0	0	0	12	0	0	19	
7:50 AM	0	0	0	0	0	0	0	0	0	9	0	0	0	16	0	0	25	
7:55 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	14	0	0	21	280
8:00 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	16	0	0	22	282
8:05 AM	0	0	0	0	0	0	0	0	0	12	1	0	0	22	0	0	35	297
8:10 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	20	0	0	26	298
8:15 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	9	0	0	12	283
8:20 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	0	25	277
8:25 AM	0	0	0	0	0	0	0	0	0	11	1	0	0	16	0	0	28	285
8:30 AM	0	0	1	0	0	0	0	0	0	17	0	0	0	18	0	0	36	302
8:35 AM	0	0	0	0	0	0	0	0	0	18	0	0	0	13	0	0	31	300
8:40 AM	0	0	0	0	0	0	0	0	0	20	1	0	0	15	0	0	36	316
8:45 AM	1	0	1	0	0	0	0	0	0	11	0	0	0	14	0	0	27	324
8:50 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	15	0	0	28	327
8:55 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	11	0	0	22	328
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	0	0	0	0	0	220	4	0	0	184	0	0	412	
Heavy Trucks	0	0	4	0	0	0	0	0	0	12	0	0	0	16	0	0	32	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

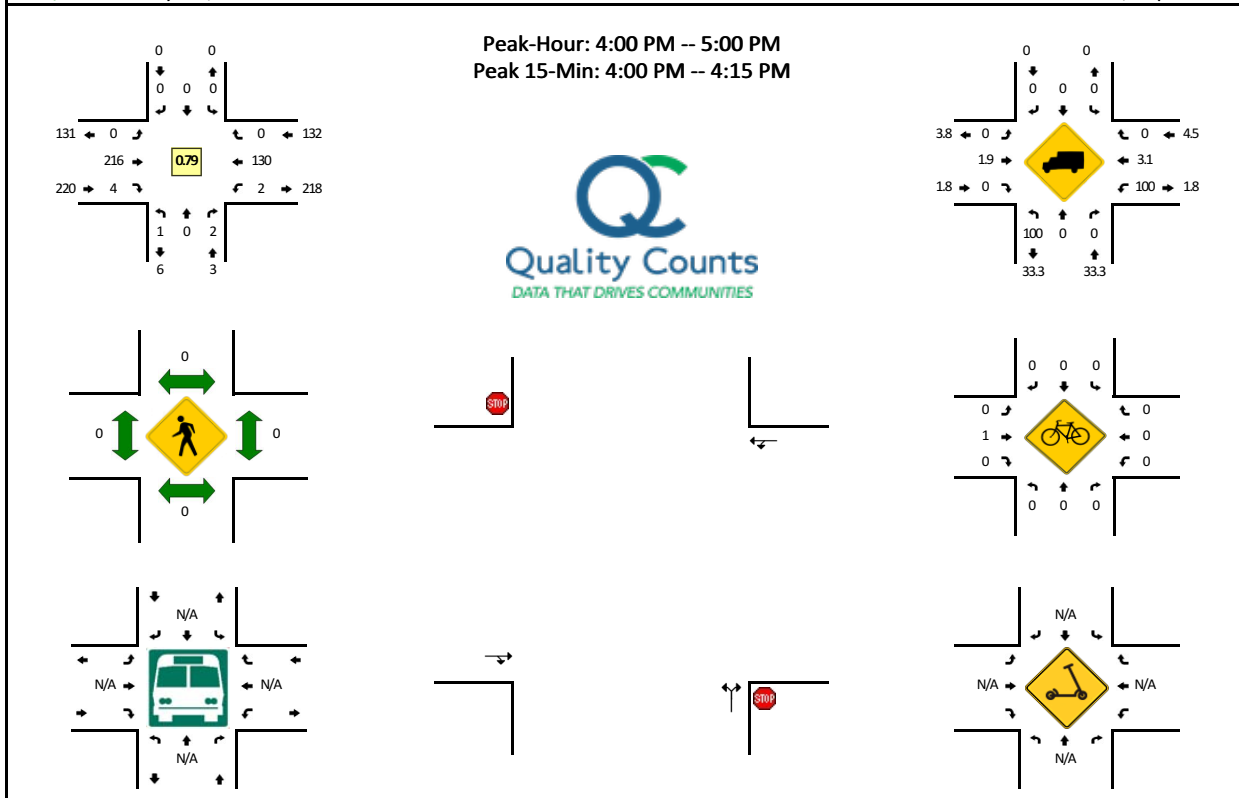
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Rainwater Ct -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904210
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Rainwater Ct (Northbound)				Rainwater Ct (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	18	0	0	34	
4:05 PM	0	0	0	0	0	0	0	0	0	32	0	0	0	10	0	0	42	
4:10 PM	0	0	0	0	0	0	0	0	0	23	0	0	0	14	0	0	37	
4:15 PM	0	0	0	0	0	0	0	0	0	23	1	0	0	9	0	0	33	
4:20 PM	0	0	0	0	0	0	0	0	0	22	0	0	0	6	0	0	28	
4:25 PM	0	0	0	0	0	0	0	0	0	18	0	0	0	13	0	0	31	
4:30 PM	1	0	1	0	0	0	0	0	0	16	1	0	0	9	0	0	29	
4:35 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	0	25	
4:40 PM	0	0	1	0	0	0	0	0	0	15	1	0	0	8	0	0	25	
4:45 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	10	0	0	22	
4:50 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	1	10	0	27	
4:55 PM	0	0	0	0	0	0	0	0	0	11	1	0	0	10	0	0	22	355
5:00 PM	0	0	0	0	0	0	0	0	0	14	0	0	0	1	9	0	24	345
5:05 PM	0	0	0	0	0	0	0	0	0	13	0	0	0	7	0	0	20	323
5:10 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	13	0	0	30	316
5:15 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	7	0	0	23	306
5:20 PM	0	0	0	0	0	0	0	0	0	23	0	0	0	13	0	0	36	314
5:25 PM	0	0	0	0	0	0	0	0	0	9	0	0	0	8	0	0	17	300
5:30 PM	0	0	0	0	0	0	0	0	0	14	0	0	0	18	0	0	32	303
5:35 PM	1	0	0	0	0	0	0	0	0	12	0	0	0	1	20	0	34	312
5:40 PM	0	0	1	0	0	0	0	0	0	16	0	0	0	15	0	0	32	319
5:45 PM	0	0	1	0	0	0	0	0	0	11	1	0	0	15	0	0	28	325
5:50 PM	1	0	0	0	0	0	0	0	0	22	0	0	0	15	0	0	38	336
5:55 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	8	0	0	19	333
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	0	0	0	284	0	0	0	168	0	0	452	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	
Buses	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	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 9/14/2022 8:10 AM

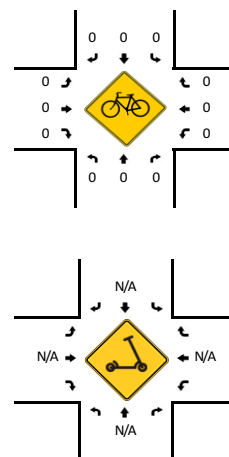
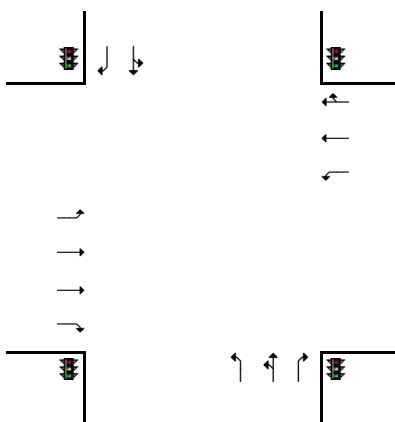
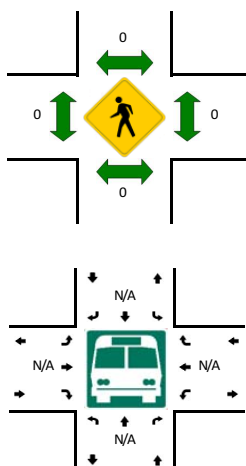
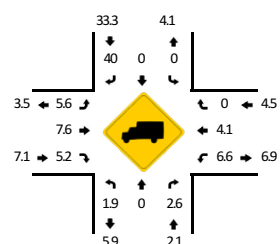
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

APPENDIX B

TRAFFIC COUNTS

Method for determining peak hour: Total Entering Volume

QC JOB #: 15904201
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				State Hwy 42 (Eastbound)				State Hwy 42 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	55	0	5	0	0	0	0	0	2	42	8	0	3	80	0	0	195	
7:05 AM	39	1	10	0	0	0	2	0	2	38	16	0	10	85	0	0	203	
7:10 AM	23	0	13	0	0	0	1	0	2	27	13	0	11	73	0	0	163	
7:15 AM	34	0	9	0	0	0	0	0	6	60	19	0	8	95	0	0	231	
7:20 AM	42	1	13	0	0	0	0	0	2	46	9	0	7	88	0	0	208	
7:25 AM	33	1	12	0	0	0	0	0	4	32	8	0	18	87	2	0	197	
7:30 AM	53	0	16	0	0	0	0	0	6	42	19	0	17	63	0	0	216	
7:35 AM	31	2	10	0	0	0	1	0	0	33	5	1	7	92	2	0	184	
7:40 AM	34	0	11	0	0	0	0	0	3	42	11	0	18	77	0	0	196	
7:45 AM	45	1	11	0	0	0	1	0	5	75	16	0	17	68	1	0	240	2441
7:50 AM	43	0	11	0	0	0	0	0	3	60	14	0	15	88	0	0	234	
7:55 AM	34	1	5	0	0	0	0	0	4	34	14	0	18	62	2	0	174	
8:00 AM	36	1	9	0	0	0	0	0	4	61	17	0	15	71	0	0	214	2460
8:05 AM	20	0	6	0	0	0	0	0	3	67	15	0	27	76	1	0	215	2472
8:10 AM	31	0	13	0	0	0	0	0	1	62	11	0	18	67	0	0	203	2512
8:15 AM	35	1	11	0	1	0	0	0	4	58	14	0	13	66	0	0	203	2484
8:20 AM	25	0	12	0	0	0	1	0	4	65	18	0	17	85	1	0	228	2504
8:25 AM	20	1	11	0	0	0	1	0	2	53	11	0	10	71	1	1	182	2489
8:30 AM	41	0	5	0	0	0	2	0	5	55	15	0	11	71	2	0	207	2480
8:35 AM	45	0	11	0	0	0	0	0	1	40	10	0	8	76	0	0	191	2487
8:40 AM	39	0	10	0	0	0	0	0	0	68	18	0	11	80	0	0	226	2517
8:45 AM	34	0	9	0	0	0	1	0	1	68	13	0	10	78	0	0	214	2491
8:50 AM	51	0	7	0	0	0	0	0	1	65	19	1	10	83	0	0	237	2494
8:55 AM	33	0	8	0	0	0	0	0	2	32	15	0	12	79	0	0	181	2501
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	488	8	108	0	0	0	4	0	48	676	176	0	200	872	12	0	2592	
Heavy Trucks Buses	0	0	0		0	0	4		4	28	4		12	32	0		84	
Pedestrians		0				0				0				0			0	
Bicycles Scooters	0	0	0		0	0	0		0	0	0		0	0	0		0	

Comments:

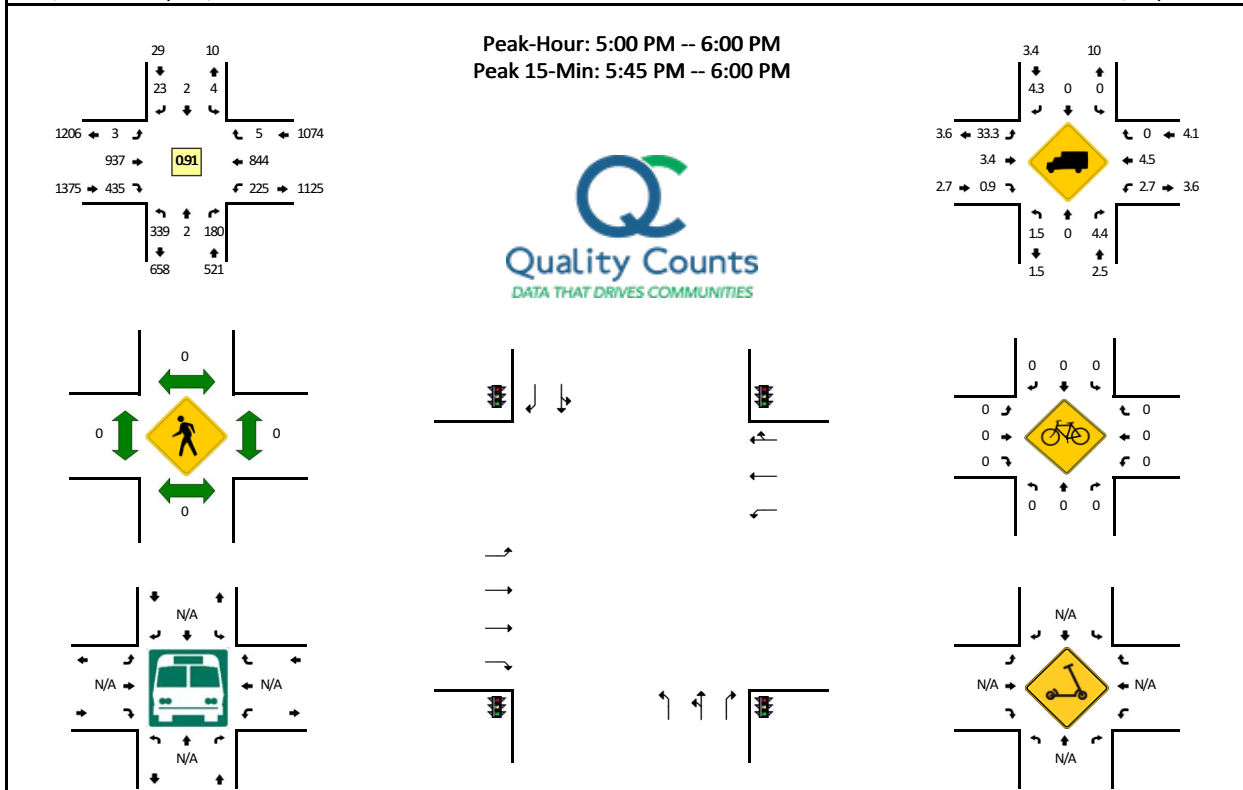
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- State Hwy 42
CITY/STATE: Clayton, NC

QC JOB #: 15904202
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				State Hwy 42 (Eastbound)				State Hwy 42 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	0	19	0	1	0	5	0	0	83	31	0	17	63	0	2	242	
4:05 PM	18	0	22	0	0	0	5	0	0	106	33	0	13	53	1	0	251	
4:10 PM	24	0	19	0	1	0	2	0	1	79	31	0	19	55	0	0	231	
4:15 PM	30	0	11	0	2	1	3	0	0	73	28	0	10	68	0	0	226	
4:20 PM	36	0	18	0	0	0	7	0	0	66	27	0	23	60	1	0	238	
4:25 PM	15	0	16	0	1	0	1	0	0	81	30	0	13	102	0	0	259	
4:30 PM	24	0	18	0	1	0	2	0	0	71	38	0	18	57	0	0	229	
4:35 PM	18	0	16	0	0	2	11	0	1	103	48	0	18	71	0	0	288	
4:40 PM	29	0	15	0	2	3	4	0	0	78	36	0	10	55	0	0	232	
4:45 PM	19	0	19	0	0	1	1	0	0	107	31	0	18	71	0	0	267	
4:50 PM	36	0	10	0	1	0	5	0	0	66	33	0	18	79	0	0	248	
4:55 PM	29	0	15	0	0	0	4	0	0	99	30	0	8	65	0	0	250	2961
5:00 PM	20	1	16	0	0	1	2	0	1	88	32	0	5	69	0	3	238	2957
5:05 PM	21	0	10	0	0	0	1	0	0	78	42	0	21	62	0	0	235	2941
5:10 PM	26	0	21	0	0	1	5	0	0	69	37	0	14	68	0	0	241	2951
5:15 PM	18	0	11	0	0	0	5	0	1	85	38	0	18	69	1	0	246	2971
5:20 PM	28	0	13	0	0	0	0	0	1	78	33	0	23	80	1	0	257	2990
5:25 PM	28	0	22	0	2	0	4	0	0	67	31	0	16	72	0	0	242	2973
5:30 PM	38	0	25	0	0	0	1	0	0	42	35	0	18	61	1	0	221	2965
5:35 PM	20	0	11	0	0	0	1	0	0	103	38	0	18	77	1	0	269	2946
5:40 PM	39	1	19	0	0	0	2	0	0	38	24	0	24	75	0	0	222	2936
5:45 PM	29	0	10	0	0	0	0	0	0	109	46	0	25	71	1	1	292	2961
5:50 PM	31	0	12	0	1	0	2	0	0	101	50	0	16	70	0	0	283	2996
5:55 PM	41	0	10	0	1	0	0	0	0	79	29	0	23	70	0	0	253	2999
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	404	0	128	0	8	0	8	0	0	1156	500	0	256	844	4	4	3312	
Heavy Trucks	8	0	12		0	0	0		0	24	4		0	40	0		88	
Buses																		
Pedestrians	0	0			0	0			0	0			0	0			0	
Bicycles					0	0	0		0	0	0		0	0	0		0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

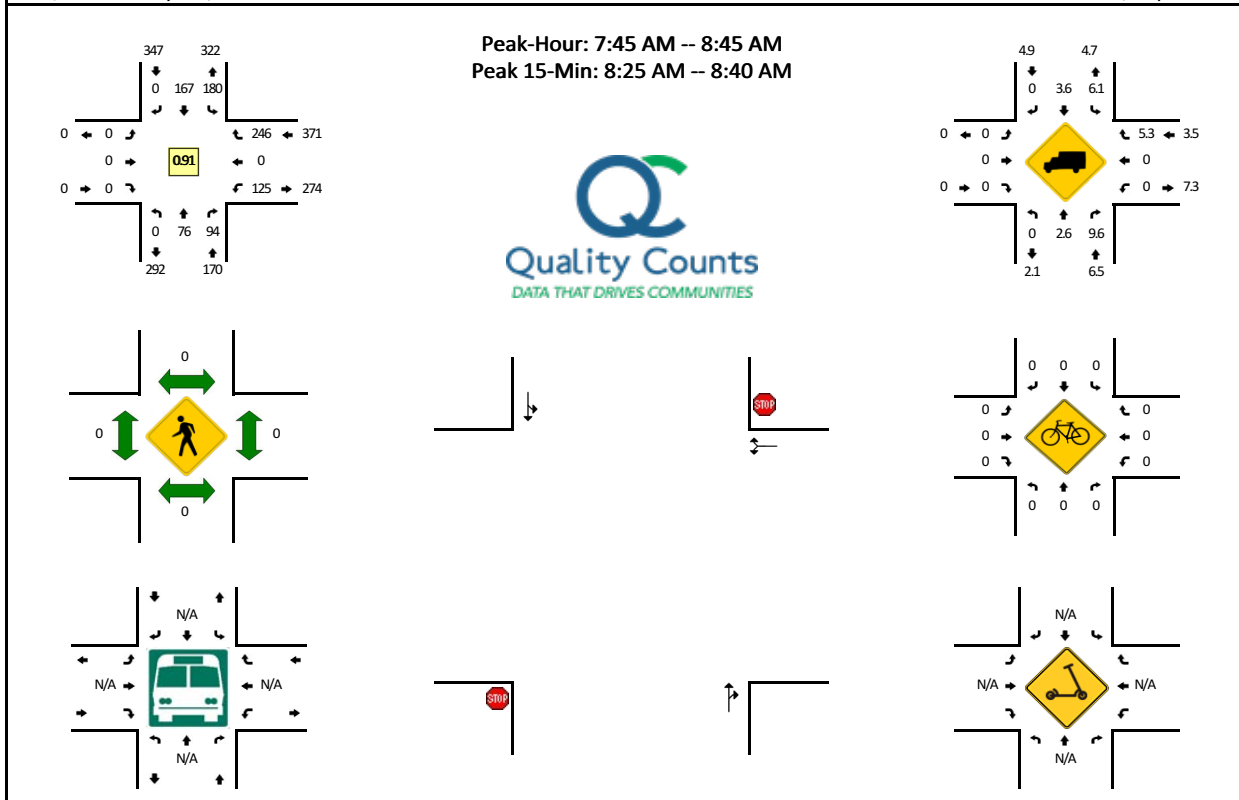
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904203
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	4	2	0	8	15	0	0	0	0	0	0	7	0	14	0	50	
7:05 AM	0	6	7	0	9	16	0	0	0	0	0	0	6	0	14	0	58	
7:10 AM	0	4	4	0	9	8	0	0	0	0	0	0	14	0	26	0	65	
7:15 AM	0	4	3	0	15	14	0	0	0	0	0	0	9	0	11	0	56	
7:20 AM	0	8	4	0	9	19	0	0	0	0	0	0	8	0	24	0	72	
7:25 AM	0	15	8	0	5	8	0	0	0	0	0	0	7	0	29	0	72	
7:30 AM	0	8	11	0	11	19	0	0	0	0	0	0	4	0	17	0	70	
7:35 AM	0	7	4	0	6	21	0	0	0	0	0	0	17	0	23	0	78	
7:40 AM	0	7	7	0	4	14	0	0	0	0	0	0	8	0	25	0	65	
7:45 AM	0	6	6	0	12	23	0	0	0	0	0	0	11	0	21	0	79	
7:50 AM	0	8	6	0	12	13	0	0	0	0	0	0	14	0	16	0	69	
7:55 AM	0	10	6	0	9	17	0	0	0	0	0	0	15	0	19	0	76	
8:00 AM	0	7	9	0	10	14	0	0	0	0	0	0	4	0	14	0	58	810
8:05 AM	0	7	6	0	17	25	0	0	0	0	0	0	8	0	17	0	80	840
8:10 AM	0	5	9	0	16	16	0	0	0	0	0	0	10	0	21	0	77	852
8:15 AM	0	5	7	0	16	13	0	0	0	0	0	0	6	0	20	0	67	863
8:20 AM	0	9	11	0	19	8	0	0	0	0	0	0	5	0	12	0	64	855
8:25 AM	0	6	11	0	16	14	0	0	0	0	0	0	10	0	20	0	77	860
8:30 AM	0	6	9	0	23	8	0	0	0	0	0	0	14	0	21	0	81	871
8:35 AM	0	4	7	0	16	10	0	0	0	0	0	0	18	0	31	0	86	879
8:40 AM	0	3	7	0	14	6	0	0	0	0	0	0	10	0	34	0	74	888
8:45 AM	0	7	7	0	18	7	0	0	0	0	0	0	13	0	27	0	79	888
8:50 AM	0	8	3	0	7	2	0	0	0	0	0	0	14	0	23	0	57	876
8:55 AM	0	12	5	0	8	8	0	0	0	0	0	0	12	0	11	0	56	856
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	64	108	0	220	128	0	0	0	0	0	0	168	0	288	0	976	
Heavy Trucks	0	0	12	0	16	0	0	0	0	0	0	0	0	0	28	0	56	
Buses	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	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 9/14/2022 8:10 AM

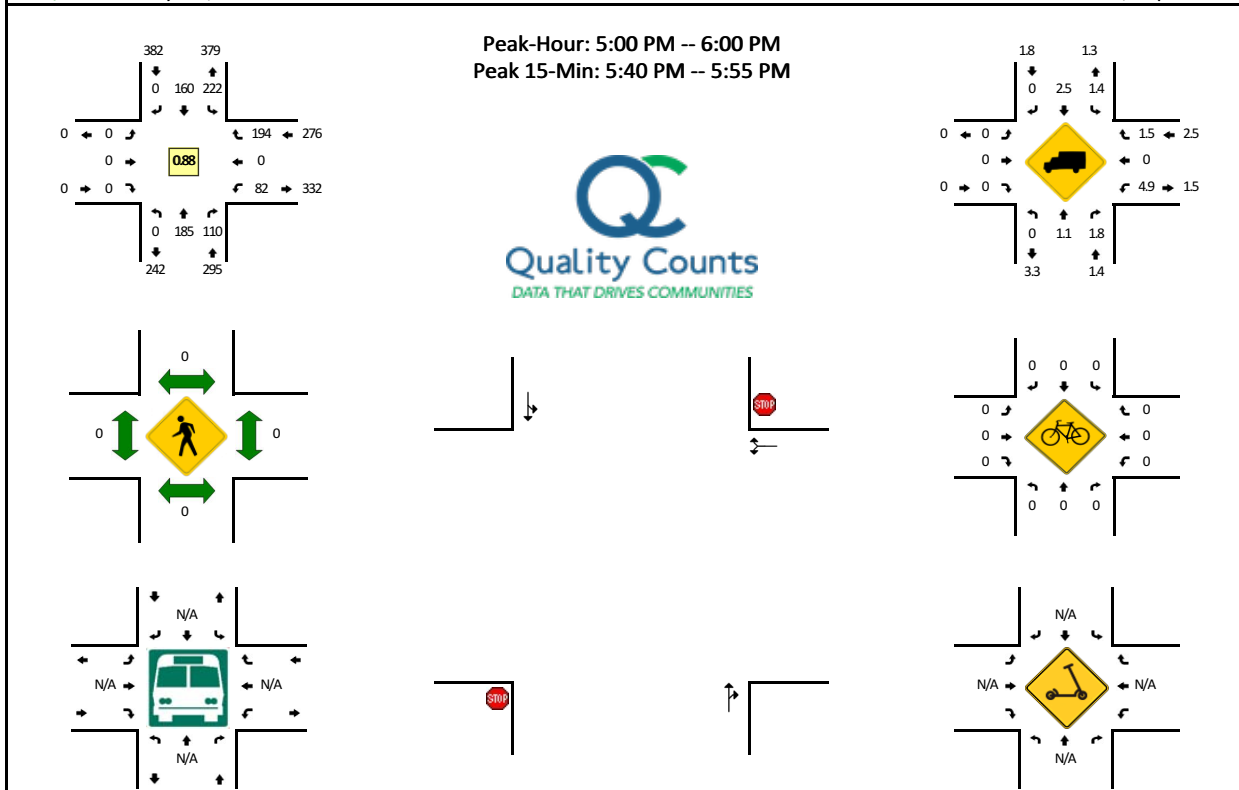
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904204
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	19	15	0	17	4	0	0	0	0	0	0	9	0	19	0	83	
4:05 PM	0	11	9	0	13	6	0	0	0	0	0	0	10	0	24	0	73	
4:10 PM	0	21	6	0	18	8	0	0	0	0	0	0	13	0	23	0	89	
4:15 PM	0	17	10	0	16	3	0	0	0	0	0	0	11	0	19	0	76	
4:20 PM	0	18	4	0	21	13	0	0	0	0	0	0	5	0	19	0	80	
4:25 PM	0	15	10	0	16	4	0	0	0	0	0	0	10	0	13	0	68	
4:30 PM	0	17	7	0	15	14	0	0	0	0	0	0	4	0	12	0	69	
4:35 PM	0	14	3	0	20	28	0	0	0	0	0	0	3	0	12	0	80	
4:40 PM	0	16	10	0	13	21	0	0	0	0	0	0	11	0	13	0	84	
4:45 PM	0	14	8	0	16	10	0	0	0	0	0	0	5	0	13	1	67	
4:50 PM	0	14	12	0	24	10	0	0	0	0	0	0	8	0	12	0	80	
4:55 PM	0	11	9	0	13	11	0	0	0	0	0	0	6	0	13	0	63	912
5:00 PM	0	15	7	0	13	9	0	0	0	0	0	0	9	0	9	0	62	891
5:05 PM	0	14	7	0	25	12	0	0	0	0	0	0	1	0	13	0	72	890
5:10 PM	0	19	9	0	18	12	0	0	0	0	0	0	5	0	14	0	77	878
5:15 PM	0	8	10	0	19	18	0	0	0	0	0	0	8	0	11	0	74	876
5:20 PM	0	15	8	0	30	13	0	0	0	0	0	0	9	0	20	0	95	891
5:25 PM	0	25	4	0	17	16	0	0	0	0	0	0	5	0	15	0	82	905
5:30 PM	0	17	7	0	14	10	0	0	0	0	0	0	3	0	14	0	65	901
5:35 PM	0	12	13	0	18	14	0	0	0	0	0	0	9	0	20	0	86	907
5:40 PM	0	20	11	0	15	14	0	0	0	0	0	0	10	0	22	0	92	915
5:45 PM	0	16	6	0	19	13	0	0	0	0	0	0	12	0	20	0	86	934
5:50 PM	0	10	21	0	20	18	0	0	0	0	0	0	5	0	20	0	94	948
5:55 PM	0	14	7	0	14	11	0	0	0	0	0	0	6	0	16	0	68	953
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	184	152	0	216	180	0	0	0	0	0	0	108	0	248	0	1088	
Heavy Trucks	0	4	4	0	4	4	0	0	0	0	0	0	0	0	8	0	24	
Buses	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	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 9/14/2022 8:10 AM

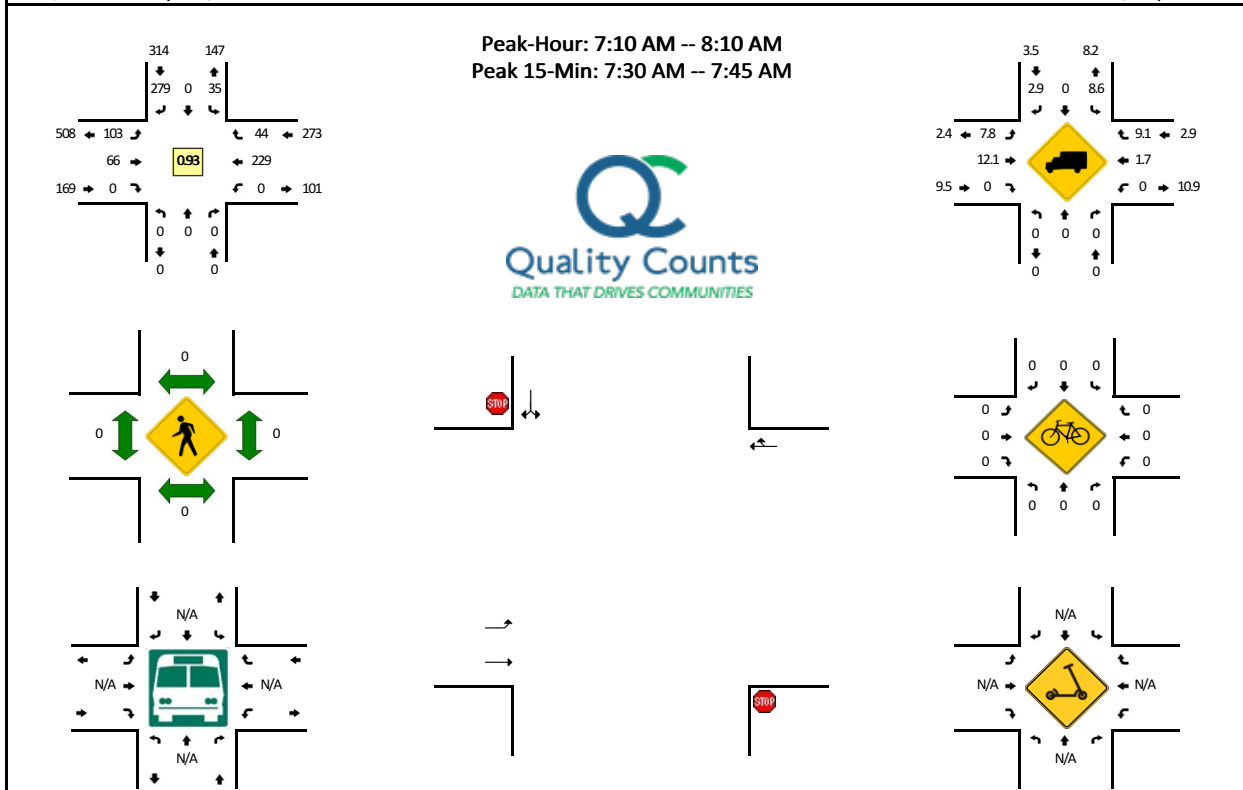
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- Powhatan Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904205
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				Powhatan Rd (Eastbound)				Powhatan Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	5	0	18	0	3	3	0	0	0	20	2	0	51	
7:05 AM	0	0	0	0	4	0	17	0	6	4	0	0	0	16	8	0	55	
7:10 AM	0	0	0	0	2	0	20	0	6	7	0	0	0	18	1	0	54	
7:15 AM	0	0	0	0	3	0	21	0	3	9	0	0	0	17	1	0	54	
7:20 AM	0	0	0	0	4	0	22	0	11	7	0	0	0	15	8	0	67	
7:25 AM	0	0	0	0	1	0	16	0	5	3	0	0	0	16	7	0	48	
7:30 AM	0	0	0	0	2	0	22	0	11	8	0	0	0	21	6	0	70	
7:35 AM	0	0	0	0	5	0	28	0	7	2	0	0	0	26	6	0	74	
7:40 AM	0	0	0	0	4	0	23	0	10	3	0	0	0	18	1	0	59	
7:45 AM	0	0	0	0	1	0	29	0	10	5	0	0	0	20	2	0	67	
7:50 AM	0	0	0	0	6	0	25	0	11	5	0	0	0	19	3	0	69	
7:55 AM	0	0	0	0	1	0	28	0	11	3	0	0	0	18	3	0	64	732
8:00 AM	0	0	0	0	0	0	18	0	9	5	0	0	0	23	3	0	58	739
8:05 AM	0	0	0	0	6	0	27	0	9	9	0	0	0	18	3	0	72	756
8:10 AM	0	0	0	0	3	0	24	0	5	3	0	0	0	15	4	0	54	756
8:15 AM	0	0	0	0	2	0	16	0	5	7	0	0	0	7	3	0	40	742
8:20 AM	0	0	0	0	1	0	13	0	9	3	0	0	0	9	4	0	39	714
8:25 AM	0	0	0	0	2	0	19	0	7	4	0	0	0	11	8	0	51	717
8:30 AM	0	0	0	0	4	0	16	0	6	4	0	0	0	13	6	0	49	696
8:35 AM	0	0	0	0	6	0	18	0	2	5	0	0	0	9	7	0	47	669
8:40 AM	0	0	0	0	6	0	12	0	4	2	0	0	0	10	3	0	37	647
8:45 AM	0	0	0	0	3	0	13	0	8	1	0	0	0	16	5	0	46	626
8:50 AM	0	0	0	0	5	0	11	0	11	3	0	0	0	15	2	0	47	604
8:55 AM	0	0	0	0	1	0	15	0	6	8	0	0	0	9	7	0	46	586
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	44	0	292	0	112	52	0	0	0	260	52	0	812	
Heavy Trucks	0	0	0	0	8	0	8	0	4	0	0	0	0	4	8	0	32	
Buses	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	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Comments:

