Town of Clayton
Regular Town Council Meeting Agenda
Monday, October 18, 2021 @ 6:00 PM
Council Chambers

THE PUBLIC MAY VIEW THE LIVE COUNCIL MEETING ON THE TOWN'S YOU TUBE CHANNEL:
https://www.youtube.com/channel/UCwz_EIU1ENyy7BkFsqmWYzQ

BELOW PLEASE FIND ADDITIONAL INFORMATION REGARDING PROCEDURES FOR IN-PERSON MEETINGS:

- **ALL persons attending must wear a mask.**
- **We will be following proper social distancing at all times.**
- **All council/board members will be socially distanced in the council chambers and wearing face masks.***
- **All staff and visitors will be socially distanced while within the council chambers. Face masks will be worn.***
- **Hand sanitizer will be available, both in the lobby and council chambers.**
- **Podium/microphone will be sanitized after each speaker.**

Masks may be lowered when speaking.

1. CALL TO ORDER

Pledge of Allegiance and Invocation

2. ADJUSTMENT OF THE AGENDA

3. CONSENT AGENDA

(Items on the consent agenda are considered routine in nature or have been thoroughly discussed at previous meetings. Any member of the Council may request to have an item removed from the consent agenda for further discussion.)

a. Community Planning Month Proclamation
Community Planning Month Proclamation

b. Resolution Directing Clerk to Certify Sufficiency
- 2021-108-ANX - Sam's Express Carwash

Resolution #2021-47

c. Resolution Directing Clerk to Certify Sufficiency
- 2021-125-ANX - Lumen

Resolution #2021-48

POTENTIAL ACTION: Adoption of Consent Agenda as Presented

4. ADMINISTRATIVE ITEMS

5. INTRODUCTIONS AND SPECIAL PRESENTATIONS

a. Presentation of Community Planning Month Proclamation
Presented To: Planning Staff, Planning Board & Board of Adjustment

b. New Employee Introductions:
Presenters: Patrick Pierce, Economic Development Director & Shaun Mizell, Procurement & Contract Manager

- Lydia Davis - Economic Development Specialist
- Derryel Anderson - Warehouse Supervisor

6. PUBLIC HEARINGS

a. 2020-103-PDD - Lumen Rezoning
Presenter: Ben Howell, Planning Director
Cover
Application
First Neighborhood Meeting Materials
Second Neighborhood Meeting Materials
Master Plan Narrative 9-10-2021
Master Plan Site Plan 9-10-2021
Planning Board Adj Property Letter
Town Council Adj Property Letter
Newspaper Ad
Staff Report
Staff Report Map
Consistency Statement
Motion Form
Ordinance #2021-10-02

POTENTIAL ACTION: Adoption of Ordinance #2021-10-02

b. 2020-104-SD - Lumen Subdivision *(Quasi-Judicial)*
Presenter: Ben Howell, Planning Director
NEED REIMBURSEMENT AGREEMENT & OPTION TO PURCHASE AGREEMENTS,
Cover
Application
Master Plan Narrative 9-10-2021
Neighborhood Meeting Materials - First Meeting
Neighborhood Meeting Materials - Second Courtesy Meeting
Master Plan Site Plan 9-10-2021
Adj Property Letter
Newspaper Ad
Signed TRC Letter
Full Traffic Impact Analysis
NCDOT Congestion Management Report
Wetland Delineation Report
Parking Report
Waste Water Allocation Application
Staff Report
Staff Report Map
Approval
Motion Form
Resolution #2021-49

POTENTIAL ACTION: Approval of 2020-104-SD

POTENTIAL ACTION: Adoption of Resolution #2021-49 (Wastewater)

POTENTIAL ACTION: Approval of Reimbursement Agreement

POTENTIAL ACTION: Approval of Option to Purchase Agreements

c. Economic Development Incentive Agreement
Presenter: Patrick Pierce, Economic Development Director
Cover
Economic Development Incentive Advertisement
Incentive Agreement

POTENTIAL ACTION: Approval/Denial of Economic Development Incentive Agreement

7. OLD BUSINESS

a. Riverwood Ranch - Wastewater Allocation
Presenter: Joshua Baird, Town Engineer
Cover
Wastewater_Riverwood Ranch
Resolution #2021-50

POTENTIAL ACTION: Adoption of Resolution #2021-50

b. FY '22 Road Rehab Program
Presenters: Blake Mills, Public Works Director & Rusty Clawson, Street Maintenance Superintendent
Cover
Project Special Provisions
FY21 Road Rehab Executed Contract, April 2021
ST Wooten Contract Modification No. 2
Map of Streets ST Wooten Contract Mod 2
ST Wooten Proposal FY 22 Road Rehabilitation Program

POTENTIAL ACTION: Authorize Staff to Execute Contract with Modifications

c. Municipal Park Site Improvements - Demolition & Early Procurement
Presenter: Joshua Baird, Town Engineer
Cover
Balfour Beatty Amendment No.1
Clayton Municipal - Early Release Packages
Ordinance

POTENTIAL ACTION: Adoption of Ordinance #2021-10-03

POTENTIAL ACTION: Authorize Town Manager to Execute Agreement/Amendment

d. WRF Funding Package #1

Presenter: Louis Duffie, Assistant Program Manager
Cover
Exhibit G - Weather Delays
Gannett Fleming -Bond Letter
ToC Funding Package No 1
ToC_Decision_DIPaward_Signed
ToC_Decision_PrestressedConcreteTankAward_Signed
Funding Request

POTENTIAL ACTION: Authorize Town Manager to Execute Agreement

8. NEW BUSINESS

9. STAFF REPORTS

a. Town Manager

b. Town Attorney

c. Town Clerk

d. Other Staff

10. OTHER BUSINESS

a. Informal Discussion & Public Comment

b. Council Comments

11. ADJOURNMENT

a. Adjourn the Meeting

POTENTIAL ACTION: Motion to Adjourn

Quasi-Judicial (evidentiary) – These hearings are different from other public hearings in that they resemble a court hearing where testimony is presented and the Town Council acts like a court of law. During evidentiary hearings, the Town Council receives only sworn testimony and other credible evidence. In addition, the Town Council must make findings of fact based upon the evidence presented. Citizens may give testimony in an evidentiary hearing after they have taken an oath.

Proclamation

Community Planning Month

WHEREAS, change is constant and affects all cities, towns, suburbs, counties, boroughs, townships, rural areas, and other places; and

WHEREAS, community planning and plans can help manage this change in a way that provides better choices for how people work and live; and

WHEREAS, community planning provides an opportunity for all residents to be meaningfully involved in making choices that determine the future of their community; and

WHEREAS, the full benefits of planning requires public officials and citizens who understand, support, and demand excellence in planning and plan implementation; and

WHEREAS, the month of October is designated as National Community Planning Month throughout the United States of America and its territories, and

WHEREAS, American Planning Association endorses National Community Planning Month as an opportunity to highlight how planning is essential to recovery and how planners can lead communities to equitable, resilient, and long-lasting recovery; and

WHEREAS, the celebration of National Community Planning Month gives us the opportunity to publicly recognize the participation and dedication of the members of the Planning Board and Board of Adjustment who have contributed their time and expertise to the improvement of the Town of Clayton; and

WHEREAS, it is also an opportunity to recognize the many valuable contributions made by professional community and regional planners of the Town of Clayton and extend our heartfelt thanks for the continued commitment to public service by these professionals.

NOW, THEREFORE, BE IT RESOLVED THAT, the month of October 2021 is hereby designated as Community Planning Month in the Town of Clayton in conjunction with the celebration of National Community Planning Month.

Duly adopted this the 18th day of October 2021 while in regular session.

_____

Jody McLeod
Mayor

ANNEXATION PETITION 2021-108-ANX
Sam's Xpress Car Wash
12856 US Highway 70 Business
Pin# 164900-97-6767
Owners: SXCW Properties, LLC
Contiguous; 3.75 +/- acres

TOWN OF CLAYTON
RESOLUTION DIRECTING THE CLERK TO INVESTIGATE A PETITION RECEIVED UNDER G.S. 160A-31

WHEREAS, a petition requesting annexation of an area described in said petition was received on March 20, 2020 by the Town of Clayton; and

WHEREAS, G.S. 160A-31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Clayton deems it advisable to proceed in response to this request for annexation:

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Clayton that:

The Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify as soon as possible to the Town Council the results of her investigation.

Duly adopted this the18th day of October, 2021 while in regular session.

_____
Jody L. McLeod,
Mayor

ATTEST:

_____
Kimberly A. Moffett, CMC, NCCMC
Town Clerk

ANNEXATION PETITION 2021-125-ANX
2375 Highway 42
Pin#s: 164800-72-2714; 164800-73-4448; 164800-73-6660; 164800-83-0418
Owners: Paul Scott Penny, Frankie Penny Medlin, Erza Lee Penny, Jack M. Penny Jr., Benny Langdon & Seth Langdon
Contiguous; 69.07 +/- acres

TOWN OF CLAYTON
RESOLUTION DIRECTING THE CLERK TO INVESTIGATE A PETITION RECEIVED UNDER G.S. 160A-31

WHEREAS, a petition requesting annexation of an area described in said petition was received on October 13, 2021 by the Town of Clayton; and

WHEREAS, G.S. 160A-31 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Clayton deems it advisable to proceed in response to this request for annexation:

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Clayton that:

The Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify as soon as possible to the Town Council the results of her investigation.

Duly adopted this the18th day of October, 2021 while in regular session.

_____
Jody L. McLeod,
Mayor

ATTEST:

_____
Kimberly A. Moffett, CMC, NCCMC
Town Clerk

Town Council Agenda Cover Sheet

Meeting Date
October 18, 2021

Agenda Location
Public Hearings

Item Title
2020-103-PDD – Lumen Planned Development District

Presenter
Ben Howell, AICP, CZO – Planning Director

Summary/Description

Request to rezone 69.07 acres from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). This application is running concurrently with a preliminary plat application (2020-104-SD), which will serve as the master plan for the development.

Requested Action
Approval/Denial

Funding Source (If Applicable):
N/A

Cost: **N/A** **Yes** ☐ **No** ☒

Additional Documents to be Included in Agenda Packet

Application
Neighborhood Meeting Material
Site Plan – Master Plan
Adjacent Property Letter
Newspaper Ad
Staff Report
Staff Report Map
Consistency Statement

Meeting Timeline
Click or tap here to enter text.

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

REZONING APPLICATION

☐ **Standard Rezoning Fee: $500.00**
☒ **Planned Development Rezoning Fee: $1,000 + $5.00 per acre**
☐ **Advertisement Fee: $200.00**

SITE INFORMATION

Name of Project: Lumen Planned Development District

Acreage of Property: 68.26 (4 parcels) **Zoning District:** RE - Residential Estate

County Tag #: (1): 05F02037E, (2): 05F02037B, (3): 05F02037A, (4): 05F02037

NC Pin #: (1): 05F02037E, (2): 05F02037B, (3): 05F02037A, (4): 05F02037

Address/Location: 2219 NC 42 West, Clayton, NC 27520

Existing Zoning District: RE - Residential Estate **Proposed Zoning District:** PD-MU (Planned Development - Mixed Use)

APPLICANT INFORMATION

Applicant: Kimley Horn

Mailing Address: 421 Fayetteville Street, Suite 600 Raleigh, NC 27601

Phone Number: 919-653-2976 **Fax:**

Contact Person: Richard Brown, PLA

Email Address: richard.brown@kimley-horn.com

PROPERTY OWNER INFORAMTION

Name: (1): Penny, Ezra Lee; (2): Medlin, Frankie P; (3): Langdon, Benny; (4): Langdon, Benny

Mailing Address: (1): 406 Crossway Ln, Holly Springs, NC 27540; (2): 2219 N 42W, Clayton, NC 27520; (3): 19 Slateford Dr, Clayton, NC 27520; (4): 19 Slateford Dr, Clayton, NC 27520

Phone Number: **Fax:**

Email Address:

OFFICE USE ONLY

Date Received: _____ Amount Paid: _____ File Number: _____

EXPLANATION OF PROJECT

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

The site is currectly zoned RE-Residential Estate and has been used for residential in recent history. The applicant proposes to redevelop the site for a mixture of residential, commercial, and office uses. The proposed planned development program would infuse new development into an assemblage that is poised as a catalyst for urban growth and as a new gateway along the western approach to Clayton. In order to execute this vision, the applicant wishes to rezone the property from the existing zoning classification to a PD-MU to allow all desired uses on the site. See enclosed narrative for a more detailed description of the project proposal and design intent.

APPROVAL CRITERIA

All applications for a Rezoning must address the following findings:

1. Consistency with the adopted plans of the Town.
   see attached document for narrative
2. Suitability of the subject property for uses permitted by the current vs. the proposed district.
   see attached document for narrative
3. Whether the proposed change tends to improve the balance of uses, or meets specific demand in the Town.
   see attached document for narrative
4. The capacity of adequate public facilities and services including schools, roads, recreation facilities, wastewater treatment, potable water supply and stormwater drainage facilities is available for the proposed use.
   see attached document for narrative
5. It has been determined that the legal purposes for which zoning exists are not violated.
   see attached document for narrative
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.
   see attached document for narrative

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.

see attached document for narrative

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.

Richard L Rrown, PLA		08/07/2020
Print Name	***Signature of Applicant***	***Date***



CONSISTENCY WITH TOWN PLANNING - LAND USE PLAN:

Rezoning Approval Criteria:

1. Consistency with the adopted plans of the Town.
This Master Plan proposal is consistent with adopted plans of the Town of Clayton.

This assemblage is part of the JHMC NC 42 West Area Plan that was adopted by the Town in November 2007. As part of this plan, this parcel is designated mixed use and is intended to have high quality uses and a wide variety of both residential and non-residential uses for the surrounding area.

2. Suitability of the subject property for uses permitted by the current vs. the proposed district.
The property is uniquely situated at a major gateway intersection with two of the Town's major transportation corridors. Land uses are conducive to the location and supported by traffic and compatible with the development patterns. The size of the assemblage and proposed infrastructure will also support the proposed mix of uses, with retail, office/institutional, public/civic, townhomes and even congregate care being proposed.

3. Whether the proposed change tends to improve the balance of uses or meets specific demand in the Town.
This parcel is designated by the Future Land Use Map as Neighborhood Center and is intended to have high quality uses and a wide variety of both residential and non-residential uses balancing the demands of the surrounding area. This request takes that into full consideration. The applicant will hold neighborhood meetings with surrounding neighborhoods and land owners to ensure that, to the greatest extent possible, the reasonable needs of the surrounding community are met.

4. The capacity of adequate public facilities and services including schools, roads, recreation facilities, wastewater treatment, potable water supply and stormwater drainage facilities is available for the proposed use.
Adequate public facilities, including existing and proposed roads, existing and proposed wastewater treatment, existing and proposed potable water and existing/proposed stormwater infrastructure are either existing or will be improved to meet the demands of the proposed uses.

5. It has been determined that the legal purposes for which zoning exists are not violated.
The proposed zoning does not violate the legal provisions of the Town's Code.

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.
The proposed zoning does not adversely affect the adjoining properties and 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.
The proposed zoning does not result in one property owner or small group of property owners to the detriment of the general public.

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

OWNER'S CONSENT FORM

Consent is required from the property owner(s) if an agent will act on their behalf. A separate form is required from each owner. Consent is valid for one year from date of notary, unless otherwise specified. All fields must be completed.

Project Name: Lumen Planned Development District **Address or PIN #:** 05F02037A

AGENT/APPLICANT INFORMATION:

Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (***list applicable requests***):

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify that I have authority to execute this consent form as/on behalf of the property owner. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

OWNER AUTHORIZATION:

Benny Langdon SETH LANGDON
(Name - type, print clearly)

19 Slatford Drive
(Address)

(Owner's Signature)

Clayton, NC 27520
(City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me Britny L. Simmons, a Notary Public for the above State and County, this the 19 day of June, 2020.

SEAL

NOTARY PUBLIC Johnston County, N.C.

Notary Public

My Commission Expires: 5/2/2025

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

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Project Name: Lumen Planned Development District **Address or PIN #:** 05F02037

AGENT/APPLICANT INFORMATION:

Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (***list applicable requests)***:

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OWNER AUTHORIZATION:

Benny Langdon SETH LANGDON
(Name - type, print clearly)

19 Slateford Drive
(Address)

(Owner's Signature)

Clayton, NC 27520
(City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me Brittni L. Simmons, a Notary Public for the above State and County, this the 20th day of June, 2020.

SEAL Brittni D. Simmons NOTARY PUBLIC Johnston County, N.C.

Notary Public

My Commission Expires: 5/2/2025

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

OWNER'S CONSENT FORM

Consent is required from the property owner(s) if an agent will act on their behalf. A separate form is required from each owner. Consent is valid for one year from date of notary, unless otherwise specified. All fields must be completed.

Project Name: Lumen Planned Development District **Address or PIN #:** 05F02037B

AGENT/APPLICANT INFORMATION:

Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (***list applicable requests***):

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify that I have authority to execute this consent form as/on behalf of the property owner. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

OWNER AUTHORIZATION:

FRANKIE PERRY MEDLIN
(Name - type, print clearly)

2219 NC Hwy 42 W
(Address)

Frankie Perry Medlin
(Owner's Signature)

Clayton NC 27520
(City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me Brittni L. Simmons, a Notary Public for the above State and County, this the 29 day of January, 2020.

SEAL

Brittni L. Simmons NOTARY PUBLIC Johnston County, N.C.

Notary Public

My Commission Expires: 5/2/2025

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

OWNER'S CONSENT FORM

Consent is required from the property owner(s) if an agent will act on their behalf. A separate form is required from each owner. Consent is valid for one year from date of notary, unless otherwise specified. All fields must be completed.

Project Name: Lumen Planned Development District **Address or PIN #:** 05F02037E

AGENT/APPLICANT INFORMATION:

Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (***list applicable requests)***:

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify that I have authority to execute this consent form as/on behalf of the property owner. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

OWNER AUTHORIZATION:

Jack M. Penny, Jr.
Paul S. Penny - POA for Frankie Mallin Evan Lee Penny
(Name - type, print clearly)

406 Crossway Lane
(Address)

Holly Springs, NC 27540
(City, State, Zip)

(Owner's Signature)

STATE OF North Carolina
COUNTY OF Buncombe

Sworn and subscribed before me Susannah L Haskell, a Notary Public for the above State and County, this the 29 day of June, 2020.

SEAL

Susannah L. Haskell
Notary Public
Buncombe County, NC

Notary Public

My Commission Expires: 01/30/2023

Kimley»Horn

August 1, 2020

Dear Clayton Area Property Owner:

The purpose of this letter is to notify you of an application filed with the Town f Clayton for a land use change or development proposal involving property adjacent to, or near, 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: 8/11/2020 **Meeting Time**: 6:00-8:00 PM EST

Virtual Meeting Instructions (conference ID: 267 683 787#):

- Link to Meeting website: https://bit.ly/2PepkCC
- QR Code (using smart phone camera):
- Call-in Number (for audio only): +1 984-204-1608

Type of Application:

- 2020-103-PD-MU Lumen Planned Development Rezoning
- 2020-104-SD Lumen Planned Development

Project/proposal property address: 2219 NC 42 West Clayton, NC 27520

Description of project/proposal: Zoning change from existing Residential Estate (RE) To Planned Development – Mixed Use (PD-MU). Master Plan Development

Upcoming public meetings for this application (Planning Board and/or Town Council):

- Planning Board: AUGUST 24, 2020
- Town Council: SEPTEMBER 21, 2020 (to be confirmed after Planning Board)

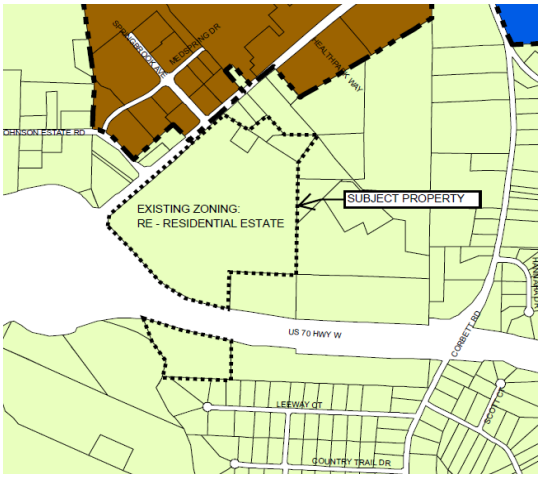
The following is enclosed with this letter and will be discussed during the virtual Neighborhood Meeting:

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

kimley-horn.com | 421 Fayetteville Street Raleigh, NC 27601 | 919-677-2000



Project Locator Map



Current Zoning Map (Amended April 2, 2018)

If you have any questions prior to or after this meeting, you may contact us at 919-677-2000. You may also contact the Planning Department at 919-553-5002.

Sincerely,

Richard L. Brown, PLA
Landscape Architect | Land Planner, Kimley-Horn

CC: Town of Clayton Planning Department
Lori Bryant & Haley Hogg

Received by TOC 8/12/2020

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

Project: Lumen Planned Development District Rezoning Case

Application: Rezoning Case #2020-103-PDD

Location/Date: Virtual - 8/11/2020 @ 6pm ET

	NAME	ADDRESS
1	Maureen & Matthew Pooley	2219 F NC Highway 42 West
2	Austin Bell (representative of Atlas Stark Holdings)	911 N West Street Raleigh, NC 27603
3	Courtney Saunders	2219 NC Highway 42 West, Unit J
4	James Wooten	2117 NC Highway 42 West
5	Jerry & Phyllis Coats	2149 NC Highway 42 West
6	Chris Johnson	2740 NC Highway 42 West
7	John Corbett	371 Corbett Road
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NEIGHBORHOOD MEETING SUMMARY FORM

FILL OUT THE FOLLOWING:

Application: Rezoning Case #2020-103-PDD Date of Mailing: 7/31/2020

Date of Meeting: 8/11/2020 Time of Meeting: 6 PM ET

Location of Meeting: Virtual

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: Matt Gross, PLA 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.*

The virtual neighborhood meeting was held on Tuesday evening at 6PM. The meeting began with introductions of the applicant team and all meeting attendees.

After all introductions were made, Richard Brown of the applicant team began to give a project introduction outlining the request summary for property rezoning and the

ultimate intent to gain an approved mixed use planned development district master plan. Mr. Brown also discussed all meetings which have been held, and all of

the meetings which will be held in the future. After a brief introduction of the application process, an introduction to the existing site condtions, zoning, as well as

all relevant site conditions were made. As the applicant team began to introduce the proposed zoning change and land use development map, all applicable Town

Comp Plan policy documents were introduced to describe how the proposed site development follows the Town's future Land Use Map as well as all roadway improvements forthcoming.

After presentation of proposed zoning and conceptual land use map and key dates moving forward, the applicant team opened the floor for questions and conversations with meeting attendees.

Many attendees were interested in the provisions of the perimeter landscape buffers ensuring that the proposed site development would not negatively impact their properties.

Additionally, attendees were interested in property access impacts as existing driveways cross the project area, applicant team assured adjacent property owners that property access

would be preserved and improved through the provision of a more formal private or public street network. Additional comments concerning contract purchasing on the property and recent broker contact.

The applicant team further detailed the ultimate project process regarding land purchasing, subdivision plan approval and estimated start date of construction. An additional comment was the impact of the

project on surrounding roadways, specifically with a connection to Corbett Road. If connection is made from the development to Corbett Rd, how much traffic will that add?

The applicant team explained that this project does not intend to connect to Corbett, as it only provides a street stub to the property boundary. After all questions and comments were finished, the meeting was adjourned.

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

Parcel ID Number	Property Owner Name	Address
05G03199L	Stanley, Russel C	1028 Breeze Lane
05G03071N	POOLEY, MATTHEW R	2219 F NC HIGHWAY 42 W
05G03066	MERRIMAN, JASON T.	2219D NC HIGHWAY 42 W
05F02037H	BLINSON, BENJAMIN G	2219-I NC 42 WEST
05F02037J	SANDERS, COURTNEY	2219 NC HIGHWAY 42 W UNIT J
05F02037G	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03072A	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03073A	JERRY M COATS AND PHYLLIS G COATS TRUST	2149 NC HWY 42 WEST
05F02037D	JP COATS LLC	2150 NC HWY 42 WEST
05F02037C	JP COATS LLC	2151 NC HWY 42 WEST
05F02035G	UACFE LLC	12 LAFOY DRIVE
05F02035F	BODDIE-NOELL ENTERPRISES, INC.	PO BOX 1908 Rocky Mount, NC 27802
05F02035H	UACFE LLC	12 LAFOY DRIVE
05F02035A	SPRING BRANCH SQUARE, LLC	303 PARKRIDGE DR
05F02036	SPRING BRANCH PLAZA LLC	PO BOX 1559 WAKE FOREST, NC 27588
05F02035D	MALLIPADDI, PRAMOD	4807 CHESTNUT GROVE DRCHAMPAIGN, IL 61822
05F02035	PARMAR, AMRUTLAL	388 BROADMOOR WAY
05G03199B	JOHNSON, NETTIE ERDINE	2740 NC HIGHWAY 42 W
05F02038	NC DEPT OF TRANSPORTATION	PO BOX 3165 WILSON, NC 27895
05G02195B	JP COATS LLC	2149 NC HWY 42 WEST
05G03066X	MENDEZ, SELVIN OMAR	148 LEEWAY CT
05G03067S	COLPETZER, KEITH E	144 LEEWAY CT
05G03068G	TORREZ, GIRELDA PAOLA MEJIA	140 LEEWAY CT
05G03067C	CONYERS, JOHNNIE L	136 LEEWAY CT
05G03199H	TAP PROPERTIES LLC	273 D BLUE POND RD


Kimley»Horn
421 Fayetteville Street
Suite 600
Raleigh, NC 27601
BLINSON, BENJAMIN G
2219-I NC 42 WEST
Clayton, NC 27520
NEOPOST
07/31/2020
US POSTAGE $000.65
Kimley»Horn
421 Fayetteville Street
Suite 600
Raleigh, NC 27601
TAP PROPERTIES LLC
273 D BLUE POND RD
Clayton, NC 27520

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

Project: Lumen Planned Development District Rezoning Case

Application: Rezoning Case #2020-103-PDD

Location/Date: Virtual - 12/4/2020 @ 6pm ET

	NAME	ADDRESS
1	Russell Stanley	1028 Breeze Lane, Clayton, NC 27520
2	Jerry & Phyllis Coats	2149 NC Highway 42 West
3		
4		
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NEIGHBORHOOD MEETING SUMMARY FORM

FILL OUT THE FOLLOWING:

Application: Rezoning Case #2020-103-PDD Date of Mailing: 7/31/2020

Date of Meeting: 8/11/2020 Time of Meeting: 6 PM ET

Location of Meeting: Virtual

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: Matt Gross, PLA 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.*

The virtual neighborhood meeting was held on Thursday evening at 6PM. The meeting began with introductions of the applicant team and all meeting attendees.

After all introductions were made, Matt Gross reintroduced the project to all attendees, outlining the reasoning behind holding a second neighborhood meeting.