Report generated on 9/14/2022 8:10 AM

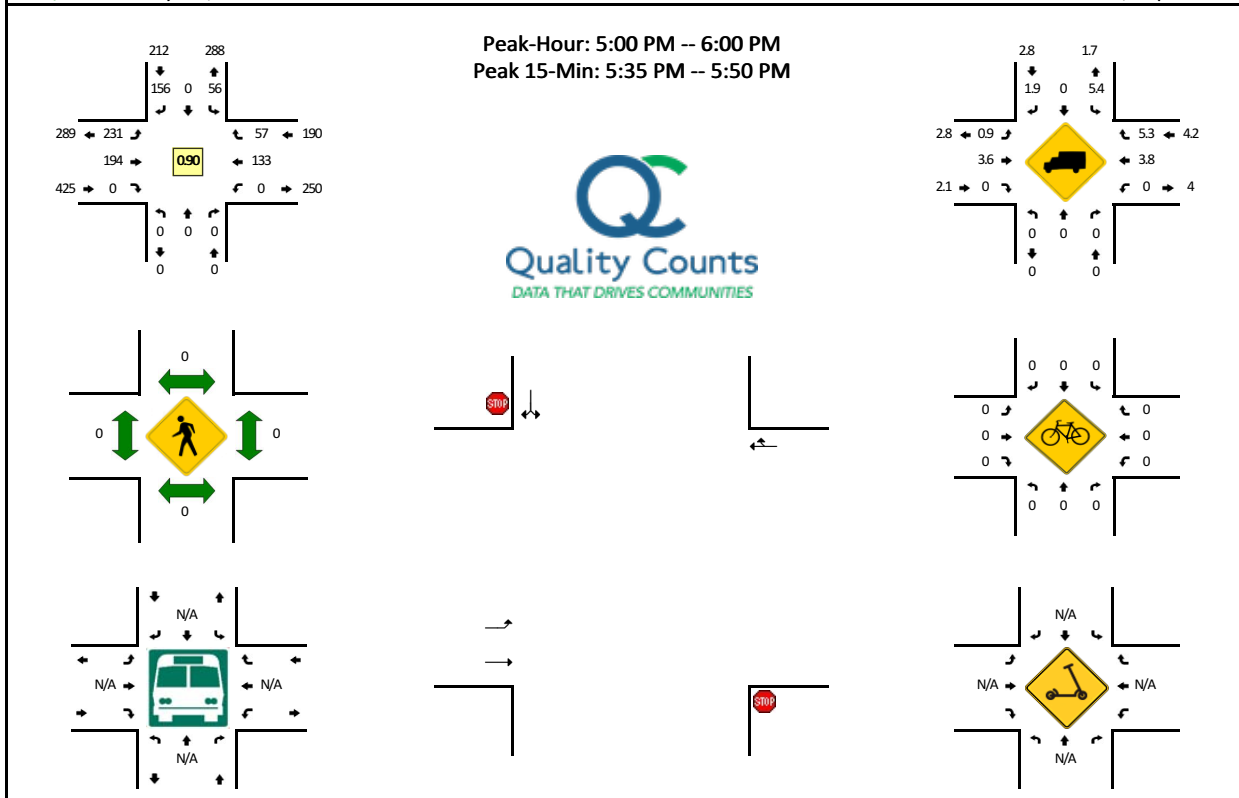
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Glen Laurel Rd -- Powhatan Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904206
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Glen Laurel Rd (Northbound)				Glen Laurel Rd (Southbound)				Powhatan Rd (Eastbound)				Powhatan Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	9	0	11	0	30	15	0	0	0	8	3	0	76	
4:05 PM	0	0	0	0	0	0	11	0	21	18	0	0	0	6	2	0	58	
4:10 PM	0	0	0	0	10	0	10	0	22	23	0	0	0	12	2	0	79	
4:15 PM	0	0	0	0	3	0	7	0	25	12	0	0	0	3	2	0	52	
4:20 PM	0	0	0	0	4	0	11	0	17	20	0	0	0	8	2	0	62	
4:25 PM	0	0	0	0	3	0	14	0	16	19	0	0	0	6	2	0	60	
4:30 PM	0	0	0	0	6	0	9	0	19	21	0	0	0	10	3	0	68	
4:35 PM	0	0	0	0	10	0	16	0	11	13	0	0	0	4	7	0	61	
4:40 PM	0	0	0	0	9	0	17	0	26	20	0	0	0	8	5	0	85	
4:45 PM	0	0	0	0	6	0	11	0	19	16	0	0	0	13	4	0	69	
4:50 PM	0	0	0	0	8	0	10	0	20	12	0	0	0	12	1	0	63	
4:55 PM	0	0	0	0	4	0	11	0	21	10	0	0	0	11	3	0	60	793
5:00 PM	0	0	0	0	2	0	9	0	15	15	0	0	0	7	5	0	53	770
5:05 PM	0	0	0	0	7	0	10	0	18	24	0	0	0	11	3	0	73	785
5:10 PM	0	0	0	0	1	0	13	0	21	19	0	0	0	14	6	0	74	780
5:15 PM	0	0	0	0	9	0	16	0	17	16	0	0	0	7	1	0	66	794
5:20 PM	0	0	0	0	6	0	10	0	18	20	0	0	0	7	3	0	64	796
5:25 PM	0	0	0	0	4	0	11	0	22	12	0	0	0	11	7	0	67	803
5:30 PM	0	0	0	0	5	0	7	0	18	19	0	0	0	9	5	0	63	798
5:35 PM	0	0	0	0	4	0	14	0	24	18	0	0	0	18	5	0	83	820
5:40 PM	0	0	0	0	5	0	15	0	20	9	0	0	0	12	6	0	67	802
5:45 PM	0	0	0	0	5	0	22	0	19	15	0	0	0	13	6	0	80	813
5:50 PM	0	0	0	0	4	0	13	0	20	14	0	0	0	10	6	0	67	817
5:55 PM	0	0	0	0	4	0	16	0	19	13	0	0	0	14	4	0	70	827
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	56	0	204	0	252	168	0	0	0	172	68	0	920	
Heavy Trucks	0	0	0	0	4	0	0	0	0	8	0	0	0	4	8	0	24	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

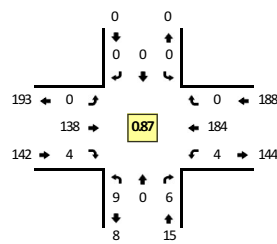
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

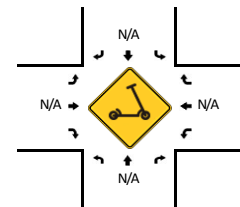
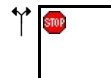
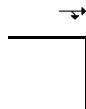
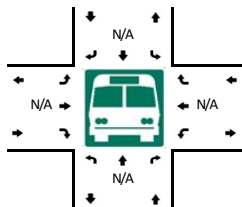
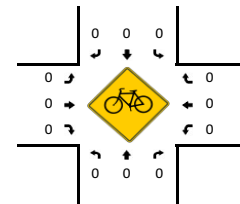
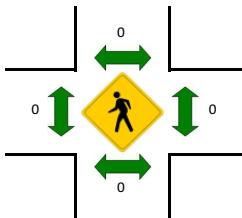
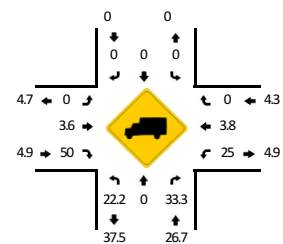
Method for determining peak hour: Total Entering Volume

LOCATION: Windsor Green Dr -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904207
DATE: Thu, Sep 8 2022



Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:30 AM -- 8:45 AM



5-Min Count Period Beginning At	Windsor Green Dr (Northbound)				Windsor Green Dr (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	1	0	0	0	0	0	0	9	0	0	0	8	0	0	18	
7:05 AM	1	0	0	0	0	0	0	0	0	8	0	0	0	15	0	0	24	
7:10 AM	1	0	0	0	0	0	0	0	0	13	2	0	0	13	0	0	29	
7:15 AM	1	0	1	0	0	0	0	0	0	9	0	0	0	16	0	0	27	
7:20 AM	2	0	1	0	0	0	0	0	0	9	0	0	0	18	0	0	30	
7:25 AM	2	0	0	0	0	0	0	0	0	7	1	0	0	13	0	0	23	
7:30 AM	2	0	1	0	0	0	0	0	0	9	0	0	0	12	0	0	24	
7:35 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	19	0	0	29	
7:40 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	19	0	0	22	
7:45 AM	4	0	1	0	0	0	0	0	0	6	0	0	0	13	0	0	24	
7:50 AM	0	0	0	0	0	0	0	0	0	8	2	0	0	15	0	0	25	
7:55 AM	1	0	1	0	0	0	0	0	0	6	0	0	1	13	0	0	22	297
8:00 AM	1	0	0	0	0	0	0	0	0	9	0	0	1	17	0	0	28	307
8:05 AM	0	0	0	0	0	0	0	0	0	11	0	0	1	21	0	0	33	316
8:10 AM	1	0	0	0	0	0	0	0	0	5	0	0	0	20	0	0	26	313
8:15 AM	0	0	0	0	0	0	0	0	0	3	1	0	0	9	0	0	13	299
8:20 AM	2	0	2	0	0	0	0	0	0	10	2	0	1	14	0	0	31	300
8:25 AM	1	0	3	0	0	0	0	0	0	15	0	0	0	16	0	0	35	312
8:30 AM	1	0	0	0	0	0	0	0	0	13	0	0	0	17	0	0	31	319
8:35 AM	0	0	0	0	0	0	0	0	0	19	0	0	0	13	0	0	32	322
8:40 AM	2	0	0	0	0	0	0	0	0	19	0	0	1	14	0	0	36	336
8:45 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	15	0	0	28	340
8:50 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	16	0	0	27	342
8:55 AM	1	0	1	0	0	0	0	0	0	10	1	0	0	12	0	0	25	345
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	12	0	0	0	0	0	0	0	0	204	0	0	4	176	0	0	396	
Heavy Trucks	4	0	0	0	0	0	0	0	0	8	0	0	0	8	0	0	20	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

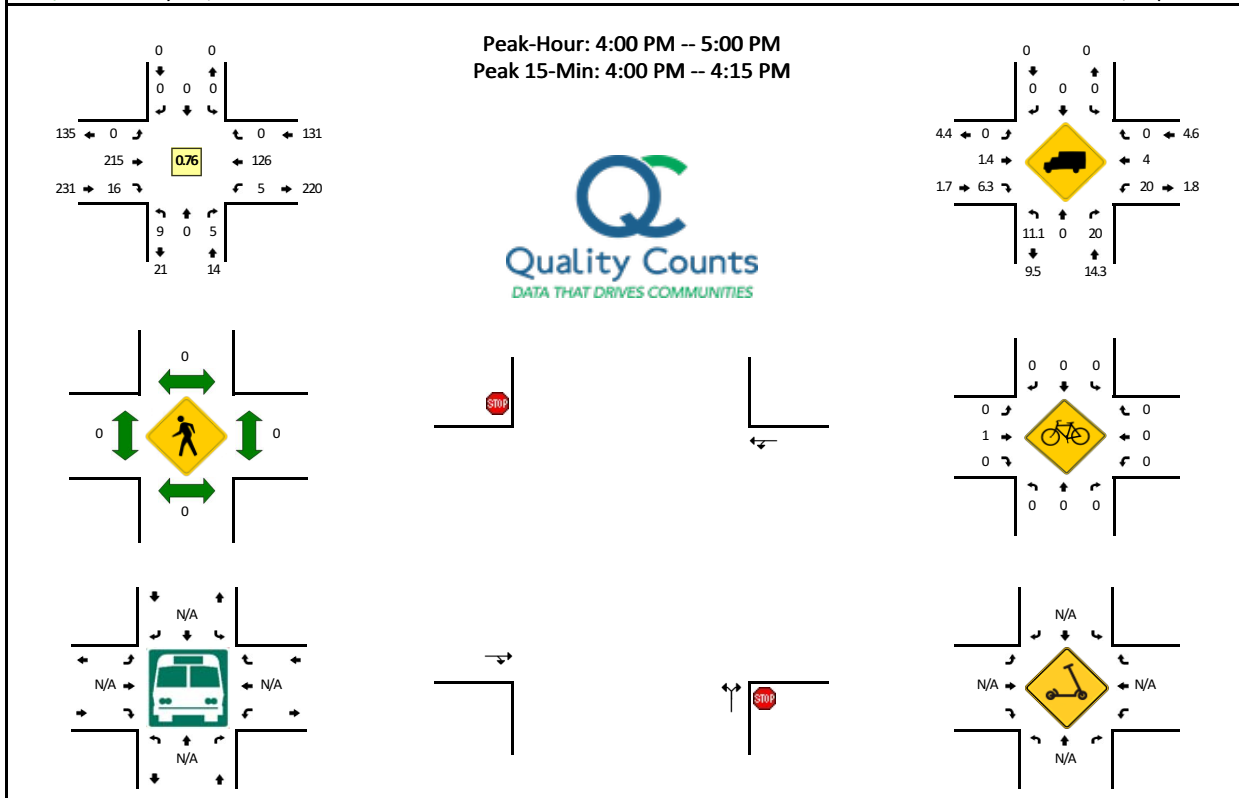
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Windsor Green Dr -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904208
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Windsor Green Dr (Northbound)				Windsor Green Dr (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	0	0	0	0	0	0	0	0	17	0	0	1	18	0	0	39	
4:05 PM	1	0	0	0	0	0	0	0	0	33	3	0	0	10	0	0	47	
4:10 PM	1	0	0	0	0	0	0	0	0	21	3	0	0	12	0	0	37	
4:15 PM	0	0	1	0	0	0	0	0	0	27	1	0	1	8	0	0	38	
4:20 PM	0	0	0	0	0	0	0	0	0	18	2	0	0	7	0	0	27	
4:25 PM	0	0	1	0	0	0	0	0	0	17	0	0	0	13	0	0	31	
4:30 PM	0	0	0	0	0	0	0	0	0	20	0	0	2	8	0	0	30	
4:35 PM	1	0	0	0	0	0	0	0	0	10	1	0	0	12	0	0	24	
4:40 PM	1	0	1	0	0	0	0	0	0	14	0	0	0	8	0	0	24	
4:45 PM	0	0	1	0	0	0	0	0	0	11	4	0	0	10	0	0	26	
4:50 PM	0	0	1	0	0	0	0	0	0	16	1	0	1	11	0	0	30	
4:55 PM	2	0	0	0	0	0	0	0	0	11	1	0	0	9	0	0	23	376
5:00 PM	1	0	0	0	0	0	0	0	0	14	1	0	0	8	0	0	24	361
5:05 PM	0	0	0	0	0	0	0	0	0	15	3	0	0	7	0	0	25	339
5:10 PM	1	0	1	0	0	0	0	0	0	15	3	0	0	13	0	0	33	335
5:15 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	7	0	0	24	321
5:20 PM	1	0	0	0	0	0	0	0	0	21	2	0	0	13	0	0	37	331
5:25 PM	2	0	0	0	0	0	0	0	0	10	2	0	1	8	0	0	23	323
5:30 PM	0	0	0	0	0	0	0	0	0	15	2	0	1	17	0	0	35	328
5:35 PM	0	0	0	0	0	0	0	0	0	12	2	0	1	20	0	0	35	339
5:40 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	17	0	0	34	349
5:45 PM	1	0	1	0	0	0	0	0	0	10	2	0	0	15	0	0	29	352
5:50 PM	0	0	0	0	0	0	0	0	0	22	2	0	0	15	0	0	39	361
5:55 PM	0	0	0	0	0	0	0	0	0	10	0	0	1	7	0	0	18	356
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	20	0	0	0	0	0	0	0	0	284	24	0	4	160	0	0	492	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	4	0	0	8	0	0	12	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

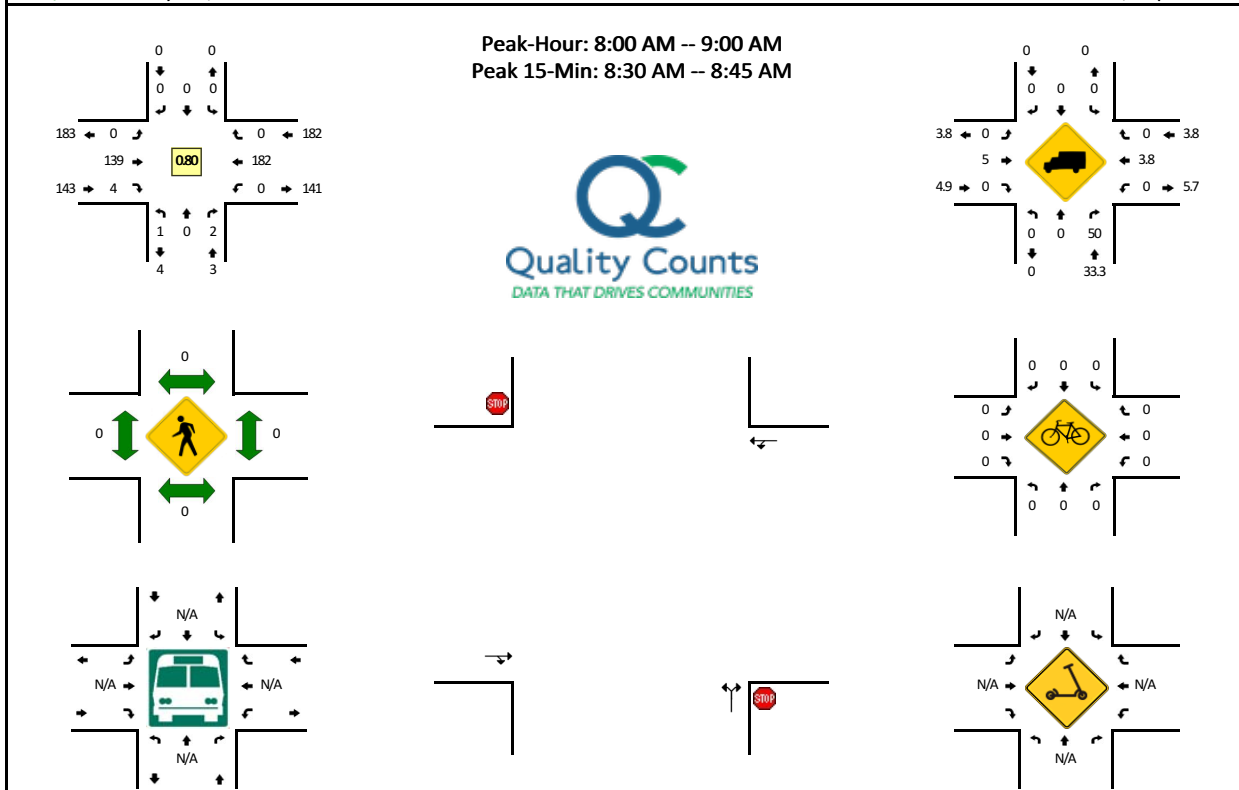
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Rainwater Ct -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904209
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Rainwater Ct (Northbound)				Rainwater Ct (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	0	0	0	0	0	0	0	10	0	0	0	9	0	0	20	
7:05 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	13	0	0	20	
7:10 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	0	25	
7:15 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	17	0	0	27	
7:20 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	18	0	0	31	
7:25 AM	0	0	1	0	0	0	0	0	0	7	0	0	0	12	0	0	20	
7:30 AM	0	0	0	0	0	0	0	0	0	8	0	0	0	11	0	0	19	
7:35 AM	0	0	0	0	0	0	0	0	0	11	1	0	0	21	0	0	33	
7:40 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	18	0	0	20	
7:45 AM	0	0	1	0	0	0	0	0	0	6	0	0	0	12	0	0	19	
7:50 AM	0	0	0	0	0	0	0	0	0	9	0	0	0	16	0	0	25	
7:55 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	14	0	0	21	280
8:00 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	16	0	0	22	282
8:05 AM	0	0	0	0	0	0	0	0	0	12	1	0	0	22	0	0	35	297
8:10 AM	0	0	0	0	0	0	0	0	0	6	0	0	0	20	0	0	26	298
8:15 AM	0	0	0	0	0	0	0	0	0	2	1	0	0	9	0	0	12	283
8:20 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	0	25	277
8:25 AM	0	0	0	0	0	0	0	0	0	11	1	0	0	16	0	0	28	285
8:30 AM	0	0	1	0	0	0	0	0	0	17	0	0	0	18	0	0	36	302
8:35 AM	0	0	0	0	0	0	0	0	0	18	0	0	0	13	0	0	31	300
8:40 AM	0	0	0	0	0	0	0	0	0	20	1	0	0	15	0	0	36	316
8:45 AM	1	0	1	0	0	0	0	0	0	11	0	0	0	14	0	0	27	324
8:50 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	15	0	0	28	327
8:55 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	11	0	0	22	328
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	4	0	0	0	0	0	0	220	4	0	0	184	0	0	412	
Heavy Trucks	0	0	4	0	0	0	0	0	0	12	0	0	0	16	0	0	32	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

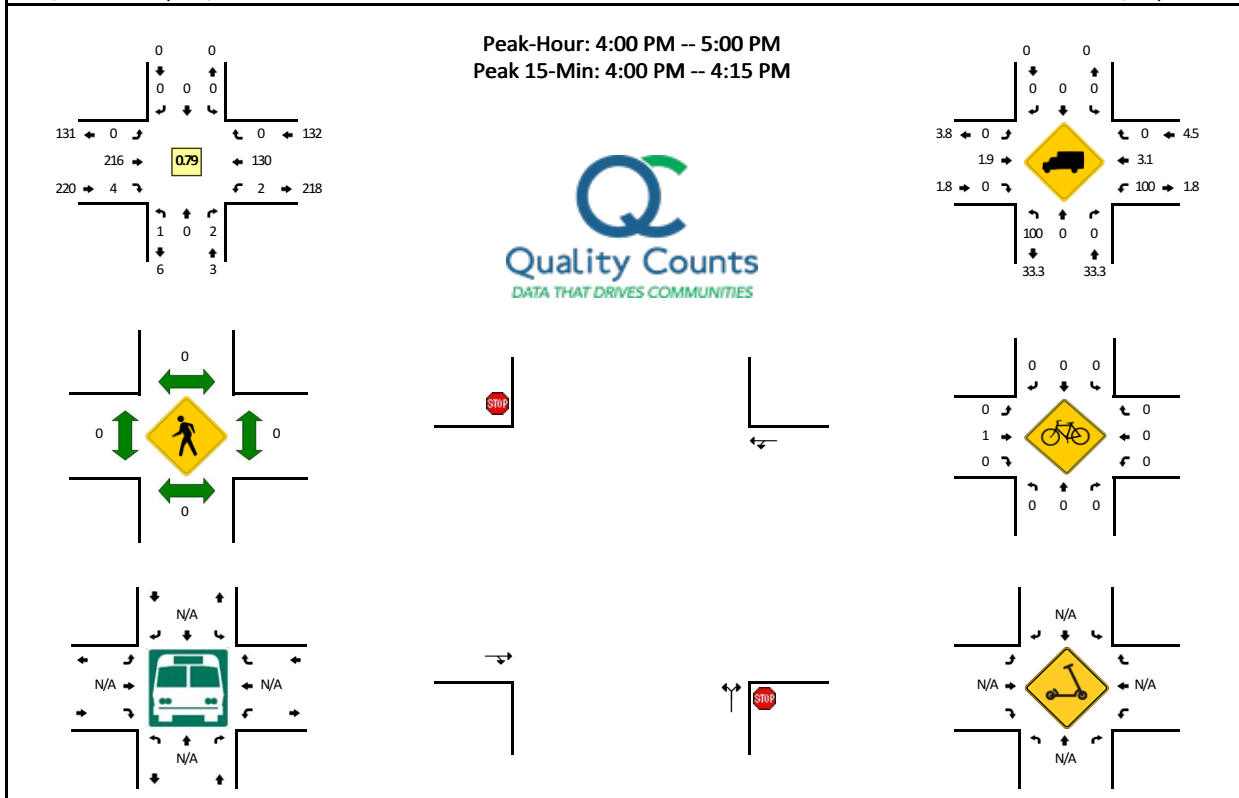
SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Rainwater Ct -- Vinson Rd
CITY/STATE: Clayton, NC

QC JOB #: 15904210
DATE: Thu, Sep 8 2022



5-Min Count Period Beginning At	Rainwater Ct (Northbound)				Rainwater Ct (Southbound)				Vinson Rd (Eastbound)				Vinson Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	18	0	0	34	
4:05 PM	0	0	0	0	0	0	0	0	0	32	0	0	0	10	0	0	42	
4:10 PM	0	0	0	0	0	0	0	0	0	23	0	0	0	14	0	0	37	
4:15 PM	0	0	0	0	0	0	0	0	0	23	1	0	0	9	0	0	33	
4:20 PM	0	0	0	0	0	0	0	0	0	22	0	0	0	6	0	0	28	
4:25 PM	0	0	0	0	0	0	0	0	0	18	0	0	0	13	0	0	31	
4:30 PM	1	0	1	0	0	0	0	0	0	16	1	0	0	9	0	0	29	
4:35 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	13	0	0	25	
4:40 PM	0	0	1	0	0	0	0	0	0	15	1	0	0	8	0	0	25	
4:45 PM	0	0	0	0	0	0	0	0	0	12	0	0	0	10	0	0	22	
4:50 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	1	10	0	27	
4:55 PM	0	0	0	0	0	0	0	0	0	11	1	0	0	10	0	0	22	355
5:00 PM	0	0	0	0	0	0	0	0	0	14	0	0	0	1	9	0	24	345
5:05 PM	0	0	0	0	0	0	0	0	0	13	0	0	0	7	0	0	20	323
5:10 PM	0	0	0	0	0	0	0	0	0	17	0	0	0	13	0	0	30	316
5:15 PM	0	0	0	0	0	0	0	0	0	16	0	0	0	7	0	0	23	306
5:20 PM	0	0	0	0	0	0	0	0	0	23	0	0	0	13	0	0	36	314
5:25 PM	0	0	0	0	0	0	0	0	0	9	0	0	0	8	0	0	17	300
5:30 PM	0	0	0	0	0	0	0	0	0	14	0	0	0	18	0	0	32	303
5:35 PM	1	0	0	0	0	0	0	0	0	12	0	0	0	1	20	0	34	312
5:40 PM	0	0	1	0	0	0	0	0	0	16	0	0	0	15	0	0	32	319
5:45 PM	0	0	1	0	0	0	0	0	0	11	1	0	0	15	0	0	28	325
5:50 PM	1	0	0	0	0	0	0	0	0	22	0	0	0	15	0	0	38	336
5:55 PM	0	0	0	0	0	0	0	0	0	11	0	0	0	8	0	0	19	333
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	0	0	0	0	0	0	0	0	284	0	0	0	168	0	0	452	
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	
Buses																		
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Scooters																		

Comments:

Report generated on 9/14/2022 8:10 AM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

APPENDIX C

CAPACITY CALCULATIONS – NC 42 & GLEN LAUREL ROAD

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	36	698	173	4	180	881	8	414	5	115	4	4
Future Volume (vph)	36	698	173	4	180	881	8	414	5	115	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.954			0.976
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1697	1591	0	1809
Flt Permitted	0.209				0.276			0.950	0.954			0.682
Satd. Flow (perm)	391	3557	1591	0	509	3500	0	1690	1697	1591	0	1264
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	40	776	192	4	200	979	9	460	6	128	4	4
Shared Lane Traffic (%)								49%				
Lane Group Flow (vph)	40	776	192	0	204	988	0	235	231	128	0	8
Turn Type	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2		1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	2	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	20.6	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	15.0	45.0	45.0	20.0	20.0	50.0		40.0	40.0	20.0	15.0	15.0
Total Split (%)	12.5%	37.5%	37.5%	16.7%	16.7%	41.7%		33.3%	33.3%	16.7%	12.5%	12.5%
Maximum Green (s)	9.7	38.4	38.4	14.4	14.4	43.4		33.7	33.7	14.4	9.0	9.0
Yellow Time (s)	3.2	5.3	5.3	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.3	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	6.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	3.4	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	15.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	45.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	77.8	63.0	63.0		76.8	68.9		22.4	22.4	39.2		8.6
Actuated g/C Ratio	0.65	0.52	0.52		0.64	0.57		0.19	0.19	0.33		0.07
v/c Ratio	0.11	0.42	0.23		0.44	0.49		0.75	0.73	0.25		0.09
Control Delay	12.1	21.3	20.5		19.0	19.7		60.0	58.8	23.4		53.9
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: AM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	5
Future Volume (vph)	5
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	6
Shared Lane Traffic (%)	
Lane Group Flow (vph)	6
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	15.0
Total Split (%)	12.5%
Maximum Green (s)	9.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.6
Actuated g/C Ratio	0.07
v/c Ratio	0.05
Control Delay	52.4
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 2

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	12.1	21.3	20.5		19.0	19.7		60.0	58.8	23.4		53.9
LOS	B	C	C		B	B		E	E	C		D
Approach Delay		20.8				19.6			51.6			53.2
Approach LOS		C				B			D			D
Queue Length 50th (ft)	8	164	69		42	212		182	178	70		6
Queue Length 95th (ft)	31	328	174		123	400		257	252	76		22
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	379	1866	835		495	2009		492	494	503		105
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.11	0.42	0.23		0.41	0.49		0.48	0.47	0.25		0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 30 (25%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 27.0

Intersection LOS: C

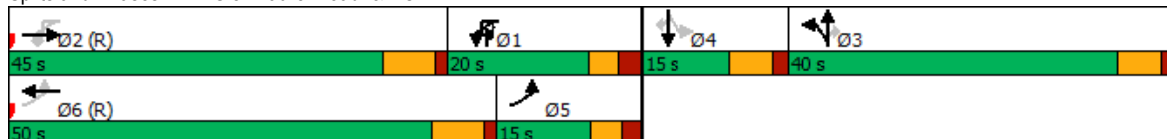
Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: AM Peak Hour



Lane Group	SBR
Total Delay	52.4
LOS	D
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	4
Queue Length 95th (ft)	18
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	131
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.05
Intersection Summary	

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	4	937	435	4	221	844	5	339	4	180	4	4
Future Volume (vph)	4	937	435	4	221	844	5	339	4	180	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.953			0.976
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1695	1591	0	1809
Flt Permitted	0.243				0.138			0.950	0.953			0.508
Satd. Flow (perm)	455	3557	1591	0	254	3500	0	1690	1695	1591	0	942
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	4	1041	483	4	246	938	6	377	4	200	4	4
Shared Lane Traffic (%)								49%				
Lane Group Flow (vph)	4	1041	483	0	250	944	0	192	189	200	0	8
Turn Type	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2		1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	2	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	20.6	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	15.0	40.0	40.0	30.0	30.0	55.0		30.0	30.0	30.0	15.0	15.0
Total Split (%)	13.0%	34.8%	34.8%	26.1%	26.1%	47.8%		26.1%	26.1%	26.1%	13.0%	13.0%
Maximum Green (s)	9.7	33.4	33.4	24.4	24.4	48.4		23.7	23.7	24.4	9.0	9.0
Yellow Time (s)	3.2	5.3	5.3	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.3	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	6.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	3.4	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	15.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	45.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	76.9	55.6	55.6		72.9	74.1		18.6	18.6	37.8		8.7
Actuated g/C Ratio	0.67	0.48	0.48		0.63	0.64		0.16	0.16	0.33		0.08
v/c Ratio	0.01	0.61	0.63		0.65	0.42		0.70	0.69	0.38		0.11
Control Delay	10.5	27.4	31.4		35.2	14.3		59.0	58.1	22.7		52.4
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: PM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	23
Future Volume (vph)	23
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	26
Shared Lane Traffic (%)	
Lane Group Flow (vph)	26
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	15.0
Total Split (%)	13.0%
Maximum Green (s)	9.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.7
Actuated g/C Ratio	0.08
v/c Ratio	0.22
Control Delay	54.0
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 2

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	10.5	27.4	31.4		35.2	14.3		59.0	58.1	22.7		52.4
LOS	B	C	C		D	B		E	E	C		D
Approach Delay		28.6				18.7			46.2			53.7
Approach LOS		C				B			D			D
Queue Length 50th (ft)	1	310	278		72	168		143	140	88		6
Queue Length 95th (ft)	6	#537	#578		186	375		213	209	99		22
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	428	1720	769		503	2283		367	368	561		82
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.01	0.61	0.63		0.50	0.41		0.52	0.51	0.36		0.10

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 32 (28%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 28.4

Intersection LOS: C

Intersection Capacity Utilization 72.0%

ICU Level of Service C

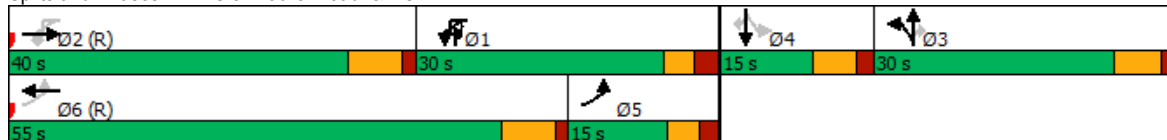
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2022 Existing
Timing Plan: PM Peak Hour



Lane Group	SBR
Total Delay	54.0
LOS	D
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	19
Queue Length 95th (ft)	47
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	138
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.19
Intersection Summary	

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	42	818	203	4	211	1032	9	485	6	135	4	4
Future Volume (vph)	42	818	203	4	211	1032	9	485	6	135	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.954			0.976
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1697	1591	0	1809
Flt Permitted	0.141				0.199			0.950	0.954			0.682
Satd. Flow (perm)	264	3557	1591	0	367	3500	0	1690	1697	1591	0	1264
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	47	909	226	4	234	1147	10	539	7	150	4	4
Shared Lane Traffic (%)								49%				
Lane Group Flow (vph)	47	909	226	0	238	1157	0	275	271	150	0	8
Turn Type	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2		1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	2	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	20.6	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	15.0	45.0	45.0	20.0	20.0	50.0		40.0	40.0	20.0	15.0	15.0
Total Split (%)	12.5%	37.5%	37.5%	16.7%	16.7%	41.7%		33.3%	33.3%	16.7%	12.5%	12.5%
Maximum Green (s)	9.7	38.4	38.4	14.4	14.4	43.4		33.7	33.7	14.4	9.0	9.0
Yellow Time (s)	3.2	5.3	5.3	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.3	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	6.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	3.4	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	15.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	45.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	75.0	58.0	58.0		74.0	65.5		25.2	25.2	44.2		8.6
Actuated g/C Ratio	0.62	0.48	0.48		0.62	0.55		0.21	0.21	0.37		0.07
v/c Ratio	0.16	0.53	0.29		0.58	0.61		0.77	0.76	0.26		0.09
Control Delay	16.2	25.8	23.8		30.0	24.0		59.1	58.0	21.1		53.9
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

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Synchro 10 Report
Page 1

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: AM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	7
Shared Lane Traffic (%)	
Lane Group Flow (vph)	7
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	15.0
Total Split (%)	12.5%
Maximum Green (s)	9.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.6
Actuated g/C Ratio	0.07
v/c Ratio	0.06
Control Delay	52.7
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
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Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	16.2	25.8	23.8		30.0	24.0		59.1	58.0	21.1		53.9
LOS	B	C	C		C	C		E	E	C		D
Approach Delay		25.1				25.0			50.5			53.3
Approach LOS		C				C			D			D
Queue Length 50th (ft)	10	235	96		56	318		212	209	75		6
Queue Length 95th (ft)	38	400	205		152	518		291	286	87		22
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	309	1718	768		418	1911		492	494	580		105
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.15	0.53	0.29		0.57	0.61		0.56	0.55	0.26		0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 30 (25%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 30.5

Intersection LOS: C

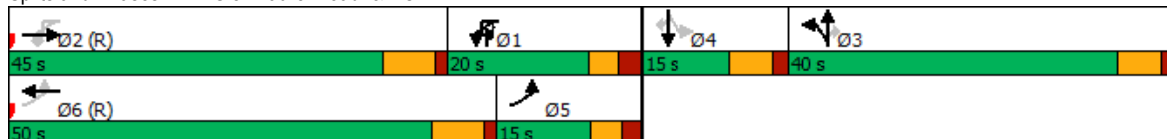
Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: AM Peak Hour



Lane Group	SBR
Total Delay	52.7
LOS	D
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	5
Queue Length 95th (ft)	21
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	131
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.05
Intersection Summary	

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	4	1098	510	5	259	989	6	397	4	211	5	4
Future Volume (vph)	4	1098	510	5	259	989	6	397	4	211	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.953			0.971
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1695	1591	0	1800
Flt Permitted	0.187				0.090			0.950	0.953			0.552
Satd. Flow (perm)	350	3557	1591	0	166	3500	0	1690	1695	1591	0	1023
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	4	1220	567	6	288	1099	7	441	4	234	6	4
Shared Lane Traffic (%)								50%				
Lane Group Flow (vph)	4	1220	567	0	294	1106	0	220	225	234	0	10
Turn Type	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2		1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	2	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	20.6	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	15.0	40.0	40.0	30.0	30.0	55.0		30.0	30.0	30.0	15.0	15.0
Total Split (%)	13.0%	34.8%	34.8%	26.1%	26.1%	47.8%		26.1%	26.1%	26.1%	13.0%	13.0%
Maximum Green (s)	9.7	33.4	33.4	24.4	24.4	48.4		23.7	23.7	24.4	9.0	9.0
Yellow Time (s)	3.2	5.3	5.3	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.3	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	6.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	3.4	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	15.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	45.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	75.3	51.9	51.9		71.3	73.3		20.2	20.2	41.6		8.6
Actuated g/C Ratio	0.65	0.45	0.45		0.62	0.64		0.18	0.18	0.36		0.07
v/c Ratio	0.01	0.76	0.79		0.79	0.50		0.74	0.76	0.41		0.13
Control Delay	10.8	33.7	40.6		51.2	15.2		59.7	60.8	21.2		53.2
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

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Synchro 10 Report
Page 1

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: PM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	27
Future Volume (vph)	27
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	30
Shared Lane Traffic (%)	
Lane Group Flow (vph)	30
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	15.0
Total Split (%)	13.0%
Maximum Green (s)	9.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.6
Actuated g/C Ratio	0.07
v/c Ratio	0.25
Control Delay	55.4
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
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Synchro 10 Report
Page 2

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	10.8	33.7	40.6		51.2	15.2		59.7	60.8	21.2		53.2
LOS	B	C	D		D	B		E	E	C		D
Approach Delay		35.8				22.7			46.8			54.8
Approach LOS		D				C			D			D
Queue Length 50th (ft)	1	426	384		155	224		163	167	96		7
Queue Length 95th (ft)	6	#686	#717		257	430		243	249	116		25
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	353	1606	718		455	2231		367	368	595		88
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.01	0.76	0.79		0.65	0.50		0.60	0.61	0.39		0.11

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 32 (28%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 33.2

Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D

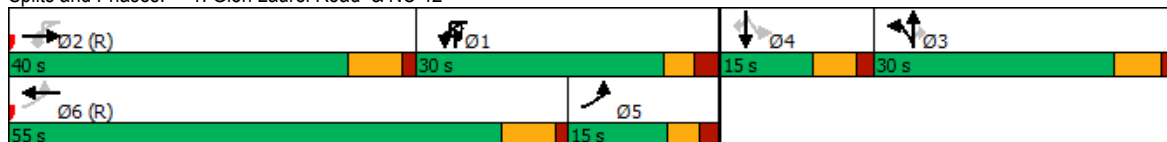
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 No-Build
Timing Plan: PM Peak Hour



Lane Group	SBR
Total Delay	55.4
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	21
Queue Length 95th (ft)	52
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	136
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.22
Intersection Summary	