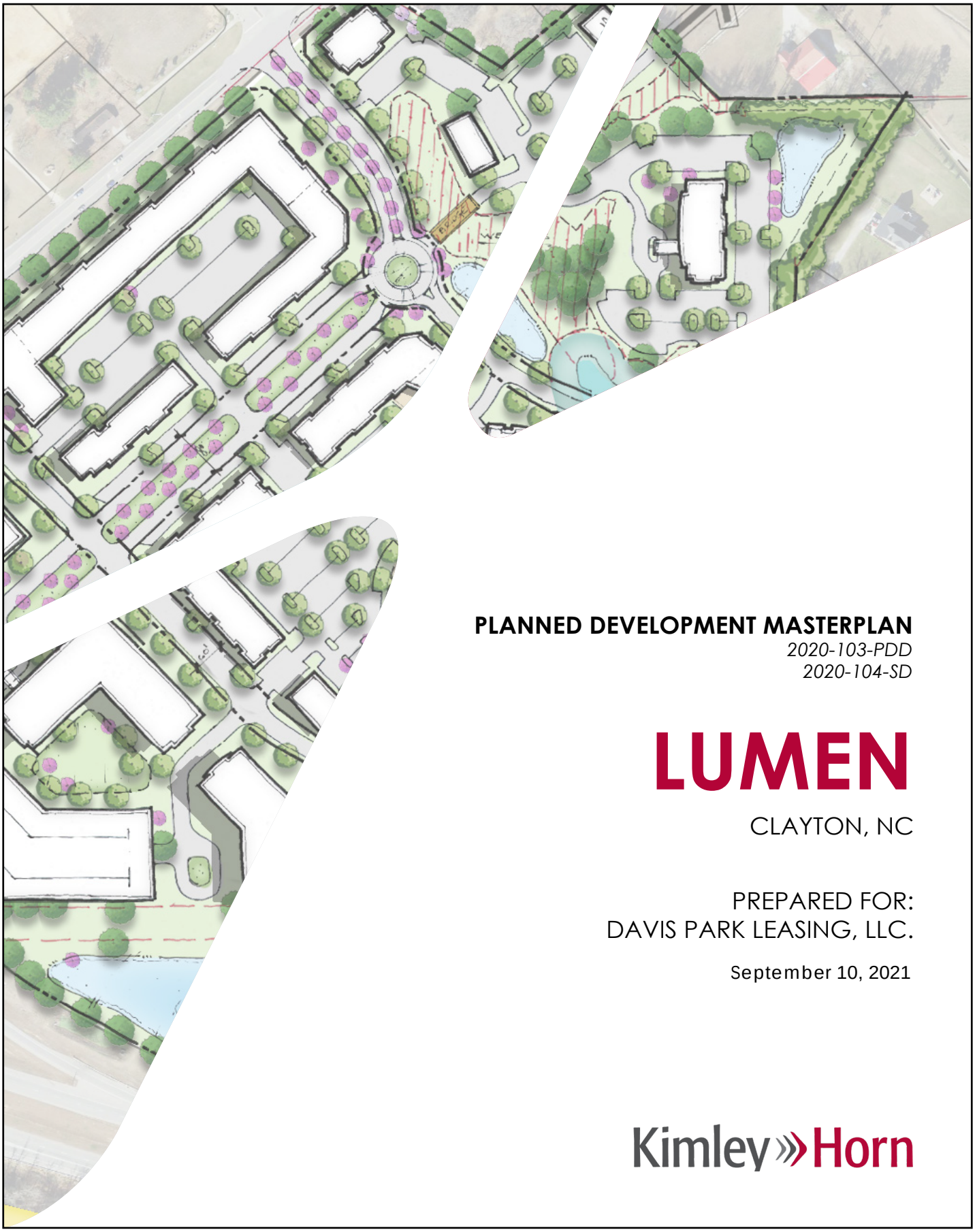
This outline described all master plan changes which postdates the previous meeting held in August. Mr. Gross also discussed all meetings which have been held, and all of

the meetings which will be held in the future. After presentation of proposed zoning and conceptual land use map and key dates moving forward, the applicant team opened the floor

for questions and conversations with meeting attendees. Of the attendees present on the call, no questions or further discussion was held and or presented. Thus the meeting adjuorned with no

controversy, confusion or further action items remaining.

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



PLANNED DEVELOPMENT MASTERPLAN

2020-103-PDD
2020-104-SD

LUMEN

CLAYTON, NC

PREPARED FOR:
DAVIS PARK LEASING, LLC.

September 10, 2021

Kimley»Horn

Rezoning Application w/ Master Plan

For

Lumen

A Mixed-Use Planned Development District

Clayton, North Carolina

Prepared for:

The Town of Clayton, North Carolina

Submitted: July 1, 2020
Resubmittal: August 17, 2020
Resubmittal: November 4, 2020
Resubmittal: December 4, 2020
Resubmittal: January 29, 2021
Final Council Submittal: September 10, 2021

Applicant / Lead Consultant

KIMLEY-HORN
NC License #F-0102
421 Fayetteville St. Raleigh, North Carolina 27601
(919) 677-2000

DEVELOPERS:

DAVIS PARK LEASING, LLC
8000 Weston Parkway, Suite 360 Cary, NC 27513
(919) 414-1300





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MP-01	Existing Conditions
MP-02	Topographical and Boundary Survey
MP-03	Master Land Use Plan
MP-04	Blocking Framework & Phasing Plan
MP-05	Projected Phased Road Implementation
MP-06	Conceptual Utility Plan
MP-07	Urban Street Typologies

Section 1.0 HISTORY & OVERVIEW

The applicant of this project, Davis Park Leasing, LLC, proposes to create a large-scale Planned Development of approximately 69 acres in western Clayton near the intersection of NC Highway 42 and US highway 70 Bypass. This property is situated on rolling farmland and consists of 4 total parcels, the largest of which has been in the Penny family since the 1930's. Since the purchase from the Government in 1938 as part of a farm recovery program, the property has been the homeplace of the Penny family and heirs. The Penny Home place was originally a 4-room farmhouse that predated rural electrification. The primary hay / cattle barn was previously the county schoolhouse which was moved and repurposed as a barn after a new school was built. The county school bell is still located on the property today.

The farm was originally a significantly larger parcel where the family grew many crops and livestock. Tobacco, sweet potatoes, corn, wheat, rye, hay, soybeans, angus cattle, pigs, chickens etc. Hay has been the primary crop for the Penny Farm for the past 20 years.







In 2008 the completion of US Highway 70 Bypass bisected the property and created an interchange and new frontage along the property. The property also accommodates a 60' wide utility corridor for the regional gas pipeline that serves properties along the corridor. This also opened significant new development potential along the NC 42 corridor and positioned the property as a new gateway to western Clayton.



The subject property is physically bounded by two significant features: NC Highway 70 By-pass to the west; NC Highway 42 to the north. There are also existing natural features and rolling topography to the southwestern portion of the property as well as two existing farm ponds. An environmental assessment has not been conducted at this point, however, there are no indications that any environmental contaminants exist on the property. The developer will work with the property owners to submit necessary information to NCDENR at the appropriate time.

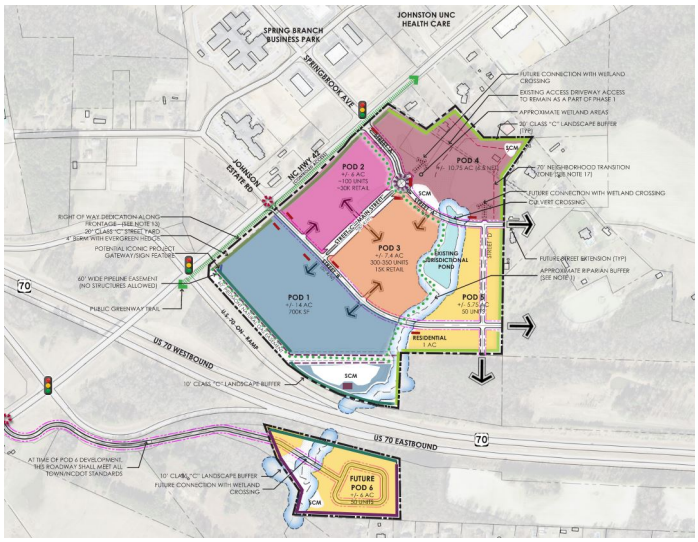
The site is currently zoned RE-Residential Estate and has remained a residential and agricultural use since the land was purchased in 1938. The applicant proposes to redevelop the site for a mixture of residential, commercial and office uses. The proposed planned development program would infuse new development into an assemblage that is poised as a catalyst for urban growth and as a new gateway along the western approach to Clayton.

SECTION 2.0 PURPOSE & INTENT STATEMENT

The Lumen Planned Development will set the stage for high quality, mixed-use development in Western Clayton. The construction of US Highway 70 By-pass, NC Highway 42 widening plans, the currently expanding wastewater treatment facilities along with the JCMH / NC 42 West Area Plan have been put in place to promote and support a more urban pattern of development in what once was rural Johnston County.

In light of the recent development activity and market trends in the Town's jurisdiction, and with an anticipated continuation of growth a favorable development environment, this application seeks to advance the project with a master plan that is market driven while maintaining the broader goals of Town's previous community plan for the western NC 42 Corridor. The overall development will provide flexibility for a variety of complimentary land uses and product types within a planned community setting to create a walkable, live-work neighborhood with housing, neighborhood shopping, employment, and entertainment destinations to serve western Clayton.

Furthermore, this proposal provides a balance of land use types, encouraging a diversity of residential densities, employment center opportunities and zones permissive of a mix of uses that will achieve Clayton's intent of ensuring that this area can develop in a way that *"minimizes congestion on Highway 42, emphasizes walkability, and values aesthetic design principals"* and *"provides the necessary support and cohesion to sustain the viability of the commercial, retail, office, and institutional uses of the plan"*



Conceptual Master Land Use Plan

"This location is a key destination for large retailers, all levels of eating establishments, housing at various densities, and ancillary medical office space. With all these uses comes the opportunity for hundreds of jobs. These workers will want the chance to live close to their place of employment and utilize services in the same community.

- *JCMH / NC 42 WEST Small Area Plan*





SECTION 3.0 MASTERPLAN SUMMARY

The Development Concept

The Lumen development has been envisioned with consideration to the existing and future needs of the surrounding community with a diverse mix of uses: neighborhood retail services, alternative residential options, as well as lodging and employment opportunities and making those needs a closer reality. Currently, the ~69-acre master plan shows over 700,000 square feet of office/institutional uses, a maximum of 480 units of multifamily residential, up to 140 single family and townhome lots, 120 hotel rooms, as well as 90,000 sq. feet of potential commercial/retail. Of equal importance, the plan promotes connectivity and walkability by incorporating pedestrian facilities throughout the development as well vehicular and pedestrian connection opportunities to surrounding properties. Thus, establishing a framework for interconnectivity as the surrounding properties are considered for potential redevelopment opportunities.

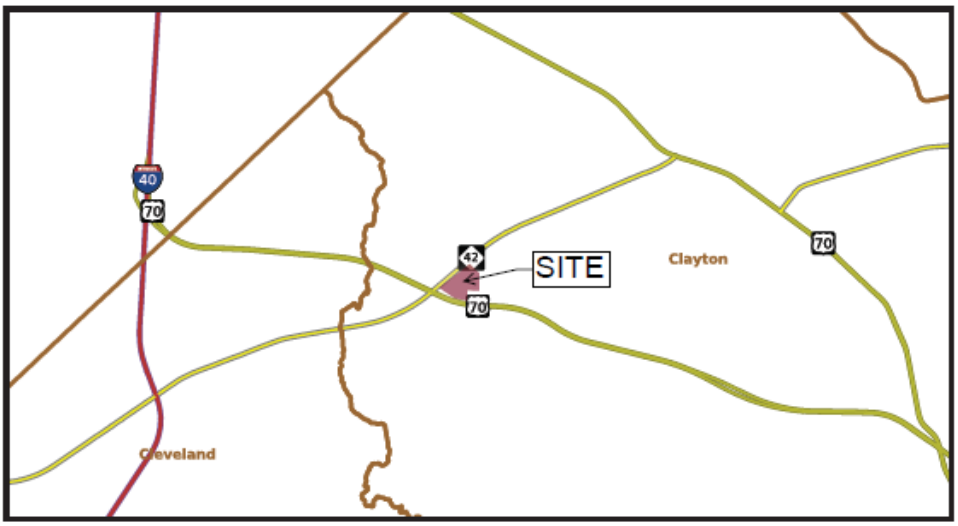
The Masterplan is structured to provide form and framework in the plan but flexibility for developers to bring creativity in response to market conditions and the Town's vision for development and growth.

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

The Development meets the Specific Use standards and Development Standards defined in Articles 3 and 4 of the Town of Clayton Unified Development Ordinance (UDC) by means of the design controls established within. More specifically, the Development Standards will reflect the following:

- Land Use
- Residential and Non-Residential Design Controls
- Key Development Standards
- Architectural Standards
- Landscaping, Buffering and Screening
- Stormwater Management
- Streets and Access
- Vehicular and Pedestrian Circulation
- Utility Infrastructure
- Signage
- General Phasing

Section 4.0 Exhibit A - VICINITY MAP



NOT TO SCALE

PROJECT LOCATION MAP



SCALE: 1"=1000'





Section 5.0 PROJECT DATA:

A. Project Name: Lumen Planned Development District

B. Applicant / Land Planner: Kimley-Horn and Associates
421 Fayetteville St. Raleigh, NC 27601
Contact: Richard Brown, PLA (919) 653-2976
richard.brown@kimley-horn.com

D. Zoning: Existing: RE – Residential Estate
Proposed: PD-Mixed Use

E. Land Use: Existing: Residential; Vacant
Proposed: Mixed Use: Residential / Non-Residential

F. Total Development Area: **69.07 acres**

G. Property Ownership:

Owner 1: Ezra Lee; Paul Scott Penny
PIN **05F02037E** 65.19 ac
Address: 406 Crossway Lane
Holly Springs, NC
27540

Owner 2: Frankie P Medlin
PIN **05F02037B** 1.00 ac
Address: 2219 NC 42 W
Clayton, NC
27520

Owner 3: Langdon, Benny and Seth
PIN **05F02037A** 1.05 ac
Address: 19 Slateford Rd.
Clayton, NC
27520

Owner 4: Langdon, Benny and Seth
PIN **05F02037** 1.83 ac
Address: 19 Slateford Rd.
Clayton, NC
27520

H. Developer/Contract Purchaser: Davis Park Leasing, LLC c/o Craig Davis Properties, Inc.
8000 Weston Parkway, Suite 360
Cary, NC 27513
Contact: Mr. Craig Davis

I. Applicant/Authorized Agent: Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
Contact: Richard Brown, PLA





Section 6.0 PERMITTED USES

The PD-MU Planned Development-Mixed Use district is intended to provide coordinated mixed-use developments which include commercial/retail, office (professional and medical), hospitality, civic, institutional, residential and service uses within a planned development with appropriate perimeter buffering and open space. The variety of land uses available in this district allows flexibility to respond to market demands and the needs of tenants, which provides for a variety of physically and functionally integrated land uses.

This application provides for the following uses to be permitted by right within the Lumen Master Plan, as provided for in the PD Text, and in accordance with the Use table (Table 2-1 § 155.202(B)). The permitted uses for the project, in its entirety, shall be as follows:

6.1 Residential Uses (In accordance with and as defined by standards of Section 155.301)

I. Standard Residential Typologies (Section 155.301)

Residential Uses below shall be allowed in PODS 2-6

A) Accessory Apartment
B) Condominium
C) Assisted Living
D) Congregate Living Facility
E) Duplex
F) Multi-Family or Apartment
G) Nursing or Convalescent Facility
H) Single Family (Front / Alley / Rear Loaded)
I) Townhouse
J) Triplex or Quadplex
K) Upper Story Residence
L) Zero Lot Line Residence

6.2 Non-Residential Uses (In accordance with and as defined by standards of Sections 155.302 – 155.308)

non-residential uses shall not be allowed in residential pods 5 & 6 unless specifically specified otherwise below

I. Public/Civic Uses (Section 155.302)

Public / Civic Uses below shall be allowed in PODS 1-4

A) Ambulatory Healthcare Facility with emergency department
B) Assembly
C) Church, or place of worship
D) College or University
E) Day Care Facility
F) Government Service
G) Hospital / Medical Center
H) School, public or private (Elementary or Secondary)
I) Vocation School (Technical, Trade or Business)
J) Veterinary Clinic or Hospital

II. Recreational Uses (Section 155.303)

Recreational Uses below shall be allowed as listed below

A) Entertainment Indoor *(PODS 1-4)*
B) Entertainment Outdoor *(PODS 1-4)*





C) Park *(PODS 1-6)*
D) Fitness/Recreation facility *(PODS 1-6)*

III. Commercial / Retail Uses (Section 155.305)

Commercial / Retail Uses below shall be allowed in PODS 1-4

A) Lounge, Cocktail
B) Microbrewery
C) Bed & Breakfast
D) Parking Garage, commercial/office
E) Hotel or motel (may include conference center)
F) Barber and beauty shop
G) Book store
H) Restaurant
I) Retail Sales
J) Convenience store
K) Convenience store with gas sales
L) Laundry service, Dry Cleaners
M) Financial institution
N) Funeral home
O) Outdoor Seating/Sidewalk Café
P) Office, General
Q) Office, Medical
R) Publisher

IV. Industrial Uses (Section 155.306):

Industrial Uses below shall be allowed in POD 1

A) Laboratory, Research
B) Manufacturing, Light
C) Research & Development

V. Utility Uses (Section 155.305):

Utility Uses shall be allowed in PODS 1 & 6

A) Communication Tower Commercial
B) Communication Tower – constructed Stealth

VI. Accessory Uses (Section 155.308):

Accessory Uses shall be allowed in PODS as listed below

A) Farmers market *(PODS 1-6)*
B) Food Trucks *(PODS 1-6)*
C) Parking Deck (Commercial) *(PODS 1-4)*
D) Parking Deck (Residential) *(PODS 1-4)*

END OF PERMITTED USES

NON-PERMITTED USES

The following uses will be precluded by the master plan

A) Tattoo Parlor
B) Pawn Shop
C) Adult Oriented Businesses
D) Public storage
E) Manufacturing, Heavy





F) Distribution center
G) Fleet Vehicle Storage
H) Towing Service/Vehicle Storage
I) Junk Yard
J) Warehouse and Freight Movement
K) Open Dump
L) Outdoor gun range
M) Vehicle Repair and Service
N) Building Supplies, Wholesale

Section 7.0 LAND USE INTENSITY AND DESIGN CONTROLS

7.1 Land Use Plan: The approved land uses (per Section 6 - *Permitted Uses*) can be located within the PD as illustrated on ***MP-03*** - *Master Land Use Plan*, outside of defined non-development areas.

7.2 Non-Residential Land Use Controls

VII. Maximum Square Footage

A. *Non Residential Uses* = **800,000** sf*
1. Commercial/Retail: 90,000 square feet (maximum)
2. Office/Medical: 700,000 square feet (maximum)
3. Hospitality: 120 rooms; (maximum)
4. Civic/Public/Conference: 10,000 square feet (maximum) – *may be part of hospitality use*

**Please note: These square footages are maximum estimates only. There is no guarantee that once all applicable code sections are met during site plan approval that this maximum number will be able to be achieved. Furthermore, distribution of these footages within the development may vary. However, the ultimate square footage shall not exceed the maximum above and/or total trip generated in the T.I.A.*

Note: The Planning Department may approve up to a 10 % increase in sf, provided that these increases do not exceed the total trip generation budgets set forth by the TIA.

7.3 Residential Land Use Controls

I. Maximum Residential Units/Lots

A. *Residential Uses* = **620** dwelling units[2]
1. Multi-family Apartments: 400 [3]
2. Condominium: 80 units[3]
3. Townhomes/SF lots: 140[1]

Note 1: All townhomes and single-family lots are anticipated as standalone structures only. Apartments and Condominiums may be standalone or vertically integrated within the upper levels of a mixed-use building.
Note 2: Residential uses may be transferred between pods. However, in no case shall the overall intensity (total dwelling units) of residential development exceed the maximum listed herein, without approval of an amended Traffic Impact Analysis to demonstrate



the adequacy of proposed roadway improvements to accommodate requested increases. Proposed maximums do not include Accessory Dwelling Units.

Note 3: Multi-family apartments and condominiums may be interchangeable.

B. Allowable Residential Use Types:

Residential uses may include those provided for in *Section 6 - Permitted Uses*.

Note: The Planning Department may approve up to a 10 % increase in sf, provided that these increases do not exceed the total trip generation budgets set forth by the TIA.

7.4 Mixed Use Requirements

It is anticipated that **PODS 2 and 3** will include Mixed-Use building(s) which will allow for a mix of residential and non-residential uses arranged vertically or horizontally. Vertical mixed-use buildings, when they occur, shall not be regulated with respect to the mix of uses or location of those uses within each building type but shall meet all other height, dimension, and design controls established in the approved PD documents. Furthermore, it is anticipated that **POD 4** will allow for a mix of residential and non-residential uses. In no case shall the uses surpass the land use intensity and design controls as specified in 7.2 and 7.3 above.

Table ES-1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out	In	Out
210	Single-Family Detached Housing	140	d.u.	709	709	26	78	88	52
221	Multifamily Housing (Mid-Rise)	480	d.u.	1,307	1,307	41	118	122	78
310	Hotel	120	rooms	464	464	32	23	33	31
720	Medical Office Building	700,000	s.f.	13,403	13,403	1,073	189	189	1,071
820	Shopping Center	35,000	s.f.	1,472	1,472	105	64	120	130
850	Supermarket	55,000	s.f.	2,937	2,937	126	84	259	249
Subtotal				20,292	20,292	1,403	556	811	1,611
Internal Capture				*2,893*	*2,893*	*123*	*123*	*201*	*201*
Pass-by Capture				*1,101*	*1,101*	*0*	*0*	*108*	*94*
Net New External Trips				**16,298**	**16,298**	**1,280**	**433**	**502**	**1,316**

Table ES1 – *Trip Generation, from Traffic Impact Analysis*





7.5 Residential Design Controls

Article 4 Design Standards, 155.405 Table of Intensity and Dimensional Standards shall apply to all uses EXCEPT as specifically provided for below. If subsequent revisions to the UDC after approval of the PD result in less restrictive standards, those standards may be then applied accordingly.

Land Use	Access	Min. lot size	Min. lot width	Front setback*	Side Interior setback*	Side Street	Rear setback*	Max. Impervious Coverage %	Max height	Max. density /ac
Single Family Detached	Front Loaded	5,000sf	42’	25’	6’	10’	20’	65%	35’	8-10
Single Family / Zero Lot Line	Front Loaded	5,000sf	42’	25’	0’	10’	20’	65%	35’	7
Single Family	Alley / Rear Loaded	3,500sf	30’	15’	6’	10’	10’	70%	35’	7
Senior living	N/A	NA	NA	25’	20’	15’	25’	70%	65’	NA
Townhouse (2 units)	Front Loaded	8,000sf	NA	25’	25’	10’	10’	70%	35’	14
Townhouses, (3+ units)	Front Loaded	20,000sf	26’	25’	3’	10’	10’	70%	45’	14
Townhouses (attached)	Front Loaded	NA	18’	25’	0’	10’	10’	70%	45’	14
Multi-family, Condos**	N/A	20,000sf	NA	15’	15’	15’	15’	70%	85’	20

** **Internal Setbacks:** there shall be no minimum front or side street setback to internal private street easements.*

*** Podium deck shall be allowed for ground floor of condominium and Multi-family uses*

7.6 Non-Residential Design Controls

Article 4: General Development Standards 155.405 Table of Intensity and Dimensional Standards shall apply to all uses EXCEPT as provided for below. In the event that revisions to the UDC after approval of the PD result in less restrictive standards, those standards may be then applied accordingly.

Land Use	Min. lot size	Min. lot width	Front setback	Side setback	Rear setback	Max. built-upon area[2]	Max height[3]	Max. Density[1]
Commercial	NA	NA	10’	10’	20’	70%	45’	15k sf/Ac
Retail	NA	100’	10’	10’	20’	70%	45’	15k sf/Ac
Office/Medical[4]	NA	100’	0’	0’	20’	70%	145’	65k sf/Ac
Hotel	NA	100’	10’	0’	20’	70%	145’	-----
Mixed Use Bldgs.	NA	100’	0’	10’	0’	70%	75’	20k sf/Ac





1) Nonresidential design controls shall be in accordance with Section 155.405 Table of Design Standards – Non-residential and Multi-family Residential except *that Staff may approve, at Site Plan application, alternate standards to encourage high density, mixed-use product types.*

2) Actual built-upon area shall be determined for each development pod/parcel and accounted for the entire development with the final site plan application.

3) Certain architectural elements (project identity features, towers, spires, etc.) may surpass land use height limits, but in no case shall they surpass 20' feet above the maximum allowable POD heights.

4) In some cases, Office/Medical buildings may have retail and commercial uses on the ground/street level.

7.7 Landscaping, Buffering and Screening:

The proposed landscaping is an important and unifying element throughout the Lumen development the following outlines basic elements and areas of special consideration. Where landscaping is not specified herein, development shall comply with the required Landscaping Regulations under Section 155.402 of the UDC.

STREET PROTECTIVE YARDS ALONG NC HWY 42: To enhance thee street frontage following NCDOT's construction of the NC 42 widening, the developer will provide a minimum of twenty (20') foot wide Class 'C' street yard for all uses in Pods 1, 2 & 4 along the NC 42 frontage. Street yard plantings for areas along the frontage shall be installed at rates for trees and shrubs. In addition to the plantings, shall be a berm, 4' in height, with a continuous evergreen hedge with a minimum height of 2' for a combined height of 6'. This 20' wide street yard will also be designated and credited toward the open space for the overall development.

All portions of the PD district shall meet Section 155.402 of the UDC, Landscaping, Screening and Buffering unless specifically provided for within and provided that the Planning Director may approve a reduction or elimination of required buffers or screening between uses for mixed use parcels at the time of individual site plan submittals.

Specific buffer standards are included in the PD as provided for in Section 155.402 of the UDC, Landscaping, Buffering and Screening and as identified on the Master Land Use Plan ***MP-03***.

Neighborhood Transitions: A 70' wide neighborhood transition zone will be provided in Pod 4 (See MP-03) adjacent all residential properties. Height within this transition zone shall be limited to a base height of 45'. Uses allowed within POD 4 and may have a maximum height of 145', however, in no case shall the height exceed 45' within the neighborhood transition zone as shown on the master plan.





Section 8.0 PARKING AND LOADING REQUIREMENTS:

Except where variations are prescribed within this section and approved as part of this PD, Parking and Loading for all uses included in The Development shall comply with Article 4: **Section 155.401.**

OFF-STREET PARKING TABLE 10.1 *(variations from Section 155.401)*

Residential Uses	Parking Ratio	Bike Parking Ratio
• Multi-family - 1BR	1 per DU	1/50 units
• Multi-family- 2 or more BR	1.5 per DU	1/50 units
• Congregate Living/Nursing Home	.5 per unit or bed	1 rack/building
• Assisted living/Sr. Care	1 per DU	1 rack/building
• All other	2 per DU	N/A

Non-Residential Uses	Parking Ratio	Bike Parking Ratio
• Commercial/Retail	1 / 250 sf	1/50 auto spcs (max. 30)
• Office General	1/300 sf	1/40 auto spcs (max. 50)
• Office Medical	1/300 sf	1/40 auto spcs (max. 50)
• Hotel/Motel	1 per room	1/20 auto spcs (max. 10)

In addition, staff may approve further reductions in parking standards with an approved shared use parking analysis that supports a lower demand and demonstrates that a reduction in parking standards can adequately serve both residential and non-residential uses in a contiguous mixed-use environment.

Notes:

1. The provision of parking spaces and passenger loading areas for persons who have disabilities shall be governed by the Americans with Disabilities Act (ADA) Standards for Accessible Design.
2. In addition to the parking requirements of UDC Table 10.1, Minimum Off-Street Parking Requirements, uses with company vehicles shall provide 1 space per company vehicle.
3. The Planning Director may reduce the required number of parking spaces by up to 10% for reasons of topography, tree preservation, mixes of uses, ride sharing programs, availability of transit, or other conditions specific to the site, provided that the reduction in the required number of parking spaces satisfies the intent of the UDC.
4. The Planning Director may reduce the required number of bike racks, provided that the reduction in the required number of spaces satisfies the intent of the UDC.





Section 9.0 ARCHITECTURAL STANDARDS:

Architectural Standards

1. Non-Residential Uses

I. Proposed Non-Residential Materials

Materials shall include, but not be limited to, the following:
A. Brick or simulant;
B. Stone or simulant;
C. CMU products; no smooth faced or painted CMU is permitted; it shall be textured and integrally tinted.
D. E.F.I.S (to be used as trim or accent only) and;
E. Glass

At the time of Site Plan submittal, preliminary elevations and a materials board shall be submitted to the Town of Clayton for review and approval. At the time of a Building Permit application, if a materials palette changes, an amendment to the site plan will be required.

II. Building Elevations

All building elevations which are facing primary elements and roadways will include recessed and projected facades which will prevent large, overbearing storefronts. Each building will be required to provide architectural characteristics that are complimentary to primary facades on all sides of the building.

For Mixed-use and Office Building which abut public streets and are greater than 100 feet in length shall have first floor facades with storefronts/glazing that occupy a minimum of 60% of the wall area fronting the public street.

Throughout each non-residential development, a complimentary color palette shall be used to ensure harmonious design throughout.

Retail buildings shall have a greater area of openings (storefronts and entrances) on the ground floors and may have design elements such as solid parapets above.

Mixed Use or office and institutional buildings will have more glass at ground level and less on upper levels.

Special windows, window groupings, as well as a mixture of large and small windows could be used to create a hierarchy of importance on a building, especially at entrances.

Parapets shall have returns that are at least 50% of the width of the parapet.

All screening requirements shall be met as stipulated in the Clayton U.D.O. with regards to waste disposal, loading areas, and so forth.

III. Building Orientation

Buildings shall be oriented to help define a street and to frame street corners, which will encourage pedestrian activity and define spaces.