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	42	818	218	4	246	1032	9	525	6	227	4	4
Future Volume (vph)	42	818	218	4	246	1032	9	525	6	227	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.953			0.976
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1695	1591	0	1809
Flt Permitted	0.127				0.178			0.950	0.953			0.682
Satd. Flow (perm)	238	3557	1591	0	328	3500	0	1690	1695	1591	0	1264
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	47	909	242	4	273	1147	10	583	7	252	4	4
Shared Lane Traffic (%)								49%				
Lane Group Flow (vph)	47	909	242	0	277	1157	0	297	293	252	0	8
Turn Type	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2		1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	2	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	20.6	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	15.0	45.0	45.0	20.0	20.0	50.0		40.0	40.0	20.0	15.0	15.0
Total Split (%)	12.5%	37.5%	37.5%	16.7%	16.7%	41.7%		33.3%	33.3%	16.7%	12.5%	12.5%
Maximum Green (s)	9.7	38.4	38.4	14.4	14.4	43.4		33.7	33.7	14.4	9.0	9.0
Yellow Time (s)	3.2	5.3	5.3	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.3	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	6.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	3.4	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	15.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	45.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	73.5	53.6	53.6		72.5	62.0		26.8	26.8	48.7		8.6
Actuated g/C Ratio	0.61	0.45	0.45		0.60	0.52		0.22	0.22	0.41		0.07
v/c Ratio	0.15	0.57	0.34		0.66	0.64		0.79	0.78	0.39		0.09
Control Delay	18.0	28.9	26.6		37.0	26.8		58.6	57.5	21.4		53.9
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

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Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: AM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	7
Shared Lane Traffic (%)	
Lane Group Flow (vph)	7
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	15.0
Total Split (%)	12.5%
Maximum Green (s)	9.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.6
Actuated g/C Ratio	0.07
v/c Ratio	0.06
Control Delay	52.7
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
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Synchro 10 Report
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Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	18.0	28.9	26.6		37.0	26.8		58.6	57.5	21.4		53.9
LOS	B	C	C		D	C		E	E	C		D
Approach Delay		28.0				28.7			47.1			53.3
Approach LOS		C				C			D			D
Queue Length 50th (ft)	10	264	117		71	356		229	225	122		6
Queue Length 95th (ft)	39	410	226		#265	#535		309	304	140		22
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	318	1587	710		422	1807		492	494	644		105
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.15	0.57	0.34		0.66	0.64		0.60	0.59	0.39		0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 30 (25%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 33.0

Intersection LOS: C

Intersection Capacity Utilization 73.0%

ICU Level of Service D

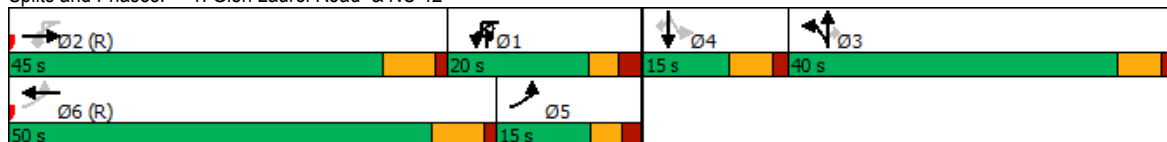
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: AM Peak Hour



Lane Group	SBR
Total Delay	52.7
LOS	D
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	5
Queue Length 95th (ft)	21
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	131
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.05
Intersection Summary	

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	4	1098	555	5	358	989	6	425	4	275	5	4
Future Volume (vph)	4	1098	555	5	358	989	6	425	4	275	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.953			0.971
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1695	1591	0	1800
Flt Permitted	0.184				0.103			0.950	0.953			0.552
Satd. Flow (perm)	344	3557	1591	0	190	3500	0	1690	1695	1591	0	1023
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	4	1220	617	6	398	1099	7	472	4	306	6	4
Shared Lane Traffic (%)								50%				
Lane Group Flow (vph)	4	1220	617	0	404	1106	0	236	240	306	0	10
Turn Type	D.P+P	NA	Perm	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2		1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	2	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	20.6	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	15.0	40.0	40.0	30.0	30.0	55.0		30.0	30.0	30.0	15.0	15.0
Total Split (%)	13.0%	34.8%	34.8%	26.1%	26.1%	47.8%		26.1%	26.1%	26.1%	13.0%	13.0%
Maximum Green (s)	9.7	33.4	33.4	24.4	24.4	48.4		23.7	23.7	24.4	9.0	9.0
Yellow Time (s)	3.2	5.3	5.3	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.3	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	6.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	3.4	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	15.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	45.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	C-Min	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	74.6	46.6	46.6		70.6	72.6		21.0	21.0	47.0		8.6
Actuated g/C Ratio	0.65	0.41	0.41		0.61	0.63		0.18	0.18	0.41		0.07
v/c Ratio	0.01	0.85	0.96		0.91	0.50		0.77	0.78	0.47		0.13
Control Delay	11.0	40.3	63.1		63.0	15.5		60.9	61.8	19.9		53.2
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

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Synchro 10 Report
Page 1

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: PM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	27
Future Volume (vph)	27
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	30
Shared Lane Traffic (%)	
Lane Group Flow (vph)	30
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	15.0
Total Split (%)	13.0%
Maximum Green (s)	9.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.6
Actuated g/C Ratio	0.07
v/c Ratio	0.25
Control Delay	55.4
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
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Synchro 10 Report
Page 2

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	11.0	40.3	63.1		63.0	15.5		60.9	61.8	19.9		53.2
LOS	B	D	E		E	B		E	E	B		D
Approach Delay		47.9				28.2			45.1			54.8
Approach LOS		D				C			D			D
Queue Length 50th (ft)	1	466	~523		237	229		174	177	116		7
Queue Length 95th (ft)	6	#686	#800		#435	430		260	266	155		25
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	347	1440	644		457	2209		367	368	649		88
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.01	0.85	0.96		0.88	0.50		0.64	0.65	0.47		0.11

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 32 (28%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 40.3

Intersection LOS: D

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

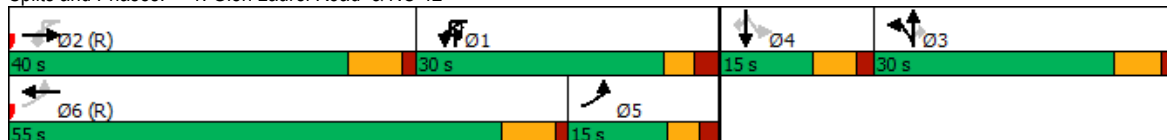
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build
Timing Plan: PM Peak Hour



Lane Group	SBR
Total Delay	55.4
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	21
Queue Length 95th (ft)	52
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	136
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.22
Intersection Summary	

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	42	818	218	4	246	1032	9	525	6	227	4	4
Future Volume (vph)	42	818	218	4	246	1032	9	525	6	227	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.953			0.976
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1695	1591	0	1809
Flt Permitted	0.143				0.185			0.950	0.953			0.769
Satd. Flow (perm)	268	3557	1591	0	341	3500	0	1690	1695	1591	0	1425
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	47	909	242	4	273	1147	10	583	7	252	4	4
Shared Lane Traffic (%)								49%				
Lane Group Flow (vph)	47	909	242	0	277	1157	0	297	293	252	0	8
Turn Type	D.P+P	NA	pm+ov	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2	3	1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	3	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	13.3	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	12.3	46.0	35.0	26.0	26.0	59.7		35.0	35.0	26.0	13.0	13.0
Total Split (%)	10.3%	38.3%	29.2%	21.7%	21.7%	49.8%		29.2%	29.2%	21.7%	10.8%	10.8%
Maximum Green (s)	7.0	39.4	28.7	20.4	20.4	53.1		28.7	28.7	20.4	7.0	7.0
Yellow Time (s)	3.2	5.3	4.6	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.7	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	4.7		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	2.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	2.0	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	0.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	0.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	None	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	75.0	55.1	86.2		74.0	66.1		25.7	25.7	47.6		8.1
Actuated g/C Ratio	0.62	0.46	0.72		0.62	0.55		0.21	0.21	0.40		0.07
v/c Ratio	0.16	0.56	0.21		0.64	0.60		0.82	0.81	0.40		0.08
Control Delay	15.0	28.1	7.5		33.6	22.8		63.0	61.6	22.2		54.7
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

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Synchro 10 Report
Page 1

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: AM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	7
Shared Lane Traffic (%)	
Lane Group Flow (vph)	7
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	13.0
Total Split (%)	10.8%
Maximum Green (s)	7.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.1
Actuated g/C Ratio	0.07
v/c Ratio	0.07
Control Delay	54.0
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
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Synchro 10 Report
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Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	15.0	28.1	7.5		33.6	22.8		63.0	61.6	22.2		54.7
LOS	B	C	A		C	C		E	E	C		D
Approach Delay		23.4				24.9			50.3			54.4
Approach LOS		C				C			D			D
Queue Length 50th (ft)	10	249	47		70	320		229	226	129		6
Queue Length 95th (ft)	34	404	115		193	461		329	323	144		23
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	298	1644	1138		465	1953		424	425	615		96
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.16	0.55	0.21		0.60	0.59		0.70	0.69	0.41		0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 30 (25%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 30.6

Intersection LOS: C

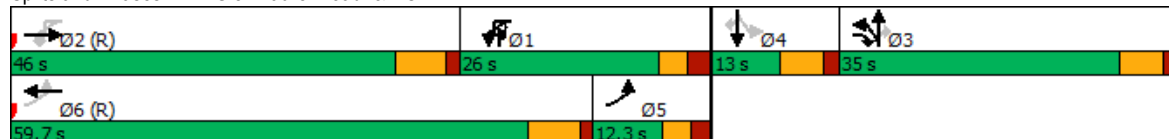
Intersection Capacity Utilization 73.0%

ICU Level of Service D

Analysis Period (min) 15

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: AM Peak Hour



Lane Group	SBR
Total Delay	54.0
LOS	D
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	5
Queue Length 95th (ft)	21
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	106
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.07
Intersection Summary	

Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	4	1098	555	5	358	989	6	425	4	275	5	4
Future Volume (vph)	4	1098	555	5	358	989	6	425	4	275	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-1%				2%			-1%			1%
Storage Length (ft)	250		475		525		0	425		475	100	
Storage Lanes	1		1		1		0	1		1	1	
Taper Length (ft)	100				100			100			100	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Frt			0.850			0.999				0.850		
Flt Protected	0.950				0.950			0.950	0.953			0.971
Satd. Flow (prot)	1778	3557	1591	0	1752	3500	0	1690	1695	1591	0	1800
Flt Permitted	0.177				0.110			0.950	0.953			0.552
Satd. Flow (perm)	331	3557	1591	0	203	3500	0	1690	1695	1591	0	1023
Right Turn on Red			No				No			No		
Satd. Flow (RTOR)												
Link Speed (mph)		50				50			45			45
Link Distance (ft)		1621				1433			1255			1075
Travel Time (s)		22.1				19.5			19.0			16.3
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)	4	1220	617	6	398	1099	7	472	4	306	6	4
Shared Lane Traffic (%)								50%				
Lane Group Flow (vph)	4	1220	617	0	404	1106	0	236	240	306	0	10
Turn Type	D.P+P	NA	pm+ov	D.P+P	D.P+P	NA		Split	NA	pm+ov	Perm	NA
Protected Phases	5	2	3	1!	1	6		3	3	1!		4
Permitted Phases	6		2	2	2					3	4	
Detector Phase	5	2	3	1	1	6		3	3	1	4	4
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.3	20.6	13.3	12.6	12.6	20.6		13.3	13.3	12.6	13.0	13.0
Total Split (s)	13.0	40.0	30.0	30.0	30.0	57.0		30.0	30.0	30.0	15.0	15.0
Total Split (%)	11.3%	34.8%	26.1%	26.1%	26.1%	49.6%		26.1%	26.1%	26.1%	13.0%	13.0%
Maximum Green (s)	7.7	33.4	23.7	24.4	24.4	50.4		23.7	23.7	24.4	9.0	9.0
Yellow Time (s)	3.2	5.3	4.6	3.1	3.1	5.3		4.6	4.6	3.1	4.4	4.4
All-Red Time (s)	2.1	1.3	1.7	2.5	2.5	1.3		1.7	1.7	2.5	1.6	1.6
Lost Time Adjust (s)	-0.3	-1.6	-1.6		-0.6	-1.6		-1.3	-1.3	-0.6		-1.0
Total Lost Time (s)	5.0	5.0	4.7		5.0	5.0		5.0	5.0	5.0		5.0
Lead/Lag	Lag	Lead	Lag	Lag	Lag	Lead		Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.0	6.0	2.0	2.0	2.0	6.0		2.0	2.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	3.4	2.0	2.0	2.0	3.4		2.0	2.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	15.0	0.0	0.0	0.0	15.0		0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	45.0	0.0	0.0	0.0	45.0		0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Min	None	None	None	C-Min		None	None	None	None	None
Act Effct Green (s)	71.8	43.8	72.8		67.8	70.0		23.7	23.7	49.8		8.6
Actuated g/C Ratio	0.62	0.38	0.63		0.59	0.61		0.21	0.21	0.43		0.07
v/c Ratio	0.01	0.90	0.61		0.91	0.52		0.68	0.69	0.44		0.13
Control Delay	11.5	46.1	17.8		63.1	16.7		52.2	52.7	18.1		53.2
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0

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Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: PM Peak Hour

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	27
Future Volume (vph)	27
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1575
Flt Permitted	
Satd. Flow (perm)	1575
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.90
Adj. Flow (vph)	30
Shared Lane Traffic (%)	
Lane Group Flow (vph)	30
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	13.0
Total Split (s)	15.0
Total Split (%)	13.0%
Maximum Green (s)	9.0
Yellow Time (s)	4.4
All-Red Time (s)	1.6
Lost Time Adjust (s)	-1.0
Total Lost Time (s)	5.0
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	2.0
Minimum Gap (s)	2.0
Time Before Reduce (s)	0.0
Time To Reduce (s)	0.0
Recall Mode	None
Act Effct Green (s)	8.6
Actuated g/C Ratio	0.07
v/c Ratio	0.25
Control Delay	55.4
Queue Delay	0.0

Vinson Road Development - Johnston County, NC
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Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Total Delay	11.5	46.1	17.8		63.1	16.7		52.2	52.7	18.1		53.2
LOS	B	D	B		E	B		D	D	B		D
Approach Delay		36.5				29.1			39.0			54.8
Approach LOS		D				C			D			D
Queue Length 50th (ft)	1	~551	292		242	260		164	167	103		7
Queue Length 95th (ft)	6	#686	443		#429	423		260	266	155		25
Internal Link Dist (ft)		1541				1353			1175			995
Turn Bay Length (ft)	250		475		525			425		475		
Base Capacity (vph)	309	1354	997		458	2137		375	376	688		88
Starvation Cap Reductn	0	0	0		0	0		0	0	0		0
Spillback Cap Reductn	0	0	0		0	0		0	0	0		0
Storage Cap Reductn	0	0	0		0	0		0	0	0		0
Reduced v/c Ratio	0.01	0.90	0.62		0.88	0.52		0.63	0.64	0.44		0.11

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 32 (28%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 34.5

Intersection LOS: C

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

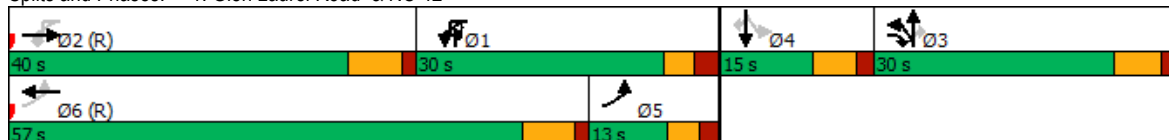
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

! Phase conflict between lane groups.

Splits and Phases: 1: Glen Laurel Road & NC 42



Lanes, Volumes, Timings
1: Glen Laurel Road & NC 42

2030 Build with Improvements
Timing Plan: PM Peak Hour



Lane Group	SBR
Total Delay	55.4
LOS	E
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	21
Queue Length 95th (ft)	52
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	136
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.22
Intersection Summary	

APPENDIX D

CAPACITY CALCULATIONS - GLEN LAUREL ROAD & VINSON ROAD

HCM 6th TWSC
2: Glen Laurel Road & Vinson Road

2022 Existing
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	12.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	125	246	76	94	180	167
Future Vol, veh/h	125	246	76	94	180	167
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	139	273	84	104	200	186
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	722	136	0	0	188	0
Stage 1	136	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	394	913	-	-	1386	-
Stage 1	890	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	331	913	-	-	1386	-
Mov Cap-2 Maneuver	331	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	25.7	0		4.2		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	573	1386	-	
HCM Lane V/C Ratio	-	-	0.719	0.144	-	
HCM Control Delay (s)	-	-	25.7	8	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	5.9	0.5	-	

HCM 6th TWSC
2: Glen Laurel Road & Vinson Road

2022 Existing
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	10.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	82	194	185	110	222	160
Future Vol, veh/h	82	194	185	110	222	160
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	216	206	122	247	178
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	939	267	0	0	328	0
Stage 1	267	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	293	772	-	-	1232	-
Stage 1	778	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	228	772	-	-	1232	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	28.2	0		5		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	452	1232	-	
HCM Lane V/C Ratio	-	-	0.678	0.2	-	
HCM Control Delay (s)	-	-	28.2	8.7	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	5	0.7	-	

Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build
Timing Plan: AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	146	288	89	110	211	196
Future Volume (vph)	146	288	89	110	211	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910		0.925			
Flt Protected	0.983					0.975
Satd. Flow (prot)	1666	0	1723	0	0	1816
Flt Permitted	0.983					0.724
Satd. Flow (perm)	1666	0	1723	0	0	1349
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	162	320	99	122	234	218
Shared Lane Traffic (%)						
Lane Group Flow (vph)	482	0	221	0	0	452
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	27.0		33.0		33.0	33.0
Total Split (%)	45.0%		55.0%		55.0%	55.0%
Maximum Green (s)	20.0		26.0		26.0	26.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	19.9		23.2			23.4
Actuated g/C Ratio	0.37		0.43			0.44
v/c Ratio	0.78		0.30			0.77
Control Delay	27.1		11.2			23.7
Queue Delay	0.0		0.0			0.0
Total Delay	27.1		11.2			23.7
LOS	C		B			C
Approach Delay	27.1		11.2			23.7
Approach LOS	C		B			C

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Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build
Timing Plan: AM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	143		46			123
Queue Length 95th (ft)	#296		85			#243
Internal Link Dist (ft)	2491		2494			2992
Turn Bay Length (ft)						
Base Capacity (vph)	702		925			724
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.69		0.24			0.62

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.6

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 22.7

Intersection LOS: C

Intersection Capacity Utilization 71.7%

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.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build Split
Timing Plan: AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	146	288	89	110	211	196
Future Volume (vph)	146	288	89	110	211	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		100	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910		0.925			
Flt Protected	0.983					0.975
Satd. Flow (prot)	1666	0	1723	0	0	1816
Flt Permitted	0.983					0.975
Satd. Flow (perm)	1666	0	1723	0	0	1816
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	162	320	99	122	234	218
Shared Lane Traffic (%)						
Lane Group Flow (vph)	482	0	221	0	0	452
Turn Type	Prot		NA		Split	NA
Protected Phases	8		2		6	6
Permitted Phases						
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	36.0		22.0		32.0	32.0
Total Split (%)	40.0%		24.4%		35.6%	35.6%
Maximum Green (s)	29.0		15.0		25.0	25.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	28.6		16.3			25.1
Actuated g/C Ratio	0.34		0.19			0.29
v/c Ratio	0.86		0.67			0.84
Control Delay	44.2		44.7			45.0
Queue Delay	0.0		0.0			0.0
Total Delay	44.2		44.7			45.0
LOS	D		D			D
Approach Delay	44.2		44.7			45.0
Approach LOS	D		D			D

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Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build Split
Timing Plan: AM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	250		118			238
Queue Length 95th (ft)	#421		#210			#399
Internal Link Dist (ft)	2491		2494			2992
Turn Bay Length (ft)						
Base Capacity (vph)	613		347			582
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.79		0.64			0.78

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 85.1

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 44.6

Intersection LOS: D

Intersection Capacity Utilization 71.7%

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.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build
Timing Plan: PM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	96	227	217	129	260	187
Future Volume (vph)	96	227	217	129	260	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	0	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905		0.950			
Flt Protected	0.985					0.972
Satd. Flow (prot)	1660	0	1770	0	0	1811
Flt Permitted	0.985					0.578
Satd. Flow (perm)	1660	0	1770	0	0	1077
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	252	241	143	289	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	359	0	384	0	0	497
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	22.0		38.0		38.0	38.0
Total Split (%)	36.7%		63.3%		63.3%	63.3%
Maximum Green (s)	15.0		31.0		31.0	31.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	16.1		29.7			29.7
Actuated g/C Ratio	0.29		0.53			0.53
v/c Ratio	0.75		0.41			0.87
Control Delay	31.7		9.5			30.8
Queue Delay	0.0		0.0			0.0
Total Delay	31.7		9.5			30.8
LOS	C		A			C
Approach Delay	31.7		9.5			30.8
Approach LOS	C		A			C

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build
Timing Plan: PM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	118		72			135
Queue Length 95th (ft)	#237		123			#317
Internal Link Dist (ft)	2491		2494			2992
Turn Bay Length (ft)						
Base Capacity (vph)	514		1063			647
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.70		0.36			0.77

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 55.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 75.3%

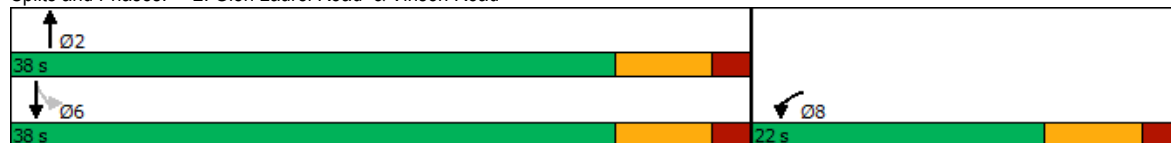
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build-Split
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	96	227	217	129	260	187
Future Volume (vph)	96	227	217	129	260	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	200	
Storage Lanes	1	0		0	0	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905		0.950			
Flt Protected	0.985					0.972
Satd. Flow (prot)	1660	0	1770	0	0	1811
Flt Permitted	0.985					0.972
Satd. Flow (perm)	1660	0	1770	0	0	1811
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	252	241	143	289	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	359	0	384	0	0	497
Turn Type	Prot		NA		Split	NA
Protected Phases	8		2		6	6
Permitted Phases						
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	27.0		30.0		33.0	33.0
Total Split (%)	30.0%		33.3%		36.7%	36.7%
Maximum Green (s)	20.0		23.0		26.0	26.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	21.4		23.1			26.8
Actuated g/C Ratio	0.25		0.27			0.31
v/c Ratio	0.88		0.81			0.88
Control Delay	56.0		45.1			48.5
Queue Delay	0.0		0.0			0.0
Total Delay	56.0		45.1			48.5
LOS	E		D			D
Approach Delay	56.0		45.1			48.5
Approach LOS	E		D			D

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 No-Build-Split
Timing Plan: PM Peak Hour

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	197		201			266
Queue Length 95th (ft)	#355		#338			#447
Internal Link Dist (ft)	2491		2494			2992
Turn Bay Length (ft)						
Base Capacity (vph)	425		515			590
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.84		0.75			0.84

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 86.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 49.6

Intersection LOS: D

Intersection Capacity Utilization 75.3%

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.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build
Timing Plan: AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	186	420	89	125	261	196
Future Volume (vph)	186	420	89	125	261	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.906		0.921			
Flt Protected	0.985					0.972
Satd. Flow (prot)	1662	0	1716	0	0	1811
Flt Permitted	0.985					0.686
Satd. Flow (perm)	1662	0	1716	0	0	1278
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	207	467	99	139	290	218
Shared Lane Traffic (%)						
Lane Group Flow (vph)	674	0	238	0	0	508
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	30.0		30.0		30.0	30.0
Total Split (%)	50.0%		50.0%		50.0%	50.0%
Maximum Green (s)	23.0		23.0		23.0	23.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	25.0		25.0			25.0
Actuated g/C Ratio	0.42		0.42			0.42
v/c Ratio	0.97		0.33			0.95
Control Delay	49.1		13.5			50.3
Queue Delay	0.0		0.0			0.0
Total Delay	49.1		13.5			50.3
LOS	D		B			D
Approach Delay	49.1		13.5			50.3
Approach LOS	D		B			D
Queue Length 50th (ft)	228		56			170
Queue Length 95th (ft)	#435		103			#350
Internal Link Dist (ft)	2491		2494			2992

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build
Timing Plan: AM Peak Hour

												
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT						
Turn Bay Length (ft)												
Base Capacity (vph)	692		715			532						
Starvation Cap Reductn	0		0			0						
Spillback Cap Reductn	0		0			0						
Storage Cap Reductn	0		0			0						
Reduced v/c Ratio	0.97		0.33			0.95						

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 43.6

Intersection LOS: D

Intersection Capacity Utilization 85.8%

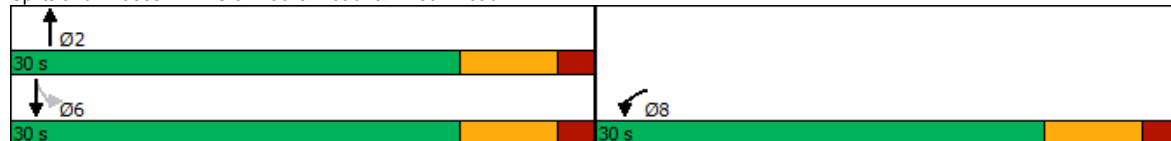
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build
Timing Plan: AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	186	420	89	125	261	196
Future Volume (vph)	186	420	89	125	261	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.906		0.921			
Flt Protected	0.985					0.972
Satd. Flow (prot)	1662	0	1716	0	0	1811
Flt Permitted	0.985					0.972
Satd. Flow (perm)	1662	0	1716	0	0	1811
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	207	467	99	139	290	218
Shared Lane Traffic (%)						
Lane Group Flow (vph)	674	0	238	0	0	508
Turn Type	Prot		NA		Split	NA
Protected Phases	8		2		6	6
Permitted Phases						
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	41.0		19.0		30.0	30.0
Total Split (%)	45.6%		21.1%		33.3%	33.3%
Maximum Green (s)	34.0		12.0		23.0	23.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	36.0		14.0			25.0
Actuated g/C Ratio	0.40		0.16			0.28
v/c Ratio	1.02		0.89			1.01
Control Delay	67.5		73.0			76.9
Queue Delay	0.0		0.0			0.0
Total Delay	67.5		73.0			76.9
LOS	E		E			E
Approach Delay	67.5		73.0			76.9
Approach LOS	E		E			E
Queue Length 50th (ft)	~387		134			~293
Queue Length 95th (ft)	#619		#270			#498
Internal Link Dist (ft)	2491		2494			2992

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build
Timing Plan: AM Peak Hour

	↙ ↘		↑	↗ ↘	↓	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	664		266			503
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	1.02		0.89			1.01

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 71.8

Intersection LOS: E

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

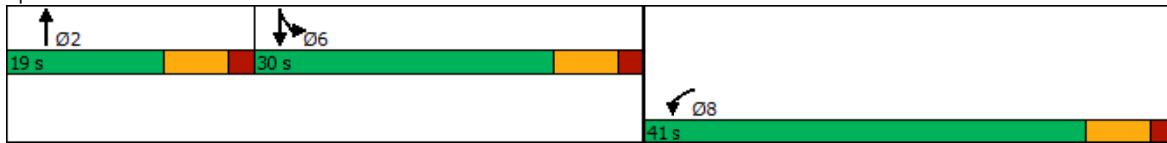
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	124	319	217	173	404	187
Future Volume (vph)	124	319	217	173	404	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.903		0.940			
Flt Protected	0.986					0.967
Satd. Flow (prot)	1659	0	1751	0	0	1801
Flt Permitted	0.986					0.513
Satd. Flow (perm)	1659	0	1751	0	0	956
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	138	354	241	192	449	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	492	0	433	0	0	657
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	20.0		40.0		40.0	40.0
Total Split (%)	33.3%		66.7%		66.7%	66.7%
Maximum Green (s)	13.0		33.0		33.0	33.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	15.0		35.0			35.0
Actuated g/C Ratio	0.25		0.58			0.58
v/c Ratio	1.19		0.42			1.18
Control Delay	132.2		8.5			116.5
Queue Delay	0.0		0.0			0.0
Total Delay	132.2		8.5			116.5
LOS	F		A			F
Approach Delay	132.2		8.5			116.5
Approach LOS	F		A			F
Queue Length 50th (ft)	~222		76			~294
Queue Length 95th (ft)	#382		129			#473
Internal Link Dist (ft)	2491		2494			2992

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build
Timing Plan: PM Peak Hour

	↙ ↘		↑	↗ ↘	↓	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	414		1021			557
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	1.19		0.42			1.18

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 91.9

Intersection LOS: F

Intersection Capacity Utilization 93.2%

ICU Level of Service F

Analysis Period (min) 15

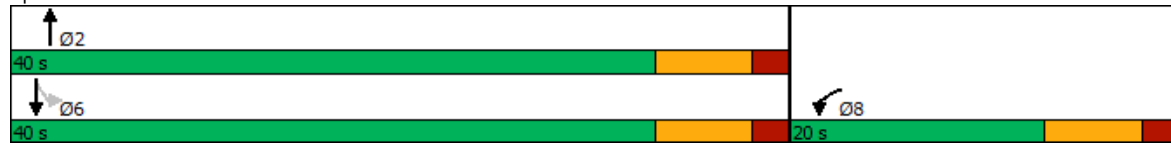
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build Split
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	124	319	217	173	404	187
Future Volume (vph)	124	319	217	173	404	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.903		0.940			
Flt Protected	0.986					0.967
Satd. Flow (prot)	1659	0	1751	0	0	1801
Flt Permitted	0.986					0.967
Satd. Flow (perm)	1659	0	1751	0	0	1801
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	138	354	241	192	449	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	492	0	433	0	0	657
Turn Type	Prot		NA		Split	NA
Protected Phases	8		2		6	6
Permitted Phases						
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	7.0		12.0		12.0	12.0
Minimum Split (s)	14.0		19.0		19.0	19.0
Total Split (s)	29.0		27.0		34.0	34.0
Total Split (%)	32.2%		30.0%		37.8%	37.8%
Maximum Green (s)	22.0		20.0		27.0	27.0
Yellow Time (s)	5.0		5.0		5.0	5.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0
Total Lost Time (s)	5.0		5.0			5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		None		None	None
Act Effct Green (s)	24.0		22.0			29.0
Actuated g/C Ratio	0.27		0.24			0.32
v/c Ratio	1.11		1.01			1.13
Control Delay	110.4		82.3			110.3
Queue Delay	0.0		0.0			0.0
Total Delay	110.4		82.3			110.3
LOS	F		F			F
Approach Delay	110.4		82.3			110.3
Approach LOS	F		F			F
Queue Length 50th (ft)	~324		~252			~438
Queue Length 95th (ft)	#514		#442			#648
Internal Link Dist (ft)	2491		2494			2992

Vinson Road Development - Johnston County, NC
RKA

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build Split
Timing Plan: PM Peak Hour

	←		↑		→	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	442		428		580	
Starvation Cap Reductn	0		0		0	
Spillback Cap Reductn	0		0		0	
Storage Cap Reductn	0		0		0	
Reduced v/c Ratio	1.11		1.01		1.13	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 102.7

Intersection LOS: F

Intersection Capacity Utilization 93.2%

ICU Level of Service F

Analysis Period (min) 15

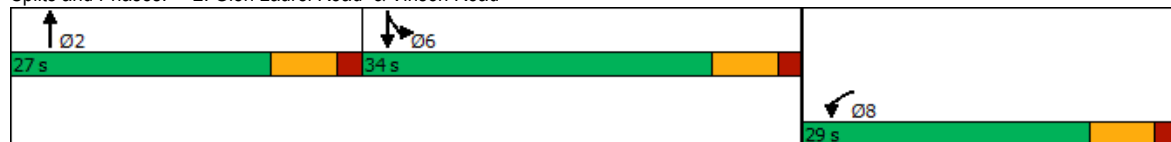
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build with Improvements
Timing Plan: AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	186	420	89	125	261	196
Future Volume (vph)	186	420	89	125	261	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		275	425	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.906			0.850		
Flt Protected	0.985				0.950	
Satd. Flow (prot)	1662	0	1863	1583	1770	1863
Flt Permitted	0.985				0.950	
Satd. Flow (perm)	1662	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	207	467	99	139	290	218
Shared Lane Traffic (%)						
Lane Group Flow (vph)	674	0	99	139	290	218
Turn Type	Prot		NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases				2		
Detector Phase	8		2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	7.0	7.0	12.0
Minimum Split (s)	14.0		19.0	14.0	14.0	19.0
Total Split (s)	67.0		20.0	67.0	33.0	53.0
Total Split (%)	55.8%		16.7%	55.8%	27.5%	44.2%
Maximum Green (s)	60.0		13.0	60.0	26.0	46.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	None	None
Act Effct Green (s)	48.0		15.6	62.2	23.1	37.3
Actuated g/C Ratio	0.50		0.16	0.65	0.24	0.39
v/c Ratio	0.81		0.33	0.14	0.68	0.30
Control Delay	31.5		47.9	6.8	46.4	22.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.5		47.9	6.8	46.4	22.7
LOS	C		D	A	D	C
Approach Delay	31.5		23.9			36.3
Approach LOS	C		C			D

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Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build with Improvements
Timing Plan: AM Peak Hour

	↙	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	370		60	30	174	91
Queue Length 95th (ft)	581		129	57	308	175
Internal Link Dist (ft)	2491		2494			2992
Turn Bay Length (ft)				275	425	
Base Capacity (vph)	1116		316	1296	561	1013
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.60		0.31	0.11	0.52	0.22

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 96.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 31.9

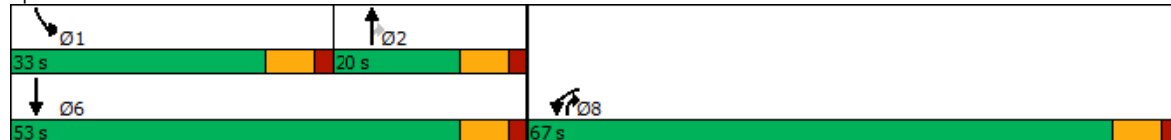
Intersection LOS: C

Intersection Capacity Utilization 65.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Glen Laurel Road & Vinson Road



Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build with Improvements
Timing Plan: PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	124	319	217	173	404	187
Future Volume (vph)	124	319	217	173	404	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		275	425	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.903			0.850		
Flt Protected	0.986				0.950	
Satd. Flow (prot)	1659	0	1863	1583	1770	1863
Flt Permitted	0.986				0.950	
Satd. Flow (perm)	1659	0	1863	1583	1770	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	45		45			45
Link Distance (ft)	2571		2574			3072
Travel Time (s)	39.0		39.0			46.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	138	354	241	192	449	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	492	0	241	192	449	208
Turn Type	Prot		NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases				2		
Detector Phase	8		2	2	1	6
Switch Phase						
Minimum Initial (s)	7.0		12.0	12.0	7.0	12.0
Minimum Split (s)	14.0		19.0	19.0	14.0	19.0
Total Split (s)	49.0		28.0	28.0	43.0	71.0
Total Split (%)	40.8%		23.3%	23.3%	35.8%	59.2%
Maximum Green (s)	42.0		21.0	21.0	36.0	64.0
Yellow Time (s)	5.0		5.0	5.0	5.0	5.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	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
Recall Mode	None		None	None	None	None
Act Effct Green (s)	37.1		20.0	20.0	32.5	57.7
Actuated g/C Ratio	0.35		0.19	0.19	0.31	0.55
v/c Ratio	0.84		0.68	0.64	0.82	0.20
Control Delay	46.7		52.9	52.7	48.7	13.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	46.7		52.9	52.7	48.7	13.4
LOS	D		D	D	D	B
Approach Delay	46.7		52.8			37.5
Approach LOS	D		D			D

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Lanes, Volumes, Timings
2: Glen Laurel Road & Vinson Road

2030 Build with Improvements
Timing Plan: PM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	331		169	134	306	75
Queue Length 95th (ft)	#514		266	220	#477	121
Internal Link Dist (ft)	2491		2494			2992
Turn Bay Length (ft)				275	425	
Base Capacity (vph)	719		422	358	662	1211
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.68		0.57	0.54	0.68	0.17

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 105.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 44.6

Intersection LOS: D

Intersection Capacity Utilization 72.8%

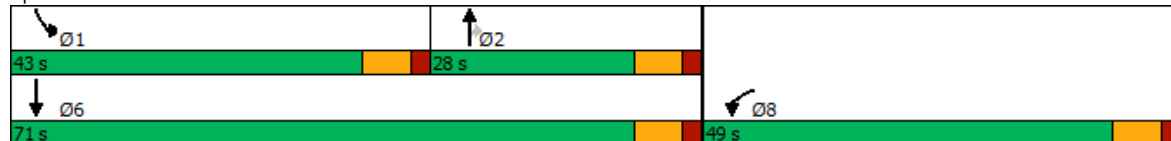
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 2: Glen Laurel Road & Vinson Road



APPENDIX E

CAPACITY CALCULATIONS - GLEN LAUREL ROAD & POWHATAN ROAD

HCM 6th TWSC
3: Powhatan Road & Glen Laurel Road

2022 Existing
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	7.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	103	66	229	44	35	279
Future Vol, veh/h	103	66	229	44	35	279
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	73	254	49	39	310
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	303	0	-	0	580	279
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	301	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1258	-	-	-	477	760
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	751	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1258	-	-	-	434	760
Mov Cap-2 Maneuver	-	-	-	-	528	-
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	751	-
Approach	EB	WB		SB		
HCM Control Delay, s	5	0		14.5		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1258	-	-	-	725	
HCM Lane V/C Ratio	0.091	-	-	-	0.481	
HCM Control Delay (s)	8.1	-	-	-	14.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	2.6	