2. Residential Uses

I. Proposed Residential Materials

Materials shall include, but not be limited to, the following:
A. Brick or simulant;
B. Stone or simulant, and;
C. Stucco (to be used as trim or accent and will not be used as a primary material);
D. Wood siding, cement fiber siding (Hardi-plank), and Wood composite (Smart side).

At the time of Site Plan submittal, preliminary elevations will be submitted for review and approval. At the time of Building Permit application, a materials board shall be submitted to the Town of Clayton for approval.

IV. Parking Deck Elevations

All parking decks contained within the development shall be compatible with surrounding buildings. Facades visible from public streets shall unify the deck with the façade treatments for the building/uses it supports. Where feasible, retail and office may be incorporated into the street levels of any parking decks. Parking structures may be integrated as part of other building uses or may be stand-alone. If Stand-alone, the deck façade treatments shall unify the deck as noted above.

Section 10.0 SIGNAGE:

All signage within The Development shall comply with the signage requirements as set forth in Section155.403, Signs, of the Town of Clayton Unified Development Code. Individual Signage Plans shall be submitted as part of the individual plan approvals for the various development tracts within The Project.

Section 11.0 STORMWATER MANAGEMENT:

Most of the site area is cleared open land and currently drains to nearby and ponds and drainage channels internal to the site (***MP-01*** *Existing Conditions*). The proposed development will require storm water management measures for quality and quantity treatment in accordance with the Town of Clayton Stormwater Design Manual. A network of subsurface reinforced concrete pipes will convey storm water flows from impervious areas to proposed Stormwater Control Measures (SCMs). Locations for the SCMs shall be identified during final infrastructure design. All stormwater management will be required to meet all North Carolina Department of Environmental Quality (NCDEQ) and Town of Clayton design requirements at time of infrastructure plan submittal.





Section 12.0 NATURAL RESOURCE AND ENVIRONMENTAL PROTECTION:

I. Watershed Information:

The subject property is located within the Neuse River Watershed District.

II. FEMA Floodplain

There is no FEMA floodplain located on the subject property per FIRM Map 3720164800K, Panel: 1648, effective June 20, 2018.

The Development shall comply with the applicable regulatory standards of the Town's UDC as amended related to natural resource and environmental protection and the provisions of the PD.

III. Environmental Findings:

Kimley-Horn conducted an environmental wetland and buffer delineation report (Appendix G). The preliminary findings of this report have preliminarily mapped wetlands and any jurisdictional features present on the subject property. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by NCDENR and the Army Corps of Engineers prior to development.

IV. Resource Conservation Areas:

Per UDC Section 155.500 Resource Conservation Areas, these environmental areas may not be occupied by buildings or other impervious surface areas associated with development impacts exceeding 5% of each Resource Conservation Area.

The proposed master plan (sheet MP-03) will require limited impacts to these RCAs. Proposed impacts shall be limited to public streets and pedestrian walkways (sidewalks, multi-use paths, etc) such that wetland disturbance does not exceed ½ acre as required by the US Army Corps of Engineers. These impacts are necessary in order to serve the public benefit of the overall development as well as surrounding land areas which will be offered public access through the property. However, in no case shall private buildings, structures, parking, or other impervious surfaces impact greater than 5% of any resource conservation area.





Section 13.0 PUBLIC FACILITIES:

All public facilities improvements shall be designed and installed in compliance with the Town of Clayton Ordinance, Chapters 50-52. Each of the major infrastructure elements is described below:

13.1 Sanitary Sewer Service

Refer to ***MP-06*** for a conceptual utility plan of the sewer infrastructure required to service the Development. There is an existing 8" force main within NC 42 along the project frontage, operated by the County. The project is anticipated to be developed in multiple phases (refer to exhibit ***MP-04***). The site will drain by gravity to a proposed pump station. This pump station will connect by force main into the existing 8" force main within NC HWY 42 or will extend to a point of connection within the Walnut Creek Collection Area. The phasing of the project and capacity limitations of the Johnston County and Town of Clayton infrastructure will determine the appropriate point of connection for the proposed force main.

Given the current capacity limitations in the Town's existing sanitary sewer infrastructure, it is understood that the phasing of the development may be subject to available capacity at the time of the initial subdivision/development plan for the property. The Town is currently planning to add treatment capacity by 2023 and will prioritize this proposed development. Average daily Sewer flows based on the proposed land uses and projected intensities are expected to be between 250,000 - 400,000 GPD.

Based on currently estimated flows and existing infrastructure, the proposed pump station is anticipated to be required in Phase 1 of the development (based on ***MP-04***). The pump station and force main within the site will be the responsibility of the developer/applicant and will need to be sized based on project flows associated with actual development project(s) at the time of Subdivision application. Responsibilities for cost and construction of potential off-site force main upgrades or new force main infrastructure may be shared between the Town and the development. Actual demand and sewer infrastructure improvements by phase shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

13.2 Water Service

Refer to ***MP-06*** for a preliminary master utility plan. Water services exist along the property along the NC Highway 42 frontage. Water services will be connected to the existing main and looped through the property via a public main. The size and specification of water infrastructure shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

Based on anticipated domestic and fire flow demands of the development, an elevated water tower may be required for this area prior to the completion of the full build-out of this development. Coordination with the Town of Clayton and Johnston County Utilities will determine the location and sizing of the water tower. The design and construction of the water tower will be a public project in order to serve the growing demands of the area. No land area is being reserved on the subject property for construction of this facility.

13.3 Gas & Electric Service

The Development is in the natural gas service area of Piedmont Natural Gas. The service provider will require a revenue analysis be completed based on the proposed development to determine the applicable costs to the developer for installation of infrastructure.

For areas with existing electrical infrastructure, the developer will have a choice of service provider. It is anticipated that the major power distribution on the site perimeter will be standard overhead lines along public streets and internal services will be installed underground along the proposed private roadway infrastructure.





13.4 Streets/Roads:
The Development will require improvements to develop a new internal roadway network and external points of access in accordance with the recommendations of the final Development Transportation Impact Analysis and as approved by the NCDOT. Roadway improvements required to support the PD may include both public and private streets. The street network is shown on ***MP-04*** - *Blocking Framework and Phasing Plan*. Also, urban street typologies have been proposed on ***MP-07*** *Urban Street Typologies*. The street network is conceptual and subject to change pending final design. Public right of way dedication will be required for some internal public streets. All new streets (public and private) shall be in accordance with ***MP-07*** street sections and shall be constructed to public street standards of the Town's Engineering Design Manual.

Access: A total of two (2) access points are identified on ***MP-03*** – *Master Land Use Plan*. Final engineering plans for driveway access will be developed in conjunction with individual site plan applications or as provided for in the ***MP-04*** *Blocking Framework and Phasing Plan*.

Future Cross Access: It shall be a condition of the PD that if and when NCDOT takes action to close access to the below referenced parcels from NC Hwy 42 that an offer of cross access to connect to these parcels to the internal street network via an executed access easement to a common property line be made in a timely manner in coordination with the proposed action by NCDOT. In the event that the referenced parcels are recombined or sold to another party in the future, the requirement for cross access only applies to the resulting parcels without a means of access to NC 42.

1. ***Parcel 05G03071*** (*currently Matthew R. and Maureen Pooley*)
2. ***Parcel 05G03071O*** (*currently Page, Alice David*)
3. ***Parcel 05G03071N*** (*currently Matthew R. and Maureen Pooley*)
4. ***Parcel 05G03066*** (*currently Merriman, Jason T. and Kelsey*)
5. ***Parcel 05F02037H*** (*currently Blinson, Benjamin G. and Trude*)
6. ***Parcel 05F02037J*** (*currently Sanders, Courtney*)

13.5 Greenways: The PD will provide easements for Town of Clayton greenways generally consistent with the current Parks and Recreation Master Plan and specifically as shown on ***MP-03***. This greenway shall be constructed at the time of development. Additionally, an internal multi-use path will be provided connecting the development pods to the greenway along NC-42 (***see MP-03***).

13.6 Public Transit: Because the Master Plan is conceptual in nature, no definitive solutions for transit service can be offered at this stage. As the plan develops, with specific uses and the internal street network, specific transit opportunities can be explored with the Town of Clayton. Ultimately, the pedestrian network will provide direct pedestrian links between residential and non-residential uses and can do so to any future designated transit stops provided as well.





Section 14.0 PHASING:

OVERALL PHASING:

Schedules for the ultimate phasing of plans, permits and construction for the project will be dependent on market forces and requirements for infrastructure improvements. Initial phases of the development will require extensions of public streets, water and sanitary sewer systems. Areas along existing NC Hwy 42 will likely be the first to be developed. At the current time, Phase I includes all of POD 3 (see ***MP-04*** – *Blocking Framework and Phasing Plan)*. However, smaller phases may be created and approved by the staff. The referenced phase numbers on the Phasing Plan do not necessarily represent the exact sequence of development. Unless specifically stated herein and with the approval of the Planning Department, the developer retains the right to reconfigure the phases based on market forces and infrastructure needs. The wastewater treatment plant is anticipated to be online by early 2023.

Off-Site Roadway Improvements:

1. A traffic impact analysis (TIA) for the entire development is in review by the town of Clayton and the NCDOT. Recommendations for access and roadway improvements required to support the entirety of the proposed development program are included in the TIA.

2. Agreed upon access and roadway improvements necessary to support each development tract, must be in place prior to the initial certificate of occupancy (CO) for each respective phase or tract associated with those improvements unless an alternate trip threshold analysis is provided. All phasing improvements are subject to final approval from NCDOT.

Phasing of Utility Infrastructure Improvements: Utility infrastructure is anticipated to occur as shown on ***MP-06*****.**

1. Sanitary sewer mains will be extended on an as needed basis from the proposed pump station to serve portions of the property. The need for a new pump station will be evaluated and constructed as needed to serve the PD. This study will occur in conjunction with the subdivision or Site Plan applications for development plans in the basin served by this pump station.

2. Water service will be provided from the existing 16" main within Highway 42 as property frontage develops. At such time that water flows require that a looped system be established, water will be looped through the property and connected to Highway 42. The Town of Clayton has identified a site for a future water tower. This water tower will further increase the water capacity for serving the site.

Phasing of Streetscape Improvements:

1. Street improvements will be constructed in up to 4 phases ***(See MP-04 & MP-05)***. This phasing is general in nature and the order of phasing may be revised as development occurs.

2. Landscaping associated with required streetscape improvements shall be installed along, and limited to, the frontage of each development tract adjacent to NC Highway 42 and internal public streets in conjunction with each respective subdivision or Site Plan application.

Phasing of Buffer Plantings: Buffer plantings, where required to meet Class 'C' Buffer standards, shall be planted in conjunction with, and limited to the development tract frontage, for each approved subdivision or Site Plan application sharing a property line with residential parcels along the east property boundary.





Section 15.0 CONSISTENCY WITH TOWN PLANNING – LAND USE PLAN:

Rezoning Approval Criteria:

15.1 Consistency with the adopted plans of the Town.
This Master Plan proposal is consistent with adopted plans of the Town of Clayton.

This assemblage is part of the JHMC NC 42 West Area Plan that was adopted by the Town in November 2007. As part of this plan, this parcel is designated mixed use and is intended to have high quality uses and a wide variety of both residential and non-residential uses for the surrounding area.

15.2 Suitability of the subject property for uses permitted by the current vs. the proposed district.
The property is uniquely situated at a major gateway intersection with two of the Town's major transportation corridors. Land uses are conducive to the location and supported by traffic and compatible with the development patterns. The size of the assemblage and proposed infrastructure will also support the proposed mix of uses, with retail, office/institutional, public/civic, townhomes and even congregate care being proposed.

15.3 Whether the proposed change tends to improve the balance of uses or meets specific demand in the Town.
This parcel is designated by the Future Land Use Map as Neighborhood Center and is intended to have high quality uses and a wide variety of both residential and non-residential uses balancing the demands of the surrounding area. This request takes that into full consideration. The applicant will hold neighborhood meetings with surrounding neighborhoods and landowners to ensure that, to the greatest extent possible, the reasonable needs of the surrounding community are met.

15.4 The capacity of adequate public facilities and services including schools, roads, recreation facilities, wastewater treatment, potable water supply and stormwater drainage facilities is available for the proposed use.
Adequate public facilities, including existing and proposed roads, existing and proposed wastewater treatment, existing and proposed potable water and existing/proposed stormwater infrastructure are either existing or will be improved to meet the demands of the proposed uses.

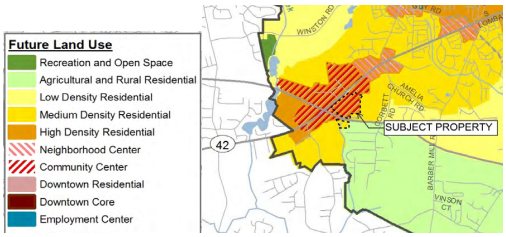
15.5 It has been determined that the legal purposes for which zoning exists are not violated.
The proposed zoning does not violate the legal provisions of the Town's Code.

15.6 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.
The proposed zoning does not adversely affect the adjoining properties and property owners.

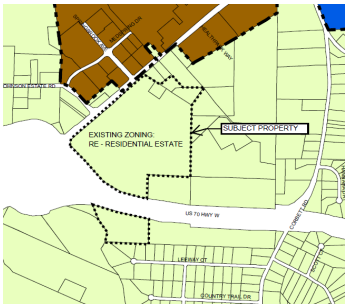
15.7 It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.
The proposed zoning does not result in one property owner or small group of property owners to the detriment of the general public.

U.D.O. Consistency Statement

Unless otherwise stated in this document, all other applicable portions of the Clayton UDC shall be adhered to.



Appendix B: FLUM – Future Land Use Map



Appendix C: Official Zoning Map (Amended April 2, 2018)

Section 16.0 AMENDMENTS AND APPROVALS

16.1 Property Owner Changes

Only parties owning property within the Lumen PD shall have the right to amend this PD and the Plans and Exhibits hereto, but only to the extent any such amendment applies to individual properties owned by such parties. Any property owners' association owning and/or maintaining common open space and/or landscape amenities must join in all amendments to this PD.

16.2 Town Approval of Changes

Amendments to this Master Plan may be required from time to time. Any future, proposed amendments shall be reviewed and approved in accordance with the requirements of Article 7 of the Unified Development Code.

The Planning Director may approve up to a 10 % increase in sf, provided that these increases do not exceed the total trip generation budgets set forth by the TIA.

END OF PD TEXT



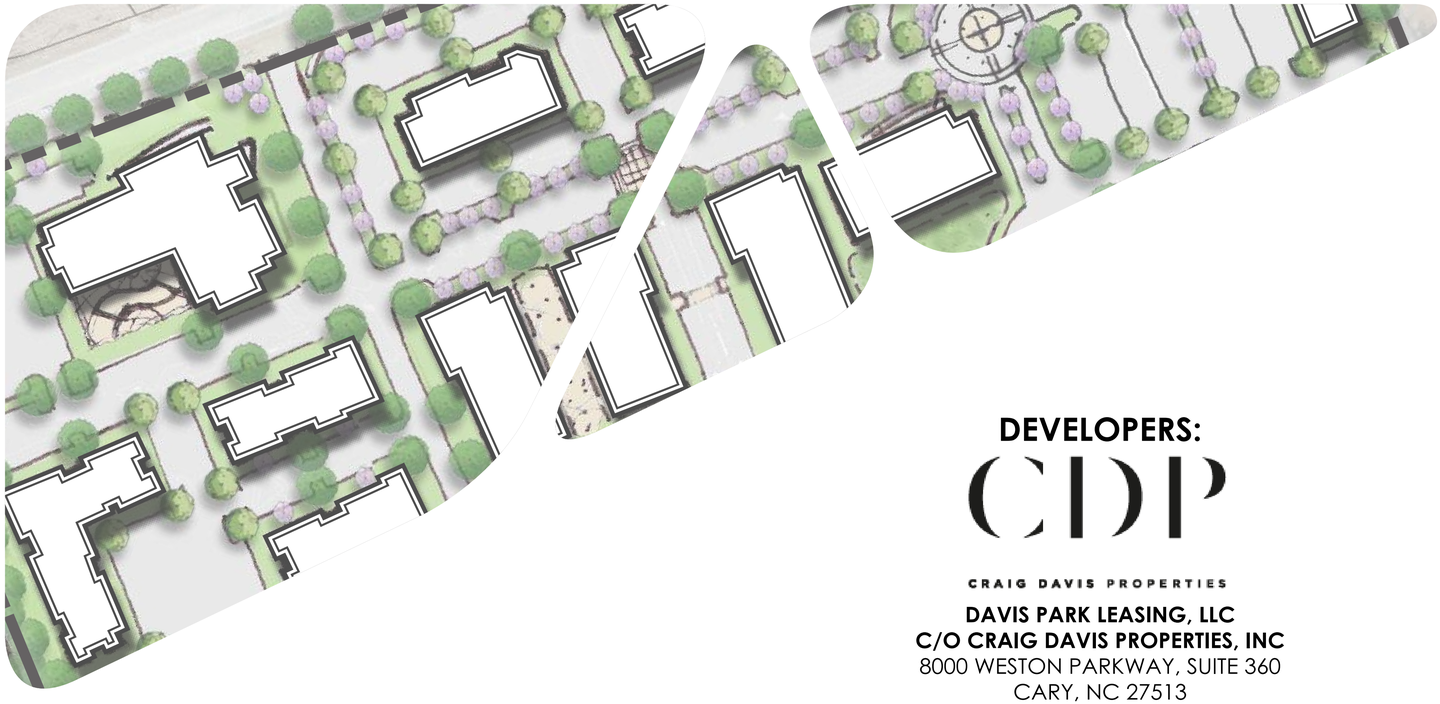


Appendix E Property Ownership / Adjoiners

Parcel ID Number	Property Owner Name	Address
05G03199L	Stanley, Russel C	1028 Breeze Lane
05G03071N	POOLEY, MATTHEW R	2219 F NC HIGHWAY 42 W
05G03066	MERRIMAN, JASON T.	2219D NC HIGHWAY 42 W
05F02037H	BLINSON, BENJAMIN G	2219-I NC 42 WEST
05F02037J	SANDERS, COURTNEY	2219 NC HIGHWAY 42 W UNIT J
05F02037G	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03072A	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03073A	JERRY M COATS AND PHYLLIS G COATS TRUST	2149 NC HWY 42 WEST
05F02037D	JP COATS LLC	2150 NC HWY 42 WEST
05F02037C	JP COATS LLC	2151 NC HWY 42 WEST
05F02035G	UACFE LLC	12 LAFOY DRIVE
05F02035F	BODDIE-NOELL ENTERPRISES, INC.	PO BOX 1908 Rocky Mount, NC 27802
05F02035H	UACFE LLC	12 LAFOY DRIVE
05F02035A	SPRING BRANCH SQUARE, LLC	303 PARKRIDGE DR
05F02036	SPRING BRANCH PLAZA LLC	PO BOX 1559 WAKE FOREST, NC 27588
05F02035D	MALLIPADDI, PRAMOD	4807 CHESTNUT GROVE DRCHAMPAIGN, IL 61822
05F02035	PARMAR, AMRUTLAL	388 BROADMOOR WAY
05G03199B	JOHNSON, NETTIE ERDINE	2740 NC HIGHWAY 42 W
05F02038	NC DEPT OF TRANSPORTATION	PO BOX 3165 WILSON, NC 27895
05G02195B	JP COATS LLC	2149 NC HWY 42 WEST
05G03066X	MENDEZ, SELVIN OMAR	148 LEEWAY CT
05G03067S	COLPETZER, KEITH E	144 LEEWAY CT
05G03068G	TORREZ, GIRELDA PAOLA MEJIA	140 LEEWAY CT
05G03067C	CONYERS, JOHNNIE L	136 LEEWAY CT
05G03199H	TAP PROPERTIES LLC	273 D BLUE POND RD



Appendix F Owner Authorization Forms



LUMEN

PLANNED DEVELOPMENT MASTER PLAN

PREPARED FOR: TOWN OF CLAYTON, NC

TOWN PROJECT NUMBER: 2020-103-PD-MU

revision date: 08/17/2020

revision date: 11/04/2020

revision date: 12/04/2020

revision date: 01/29/2021

revision date: 09/10/2021

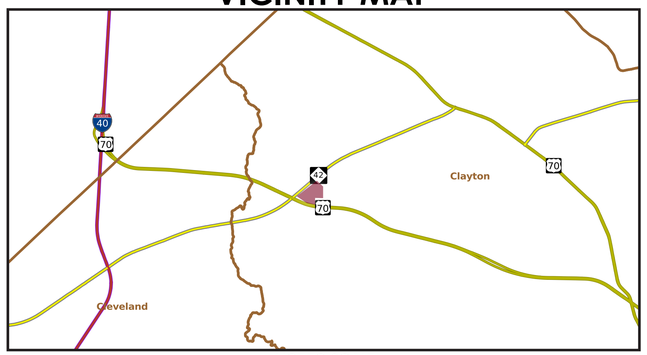
DEVELOPERS:

CDP

CRAIG DAVIS PROPERTIES

DAVIS PARK LEASING, LLC
C/O CRAIG DAVIS PROPERTIES, INC
8000 WESTON PARKWAY, SUITE 360
CARY, NC 27513
craig.davis@craigdavisproperties.com

VICINITY MAP



NOT TO SCALE

MASTER PLAN SHEET INDEX:

MP-01 ..... EXISTING CONDITIONS
MP-02 ..... EXISTING SITE BOUNDARY SURVEY
MP-03..... MASTER LAND USE PLAN
MP-04..... BLOCKING FRAMEWORK & PHASING PLAN
MP-05..... PROJECTED ROAD PHASING IMPLEMENTATION PLAN
MP-06..... CONCEPTUAL UTILITY PLAN
MP-07..... URBAN STREET TYPOLOGIES

APPLICANT / LEAD CONSULTANT:

Kimley»Horn

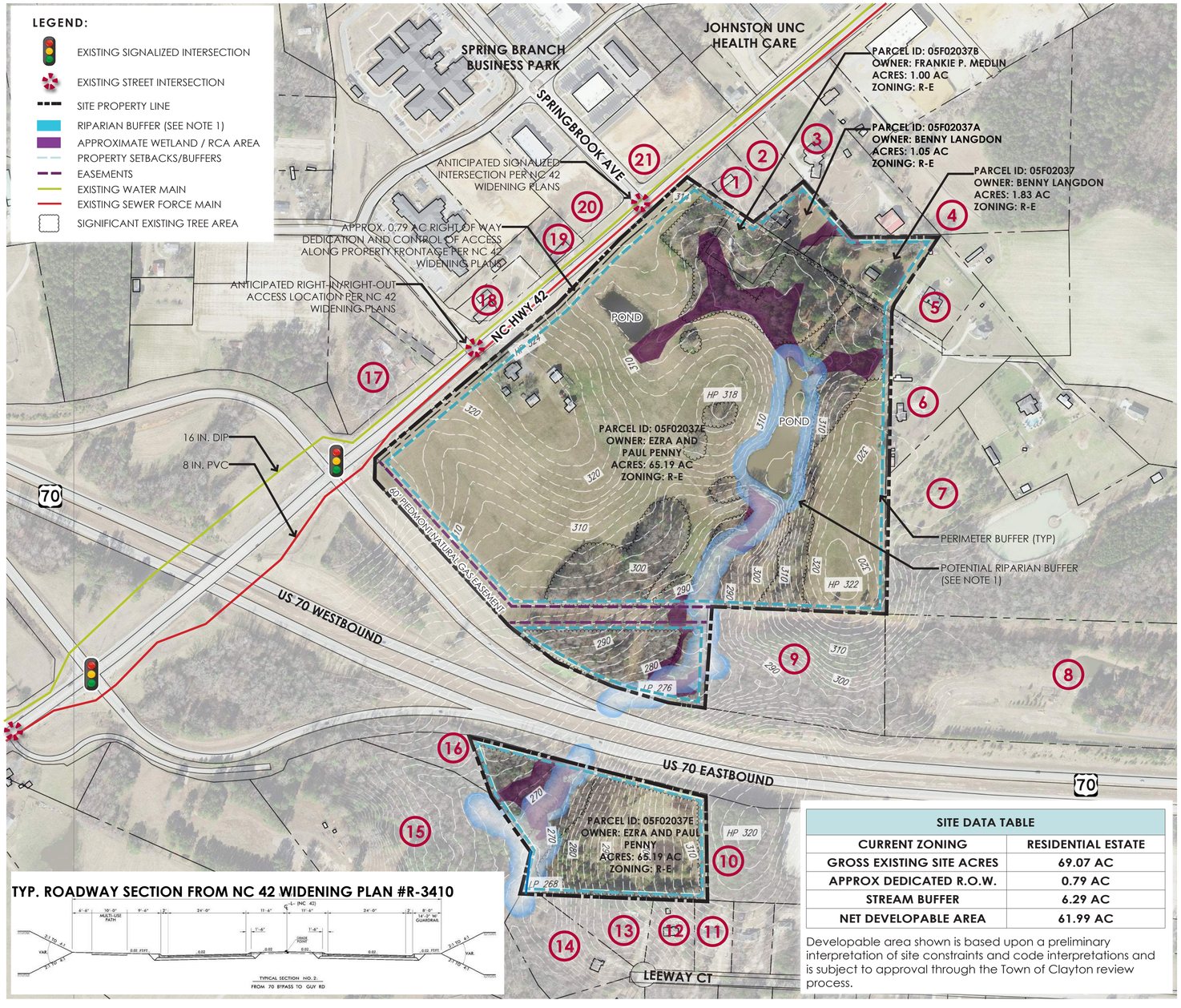
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
P (919)677-2000
F (919)677-2050
NC CERTIFICATE OF AUTHORIZATION: F-0102





PROJECT LOCATION MAP





TYP. ROADWAY SECTION FROM NC 42 WIDENING PLAN #R-3410

SITE DATA TABLE	
CURRENT ZONING	RESIDENTIAL ESTATE
GROSS EXISTING SITE ACRES	69.07 AC
APPROX DEDICATED R.O.W.	0.79 AC
STREAM BUFFER	6.29 AC
NET DEVELOPABLE AREA	61.99 AC

Developable area shown is based upon a preliminary interpretation of site constraints and code interpretations and is subject to approval through the Town of Clayton review process.

ADJOINING PROPERTIES:

1. PROPERTY OWNER: JP COATS LLC
PIN: 4881
ZONING: R-E
USE: RESIDENTIAL

2. PROPERTY OWNER: JP COATS LLC
PIN: 6817
ZONING: R-E
USE: RESIDENTIAL

3. PROPERTY OWNER: JERRY M. COATS AND PHYLLIS G. COATS TRUST
PIN: 9811
ZONING: R-E
USE: RESIDENTIAL

4. PROPERTY OWNER: JAMES H WOOTEN SR.
PIN: 3888
ZONING: R-E
USE: RESIDENTIAL

5. PROPERTY OWNER: COURTNEY SANDERS
PIN: 2367
ZONING: R-E
USE: RESIDENTIAL

6. PROPERTY OWNER: JASON T. MERRIMAN
PIN: 2010
ZONING: R-E
USE: RESIDENTIAL

7. PROPERTY OWNER: MATTHEW R. POOLEY
PIN: 6369
ZONING: R-E
USE: RESIDENTIAL

8. PROPERTY OWNER: JOSEPH CHRISTOPHER JOHNSON
PIN: 7856
ZONING: R-E
USE: RESIDENTIAL

9. PROPERTY OWNER: RUSSEL STANLEY
PIN: 7932
ZONING: R-E
USE: VACANT

10. PROPERTY OWNER: TAP PROPERTIES LLC
PIN: 3154
ZONING: R-E
USE: VACANT

11. PROPERTY OWNER: JOHNNIE L. CONYERS
PIN: 2849
ZONING: R-E
USE: RESIDENTIAL

12. PROPERTY OWNER: GIRELDA PAOLA MEJIA TORREZ
PIN: 2849
ZONING: R-E
USE: RESIDENTIAL

13. PROPERTY OWNER: KIETH E. COLPETZER
PIN: 9966
ZONING: R-E
USE: RESIDENTIAL

14. PROPERTY OWNER: SELVIN OMAR MENDEZ
PIN: 8860
ZONING: R-E
USE: RESIDENTIAL

15. PROPERTY OWNER: JP COATS LLC
PIN: 2187
ZONING: R-E
USE: RESIDENTIAL

16. PROPERTY OWNER: NC DEPT OF TRANSPORTATION
PIN: 5269
ZONING: R-E
USE: RESIDENTIAL

17. PROPERTY OWNER: AMRUTLAL PARMAR
PIN: 1102
ZONING: R-E
USE: RESIDENTIAL

18. PROPERTY OWNER: SPRING BRANCH PLAZA LLC
PIN: 5397
ZONING: B-3
USE: COMMERCIAL

19. PROPERTY OWNER: SPRING BRANCH PLAZA LLC
PIN: 6554
ZONING: B-3
USE: COMMERCIAL

20. PROPERTY OWNER: UACFE LLC
PIN: 8797
ZONING: PD-MU
USE: VACANT

21. PROPERTY OWNER: BODDIE-NOELL ENTERPRISES, INC.
PIN: 1925
ZONING: PD-MU
USE: VACANT

EXISTING CONDITIONS NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. All base data has been provided by Johnston County GIS and shall be confirmed with a topographic and boundary survey prior to development of construction drawings.
3. This diagram does not consider subsurface conditions such as utilities, unsuitable soils, rock or other elements that may influence the detailed design or the location of infrastructure. A preliminary soils, geotech or similar investigation should inform the final design.
4. Right-of-way dedication as well as control of access is proposed along the property frontage per NC 42 Widening Plan (Project #R-3410).
5. Adjacent property information based on Johnston County Register of Deeds.
6. Planometric information based on publicly available information from the Johnston County Geographical Information Systems Database.
7. Topographic information based on publicly available information from the Johnston County Geographical Information Systems Database.
8. All easement information shown is per publicly available information from the Johnston County Geographical Information Systems Database.
9. Per FIRM Map 3720164800K, Panel: 1648, there are no FEMA floodplains located on the subject property. See Section 12 of the masterplan narrative for more information.