HCM 6th TWSC
3: Powhatan Road & Glen Laurel Road

2022 Existing
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	231	194	133	57	56	156
Future Vol, veh/h	231	194	133	57	56	156
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	257	216	148	63	62	173
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	211	0	-	0	910	180
Stage 1	-	-	-	-	180	-
Stage 2	-	-	-	-	730	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1360	-	-	-	305	863
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1360	-	-	-	247	863
Mov Cap-2 Maneuver	-	-	-	-	364	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	477	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.5	0		14		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1360	-	-	-	634	
HCM Lane V/C Ratio	0.189	-	-	-	0.372	
HCM Control Delay (s)	8.3	-	-	-	14	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.7	-	-	-	1.7	

HCM 6th TWSC
3: Powhatan Road & Glen Laurel Road

2030 No-Build
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	8.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	121	77	268	52	41	327
Future Vol, veh/h	121	77	268	52	41	327
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	134	86	298	58	46	363
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	356	0	-	0	681	327
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	354	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1203	-	-	-	416	714
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1203	-	-	-	370	714
Mov Cap-2 Maneuver	-	-	-	-	478	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	710	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.1	0		18.1		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1203	-	-	-	677	
HCM Lane V/C Ratio	0.112	-	-	-	0.604	
HCM Control Delay (s)	8.4	-	-	-	18.1	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.4	-	-	-	4.1	

HCM 6th TWSC
3: Powhatan Road & Glen Laurel Road

2030 No-Build
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	271	227	156	67	66	183
Future Vol, veh/h	271	227	156	67	66	183
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	301	252	173	74	73	203
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	247	0	-	0	1064	210
Stage 1	-	-	-	-	210	-
Stage 2	-	-	-	-	854	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1319	-	-	-	247	830
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	417	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1319	-	-	-	191	830
Mov Cap-2 Maneuver	-	-	-	-	311	-
Stage 1	-	-	-	-	637	-
Stage 2	-	-	-	-	417	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.6	0		16.9		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1319	-	-	-	575	
HCM Lane V/C Ratio	0.228	-	-	-	0.481	
HCM Control Delay (s)	8.5	-	-	-	16.9	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.9	-	-	-	2.6	

HCM 6th TWSC
3: Powhatan Road & Glen Laurel Road

2030 Build
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	10.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	128	77	268	60	61	347
Future Vol, veh/h	128	77	268	60	61	347
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	142	86	298	67	68	386
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	365	0	-	0	702	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	370	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1194	-	-	-	404	710
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1194	-	-	-	356	710
Mov Cap-2 Maneuver	-	-	-	-	467	-
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	699	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.3	0		21.6		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1194	-	-	-	659	
HCM Lane V/C Ratio	0.119	-	-	-	0.688	
HCM Control Delay (s)	8.4	-	-	-	21.6	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.4	-	-	-	5.5	

HCM 6th TWSC
3: Powhatan Road & Glen Laurel Road

2030 Build
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	7.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	293	227	156	89	80	197
Future Vol, veh/h	293	227	156	89	80	197
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	326	252	173	99	89	219
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	272	0	-	0	1127	223
Stage 1	-	-	-	-	223	-
Stage 2	-	-	-	-	904	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1291	-	-	-	226	817
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	395	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1291	-	-	-	169	817
Mov Cap-2 Maneuver	-	-	-	-	290	-
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	395	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.9	0		20.4		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1291	-	-	-	536	
HCM Lane V/C Ratio	0.252	-	-	-	0.574	
HCM Control Delay (s)	8.7	-	-	-	20.4	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	1	-	-	-	3.6	

APPENDIX F

**CAPACITY CALCULATIONS -
VINSON ROAD**

&

WINDSOR GREEN DRIVE / SITE DRIVE 1

HCM 6th TWSC
4: Windsor Green Drive & Vinson Road

2022 Existing
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↰	↰	
Traffic Vol, veh/h	138	4	4	184	9	6
Future Vol, veh/h	138	4	4	184	9	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	153	4	4	204	10	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	157	0	367	155
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	212	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1423	-	633	891
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1423	-	631	891
Mov Cap-2 Maneuver	-	-	-	-	631	-
Stage 1	-	-	-	-	873	-
Stage 2	-	-	-	-	821	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		10.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	714	-	-	1423	-	
HCM Lane V/C Ratio	0.023	-	-	0.003	-	
HCM Control Delay (s)	10.2	-	-	7.5	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 6th TWSC
4: Windsor Green Drive & Vinson Road

2022 Existing
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	215	16	5	126	9	5
Future Vol, veh/h	215	16	5	126	9	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	239	18	6	140	10	6
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	257	0	400	248
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	152	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1308	-	606	791
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	876	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1308	-	603	791
Mov Cap-2 Maneuver	-	-	-	-	603	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	872	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		10.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	659	-	-	1308	-	
HCM Lane V/C Ratio	0.024	-	-	0.004	-	
HCM Control Delay (s)	10.6	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 6th TWSC
4: Windsor Green Drive & Vinson Road

2030 No-Build
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	162	5	5	216	11	7
Future Vol, veh/h	162	5	5	216	11	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	6	6	240	12	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	186	0	435	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	252	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1388	-	578	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1388	-	575	859
Mov Cap-2 Maneuver	-	-	-	-	575	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	786	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		10.6	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	660	-	-	1388	-	
HCM Lane V/C Ratio	0.03	-	-	0.004	-	
HCM Control Delay (s)	10.6	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 6th TWSC
4: Windsor Green Drive & Vinson Road

2030 No-Build
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	19	6	148	11	6
Future Vol, veh/h	252	19	6	148	11	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	280	21	7	164	12	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	301	0	469	291
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1260	-	553	748
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	853	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1260	-	550	748
Mov Cap-2 Maneuver	-	-	-	-	550	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	848	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		11.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	607	-	-	1260	-	
HCM Lane V/C Ratio	0.031	-	-	0.005	-	
HCM Control Delay (s)	11.1	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

HCM 6th TWSC
4: Windsor Green Drive /Site Drive 1 & Vinson Road

2030 Build
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	208	5	5	337	4	11	4	7	10	4	51
Future Vol, veh/h	19	208	5	5	337	4	11	4	7	10	4	51
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	50	-	-	-	-	-	-	-	-	-	-	-
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	21	231	6	6	374	4	12	4	8	11	4	57
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	237	0	0	695	666	234	670	667	376
Stage 1	-	-	-	-	-	-	276	276	-	388	388	-
Stage 2	-	-	-	-	-	-	419	390	-	282	279	-
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	1180	-	-	1330	-	-	357	380	805	371	380	670
Stage 1	-	-	-	-	-	-	730	682	-	636	609	-
Stage 2	-	-	-	-	-	-	612	608	-	725	680	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1180	-	-	1330	-	-	318	371	805	358	371	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	318	371	-	358	371	-
Stage 1	-	-	-	-	-	-	717	670	-	625	605	-
Stage 2	-	-	-	-	-	-	553	604	-	701	668	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.1			14.4			12.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	407	1180	-	-	1330	-	-	566				
HCM Lane V/C Ratio	0.06	0.018	-	-	0.004	-	-	0.128				
HCM Control Delay (s)	14.4	8.1	-	-	7.7	0	-	12.3				
HCM Lane LOS	B	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.4				

HCM 6th TWSC
4: Windsor Green Drive /Site Drive 1 & Vinson Road

2030 Build
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	385	19	6	233	11	11	4	6	7	4	35
Future Vol, veh/h	55	385	19	6	233	11	11	4	6	7	4	35
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	50	-	-	-	-	-	-	-	-	-	-	-
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	61	428	21	7	259	12	12	4	7	8	4	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	271	0	0	449	0	0	862	846	439	845	850	265
Stage 1	-	-	-	-	-	-	561	561	-	279	279	-
Stage 2	-	-	-	-	-	-	301	285	-	566	571	-
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	1292	-	-	1111	-	-	275	299	618	283	298	774
Stage 1	-	-	-	-	-	-	512	510	-	728	680	-
Stage 2	-	-	-	-	-	-	708	676	-	509	505	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1292	-	-	1111	-	-	248	283	618	265	282	774
Mov Cap-2 Maneuver	-	-	-	-	-	-	248	283	-	265	282	-
Stage 1	-	-	-	-	-	-	488	486	-	694	675	-
Stage 2	-	-	-	-	-	-	663	671	-	475	481	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.2	17.6	12.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	1292	-	-	1111	-	-	536
HCM Lane V/C Ratio	0.076	0.047	-	-	0.006	-	-	0.095
HCM Control Delay (s)	17.6	7.9	-	-	8.3	0	-	12.4
HCM Lane LOS	C	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-	-	0.3

APPENDIX G

CAPACITY CALCULATIONS - VINSON ROAD & RAINWATER COURT / SITE DRIVE 2

HCM 6th TWSC
5: Rainwater Court & Vinson Road

2022 Existing
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱			↱	↱	
Traffic Vol, veh/h	139	4	4	182	4	4
Future Vol, veh/h	139	4	4	182	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	4	4	202	4	4
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	158	0	366	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	210	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1422	-	634	890
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1422	-	632	890
Mov Cap-2 Maneuver	-	-	-	-	632	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	823	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.2		9.9		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	739	-	-	1422	-	
HCM Lane V/C Ratio	0.012	-	-	0.003	-	
HCM Control Delay (s)	9.9	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

HCM 6th TWSC
5: Rainwater Court & Vinson Road

2022 Existing
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	
Traffic Vol, veh/h	216	4	4	130	4	4
Future Vol, veh/h	216	4	4	130	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	240	4	4	144	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	244	0	394	242
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	152	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1322	-	611	797
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	876	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1322	-	609	797
Mov Cap-2 Maneuver	-	-	-	-	609	-
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	873	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		10.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	690	-	-	1322	-	
HCM Lane V/C Ratio	0.013	-	-	0.003	-	
HCM Control Delay (s)	10.3	-	-	7.7	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

HCM 6th TWSC
5: Rainwater Court & Vinson Road

2030 No-Build
Timing Plan: AM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	163	5	4	213	4	4
Future Vol, veh/h	163	5	4	213	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	181	6	4	237	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	187	0	429	184
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	245	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1387	-	583	858
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	796	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1387	-	581	858
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	794	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		10.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	693	-	-	1387	-	
HCM Lane V/C Ratio	0.013	-	-	0.003	-	
HCM Control Delay (s)	10.3	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

HCM 6th TWSC
5: Rainwater Court & Vinson Road

2030 No-Build
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	253	5	4	152	4	4
Future Vol, veh/h	253	5	4	152	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	281	6	4	169	4	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	287	0	461	284
Stage 1	-	-	-	-	284	-
Stage 2	-	-	-	-	177	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1275	-	559	755
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	854	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1275	-	557	755
Mov Cap-2 Maneuver	-	-	-	-	557	-
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	851	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.2		10.7	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	641	-	-	1275	-	
HCM Lane V/C Ratio	0.014	-	-	0.003	-	
HCM Control Delay (s)	10.7	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

HCM 6th TWSC
5: Rainwater Court/Site Drive 2 & Vinson Road

2030 Build
Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	173	5	4	217	8	4	4	4	20	4	121
Future Vol, veh/h	46	173	5	4	217	8	4	4	4	20	4	121
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	-	-	-	-	-	-	-	-	-	-	-
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	51	192	6	4	241	9	4	4	4	22	4	134
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	250	0	0	198	0	0	620	555	195	555	554	246
Stage 1	-	-	-	-	-	-	297	297	-	254	254	-
Stage 2	-	-	-	-	-	-	323	258	-	301	300	-
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	1316	-	-	1375	-	-	400	440	846	442	440	793
Stage 1	-	-	-	-	-	-	712	668	-	750	697	-
Stage 2	-	-	-	-	-	-	689	694	-	708	666	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1316	-	-	1375	-	-	319	422	846	422	422	793
Mov Cap-2 Maneuver	-	-	-	-	-	-	319	422	-	422	422	-
Stage 1	-	-	-	-	-	-	684	642	-	721	695	-
Stage 2	-	-	-	-	-	-	567	692	-	672	640	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.1			13.3			11.8		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	449	1316	-	-	1375	-	-	692				
HCM Lane V/C Ratio	0.03	0.039	-	-	0.003	-	-	0.233				
HCM Control Delay (s)	13.3	7.8	-	-	7.6	0	-	11.8				
HCM Lane LOS	B	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.9				

HCM 6th TWSC
5: Rainwater Court/Site Drive 2 & Vinson Road

2030 Build
Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	133	260	5	4	163	22	4	4	4	14	4	85
Future Vol, veh/h	133	260	5	4	163	22	4	4	4	14	4	85
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	-	-	-	-	-	-	-	-	-	-	-
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	148	289	6	4	181	24	4	4	4	16	4	94
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	205	0	0	295	0	0	838	801	292	793	792	193
Stage 1	-	-	-	-	-	-	588	588	-	201	201	-
Stage 2	-	-	-	-	-	-	250	213	-	592	591	-
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	1366	-	-	1266	-	-	286	318	747	306	322	849
Stage 1	-	-	-	-	-	-	495	496	-	801	735	-
Stage 2	-	-	-	-	-	-	754	726	-	493	494	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1366	-	-	1266	-	-	230	282	747	275	286	849
Mov Cap-2 Maneuver	-	-	-	-	-	-	230	282	-	275	286	-
Stage 1	-	-	-	-	-	-	442	442	-	714	732	-
Stage 2	-	-	-	-	-	-	663	723	-	433	441	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.7			0.2			16.6			12.1		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	325	1366	-	-	1266	-	-	624				
HCM Lane V/C Ratio	0.041	0.108	-	-	0.004	-	-	0.183				
HCM Control Delay (s)	16.6	8	-	-	7.9	0	-	12.1				
HCM Lane LOS	C	A	-	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0	-	-	0.7				

APPENDIX H

SIMTRAFFIC QUEUING REPORTS

Queuing and Blocking Report
2030 Build

AM Peak Hour

Intersection: 1: Glen Laurel Road & NC 42

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	82	351	348	256	312	337	295	291	302	221	37	42
Average Queue (ft)	29	199	169	111	164	178	158	166	189	80	8	10
95th Queue (ft)	63	309	280	209	266	296	275	253	267	179	28	31
Link Distance (ft)		1576	1576			1397	1397		1169			1029
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			475	525			425		475	100	
Storage Blk Time (%)		4										
Queuing Penalty (veh)		2										

Intersection: 2: Glen Laurel Road & Vinson Road

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	1408	145	596
Average Queue (ft)	918	82	364
95th Queue (ft)	1564	132	561
Link Distance (ft)	2503	2490	3022
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Powhatan Road & Glen Laurel Road

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	75	14	195
Average Queue (ft)	32	0	95
95th Queue (ft)	63	6	160
Link Distance (ft)		1283	2490
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2030 Build

AM Peak Hour

Intersection: 4: Windsor Green Drive /Site Drive 1 & Vinson Road

Movement	EB	WB	NB	SB
Directions Served	L	LTR	LTR	LTR
Maximum Queue (ft)	34	25	42	78
Average Queue (ft)	6	1	17	31
95th Queue (ft)	24	12	42	52
Link Distance (ft)		1227	1767	1051
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 5: Rainwater Court/Site Drive 2 & Vinson Road

Movement	EB	WB	NB	SB
Directions Served	L	LTR	LTR	LTR
Maximum Queue (ft)	41	26	39	88
Average Queue (ft)	11	1	10	44
95th Queue (ft)	33	12	35	71
Link Distance (ft)		1058	984	1066
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2

Queuing and Blocking Report
2030 Build

PM Peak Hour

Intersection: 1: Glen Laurel Road & NC 42

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	241	1514	1597	575	470	339	258	272	281	190	31	87
Average Queue (ft)	10	1103	1168	546	313	141	127	122	141	92	8	35
95th Queue (ft)	95	1911	1948	677	463	253	223	201	219	188	27	73
Link Distance (ft)		1576	1576			1397	1397		1169			1029
Upstream Blk Time (%)		12	35									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (ft)	250			475	525			425		475	100	
Storage Blk Time (%)		26	0	65					0			0
Queuing Penalty (veh)		1	1	394					0			0

Intersection: 2: Glen Laurel Road & Vinson Road

Movement	WB	NB	SB	B7
Directions Served	LR	TR	LT	T
Maximum Queue (ft)	1466	219	2972	685
Average Queue (ft)	1143	115	1378	66
95th Queue (ft)	1725	192	2915	462
Link Distance (ft)	2503	2490	3022	2673
Upstream Blk Time (%)			9	
Queuing Penalty (veh)			95	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Powhatan Road & Glen Laurel Road

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	112	22	189
Average Queue (ft)	50	2	73
95th Queue (ft)	92	11	153
Link Distance (ft)		1283	2490
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2030 Build

PM Peak Hour

Intersection: 4: Windsor Green Drive /Site Drive 1 & Vinson Road

Movement	EB	WB	NB	SB
Directions Served	L	LTR	LTR	LTR
Maximum Queue (ft)	26	34	51	59
Average Queue (ft)	5	4	18	25
95th Queue (ft)	21	19	42	48
Link Distance (ft)		1227	1767	1059
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Rainwater Court/Site Drive 2 & Vinson Road

Movement	EB	WB	NB	SB
Directions Served	L	LTR	LTR	LTR
Maximum Queue (ft)	65	15	38	82
Average Queue (ft)	17	1	12	40
95th Queue (ft)	46	9	37	64
Link Distance (ft)		1058	984	1078
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 491

Queuing and Blocking Report
2030 Build with Improvements

AM Peak Hour

Intersection: 1: Glen Laurel Road & NC 42

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	168	362	348	154	423	551	513	351	359	197	43	34
Average Queue (ft)	37	220	194	63	178	201	177	182	205	91	8	7
95th Queue (ft)	102	332	313	135	313	426	383	286	310	186	30	24
Link Distance (ft)		1576	1576			1397	1397		1169			1029
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			475	525			425		475	100	
Storage Blk Time (%)		7				1		0	0			
Queuing Penalty (veh)		3				3		0	0			

Intersection: 2: Glen Laurel Road & Vinson Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	492	160	89	399	228
Average Queue (ft)	292	77	38	204	108
95th Queue (ft)	442	135	80	329	193
Link Distance (ft)	2484	2486		3022	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			275	425	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				1	

Intersection: 3: Powhatan Road & Glen Laurel Road

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	68	21	275
Average Queue (ft)	28	1	126
95th Queue (ft)	59	8	233
Link Distance (ft)		1283	2486
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
2030 Build with Improvements

AM Peak Hour

Intersection: 4: Windsor Green Drive /Site Drive 1 & Vinson Road

Movement	EB	WB	NB	SB
Directions Served	L	LTR	LTR	LTR
Maximum Queue (ft)	27	9	59	64
Average Queue (ft)	5	1	18	31
95th Queue (ft)	21	7	45	52
Link Distance (ft)		1227	1767	1051
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	50			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Rainwater Court/Site Drive 2 & Vinson Road

Movement	EB	WB	NB	SB
Directions Served	L	LTR	LTR	LTR
Maximum Queue (ft)	42	34	39	96
Average Queue (ft)	10	1	10	45
95th Queue (ft)	33	13	35	74
Link Distance (ft)		1058	984	1066
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 7

Queuing and Blocking Report
2030 Build with Improvements

PM Peak Hour

Intersection: 1: Glen Laurel Road & NC 42

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	215	928	986	540	515	389	285	254	266	226	52	95
Average Queue (ft)	12	490	478	302	304	154	135	140	158	92	11	32
95th Queue (ft)	105	994	1014	562	478	286	241	222	235	192	37	79
Link Distance (ft)		1576	1576			1397	1397		1169			1029
Upstream Blk Time (%)		1	3									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (ft)	250			475	525			425		475	100	
Storage Blk Time (%)		42	11	0	0							1
Queuing Penalty (veh)		2	70	1	2							0

Intersection: 2: Glen Laurel Road & Vinson Road

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	478	307	255	418	244
Average Queue (ft)	289	154	140	269	95
95th Queue (ft)	456	258	233	394	189
Link Distance (ft)	2484	2486		3022	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			275	425	
Storage Blk Time (%)		1		0	
Queuing Penalty (veh)		1		0	

Intersection: 3: Powhatan Road & Glen Laurel Road

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	125	17	307
Average Queue (ft)	47	1	114
95th Queue (ft)	91	10	230
Link Distance (ft)		1283	2486
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Queuing and Blocking Report
2030 Build with Improvements

PM Peak Hour

Intersection: 4: Windsor Green Drive /Site Drive 1 & Vinson Road

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR	LTR
Maximum Queue (ft)	41	4	49	47	54
Average Queue (ft)	11	0	3	16	24
95th Queue (ft)	33	3	21	40	47
Link Distance (ft)		1439	1227	1767	1059
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	50				
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 5: Rainwater Court/Site Drive 2 & Vinson Road

Movement	EB	WB	NB	SB
Directions Served	L	LTR	LTR	LTR
Maximum Queue (ft)	60	11	31	81
Average Queue (ft)	23	1	10	40
95th Queue (ft)	52	10	34	66
Link Distance (ft)		1058	984	1078
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

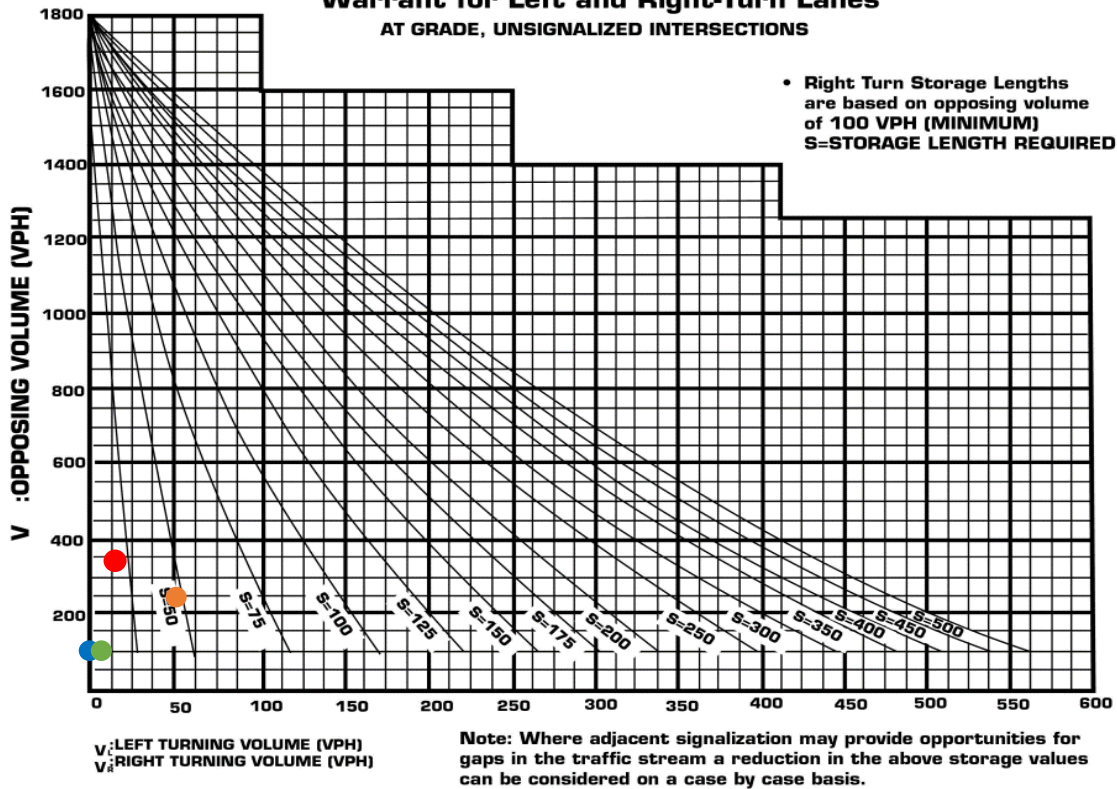
Network wide Queuing Penalty: 78

APPENDIX I

TURN LANE WARRANTS

Vinson Road Development
TURN LANE STORAGE WARRANTS

Warrant for Left and Right-Turn Lanes
AT GRADE, UNSIGNALIZED INTERSECTIONS

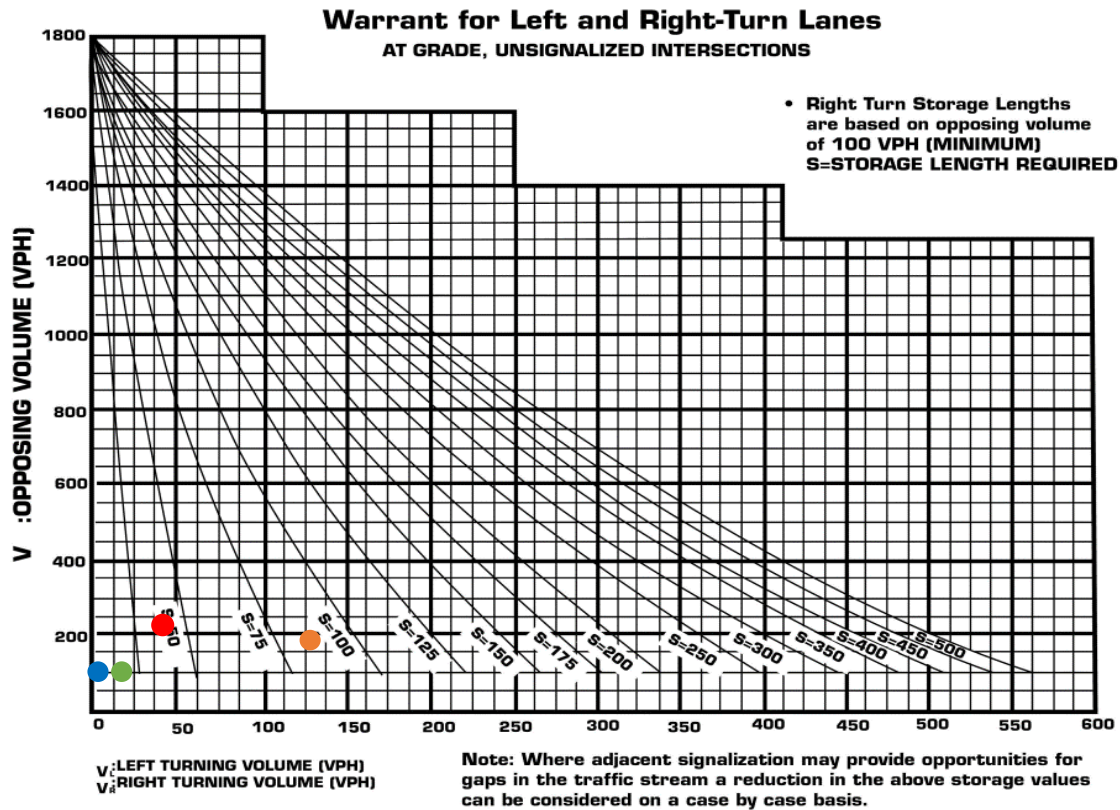


Policy On Street And Driveway Access to North Carolina Highways

INTERSECTION: Vinson Road and Windor Green Drive / Site Drive 1

SCENARIO	Movement	Turn Lane	Turning Volume (V_R/V_L)	Approach / Opposing Volume (V_A/V_O)	Symbol
AM Build	EBL	Left	19	341	●
AM Build	WBR	Right	4	100	●
PM Build	EBL	Left	55	244	●
PM Build	WBR	Right	11	100	●

Vinson Road Development
TURN LANE STORAGE WARRANTS



Policy On Street And Driveway Access to North Carolina Highways

INTERSECTION: Vinson Road and Rainwater Court / Site Drive 2

SCENARIO	Movement	Turn Lane	Turning Volume (V_R/V_L)	Approach / Opposing Volume (V_A/V_O)	Symbol
AM Build	EBL	Left	46	225	●
AM Build	WBR	Right	8	100	●
PM Build	EBL	Left	133	185	●
PM Build	WBR	Right	22	100	●

	TOWN OF CLAYTON POLICY	
	Department: Public Services	Effective: January 21, 2020
Policy Title: Water & Wastewater Allocation Policy Version #02 (V.02)	Supersedes: TC Action 2010-026	
	Prepared By: Richard D. Cappola Jr., PE Public Services Director	
	Approved By: Town Council Date: January 21, 2020	

I. Purpose

The Town of Clayton has invested substantial capital in the infrastructure necessary to support a growing, prosperous, and healthy community. Water supply and wastewater treatment capacities are among the most important elements of this infrastructure. The intent of this policy is to provide for the judicious allocation of these resources in conformity with adopted goals and priorities in an effort to shape the community consistent with the articulated vision to become the "Premier Community for Active Families." This policy is intended to manage the remaining capacity available until additional capacity is developed through construction of a new Water Reclamation Facility, and should be reviewed periodically to ensure it is achieving the intended purpose.

II. Scope

The Town Council for the Town of Clayton has adopted the Comprehensive Plan 2040 which is a useful tool to successfully evaluate applications for allocation of public resources so that the character of the community shall be consistent with its vision, values, and plans. In accordance with the "Town of Clayton Strategic Growth Plan", utility allocation reservations should support and maximize the concept of increasing the Town's property tax based revenues by the expansion and improvement of higher valued land use development, emphasizing a balance of Residential, commercial, and industrial uses.

III. Policy

The Town of Clayton seeks to grant utility allocations such that the existing character of the Town's utility customer base does not become more residential than is practical to achieve the intent of the Strategic Growth Plan, and seeks to increase the diversity of the customer base by increasing the percentage of resources devoted to industrial, commercial, and mixed use development.

The total amount of available capacity and each incremental increase in capacity should generally be allocated based on the following parameters:

- No more than fifty percent (50%) of the total available capacity may be allocated to projects that include solely residential development.
- At least thirty percent (30%) of the total available capacity shall be reserved for allocation to commercial/industrial projects.
- Projects encompassing mixed use (residential and commercial) elements may be considered for allocation even if such an allocation will exceed the limit established above for residential use.
Note: These percentages may be reviewed and adjusted by the Town Council at their discretion.

Due to weather related factors, the regulatory environment, and the dynamic nature of wastewater flow and treatment, accounting of available utility capacity is, by its very nature, inexact. The Town of Clayton shall track allocation reservations granted and the amount of capacity available. Such reports do not constitute a policy statement, commitment or guarantee on the amount of capacity available for allocation.

The following hierarchy shall apply to evaluation of utility allocation requests:

- Commercial properties with quality development projects
- Development projects with a mixed-use element
- Industrial projects and other major employer entities
- Additional phases attached to residential projects with a proven record of quality product and economic success
- Residential projects that include tangible, high quality community amenities
- Residential projects that include diverse products and opportunities
- Residential projects not otherwise described above

Evaluation of projects will be based on the scoring rubric attached hereto as Exhibit A, which is incorporated in this Agreement by reference. A project must meet or exceed 50 points to receive an allocation. Proposed projects can gain BONUS POINTS by the applicant offering to provide items listed on the rubric as part of their development proposal. Examples of these items may include such things as additional amenities (fire pits, community gardens, etc.) or offering to provide “Minimum of 25% of building façades will be made of masonry materials.”

The Town of Clayton may allocate utility service capacity to competing projects based on a demonstrated intent and ability of the applicant to meet adopted Town goals and plans for character and quality of development. The Town of Clayton reserves the right to deny a utility allocation request if the applicant fails to adequately demonstrate that the project meets adopted Town goals or plans, or in the case that the project is deemed to be less supportive of Town goals or plans of a competing project.

IV. Procedure

The owner or developer of any project requiring water or wastewater utility service from the Town of Clayton shall submit a written application, in the application form provided by Town Staff, for an allocation reservation. The application shall include detailed information on the amount of capacity necessary to serve the project, the nature of the project, project schedule in relation to demand of utility capacity, and other supporting information demonstrating how the project serves the needs and interests of the Town of Clayton. In the case of Industrial flows, additional information associated with the constituents shall be required and may be subject to other ordinances or policies of the Town.

- The Town Council shall review for approval all allocations which require or may require a daily flow allocation of ten thousand gallons or more (> 10,000 GPD)
 - The Town Council shall incorporate the evaluation of utility allocation requests into the decision-making process associated with Subdivisions, Mixed-use Planned Developments, and Special Use Permits. The criteria contained herein for evaluation of utility allocation requests shall be included as elements within the review processes for the accompanying land use application with regard to conformity with Town of Clayton policies and ordinances, planning practices, and consistency with adopted long-range and strategic plans.
 - For allocations requiring Town Council approval, but which do not require other land use regulatory reviews or approvals, the applicant shall provide a full description of how their project supports the goals and priorities established within this and related policies and plans in their application for allocation reservation.

- The Town Manager or their designee shall review for approval all applications for utility capacity which require a daily flow allocation of less than ten thousand gallons (< 10,000 GPD).
 - In addition to the scoring rubric, the Town Manager or their designee shall consider the goals articulated by this and related Town policies when reviewing applications for utility allocations. If an application is denied, the Town Manager or their designee shall state in writing the reasons for denial of the request.

V. General Conditions

- This policy shall replace any previous policies on water and wastewater allocations adopted by the Town Council.
- An allocation will expire if a project has not progressed in construction plan approval, building permit approval, or on-site construction within 12 months of award of the allocation.
- Upon request by the applicant and at the discretion of the Town Engineer, an allocation may be extended for one twelve (12) month period.
- If a project is unsuccessful in obtaining any required Federal, State, or local government permit or approval the reservation shall be retracted. The Town of Clayton shall bear no liability for any costs incurred by the applicant, nor bare further responsibility in the matter.
- Granting of a utility allocation does not imply or confer approval of any other applications or reviews as may be required by Town Ordinance or policy and does not imply or create any vested right.
- Public water may be utilized for irrigation purposes so long as the Primary Use associated with the site has previously gained a water allocation through the Town.
- This policy shall be reviewed annually and, when appropriate, readjusted by the Town Council. The Town's overall progress on policy goals will be considered and the multipliers and/or point thresholds readjusted accordingly.

V. Appeals Process

- Appeal of any provision of this policy shall be made to the Town Council.
- Appeal of any decision on a utility allocation by the Town Manager or their designee shall be made to the Town Council for final decision. Any such appeal shall be placed on the agenda of a regularly scheduled Town Council meeting.



WATER & WASTEWATER ALLOCATION CRITERIA				
TOTAL POINTS = 55 MINIMUM 50 POINTS REQUIRED				
	Category	Points	Calc.	Notes
DEVELOPMENT TYPE ¹ (Choose 1 from this category)	Government/Public Admin./Public Safety	50		
	Non-residential (Commercial) - Retail & Restaurant	30		
	Non-residential (Commercial) - Office	20		
	Non-residential (Commercial) - Warehouse	15		
	Non-residential (Commercial) - Medical	25		
	Non-residential (Commercial) - Hotel/Motel	35		
	Industrial/Manufacturing	30		
	Institutional	15		
	Residential Existing Lot- Single Family Detached	40		Individual Existing Lot construction
	Residential Subdivision - Single Family Detached (> 0.25 Acre Lots)	20		Single Family Homes on Individual Lots greater than 0.25 acres
	Residential Subdivision - Single Family Detached (< 0.25 Acre Lots)	15		Single Family Homes on Individual Lots less than 0.25 Acres
	Residential Subd.- Single Family Attached (> 1,500 SF Heated Space)	10		Townhomes with heated square-footage greater than 1,500 SF
	Residential Subd.- Single Family Attached (< 1,500 SF Heated Space)	5		Townhomes with heated square-footage less than 1,500 SF
	Residential - Multifamily (Apartments)	10		
	Mixed-Residential	25	25	Mix of various lot sizes of Single-family, Townhomes, and Apartments
	Mixed-Use Commercial & Residential	30		Mix of Residential and Non-residential (Commercial) uses
	Downtown Redevelopment	30		
	Infill Development	25		Utilities already exist within 300 Feet of property
FUTURE TAX STATUS (Choose 1 from this category)	Exempt	0		
	Residential	5	5	
	Non-residential	10		
	Industrial	10		
COMMUNITY BENEFIT BONUS POINTS (Choose All that apply from this category)	Cultural Arts/Entertainment for Public	10		
	Sports/Recreation for Public	10		
	Town Electric Customer	20		
	Expansion of existing non-residential use	10		
	Re-development of an existing property	5		Must result in increased property value
	Residential Subdivision - Additional amenities included	5 - 15	15	Pool, Clubhouse, sports courts, etc. - 5 pts per, max 15 pts
	Job Creation - 10 to 25 new jobs	5		
	Job Creation - 26 to 100 new jobs	10		
	Job Creation - 100+ new jobs	15		
	Job creation - Jobs created will have salaries at or above median income	5		Must be greater than 50% of jobs added with documentation to confirm
	Residential - Multiple-Car Garages provided	5	5	
	Residential - Overflow Parking provided	5	5	Subject to Planning and Engineering support
	Masonry Elements included in Building Construction	10	10	
	Sustainable/High Efficiency Products and appliances used	5 - 15	15	5 pts per, max 15 pts
	Private trail connection to Public Greenway	10		
COMMUNITY IMPACT DEDUCT POINTS (Choose All that apply from this category)	Pump Station Improvements required ²	-10		Subject to Town policy and standards
	New Pump Station Required ²	-20	-20	Subject to Town policy and standards
	Out-of Town Status (After construction)	-10		
	Outside Fire District	-5		
	Inconsistent with Comp Plan	-5	-5	
CLARIFICATIONS	1	Any Development Type Category not listed is subject to Town Council discretion with staff recommendation.		
	2	The Town Engineer may waive these deductions if the improvements are consistent with Future utility service plans, replace/offline an aging station, or are in the best interest of the Town.		



TOWN OF CLAYTON
Engineering & Inspections Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

WASTEWATER ALLOCATION REQUEST

The Town of Clayton, in an effort to manage and maintain the sewer and water capacity for the Town, requires that this application be completed and submitted to the Town for consideration of a utility allocation. Review fee is due upon submittal of request.

Wastewater Allocation Request Review Fee: \$50

Application MUST be completed and sealed by a registered engineer unless otherwise approved by staff.

SITE INFORMATION

Name of Project: Vinson Road Acreage of Property: 146.26
County Tag Number: 05J05011V, 05J05030F NC PIN: 168800-63-9159, 168800-64-5370
Address/Location: Addresses not assigned by post office yet.

Zoning District: Conditional Zoning Master (CZM)

Town Limits / ETJ: ☐ Town Limits ☒ ETJ (Extra-Territorial Jurisdiction)

APPLICANT INFORMATION – Applicant must be a registered engineer unless otherwise approved by Town Engineer

Applicant: Timmons Group
Mailing Address: 5410 Trinity Road, Suite 102 Raleigh, NC 27607
Phone Number: 919-866-4512 Fax: NA
Contact Person: Patrick Barbeau, PE
Email Address: patrick.barbeau@timmons.com

PROPERTY OWNER INFORMATION

Name: Rocky Branch Farm, LLC (Heidi Wood) & Poole Farm, LLC (Art Holder)
Mailing Address: 230 Summit Ave Clayton, NC 27526 & 16 Oakmont Ct Clayton, NC 27527
Phone Number: 919-291-5817 & 919-320-4900 Fax: NA
Email Address: heidewoodphotography@gmail.com / artfrankie@embarqmail.com

FOR OFFICE USE ONLY

Date Received: _____ File Number: _____ Associated Project Number: _____

PROJECT INFORMATION

Use: ☒ New ☐ Expanded ☐ Change

Use Type: ☒ Residential ☐ Non-Residential

Proposed Use(s): Residential (single family and townhomes) Existing Use(s): Vacant

Invoice shall be mailed to the following:

Developer Name: Hopper Communities

Mailing Address: 1616 Cleveland Avenue Charlotte, NC 28203

Phone Number: 919-618-9929 Fax Number: NA

Email Address: bharrell@hoppercommunities.com

ALLOCATION REQUEST

The following is required:

- For non-residential construction, submit a floor plan of proposed building.
- Use additional sheets if necessary.
- Provide any documentation supporting/justifying the request as an attachment (using a comparable use is recommended).
- If a phasing / take-down schedule is proposed, include as an attachment.

Residential:

Gross Acreage: 146.26

Single Family	# of Units	GPD per Unit	Total Requested GPD
1-2 Bedroom Units			
3 Bedroom Units			
>3 Bedroom Units	465	250	116,250
Total		-----	

Multi-Family	# of Units	GPD per Unit	Total Requested GPD
1-2 Bedroom Units			
3 Bedroom Units			
>3 Bedroom Units			
Total		-----	

Non-Residential: (Design Flow Guideline provided as Appendix A)*

**If design flow deviates from the flow rates presented in Appendix A, provide supporting documentation/justification as an attachment in the form of 12 months of water bills demonstrating gallons per day utilized.*

Gross Acreage: 0.1

Use	Measurement Unit	# of Units	GPD per Unit	Total Requested GPD
Pool Cabana	10 GPD per Person	50 People per Day	10 GPD/Person x 6 Months	250 GPD Average Over a Year
Total			-----	

TOTAL REQUESTED GALLONS PER DAY: 116,500

NOTE TO APPLICANT:

Invoicing:

Invoices are generated on the following schedule:

Non-Residential:

Generated with the application for a Zoning Compliance Permit.

Residential:

Multi-Family / Apartments:

Generated with the application for a Zoning Compliance Permit.

Subdivision / Subdivided Lots:

Generated at Final Plat submittal.

Fee Development:

Development Fees are calculated and invoiced based on the Town of Clayton adopted [Comprehensive List of Fees and Charges](#). Invoiced fees include acreage fees, capacity fees, nutrient offset fees, recreation fees, fees-in-lieu, and electric department lot deposit. Please speak with Town staff with questions.

Approval:

Requests over 10,000 GPD are approved by the Town Council, by resolution. All other requests are approved by the Town Manager.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Town of Clayton to approve the subject Wastewater Allocation. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina, and will not be returned.

Patrick Barbeau

Print Name


Signature of Applicant

07/19/2023

Date

Engineer Seal:



TOWN OF CLAYTON OFFICE USE ONLY:

Approved by: ☐ Town Manager

☐ Town Council (*requests of 10,000 GPD or more require Council approval by resolution*)

The **Town Manager / Town Council (circle one)** has authorized the allocation of _____

gallons per day for project # _____.

Date of Approval: _____

Signed:

Town Manager

If approved by Town Council:

Attach a copy of the resolution and any associated documentation.

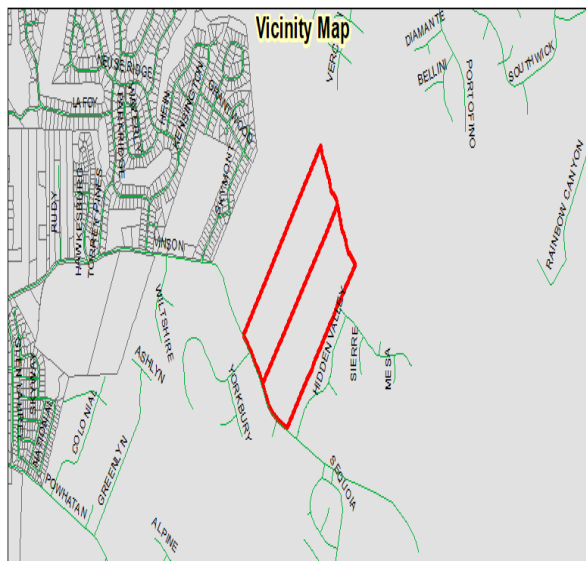
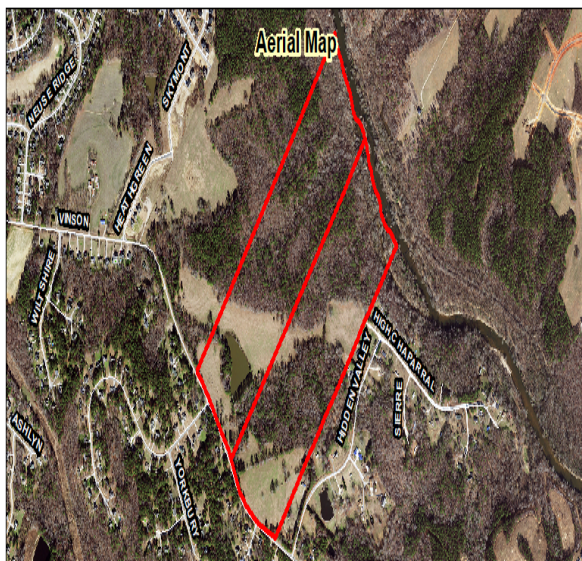
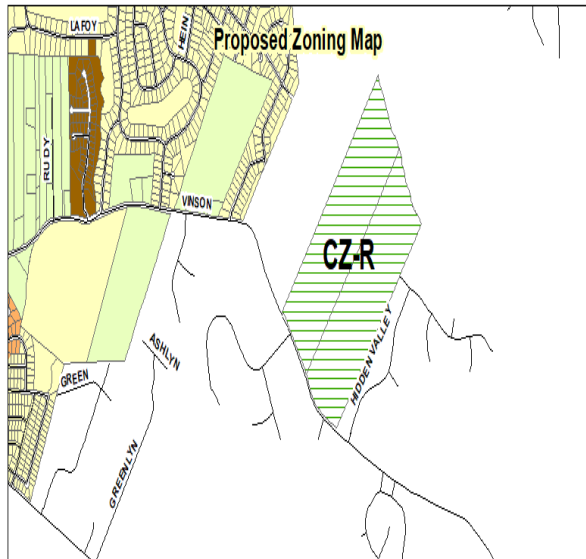
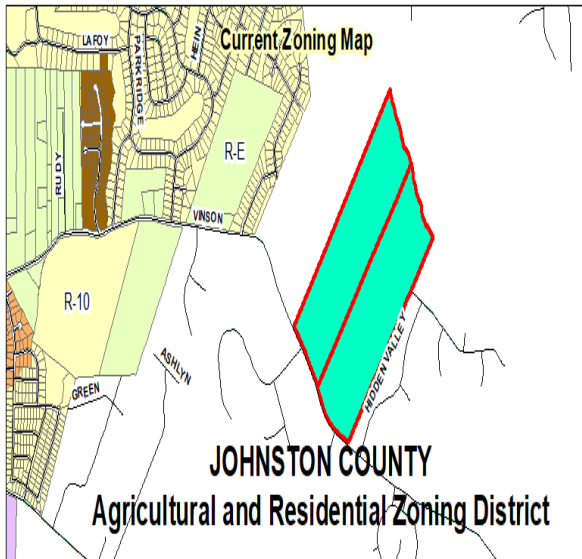
APPENDIX A: DESIGN FLOW RATES

The following table from the North Carolina Administrative Code 02T.0114 shall be used to determine the minimum allowable design daily flow of wastewater facilities. Alternatively, the Town in its sole and absolute discretion may calculate the customer's initial average daily wastewater flow based on data from the customer's operations (or from similarly situated customers) with a comparable sanitary sewer system, where such data are available and reasonably current.

Establishment Type	Daily Flow Rate
Barber and Beauty Shops	
Barber Shops	50 gal/chair
Beauty Shops	125 gal/booth or bowl
Businesses, Offices and Factories	
General business and office facilities	25 gal/employee/shift
Factories, excluding industrial waste	25 gal/employee/shift
Factories or businesses with showers or food preparation	35 gal/employee/shift
Warehouse	100 gal/loading bay
Warehouse – self storage (not including caretaker residence)	1 gal/unit
Churches	
Churches without kitchens, day care or camps	3 gal/seat
Churches with kitchen	5 gal/seat
Churches providing day care or camps	25 gal/person (child & employee)
Fire, Rescue and Emergency Response	
Fire or rescue stations without on-site staff	25 gal/person
Fire or rescue stations with on-site staff	50 gal/person/shift
Food and Drink Facilities	
Banquet, dining hall	30 gal/seat
Bars, cocktail lounges	20 gal/seat
Caterers	50 gal/100 sq. ft. floor space
Restaurant, full Service	40 gal/seat
Restaurant, single service articles	20 gal/seat
Restaurant, drive-in	50 gal/car space
Restaurant, carry out only	50 gal/100 sq. ft. floor space
Institutions, dining halls	5 gal/meal
Deli	40 gal/100 sq. ft. floor space
Bakery	10 gal/100 sq. ft. floor space
Meat department, butcher shop or fish market	75 gal/100 sq. ft. floor space
Specialty food stand or kiosk	50 gal/100 sq. ft. floor space
Hotels and Motels	
Hotels, motels and bed & breakfast facilities, without in-room cooking facilities	120 gal/room
Hotels and motels, with in-room cooking facilities	175 gal/room
Resort hotels	200 gal/room
Cottages, cabins	200 gal/unit
Self-service laundry facilities	500 gal/machine
Medical, Dental and Veterinary Facilities	
Medical or dental offices	250 gal/practitioner/shift
Veterinary offices (not including boarding)	250 gal/practitioner/shift
Veterinary hospitals, kennels, animal boarding facilities	20 gal/pen, cage, kennel or stall
Hospitals, medical	300 gal/bed
Hospitals, mental	150 gal/bed
Convalescent, nursing, rest homes without laundry facilities	60 gal/bed
Convalescent, nursing, rest homes with laundry facilities	120 gal/bed
Residential care facilities	60 gal/person
Parks, Recreation, Camp Grounds, R-V Parks and other Outdoor Activity Facilities	
Campgrounds with comfort station, without water or sewer hookups	75 gal/campsite

Establishment Type	Daily Flow Rate
Campgrounds with water and sewer hookups	100 gal/campsite
Campground dump station facility	50 gal/space
Construction, hunting or work camps with flush toilets	60 gal/person
Construction, hunting or work camps with chemical or portable toilets	40 gal/person
Parks with restroom facilities	250 gal/plumbing fixture
Summer camps without food preparation or laundry facilities	30 gal/person
Summer camps with food preparation and laundry facilities	60 gal/person
Swimming pools, bathhouses and spas	10 gal/person
Public access restrooms	325 gal/plumbing fixture
Schools, Pre-school and Day Care	
Day care and preschool facilities	25 gal/person (child & employee)
Schools with cafeteria, gym and showers	15 gal/student
Schools with cafeteria	12 gal/student
Schools without cafeteria, gym or showers	10 gal/student
Boarding schools	60 gal/person (student & employee)
Service Stations and Car Wash Facilities	
Service stations, gas stations	250 gal/plumbing fixture
Car wash facilities	1200 gal/bay
Sports Centers	
Bowling center	50 gal/lane
Fitness, exercise, karate or dance center	50 gal/100 sq. ft.
Tennis, racquet ball	50 gal/court
Gymnasium	50 gal/100 sq. ft.
Golf course with only minimal food service	250 gal/plumbing fixture
Country clubs	60 gal/member or patron
Mini golf, putt-putt	250 gal/plumbing fixture
Go-kart, motocross	250 gal/plumbing fixture
Batting cages, driving ranges	250 gal/plumbing fixture
Marinas without bathhouse	10 gal/slip
Marinas with bathhouse	30 gal/slip
Video game arcades, pool halls	250 gal/plumbing fixture
Stadiums, auditoriums, theaters, community centers	5 gal/seat
Stores, Shopping Centers, Malls and Flea Markets	
Auto, boat, recreational vehicle dealerships/showrooms with restrooms	125 gal/plumbing fixture
Convenience stores, with food preparation	60 gal/100 sq. ft.
Convenience stores, without food preparation	250 gal/plumbing fixture
Flea markets	30 gal/stall
Shopping centers and malls with food service	130 gal/1000 sq. ft.
Stores and shopping centers without food service	100 gal/1000 sq. ft.
Transportation Terminals	
Air, bus, train, ferry, port and dock	5 gal/passenger

Source: North Carolina Administrative Code 02T.0114, January 1, 2007



Request: Rezoning from AR to CZ-R
Project Name: Vinson Road
Project Number: 2022-195-CZM



Staff Report Map
Prepared by: TOC Planning Department
September 13, 2023

Disclaimer: Town of Clayton assumes no legal responsibility for the quality of the data represented here.

Applicant: TMTLA Associates
 Property Owner: Poole Farm, LLC & Rocky Branch Farm, LLC
 Tag #: 05J05011V & 05J05030F

0 0.45 0.9
 Miles

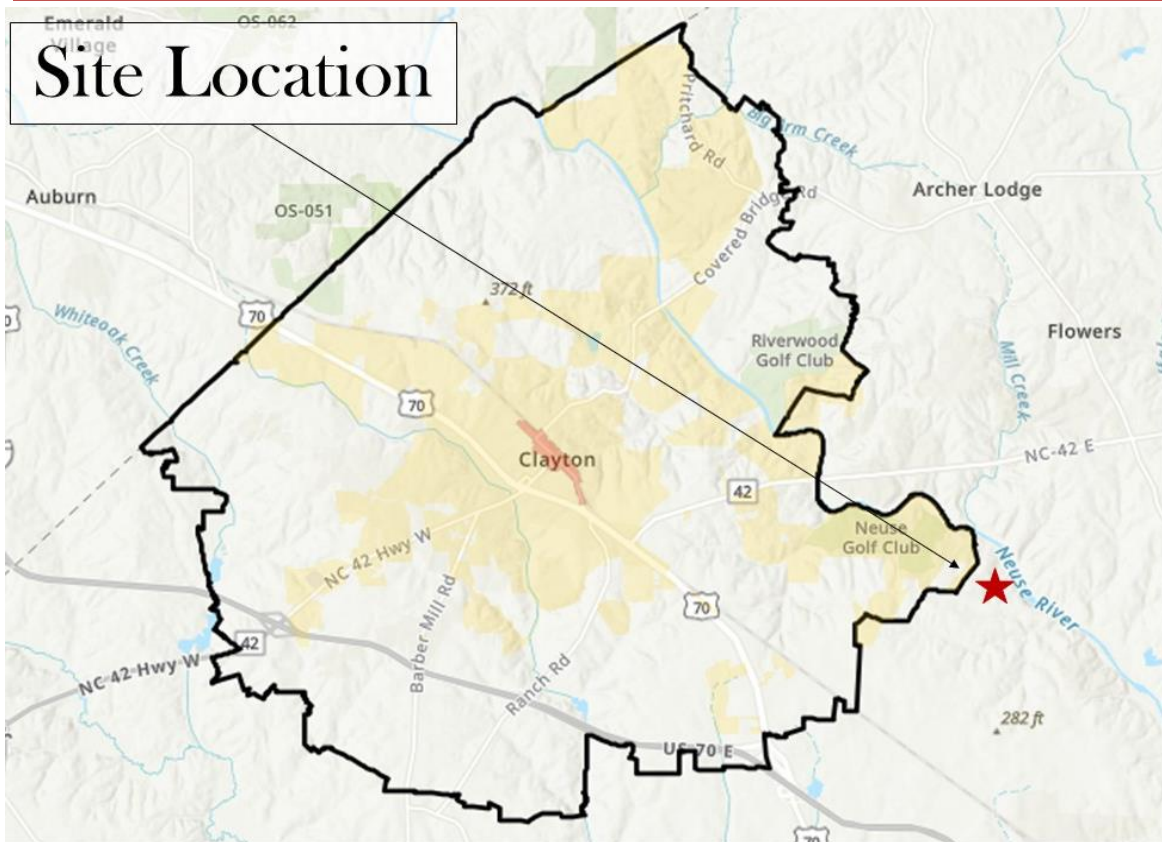
Document Path: C:\Users\lovenable\Town of Clayton, NC\Planning - Development Projects\Conditional Zoning with Master Plan\2022\2022-195-CZM Vinson Road\Staff Report Map\Staff Report Maps - 2022-195-CZM Vinson Rd .mxd



VINSON RD CONDITIONAL ZONING

Project #:	2022-195-CZM	Location:	Vinson Road across from Windsor Green Estates
Applicant:	TMTLA ASSOCIATES	Project Type:	Conditional Zoning with Master Plan
Property Owner:	POOLE FARM, LLC & ROCKY BRANCH FARM, LLC	Proposed Use:	Residential
Staff Planner:	Bruce Venable, Planner I	TAG #(s):	05J05011V & 05J05030F

Site Location



PROJECT SUMMARY

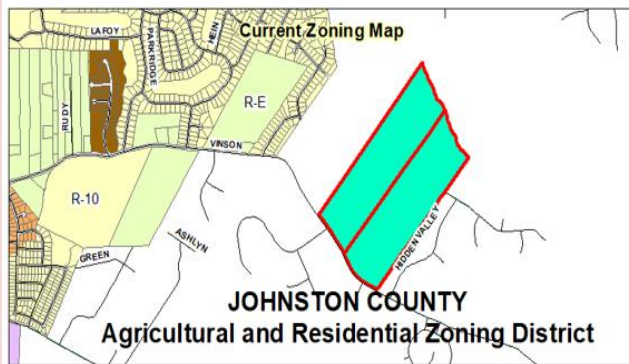
The site is located off Vinson Road outside the Town's ETJ. The applicant has also petition for annexation into the Town has requested to rezone the above referenced parcel from Johnston County's Agricultural Residential (AR) to Conditional Zoning-Residential Zoning District (CZ-R), which is approximately +/- 146.26 acres in size. The Conditional Zoning District would allow for up to 457 units, or a density of 3.13 units per acre. This site is located within the Watershed Protection Overlay District.

LAND USE REVIEW

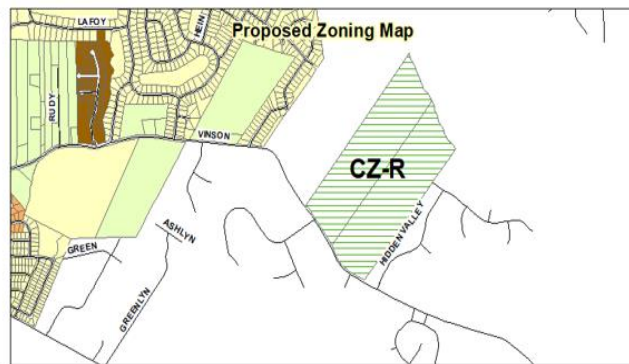
SITE DATA:

Acreage: +/- 146.26 acres
Existing Use: Residential/Vacant

CURRENT ZONING MAP



PROPOSED ZONING MAP



AERIAL MAP



TABLE 1: COMPARISON OF SURROUNDING PROPERTIES

Direction	Zoning	Existing Use
North	Agricultural Residential (AR)	Residential
South	Agricultural Residential (AR)	Residential
East	Agricultural Residential (AR)	Residential
West	Agricultural Residential (AR)	Residential

Consistency with the 2045 Comprehensive Growth Plan

The subject parcels of land to be rezoned are not represented in the 2045 Comprehensive Growth Plan, but they are present within the Johnston County's Future Land Use Map. The Johnston County Future Land Use Map identifies this area as "Low Density Residential", and the area with the ETJ closest to these parcels is identified as "Low Density Residential" on the Town's Future Land Use Map. The conditional rezoning request would be inconsistent with the Low-Density Residential future land use designation as defined in the 2045 Comprehensive Growth Plan. A density of 3.12 units/acre is proposed; 0.12 dwellings units/acre above the maximum 3 units/acre and consisting of more than 25% attached units.

LDR

Low Density Residential (LDR)

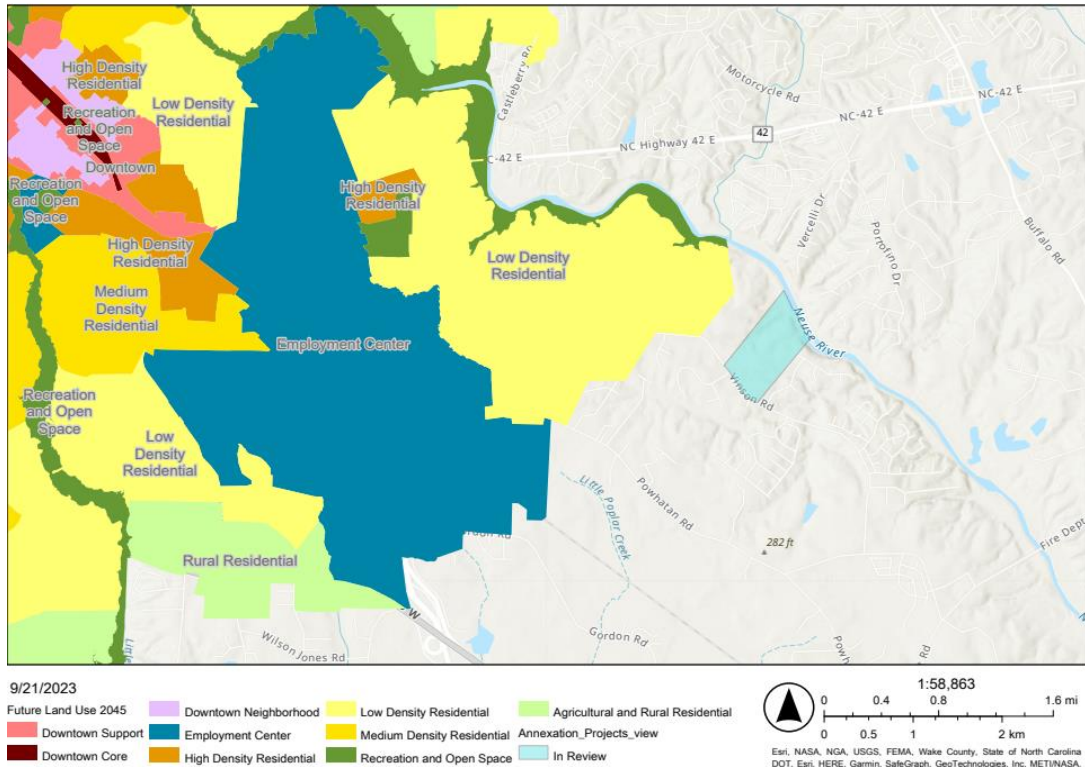


Areas designated as Low-Density Residential are intended to remain predominantly suburban in character and provide for low-density, single-family residential development on smaller lots than those in Rural Residential areas. However, a mix of residential housing types may occur under a conditional zoning district to support conservation of open space, as long as a gross density of 3 units per acre is not exceeded.

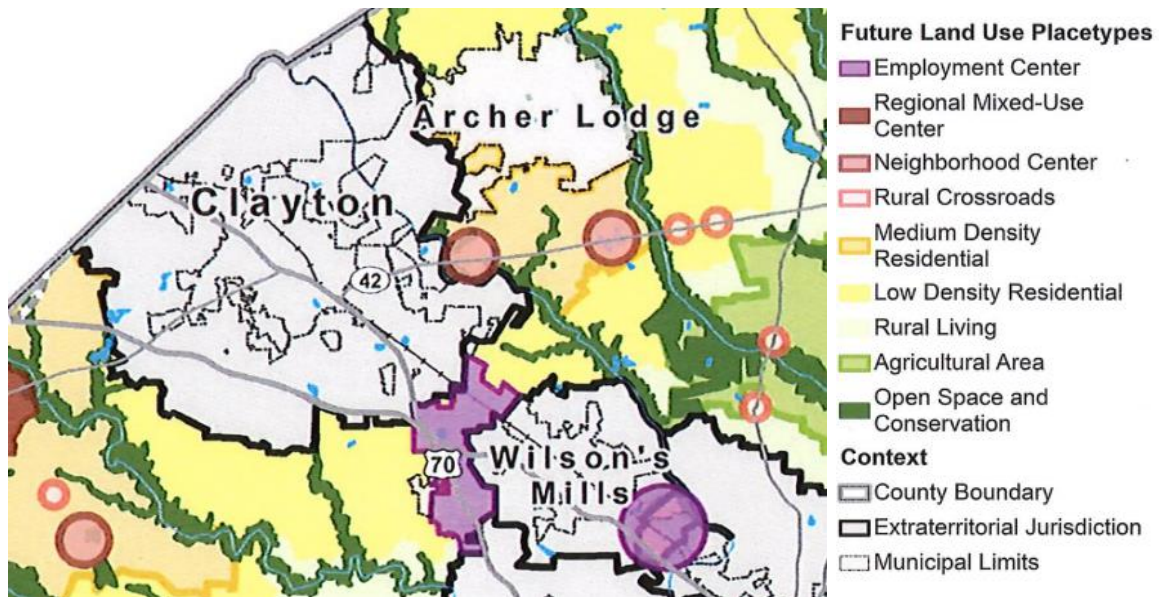
- **Gross Residential Density*:** ≤3 units/acre
- **Unit Type:** Mostly single family detached homes, generally less than 25% attached units
- **Open Space:** Minimum of 25%**. Open space should be a mix of preserved natural features with passive recreation such as greenways and trails and more formal or developed open space such as common greens, playgrounds or sports fields.

Future Land Use Maps

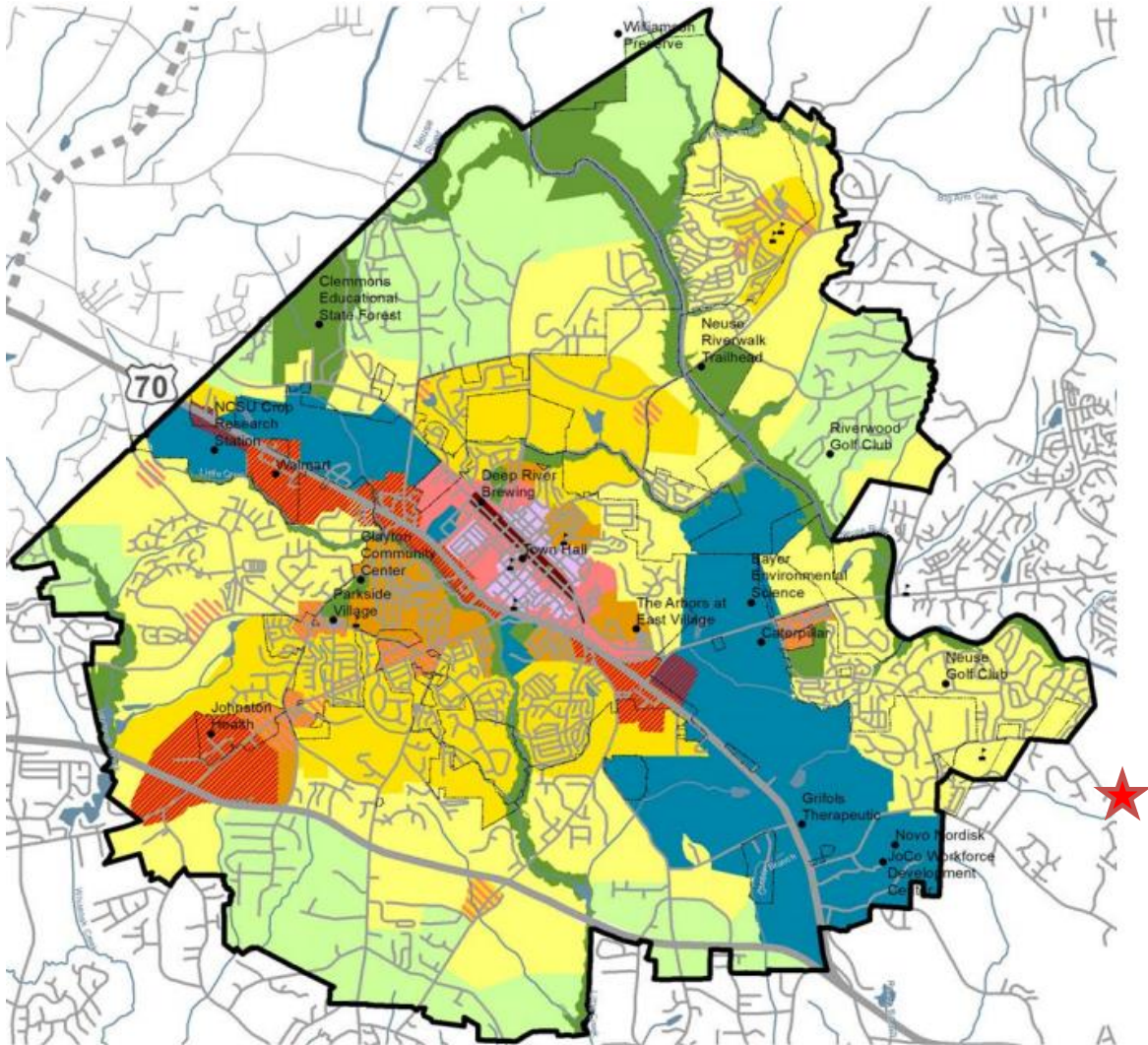
2045 Comprehensive Growth Plan Land Use Map (Town of Clayton)



Envision Johnston Future Land Use Map (Johnston County)



2045 Comprehensive Growth Plan Land Use Map - Overall



Development Data

Proposed Uses:	Residential (single-family detached and townhome homes)
Proposed Density:	Up to a maximum of 457 units are proposed at an overall proposed residential density of 3.12 units/acre for the development.
Fire Protection:	Wilson Mills (Current)
Access/Streets:	2 standard access points and 1 emergency gated access point will be provided from along Vinson Road
Water/Sewer Provider:	Town of Clayton
Electric Provider:	Duke Energy Progress

Lot Dimensional Standards:

	Current Zoning		Conventional Zoning		Proposed Zoning	
	AR ¹	R-E ²	R-10 ³		CZM	
			<i>Single Family Detached</i>	<i>Single Family Attached</i>	<i>Single Family Detached</i>	<i>Single Family Attached</i>
<i>Min. Lot Size</i>	30,000 SF	25,000 SF	8,000 SF	4,000 SF	6,000 SF	4,000 SF
<i>Min. Lot Width</i>	N/A	80 ft.	50 ft.	25 ft.	48 ft.	21 ft.
<i>Max. Lot Coverage</i>	N/A	35%	35%	35%	35%	35%
<i>Max. Impervious Density (Per Acre)</i>	N/A	50%	50%	50%	50%	50%
<i>Front Setback</i>	20	35	25	25	20	25
<i>Side Setback</i>	10	15	6	15	6	6
<i>Side Street Setback</i>	20	25	15	15	10	10
<i>Rear Setback</i>	10	30	15	15	15	15

¹Johnston County Zoning District

²The current zoning district, AR, is a Johnston County zoning district. Staff has provided dimensional standards for the zoning district most similar Town of Clayton Zoning District

³Dimensional Standards required in the conventional zoning district most similar to the applicant's proposal.

Landscape Buffer Requirement:

The proposed master plan includes a 15' landscape buffer around the perimeter of the project boundary as required per §155.203(L)(1)(i). The buffer will include opaque screening consisting of a wall, fence, berm, evergreen hedge, or combination thereof. The development will also include street trees meeting the requirements in the UDC.

Trip Generation:

LAND USE (ITE Code)	INTENSITY	DAILY TRIPS (VPD)	WEEKDAY AM PEAK HOUR (VPH)		WEEKDAY PM PEAK HOUR (VPH)	
			Enter	Exit	Enter	Exit
Single Family Detached Housing (210)	255 units	2,387	42	130	151	89
Single Family Attached Housing (215)	210 units	1,150	32	72	70	52
Total Trips		3,937	77	202	221	141

Required Transportation Improvements:

The proposed site is to be developed within three years by the year 2025. The proposed development will be accessed by one full-movement driveway on each side of Glen Laurel Road and one full-movement driveway on Vinson Road. Table 1 shows the projected trip generation for the proposed development. The trip generation was based on rates published in the ITE Trip Generation Manual, 11th Edition.

NC 42 and Glen Laurel Road

- Signal modification plan to allow for an eastbound right-turn lane overlap phase (coordinated with NCDOT).

Glen Laurel Road and Vinson Road

- An exclusive southbound left-turn lane with at least 500 feet of full width storage with appropriate deceleration and taper if right-of-way is available.
- An exclusive northbound left-turn lane with at least 275 feet of full width storage with appropriate deceleration and taper if right-of-way is available.

Vinson Road and Windsor Green Drive/Site Drive 1

- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).

Vinson Road and Rainwater Court/Site Drive 2

- Construct Site Drive 2 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 2).

Public Utilities:

Public water and sewer servicing all lots shall conform to Town of Clayton Public Works and Utilities Department requirements. The project will connect to an existing Johnston County Public Utilities 8" waterline along Vinson Road, which exists within the proximity of the project area. Public Sewer will be accessed via the Summerlyn Pump Station. There is a new pump station planned (which will either be sized for this basin or a regional station for the Town) which will allow for future expansion of the sewer basin.

Allocation of wastewater for the proposed development will come from Town Council action following consideration of the Conditional Zoning District. The Wastewater Allocation Policy requires a project score of a minimum of 50 points from the provided Allocation Criteria worksheet. The proposed project will exceed the 50-point minimum from a combination of being a mixed-residential development (25 pts), a residential future tax status (5 pts), being a residential subdivision with amenities included (15 pts), providing multiple-car garages (5 pts) and overflow parking (5 pts), including masonry elements in the building construction (10 pts), and sustainable/high energy efficiency appliances are proposed to be used (15 pts).

The proposed development will request consideration of a total wastewater allocation of 114,250 GPD from the Town Council and the Water and Wastewater Allocation Request has been submitted to run parallel with this application. This flow will not be available until the new Sam's Branch Water Reclamation Facility comes online in 2025.

Streets:

The proposed master plan proposes approximately thirteen (13) new public streets, two (2) intersections with existing State Roads, and one (1) emergency access easement to Vinson Road. Per UDO Sec. 155.400(i) and comment from the master plan review, stub roads to adjacent properties have been added. New streets will be constructed and dedicated to the Town as Public Streets.

Architectural Standards:

The style of buildings will be any variety of the following: Craftsman, Traditional, Colonial, Neoclassical. The intent is to foster multiple styles to create a community that is not monotonous.

Predominant exterior building materials shall be high quality materials, including brick, wood, stone, fiber cement, and/or wood composite. The front façade of all units shall have a minimum of 25% masonry (brick or stone). Vinyl siding shall be prohibited but vinyl accents, such as windows, shall be permitted.

Foundations for single family detached shall be crawl space or stem wall. Townhomes shall have slab on grade foundation.

A varied color palette shall be utilized on homes throughout the subdivision and shall include siding, trim, shutter, and accent colors complementing the siding colors.

Single Family Detached: No two consecutive single-family homes shall contain the exact same front elevation regarding materials or color palette. Single family homes directly across the street from each other shall not have identical façades regarding materials or color palette.

Single Family Attached (Townhomes): No two consecutive townhome buildings shall contain the exact same front elevation regarding materials or color palette.

Cabana (or clubhouse) shall contain a minimum of 15% masonry on the front façade.

A mail kiosk for the single-family detached units shall be located adjacent to the pool and cabana pending USPS approval.

Renderings of the architectural elevations were not provided by the applicant.

Conditional Rezoning Approval Criteria:

1. Consistency with the adopted plans of the Town.

Applicant Response: The Vinson Road conditional zoning request is either consistent with, or in the spirit of, all adopted plans and policies of the Town. Our proposal is asking for a maximum of 3.12 dwelling units per acre, which is just slightly higher than the Low-Density Residential threshold. We understand that this exceeds the threshold for density noted in the 2045 Growth Plan, but our development includes roughly 40% open space. Vinson Road strives to balance the need for both quantity and a mix of housing types with preservation of open space. See Sec. 12 and 13 of this narrative for more information.

Staff Commentary: The site is not located within the Town's 2045 Comprehensive Growth Plan or the Town's Planning Jurisdiction. It is, however, within Johnston County's Future Land Use Map, and it is projected as Low-Density Single-Family Housing. Staff would agree that, were it to be included in the 2045 Comprehensive Growth Plan for the Town of Clayton, Low Density Residential use, along with Recreation and Open Space use, would be well suited for the subject area. Considering this, the project is inconsistent with the 2045 Comprehensive Growth Plan by exceeding the maximum of 3 units/acre and consisting of over 25% Single-Family Attached.