0 100 200 400

Kimley»Horn

preliminary not for construction

preliminary not for construction

REV DATE	SHEET
8.17.2020	
11.04.2020	
12.04.2020	
1.29.2021	MP-01
9.10.2021	

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

EXISTING CONDITIONS SITE INVENTORY

JULY 1, 2020

SITE DATA TABLE

PARCEL #	PARCEL ID	NCPIN#	OWNER	REFERENCE	NET AREA SQ FT (AC)
1	05F02037E	164800-72-2724	EZRA LEE PENNY, ET AL	DB 5585, PG 167	2,839,523 (65.19)
2	05F02037B	164800-73-4448	FRANKIE P MEDLIN	DB 810, PG 24	43,533 (1.00)
3	05F0237A	164800-73-6660	BENNY LANGDON, ET AL	DB 676, PG 216	45,787 (1.05)
4	05F02037	164800-83-0418	BENNY LANGDON, ET AL	DB 957, PG 612	79,673 (1.83)

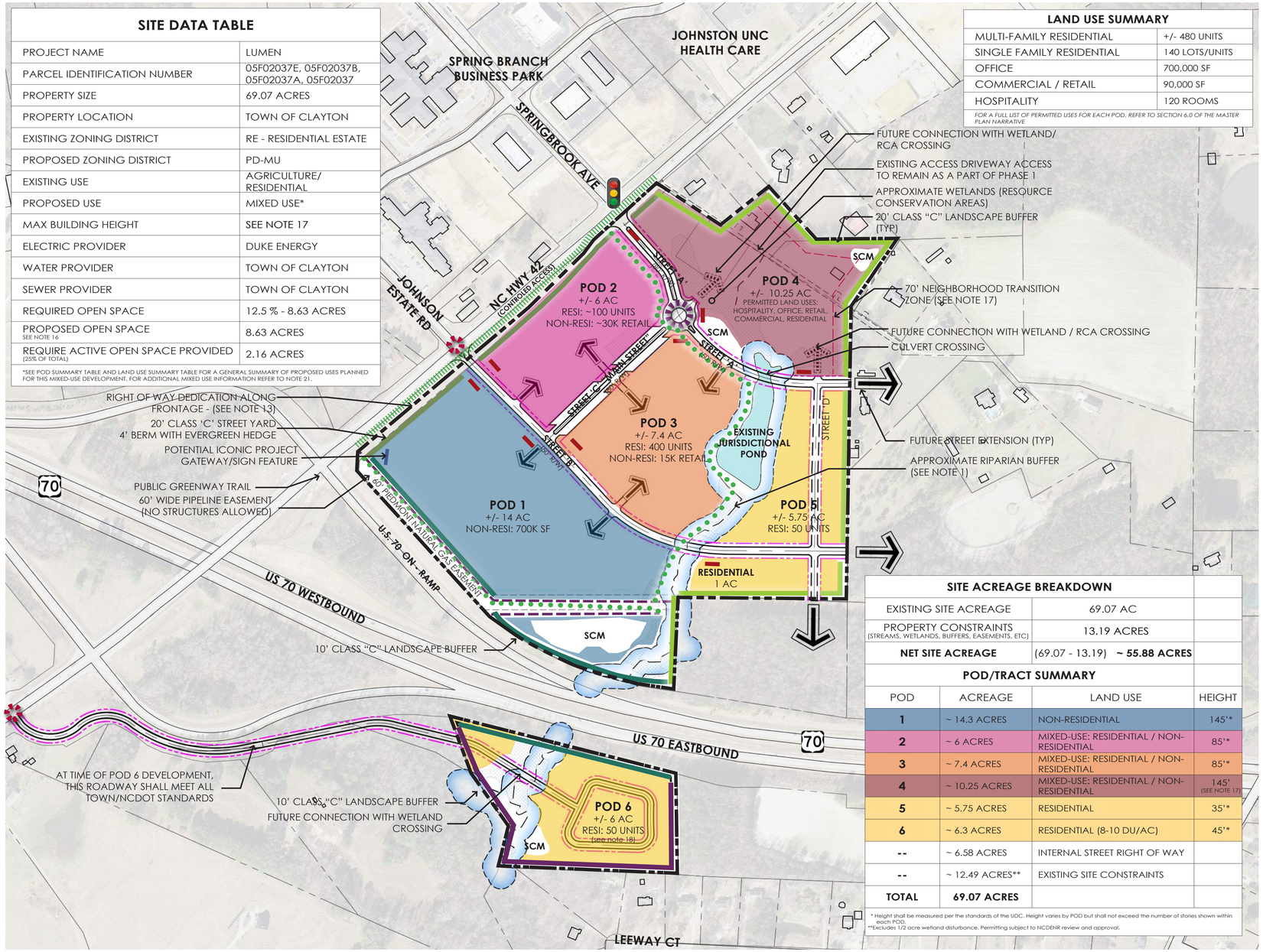
GENERAL NOTES

1. THIS IS A SURVEY OF AN EXISTING PARCEL(S) OF LAND. THIS IS A BOUNDARY SURVEY.
2. ALL MONUMENTS WERE FOUND WITHIN 0.2' OF PLAT AND RECORD UNLESS NOTED.
3. NO NCGS MONUMETS WERE FOUND WITHIN 2000 FEET OF THIS SITE.
4. ALL DISTANCES ARE HORIZONTAL GROUND.
5. ZONING: R-C (RESIDENTIAL CENTER)
   SETBACKS: FRONT: 35'; SIDE: INTERIOR: 15'; SIDE STREET: 25'; REAR: 30'
   BUILDING HEIGHT: 6-1/2"
   MINIMUM LOT WIDTH: 100'
6. PROPERTY ADDRESS: 2375 NC HWY 42, CLAYTON, NC 27520
7. BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE "X" AND ZONE "A" (NO BASE FLOOD ELEVATIONS DETERMINED) OF THE SPECIAL FLOOD HAZARD ZONE "X" AS DEFINED BY F.E.M.A.'S FLOOD INSURANCE RATE MAP, #3720154600 J (EFFECTIVE DATE: MAY 2, 2006) FOR JOHNSTON COUNTY, NORTH CAROLINA, COMMUNITY PANEL

SITE DATA TABLE

PROJECT NAME	LUMEN
PARCEL IDENTIFICATION NUMBER	05F02037E, 05F02037B, 05F02037A, 05F02037
PROPERTY SIZE	69.07 ACRES
PROPERTY LOCATION	TOWN OF CLAYTON
EXISTING ZONING DISTRICT	RE - RESIDENTIAL ESTATE
PROPOSED ZONING DISTRICT	PD-MU
EXISTING USE	AGRICULTURE/ RESIDENTIAL
PROPOSED USE	MIXED USE*
MAX BUILDING HEIGHT	SEE NOTE 17
ELECTRIC PROVIDER	DUKE ENERGY
WATER PROVIDER	TOWN OF CLAYTON
SEWER PROVIDER	TOWN OF CLAYTON
REQUIRED OPEN SPACE	12.5 % - 8.63 ACRES
PROPOSED OPEN SPACE SEE NOTE 16	8.63 ACRES
REQUIRE ACTIVE OPEN SPACE PROVIDED (25% OF TOTAL)	2.16 ACRES

*SEE POD SUMMARY TABLE AND LAND USE SUMMARY TABLE FOR A GENERAL SUMMARY OF PROPOSED USES PLANNED FOR THIS MIXED-USE DEVELOPMENT. FOR ADDITIONAL MIXED USE INFORMATION REFER TO NOTE 21.



LAND USE SUMMARY

MULTI-FAMILY RESIDENTIAL	+/- 480 UNITS
SINGLE FAMILY RESIDENTIAL	140 LOTS/UNITS
OFFICE	700,000 SF
COMMERCIAL / RETAIL	90,000 SF
HOSPITALITY	120 ROOMS

FOR A FULL LIST OF PERMITTED USES FOR EACH POD, REFER TO SECTION 6.0 OF THE MASTER PLAN NARRATIVE

SITE ACREAGE BREAKDOWN

EXISTING SITE ACREAGE	69.07 AC	
PROPERTY CONSTRAINTS (STREAMS, WETLANDS, BUFFERS, EASEMENTS, ETC)	13.19 ACRES	
NET SITE ACREAGE	(69.07 - 13.19) **~ 55.88 ACRES**	

POD/TRACT SUMMARY

POD	ACREAGE	LAND USE	HEIGHT
1	~ 14.3 ACRES	NON-RESIDENTIAL	145'*
2	~ 6 ACRES	MIXED-USE: RESIDENTIAL / NON-RESIDENTIAL	85'*
3	~ 7.4 ACRES	MIXED-USE: RESIDENTIAL / NON-RESIDENTIAL	85'*
4	~ 10.25 ACRES	MIXED-USE: RESIDENTIAL / NON-RESIDENTIAL	145' (SEE NOTE 17)
5	~ 5.75 ACRES	RESIDENTIAL	35'*
6	~ 6.3 ACRES	RESIDENTIAL (8-10 DU/AC)	45'*
--	~ 6.58 ACRES	INTERNAL STREET RIGHT OF WAY	
--	~ 12.49 ACRES**	EXISTING SITE CONSTRAINTS	
TOTAL	**69.07 ACRES**		

* Height shall be measured per the standards of the UDC. Height varies by POD but shall not exceed the number of stories shown within each POD.
**Excludes 1/2 acre wetland disturbance. Permitting subject to NCDENR review and approval.

MASTER PLAN LEGEND:

- SIGNALIZED INTERSECTION (FULL MOVEMENT)
- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- POTENTIAL PROJECT IDENTITY/SIGNAGE LOCATIONS
- LIMITED SITE ACCESS - RIGHT-IN / RIGHT-OUT
- SPECIAL INTERSECTION (I.E. TRAFFIC CIRCLE, ETC.)
- EASEMENTS
- PUBLIC STREET R.O.W.
- PUBLIC GREENWAY TRAIL
- PRIVATE GREENWAY TRAIL
- 10' CLASS C LANDSCAPE BUFFER
- 20' CLASS C LANDSCAPE BUFFER (6' FENCE OR WALL)
- 20' CLASS C STREET YARD BUFFER (4' BERM + HEDGE)
- 10' CLASS C LANDSCAPE BUFFER
- 70' NEIGHBORHOOD TRANSITION ZONE (NOTE 17)

NOTE: SEE SHEET MP-07 FOR STREET TYPOLOGY SECTIONS

MASTER LAND USE PLAN NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. All lots within the master plan shall have frontage on a public street.
3. The proposed street network and typologies are preliminary and subject to change pending Town approval.
4. Allowable uses shall be permitted in accordance with Figure 1: Table of Permitted Uses within the master plan narrative. Additional permitted uses will be allowed so long as the number of units and square footages shown herein are not exceeded on the site are removed.
5. Uses may be transferred between pods provided that the resulting trip generations do not exceed the trip budgets set within the approved TIA.
6. Pedestrian circulation network and greenway alignment is preliminary and subject to approvals by the Town, NCDOT, and the Army Corps of Engineers.
7. Stormwater management facilities may be shared or designed as part of individual pods and will meet the requirements of the Town of Clayton Stormwater Design Manual.
8. A 10' wide Class C Landscape Buffer will be provided between pod 6 and the adjoining residential properties.
9. A 20' Class C Landscape Buffer will be provided between Pod 4 and Pod 5 and the adjacent residential with the inclusion of a 6' fence.
10. A 10' Class C Landscape Buffer will be provided along all property boundaries adjacent US-70. Provision of a 6' evergreen screen will be provided.
11. A 20' Class C Street Yard Buffer will be provided along NC 42 with a 4' berm and evergreen plantings.
12. Environmental findings have determined that the large existing pond is jurisdictional and subject to such rules and regulations. All wetlands have been located and no impacts greater than 1/2 an acre will be conducted.
13. Right-of-way dedication as well as control of access is proposed along the property frontage per NC 42 Widening Plan (Project #R-3410).
14. All pods shall be submitted for site plan or subdivision review in accordance with Article 7 of Unified Development Code.
15. All future public street stub-outs will be constructed to the property line and offer of cross access will be provided to the immediate property adjoiner.
16. Following requirements of the Town's Unified Development Code (section 155.203), this Master Plan will provide open space totaling to 12.5% of the development's area. 25% of provided open space will be active. Open space for each pod will be met with the overall open space plan for the development. This plan shall be provided at subdivision permitting process. Qualifying open space shall consist of but is not limited to: private mini parks, plazas and squares, neighborhood parks, amenity areas, and greenways.
17. Height shall be measured per the standards of the UDC. Height varies by POD but shall not exceed the number of stories shown within each POD. All uses within POD 4 shall be limited to the base height (145'). However, in no case shall the height exceed 45' within the 70 foot neighborhood transition zone as identified on the master plan.
18. All PODS shall meet the access requirements as defined in the Town's UDC at the time of subdivision submittal for each POD. POD 6 shall provide two access points as soon as development exceeds 30 dwelling units.
19. Code section 155.502(D) states that a 20-foot minimum required setback from the stream buffer for all buildings be provided.
20. Code section 155.500 Natural Resource Protection identifies all jurisdictional wetlands as resource conservation areas (RCA). Therefore, all wetlands present on site shall assumed as such.
21. Refer to section 7.0 in the Master Plan Narrative for further information regarding Land Use Intensity and Design Controls and Mixed Use Requirements.

0 100 200 400

Kimley»Horn

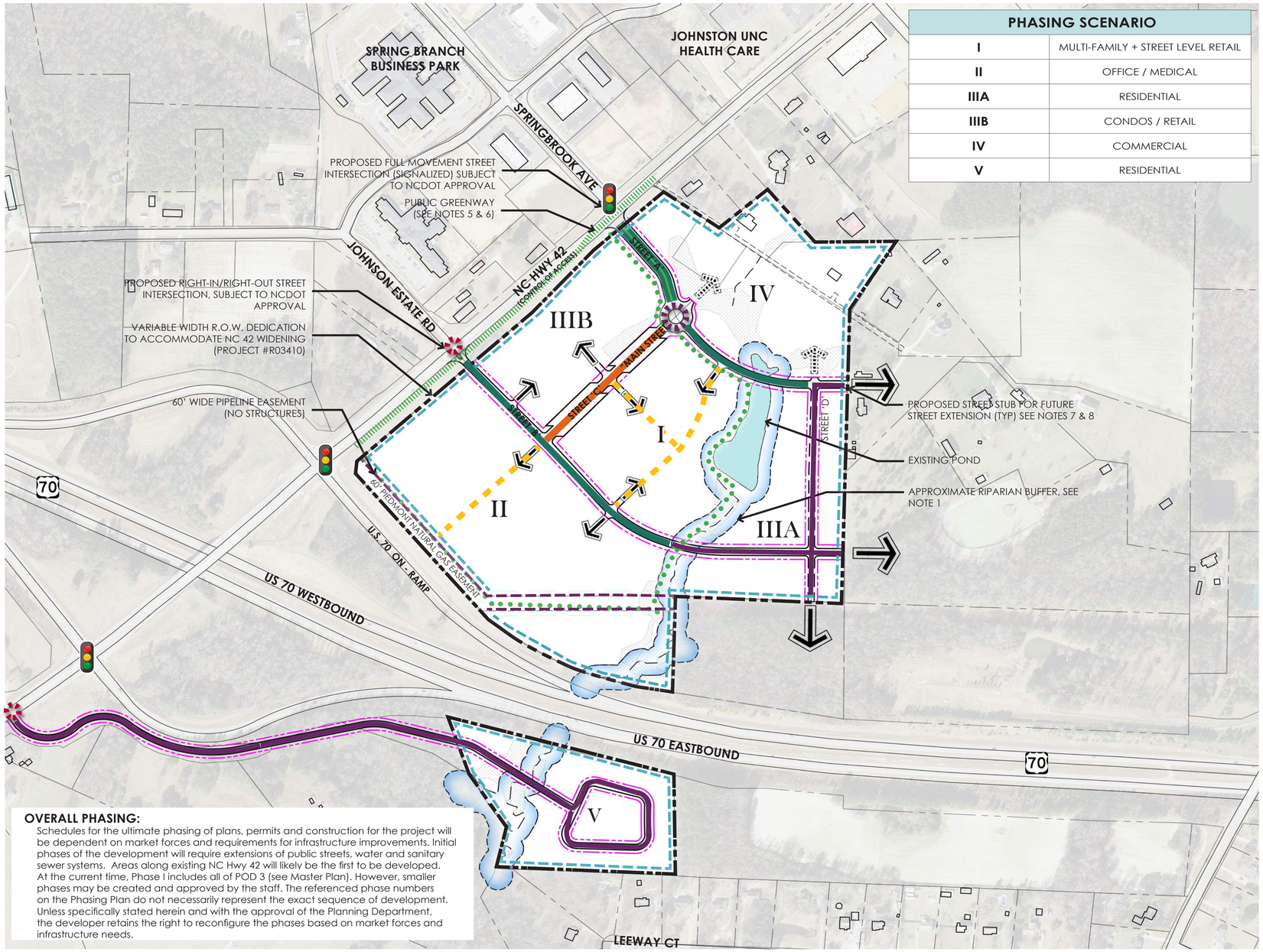
REV DATE	SHEET
8.17.2020	
11.04.2020	
12.04.2020	
1.29.2021	MP-03
9.10.2021	

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

MASTER LAND USE PLAN

JULY 1, 2020



PHASING SCENARIO	
I	MULTI-FAMILY + STREET LEVEL RETAIL
II	OFFICE / MEDICAL
IIIA	RESIDENTIAL
IIIB	CONDOS / RETAIL
IV	COMMERCIAL
V	RESIDENTIAL

OVERALL PHASING:

Schedules for the ultimate phasing of plans, permits and construction for the project will be dependent on market forces and requirements for infrastructure improvements. Initial phases of the development will require extensions of public streets, water and sanitary sewer systems. Areas along existing NC Hwy 42 will likely be the first to be developed. At the current time, Phase I includes all of POD 3 (see Master Plan). However, smaller phases may be created and approved by the staff. The referenced phase numbers on the Phasing Plan do not necessarily represent the exact sequence of development. Unless specifically stated herein and with the approval of the Planning Department, the developer retains the right to reconfigure the phases based on market forces and infrastructure needs.

MASTER PLAN LEGEND:

- SIGNALIZED INTERSECTION (FULL MOVEMENT)
- LIMITED SITE ACCESS - RIGHT-IN / RIGHT-OUT
- SPECIALTY INTERSECTION - I.E. TRAFFIC CIRCLE
- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- PUBLIC GREENWAY TRAIL
- PRIVATE GREENWAY TRAIL
- RIPARIAN BUFFER (SEE NOTE 1)
- PROPERTY SETBACKS/BUFFERS
- EASEMENT

STREET TYPOLOGIES:

- PUBLIC STREET R.O.W.
- PRIVATE STREET (INTERNAL)
- NEIGHBORHOOD STREET - 26' TRAVELWAY (50' PUBLIC R.O.W.)
- AVENUE - 2 LANE DIVIDED (80' R.O.W.)
- AVENUE - 2 LANE - 36' TRAVELWAY (60' R.O.W.)
- "MAIN STREET" - 24' TRAVELWAY; ON-STREET ANGLED PARKING (80' PUBLIC R.O.W)

NOTE: SEE SHEET MP-07 FOR STREET TYPOLOGY SECTIONS

BLOCKING FRAMEWORK AND PHASING PLAN NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. Street network alignment and typologies are preliminary and subject to change pending final design and approval by the Town of Clayton Public Works Department.
3. Primary streets as shown on this plan may be public or private, but all primary streets will be designed and constructed to then-current public street standards.
4. Proposed phasing order is preliminary and subject to change pending final development plans and timing of construction.
5. Pedestrian circulation network and greenway alignment is preliminary and subject to approvals by the Town, NCDOT and the Army Corps of Engineers.
6. Greenway connections will be stubbed up to the Right-Of-Way as shown subject to NCDOT and Army Corps of Engineer approvals. On-site greenway design and installation will be coordinated with the Town of Clayton and NCDOT.
7. Proposed street stubs and exact locations are preliminary and subject to final design. These locations and offer of cross access will be coordinated at time of subdivision and infrastructure permits. The number of street stub-outs will not be modified, even if the locations may be subject to site/subdivision review.
8. Street infrastructure will be constructed in phases to be determined at the time of subdivision. Modifications to access driveways will be required. However, access will be maintained to adjoining properties with existing access through the subject property during all phases of development.
9. A shared stormwater management system is anticipated to serve the overall development. A phased stormwater management plan as necessary to serve each development phase, will be designed at the subdivision stage. These plans will be in conformance with the Town's stormwater regulations in place at the time of this zoning approval.

0 100 200 400

Kimley»Horn

preliminary not for construction

preliminary not for construction

REV DATE
8.17.2020
11.04.2020
12.04.2020
1.29.2021
9.10.2021

SHEET

MP-04

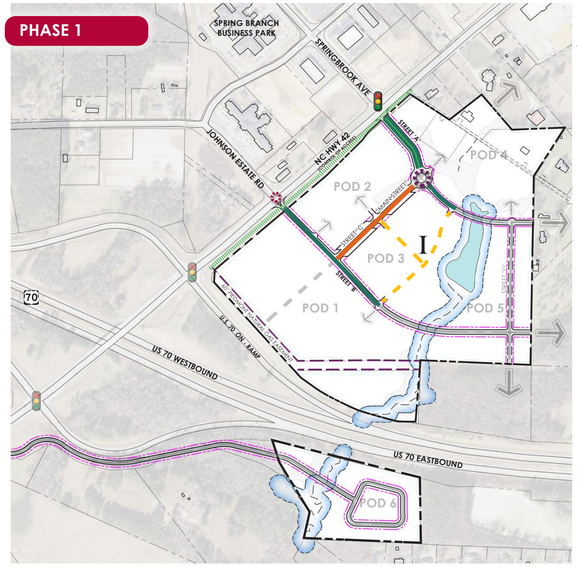
LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

BLOCKING FRAMEWORK & PHASING PLAN

JULY 1, 2020

PHASE 1



PHASE 1 NOTES:

Major Intersections:
- Street 'A' intersection @ NC42 (signalized as warranted by ncdot)lanage per NCDOT requirements
- Street 'B' intersection @ NC42 (right-in / right-out)
- Traffic Circle Intersection

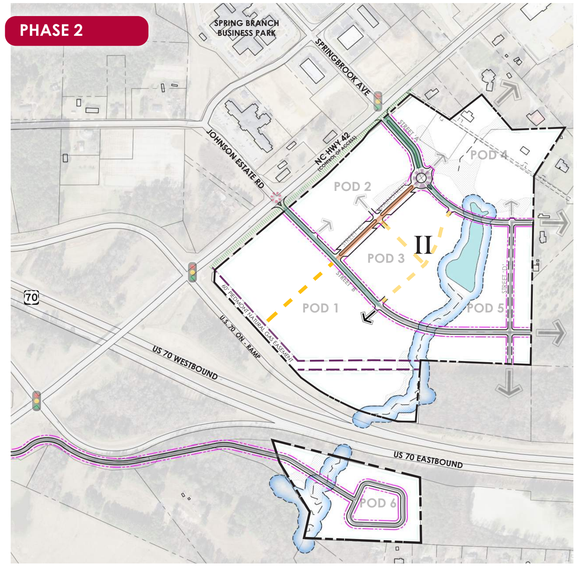
Implementation of Streets:
- Portions of public streets A, B, & C as shown
- Intersection for streets A&C
- Intersection for streets B&C
- Instalation of Private drive extension from street 'C'
- Required driveway access development pod 3

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase improvements
- Greenway along NC42

Utility Installation:
- Public Water / Public Sewer adequate to serve phase 1
- Pump Station and Force Main anticipated as a part of this phase

Stormwater Management:
- Stormwater Control Measures to adequately serve phase 1

PHASE 2



PHASE 2 NOTES:

Major Intersections:
- N/A

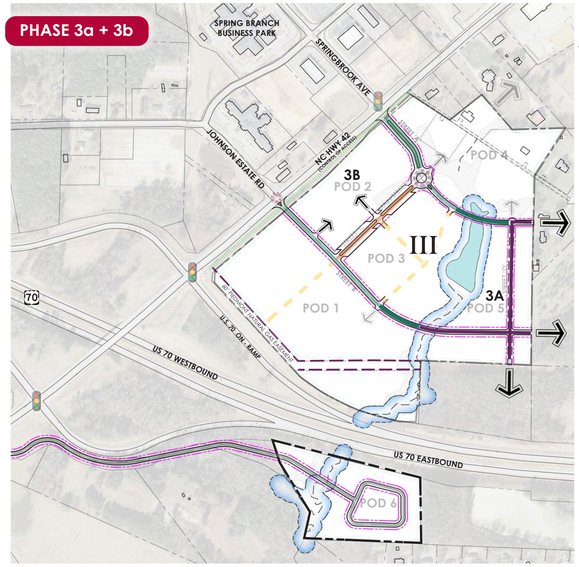
Implementation of Streets:
- Installation of Private drive connecting phase two to streets B and C
- Required driveway access for development pod 1

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase two improvements

Utility Installation:
- Public Water / Public Sewer adequate to serve phase 2

Stormwater Management:
- Stormwater Control Measures to adequately serve phase 2

PHASE 3a + 3b



PHASE 3 NOTES:

Major Intersections:
- N/A

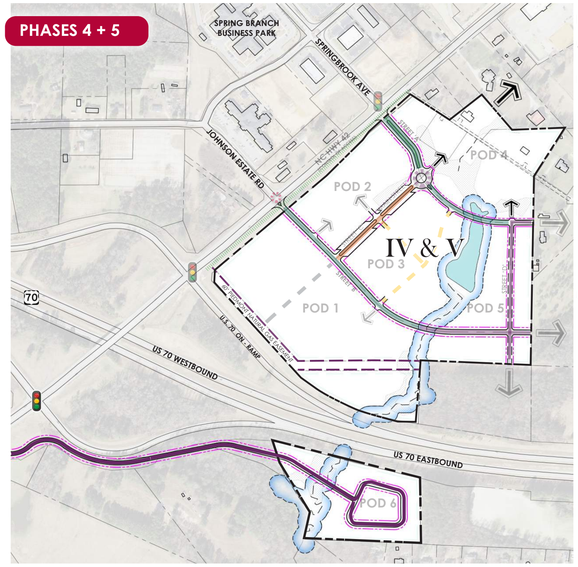
Implementation of Streets:
- Extension of Street 'A' with pond culvert crossing and stub off-site
- Street 'B' extension and stub off-site
- Street 'D' through development pod 5 with off-site stub
- Required driveway access for development pod 2

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase three improvements
- Internal greenway alignments

Utility Installation:
- Public Water / Public Sewer adequate to serve phase 3

Stormwater Management:
- Stormwater Control Measures to adequately serve phase 3

PHASES 4 + 5



PHASE 4 + 5 NOTES:

Major Intersections:
- N/A

Implementation of Streets:
- Access drives bridging wetlands into development pod 4
- Northern road alignment shall stub off-site
- Two access points will be provided for pod 6 if density exceeds 30 dwelling units

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase four improvements

Utility Installation:
- Public Water / Public Sewer adequate to serve phases 4 & 5

Stormwater Management:
- Stormwater Control Measures to adequately serve phases 4 & 5

MASTER PLAN LEGEND:

- SIGNALIZED INTERSECTION (FULL MOVEMENT)
- LIMITED SITE ACCESS - RIGHT-IN / RIGHT-OUT
- SPECIALTY INTERSECTION - I.E. TRAFFIC CIRCLE
- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- RIPARIAN BUFFER (SEE NOTE 1)
- PROPERTY SETBACKS/BUFFERS
- EASEMENT

STREET TYPOLOGIES:

- PUBLIC STREET R.O.W.
- PRIVATE STREET (INTERNAL)
- NEIGHBORHOOD STREET - 26' TRAVELWAY (50' PUBLIC R.O.W.)
- FUTURE PHASE - TYPOLOGY VARIES
- AVENUE - 2 LANE DIVIDED (80' R.O.W.)
- AVENUE - 2 LANE - 36' TRAVELWAY (60' R.O.W.)
- "MAIN STREET" - 24' TRAVELWAY: ON-STREET ANGLED PARKING (80' PUBLIC R.O.W)

NOTE: SEE SHEET MP-07 FOR STREET TYPOLOGY SECTIONS

PHASING SCENARIO	
I	MULTI-FAMILY + STREET LEVEL RETAIL
II	OFFICE / MEDICAL
IIIA	RESIDENTIAL
IIIB	CONDOS / RETAIL
IV	COMMERCIAL
V	RESIDENTIAL

NCDOT ROADWAY IMPROVEMENTS

NC 42 at Springbrook Ave/East Site Driveway*
- Construct an eastbound right-turn lane on NC 42 with 150 feet of storage
- Construct a westbound left-turn lane on NC 42 with 400 feet of storage
- Provide dual left-turn lanes, a through lane, and a right-turn lane exiting the site driveway (construction of one of the left-turn lanes to be phased subject to the NCDOT widening of NC 42)
- Re-stripe Springbrook Avenue to a left-turn lane and a shared through/right lane
- Modify the traffic signal to accommodate the new laneage

NC 42 at Johnson Estate Road/West Site Driveway*
- Construct an eastbound right-turn lane on NC 42 with 200 feet of storage

** Subject to NCDOT approval*

ROAD IMPLEMENTATION PHASING PLAN NOTES:

1. Changes may be required to this plan sheet based upon NCDOT's traffic requirements.
2. Schedules for the ultimate phasing of plans, permits and construction for the project will be dependent on market forces and requirements for infrastructure improvements. Initial phases of the development will require extensions of public streets, water and sanitary sewer systems. Areas along existing NC Hwy 42 will likely be the first to be developed. At the current time, Phase I includes all of POD 3 (see Master Plan). However, smaller phases may be created and approved by the staff. The referenced phase numbers on the Phasing Plan do not necessarily represent the exact sequence of development. Unless specifically stated herein and with the approval of the Planning Department, the developer retains the right to reconfigure the phases based on market forces and infrastructure needs.