2. Suitability of the subject property for uses permitted by the current vs. the proposed conditional district.

Applicant Response: The subject property is suitable for the proposed uses. This proposed development is in an area where other existing residential development are located to the north, south, east, and west of our proposal. Policy LU 3.1 encourage a range of housing types - we are filling that need with the inclusion of both single family detached and townhome units. The two lots that are part of our proposal are both currently zoned RA and are located in the County. In addition to our proposed rezoning request, we are also requesting annexation into the Town limits. Although the county zoning would allow for less density overall, bringing these two lots into the Town of Clayton town limits will allow for development to occur that is similar to other existing developments in the area.

Staff Commentary: Current Johnston County zoning would not permit such a project, as it limits residential development to single family detached, two-family dwellings (duplex), and two-unit townhouses. Townhomes with groups larger than two would not be permitted under current zoning without a Special Use Permit as a Planned Development. Furthermore, development within the district is limited to a density of 1.45 units/acre. The proposed Conditional Zoning District proposes a higher density than what is proposed for this area, including the percentage of single-family attached units.

3. Whether the proposed change tends to improve the balance of uses or meets specific demand in the Town.

Applicant Response: Policy LU 3.1 encourages a range of housing types - we are filling that need with the inclusion of both single family detached and townhome units. We are filling a need the Town has noted in the Town of Clayton 2045 Growth Plan.

Staff Commentary: The proposed project would help with the demand for housing within the Town.

4. The capacity of adequate public facilities and services including schools, roads, recreation facilities, wastewater treatment, water supply facilities and stormwater drainage facilities is available for the proposed conditional district.

Applicant Response: Adequate facilities are either existing or will be improved to meet the demands of our proposal.

Schools: *Our development is expected to feed into the Johnston County School System. According to the Johnston County Public Schools website, our project would be district for the following schools: Powhatan Elementary, Riverwood Middle School, and Clayton High School. Riverwood Elementary and Clayton High School are both on the 2023-2024 Capped Schools list for Johnston County. Powhatan Elementary was removed from the 2023-2024 Capped Schools list.*

Roads: *The road network internal to our development will be public and all roads will be designed to the Town of Clayton specifications for roadway design. We have an alternate road section for our stream crossing, which will allow for residents at the back of the development to exit the development should one of the lanes be blocked. Our development provides a stub to the vacant property to the west for connection upon development, as well as a stub to the existing neighborhood to the east (should that neighborhood want to connect to our development in the future).*

Recreational Facilities: *Our request will meet or exceed the requirement for recreational facilities for our development. Our proposal commits to including a cabana/pool amenity area, as well as a minimum of two of the following amenities: dog park, tot lot/playground, multi-use field, picnic gazebo, disc golf, pickle ball court, tennis court, mini park, plaza, square, green, private greenway or trails, or community garden.*

With regard to open space as a whole, our development will have over 40% open space. This is due to the protection of various environmental features on this development, such as stream buffers and floodplain.

With regard to the public recreation open space requirement, this development shall utilize the Fee-In-Lieu. Fee in lieu amount shall be as noted in the Unified Development Code (UDC) at time of first plat.

Wastewater Treatment and Water Supply Facilities: *This development has access to water via the 8" Johnston County water line that exists in Vinson Road. As part of our zoning request, we are adding the following condition to address wastewater treatment:*

Prior to the approval of construction drawings, the developer shall validate the adequate capacity in the downstream wastewater infrastructure, pump stations and forcemain, to accommodate the proposed flow for the project. If adequate downstream capacity is not available, the applicant will complete any pump station or forcemain improvements in coordination with Town staff to accommodate the proposed flow.

Stormwater Drainage Facilities: The Vinson Road development will meet all applicable requirements and standards as described in the Town of Clayton Stormwater Design Manual and Town of Clayton Stormwater Ordinance, as well as meet all State regulations for stormwater management.

Staff Commentary: The proposed development would be Johnston County schools. The elementary school and middle school which service the area are not on the County's "capped" list for 2023-2024. However, the high school which serves this area is on the "capped" list. Access to the development will be provided on Vinson Road, with an internal network of streets being constructed providing access to the homes. The development will be required to meet the Town's Recreation and Open Space requirements in Section 155.203(I), and in addition will provide a recreation center/cabana/pool area. They will also provide two other active recreation amenities outlined in greater detail within Condition 10 on Conditions of Approval. The development will also provide approximately 58 acres of open space, a large portion of which is present within flood hazard areas. The development will be required to meet the requirements in the Town's Stormwater Ordinance. The property has access to public water along Vinson Road and will access the sewer via the Summerlyn Pump Station. The development is required to construct a new pump station and offsite improvements for the expansion of the sewer basin, which they have planned.

5. It has been determined that the legal purposes for which zoning exists are not violated.

Applicant Response: The legal purposes for which zoning exists are not being contravened as a result of our rezoning request.

Staff Commentary: The applicant has followed the procedure as outlined in Section 155.203 Part 3 and 155.705. All Town of Clayton processes and procedures have been and will be followed throughout the rezoning process.

6. It has been determined that there will be no adverse effect upon adjoining property owners unless such effect can be justified by the overwhelming public good or welfare.

Applicant Response: This project will have no adverse effect upon adjoining property owners. The surrounding properties are either residential or vacant. Our development includes townhomes, to help diversify the type of housing available in Clayton, but we've purposefully located the townhomes in the middle of our project to buffer from adjacent existing single family detached development.

Staff Commentary: It is the understanding of staff there will be no adverse effect upon the adjoining property owners by this project. The proposed development will consist of a cluster of higher density residential development in the form of townhomes in the center with the higher intensity insulated by surrounding lower density residential development. This method of insulating the higher density housing from surrounding, existing low density single family detached use could be seen as softening any adverse effect upon adjoining property owners.

7. It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.

Applicant Response: No group will benefit materially to the detriment of the general public from this Rezoning request nor development of the Property.

Staff Commentary: While the owners/developers may benefit from the development, staff believe that with the proposed conditions there will be no detriment to the general public.

Master Plan Approval Criteria:

The master plan shall include, and the applicant shall be responsible for successfully addressing the following:

- Compliance with § 155.203(L) and all other applicable requirements of this chapter, or analysis and justification if it deviates from the requirements of this chapter;
- Consistency with the Clayton General Design Guidelines;
- Conformance of the proposal with the stated purpose of the requested conditional zoning district;
- Compatibility of the proposed development with the adjacent community;
- The quality of design intended for each component of the project and the ability of the overall development plan to ensure a unified, cohesive environment at full build-out;
- Compatible relationships between each component of the overall project;
- Self-sufficiency of each phase of the overall project;
- The fiscal impact of the proposal and the proposed financing of required improvements;
- The success of the proposal in providing adequate pedestrian and bicycle links within the development and with the adjacent community; and
- The effectiveness with which the proposal protects and preserves the ecologically sensitive areas within the development.

Staff Commentary: The applicant has provided a Master Plan Narrative providing details of the proposal. Through the Master Plan, Narrative and proposed conditions, staff believes the applicant has successfully met the criteria.

Inconsistency Statement:

The rezoning request is inconsistent with the Town of Clayton 2045 Comprehensive Growth Plan, Future Land Use Map and Unified Development Code in that:

1. The development is located outside of the Town's Planning Jurisdiction and is not included in the 2045 Comprehensive Growth Plan or Future Land Use Map.
2. The proposed density of the Conditional Zoning District is inconsistent with the Future Land Use Map designation of Low Density Residential with a density over the maximum of 3 dwelling units per acre as defined in the 2045 Comprehensive Growth Plan, which staff believes would be the designation of the subject parcels if the Future Land Use Plan was extended to include the subject parcels.
3. The proposed Conditional Zoning District is inconsistent with the Comprehensive Growth Plan by consisting of over 25% single-family attached units with an area expected to be designated as Low Density Residential.
4. The proposed Conditional Zoning District is inconsistent with Conditional Zoning District approval criteria #2 "Suitability of the subject property for uses permitted by the current vs. the proposed conditional district" due to the surrounding zoning districts not permitting a project of such density, by requesting a density over double that of the parcels surrounding the subject development on all sides and the percentage of single-family attached units.

Considerations:

- The Town Council shall consider the recommendation of the Planning Board and the Interim Planning Director.
- The Town Council shall approve, approve with conditions, or disapprove the conditional zoning district. Any additional, revised, or deleted conditions from those below must be signed or declined by the applicant prior to the Council rendering a decision.
- Concurrently with adopting, denying or remanding any conditional zoning district, the Town Council shall adopt a statement describing whether its action is consistent with the adopted plans and policies of the Town and explaining why the Town Council considers the action taken to be reasonable and in the public interest.
- If the conditional zoning district is not consistent with the 2045 Comprehensive Growth Plan and is approved, the 2045 Comprehensive Growth Plan Future Land Use Map will be considered amended to match the proposed conditional zoning district.
- If approved, the conditional zoning district, master plan and narrative will be recorded with the Johnston County Register of Deeds and shall guide future development for this land. The conditional zoning district, master plan, and narrative shall not expire, and will run with the land.

Staff Recommendation

Staff recommends the Planning Board find the Vinson Road Conditional Zoning District inconsistent with the Unified Development Code and 2045 Comprehensive Growth Plan, subject to the 26 conditions listed below.

Proposed Conditions of Approval (2022-195-CZM Vinson Road Conditional Zoning and Master Plan):

1. Following Town Council approval, an electronic copy of the Master Plan and Narrative including the Conditions of Approval shall be submitted to the Planning Department for final approval.
2. The Development shall meet all adopted Town of Clayton Unified Development Code (UDC) requirements, Town of Clayton Engineering and Stormwater design standards, and the North Carolina Fire Code and NFPA Fire standards, except where specifically modified by the approved master plan.
3. The Development shall be constructed in substantial conformance with the Master Plan and Master Plan Narrative as approved by the Clayton Town Council.
4. All parcels subject to the Conditional Zoning and Master Plan shall be annexed into the Town prior to any subsequent development approvals.
5. The developer will be required to pay their proportional share of the Wilsons Mills Fire District Capital Debt to the Town prior to the effective date of the Annexation.
6. The following uses are permitted by-right within the areas identified on the associated Master Plan:
 - Single-Family Detached
 - Single-Family Attached (Townhome)
 - Park

- Fitness/Recreation Center
 - Utility, Minor
7. The development shall be limited to the following standards:
 - Maximum of 457 total dwelling units
 - Maximum of 207 Single-Family Attached Homes (Townhomes)
 - Maximum number of 250 Single-Family Detached Homes
 - Maximum Density: 3.12 dwelling units per acre
 8. Single-Family Detached Dwelling Lot Dimension Standards:
 - Minimum Heated Square Feet: 2,000 Square Feet
 - Minimum Lot Size: 6,000 Square Feet
 - Maximum Building Height: 35 feet
 - Minimum Front Setback: 20 feet
 - Minimum Setback from Right-of-Way to Face of Garage: 25 feet
 - Minimum Rear Setback: 15 feet
 - Minimum Side Setback (Interior Lots): 6 feet
 - Minimum Side Setback (Corner Lots): 10 feet
 9. Single-Family Attached (Townhomes) Dimensional Standards:
 - Minimum Heated Square Feet: 1,500 Square Feet
 - Minimum Lot Width: 21 feet
 - Maximum Building Height: 45 feet
 - Minimum Front Setback: 25 feet
 - Minimum Rear Setback: 15 feet
 - Minimum Side Setback (Interior Lots): 6 feet
 - Minimum Side Setback (Corner Lots): 10 feet
 10. All dimensional standards not otherwise modified through these conditions and/or the approved master plan narrative shall meet the applicable requirements within the UDC.
 11. The development shall have a minimum of 15 feet wide Class “C” buffer around entire development perimeter with opaque screening.
 12. Each single-family detached home shall have a minimum of a 2-car garage.
 13. Each single-family attached (townhome) shall have a minimum of a 1-car garage.
 14. The Development shall include a community cabana (or clubhouse) and pool amenity area consisting of at last 15% masonry materials on the front façade.

15. In addition to the community cabana (or clubhouse and pool amenity area, a minimum of two of the following amenities shall be provided:

- Dog park
- Tot Lot/Playground
- Multi-Use Field
- Picnic Gazebo
- Disc Golf
- Pickle Ball Court
- Community Garden
- Tennis Court
- Mini Park
- Plaza
- Square
- Green Space
- Private Greenway and/or Trails

16. The following Architectural Standards shall be required to be met for all Single-Family House, both attached and detached, uses:

- All residential building materials shall include brick, wood, stone, fiber cement, and/or wood composite.
- Vinyl siding shall be prohibited but vinyl accents, such as windows, shall be permitted.
- All residential units shall have a minimum of 25% masonry on the front façade.
- Single-Family detached shall have either a crawl space foundation or a stem wall foundation or elevated/raised foundation
- Townhomes shall have a slab on grade foundation.
- No two consecutive single-family detached homes shall contain the exact same front elevation with regard to materials or color palette.
- Single Family Detached homes directly across the street from each other shall not have identical facades with regard to materials or color palette.
- No two consecutive townhomes buildings shall contain the same front elevation with regard to materials or color palette.

17. All units within the development shall include sustainable/high efficiency products and appliances, including low E/insulated windows, an Energy Star dishwasher, low VOC paint, and fiber cement siding.

18. The development shall consist of three separately constructed access points. In addition to the two-access points as shown on the approved Master Plan, a third entrance shall be constructed to only to be used for emergencies on Vinson Road. The access construction requirements shall be determined by the appropriate Town departments at the time of Construction Drawings review. This access point shall be gated and always locked.

19. No more than 30 Certificates of Occupancy will be issued within the Development before the second required access point is constructed.

20. No more than 300 Certificates of Occupancy will be issued within the Development before the third required access point (emergency access only) is constructed.

21. Prior to approval of the Construction Drawings, the developer shall validate the adequate capacity in the downstream wastewater infrastructure, pump stations and forcemain, to accommodate the proposed flow for

the project. If adequate downstream capacity is not available, the applicant will complete any pump station or forcemain improvements in coordination with Town staff to accommodate the proposed flow.

22. Any proposed wastewater infrastructure (Pump Station, Force Main, and/or Gravity Sewer) required to serve this development shall be designed and constructed to serve the extent of the drainage basin able to be served by such infrastructure.
23. A modified street section for stream crossing noted on Master Plan sheet L-2 shall be provided.
24. The development shall dedicate and construct the required improvements for Vinson Road, along the property frontage, equal to ½ the ultimate typical section for Vinson Road as listed in the Transportation Plan at the time of this approval. At a minimum, the improvements will consist of roadway widening, curb and gutter, and sidewalk construction.
25. Road Improvements from TIA prepared by Ramey Kemp Associates (with NCDOT approval) to be constructed prior to the recordation of first final plat:

NC 42 and Glen Laurel Road

- Coordinate with NCDOT to develop a signal modification plan to allow for an eastbound right-turn lane overlap phase.

Glen Laurel Road and Vinson Road

- Provide an exclusive southbound left-turn lane with at least 500 feet of full width storage with appropriate deceleration and taper if right-of-way is available.
- Provide an exclusive northbound left-turn lane with at least 275 feet of full width storage with appropriate deceleration and taper if right-of-way is available.

Vinson Road and Windsor Green Drive / Site Drive 1

- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).

Vinson Road and Rainwater Court / Site Drive 2

- Construct Site Drive 2 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 2).

26. To the extent of any conflict between the Master Plan, Master Plan Narrative and these conditions, these conditions shall control.

-
- 1) Application
 - 2) Master Plan Narrative
 - 3) Master Plan
 - 4) Neighborhood Meeting Materials
 - 5) Transportation Impact Analysis (TIA)
 - 6) NCDOT TIA Review
 - 7) TIA APPENDIX
 - 8) Proposed Conditions of Approval
 - 9) Wastewater Allocation Request
 - 10) Staff Report Map
 - 11) Staff Report



Town of Clayton
Planning Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

November 13, 2023

TMTLA Associates
Attn: Pamela Porter
5011 Southpark Drive, Ste. 200
Durham, NC 27713
Pam@tmtla.com

Re: 2022-195-CZM Vinson Road Conditional Zoning District and Master Plan

To Whom It May Concern,

The Town of Clayton Planning staff is recommending to the Planning Board and Town Council that conditions of approval be placed upon the above referenced application, which proceeds to the Planning Board on September 25, 2023, and continued until November 27, 2023, and Town Council (dependent on outcome of Planning Board meeting) on January 15, 2023. These recommended conditions of approval are outlined on the back of this letter.

Please read through these potential conditions of approval, and sign below if you agree with the conditions as proposed. If you are not in agreement, please respond accordingly in writing. This will be included within the agenda packet for the Planning Board and Town Council review. If the Conditional Zoning District is approved by the Town Council, the approval document with the final conditions will be signed and recorded by the Town.

Sincerely,

Conrad Olmedo, AICP, CZO.
Planning Director

Recommend Conditions of Approval (2022-195-CZM)
Vinson Road Conditional Zoning District and Master Plan

1. Following Town Council approval, an electronic copy of the Master Plan and Narrative including the Conditions of Approval shall be submitted to the Planning Department for final approval.
2. The Development shall meet all adopted Town of Clayton Unified Development Code (UDC) requirements, Town of Clayton Engineering and Stormwater design standards, and the North Carolina Fire Code and NFPA Fire standards, except where specifically modified by the approved master plan.
3. The Development shall be constructed in substantial conformance with the Master Plan and Master Plan Narrative as approved by the Clayton Town Council.
4. All parcels subject to the Conditional Zoning and Master Plan shall be annexed into the Town prior to any subsequent development approvals.
5. The developer will be required to pay their proportional share of the Wilsons Mills Fire District Capital Debt to the Town prior to the effective date of the Annexation.
6. The following uses are permitted by-right within the areas identified on the associated Master Plan:
 - Single-Family Detached
 - Single-Family Attached (Townhome)
 - Park
 - Fitness/Recreation Center
 - Utility, Minor
7. The development shall be limited to the following standards:
 - Maximum of 406 total dwelling units
 - Maximum of 91 Single-Family Attached Homes (Townhomes)
 - Maximum number of 315 Single-Family Detached Homes
 - Maximum Density: 2.78 dwelling units per acre
8. Single-Family Detached Dwelling Lot Dimension Standards:
 - Minimum Heated Square Feet: 2,000 Square Feet
 - Minimum Lot Size: 6,000, Square Feet for 52' foot lots.
 - Minimum Lot Size: 7,000, Square Feet for 62' foot lots.
 - Minimum Lot Size, 8,000, Square Feet for 72' foot lots.
 - Maximum Building Height: 35 feet
 - Minimum Front Setback: 20 feet
 - Minimum Setback from Right-of-Way to Face of Garage: 25 feet
 - Minimum Rear Setback: 15 feet
 - Minimum Side Setback (Interior Lots): 6 feet

- Minimum Side Setback (Corner Lots): 10 feet
9. Single-Family Attached (Townhomes) Dimensional Standards:
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 - Maximum Building Height: 45 feet
 - Minimum Front Setback: 25 feet
 - Minimum Rear Setback: 15 feet
 - Minimum Side Setback (Interior Lots): 6 feet
 - Minimum Side Setback (Corner Lots): 10 feet
 10. All dimensional standards not otherwise modified through these conditions and/or the approved master plan narrative shall meet the applicable requirements within the UDC.
 11. The development shall have a minimum of 15 feet wide Class “C” buffer around entire development perimeter with opaque screening.
 12. Each single-family detached home shall have a minimum of a 2-car garage.
 13. Each single-family attached (townhome) shall have a minimum of a 1-car garage.
 14. The Development shall include a community cabana (or clubhouse) and pool amenity area consisting of at last 15% masonry materials on the front façade.
 15. In addition to the community cabana (or clubhouse and pool amenity area, a minimum of two of the following amenities shall be provided:

• Dog park • Tot Lot/Playground • Multi-Use Field • Picnic Gazebo • Disc Golf • Pickle Ball Court • Tennis Court	• Mini Park • Plaza • Square • Green Space • Private Greenway and/or Trails • Community Garden
--	---
 16. The following Architectural Standards shall be required to be met for all Single-Family House, both attached and detached, uses:
 - All residential building materials shall include brick, wood, stone, fiber cement, and/or wood composite.
 - Vinyl siding shall be prohibited but vinyl accents, such as windows, shall be permitted.
 - All residential units shall have a minimum of 25% masonry on the front façade.
 - Single-Family detached shall have either a crawl space foundation or a stem wall foundation or elevated/raised foundation.
 - Townhomes shall have a slab on grade foundation.

- No two consecutive single-family detached homes shall contain the exact same front elevation with regard to materials or color palette.
 - Single Family Detached homes directly across the street from each other shall not have identical facades with regard to materials or color palette.
 - No two consecutive townhomes buildings shall contain the same front elevation with regard to materials or color palette.
17. All units within the development shall include sustainable/high efficiency products and appliances, including low E/insulated windows, an Energy Star dishwasher, low VOC paint, and fiber cement siding.
 18. The development shall consist of three separately constructed access points. In addition to the two-access points as shown on the approved Master Plan, a third entrance shall be constructed to only to be used for emergencies on Vinson Road. The access construction requirements shall be determined by the appropriate Town departments at the time of Construction Drawings review. This access point shall be gated and always locked.
 19. No more than 30 Certificates of Occupancy will be issued within the Development before the second required access point is constructed.
 20. No more than 300 Certificates of Occupancy will be issued within the Development before the third required access point (emergency access only) is constructed.
 21. Prior to approval of the Construction Drawings, the developer shall validate the adequate capacity in the downstream wastewater infrastructure, pump stations and forcemain, to accommodate the proposed flow for the project. If adequate downstream capacity is not available, the applicant will complete any pump station or forcemain improvements in coordination with Town staff to accommodate the proposed flow.
 22. Any proposed wastewater infrastructure (Pump Station, Force Main, and/or Gravity Sewer) required to serve this development shall be designed and constructed to serve the extent of the drainage basin able to be served by such infrastructure.
 23. A modified street section for stream crossing noted on Master Plan sheet L-2 shall be provided.
 24. The development shall dedicate and construct the required improvements for Vinson Road, along the property frontage, equal to ½ the ultimate typical section for Vinson Road as listed in the Transportation Plan at the time of this approval. At a minimum, the improvements will consist of roadway widening, curb and gutter, and sidewalk construction.
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- Coordinate with NCDOT to develop a signal modification plan to allow for an eastbound right-turn lane overlap phase.

Glen Laurel Road and Vinson Road

- Provide an exclusive southbound left-turn lane with at least 500 feet of full width storage with appropriate deceleration and taper if right-of-way is available.
- Provide an exclusive northbound left-turn lane with at least 275 feet of full width storage with appropriate deceleration and taper if right-of-way is available.

Vinson Road and Windsor Green Drive / Site Drive 1

- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).

Vinson Road and Rainwater Court / Site Drive 2

- Construct Site Drive 2 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 2).

26. To the extent of any conflict between the Master Plan, Master Plan Narrative and these conditions, these conditions shall control.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby certify that I have reviewed the recommended conditions of approval and am in agreement with the conditions as they are outlined within this letter.

Pamela Porter		11.16.2023
<i>Print Name</i>	<i>Signature of Applicant</i>	<i>Date</i>

VINSON ROAD

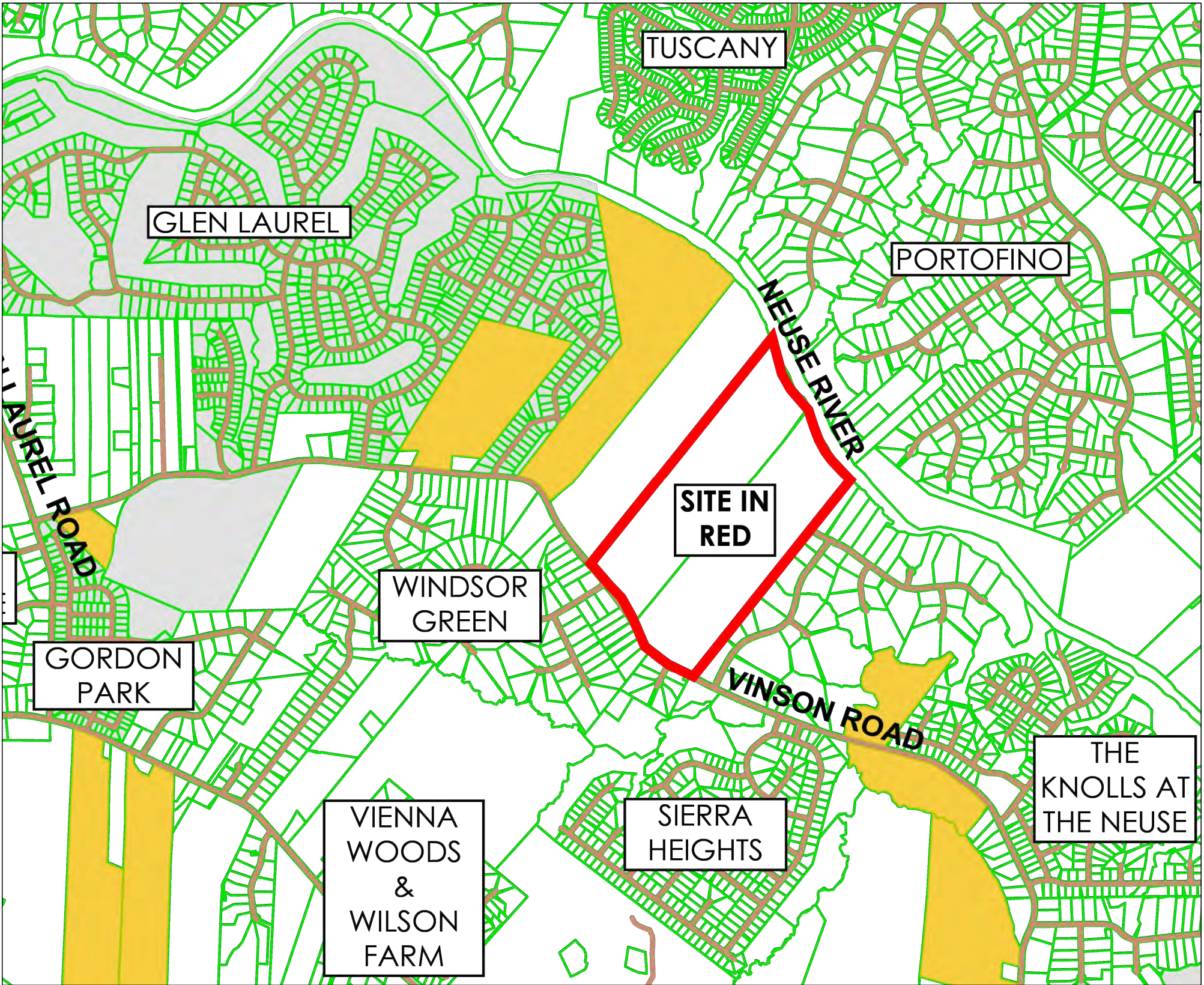
TOWN OF CLAYTON, JOHNSTON COUNTY, NORTH CAROLINA

CONDITIONAL REZONING APPLICATION

SUBMITTALS	
First Submittal	11/28/2022
Second Submittal	2/15/2023
Third Submittal	5/15/2023
Fourth Submittal	8/8/2023
Fifth Submittal	10/20/2023

SHEET INDEX	
Cover	COVER
Boundary Survey	L-1.1
Boundary Survey	L-1.2
Master Plan	L-2
Phasing Plan	L-3

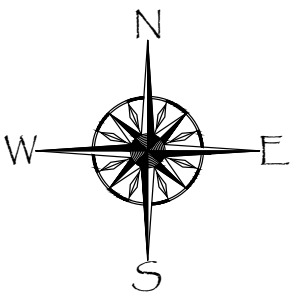
CONTACT INFORMATION	
LANDSCAPE ARCHITECT/APPLICANT: TMTLA Associates (Contact: Pam Porter) 5011 Southpark Drive, Ste. 200 Durham, NC 27713 (919) 484-8880	
CIVIL ENGINEERS/SURVEYOR: Timmons Group (Contact: Patrick Barbeau) 5410 Trinity Road, Ste. 102 Raleigh, NC 27607 (919) 866-4512	
TRAFFIC ENGINEER: DRMP (Contact: Caroline Cheeves) 5808 Faringdon Place Raleigh, NC 27609 (919) 987-1281	
OWNER: Poole Farm, LLC 16 Oakmont Court Clayton, NC 27520 (919) 320-4900	
OWNER: Rocky Branch Farm LLC 230 Summit Street Clayton, NC 27520 (919) 291-5817	
DEVELOPER: Hopper Communities (Contact: Bill Harrell) 2403 Medway Drive Raleigh, NC 27608 (919) 618-9929	
PLANNING DEPARTMENT: Town of Clayton Planning Department E. Second Street Clayton, NC 27520 (919) 553-5002	



VICINITY MAP (SITE OUTLINED IN RED)

1" = 1,200'

PROJECT DATA	
COUNTY TAG:	05J05011V & 05J05030F
DEVELOPMENT NAME:	VINSON ROAD
PROPERTY OWNERS:	POOLE FARM LLC & ROCKY BRANCH FARM LLC
EXISTING LAND USE:	VACANT
TOTAL SITE ACREAGE:	146.26 AC
PROPOSED LAND USE:	RESIDENTIAL; SINGLE FAMILY AND TOWNHOMES
PROPOSED ZONING:	CZ-R



TMTLA ASSOCIATES
LANDSCAPE ARCHITECTURE & LAND PLANNING
5011 SOUTH PARK DRIVE, STE. 200-DURHAM, NC 27713
p: (919) 484-8880 e: info@tmtla.com



REVISIONS:

COVER
VINSON ROAD
CLAYTON, NC

SCALE:
AS NOTED
DRAWN BY:
PMP
PROJECT #
22126
DATE:
9/13/2022

SHEET
COVER
OF

LEGEND

CP/X-CALCULATED POINT

IPF-IRON PIPE FOUND

IPFC-IRON PIPE FOUND IN CONCRETE

RBS-REBAR SET

DRWMF-DISTURBED RIGHT OF WAY MONUMENT FOUND

RWMF-RIGHT OF WAY MONUMENT FOUND

RBF-REBAR FOUND

UGFOM-UNDERGROUND FIBER OPTIC MARKER

PP-POWER POLE

TP-TELEPHONE POLE

OHPL-OVERHEAD POWER LINE

OHPHL-OVERHEAD PHONE LINE

OHPPHL-OVERHEAD POWER AND PHONE LINE

OHSL-UNDERGROUND SUPPORT LINE

OW-GUY WIRE

EOP-EDGE OF PAVEMENT

BC-BACK OF CURB

PB-PHASE BOX

WV-WATER VALVE

WMON-WATER VALVE MONUMENT

WWVST-WATER VALVE WITNESS POST

WM-WATER METER

FH-FIRE HYDRANT

TS-TRAFFIC SIGN

MB-MAIL BOX

RCP-REINFORCED CONCRETE PIPE

CAB-CABLE BOX

UGCAB-UNDERGROUND CABLE BOX

BWF-BAREWIRE FENCE

CLF-CHAINLINK FENCE

CRK-CENTERLINE CREEK

CLD-CENTERLINE DITCH

TOB-TOP OF BANK

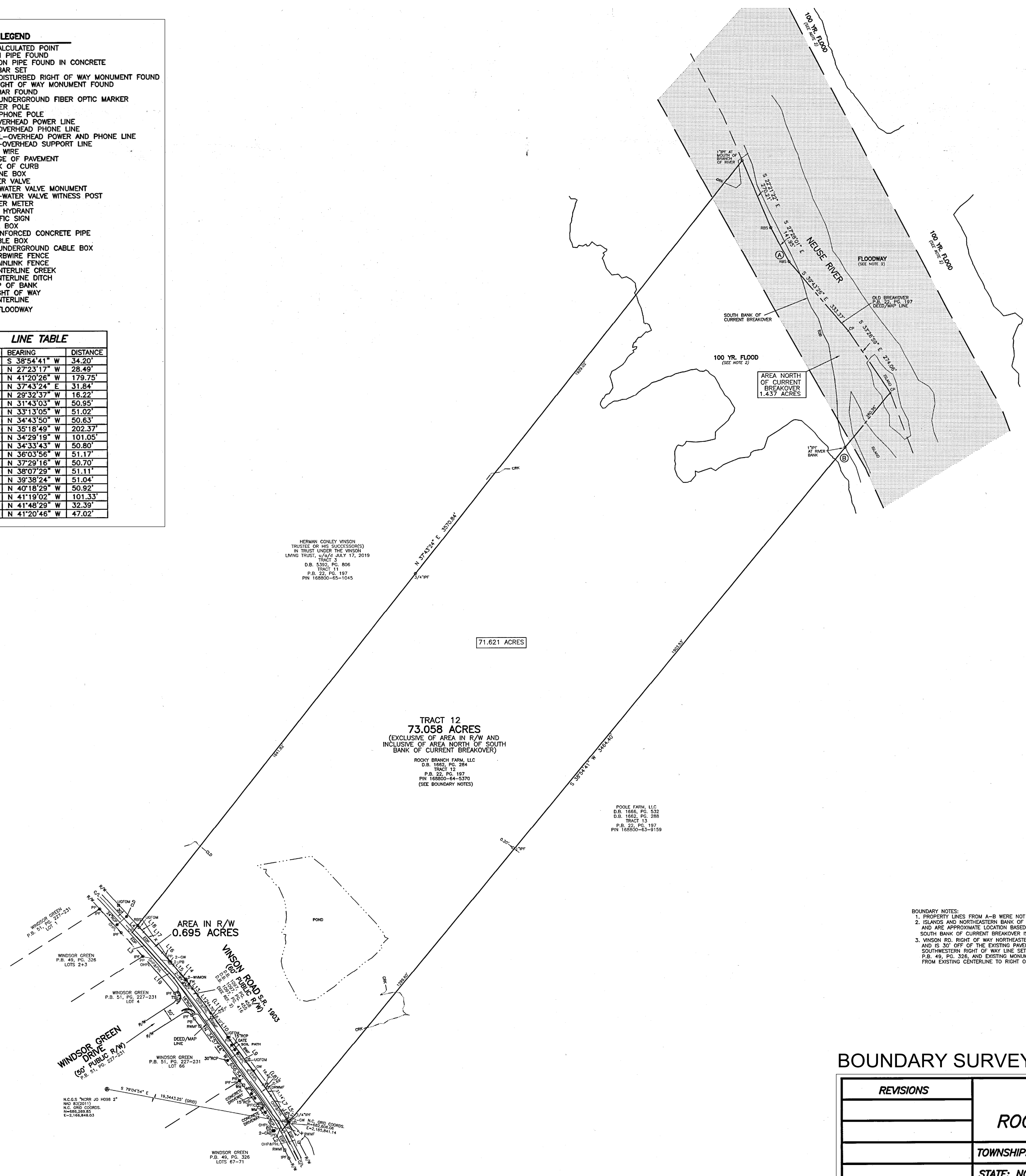
R/W-RIGHT OF WAY

C/L-CENTERLINE

FLOODWAY

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 38°54'41" W	34.20
L2	N 27°23'17" W	28.49
L3	N 41°20'28" W	179.75
L4	N 37°43'24" E	31.84
L5	N 29°32'37" W	16.22
L6	N 31°43'03" W	50.85
L7	N 33°13'05" W	51.02
L8	N 34°43'50" W	50.63
L9	N 35°18'49" W	202.37
L10	N 34°29'19" W	101.05
L11	N 34°33'43" W	50.60
L12	N 36°03'56" W	51.17
L13	N 37°29'16" W	50.70
L14	N 38°07'29" W	51.11
L15	N 39°38'24" W	51.04
L16	N 40°18'29" W	50.92
L17	N 41°19'02" W	101.33
L18	N 41°48'29" W	32.30
L19	N 41°20'45" W	47.02



BOUNDARY NOTES:
1. PROPERTY LINES FROM A-B WERE NOT FIELD SURVEYED AND TAKEN FROM P.B. 22, PG. 197.
2. ISLANDS AND NORTHEASTERN BANK OF NELISE RIVER SHOWN HAVE NOT BEEN FIELD SURVEYED
AND ARE APPROXIMATE LOCATIONS BASED ON CURRENT GOOGLE EARTH. OVERSHOOT OF AREA NORTH OF
SOUTH BANK OF CURRENT BREAKOVER IS IN QUESTION. AREA IS INCLUDED IN TRACT PER DEED/AMP.
3. WINDSOR RD. RIGHT-OF-WAY NORTHEASTERN RIGHT-OF-WAY LINE SETUP FOR EXISTING ROAD PAVEMENT
AND IS 30' OFF OF THE EXISTING PAVEMENT CENTERLINE PER D.B. 1087, PG. 453 AND D.B. 1097, PG. 416.
SOUTHWESTERN RIGHT-OF-WAY LINE SET UP AS SHOWN IN P.B. 63, PG. 448-450, P.B. 51, PG. 357-359.
P.B. 49, PG. 348, AND EXISTING MONUMENTATION. SOUTHWESTERN LINE AS SHOWN HEREON IS VARIABLE WIDTH
FROM EXISTING CENTERLINE TO RIGHT-OF-WAY.

BOUNDARY SURVEY PREPARED BY:

REVISIONS	BOUNDARY SURVEY OF		ROBINSON & PLANTE, P.C.	
	TRACT 12		LAND SURVEYING	
	ROCKY BRANCH FARM, LLC PROPERTY		C-2687	
	TOWNSHIP: CLAYTON		970 TRINITY ROAD	
	STATE: NORTH CAROLINA		RALEIGH, NC 27607	
	ZONE: AR		PHONE: (919)859-6030 FAX: (919)859-6032	
	P.I.N.: 168800-64-5370		SURVEY DATE: 6-20-2020	
			SURVEYED BY: KS	
			DRAWN BY: HS	
			CHECKED & CLOSURE BY: SEP	
			FILE: VINSONRDB2	

TMTLA ASSOCIATES

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FOR REVIEW ONLY

REVISIONS:

SURVEY VINSON ROAD

CLAYTON, NC

SCALE: 1" = 200'

DRAWN BY: PMP

PROJECT # 22126

DATE: 9/13/2022

SHEET L-1.1

OF

LEGEND

CP/X-CALCULATED POINT

IPF-IRON PIPE FOUND

IPFC-IRON PIPE FOUND IN CONCRETE

RES-REBAR SET

DRWF-DISTURBED RIGHT OF WAY MONUMENT FOUND

RWMP-RIGHT OF WAY MONUMENT FOUND

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BWF-BARBWIRE FENCE

CLF-CHAINLINK FENCE

CRK-CENTERLINE CREEK

CLD-CENTERLINE DITCH

TOS-TOP OF BANK

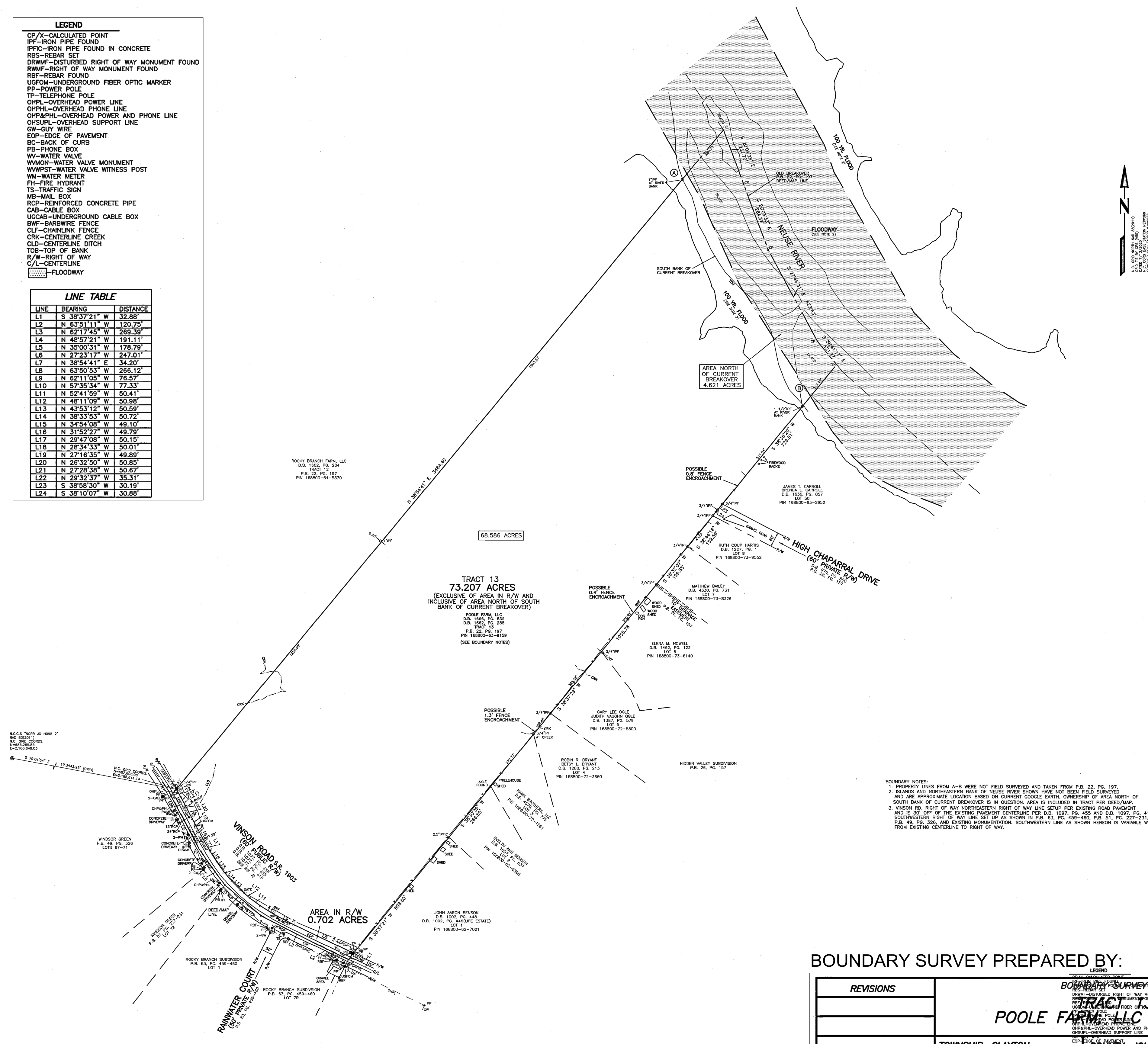
R/W-RIGHT OF WAY

C/L-CENTERLINE

FLOODWAY

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 38°37'21" W	32.68'
L2	N 63°51'11" W	120.75'
L3	N 62°17'45" W	269.39'
L4	N 48°57'21" W	191.11'
L5	N 35°00'31" W	178.79'
L6	N 27°23'17" W	247.01'
L7	N 38°54'41" E	34.20'
L8	N 63°50'51" W	286.12'
L9	N 62°11'05" W	76.57'
L10	N 57°35'34" W	77.33'
L11	N 52°41'59" W	50.41'
L12	N 48°11'09" W	50.98'
L13	N 43°53'12" W	50.59'
L14	N 38°33'53" W	50.72'
L15	N 34°54'08" W	49.10'
L16	N 31°52'27" W	49.79'
L17	N 29°47'08" W	50.15'
L18	N 28°34'11" W	50.01'
L19	N 27°16'35" W	49.89'
L20	N 26°32'50" W	50.85'
L21	N 27°28'38" W	50.67'
L22	N 29°32'37" W	35.31'
L23	S 38°58'30" W	30.19'
L24	S 38°10'07" W	30.88'



BOUNDARY SURVEY PREPARED BY:

REVISIONS	BOUNDARY SURVEY OF TRACT 13 POOLE FARM, LLC PROPERTY	ROBINSON & PLANTE, P.C. LAND SURVEYING C-2687 970 TRINITY ROAD RALEIGH, NC 27607 PHONE: (919)859-6030 FAX: (919)859-6032
	TOWNSHIP: CLAYTON	SURVEY DATE: 6-10-2020
	STATE: NORTH CAROLINA	SURVEYED BY: KS
	ZONE: AR	DRAWN BY: HS
	P.I.N.: 168800-63-9159	CHECKED & CLOSURE BY: SEP
		FILE: VINSONRDB1

TMTLA ASSOCIATES

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FOR REVIEW ONLY

REVISIONS:

SURVEY VINSON ROAD
CLAYTON, NC

SCALE: 1" = 200'
DRAWN BY: PMP
PROJECT # 22126
DATE: 9/13/2022
SHEET L-1.2
OF

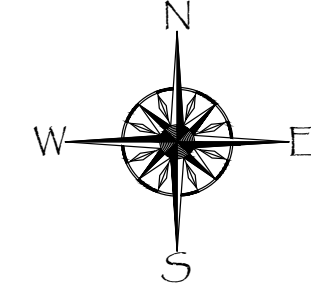
VINSON ROAD MASTER PLAN
SITE AREA: 146.26 ACRES
DENSITY: 2.78 DU/AC

LOT KEY	
	PROPOSED 72' WIDE LOTS
	PROPOSED 62' WIDE LOTS
	PROPOSED 52' WIDE LOTS
	PROPOSED TOWNHOMES

PROJECT DATA	
COUNTY TAG:	05J05011V & 05J05030F
DEVELOPMENT NAME:	VINSON ROAD
PROPERTY OWNERS:	POOLE FARM LLC & ROCKY BRANCH FARM LLC
EXISTING LAND USE:	VACANT
TOTAL SITE ACREAGE:	146.26 AC
PROPOSED LAND USE:	RESIDENTIAL; SINGLE FAMILY AND TOWNHOMES
PROPOSED ZONING:	CZ-R
PROPOSED SETBACKS:	SEE NARRATIVE
PROPOSED BUFFERYARDS:	CLASS "C" BUFFER AROUND ENTIRE PROJECT
PARKING REQUIREMENTS:	SEE NARRATIVE
BUILDING HEIGHT RESTRICTION:	35' MAX. FOR SINGLE FAMILY 45' MAX. FOR TOWNHOMES
MAXIMUM DENSITY:	2.78 DU/AC
MAXIMUM NUMBER OF UNITS:	406

LEGEND	
	STREAM BUFFER
	WETLANDS
	100 YEAR FLOODPLAIN
	GIS TOPO; 2' CONTOURS
	AREAS WITH SLOPES GREATER THEN 25%

TMTLA ASSOCIATES
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p: (919) 484-8880 e: info@tmtla.com

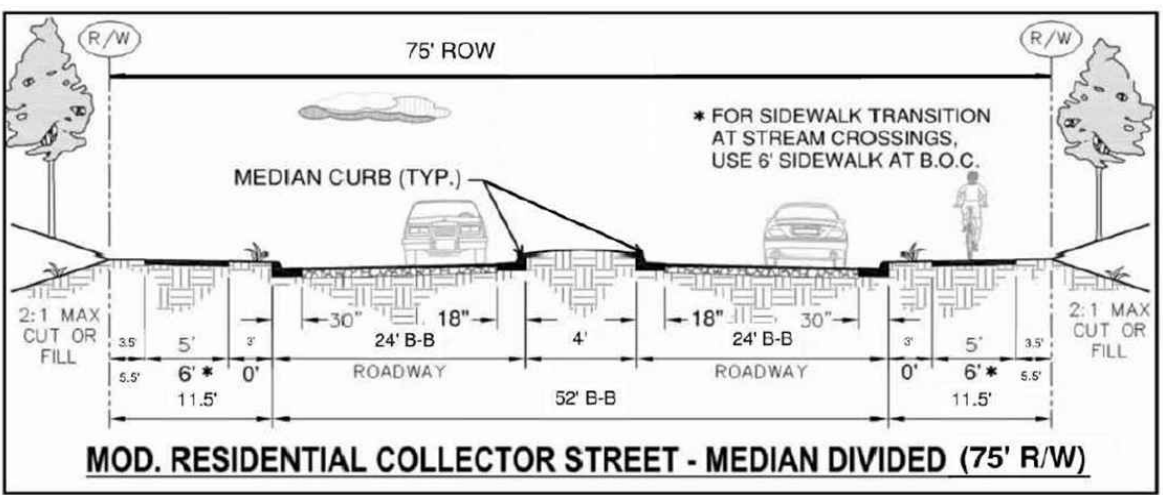
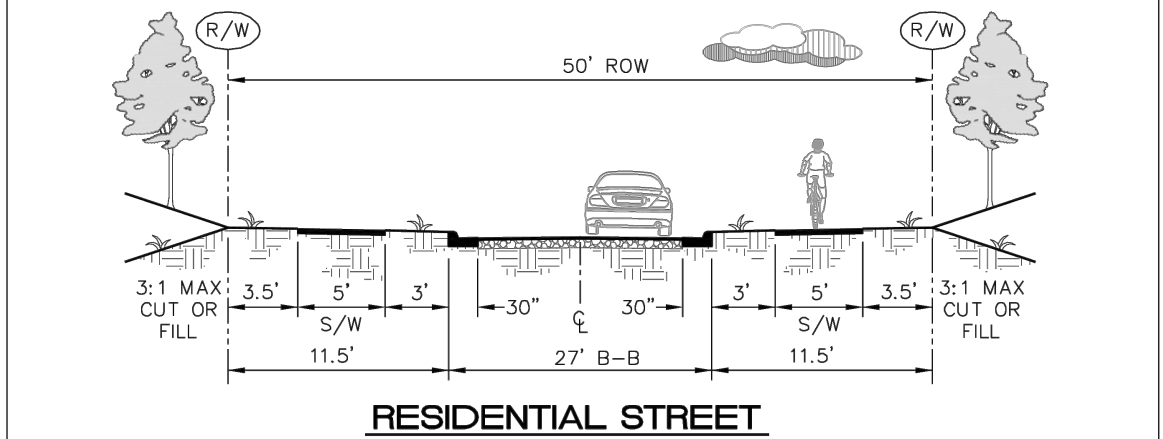


REVISIONS:

MASTER PLAN
VINSON ROAD
CLAYTON, NC

SCALE:
1" = 200'
DRAWN BY:
PMP
PROJECT #
22126
DATE:
9/13/2022

SHEET
L-2
OF



VINSON ROAD PHASING PLAN



LEGEND

STREAM BUFFER

WETLANDS

100 YEAR FLOODPLAIN

PHASE LINE

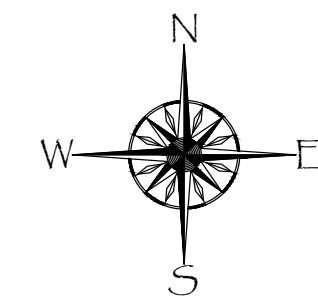
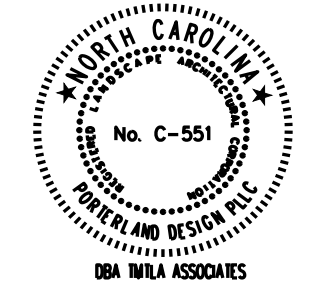
PROPOSED SINGLE FAMILY DETACHED

PROPOSED TOWNHOMES

TMTLA ASSOCIATES

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5011 SOUTH PARK DRIVE, STE. 200 DURHAM, NC 27713
p: (919) 484-8880 e: info@tmtla.com



REVISIONS:

PHASING PLAN
VINSON ROAD
CLAYTON, NC

SCALE:
1" = 200'
DRAWN BY:
PMP
PROJECT #
22126
DATE:
9/13/2022

SHEET
L-2
OF

Conditional Zoning Master Plan Narrative Vinson Road

Clayton, North Carolina

Date: November 1, 2022
Revised: February 15, 2023
Revised: May 15, 2023
Revised: August 8, 2023
Revised: September 12, 2023
Revised: October 30, 2023

Applicant/Lead Consultant:

TMTLA Associates
5011 Southpark Drive, Ste. 200
Durham, NC 27713
(919) 484-8880



Civil Engineering:

Timmons Group
5410 Trinity Road, Ste. 102
Raleigh, NC 27607
(919) 866-4951



Traffic Engineer:

DRMP
5808 Faringdon Place
Raleigh, NC 27609
(919) 987-1281



Developer:

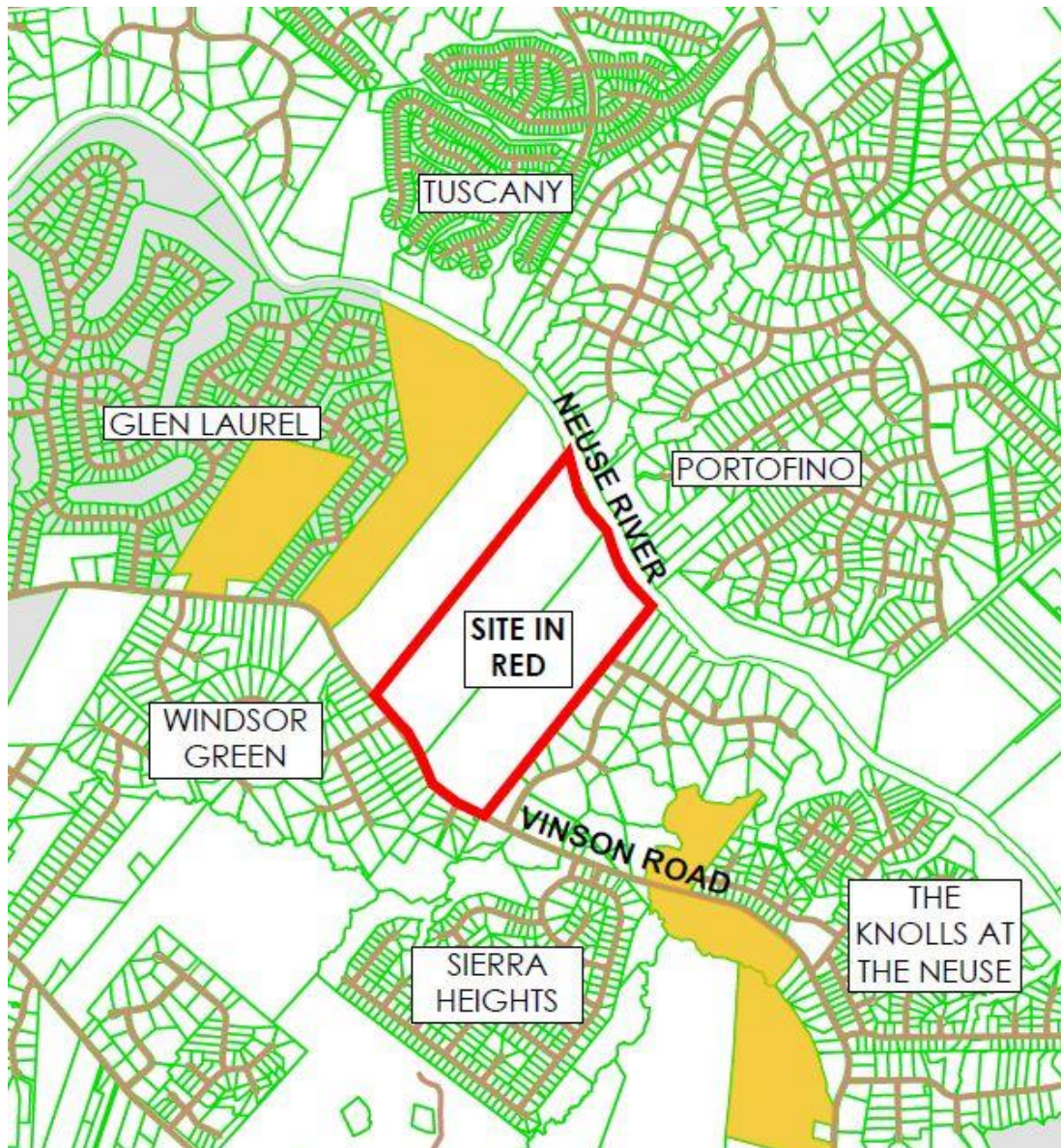
Hopper Communities
2403 Medway Drive
Raleigh, NC 27608
(919) 618-9929



Table of Contents

Section 1: Vicinity Map
Section 2: Purpose and Intent Statement
Section 3: Project Data
Section 4: Permitted Uses
Section 5: Land Use Intensity and Design Controls
Section 5: Design Controls
Section 6: Architectural Standards
Section 7: Parking and Loading
Section 8: Signs
Section 9: Public Facilities
Section 10: Natural Resource and Environmental Data
Section 11: Stormwater Management
Section 12: Consistency with Comprehensive Plan and Land Use Map
Section 13: Compliance with the UDO
Section 14: Zoning Conditions

Section 1: Vicinity Map



Section 2: Purpose and Intent Statement

The Vinson Road development is a proposed community that will be comprised of single family detached homes and townhomes. The project is bounded to the north by the Neuse River and to the south by Vinson Road. The Hidden Valley neighborhood is located to the east and two vacant parcels, followed by Glen Laurel and the Neuse River Golf Club, to the west. Our proposed development is currently located in Johnston County, so part of our request includes annexation into the Town of Clayton. The Town's future land use map does not currently include our development, but it has been indicated to us by the Planning Department that the map would show our development as low density residential. The proposed zoning designation sought is CZ-R. This will be an open space development.

The purpose of the proposed Vinson Road Planned Development is to provide a mix of high-quality housing arranged around the environmentally sensitive areas within the boundaries of our development while also providing opportunities for gathering and recreation. The commitment to preservation of open space and providing a variety of amenities is to reconnect people within the community to nature as well as each other.

Transportation patterns are proposed to provide a network of streets and sidewalks with limited use of dead-end streets, connections to adjacent neighborhoods and provisions for future development. The promotion of active lifestyles is a key component of the Vinson Road Development.

The Vinson Road development will be sensitive to and compatible with surrounding uses and proposed development character. The development will enhance the value of surrounding property values.

This development is proposed to be developed in 2-3 phases. Please see master plan for phasing plan.

The Vinson Road Conditional Zoning meets the required approval criteria:

- (1) Consistency with the adopted plans and policies of the town.
The Vinson Road conditional zoning request is either consistent with all adopted plans and policies of the Town. Our proposal is asking for a maximum of 2.78 dwelling units per acre, which is within the Low-Density Residential threshold of a maximum of 3.0 dwelling units per acre. Our development includes roughly 40% open space. Vinson Road strives to balance the need for both quantity and a mix of housing types with preservation of open space. See Sec. 12 and 13 of this narrative for more information.
- (2) Suitability of the subject property for uses permitted by the current versus the proposed conditional district.
The subject property is suitable for the proposed uses. This proposed development is in an area where other existing residential development are located to the north, south, east, and west of our proposal. Policy LU 3.1 encourage a range of housing types – we are filling that need with the inclusion of both single family detached and townhome units. The two lots that are part of our proposal are both currently zoned RA and are located in the County. In addition to our proposed rezoning request, we are also requesting annexation into the Town limits. Although the county zoning would allow for less density overall, bringing these two lots into the Town of Clayton town limits will allow for development to occur that is similar to other existing developments in the area. This development will also bring a Much needed pump station update that will not only benefit this development but other developments, as well. Development under the current zoning may not include that benefit.
- (3) Whether the proposed change tends to improve the balance of uses or meets a specific demand in the town.
Policy LU 3.1 encourage a range of housing types – we are filling that need with the inclusion of both single family detached and townhome units. We are filling a need the Town has noted in the Town of Clayton 2045 Growth Plan.
- (4) The capacity of adequate public facilities and services including schools, roads, recreation facilities wastewater treatment and water supply facilities and stormwater drainage facilities for the proposed conditional district.
Adequate facilities are either existing or will be improved to meet the demands of our proposal.

Schools: Our development is expected to feed into the Johnston County School System. According to the Johnston County Public Schools website, our project would be district for the following schools: Powhatan Elementary, Riverwood Middle School, and Clayton High School. Riverwood Elementary and Clayton High School are both on the 2023-2024

Capped Schools list for Johnston County. Powhatan Elementary was removed from the 2023-2024 Capped Schools list.

Roads: *The road network internal to our development will be public and all roads will be designed to the Town of Clayton specifications for roadway design. We have an alternate road section for our stream crossing, which will allow for residents at the back of the development to exit the development should one of the lanes be blocked. Our development provides a stub to the vacant property to the west for connection upon development, as well as a stub to the existing neighborhood to the east (should that neighborhood want to connect to our development in the future).*

Recreational Facilities: *Our request will meet or exceed the requirement for recreational facilities for our development. Our proposal commits to including a cabana/pool amenity area, as well as a minimum of two of the following amenities: dog park, tot lot/playground, multi-use field, picnic gazebo, disc golf, pickle ball court, tennis court, mini park, plaza, square, green, private greenway or trails, or community garden.*

With regard to open space as a whole, our development will have over 40% open space. This is due to the protection of various environmental features on this development, such as stream buffers and floodplain.

With regard to the public recreation open space requirement, this development shall utilize the Fee-In-Lieu. Fee in lieu amount shall be as noted in the Unified Development Code (UDC) at time of first plat.

Wastewater Treatment and Water Supply Facilities: *This development has access to water via the 8" Johnston County water line that exists in Vinson Road. As part of our zoning request, we are adding the following condition to address wastewater treatment:*

Prior to the approval of construction drawings, the developer shall validate the adequate capacity in the downstream wastewater infrastructure, pump stations and forcemain, to accommodate the proposed flow for the project. If adequate downstream capacity is not available, the applicant will complete any pump station or forcemain improvements in coordination with Town staff to accommodate the proposed flow.

Stormwater Drainage Facilities: *The Vinson Road development will meet all applicable requirements and standards as described in the Town of Clayton Stormwater Design Manual and Town of Clayton Stormwater Ordinance, as well as meet all State regulations for stormwater management.*

- (5) It has been determined that the legal purposes for which zoning exists are not contravened.
The legal purposes for which zoning exists are not being contravened as a result of our rezoning request.
- (6) It has been determined that there will be no adverse effect upon adjoining property owners unless such effect can be justified by the overwhelming public good or welfare.
This project will have no adverse effect upon adjoining property owners. The surrounding properties are either residential or vacant. Our development includes townhomes, to help diversify the type of housing available in Clayton, but we've purposefully located the townhomes in the middle of our project to buffer from adjacent existing single family detached development.
- (7) It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.
No group will benefit materially to the detriment of the general public from this Rezoning request nor development of the Property.

Section 3: Project Data

PROJECT DATA	
COUNTY TAG:	05J05011V & 05J05030F
DEVELOPMENT NAME:	VINSON ROAD
PROPERTY OWNERS:	POOLE FARM LLC & ROCKY BRANCH FARM LLC
EXISTING LAND USE:	VACANT
TOTAL SITE ACREAGE:	146.26 AC
PROPOSED LAND USE:	RESIDENTIAL; SINGLE FAMILY AND TOWNHOMES
PROPOSED ZONING:	CZ-R

Section 4: Permitted Uses

Permitted uses shall be as follows:

- 1) Single Family Detached and permitted accessory uses
- 2) Townhomes and permitted accessory uses
- 3) Amenities associated with neighborhood development, including but not limited to community pool and cabana, dog park, and tot lot.

Dwelling units may be front or rear loaded.

Section 5: Design Controls

Residential:	146.26 acres
Units:	406 dwelling units max. <i>max. 91 townhomes (23%)</i> <i>max. 315 single family</i>
Density:	2.78 dwelling units per acre (overall)
Building Height:	35' for single family 45' for townhomes
Building Setbacks:	see below
Single Family:	Front: Min. 20' Garage setback: 25' Min. Rear: 15' Min. Side: 6' Min. Side Street: 10' Min.
Townhomes:	Front: 25' Min. Rear: 15' Min. Side Interior: 6' Min. Side Street: 10' Min.
Lot Dimensions:	Min. 6,000 s.f. for the 52' wide single family detached (SFD) lots Min. 7,000 s.f. for the 62' wide SFD lots Min. 8,000 s.f. for the 72' wide SFD lots Min. 21' wide lots for townhomes
Buffers:	Min. 15' wide Class "C" buffer around entire development with opaque screening

Note: All streetscape and perimeter buffers shall be in accordance with the Town of Clayton Development Code

Section 6: Architectural Standards

Standard Rezoning Conditions

The style of buildings will be any variety of the following: Craftsman, Traditional, Colonial, Neoclassical. The intent is to foster multiple styles to create a community that is not monotonous.

Predominant exterior building materials shall be high quality materials, including brick, wood, stone, fiber cement, and/or wood composite. The front façade of all units shall have a minimum of 25% masonry (brick or stone). Vinyl siding shall be prohibited but vinyl accents, such as windows, shall be permitted.

Foundations for single family detached shall be crawl space, stem wall or elevated foundation. Townhomes shall have slab on grade foundation.

A varied color palette shall be utilized on homes throughout the subdivision and shall include siding, trim, shutter, and accent colors complementing the siding colors.

Single Family Detached: No two consecutive single-family homes shall contain the exact same front elevation with regard to materials or color palette. Single family homes directly across the street from each other shall not have identical façades with regard to materials or color palette.

Townhomes: No two consecutive townhome buildings shall contain the exact same front elevation with regard to materials or color palette.

Cabana (or clubhouse) shall contain a minimum of 15% masonry on the front façade.

A mail kiosk for the single-family detached units shall be located adjacent to the pool and cabana pending USPS approval.

Section 7: Parking and Loading

All parking and loading areas shall comply with all applicable requirements of the Town of Clayton Development Code.

Section 8: Signs

All signage shall comply with applicable standards and requirements of the Town of Clayton Development Code.

Section 9: Public Facilities

All lots shall be served with public water and sewer and shall conform to the Town of Clayton Public Works and Utilities Department requirements. This site is currently outside of the existing Town of Clayton water system service area so project will need to be annexed before connection to the Town water system will be permitted.

This development will utilize the Johnston County 8" public water line along Vinson Road. With regard to sewer access, this development will access sewer via the Summerlyn Pump Station. There is a new pump station planned (which will either be sized for this basin or a regional station for the Town) which will allow for future expansion of the sewer basin.

All streets and roadways shall be in conformance with Town of Clayton Standards and Specifications.

This development shall utilize the Fee-In-Lieu option for the public recreation open space requirement. Fee in lieu amount shall be as noted in the Unified Development Code (UDC) at time of first plat.

Section 10: Natural Resource and Environmental Data

Watershed: This site is located in the Neuse River watershed and is also located in the Town of Clayton Watershed Protection Overlay

FEMA Floodplain: This site contains floodplain per FIRM map 3720168800K, effective 6/20/2018

Stream Buffers: This site contains stream buffers

Wetlands: This site contains wetlands

This development is designed to have minimal impacts on the environmentally sensitive areas on our site. The site is designed in a manner that clusters development around existing stream buffers, wetlands, and

floodplain. At least 40% of our site will remain as open space, and of that approximately half of that will be untouched environmentally sensitive areas. The remaining open space shall count towards the recreation open space requirement.

Section 11: Stormwater Management

The Vinson Road development will meet all applicable requirements and standards as described in the Town of Clayton Stormwater Design Manual and Town of Clayton Stormwater Ordinance, as well as meet all State regulations for stormwater management. This project will meet all stormwater reduction requirements including limiting the post-development stormwater flows to not exceed the pre-development stormwater runoff.

The Vinson Road development will use approved devices to control the stormwater and sediment runoff. These devices may include detention ponds, retention ponds, bio-retention areas, or any other approved SCM stormwater control.

Section 12: Consistency with Town of Clayton 2045 Growth Plan and Land Use Map

Town of Clayton 2045 Growth Plan:

The Vinson Road development is consistent with the Town of Clayton 2045 Growth Plan. Below are specific items that this development is aligned with.

Growth Plan Policy	Development Conformance
Policy LU 1.1 Manage future growth and encourage quality development through the implementation of the Comprehensive Plan, the Unified Development Code (UDC), and other plans and regulations adopted by the Town Council.	We are supporting residential development by adding varying densities (via our lot widths and dwelling types) (<i>Strategy LU 1.1.2</i>) and we are asking for annexation into the Town limits which will expand the ETJ (<i>Strategy LU 1.1.4</i>). Our proposed density is within the allowed noted in the Comprehensive Plan.
Policy LU 1.2 Encourage developments which incorporate high quality design and enhance the quality of life for existing and future residents of the Town.	This development will include high quality design and materials, and will preserve a significant amount of open space. (<i>Strategy LU 1.2.2</i>)
Policy LU 1.6 Promote location and intensity of development that mitigates impacts to the transportation network and leads to reduced vehicle trips and/or shorter trip lengths, enhanced circulation, and increased public safety.	Our development is proposing to have two entrances along Vinson Road as well as a stub to the vacant property to the west for future connection. (<i>Strategy LU 1.6.2</i>)

Policy LU 3.1 Encourage a range of housing types based on the availability of infrastructure, proximity to services and amenities, and compatibility with existing development as described in the Future Land Use map.	We are including a mix of lot sizes and unit types within the development. (<i>Strategy LU 3.1.4</i>)
Policy PR 3.1 Develop and enhance active and passive recreation facilities that serve local neighborhoods and attract regional users.	This development saves a significant amount of open space – with some of this open space being reserved for both active and passive recreation. (<i>Strategy PR 3.1.4</i>)
Policy PR 3.3 Increase the amount of integrated, usable, high-quality, and connected open space in new developments.	This development saves a significant amount of open space – with some of this open space being reserved for both active and passive recreation. (<i>Strategy PR 3.1.4</i>)
Policy NR 1.1 Preserve key natural areas while accommodating new development.	Our site contains riparian buffers, floodplain, and wetlands. This development, less the two necessary stream crossings, works around the environmentally sensitive areas of this site. (<i>Strategy NR 1.1.1</i>)
Policy NR 2.1 Protect water quality and quantity in the Neuse River and major tributaries.	Given the development's proximity to the Neuse River, best practices in sedimentation control and design/construction of stormwater will be implemented. (<i>Strategy NR 2.1.1</i>)
Policy M 1.2 Plan for the construction of priority road improvements, sidewalks, greenways, bike facilities, and transit facilities.	This development will include sidewalks throughout as well as a sidewalk along Vinson Road (<i>Strategy M 1.2.2</i>)

Town of Clayton Land Use Map:

The Vinson Road development is located outside of the Town of Clayton ETJ but annexation will be permitted per discussions with Town Staff. The Glen Laurel neighborhood sits to the west of the Vinson Road development and has a future land use designation of Low Density Residential, which allows for a maximum of 3 dwelling units per acre. Our proposal is asking for a maximum of 2.78 dwelling units per acre, which is within the Low-Density Residential threshold. Vinson Road strives to balance the need for both quantity and a mix of housing types with preservation of open space.

Annexation into the Town of Clayton town limits will be required prior to approval of this conditional zoning.

Section 13: Compliance with the UDC

The Project will comply with all other relevant portions of the Town of Clayton Unified Development Code (UDC)

Section 14: Zoning Conditions

Note: Italicized items are items that are tied to points on the Wastewater Allocation form.

1. Uses shall be limited to single family detached, single family attached, and permitted accessory uses. *This will be a mixed residential project.*
2. Maximum density shall not exceed 3.12 dwelling units per acre.
3. Modified setback per Section 5 of this document.
4. Minimum heated square feet for the single-family detached homes shall be 2,000 square feet.
5. The minimum heated square feet for the townhomes shall be 1,500 square feet.
6. The minimum lot sizes shall be as follows: 6,000 s.f. for a 52' wide single family detached lot, 7,000 s.f. for a 62' single family detached lot, and 8,000 s.f. for a 72' wide single family detached lot.
7. The minimum lot width for a townhome lot shall be 21'.
8. *Each single family detached home shall have a minimum 2 car garage.*
9. Each townhome shall have a min. 1 car garage.
10. *Development shall include a cabana/pool amenity area.* In addition to the cabana/pool amenity area, a minimum of two of the following amenities shall be provided: dog park, tot lot/playground, multi-use field, picnic gazebo, disc golf, pickle ball court, tennis court, mini park, plaza, square, green, private greenway or trails, or community garden.
11. Predominant exterior building materials shall include brick, wood, stone, fiber cement, and/or wood composite. The front façade of all units shall have a minimum of 25% masonry (brick or stone). Vinyl siding shall be prohibited but vinyl accents, such as windows, shall be permitted. *All residential units shall have a minimum of 25% masonry on the front façade.*
12. *Development shall include sustainable/high efficiency products and appliances, including: low E/insulated windows, Energy Star dishwasher, low VOC paint, and fiber cement siding.*
13. Single family detached homes shall have either a crawl space foundation, stem wall foundation, or elevated foundation.
14. Townhomes shall have a slab on grade foundation.
15. Vinson Road shall be a minimum 3-lane cross section with bicycle lanes, curb & gutter, and sidewalk.

16. Third site access: A gated entrance only to be used for emergencies shall be provided on Vinson Road. This access shall be coordinated with the appropriate municipalities and respective departments. Access shall be gated at all times unless being used by emergency vehicles.
17. Prior to approval of the Construction Drawings, the developer shall validate the adequate capacity in the downstream wastewater infrastructure, pump stations and forcemain, to accommodate the proposed flow for the project. If adequate downstream capacity is not available, the applicant will complete any pump station or forcemain improvements in coordination with Town staff to accommodate the proposed flow.
18. A modified street section for stream crossing noted on the plan sheet L-2 shall be provided.
19. Road Improvements from TIA prepared by Ramey Kemp Associates (with NCDOT approval) to be constructed prior to the recordation of first final plat:

NC 42 and Glen Laurel Road

- Coordinate with NCDOT to develop a signal modification plan to allow for an eastbound right-turn lane overlap phase.

Glen Laurel Road and Vinson Road

- Provide an exclusive southbound left-turn lane with at least 500 feet of full width storage with appropriate deceleration and taper if right-of-way is available.
- Provide an exclusive northbound left-turn lane with at least 275 feet of full width storage with appropriate deceleration and taper if right-of-way is available.

Vinson Road and Windsor Green Drive / Site Drive 1

- Construct Site Drive 1 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 1).

Vinson Road and Rainwater Court / Site Drive 2

- Construct Site Drive 2 with one ingress and one egress lane striped as a shared left-/through/right-turn lane.
- Provide an exclusive eastbound left-turn lane with at least 100 feet of full width storage with appropriate deceleration and taper.
- Provide stop control for the southbound approach (Site Drive 2).

We, the residents of Clayton and Johnston County, who live on or around Vinson Road are highly opposed to the proposed 146 acre development on Vinson Road (north of Vinson and east of Hidden Valley Dr) and currently under request for re-zoning and incorporation into the City of Clayton. We understand that land owners have the right to develop their land, however, this is where the City of Clayton Planning Commission needs to step in and guide development of areas they seek to incorporate into the city.

Traditionally, this area has been a rural farm land and large parcel developments, which are consistent with the current development guidelines of Johnston county which allow for up to 1.4 dwelling units per acre. The proposed development would more than double the current dwelling units per acre to in excess of 3 dwellings per acre. The current developer is proposing a mixed use development consisting of low density properties of 52', 62' and 72' wide parcels and townhomes.