Kimley»Horn

preliminary not for construction

preliminary not for construction

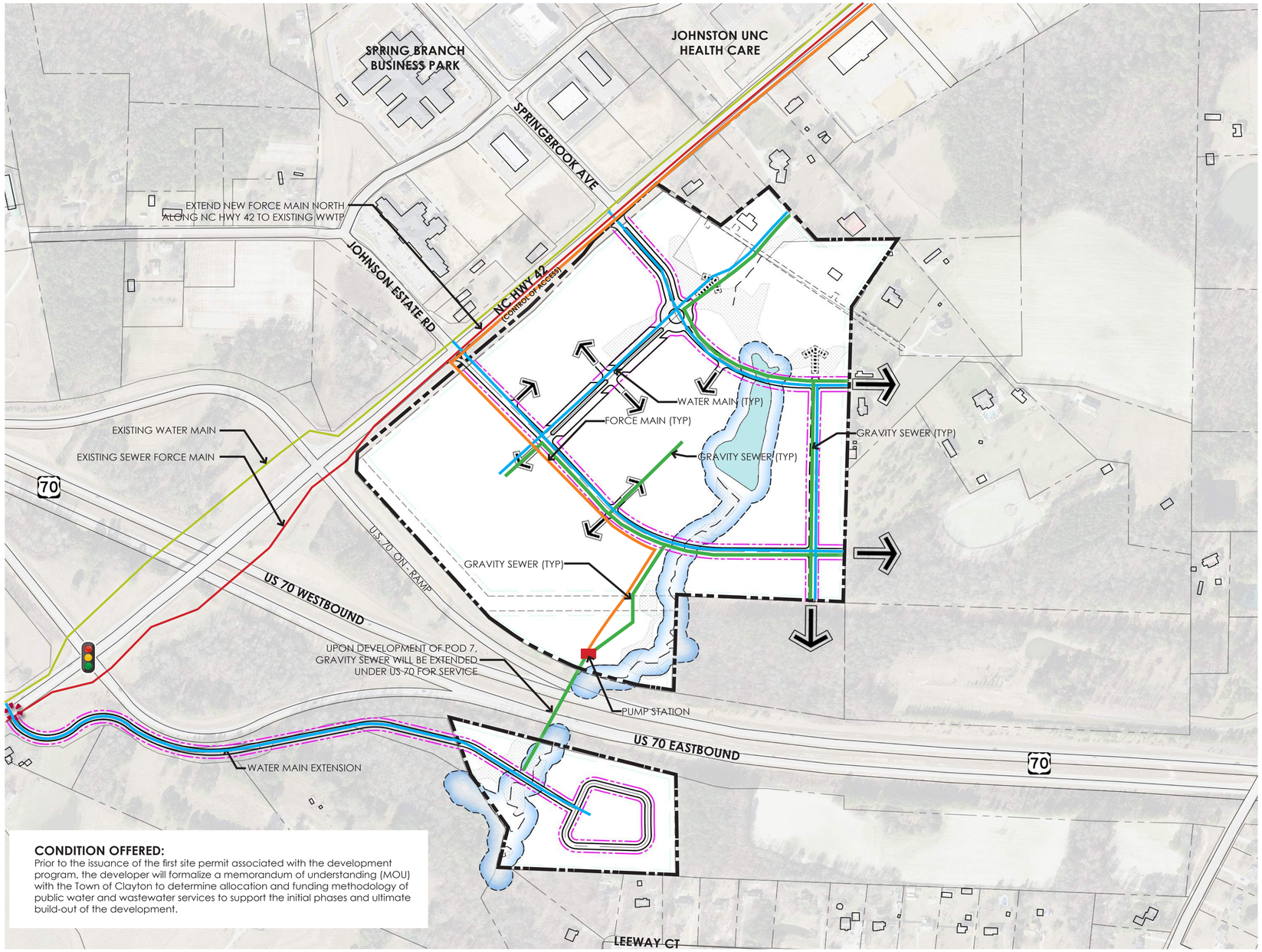
REV DATE	SHEET
8.17.2020	
11.04.2020	
12.04.2020	
1.29.2021	MP-05
9.10.2021	

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

PROJECTED ROAD IMPLEMENTATION PHASING PLAN

JULY 1, 2020



CONDITION OFFERED:
Prior to the issuance of the first site permit associated with the development program, the developer will formalize a memorandum of understanding (MOU) with the Town of Clayton to determine allocation and funding methodology of public water and wastewater services to support the initial phases and ultimate build-out of the development.

LEGEND:

- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- PUBLIC STREET R.O.W.
- EXISTING WATER MAIN
- EXISTING SEWER FORCE MAIN
- WATER MAIN
- PROPSED SEWER FORCE MAIN
- GRAVITY SEWER
- PUMP STATION

CONCEPTUAL UTILITY PLAN NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. Street network alignment and typologies are preliminary and subject to change pending final design and approval by the Town of Clayton Public Works Department.
3. Proposed street stubs and exact locations are preliminary and subject to final design. These locations and offer of cross access will be coordinated at time of subdivision and infrastructure permits.
4. A shared stormwater management system is anticipated to serve the overall development. A phased stormwater management plan with be determined and designed at the subdivision stage and will be in conformance with the Town's stormwater regulations in place at the time of this zoning approval.
5. Where public utilities are outside of the public rights of ways,a public utility easement will be provided.

WATER AND SEWER NARRATIVE

Sanitary Sewer Service

There is an existing 8" force main within NC 42 along the project frontage, operated by the County. The project is anticipated to be developed in multiple phases (refer to exhibit MP-01). The site will drain by gravity to a proposed pump station. This pump station will provide a force main that will be extended along the NC 42 corridor to a point of gravity connection near the existing WWTP. The phasing of the project and capacity limitations of the Johnston County and Town of Clayton infrastructure will determine the appropriate point of connection for the proposed force main.

Given the current capacity limitations in the Town's existing sanitary sewer infrastructure, it is understood that the phasing of the development may be subject to available capacity at the time of the initial subdivision/development plan for the property. The Town is currently planning to add treatment capacity by 2023. Average daily Sewer flows based on the proposed land uses and projected intensities are expected to be between 250,000-400,000 GPD.

Based on currently estimated flows and existing infrastructure, the proposed pump station and force main extension is anticipated to be required in Phase 1 of the development (based on MP-01). The pump station and force main will be the responsibility of the developer/applicant and will need to be sized based on project flows associated with actual development project(s) at the time of Subdivision application. The size and specification of sewer infrastructure shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

Water Service

Water services exist along the property along the NC Highway 42 frontage. Water services will be connected to the existing main and looped through the property via a public main. The size and specification of water infrastructure shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

Based on anticipated domestic and fire flow demands of the development, an elevated water tower may be required for this area prior to the completion of the full build-out of this development. Coordination with the Town of Clayton and Johnston County Utilities will determine the location and sizing of the water tower. The design and construction of the water tower will be a public project in order to serve the growing demands of the area. No land area is being reserved on the subject property for construction of this facility.

0 100 200 400

Kimley»Horn

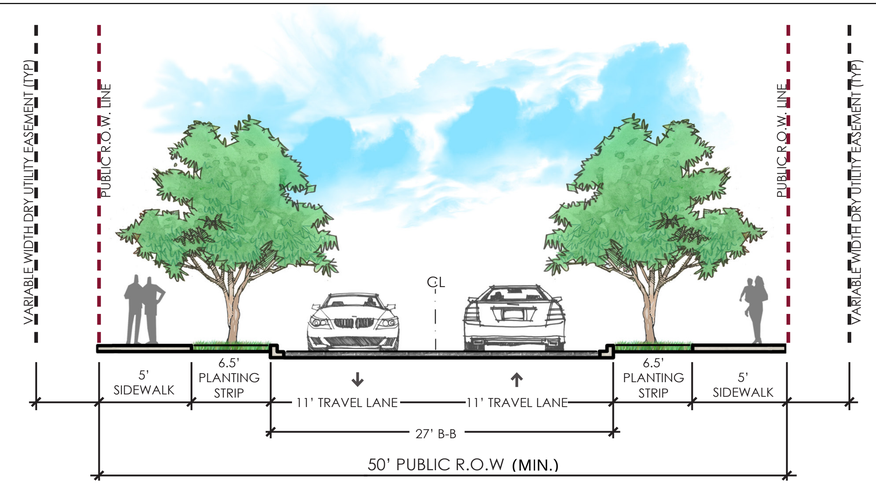
REV DATE	SHEET
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11.04.2020	
12.04.2020	
1.29.2021	MP-06
9.10.2021	

LUMEN - PLANNED DEVELOPMENT DISTRICT

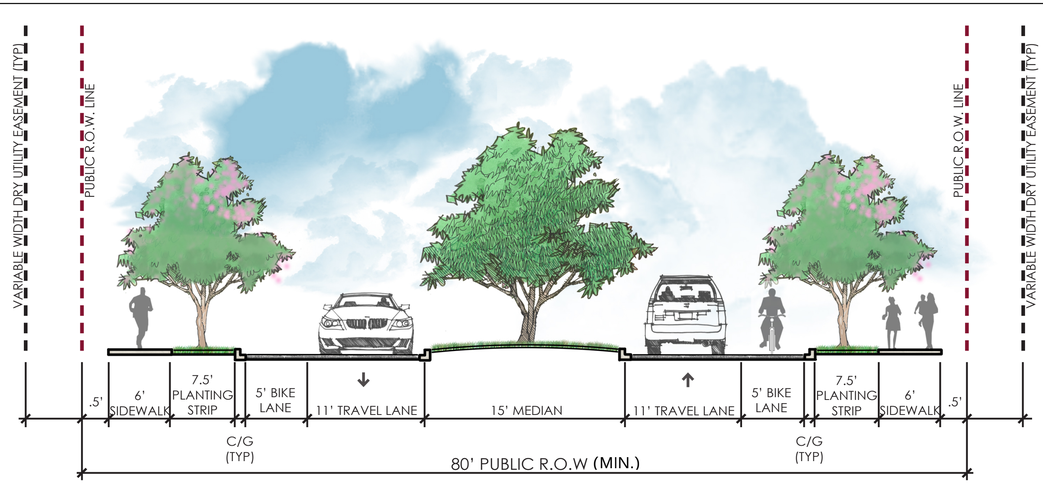
2020-103-PD-MU | CLAYTON, NORTH CAROLINA

CONCEPTUAL UTILITY PLAN

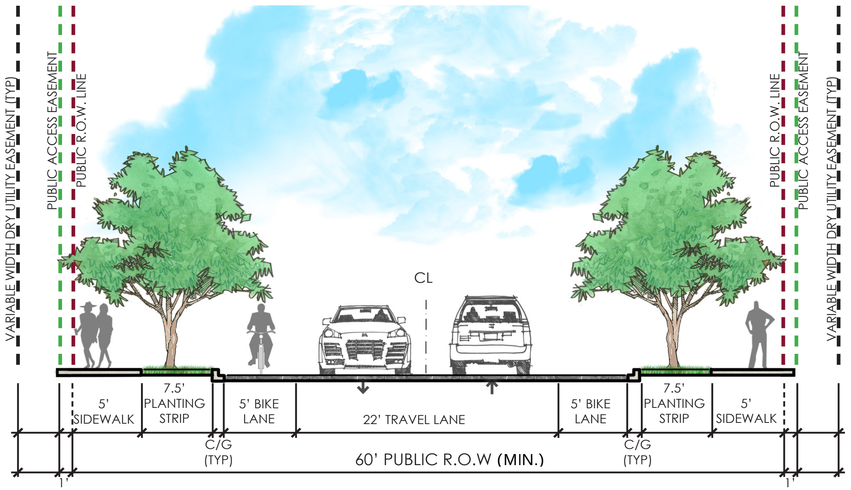
JULY 1, 2020



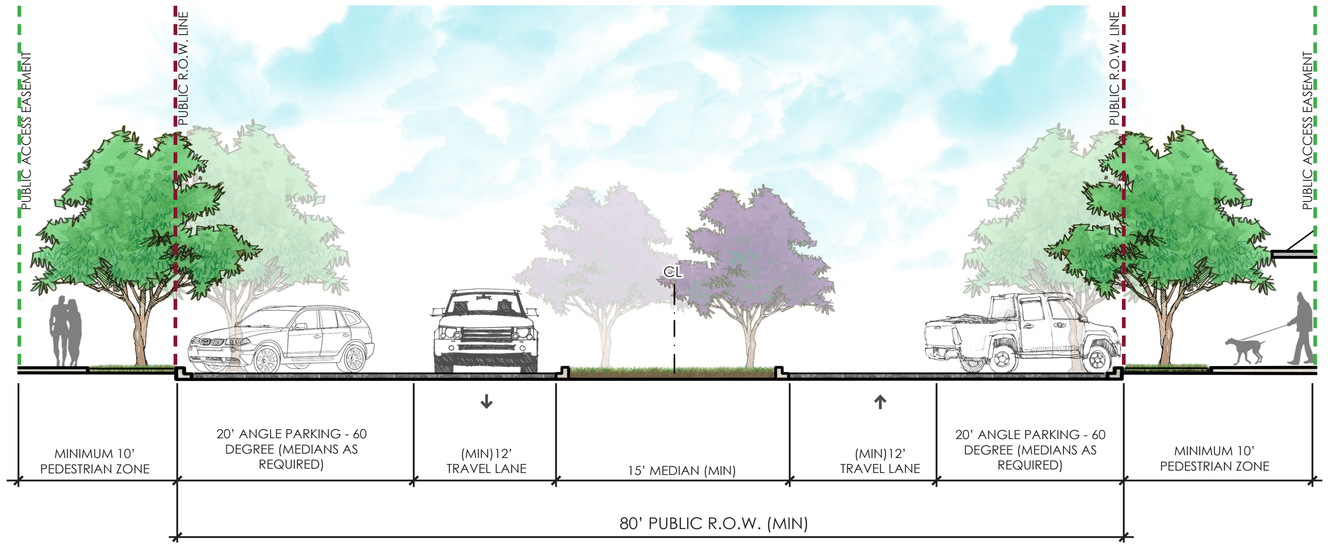
A MP-04 **NEIGHBORHOOD STREET** TYPICAL SECTION NOT TO SCALE



B MP-04 **AVENUE - 2 LANE DIVIDED** TYPICAL SECTION NOT TO SCALE



C MP-04 **LOCAL COLLECTOR** TYPICAL SECTION NOT TO SCALE



D MP-04 **MAIN STREET** TYPICAL SECTION NOT TO SCALE

Kimley»Horn

NOTES:
1. Street section are for illustrative purposes and subject to final design. All public and private streets will be subject to the Town's public street standards applicable at the time of this master plan approval.
2. All street trees shall be planted a minimum of 10' from any water, sewer, storm water, utility, or driveway.
3. Where 5' sidewalk falls outside of the Right-of-Way a public access easement shall be provided.

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

URBAN STREET TYPOLOGIES

JULY 1, 2020

preliminary not for construction

REV DATE
8.17.2020
11.04.2020
12.04.2020
1.29.2021
09.10.2021

SHEET **MP-07**

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

August 13, 2020

NOTICE

SUBJECT:	**Project:**	2020-103-PDD Lumen Planned Development Rezoning
	Address:	Corner of NC HWY 42 W & 70 Bypass
	TAG #:	05F02037E, 05F02037B, 05F02037A, 05F02037
	Applicant:	Kimley Horn

Dear Clayton Area Property Owner:

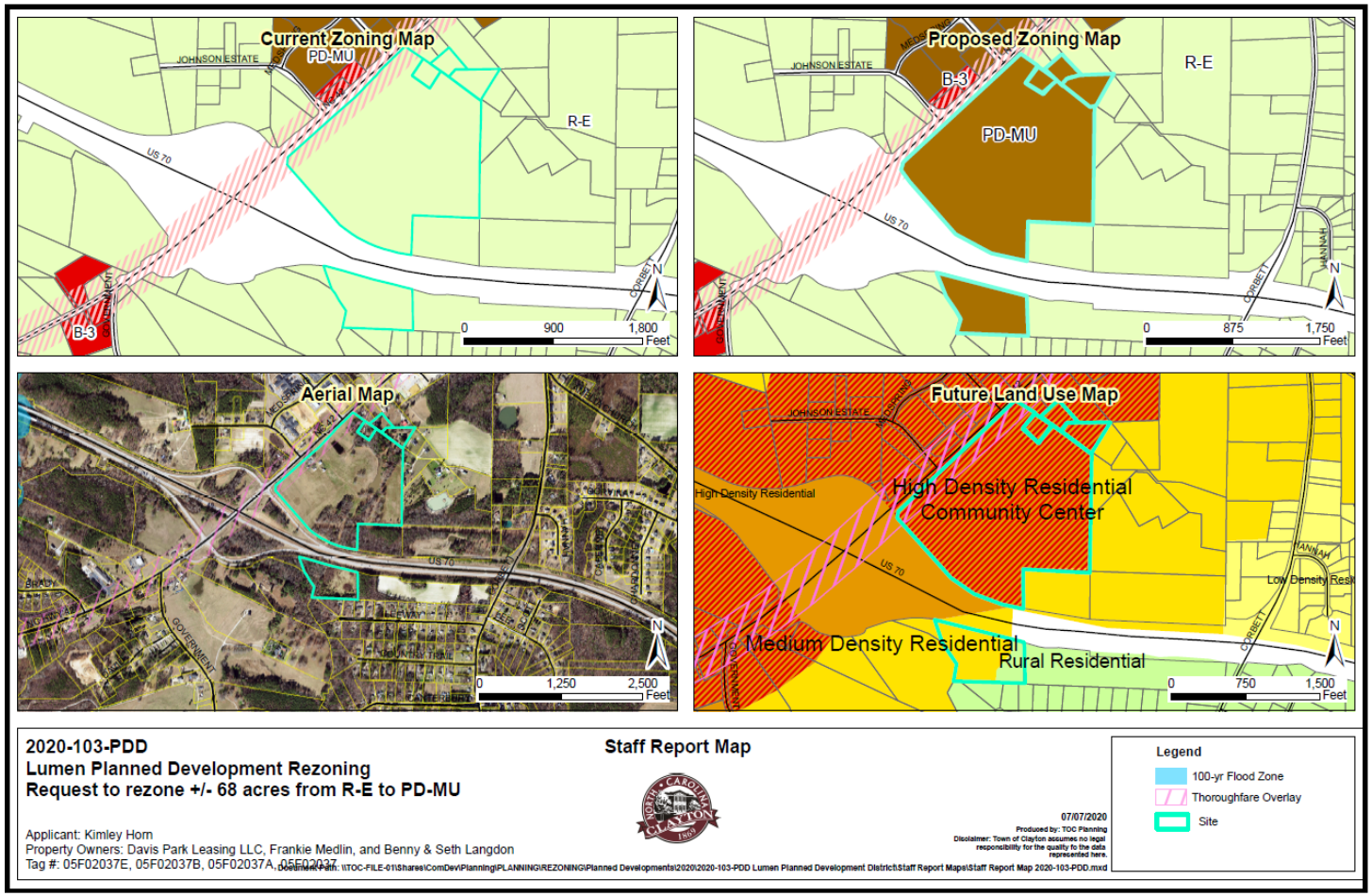
Notice is hereby given that the Clayton Planning Board will hold a public hearing on ***Monday, August 24, 2020 at 6:00 pm*** to make a recommendation on the above referenced Rezoning application. This application will proceed to Town Council for a public hearing following Planning Board recommendation. Another notice will be sent prior to the date of the scheduled Town Council public hearing. The applicant is requesting to rezone 68.26 acres from Residential Estate (R-E) to Planned Development Mixed Use (PD-MU). The properties are located off the corner of NC HWY 42 W and 70 bypass, across from Spring Branch Medical Park. Please see the map on the back of this letter.

Based upon records in the Johnston County Tax Office, you are the owner of property that is within 100 feet of this proposed rezoning request. You are invited to join this meeting and express your opinions on this request to the Planning Board.

If you should need additional assistance or information, please contact the Planning Department at (919) 553-5002 or email at hhogg@townofclaytonnc.org.

Sincerely,

Haley Hogg, ACIP, CZO
Planner II


Current Zoning Map
PD-MU
R-E
B-3
JOHNSON ESTATE
US 70
GOVERNMENT
CORBETT
0 900 1,800 Feet
Proposed Zoning Map
B-3
PD-MU
R-E
JOHNSON ESTATE
US 70
HANNAH
CORBETT
0 875 1,750 Feet
Aerial Map
US 70
GOVERNMENT
0 1,250 2,500 Feet
Future Land Use Map
High Density Residential
High Density Residential
Community Center
Medium Density Residential
Rural Residential
Low Density Resi
US 70
0 750 1,500 Feet
2020-103-PDD
Lumen Planned Development Rezoning
Request to rezone +/- 68 acres from R-E to PD-MU
Staff Report Map
Applicant: Kimley Horn
Property Owners: Davis Park Leasing LLC, Frankie Medlin, and Benny & Seth Langdon
Tag #: 05F02037E, 05F02037B, 05F02037A, 05F02037
Document Path: \\TOC-FILE-01\Shares\ComDev\Planning\PLANNING\REZONING\Planned Developments\2020\2020-103-PDD Lumen Planned Development District\Staff Report Maps\Staff Report Map 2020-103-PDD.mxd
07/07/2020
Produced by: TOC Planning
Disclaimer: Town of Clayton assumes no legal responsibility for the quality fo the data represented here.
Legend
100-yr Flood Zone
Thoroughfare Overlay
Site

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

April 9, 2021

NOTICE

SUBJECT:	**Project:**	2020-103-PDD Lumen Planned Development District Rezoning
		2020-104-SD Lumen Preliminary Plat Master Plan
		Development Agreement
	Address:	Located off NC HWY 42 W
	TAG #(s):	05F02037E, 0502037B, 05F02037A, and 05F02037
	Applicant:	Kimley Horn

Dear Clayton Area Property Owner:

Notice is hereby given that the Clayton Town Council will hold an evidentiary and public hearing on ***Monday, April 19, 2021 at 6:00 PM***, to make a decision on the above referenced projects. The subject parcels total 65.19 acres in size. They are located off NC HWY 42 W, adjacent to 70 bypass. See the map on the back of this letter.

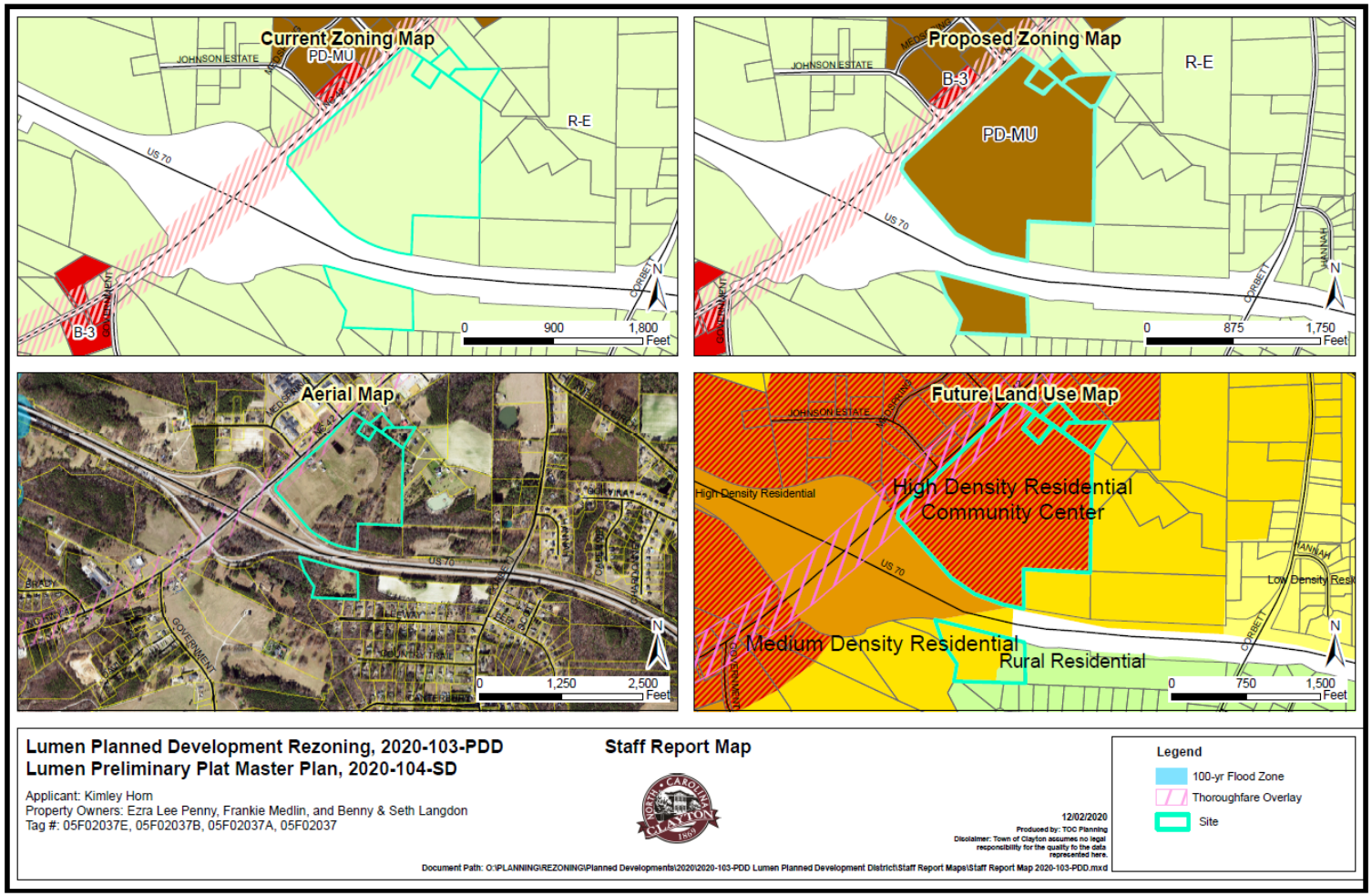
The Town Council will hold a public hearing to consider the above referenced rezoning application and Development Agreement. The applicant is proposing to rezone the subject parcels from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). The Town Council will hold an evidentiary hearing to consider the above referenced Preliminary Plat Master Plan application. The applicant is requesting master plan approval for a mixed use development on the subject parcels that will include 700,000 SF of non-residential office/institutional uses, up to 90,000 SF of commercial/retail uses, up to 480 multi-family residential units, up to 120 single-family lots, and up to 120 rooms and/or 10,000 SF for a hospitality/civic use.

During a public hearing, the Council reserves the right to approve the request as presented or any portion of the request without necessity of withdrawal or modification of the application or additional public hearing on the matter. Likewise, the Town Council may designate approval to the district requested or another district or districts without modification of the request or additional public hearing. During an evidentiary hearing, the Clayton Town Council must make findings of fact based upon sworn testimony and other credible evidence. Citizens may give testimony in an evidentiary hearing after they have taken an oath. Based upon records in the Johnston County Tax Office, you are the owner of property that is within 100 feet of this proposed rezoning request. You are invited to join this meeting and express your opinions on this request to the Town Council.

If you should need additional assistance or information, please contact the Planning Department at (919) 553-5002 or email at jcaines@townofclaytonnc.org.

Sincerely,

Jeff Caines, AICP
Senior Planner


Current Zoning Map
PD-MU
R-E
B-3
JOHNSON ESTATE
US 70
CORBETT
GOVERNMENT
0 900 1,800 Feet
Proposed Zoning Map
B-3
PD-MU
R-E
0 875 1,750 Feet
Aerial Map
0 1,250 2,500 Feet
Future Land Use Map
High Density Residential
High Density Residential
Community Center
Medium Density Residential
Rural Residential
Low Density Resi
0 750 1,500 Feet
Lumen Planned Development Rezoning, 2020-103-PDD
Lumen Preliminary Plat Master Plan, 2020-104-SD
Applicant: Kimley Horn
Property Owners: Ezra Lee Penny, Frankie Medlin, and Benny & Seth Langdon
Tag #: 05F02037E, 05F02037B, 05F02037A, 05F02037
Staff Report Map
12/02/2020
Produced by: TOC Planning
Disclaimer: Town of Clayton assumes no legal responsibility for the quality fo the data represented here.
Document Path: O:\PLANNING\REZONING\Planned Developments\2020\2020-103-PDD Lumen Planned Development District\Staff Report Maps\Staff Report Map 2020-103-PDD.mxd
Legend
100-yr Flood Zone
Thoroughfare Overlay
Site

PUBLIC NOTICE

In accordance with NC GS 160A-364 the Clayton Town Council will hold public hearings and evidentiary hearings on Monday, April 19, 2021, at 6 PM at Town Hall, 111 East Second Street, to consider the following requests:

- **2020-103-PDD Lumen Planned Development Rezoning; request to rezone 69.07 acres of land from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). The properties are located off NC HWY 42 W adjacent to 70 bypass and across from Spring Branch Medical Park. TAG #s: 05F02037E, 05F02037B, 05F02037A, 05F02037**

- **2020-104-SD Lumen Preliminary Plat Master Plan; request for a master plan to develop 69.07 acres of land for commercial and residential uses. The plan includes allowances for up to 480 multi-family units, 140 single-family lots, 700,000 SF of office, 90,000 SF of commercial/retail, and up to 120 rooms for a hospitality use. The properties are located off NC HWY 42 W, adjacent to 70 bypass and across from Spring Branch Medical Park. TAG #s: 05F02037E, 05F02037B, 05F02037A, 05F02037**

- **Development Agreement with Davis Park Leasing, LLC pertaining to the development of a new mixed use project (Lumen, 2020-104-SD) located off NC HWY 42 W adjacent to 70 bypass and across from Spring Branch Medical Park. The development will include allowances for up to 480 multi-family units, 140 single-family lots, 700,000 SF of office uses, 90,000 SF of commercial uses, and up to 120 rooms for a hospitality use. TAG #s: 05F02037E, 05F02037B, 05F02037A, 05F02037.**

For the Rezoning and Development Agreement the Town Council will hold public hearings. The Clayton Town Council reserves the right to approve the request as presented or any portion of the request without necessity of withdrawal or modification of the application or additional public hearing on the matter. Likewise, the Town Council may designate approval to the district requested or another district or districts without modification of the request or additional public hearing.

For the Preliminary Plat (Master Plan) the Council will hold evidentiary hearings. During an evidentiary hearing, the Clayton Town Council must make findings of fact based upon sworn testimony and other credible evidence. Citizens may give testimony in an evidentiary hearing after they have taken an oath.

This is an open meeting and the public is invited to attend.

Jeff Caines, AICP
919-553-5002

_____

The Johnstonian Newspaper

Please advertise on the following dates:
Wednesday, April 7, 2021
Wednesday, April 14, 2021

Affidavit of publication required.

Town of Clayton
Planning Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-1545

Planning Board: August 24, 2020
Town Council: October 18, 2021

STAFF REPORT

Application Number: 2020-103- PDD
Project Name: Lumen Planned Development Rezoning

Tag #: 05F02037E, 05F02037B, 05F02037A, 05F02037
Location: Located off HWY 42 W, adjacent to 70 bypass and across from Spring Branch Medical Park
Overlay: Thoroughfare Overlay District
Applicant: Kimley Horn
Owner(s): Davis Park Leasing LLC, Frankie Medlin, and Benny & Seth Langston
Project Planner: Jeff Caines, Senior Planner

Public Noticing Dates:

- **Neighborhood Meeting:** August 11, 2020, Second courtesy meeting held December 4, 2021
- **Sign Posted:** April 9, 2021
- **TC Letters Mailed:** April 9, 2021
- **Newspaper Ad Published:** April 7, 2021 and April 14, 2021

Since Town Council Public Hearing has been continued, no additional notice has been provided or required

REQUEST: Request to rezone 69.07 acres from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). This application is running concurrently with a preliminary plat application (2020-104-SD), which will serve as the master plan for the development.

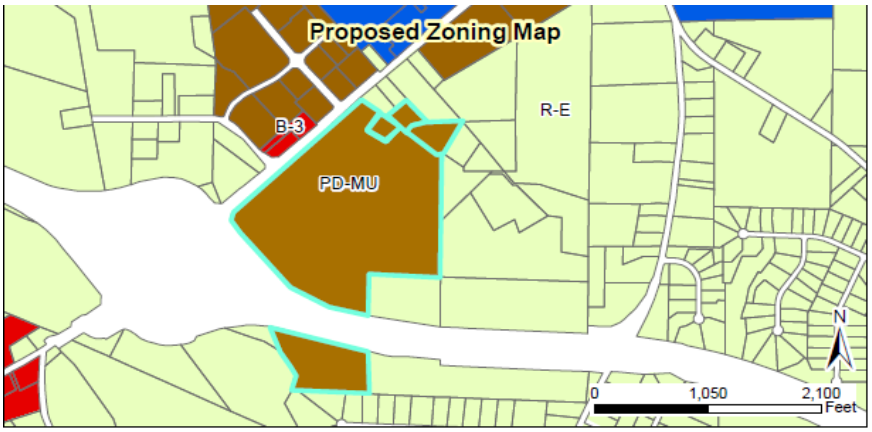


SITE DATA:

Acreage: 69.07 acres
Existing Use: Vacant & Single-Family Residence

ADJACENT ZONING AND LAND USES:

Direction	Zoning	Existing Use(s)
North	Planned Development Mixed Use (PD-MU)	Medical Office & Restaurant
South	Residential-Estate (R-E)	Single-Family Residential
East	Residential-Estate (R-E)	Single-Family Residential
West	Residential-Estate (R-E)	Single-Family Residential



STAFF ANALYSIS AND COMMENTARY:

Overview
The applicant is requesting to rezone the subject properties from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). The properties are located off NC HWY 42 West, across from Spring Branch Medical Park and adjacent to US HWY 70 bypass. A portion of the larger tract of land is located south of US HWY 70 bypass. This application is running concurrently with a preliminary plat application, which is serving as a master plan for the overall development. The plan outlines the permitted uses and dimensional standards proposed for the development under the PD-MU designation.

Per the UDC requirements, the Planning Board shall make a recommendation to Town Council regarding all rezoning requests, including Planned Development districts. However, the Planning Board does not review or make recommendations on preliminary plats, even those acting as a master plan associated with a Planned Development rezoning. The proposed master plan layout for this development has been attached to this staff report to provide an overall idea to the Board of how the site may be developed under the PD-MU zoning

designation. The Planning Board did not make any decisions regarding the proposed uses or layout of this master plan. The plan was only included as an attachment to their staff report for informational purposes.

Consistency with the Comprehensive Plan 2040

The Comprehensive Plan's Future Land Use Map designates most of the land as High Density Residential with the Community Center overlay. High-Density Residential is outlined to provide housing options close to major transportation corridors and includes a variety of housing types. This designation typically allows 10+ units/acre as a part of a Planned Development. The Community Center overlay builds upon the high-density designation to encourage mixed use developments that include residential components, as well as major anchor tenants and community serving office and retail uses.

There is a portion of the primary tract included in this request that is located south of US HWY 70 bypass and therefore not directly abutting the majority of the development. This portion of the property is designated as Medium Density Residential and Rural Residential. Medium Density Residential is outlined in the Comprehensive Plan to include neighborhoods that are urban in design and in close proximity to commercial uses. It is recommended to allow up to 7 units/acre as a part of a Planned Development. The Rural Residential portion of this property is described in the Comprehensive Plan as primarily consisting of single-family residences, with densities up to 2 units/acre.

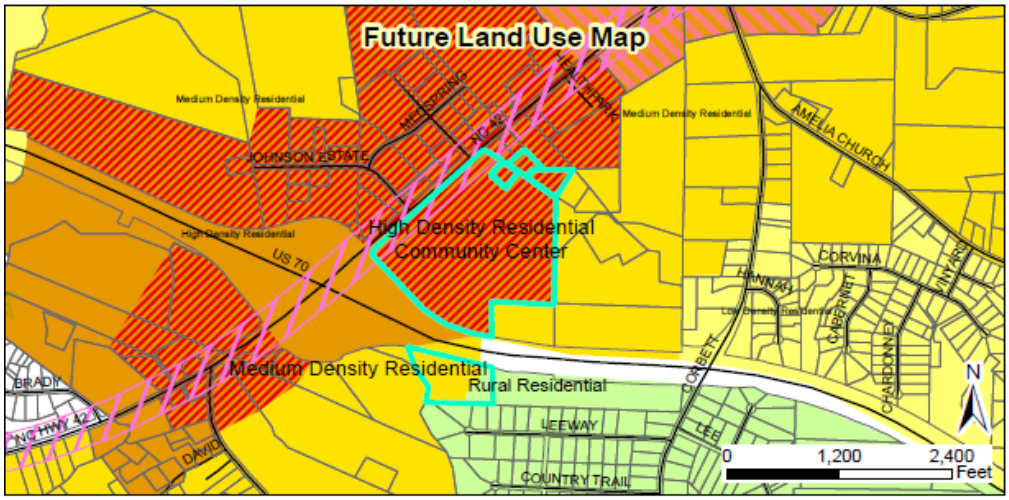
Overall, the proposed rezoning is consistent with the Future Land Use map and Comprehensive Plan 2040 as it allows for mixed use development including commercial and residential and is located adjacent to a major transportation corridor. The rezoning is not entirely consistent with the southernmost portion of the primary tract though, as that portion is currently designated as Medium Density Residential/Rural Residential. However, this land is located directly east of property that is designated as High Density Residential. It is also located adjacent to a major transportation corridor. Due to its location and to provide a more uniform designation for the properties involved in this request, staff is supportive of this rezoning request despite this portion of land's inconsistencies between the future land use map and proposed rezoning. If the associated rezoning is approved to PD-MU the Future Land Use Map Designation would be updated accordingly for the southern portion of the development. Since the southernmost portion of the development (pod 6) does not propose any commercial development, staff recommends this portion of the development be modified to High-Density residential while the remainder of the parcels (north of the bypass) remain High-Density Residential with a Community Center overlay. Please see the attached "Consistency Statement" document which includes a map depicting this change.

Comprehensive Plan Goals supporting the rezoning request include:

- Goal LU1: Preserve Clayton's small-town character while allowing for growth and development in appropriate areas.
- Objective LU1.3: Encourage a mix of residential and non-residential land uses within
- Neighborhood and Community centers identified on the Future Land Use Map.
- Goal LU3: Provide a sense of place and enhance aesthetics along major corridors.
- Objective LU3.1: Identify and develop gateways into Clayton.

Comprehensive Plan Goals <u>not</u> supporting the rezoning request include:

- None.

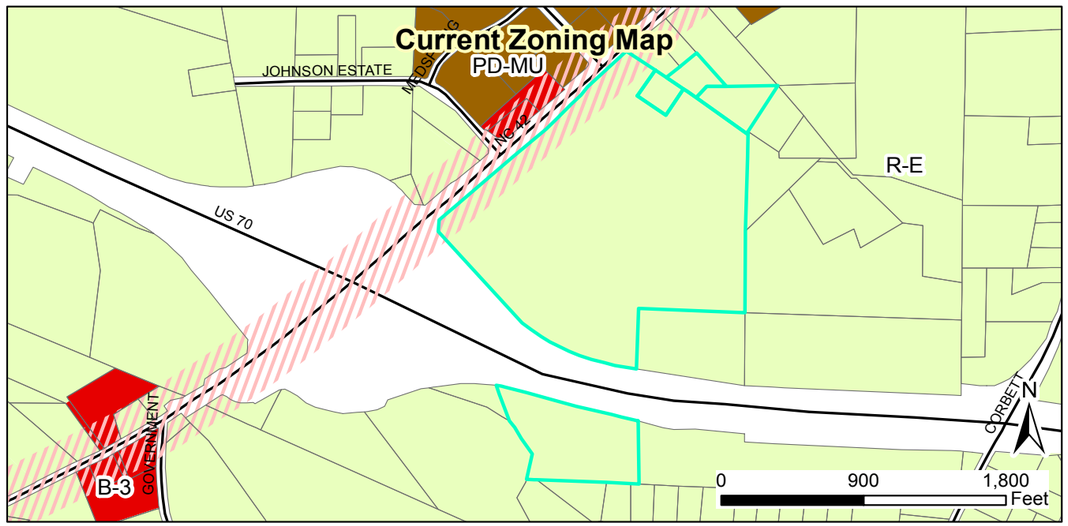


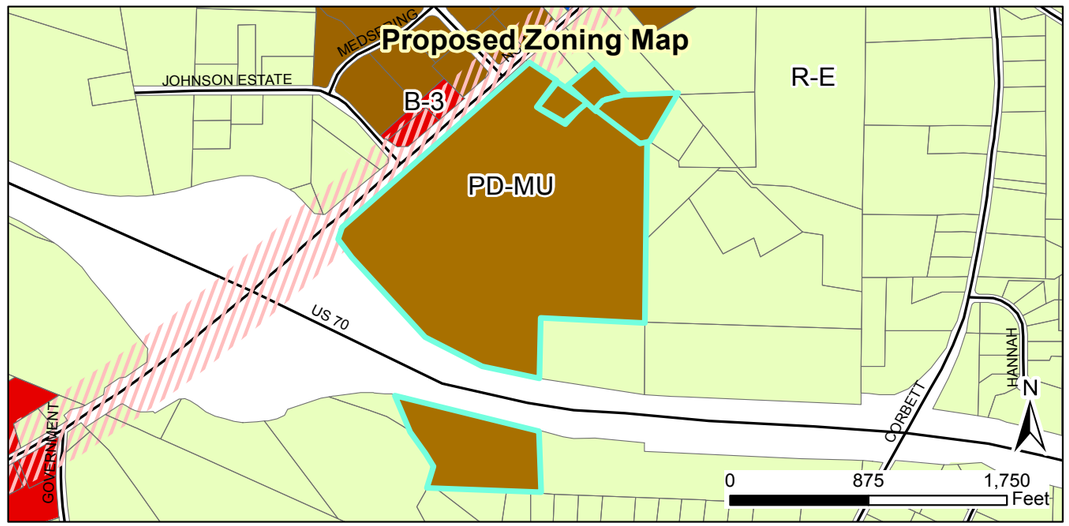
CONSIDERATIONS:

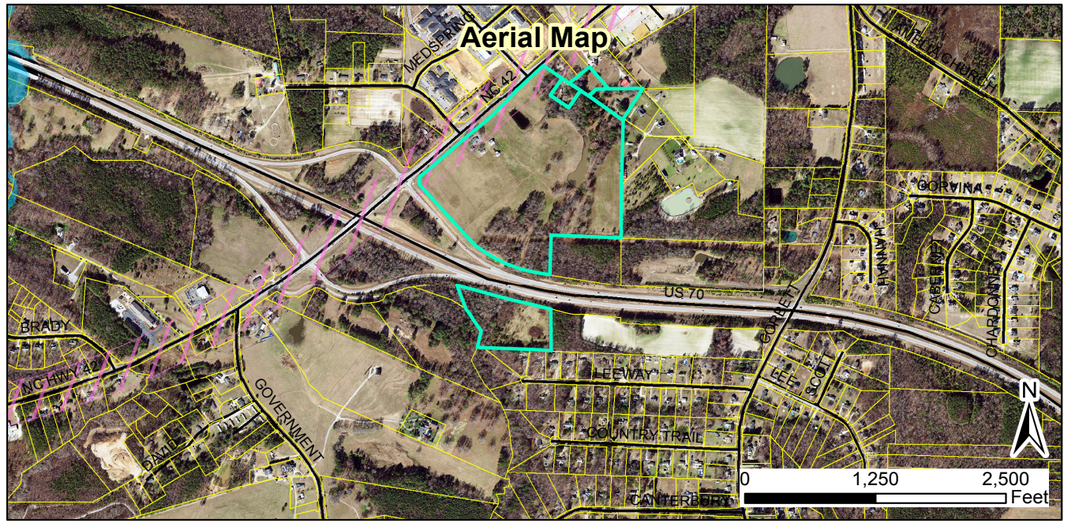
- Rezonings are decided by the Town Council. The Planning Board shall make a recommendation to the Town Council.
- The Planning Board shall only make a recommendation on this rezoning; the associated master plan (preliminary plat) is quasi-judicial and does not receive a Planning Board recommendation.
- When adopting or rejecting the rezoning, the Town Council shall approve a statement describing whether its action is consistent with adopted plans and/or policies of the Town and explaining why the Council considers the action taken to be reasonable and in the public interest.

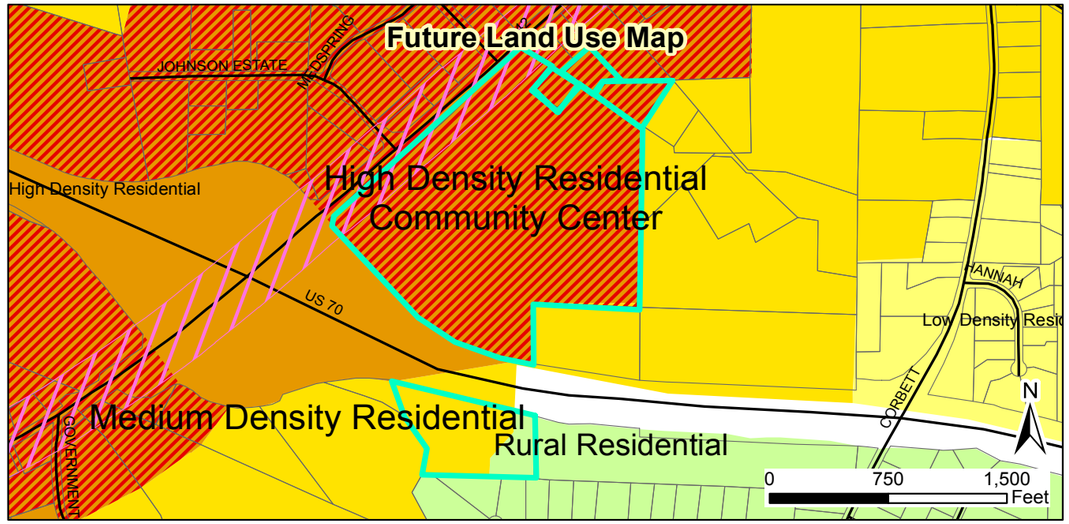
ATTACHMENTS:

1) Application
2) First Neighborhood Meeting Materials
3) Second Courtesy Neighborhood Meeting Summary
4) Site Plan
5) First Neighborhood Meeting Materials
6) Second Courtesy Neighborhood Meeting Summary
7) Newspaper Notice
8) TRC Approval Letter
9) Staff Report Map
10) Final Consistency Statement









Lumen Planned Development Rezoning, 2020-103-PDD
Lumen Preliminary Plat Master Plan, 2020-104-SD

Applicant: Kimley Horn
Property Owners: Ezra Lee Penny, Frankie Medlin, and Benny & Seth Langdon
Tag #: 05F02037E, 05F02037B, 05F02037A, 05F02037

Staff Report Map

12/02/2020

Produced by: TOC Planning

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

Legend

- 100-yr Flood Zone
- Thoroughfare Overlay
- Site

Document Path: O:\PLANNING\REZONING\Planned Developments\2020\2020-103-PDD Lumen Planned Development District\Staff Report Maps\Staff Report Map 2020-103-PDD.mxd

TOWN OF CLAYTON

ZONING AMENDMENT

CONSISTENCY AND REASONABLENESS STATEMENT

2020-103-PDD Lumen Planned Development Rezoning

The Town Council of the Town of Clayton hereby states:

Section 1: The above referenced zoning amendment IS APPROVED.

Section 2: The above referenced zoning amendment AMENDS THE FOLLOWING PLAN(S):

The Town of Clayton's Comprehensive Plan 2040, specifically:

- **Future Land Use Map – Change a portion of one of the subject property's designations from "Medium Density Residential" and "Low Density Residential" to "High Density Residential". This applies apply to the southern portion of TAG # 05F02037E (see attached map below).**

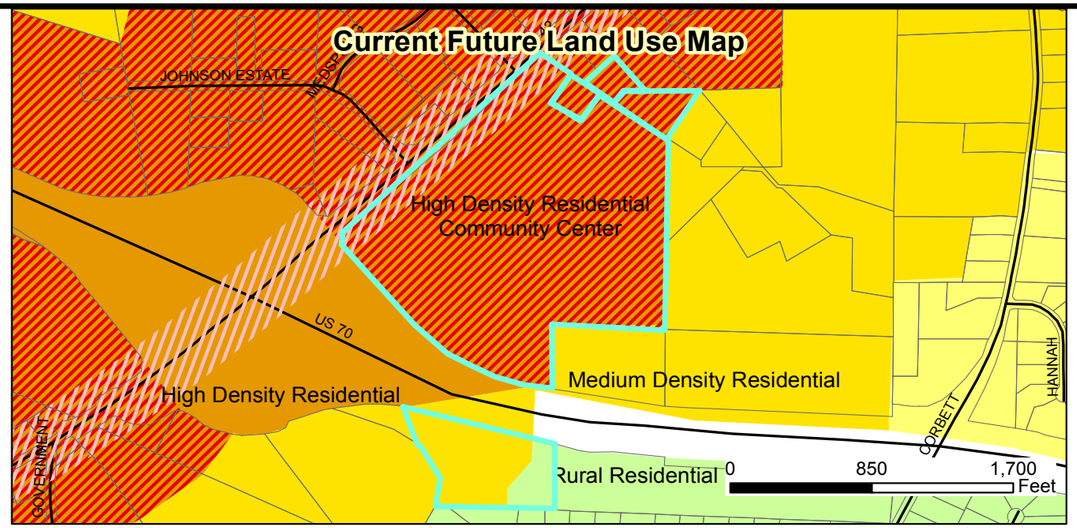
  The proposed rezoning from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU) is consistent with the majority of the subject properties, with the exception of the southernmost portion of TAG # 05F02037E. This portion is designated as "Medium Density Residential" and "Low Density Residential". This designation does not envision non-residential development or higher density residential development as is proposed in the associated master plan for this portion of property (the governing master plan proposes 8-10 units/acre).

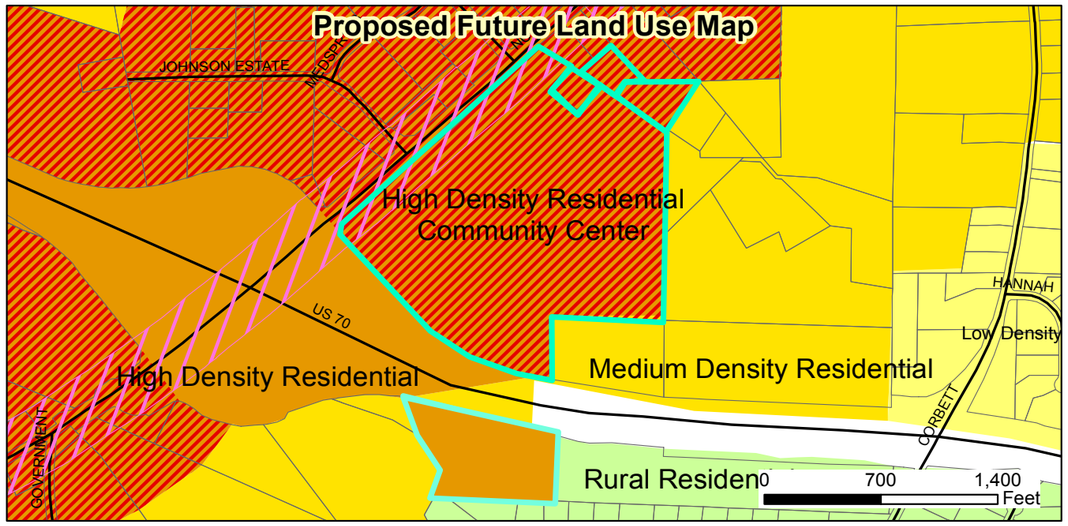
Section 3: Based upon information presented at the public hearings and by the applicant, and based upon the recommendations and detailed information developed by staff and the Planning Board contained in the staff report, and considering the criteria applicable sections of the Unified Development Code of the Town of Clayton, the above referenced zoning amendment is reasonable and in the public interest.

The subject properties are primarily consistent with the Comprehensive Plan 2040 as they are all currently designated as "High Density Residential" and "Community Center", with the exception of the southernmost portion of one parcel. A rezoning and Future Land Use Map modification would be consistent with the remainder of the parcel and would allow for development only as outlined on the associated governing master plan (2020-104-SD).

Additionally, despite inconsistency with the Future Land Use Map the proposed rezoning is still reasonable and is consistent with other elements of the Comprehensive Plan. Specifically, the following goals and objectives:

- **Goal LU1: Preserve Clayton's small-town character while allowing for growth and development in appropriate areas.**
- **Objective LU1.3: Encourage a mix of residential and non-residential land uses within Neighborhood and Community centers identified on the Future Land Use Map.**
- **Goal LU3: Provide a sense of place and enhance aesthetics along major corridors.**
- **Objective LU3.1: Identify and develop gateways into Clayton.**





Future Land Use Map Modification

Lumen Planned Development Rezoning, 2020-103-PDD
Consistency & Reasonableness

01/08/2021

Produced by: TOC Planning

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

Document Path: \\TOC-FILE-01\Shares\ComDev\Planning\PLANNING\REZONING\Planned Developments\2020\2020-103-PDD Lumen Planned Development District\Consistency Statement\Consistency Statement 2020-103-SD.mxd

Town of Clayton
Town Council
Zoning Ordinance Amendment Motion Sheet

After considering the recommendations of the Planning Board and Planning Director, I move to **[approve OR deny]** **2020-103-PDD**

[IF APPROVING]

and to approve the Statement of Consistency and Reasonableness included in the Agenda packet [with the following modifications: STATE MODIFICATIONS, IF ANY]**.**

MOTION FORM
Item 6a
2020-103-PDD
Lumen Rezoning

Ordinance #2021-10-02

AN ORDINANCE AMENDING THE ZONING ORDINANCE AND ZONING MAP OF THE TOWN OF CLAYTON, NORTH CAROLINA

WHEREAS a petition has been filed with the Town Council of the Town of Clayton requesting an amendment to the Zoning Ordinance and Zoning Map of the Town of Clayton to include in the Planned Development Mixed Use (PD-MU) zone the property described below, said property formerly being zoned Residential Estate (R-E); and

WHEREAS said property is owned by Davis Park Leasing LLC, Frankie Medlin and Benny & Seth Langston

WHEREAS the Planning Board of the Town of Clayton has reviewed the proposed change(s) and made a recommendation thereupon; and

WHEREAS notice of a public hearing to consider the proposed change was published in accordance with law in the The Johnstonian, a local newspaper, as required by Section 155.702(D) of the Clayton Unified Development Code and by Section 160A-364 of the North Carolina General Statutes; and

WHEREAS a notice of the proposed zoning classification action was mailed to the owner(s) of the parcel(s) of land involved, as shown on the County Tax Listings, and to the owners of all parcels of land abutting that (those) parcel(s) of land and within 100 feet of the subject parcel(s) of land, as shown on the County Tax Listings, by depositing a copy of the same in the United States Mail, first class postage paid, as required by Section 155.702(D) of the Zoning Ordinance of the Town of Clayton and by Section 160A-384 of the General Statutes; and

WHEREAS the said public hearing was actually conducted at 6:00 p.m. on October 18, 2021 wherein a reasonable opportunity was given to all those in attendance to speak either in favor or against the said change or to make relevant comments;

THEREFORE, after duly considering the matter, THE TOWN COUNCIL OF THE TOWN OF CLAYTON DOES HEREBY ORDAIN:

SECTION 1. That the Unified Development Code of the Town of Clayton is hereby amended to include in the Planned Development Mixed Use (PD-MU) zone the following described property:

General Description:
Property is located off Highway 42 West, adjacent to 70 bypass and across from Spring Branch Medical Park.