We understand that the City of Clayton has guidelines for developments and while this project meets the "City's" development standards; there are several items that makes this project, in its current form, non-compatible with the surrounding areas and infrastructure. Here are a list of concerns of the community: Current road capacity, Current infrastructure studies (Sewer, Water, Storm Water Management), School impact assessment, Loss of rural county lifestyle.

Vinson Road, is a narrow, twisting country road that was never developed to handle the current traffic loads that it is now experiencing. While the developer has met the criteria of a traffic study and has "mitigated" the intersection design criteria; it has not addressed the actual roadway design and traffic load design. This development seeks to increase over 400 new homes, but what was not included in that study is the obvious design stub-out for expansion to the west which would increase at least another 100 homes. Vinson Road has experienced an increase in unfortunate traffic fatalities, and increasing population without addressing the entirety of the overall roadway is a gross mis-management of land development. You are putting the cart before the horse at the expense of human life.

Sufficient studies should be prepared by this developer to ensure that current drainage and storm management is being mitigated for the worse case scenarios in order to meet the ever changing environment that is being created by mass development and the deforestation of the existing landscape that feeds this watershed area. Of major concern is the impact to the Neuse River and other adjacent tributaries and drainage ways that are subject to impact and flood due to the increase of this many dwelling units with massive amounts of impervious surfacing and deforestation of the existing site.

Sewer and water are of major concern as well. The existing residents should not be penalized with odors from sewage lift stations and their locations to existing residents in order to adequately provide services to this proposed community. Additionally, have studies been performed about the impact to the current water capacity of the existing system and the effect on existing users.

The increase of this many dwelling units will inevitably have a negative impact on the existing school system. How has this been studied and planned for. Simply approving a project and then making the school district "figure it out" is neither an acceptable nor proper standard for a planning commission.

Finally, is the environmental and aesthetic impact. While this is an emotional argument, it is none the less a real concern. Most of the residents of this area moved here for the open rural feel of this wooded country area of Johnston County. We fell in love with the large, wooded areas and tree lined county roads and the habitat that exists here. Unfortunately, current development seeks to maximize profits by overtaxing the land, stripping the forests, and eliminating the natural environment. We tell a good story when it comes to global warming and place the blame on emissions but fail to recognize the effects of mass development and elimination of the natural environment. Taking 146 acres of wooded pervious land and converting it to large streets with 2 & 3 car garage driveways and large roofs has an affect on the heat island created by high-density developments with improper mitigation by planning agencies on how to offset those impacts.

We are petitioning the planning commission to be the intermediary between the written code and the emotional arguments of "no-more development". Be aware, remember the mistakes of the past and place requirements to mitigate the negative effects of a large development such as this. We are asking the commission to please consider a development dwelling occupancy of no more than 2 dwelling units per acre, require larger lots to be placed adjacent to Vinson Road and Hidden Valley Drive and require a larger set back from the roadways and require large, naturalized buffer zones along these corridors to maintain the rural aesthetic of the area.

The planning commission holds the key to the ongoing positive impact of development and existing residents, and unfortunately, as I drive through the area, it is a reminder of the planning commissions failure to "plan" and make proper decisions that has led the large scale "urban sprawl" that we see now. There is an old saying; "Just because you can, doesn't mean you should!"

Lorle Murray	Clayton	NC		10/3/2023
Marlene Dillon	Clayton	NC	27520	10/9/2023
Kurt Rohlman	Charlotte	NC	28204	10/9/2023
Lisa Gustavson	Clayton	NC	27527	10/9/2023
Holland Dustin	Clayton	NC	27527	10/9/2023
Joshua Nash	Clayton	NC	27520	10/9/2023
Jessica Becker	Clayton	NC	27520	10/9/2023
Christopher Becker	Clayton	NC	27520	10/9/2023
Laurence Falcetta	Clayton	NC	27520	10/9/2023
Reese Lindsey	Glen Carbon		62010	10/9/2023

Antonio Mendez	Riverbank		95367	10/9/2023
Lyn Wozniak	Clayton	NC	27520	10/9/2023
Layla Flaherty	Spokane		99205	10/9/2023
Isaak Brown	Seattle		98160	10/9/2023
Chase Moore	Pahrump		89048	10/9/2023
Philomena Muller	New York		11226	10/9/2023
Steve Mann	Clayton	NC	27527	10/9/2023
Diego Alas	Atlanta		30301	10/9/2023
norah gruber	Pittsburgh		15214	10/9/2023
Joseph Garcia	Orlando	FL	32822	10/9/2023
Nicholas Nidiffer	Owosso		48867	10/9/2023
Caden Alewine	Houston		77002	10/9/2023
Edisson Morocho	Orange		7052	10/9/2023
Virginia Batten	Clayton	NC	27520	10/9/2023
Edda Bataan	Raleigh	NC	27601	10/9/2023
			27527-	
Larry Gensel	Clayton	NC	7568	10/9/2023
Maggie Stein	Clayton	VA	27527	10/9/2023
Rachel Lenhart	Clayton	NC	27520	10/9/2023
Steffanie Ansuini	Clayton	NC	27527	10/9/2023
Yvonne Flores	Clayton	NC	27527	10/9/2023
Zach Lenhart	Clayton	NC	27527	10/9/2023
Denise Smith	Sparta Township	NJ	7871	10/9/2023
Bryan Meer	Clayton	NC	27520	10/9/2023
Mary Harju	Clayton	NC	27520	10/9/2023
Cynthia Calabro	Clayton	NC	27527	10/9/2023
Gary Semics	Clayton	OH	27527	10/9/2023
Robert Goodacre	Charlotte	NC	27527	10/9/2023
Kari Mccullough	Clayton	NC	27527	10/9/2023
Cindy Koempel	Clayton	NC	27527	10/9/2023
Krista Middendorf	Clayton	NC	27520	10/9/2023
Kelly Authier	Clayton	NC	27527	10/9/2023
Debra Duerksen	Clayton	NC	27527	10/9/2023
Nichole DiNicola	Clayton	NC	27520	10/9/2023
Laura Pollnow	Clayton	NC	27520	10/9/2023
Marc DiNicola	Clayton	NC	27520	10/9/2023
Mary Anderson	Clayton	NC	27527	10/9/2023
Matt Pollnow	Clayton	NC	27520	10/9/2023
Scott M Wittson	Clayton	NC	27520	10/9/2023
Yvette williams	Clayton	NC	27527	10/9/2023
Jessica Keith	Smithfield	NC	27577	10/9/2023
Callista Ellis	Clayton	NC	27527	10/9/2023
Lenore Henry	Clayton	NC	27527	10/9/2023

John Calhoun	Clayton	NC	27527	10/9/2023
Cynthia Green	Clayton	NC	27527	10/9/2023
Ethan Green	Clayton	NC	27520	10/9/2023
Karina Becker	New Smyrna Beach	FL	32168	10/9/2023
Raven Henry	Clayton	NC	27520	10/9/2023
Heidi Tortorice	Clayton	NC	27527	10/9/2023
Cindy Smith	Clayton	NC	27520	10/9/2023
Lisa Lay	Lake Saint Louis		63367	10/9/2023
Robert Blennau	Clayton	NC	27527	10/9/2023
Glory Gonzalez	Clayton	NC	27529	10/9/2023
Sean Henry	Clayton	NC	27520	10/9/2023
Cecil Rodriguez	Garner	NC	27529	10/9/2023
Al Strawser	Clayton	NC	27520	10/9/2023
Sthefanny Romanello	Clayton	NC	27520	10/9/2023
Janis Bowling	Clayton	NC	27520	10/9/2023
Nicole Thomson	Clayton	NC	27520	10/9/2023
Adrian Lopez	Fontana		92336	10/9/2023
Brooklyn Hrdlicka	Cadott		54727	10/9/2023
Melinda Moses	Orlando		32801	10/9/2023
nancy hansen	Clayton	NC	27520	10/9/2023
Holly Cooper	Clayton	NC	27520	10/9/2023
Sarah Odell	Clayton	NC	27527	10/9/2023
Michael williams	Clayton	NC	27520	10/9/2023
Robert Kehrer	Clayton	NC	27520	10/9/2023
Justin O'Dell	Clayton	NC	27527	10/9/2023
Carol Papineau	Raleigh	NC	27697	10/9/2023
Carissa Danbury	Clayton	NC	27527	10/9/2023
Kamden Holland	Clayton	NC	27527	10/9/2023
Evelyn Grande	Chicago		60625	10/9/2023
Mark Cooper	Clayton	NC	27520	10/9/2023
Lisa Uzzle	Clayton	NC	27520	10/9/2023
Ivan Lepe	Los Angeles		90006	10/9/2023
Gabe Peters	Lebanon		97355	10/9/2023
Luis Castillo perez	Bennett		80102	10/9/2023
jovani natividad	Roscoe		79545	10/9/2023
Joseph Alamillo	Fillmore		93015	10/9/2023
Brandon Geayt	Stockbridge		49285	10/9/2023
Qin Kai	Oviedo		32765	10/9/2023
theo hayes	Thousand Oaks		91360	10/9/2023
Matt Rysdam	Columbia		65203	10/9/2023
Kailani Kahalewai	Hoolehua		96729	10/9/2023
Jonas Luma	Chino Hills	CA	91709	10/9/2023
Tammy Earp	Clayton	NC	27520	10/9/2023

Payton Williams	Oklahoma City		73107	10/9/2023
keith nichols	clayton	NC	27527	10/9/2023
Grace Cherson	Chino	CA	91710	10/9/2023
chbbg vghbhh	Heber		84032	10/9/2023
Leo Jensen	Las Vegas		89101	10/9/2023
Boreta Mitchell	Metairie		70003	10/9/2023
Logan Raiford	Beaufort		29907	10/9/2023
Zephaniah Garcia	Lubbock		79424	10/9/2023
Suzy Morse	Knoxville	TN	37917	10/9/2023
Pamela Annis	Clayton	NC	27527	10/9/2023
Laura Bullock	Clayton	NC	27520	10/9/2023
Jennifer Kehrer	Clayton	NC	27520	10/9/2023
Pamela Lester	Clayton	NC	27527	10/9/2023
Paul Papineau	Garner	NC	27529	10/9/2023
Cindy Hill	Clayton	NC	27527	10/9/2023
Nancy Joy	Garner	NC	27529	10/9/2023
Olivia Henson	Judsonia		72081	10/10/2023
Frederick Sample	Fort Worth		76103	10/10/2023
Sonic Son	Oroville		95966	10/10/2023
sol qing	New York		12345	10/10/2023
Justin Orellana	Providence		2904	10/10/2023
Mr. TheAFKPanda	Mukilteo		98275	10/10/2023
Bernice Frederick	Clayton	NC	27527	10/10/2023
Abby Benson	Clayton	NC	27520	10/10/2023
Tera Wheeler	Clayton	NC	27520	10/10/2023
John Wheeler	Clayton	NC	27520	10/10/2023
Betsy Vaughan	Clayton	NC	27527	10/10/2023
Heather Miller	Clayton	NC	27527	10/10/2023
Ediverto Galvez	Panorama City		91402	10/10/2023
John Jargstorf	Clayton	NC	27520	10/10/2023
Sophia Stepnowski	Clayton	NC	27520	10/10/2023
Rebecca Bardsley	Clayton	NC	27520	10/10/2023
Pamela Palazzolo	Clayton	NC	27520	10/10/2023
Angela Wainright	Raleigh	NC	27604	10/10/2023
Doreen Lam	Clayton	NC	27527	10/10/2023
Kevin Gill Jr	Clayton	NC	27527	10/10/2023
Paul Bryant	Clayton	NC	27527	10/10/2023
Linda Berry	Clayton	NC	27520	10/10/2023
Tina Haley	Clayton	NC	27520	10/10/2023
Tammy Edelen	Clayton	NC	27520	10/10/2023
Cindy Schenck	Clayton	NC	27520	10/10/2023
Noreen Wisniowski	Knoxville	TN	37917	10/10/2023
PJ Teal	Garner	NC	27529	10/10/2023

Danielle Brewster	Raleigh	NC	27603	10/10/2023
Stephanie St Romain	Charlotte	NC	28233	10/10/2023
Trent St Romain	Clayton	NC	27527	10/10/2023
Christine Snow	Garner	NC	27529	10/10/2023
Matthew Snow	Clayton	NC	27527	10/10/2023
Lauren Sadowski	Clayton	NC	27527	10/10/2023
Tyler Ellwood	Clayton	NC	27520	10/10/2023
Christina Menges	Clayton	NC	27520	10/10/2023
Chad Smith	Clayton	NC	27527	10/10/2023
Rudy Bizzell	Clayton	NC	27527	10/10/2023
Craig Visser	Clayton	NC	27520	10/10/2023
Ashley Menges	Clayton	NC	27527	10/10/2023
Lauren Ellwood	Clayton	NC	27520	10/10/2023
Christina Hawkins	Charlotte	NC	28205	10/10/2023
Edna Anfo	Clayton	NC	27527	10/10/2023
Michael Mathers	Selma	NC	27576	10/10/2023
Donna Phillips	Clayton	NC	27527	10/10/2023
Witold Subotkowski	Clayton	NC	27520	10/10/2023
Tori Lee				10/10/2023
Grant Miller	Clayton	NC	27520	10/10/2023
Bruce Berry	Creedmoor		27522	10/10/2023
Harold Gracey	Clayton	NC	27527	10/10/2023
Christy Hatch	Clayton	NC	27520	10/10/2023
Camille Collins	Clayton	NC	27527	10/10/2023
Joey Hatch	Clayton	NC	27520	10/10/2023
Christine Salome	Clayton	NC	27527	10/10/2023
John Fink	Clayton	NC	27520	10/10/2023
Raymond Henley	Clayton	NC	27527	10/10/2023
Lorie Pugh	Clayton	NC	27520	10/11/2023
Andrew Pugh	Clayton	NC	27520	10/11/2023
Amanda Craig	Clayton	NC	27520	10/11/2023
Elena Davis	Clayton	NC	27520	10/11/2023
Celeste Cook	Clayton	NC	27527	10/11/2023
Zachery Huber	Neenah		54956	10/11/2023
Amy Wise	Clayton	NC	27527	10/11/2023
Peter Camilleri	Clayton	NC	27527	10/11/2023
Sherrie Hansen	Clayton	NC	27520	10/11/2023
Macey Sanderson	Selma	NC	27576	10/11/2023
Sherman Uitzetter	Clayton	NC	27527	10/11/2023
Ann Lenhart	Clayton	NC	27520	10/11/2023
Shirley Bracey	Camden	NC	27527	10/11/2023
Lanaiyah Morganelli				10/11/2023
Shannon Petersen	Seattle	WA	98160	10/11/2023

Ashley Snyder	Clayton	NC	27527	10/11/2023
Paul Allison	Knightdale	NC	27545	10/11/2023
Cristina Mariano	Charlotte	NC	28202	10/11/2023
Edwin Bogle	Clayton	NC	27527	10/11/2023
Patricia Kretz	Clayton	NC	27520	10/11/2023
Alyssa Mirabile	Clayton	NC	27527	10/11/2023
Lori kittle	Raleigh	NC	27604	10/11/2023
Kizlena Ray	Clayton	NC	27527	10/11/2023
Donna Harlow	Holly Springs	NC	27540	10/11/2023
Lauren Demko	Clayton	NC	27520	10/11/2023
Nancy Weber	Clayton	NC	27520	10/11/2023
Sandra Gregory	Clayton	NC	27520	10/11/2023
Teresa Mimms	Smithfield	NC	27529	10/11/2023
Arah Sweet	Clayton	NC	27520	10/11/2023
Grace Bennett	Clayton	NC	27520	10/11/2023
Terri Mainguy	Clayton	NC	27520	10/11/2023
Arlene Stelltano	Clayton	NC	27520	10/11/2023
Lauren B	Lancaster		17602	10/11/2023
Gary Levitas	Chicago		60651	10/11/2023
Jocelyn Southerland	Clayton	NC	27520	10/12/2023
Leslie Brien	Clayton	NC	27520	10/12/2023
Carolina Chicas	Clayton	NC	27520	10/12/2023
Nikki Dwyer	Clayton	NC	27527	10/12/2023
Amber Scott	Archer Lodge	NC	27527	10/12/2023
Maridith Fink	Clayton	NC	27520	10/12/2023
Tineca Quintana	Clayton	NC	27520	10/12/2023
Teresa Sutton	Clayton	NC	27520	10/12/2023
Jayleen Huerta-Carreon				10/12/2023
Lynnette Zueck	Charlotte	NC	28202	10/12/2023
Anna K	Clayton	NC	27527	10/12/2023
Jessica Jacobs	Clayton	NC	27520	10/12/2023
Laura Kuhn	Clayton	NC	27527	10/12/2023
Pember Wood	Clayton	NC	27520	10/12/2023
Keith Wiedefeld	Clayton	NC	27527	10/12/2023
Scott Porter	Clayton	NC	27520	10/12/2023
Jo Saltzman	Clayton	NC	27527	10/12/2023
Linda Green	Clayton	NC	27527	10/12/2023
sheri youssef	clayton	NC	27520	10/12/2023
John Harlow	Clayton	NC	27527	10/12/2023
Christen Sheppard	Clayton	NC	27520	10/12/2023
Judith Ryan	Clayton	NC	27527	10/12/2023
Natasha Stevens	Clayton	NC	27520	10/12/2023
Jessica Ward	Clayton	NC	27527	10/12/2023

Alicia Wyatt	Clayton	NC	27520	10/12/2023
Urijah Basaldua	Midland		79707	10/12/2023
Catherine Dodd	Clayton	NC	27527	10/12/2023
Crystal McCullers Ford	Clayton	NC	27520	10/12/2023
Penney Lewis	Clayton	NC	27527	10/12/2023
Tony Lewis	Clayton	NC	27527	10/12/2023
Kim Coates	Clayton	NC	27527	10/12/2023
Roshan Rajendran	Clayton	NC	27527	10/12/2023
Gina Dowden	Clayton	NC	27520	10/12/2023
Diana ONeill	Clayton	NC	27520	10/12/2023
Mark Smith	Clayton	NC	27527	10/12/2023
Mary Lou MacKenzie	Charlotte	NC	28233	10/12/2023
Rachel Lewis	Clayton	NC	27527	10/12/2023
Kelsey Mccabe	Clayton	NC	27520	10/12/2023
Jana Branscome	Greenville	NC	27834	10/12/2023
Jose Perez	Clayton	NC	27527	10/12/2023
Diane Anderson	Clayton	NC	27527	10/12/2023
LISA Skinner	Clayton	NC	27527	10/12/2023
Crystal Dickerson	Clayton	NC	27610	10/12/2023
Donald DeSimone	Clayton	NC	27527	10/12/2023
Marcia Harrington	Clayton	NC	27527	10/12/2023
Patricia Dunn	Apex	NC	27512	10/12/2023
Devaul Lanier	Knoxville	TN	37917	10/12/2023
rachel mcmullen	Clayton	NC	27520	10/12/2023
Jody Beebe	Clayton	NC	27527	10/12/2023
Boyd Johnson	Dunn	NC	28233	10/12/2023
Joseph Russotto	Clayton	NC	27527	10/12/2023
Nicole Russotto	Clayton	NC	27527	10/12/2023
Steve Tribuzio	Clayton	NC	27520	10/12/2023
LINDA TRIBUZIO	Clayton	NC	27520	10/12/2023
Beth Crater	Cary	NC	27513	10/12/2023
Donald Lake	Clayton	NC	27527	10/12/2023
Casey Krupa	Clayton	NC	27520	10/12/2023
Danielle's Rowland	Oakland		7436	10/12/2023
Rosmany Garcia	Houston		77085	10/12/2023
Michelle Malherek	Clayton	NC	27520	10/12/2023
Jaiden Bernard	League City		77573	10/12/2023
Norm Wilmes	Yuba City		95991	10/12/2023
Katelyn Robertson	Delaware		43015	10/12/2023
Wendy Wood	Clayton	NC	27520	10/12/2023
Mark Raphael	Clayton	NC	27527	10/12/2023
Amy Shimo	Clayton	NC	27527	10/12/2023
Robert McIsaac	Greensboro	NC	27407	10/12/2023

Lani Olsen	Clayton	NC	27527	10/12/2023
Jason Webb	Clayton	NC	27527	10/12/2023
Jeanne Dahl	Clayton	NC	27527	10/12/2023
Heather Morris	Clayton	NC	27520	10/12/2023
Jacqueline Richardson	Clayton	NC	27520	10/12/2023
Amy Nicholson	Clayton	NC	27520	10/12/2023
Tiana McDaniels	Durham	NC	27703	10/12/2023
Megan Smith	Clayton	NC	27527	10/12/2023
Scott Garrett	Clayton	NC	27527	10/13/2023
Tamara Brundage	Clayton	NC	27527	10/13/2023
Russell Schmitt	Clayton	NC	27520	10/13/2023
Esin Bostancioglu	Clayton	NC	27527	10/13/2023
Reha Bostancioglu	Clayton	NC	27527	10/13/2023
Valerie Williams	Clayton	NC	27527	10/13/2023
Omadat Bissessar	Clayton	NC	27520	10/13/2023
Parker Garrett	Clayton	NC	27527	10/13/2023
Mary Beth Knight	Clayton	NC	27520	10/13/2023
Bob Meigs	Clayton	NC	27520	10/13/2023
Nikki Campbell	Smithfield	NC	27577	10/13/2023
patrick smith	Clayton	NC	27520	10/13/2023
Jerry Dodson	Clayton	NC	27520	10/13/2023
Sasha Davenport	Clayton	NC	27520	10/13/2023
Rebecca Povondra	Clayton	NC	27527	10/13/2023
Jennifer Rahilly	Clayton	NC	27520	10/13/2023
Patricia Rymer	Clayton	NC	27527	10/13/2023
Jason Smith	Clayton	NC	27527	10/13/2023
Linda Cummo	Clayton	NC	27527	10/13/2023
Walter Powell III	Fuquay-Varina	NC	27526	10/13/2023
Steve Cummo	Clayton	NC	27527	10/13/2023
Jenipher Cornelius	Clayton	NC	27520	10/13/2023
Becky Bryant	Clayton	NC	27527	10/13/2023
Mario Alanis	Houston		77035	10/13/2023
Amanda Dusenberry	Clayton	NC	27527	10/13/2023
Dwayne Povondra	Clayton	NC	27527	10/13/2023
Wendi Massey	Clayton	NC	27520	10/13/2023
Jonah Cox	Piedmont		29673	10/13/2023
Cynthia Wagoner	Clayton	NC	27527	10/13/2023
Jan Cowperthwaite	Clayton	NC	27527	10/13/2023
Scott Saltzman	Clayton	NC	27527	10/13/2023
Cathryn Byrd	Clayton	NC	27520	10/13/2023
Brian Kitograd	Clayton	NC	27520	10/13/2023
Cosimo Vieni	Clayton	NC	27520	10/13/2023
Colby Trice	Raleigh	NC	27697	10/13/2023

Daniel Hackley	Clayton	NC	27527	10/13/2023
Brandy Penny	Clayton	NC	27527	10/13/2023
Susan Kelly	Clayton	NC	27520	10/13/2023
Joshua Curphey	Peterborough			10/13/2023
Doreen Luddy	Knoxville	TN	37917	10/13/2023
Susan Black	Fuquay-Varina	NC	27526	10/13/2023
Jeff Leedom	Clayton	NC	27520	10/13/2023
barbara wofgang	Clayton	NC	27520	10/13/2023
Kathleen Landi	CLAYTON	NC	27527	10/13/2023
Alex Kallinger	Pensacola	FL	32501	10/13/2023
Gary Ogle	Clayton	NC	27520	10/13/2023
David/Carolyn Calhoun	Clayton	NC	27527	10/13/2023
Dara Carey	zebulon	NC	27597	10/13/2023
Deborah Jackson	Clayton	NC	27527	10/13/2023
Jennifer Hawley	Clayton	NC	27520	10/13/2023
AnnMarie McMaster	Clayton	NC	27520	10/13/2023
Johnny Hawley	Clayton	NC	27520	10/13/2023
Bailey Hawley	Clayton	NC	27520	10/13/2023
Cheryl Guy	Clayton	NC	27527	10/13/2023
Natalie Alexander	Irvine		92620	10/13/2023
Julian Marquez	Mesa		85204	10/13/2023
Terrence M McInerney	Fayetteville	NC	28304	10/13/2023
Jason Wyatt	Clayton	NC	27527	10/14/2023
Ashlyn Meyer-Senkarik	Raleigh	NC	27610	10/14/2023
bec johnson	clayton	NC	27527	10/14/2023
Barb Sells	Clayton	NC	27527	10/14/2023
Toni Woolard	Clayton	NC	27527	10/14/2023
Keiran hamilton	Clayton	NC	27520	10/14/2023
Saia Hamilton	Clayton	NC	27520	10/14/2023
Alice Looney	Raleigh	NC	27615	10/14/2023
Linda Barrentine	Clayton	NC	27520	10/14/2023
Pam Hackney	Clayton	NC	27527	10/14/2023
Janet Warren	Clayton	NC	27520	10/14/2023
Rebecca Rowe	Clayton	NC	27527	10/14/2023
Lori Sands	Clayton	NC	27527	10/14/2023
Gloria Marzouk	Washington	DC	20228	10/14/2023
Chelsea Adams	Angier	NC	27501	10/14/2023
Francine Rodgers	Clayton	NC	27520	10/14/2023
Lauren Parrish	Clayton	NC	27527	10/14/2023
Tanya Lee	Clayton	NC	27520	10/14/2023
Meghan Carley	Garner	NC	27529	10/14/2023
Mirtha Rodriguez John	Clayton	NC	27527	10/14/2023
Sue Joy	Clayton	NC	27520	10/14/2023

Monique Liriano	Clayton	NC	27527	10/14/2023
Jayneane Scott	Clayton	NC	27520	10/14/2023
Rebecca Mitchell	Clayton	NC	27527	10/14/2023
Debra Adolphsen	Raleigh	NC	27610	10/14/2023
Heather Fox	Charlotte	NC	28204	10/14/2023
Cynthia Kilgore	Conneaut	OH	44030	10/14/2023
Christy Luna	Clayton	NC	27527	10/14/2023
Brian Culkin	Clayton	NC	27527	10/14/2023
Chasity Jackson	Clayton	NC	27520	10/14/2023
Tori Price	Clayton	NC	27527	10/14/2023
Nick Price	Clayton	NC	27527	10/14/2023
Michelle Young	Clayton	NC	27527	10/14/2023
Jessica Dufresne	Clayton	NC	27520	10/14/2023
Sherri Hill	Smithfield	NC	27577	10/14/2023
bean man	Flanders		6333	10/14/2023
Bradley Payne	Fort Myers	FL	33908	10/14/2023
misti young	Clayton	NC	27520	10/14/2023
Jason Jones	Clayton	NC	27527	10/14/2023
Samantha Jager	Clayton	NC	27520	10/14/2023
Matt Shumway	Clayton	NC	27520	10/14/2023
Alexandra Dular	Smithfield	NC	27577	10/14/2023
Carola Gibbs	Raleigh	NC	27603	10/14/2023
Bridgette Crose	Clayton	NC	27520	10/14/2023
Denise Drugan	Clayton	NC	27527	10/14/2023
Monica Butler	Clayton	NC	27527	10/14/2023
Christina Roberts	Zebulon	NC	27597	10/14/2023
Ryan Renz	Clayton	NC	27527	10/14/2023
Michelle Jones	Clayton	NC	27527	10/14/2023
Jordan Rowe	Clayton	NC	27527	10/14/2023
Leonard Croom	Clayton	NC	27520	10/14/2023
Brianne Joiner	Clayton	NC	27520	10/14/2023
Valentino Speyerer	Clayton	NC	27520	10/14/2023
Timeka Neri	Knoxville	TN	37917	10/14/2023
Bob Gustavson	Fuquay-Varina	NC	27526	10/14/2023
Mary Denton	Clayton	NC	27527	10/14/2023
Abigail Garcia	Smithfield	NC	27577	10/14/2023
April Brown	Clayton	NC	27520	10/14/2023
Dale White	Clayton	NC	27527	10/14/2023
William Kretz	Clayton	NC	27520	10/14/2023
WARREN HACKLER	Clayton	NC	27520	10/14/2023
Kelly Poole	Clayton	NC	27520	10/14/2023
Byron Russell	Clayton	NC	27527	10/14/2023
Lea Boumenot	Clayton	NC	27520	10/14/2023

Brayden Radford				10/14/2023
Alexander De Leon	Chapel Hill	NC	27514	10/14/2023
Bryan Obi	Carrollton	TX	75007	10/14/2023
Sharron Bryant	Clayton	NC	27520	10/14/2023
Katelyn Rogers	Clayton	NC	27520	10/14/2023
Morris Rose	Clayton	NC	27520	10/14/2023
Dawn Burns	Clayton	NC	27520	10/14/2023
Susan Kelley	Charlotte	NC	28205	10/14/2023
Dayle Schmitt	Clayton	NC	27527	10/14/2023
Carol Raubenheimer	Fuquay-Varina	NC	27526	10/14/2023
Marie Mattatall	Clayton	NC	27520	10/14/2023
Grace Ragan	Clayton	NC	27520	10/14/2023
Wyatt Hawkins	Clayton	NC	27520	10/14/2023
Sloan Ragan	Clayton	NC	27520	10/14/2023
Corinne Lewis	Clayton	NC	27520	10/14/2023
Malinda Allen	Clayton	NC	27520	10/14/2023
Janice Sondys	Clayton	NC	27520	10/14/2023
Helen Vick	Clayton	NC	27527	10/14/2023
Juan Leon	Los Angeles		90063	10/14/2023
Kelly Bulanek				10/14/2023
Stella Moody	Clayton	NC	27520	10/14/2023
Lee Ann Keen	Clayton	NC	27520	10/14/2023
Kathleen Payton	Clayton	NC	27527	10/15/2023
Kyle Church	Clayton	NC	27520	10/15/2023
Samantha Frenzel	Wendell	NC	27591	10/15/2023
Jessika Sellas	Garner	NC	27529	10/15/2023
Jennifer Culkin	Clayton	NC	27527	10/15/2023
Matt Houck	Raleigh	NC	27697	10/15/2023
Richard Gibbs	Clayton	NC	27527	10/15/2023
Kathy Corbett	Clayton	NC	27520	10/15/2023
Nicole Kitograd	Clayton	NC	27527	10/15/2023
Diane Segobiano	Clayton	NC	27520	10/15/2023
Karen Doss	Clayton	NC	27527	10/15/2023
Lauren Prince	Zebulon	NC	27597	10/15/2023
Renita Leake	Clayton	NC	27527	10/15/2023
Mk Ks	Clayton	NC	27527	10/15/2023
Lacey Binney	Clayton	NC	27520	10/15/2023
Michelle Terry	Clayton	NC	27520	10/15/2023
Dana Johnson	Smithfield	NC	27577	10/15/2023
Richard Kuhn	Clayton	NC	27527	10/15/2023
Michael Bowman	Clayton	NC	27520	10/15/2023
Katherine Blackman	Clayton	NC	27520	10/15/2023
Michael Dagnello	Charlotte	NC	28296	10/15/2023

John Henry	Clayton	NC	27520	10/15/2023
Samantha Parrish	Clayton	NC	27527	10/15/2023
Robin Metoyer	Benson	NC	27504	10/15/2023
Kimberly Price	Clayton	NC	27527	10/15/2023
Francine Abbruscato	Clayton	NC	27527	10/15/2023
Audrea Dale	Clayton	NC	27527	10/15/2023
Mitchell Randall	Clayton	NC	27520	10/15/2023
Debra Curley	Clayton	NC	27520	10/15/2023
Jamie Kelley	Clayton	NC	27520	10/15/2023
Hank Ray	Clayton	NC	27527	10/15/2023
Irene Castro	Smithfield	NC	27577	10/15/2023
Mike Niemchak	Raleigh	NC	27613	10/15/2023
Janeth Alvarado	Clayton	NC	27527	10/15/2023
Angela ginton	Clayton	NC	27520	10/15/2023
Skylar Blackman	Clayton	NC	27520	10/15/2023
Isabel Blood	Clayton	NC	27520	10/15/2023
Beth Wittson	Clayton	NC	27520	10/15/2023
Rachel Harju	Clayton	NC	27527	10/15/2023
Steven Anderson	Clayton	NC	27520	10/15/2023
Russell Phillips	Clayton	NC	27527	10/15/2023
Caryn Barnhart	Clayton	NC	27520	10/15/2023
Crystal Cerasi	Clayton	NC	27527	10/16/2023
Timothy Cerasi	Clayton	NC	27520	10/16/2023
Sandra Phillips	Clayton	NC	27520	10/16/2023
Basil Tsiaousopoulos	Clayton	NC	27527	10/16/2023
Courtney Clark	Clayton	NC	27520	10/16/2023
Michelle Gardner	Holly Springs	NC	27540	10/16/2023
Chelsea Lammert	Zebulon	NC	27597	10/16/2023
T J	Bunnlevel	NC	28323	10/16/2023
Kirsten Brian	Clayton	NC	27527	10/16/2023
Jasmine Smith	Clayton	NC	27520	10/16/2023
Charles Jager	Clayton	PA	27520	10/16/2023
Corey Frenzel	Clayton	NC	27520	10/16/2023
Patricia Kiphart	Clayton	NC	27520	10/16/2023
Ryan Berberich	Clayton	NC	27520	10/16/2023
Anonymous Person	Elkhart		46514	10/16/2023
Jan Chin	Sacramento		94203	10/16/2023
Steven Jarvi	Clayton	NC	27527	10/16/2023
Robin Jarvi	Clayton	NC	27520	10/16/2023
Paula Langley	CLAYTON	NC	27527	10/16/2023
Barbara Calton	Clayton	NC	27527	10/16/2023
Kenneth Calton	Clayton	NC	27527	10/16/2023
Wendy Moravec	Clayton	NC	27527	10/17/2023

Lisa Perez	Clayton	NC	27520	10/17/2023
Nikki Hansen	Charlotte	NC	28203	10/17/2023
Kelly Janca	Clayton	NC	27520	10/17/2023
ShaunTique Parker	Clayton	NC	27520	10/17/2023
patricia foote	Clayton	NC	27527	10/17/2023
Anne Marie Hunter	Fuquay-Varina	NC	27526	10/17/2023
Christopher Maungyoo	Raleigh	NC	27607	10/18/2023
Larry Green	Clayton	NC	27527	10/18/2023
Danny Belvin	Clayton	NC	27527	10/18/2023
Steven Runyon	Clayton	NC	27527	10/18/2023
Chris Anderson	Clayton	NC	27527	10/18/2023
LISA Coats	Raleigh	NC	27610	10/18/2023
Cash Orsega	Smithfield	NC	27577	10/18/2023
Whit Wooten	Clayton	NC	27527	10/18/2023
Andrew Honeycutt	Clayton	NC	27527	10/18/2023
Leigh Narron	Clayton	NC	27520	10/18/2023
Joanne Calzaretta	Clayton	NC	27527	10/18/2023
James Bahamonde	Clayton	NC	27527	10/18/2023
Robert Glenn Craig	Clayton	NC	27257	10/18/2023
Beth Marcom	Cameron	NC	28326	10/18/2023
Lisa Dickerson	Clayton	NC	27527	10/18/2023
Jennifer Williams	Smithfield	NC	27577	10/18/2023
Dave Carpenter	Garner	NC	27529	10/18/2023
Melanie James	Clayton	NC	27520	10/18/2023
Erica Gammon	Clayton	NC	27520	10/18/2023
Jenifer Koerner	Clayton	NC	27527	10/18/2023
Patricia Gay	Clayton	NC	27520	10/18/2023
Keith Ziomek	Garner	NC	27529	10/18/2023
Elandi Mariano	Clayton	NC	27526	10/18/2023
Amanda Vazquwz	Clayton	NC	27527	10/18/2023
Erin Bell	Clayton	NC	27527	10/18/2023
Lorna Stephenson	Angier	NC	27501	10/18/2023
Jennifer Sox	Clayton	NC	27527	10/19/2023
Heida Moore	Smithfield	NC	27577	10/19/2023
Lakisha Butler	Charlotte	NC	28203	10/19/2023
REGINA Faison	Selma	NC	27576	10/19/2023
Colleen Runyon	Clayton	NC	27527	10/19/2023
Kelly Burbage	Clayton	NC	27527	10/19/2023
Gretchen Weakley	Clayton	NC	27520	10/19/2023
Robert and Rosalba O'Shea	Clayton	NC	27520	10/19/2023
Laura Mlott	Clayton	NC	27520	10/19/2023
Wendy OConnor	Clayton	NC	27527	10/19/2023
Cassie Otto	Clayton	NC	27520	10/19/2023

Ashley Council	Clayton	NC	27520	10/19/2023
Scott Council	Clayton	NC	27520	10/19/2023
Tiffany Santopietro	Clayton	NC	27520	10/19/2023
Polly Ferguson	Clayton	NC	2752	10/19/2023
Arthur Bowling	Clayton	NC	27527	10/19/2023
Fran Riddick	Clayton	NC	27527	10/19/2023
Daniel Edelen	Clayton	NC	27527	10/20/2023
Lorraine Lellyo	Clayton	NC	27527	10/20/2023
Robert Gustavson	Fuquay-Varina	NC	27526	10/20/2023
Barnes Paula	Clayton	NC	27527	10/20/2023
Greg Klein	Clayton	NC	27527	10/20/2023
Anne Bell	Garner	NC	27529	10/20/2023
TRacey Swann	Garner	NC	27529	10/20/2023
G. Diane Matthews- Marcelin	Carson		90746	10/20/2023
Kristen Bowen	Clayton	NC	27527	10/20/2023
Leslie Marion	Clayton	NC	27527	10/20/2023
Allyson Oswandel	Clayton	NC	27527	10/20/2023