Specific Description:
NC Parcel Identification Numbers: 05F02037E, 05F02037A & 05F02037

SECTION 2. That the official Town of Clayton Zoning Map is hereby amended to include in the Planned Development Mixed Use (PD-MU) zone the above-described property and will be so marked.

SECTION 3. That if any section, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance.

SECTION 4. That this ordinance shall become effective immediately upon its adoption.

DULY ADOPTED by the Clayton Town Council this 18th day of October, 2021 while in regular session.

_____
Jody McLeod
Mayor

ATTEST:

_____
Kimberly A. Moffett, CMC, NCCMC
Town Clerk

Town Council Agenda Cover Sheet

Meeting Date
October 18, 2021

Agenda Location
Public Hearings

Item Title
2020-104-SD Lumen Subdivision

Presenter
Ben Howell, AICP, CZO – Planning Director

Summary/Description

Preliminary Plat, acting as a master plan, for a mixed use development that includes 700,000 SF of non-residential office/institutional uses, up to 90,000 SF of commercial/retail uses, up to 480 multi-family residential units, up to 120 single-family lots, and up to 120 rooms and/or 10,000 SF for a hospitality/civic use.

Requested Action
Approval with Conditions

Funding Source (If Applicable):
N/A

Cost: **N/A** **Yes** ☐ **No** ☒

Additional Documents to be Included in Agenda Packet

Application
Neighborhood Meeting Material
Site Plan – Master Plan
Adjacent Property Letter
Newspaper Ad
Traffic Impact Analysis
Staff Report
Staff Report Map
Consistency Statement
Wastewater Allocation Request

Meeting Timeline
Click or tap here to enter text.

DocuSign Envelope ID: 88D5C018-FA24-480E-89B1-FF7E6CBA15A1

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

MAJOR SUBDIVISION (PRELIMINARY PLAT) APPLICATION

☐ **New Major Subdivision: $400.00 + $5.00 per lot**
- ☐ **Conventional**
- ☐ **Open Space**
- ☐ **Master Plan**

☐ **Modification to approved plan**
- ☐ **Major: $400.00 + $5.00 per lot modified**
- ☐ **Minor: $200.00 + $5.00 per lot modified**
- ***Modified Plan:*** _____

Advertising Fee: $200.00

SITE INFORMATION

Name of Project: Lumen Planned Development District **Acreage of Property:** 65.19

Tag #: (1): 05F02037E; (2): 05F02037B; (3): 05F02037A; (4): 05F02037 **NC Pin #:** (1): 05F02037E; (2): 05F02037B; (3): 05F02037A; (4): 05F02037

Location: 2219 NC 42 West, Clayton, NC 27520

Number of lots (Existing): N/A **(Proposed):** N/A **Min. Lot Size:** N/A

Zoning District: PD-MU (Planned Development - Mixed Use) **Electric Provider:** TBD

Wastewater: ☐ ***Septic*** ■ ***Sewer*** **Water:** ☐ ***Well*** ■ ***Public/Private Water***

Recreation/Open Space Requirement: ☐ ***Fee in lieu*** ■ ***Land Dedication – acreage:*** 8.15 AC

APPLICANT INFORMATION

Applicant: Kimley-Horn

Mailing Address: 421 Fayetteville Street, Suite 600 Raleigh, NC 27601

Phone Number: 919-653-2976 **Fax:** _____

Contact Person: Richard Brown, PLA

Email Address: richard.brown@kimley-horn.com

OFFICE USE ONLY

Date Received: _____ Amount Paid: _____ File Number: _____

Updated August 2020

DocuSign Envelope ID: 88D5C018-FA24-480E-89B1-FF7E6CBA15A1

PROPERTY OWNER INFORAMTION

Name: (1): Penny, Ezra Lee; (2): Medlin, Frankie P; (3): Langdon, Benny; (4): Langdon, Benny

Mailing Address: (1): 406 Crossway Ln, Holly Springs, NC 27540; (2): 2219 N 42W, Clayton, NC 27520;(3): 19 Slateford Dr, Clayton, NC 27520; (4): 19 Slateford Dr, Clayton, NC 27520

Phone Number: _____ **Fax:** _____

Email Address: _____

EXPLANATION OF PROJECT

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

The site is currently zoned RE-Residential Estate and has been used for residential in recent history. The applicant proposes to redevelop the site for a mixture of residential, commercial, and office uses. The proposed planned development program would infuse new development into an assemblage that is poised as a catalyst for urban growth and as a new gateway along the western approach to Clayton. In order to execute this vision, the applicant wishes to rezone the property from the existing zoning classification to a PD-MU to allow all desired uses on the site. See enclosed narrative and Exhibits for a more detailed description of the project proposal and design intent.

FINDINGS OF FACT

Section 155.706(I)(10) of the Unified Development Code requires that certain findings must be made by the Town Council before a Major Subdivision may be approved. Outline below (you may attach additional sheets) how the application addresses each of the following findings:

(1) The subdivision is consistent with the adopted plans and policies of the Town.

This master plan proposal is consistent with adopted plans of the Town of Clayton. This assemblage is part of the JHMC NC 42 West Area Plan that was adopted by the Town in November 2007. As a part of this plan, this parcel is designated mixed use and is intended to have high quality uses and a wide variety of both residential and non-residential uses for the surrounding area.

(2) The subdivision meets all required specification of the Unified Development Code.

This plan proposal is consistent with adopted plans of the Town of Clayton. The applicant will ensure that the master plan will continue to meet all required specifications of the policies and Town Unified Development Code except where otherwise addressed through alternate design standards as spelled out within

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the project master plan narrative.

(3) The subdivision will not be detrimental to the use or orderly development of other properties in the surrounding area and will not violate the character of existing standards for development of properties in the surrounding areas.

The proposed project does not adversely affect the adjoining properties and property owners.

The property is uniquely situated at a major gateway intersection with two of the Town's major transportation corridors. Land uses are conductive to the location and supported by traffic and compatible with the development patterns. The size of the assemblage and proposed infrastructure will also support the proposed mix of uses, with retail, office/institutional, public/civic, townhomes and even congregate care being proposed. Appropriate buffers are also proposed to protect the adjacent land uses.

(4) The subdivision design will provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, will provide for the unified and orderly use of our extension of public infrastructure, and will not materially endanger the environment, public health, safety, or the general welfare.

Adequate public facilities, including existing and proposed streets, existing and proposed wastewater treatment, existing and proposed potable water and existing and proposed stormwater infrastructure are either existing or will be improved to meet the demands of the proposed uses to the maximum extent practicable.

The approval of the master plan/rezoning will be contingent upon the execution of a developer agreement between the developer and the Town of Clayton regarding infrastructure sufficiency to support the proposed development. The development will also provide stub streets to promote inter connectivity and a means of access through the property to NC42

MAJOR SUBDIVISION PLAN CHECKLIST

Pursuant to Article 7, Section 155.706 of the Unified Development Code, applications requesting a public hearing or administrative approval process shall submit a plan set to the Planning Department. These plans may include Master Plan, Site Plan, Subdivision Plan, Regulating Plan, Architectural Elevations, Landscape Plan, Photometric/Lighting Plan, Engineering Plans, and Survey. The plan requirements shall be based on the type of development application or approval process.

PLAN FORMAT

These standards are established to provide information pertaining to the graphic and format presentation of plans. The following is required for all types of plans, except where otherwise noted:

- All plans and architectural elevations shall be limited to 24” x 36” in size, and **folded to an 8.5” x 11” format.**
- Plans are to be drawn at the same engineering scale of 1” = 20’; 30’; 40’; 50’; 60’ (architectural elevations and details are exempt from this requirement) with north oriented in the same direction.
- Plans may be drawn at an engineering scale of 1” = 100’, if approved by the Planning Department or the Technical Review Committee (TRC).
- Architectural plans and elevations shall be drawn at an architectural scale of 1” = 3/32’, 3/16’, 1/8’, 1/4’, or 3/8’.

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ARCHITECTURAL ELEVATIONS AND FLOORPLAN

Provided		
Yes	**N/A**	
☐		Provide floor plans, elevations, construction materials, finishes and colors, along with type of construction of all buildings per North Carolina Building Code prepared by a professional architect registered in North Carolina. This should be provided in color.
☐		Indicate the height and number of stories for each structure.
☐		Indicate the location and screening method for all roof mounted structures or equipment.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Town Council of the Town of Clayton to approve the subject Major Subdivision. 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.

Richard Brown, PLA	DocuSigned by: Richard Brown 8DCD47D6EBA742B...	12/2/20
Print Name	***Signature of Applicant***	***Date***

Updated August 2020

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

OWNER'S CONSENT FORM

Consent is required from the property owner(s) if an agent will act on their behalf. A separate form is required from each owner. Consent is valid for one year from date of notary, unless otherwise specified. All fields must be completed.

Project Name: Lumen Planned Development District **Address or PIN #:** 05F02037A

AGENT/APPLICANT INFORMATION:

Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (***list applicable requests***):

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify that I have authority to execute this consent form as/on behalf of the property owner. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

OWNER AUTHORIZATION:

Benny Langdon SETH LANGDON
(Name - type, print clearly)

19 Slatford Drive
(Address)

(Owner's Signature)

Clayton, NC 27520
(City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me Britny L. Simmons, a Notary Public for the above State and County, this the 19 day of June, 2020.

SEAL

NOTARY PUBLIC Johnston County, N.C.

Notary Public

My Commission Expires: 5/2/2025

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

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Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

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OWNER AUTHORIZATION:

Benny Langdon SETH LANGDON
(Name - type, print clearly)

19 Slateford Drive
(Address)

(Owner's Signature)

Clayton, NC 27520
(City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me Brittni L. Simmons, a Notary Public for the above State and County, this the 20th day of June, 2020.

SEAL Brittni D. Simmons NOTARY PUBLIC Johnston County, N.C.

Notary Public

My Commission Expires: 5/2/2025

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

OWNER'S CONSENT FORM

Consent is required from the property owner(s) if an agent will act on their behalf. A separate form is required from each owner. Consent is valid for one year from date of notary, unless otherwise specified. All fields must be completed.

Project Name: Lumen Planned Development District **Address or PIN #:** 05F02037B

AGENT/APPLICANT INFORMATION:

Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (***list applicable requests***):

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify that I have authority to execute this consent form as/on behalf of the property owner. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

OWNER AUTHORIZATION:

FRANKIE PERRY MEDLIN
(Name - type, print clearly)

2219 NC Hwy 42 W
(Address)

Frankie Perry Medlin
(Owner's Signature)

Clayton NC 27520
(City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me Brittni L. Simmons, a Notary Public for the above State and County, this the 29 day of May, 2020.

SEAL

Brittni L. Simmons NOTARY PUBLIC Johnston County, N.C.

Notary Public

My Commission Expires: 5/2/2025

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

OWNER'S CONSENT FORM

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Project Name: Lumen Planned Development District **Address or PIN #:** 05F02037E

AGENT/APPLICANT INFORMATION:

Kimley-Horn and Associates
(Name - type, print clearly)

421 Fayetteville Street, Suite 600
(Address)
Raleigh, North Carolina 27601
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (***list applicable requests)***:

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

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OWNER AUTHORIZATION:

Jack M. Penny, Jr.
Paul S. Penny - POA for Frankie Mallin Evan Lee Penny
(Name - type, print clearly)

406 Crossway Lane
(Address)

Holly Springs, NC 27540
(City, State, Zip)

(Owner's Signature)

STATE OF North Carolina
COUNTY OF Buncombe

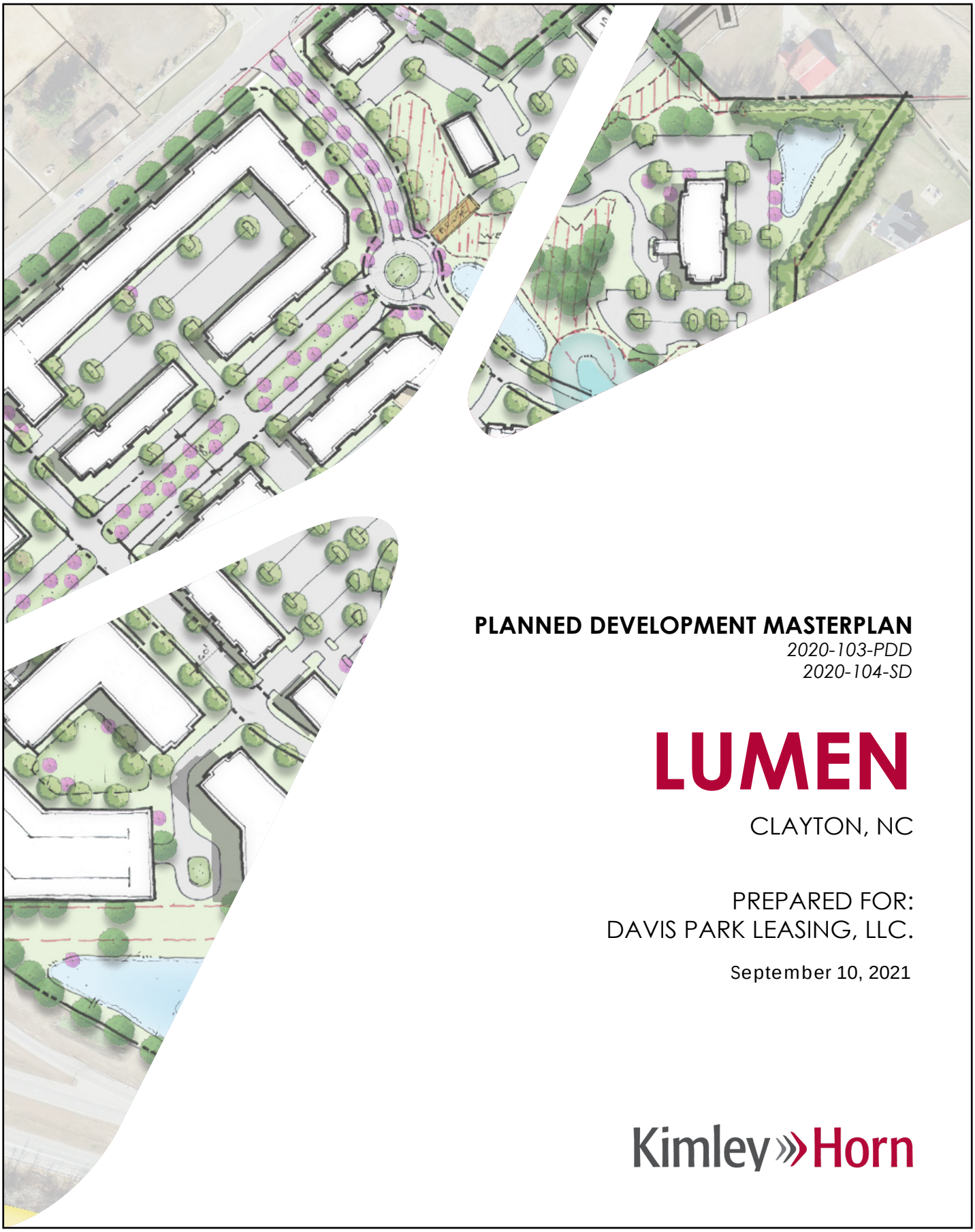
Sworn and subscribed before me Susannah L Haskell, a Notary Public for the above State and County, this the 29 day of June, 2020.

SEAL

Susannah L. Haskell
Notary Public
Buncombe County, NC

Notary Public

My Commission Expires: 01/30/2023



PLANNED DEVELOPMENT MASTERPLAN

2020-103-PDD
2020-104-SD

LUMEN

CLAYTON, NC

PREPARED FOR:
DAVIS PARK LEASING, LLC.

September 10, 2021

Kimley»Horn

Rezoning Application w/ Master Plan

For

Lumen

A Mixed-Use Planned Development District

Clayton, North Carolina

Prepared for:

The Town of Clayton, North Carolina

Submitted: July 1, 2020
Resubmittal: August 17, 2020
Resubmittal: November 4, 2020
Resubmittal: December 4, 2020
Resubmittal: January 29, 2021
Final Council Submittal: September 10, 2021

Applicant / Lead Consultant

KIMLEY-HORN
NC License #F-0102
421 Fayetteville St. Raleigh, North Carolina 27601
(919) 677-2000

DEVELOPERS:

DAVIS PARK LEASING, LLC
8000 Weston Parkway, Suite 360 Cary, NC 27513
(919) 414-1300





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Appendix C 2025 Town of Clayton Future Land Use Map

Appendix E Property Ownership / Adjoiners

Appendix F Owner Authorization Forms

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MP-01	Existing Conditions
MP-02	Topographical and Boundary Survey
MP-03	Master Land Use Plan
MP-04	Blocking Framework & Phasing Plan
MP-05	Projected Phased Road Implementation
MP-06	Conceptual Utility Plan
MP-07	Urban Street Typologies

Section 1.0 HISTORY & OVERVIEW

The applicant of this project, Davis Park Leasing, LLC, proposes to create a large-scale Planned Development of approximately 69 acres in western Clayton near the intersection of NC Highway 42 and US highway 70 Bypass. This property is situated on rolling farmland and consists of 4 total parcels, the largest of which has been in the Penny family since the 1930's. Since the purchase from the Government in 1938 as part of a farm recovery program, the property has been the homeplace of the Penny family and heirs. The Penny Home place was originally a 4-room farmhouse that predated rural electrification. The primary hay / cattle barn was previously the county schoolhouse which was moved and repurposed as a barn after a new school was built. The county school bell is still located on the property today.

The farm was originally a significantly larger parcel where the family grew many crops and livestock. Tobacco, sweet potatoes, corn, wheat, rye, hay, soybeans, angus cattle, pigs, chickens etc. Hay has been the primary crop for the Penny Farm for the past 20 years.







In 2008 the completion of US Highway 70 Bypass bisected the property and created an interchange and new frontage along the property. The property also accommodates a 60' wide utility corridor for the regional gas pipeline that serves properties along the corridor. This also opened significant new development potential along the NC 42 corridor and positioned the property as a new gateway to western Clayton.



The subject property is physically bounded by two significant features: NC Highway 70 By-pass to the west; NC Highway 42 to the north. There are also existing natural features and rolling topography to the southwestern portion of the property as well as two existing farm ponds. An environmental assessment has not been conducted at this point, however, there are no indications that any environmental contaminants exist on the property. The developer will work with the property owners to submit necessary information to NCDENR at the appropriate time.

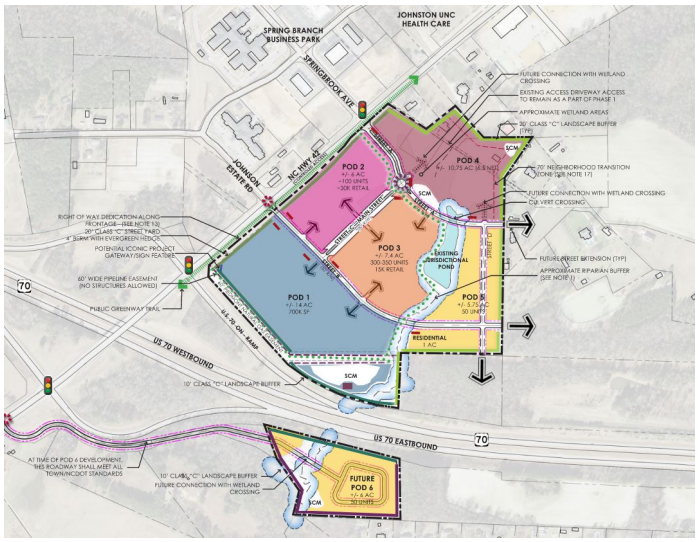
The site is currently zoned RE-Residential Estate and has remained a residential and agricultural use since the land was purchased in 1938. The applicant proposes to redevelop the site for a mixture of residential, commercial and office uses. The proposed planned development program would infuse new development into an assemblage that is poised as a catalyst for urban growth and as a new gateway along the western approach to Clayton.

SECTION 2.0 PURPOSE & INTENT STATEMENT

The Lumen Planned Development will set the stage for high quality, mixed-use development in Western Clayton. The construction of US Highway 70 By-pass, NC Highway 42 widening plans, the currently expanding wastewater treatment facilities along with the JCMH / NC 42 West Area Plan have been put in place to promote and support a more urban pattern of development in what once was rural Johnston County.

In light of the recent development activity and market trends in the Town's jurisdiction, and with an anticipated continuation of growth a favorable development environment, this application seeks to advance the project with a master plan that is market driven while maintaining the broader goals of Town's previous community plan for the western NC 42 Corridor. The overall development will provide flexibility for a variety of complimentary land uses and product types within a planned community setting to create a walkable, live-work neighborhood with housing, neighborhood shopping, employment, and entertainment destinations to serve western Clayton.

Furthermore, this proposal provides a balance of land use types, encouraging a diversity of residential densities, employment center opportunities and zones permissive of a mix of uses that will achieve Clayton's intent of ensuring that this area can develop in a way that *"minimizes congestion on Highway 42, emphasizes walkability, and values aesthetic design principals"* and *"provides the necessary support and cohesion to sustain the viability of the commercial, retail, office, and institutional uses of the plan"*



Conceptual Master Land Use Plan

"This location is a key destination for large retailers, all levels of eating establishments, housing at various densities, and ancillary medical office space. With all these uses comes the opportunity for hundreds of jobs. These workers will want the chance to live close to their place of employment and utilize services in the same community.

- *JCMH / NC 42 WEST Small Area Plan*





SECTION 3.0 MASTERPLAN SUMMARY

The Development Concept

The Lumen development has been envisioned with consideration to the existing and future needs of the surrounding community with a diverse mix of uses: neighborhood retail services, alternative residential options, as well as lodging and employment opportunities and making those needs a closer reality. Currently, the ~69-acre master plan shows over 700,000 square feet of office/institutional uses, a maximum of 480 units of multifamily residential, up to 140 single family and townhome lots, 120 hotel rooms, as well as 90,000 sq. feet of potential commercial/retail. Of equal importance, the plan promotes connectivity and walkability by incorporating pedestrian facilities throughout the development as well vehicular and pedestrian connection opportunities to surrounding properties. Thus, establishing a framework for interconnectivity as the surrounding properties are considered for potential redevelopment opportunities.

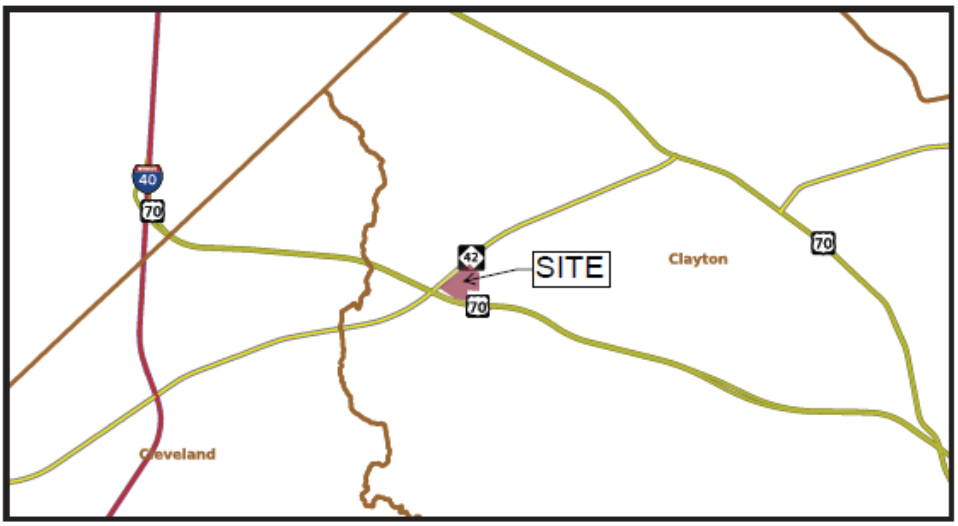
The Masterplan is structured to provide form and framework in the plan but flexibility for developers to bring creativity in response to market conditions and the Town's vision for development and growth.

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

The Development meets the Specific Use standards and Development Standards defined in Articles 3 and 4 of the Town of Clayton Unified Development Ordinance (UDC) by means of the design controls established within. More specifically, the Development Standards will reflect the following:

- Land Use
- Residential and Non-Residential Design Controls
- Key Development Standards
- Architectural Standards
- Landscaping, Buffering and Screening
- Stormwater Management
- Streets and Access
- Vehicular and Pedestrian Circulation
- Utility Infrastructure
- Signage
- General Phasing

Section 4.0 Exhibit A - VICINITY MAP



NOT TO SCALE

PROJECT LOCATION MAP



SCALE: 1"=1000'





Section 5.0 PROJECT DATA:

A. Project Name: Lumen Planned Development District

B. Applicant / Land Planner: Kimley-Horn and Associates
421 Fayetteville St. Raleigh, NC 27601
Contact: Richard Brown, PLA (919) 653-2976
richard.brown@kimley-horn.com

D. Zoning: Existing: RE – Residential Estate
Proposed: PD-Mixed Use

E. Land Use: Existing: Residential; Vacant
Proposed: Mixed Use: Residential / Non-Residential

F. Total Development Area: **69.07 acres**

G. Property Ownership:

Owner 1: Ezra Lee; Paul Scott Penny
PIN **05F02037E** 65.19 ac
Address: 406 Crossway Lane
Holly Springs, NC
27540

Owner 2: Frankie P Medlin
PIN **05F02037B** 1.00 ac
Address: 2219 NC 42 W
Clayton, NC
27520

Owner 3: Langdon, Benny and Seth
PIN **05F02037A** 1.05 ac
Address: 19 Slateford Rd.
Clayton, NC
27520

Owner 4: Langdon, Benny and Seth
PIN **05F02037** 1.83 ac
Address: 19 Slateford Rd.
Clayton, NC
27520

H. Developer/Contract Purchaser: Davis Park Leasing, LLC c/o Craig Davis Properties, Inc.
8000 Weston Parkway, Suite 360
Cary, NC 27513
Contact: Mr. Craig Davis

I. Applicant/Authorized Agent: Kimley-Horn
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
Contact: Richard Brown, PLA





Section 6.0 PERMITTED USES

The PD-MU Planned Development-Mixed Use district is intended to provide coordinated mixed-use developments which include commercial/retail, office (professional and medical), hospitality, civic, institutional, residential and service uses within a planned development with appropriate perimeter buffering and open space. The variety of land uses available in this district allows flexibility to respond to market demands and the needs of tenants, which provides for a variety of physically and functionally integrated land uses.

This application provides for the following uses to be permitted by right within the Lumen Master Plan, as provided for in the PD Text, and in accordance with the Use table (Table 2-1 § 155.202(B)). The permitted uses for the project, in its entirety, shall be as follows:

6.1 Residential Uses (In accordance with and as defined by standards of Section 155.301)

I. Standard Residential Typologies (Section 155.301)

Residential Uses below shall be allowed in PODS 2-6

A) Accessory Apartment
B) Condominium
C) Assisted Living
D) Congregate Living Facility
E) Duplex
F) Multi-Family or Apartment
G) Nursing or Convalescent Facility
H) Single Family (Front / Alley / Rear Loaded)
I) Townhouse
J) Triplex or Quadplex
K) Upper Story Residence
L) Zero Lot Line Residence

6.2 Non-Residential Uses (In accordance with and as defined by standards of Sections 155.302 – 155.308)

non-residential uses shall not be allowed in residential pods 5 & 6 unless specifically specified otherwise below

I. Public/Civic Uses (Section 155.302)

Public / Civic Uses below shall be allowed in PODS 1-4

A) Ambulatory Healthcare Facility with emergency department
B) Assembly
C) Church, or place of worship
D) College or University
E) Day Care Facility
F) Government Service
G) Hospital / Medical Center
H) School, public or private (Elementary or Secondary)
I) Vocation School (Technical, Trade or Business)
J) Veterinary Clinic or Hospital

II. Recreational Uses (Section 155.303)

Recreational Uses below shall be allowed as listed below

A) Entertainment Indoor *(PODS 1-4)*
B) Entertainment Outdoor *(PODS 1-4)*





C) Park *(PODS 1-6)*
D) Fitness/Recreation facility *(PODS 1-6)*

III. Commercial / Retail Uses (Section 155.305)

Commercial / Retail Uses below shall be allowed in PODS 1-4

A) Lounge, Cocktail
B) Microbrewery
C) Bed & Breakfast
D) Parking Garage, commercial/office
E) Hotel or motel (may include conference center)
F) Barber and beauty shop
G) Book store
H) Restaurant
I) Retail Sales
J) Convenience store
K) Convenience store with gas sales
L) Laundry service, Dry Cleaners
M) Financial institution
N) Funeral home
O) Outdoor Seating/Sidewalk Café
P) Office, General
Q) Office, Medical
R) Publisher

IV. Industrial Uses (Section 155.306):

Industrial Uses below shall be allowed in POD 1

A) Laboratory, Research
B) Manufacturing, Light
C) Research & Development

V. Utility Uses (Section 155.305):

Utility Uses shall be allowed in PODS 1 & 6

A) Communication Tower Commercial
B) Communication Tower – constructed Stealth

VI. Accessory Uses (Section 155.308):

Accessory Uses shall be allowed in PODS as listed below

A) Farmers market *(PODS 1-6)*
B) Food Trucks *(PODS 1-6)*
C) Parking Deck (Commercial) *(PODS 1-4)*
D) Parking Deck (Residential) *(PODS 1-4)*

END OF PERMITTED USES

NON-PERMITTED USES

The following uses will be precluded by the master plan

A) Tattoo Parlor
B) Pawn Shop
C) Adult Oriented Businesses
D) Public storage
E) Manufacturing, Heavy





F) Distribution center
G) Fleet Vehicle Storage
H) Towing Service/Vehicle Storage
I) Junk Yard
J) Warehouse and Freight Movement
K) Open Dump
L) Outdoor gun range
M) Vehicle Repair and Service
N) Building Supplies, Wholesale

Section 7.0 LAND USE INTENSITY AND DESIGN CONTROLS

7.1 Land Use Plan: The approved land uses (per Section 6 - *Permitted Uses*) can be located within the PD as illustrated on ***MP-03*** - *Master Land Use Plan*, outside of defined non-development areas.

7.2 Non-Residential Land Use Controls

VII. Maximum Square Footage

A. *Non Residential Uses* = **800,000** sf*
1. Commercial/Retail: 90,000 square feet (maximum)
2. Office/Medical: 700,000 square feet (maximum)
3. Hospitality: 120 rooms; (maximum)
4. Civic/Public/Conference: 10,000 square feet (maximum) – *may be part of hospitality use*

**Please note: These square footages are maximum estimates only. There is no guarantee that once all applicable code sections are met during site plan approval that this maximum number will be able to be achieved. Furthermore, distribution of these footages within the development may vary. However, the ultimate square footage shall not exceed the maximum above and/or total trip generated in the T.I.A.*

Note: The Planning Department may approve up to a 10 % increase in sf, provided that these increases do not exceed the total trip generation budgets set forth by the TIA.

7.3 Residential Land Use Controls

I. Maximum Residential Units/Lots

A. *Residential Uses* = **620** dwelling units[2]
1. Multi-family Apartments: 400 [3]
2. Condominium: 80 units[3]
3. Townhomes/SF lots: 140[1]

Note 1: All townhomes and single-family lots are anticipated as standalone structures only. Apartments and Condominiums may be standalone or vertically integrated within the upper levels of a mixed-use building.
Note 2: Residential uses may be transferred between pods. However, in no case shall the overall intensity (total dwelling units) of residential development exceed the maximum listed herein, without approval of an amended Traffic Impact Analysis to demonstrate



the adequacy of proposed roadway improvements to accommodate requested increases. Proposed maximums do not include Accessory Dwelling Units.

Note 3: Multi-family apartments and condominiums may be interchangeable.

B. *Allowable Residential Use Types:*
Residential uses may include those provided for in *Section 6 - Permitted Uses*.

Note: The Planning Department may approve up to a 10 % increase in sf, provided that these increases do not exceed the total trip generation budgets set forth by the TIA.

7.4 Mixed Use Requirements

It is anticipated that **PODS 2 and 3** will include Mixed-Use building(s) which will allow for a mix of residential and non-residential uses arranged vertically or horizontally. Vertical mixed-use buildings, when they occur, shall not be regulated with respect to the mix of uses or location of those uses within each building type but shall meet all other height, dimension, and design controls established in the approved PD documents. Furthermore, it is anticipated that **POD 4** will allow for a mix of residential and non-residential uses. In no case shall the uses surpass the land use intensity and design controls as specified in 7.2 and 7.3 above.

Table ES-1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out	In	Out
210	Single-Family Detached Housing	140	d.u.	709	709	26	78	88	52
221	Multifamily Housing (Mid-Rise)	480	d.u.	1,307	1,307	41	118	122	78
310	Hotel	120	rooms	464	464	32	23	33	31
720	Medical Office Building	700,000	s.f.	13,403	13,403	1,073	189	189	1,071
820	Shopping Center	35,000	s.f.	1,472	1,472	105	64	120	130
850	Supermarket	55,000	s.f.	2,937	2,937	126	84	259	249
Subtotal				20,292	20,292	1,403	556	811	1,611
Internal Capture				*2,893*	*2,893*	*123*	*123*	*201*	*201*
Pass-by Capture				*1,101*	*1,101*	*0*	*0*	*108*	*94*
Net New External Trips				**16,298**	**16,298**	**1,280**	**433**	**502**	**1,316**

Table ES1 – *Trip Generation, from Traffic Impact Analysis*





7.5 Residential Design Controls

Article 4 Design Standards, 155.405 Table of Intensity and Dimensional Standards shall apply to all uses EXCEPT as specifically provided for below. If subsequent revisions to the UDC after approval of the PD result in less restrictive standards, those standards may be then applied accordingly.

Land Use	Access	Min. lot size	Min. lot width	Front setback*	Side Interior setback*	Side Street	Rear setback*	Max. Impervious Coverage %	Max height	Max. density /ac
Single Family Detached	Front Loaded	5,000sf	42’	25’	6’	10’	20’	65%	35’	8-10
Single Family / Zero Lot Line	Front Loaded	5,000sf	42’	25’	0’	10’	20’	65%	35’	7
Single Family	Alley / Rear Loaded	3,500sf	30’	15’	6’	10’	10’	70%	35’	7
Senior living	N/A	NA	NA	25’	20’	15’	25’	70%	65’	NA
Townhouse (2 units)	Front Loaded	8,000sf	NA	25’	25’	10’	10’	70%	35’	14
Townhouses, (3+ units)	Front Loaded	20,000sf	26’	25’	3’	10’	10’	70%	45’	14
Townhouses (attached)	Front Loaded	NA	18’	25’	0’	10’	10’	70%	45’	14
Multi-family, Condos**	N/A	20,000sf	NA	15’	15’	15’	15’	70%	85’	20

** **Internal Setbacks:** there shall be no minimum front or side street setback to internal private street easements.*

*** Podium deck shall be allowed for ground floor of condominium and Multi-family uses*

7.6 Non-Residential Design Controls

Article 4: General Development Standards 155.405 Table of Intensity and Dimensional Standards shall apply to all uses EXCEPT as provided for below. In the event that revisions to the UDC after approval of the PD result in less restrictive standards, those standards may be then applied accordingly.

Land Use	Min. lot size	Min. lot width	Front setback	Side setback	Rear setback	Max. built-upon area[2]	Max height[3]	Max. Density[1]
Commercial	NA	NA	10’	10’	20’	70%	45’	15k sf/Ac
Retail	NA	100’	10’	10’	20’	70%	45’	15k sf/Ac
Office/Medical[4]	NA	100’	0’	0’	20’	70%	145’	65k sf/Ac
Hotel	NA	100’	10’	0’	20’	70%	145’	-----
Mixed Use Bldgs.	NA	100’	0’	10’	0’	70%	75’	20k sf/Ac





1) Nonresidential design controls shall be in accordance with Section 155.405 Table of Design Standards – Non-residential and Multi-family Residential except *that Staff may approve, at Site Plan application, alternate standards to encourage high density, mixed-use product types.*

2) Actual built-upon area shall be determined for each development pod/parcel and accounted for the entire development with the final site plan application.

3) Certain architectural elements (project identity features, towers, spires, etc.) may surpass land use height limits, but in no case shall they surpass 20' feet above the maximum allowable POD heights.

4) In some cases, Office/Medical buildings may have retail and commercial uses on the ground/street level.

7.7 Landscaping, Buffering and Screening:

The proposed landscaping is an important and unifying element throughout the Lumen development the following outlines basic elements and areas of special consideration. Where landscaping is not specified herein, development shall comply with the required Landscaping Regulations under Section 155.402 of the UDC.

STREET PROTECTIVE YARDS ALONG NC HWY 42: To enhance thee street frontage following NCDOT's construction of the NC 42 widening, the developer will provide a minimum of twenty (20') foot wide Class 'C' street yard for all uses in Pods 1, 2 & 4 along the NC 42 frontage. Street yard plantings for areas along the frontage shall be installed at rates for trees and shrubs. In addition to the plantings, shall be a berm, 4' in height, with a continuous evergreen hedge with a minimum height of 2' for a combined height of 6'. This 20' wide street yard will also be designated and credited toward the open space for the overall development.

All portions of the PD district shall meet Section 155.402 of the UDC, Landscaping, Screening and Buffering unless specifically provided for within and provided that the Planning Director may approve a reduction or elimination of required buffers or screening between uses for mixed use parcels at the time of individual site plan submittals.

Specific buffer standards are included in the PD as provided for in Section 155.402 of the UDC, Landscaping, Buffering and Screening and as identified on the Master Land Use Plan ***MP-03***.

Neighborhood Transitions: A 70' wide neighborhood transition zone will be provided in Pod 4 (See MP-03) adjacent all residential properties. Height within this transition zone shall be limited to a base height of 45'. Uses allowed within POD 4 and may have a maximum height of 145', however, in no case shall the height exceed 45' within the neighborhood transition zone as shown on the master plan.





Section 8.0 PARKING AND LOADING REQUIREMENTS:

Except where variations are prescribed within this section and approved as part of this PD, Parking and Loading for all uses included in The Development shall comply with Article 4: **Section 155.401.**

OFF-STREET PARKING TABLE 10.1 *(variations from Section 155.401)*

Residential Uses	Parking Ratio	Bike Parking Ratio
• Multi-family - 1BR	1 per DU	1/50 units
• Multi-family- 2 or more BR	1.5 per DU	1/50 units
• Congregate Living/Nursing Home	.5 per unit or bed	1 rack/building
• Assisted living/Sr. Care	1 per DU	1 rack/building
• All other	2 per DU	N/A

Non-Residential Uses	Parking Ratio	Bike Parking Ratio
• Commercial/Retail	1 / 250 sf	1/50 auto spcs (max. 30)
• Office General	1/300 sf	1/40 auto spcs (max. 50)
• Office Medical	1/300 sf	1/40 auto spcs (max. 50)
• Hotel/Motel	1 per room	1/20 auto spcs (max. 10)

In addition, staff may approve further reductions in parking standards with an approved shared use parking analysis that supports a lower demand and demonstrates that a reduction in parking standards can adequately serve both residential and non-residential uses in a contiguous mixed-use environment.

Notes:

1. The provision of parking spaces and passenger loading areas for persons who have disabilities shall be governed by the Americans with Disabilities Act (ADA) Standards for Accessible Design.
2. In addition to the parking requirements of UDC Table 10.1, Minimum Off-Street Parking Requirements, uses with company vehicles shall provide 1 space per company vehicle.
3. The Planning Director may reduce the required number of parking spaces by up to 10% for reasons of topography, tree preservation, mixes of uses, ride sharing programs, availability of transit, or other conditions specific to the site, provided that the reduction in the required number of parking spaces satisfies the intent of the UDC.
4. The Planning Director may reduce the required number of bike racks, provided that the reduction in the required number of spaces satisfies the intent of the UDC.





Section 9.0 ARCHITECTURAL STANDARDS:

Architectural Standards

1. Non-Residential Uses

I. Proposed Non-Residential Materials

Materials shall include, but not be limited to, the following:
A. Brick or simulant;
B. Stone or simulant;
C. CMU products; no smooth faced or painted CMU is permitted; it shall be textured and integrally tinted.
D. E.F.I.S (to be used as trim or accent only) and;
E. Glass

At the time of Site Plan submittal, preliminary elevations and a materials board shall be submitted to the Town of Clayton for review and approval. At the time of a Building Permit application, if a materials palette changes, an amendment to the site plan will be required.

II. Building Elevations

All building elevations which are facing primary elements and roadways will include recessed and projected facades which will prevent large, overbearing storefronts. Each building will be required to provide architectural characteristics that are complimentary to primary facades on all sides of the building.

For Mixed-use and Office Building which abut public streets and are greater than 100 feet in length shall have first floor facades with storefronts/glazing that occupy a minimum of 60% of the wall area fronting the public street.

Throughout each non-residential development, a complimentary color palette shall be used to ensure harmonious design throughout.

Retail buildings shall have a greater area of openings (storefronts and entrances) on the ground floors and may have design elements such as solid parapets above.

Mixed Use or office and institutional buildings will have more glass at ground level and less on upper levels.

Special windows, window groupings, as well as a mixture of large and small windows could be used to create a hierarchy of importance on a building, especially at entrances.

Parapets shall have returns that are at least 50% of the width of the parapet.

All screening requirements shall be met as stipulated in the Clayton U.D.O. with regards to waste disposal, loading areas, and so forth.

III. Building Orientation

Buildings shall be oriented to help define a street and to frame street corners, which will encourage pedestrian activity and define spaces.





2. Residential Uses

I. Proposed Residential Materials

Materials shall include, but not be limited to, the following:
A. Brick or simulant;
B. Stone or simulant, and;
C. Stucco (to be used as trim or accent and will not be used as a primary material);
D. Wood siding, cement fiber siding (Hardi-plank), and Wood composite (Smart side).

At the time of Site Plan submittal, preliminary elevations will be submitted for review and approval. At the time of Building Permit application, a materials board shall be submitted to the Town of Clayton for approval.

IV. Parking Deck Elevations

All parking decks contained within the development shall be compatible with surrounding buildings. Facades visible from public streets shall unify the deck with the façade treatments for the building/uses it supports. Where feasible, retail and office may be incorporated into the street levels of any parking decks. Parking structures may be integrated as part of other building uses or may be stand-alone. If Stand-alone, the deck façade treatments shall unify the deck as noted above.

Section 10.0 SIGNAGE:

All signage within The Development shall comply with the signage requirements as set forth in Section155.403, Signs, of the Town of Clayton Unified Development Code. Individual Signage Plans shall be submitted as part of the individual plan approvals for the various development tracts within The Project.

Section 11.0 STORMWATER MANAGEMENT:

Most of the site area is cleared open land and currently drains to nearby and ponds and drainage channels internal to the site (***MP-01*** *Existing Conditions*). The proposed development will require storm water management measures for quality and quantity treatment in accordance with the Town of Clayton Stormwater Design Manual. A network of subsurface reinforced concrete pipes will convey storm water flows from impervious areas to proposed Stormwater Control Measures (SCMs). Locations for the SCMs shall be identified during final infrastructure design. All stormwater management will be required to meet all North Carolina Department of Environmental Quality (NCDEQ) and Town of Clayton design requirements at time of infrastructure plan submittal.





Section 12.0 NATURAL RESOURCE AND ENVIRONMENTAL PROTECTION:

I. Watershed Information:

The subject property is located within the Neuse River Watershed District.

II. FEMA Floodplain

There is no FEMA floodplain located on the subject property per FIRM Map 3720164800K, Panel: 1648, effective June 20, 2018.

The Development shall comply with the applicable regulatory standards of the Town's UDC as amended related to natural resource and environmental protection and the provisions of the PD.

III. Environmental Findings:

Kimley-Horn conducted an environmental wetland and buffer delineation report (Appendix G). The preliminary findings of this report have preliminarily mapped wetlands and any jurisdictional features present on the subject property. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by NCDENR and the Army Corps of Engineers prior to development.

IV. Resource Conservation Areas:

Per UDC Section 155.500 Resource Conservation Areas, these environmental areas may not be occupied by buildings or other impervious surface areas associated with development impacts exceeding 5% of each Resource Conservation Area.

The proposed master plan (sheet MP-03) will require limited impacts to these RCAs. Proposed impacts shall be limited to public streets and pedestrian walkways (sidewalks, multi-use paths, etc) such that wetland disturbance does not exceed ½ acre as required by the US Army Corps of Engineers. These impacts are necessary in order to serve the public benefit of the overall development as well as surrounding land areas which will be offered public access through the property. However, in no case shall private buildings, structures, parking, or other impervious surfaces impact greater than 5% of any resource conservation area.





Section 13.0 PUBLIC FACILITIES:

All public facilities improvements shall be designed and installed in compliance with the Town of Clayton Ordinance, Chapters 50-52. Each of the major infrastructure elements is described below:

13.1 Sanitary Sewer Service

Refer to ***MP-06*** for a conceptual utility plan of the sewer infrastructure required to service the Development. There is an existing 8" force main within NC 42 along the project frontage, operated by the County. The project is anticipated to be developed in multiple phases (refer to exhibit ***MP-04***). The site will drain by gravity to a proposed pump station. This pump station will connect by force main into the existing 8" force main within NC HWY 42 or will extend to a point of connection within the Walnut Creek Collection Area. The phasing of the project and capacity limitations of the Johnston County and Town of Clayton infrastructure will determine the appropriate point of connection for the proposed force main.

Given the current capacity limitations in the Town's existing sanitary sewer infrastructure, it is understood that the phasing of the development may be subject to available capacity at the time of the initial subdivision/development plan for the property. The Town is currently planning to add treatment capacity by 2023 and will prioritize this proposed development. Average daily Sewer flows based on the proposed land uses and projected intensities are expected to be between 250,000 - 400,000 GPD.

Based on currently estimated flows and existing infrastructure, the proposed pump station is anticipated to be required in Phase 1 of the development (based on ***MP-04***). The pump station and force main within the site will be the responsibility of the developer/applicant and will need to be sized based on project flows associated with actual development project(s) at the time of Subdivision application. Responsibilities for cost and construction of potential off-site force main upgrades or new force main infrastructure may be shared between the Town and the development. Actual demand and sewer infrastructure improvements by phase shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

13.2 Water Service

Refer to ***MP-06*** for a preliminary master utility plan. Water services exist along the property along the NC Highway 42 frontage. Water services will be connected to the existing main and looped through the property via a public main. The size and specification of water infrastructure shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

Based on anticipated domestic and fire flow demands of the development, an elevated water tower may be required for this area prior to the completion of the full build-out of this development. Coordination with the Town of Clayton and Johnston County Utilities will determine the location and sizing of the water tower. The design and construction of the water tower will be a public project in order to serve the growing demands of the area. No land area is being reserved on the subject property for construction of this facility.

13.3 Gas & Electric Service

The Development is in the natural gas service area of Piedmont Natural Gas. The service provider will require a revenue analysis be completed based on the proposed development to determine the applicable costs to the developer for installation of infrastructure.

For areas with existing electrical infrastructure, the developer will have a choice of service provider. It is anticipated that the major power distribution on the site perimeter will be standard overhead lines along public streets and internal services will be installed underground along the proposed private roadway infrastructure.





13.4 Streets/Roads:
The Development will require improvements to develop a new internal roadway network and external points of access in accordance with the recommendations of the final Development Transportation Impact Analysis and as approved by the NCDOT. Roadway improvements required to support the PD may include both public and private streets. The street network is shown on ***MP-04*** - *Blocking Framework and Phasing Plan*. Also, urban street typologies have been proposed on ***MP-07*** *Urban Street Typologies*. The street network is conceptual and subject to change pending final design. Public right of way dedication will be required for some internal public streets. All new streets (public and private) shall be in accordance with ***MP-07*** street sections and shall be constructed to public street standards of the Town's Engineering Design Manual.

Access: A total of two (2) access points are identified on ***MP-03*** – *Master Land Use Plan*. Final engineering plans for driveway access will be developed in conjunction with individual site plan applications or as provided for in the ***MP-04*** *Blocking Framework and Phasing Plan*.

Future Cross Access: It shall be a condition of the PD that if and when NCDOT takes action to close access to the below referenced parcels from NC Hwy 42 that an offer of cross access to connect to these parcels to the internal street network via an executed access easement to a common property line be made in a timely manner in coordination with the proposed action by NCDOT. In the event that the referenced parcels are recombined or sold to another party in the future, the requirement for cross access only applies to the resulting parcels without a means of access to NC 42.

1. ***Parcel 05G03071*** (*currently Matthew R. and Maureen Pooley*)
2. ***Parcel 05G03071O*** (*currently Page, Alice David*)
3. ***Parcel 05G03071N*** (*currently Matthew R. and Maureen Pooley*)
4. ***Parcel 05G03066*** (*currently Merriman, Jason T. and Kelsey*)
5. ***Parcel 05F02037H*** (*currently Blinson, Benjamin G. and Trude*)
6. ***Parcel 05F02037J*** (*currently Sanders, Courtney*)

13.5 Greenways: The PD will provide easements for Town of Clayton greenways generally consistent with the current Parks and Recreation Master Plan and specifically as shown on ***MP-03***. This greenway shall be constructed at the time of development. Additionally, an internal multi-use path will be provided connecting the development pods to the greenway along NC-42 (***see MP-03***).

13.6 Public Transit: Because the Master Plan is conceptual in nature, no definitive solutions for transit service can be offered at this stage. As the plan develops, with specific uses and the internal street network, specific transit opportunities can be explored with the Town of Clayton. Ultimately, the pedestrian network will provide direct pedestrian links between residential and non-residential uses and can do so to any future designated transit stops provided as well.





Section 14.0 PHASING:

OVERALL PHASING:

Schedules for the ultimate phasing of plans, permits and construction for the project will be dependent on market forces and requirements for infrastructure improvements. Initial phases of the development will require extensions of public streets, water and sanitary sewer systems. Areas along existing NC Hwy 42 will likely be the first to be developed. At the current time, Phase I includes all of POD 3 (see ***MP-04*** – *Blocking Framework and Phasing Plan)*. However, smaller phases may be created and approved by the staff. The referenced phase numbers on the Phasing Plan do not necessarily represent the exact sequence of development. Unless specifically stated herein and with the approval of the Planning Department, the developer retains the right to reconfigure the phases based on market forces and infrastructure needs. The wastewater treatment plant is anticipated to be online by early 2023.

Off-Site Roadway Improvements:

1. A traffic impact analysis (TIA) for the entire development is in review by the town of Clayton and the NCDOT. Recommendations for access and roadway improvements required to support the entirety of the proposed development program are included in the TIA.

2. Agreed upon access and roadway improvements necessary to support each development tract, must be in place prior to the initial certificate of occupancy (CO) for each respective phase or tract associated with those improvements unless an alternate trip threshold analysis is provided. All phasing improvements are subject to final approval from NCDOT.

Phasing of Utility Infrastructure Improvements: Utility infrastructure is anticipated to occur as shown on ***MP-06*****.**

1. Sanitary sewer mains will be extended on an as needed basis from the proposed pump station to serve portions of the property. The need for a new pump station will be evaluated and constructed as needed to serve the PD. This study will occur in conjunction with the subdivision or Site Plan applications for development plans in the basin served by this pump station.

2. Water service will be provided from the existing 16" main within Highway 42 as property frontage develops. At such time that water flows require that a looped system be established, water will be looped through the property and connected to Highway 42. The Town of Clayton has identified a site for a future water tower. This water tower will further increase the water capacity for serving the site.

Phasing of Streetscape Improvements:

1. Street improvements will be constructed in up to 4 phases ***(See MP-04 & MP-05)***. This phasing is general in nature and the order of phasing may be revised as development occurs.

2. Landscaping associated with required streetscape improvements shall be installed along, and limited to, the frontage of each development tract adjacent to NC Highway 42 and internal public streets in conjunction with each respective subdivision or Site Plan application.

Phasing of Buffer Plantings: Buffer plantings, where required to meet Class 'C' Buffer standards, shall be planted in conjunction with, and limited to the development tract frontage, for each approved subdivision or Site Plan application sharing a property line with residential parcels along the east property boundary.





Section 15.0 CONSISTENCY WITH TOWN PLANNING – LAND USE PLAN:

Rezoning Approval Criteria:

15.1 Consistency with the adopted plans of the Town.
This Master Plan proposal is consistent with adopted plans of the Town of Clayton.

This assemblage is part of the JHMC NC 42 West Area Plan that was adopted by the Town in November 2007. As part of this plan, this parcel is designated mixed use and is intended to have high quality uses and a wide variety of both residential and non-residential uses for the surrounding area.

15.2 Suitability of the subject property for uses permitted by the current vs. the proposed district.
The property is uniquely situated at a major gateway intersection with two of the Town's major transportation corridors. Land uses are conducive to the location and supported by traffic and compatible with the development patterns. The size of the assemblage and proposed infrastructure will also support the proposed mix of uses, with retail, office/institutional, public/civic, townhomes and even congregate care being proposed.

15.3 Whether the proposed change tends to improve the balance of uses or meets specific demand in the Town.
This parcel is designated by the Future Land Use Map as Neighborhood Center and is intended to have high quality uses and a wide variety of both residential and non-residential uses balancing the demands of the surrounding area. This request takes that into full consideration. The applicant will hold neighborhood meetings with surrounding neighborhoods and landowners to ensure that, to the greatest extent possible, the reasonable needs of the surrounding community are met.

15.4 The capacity of adequate public facilities and services including schools, roads, recreation facilities, wastewater treatment, potable water supply and stormwater drainage facilities is available for the proposed use.
Adequate public facilities, including existing and proposed roads, existing and proposed wastewater treatment, existing and proposed potable water and existing/proposed stormwater infrastructure are either existing or will be improved to meet the demands of the proposed uses.

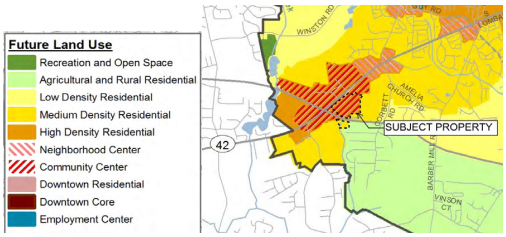
15.5 It has been determined that the legal purposes for which zoning exists are not violated.
The proposed zoning does not violate the legal provisions of the Town's Code.

15.6 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.
The proposed zoning does not adversely affect the adjoining properties and property owners.

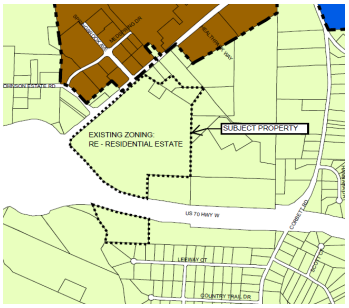
15.7 It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.
The proposed zoning does not result in one property owner or small group of property owners to the detriment of the general public.

U.D.O. Consistency Statement

Unless otherwise stated in this document, all other applicable portions of the Clayton UDC shall be adhered to.



Appendix B: FLUM – Future Land Use Map



Appendix C: Official Zoning Map (Amended April 2, 2018)

Section 16.0 AMENDMENTS AND APPROVALS

16.1 Property Owner Changes

Only parties owning property within the Lumen PD shall have the right to amend this PD and the Plans and Exhibits hereto, but only to the extent any such amendment applies to individual properties owned by such parties. Any property owners' association owning and/or maintaining common open space and/or landscape amenities must join in all amendments to this PD.

16.2 Town Approval of Changes

Amendments to this Master Plan may be required from time to time. Any future, proposed amendments shall be reviewed and approved in accordance with the requirements of Article 7 of the Unified Development Code.

The Planning Director may approve up to a 10 % increase in sf, provided that these increases do not exceed the total trip generation budgets set forth by the TIA.

END OF PD TEXT





Appendix E Property Ownership / Adjoiners

Parcel ID Number	Property Owner Name	Address
05G03199L	Stanley, Russel C	1028 Breeze Lane
05G03071N	POOLEY, MATTHEW R	2219 F NC HIGHWAY 42 W
05G03066	MERRIMAN, JASON T.	2219D NC HIGHWAY 42 W
05F02037H	BLINSON, BENJAMIN G	2219-I NC 42 WEST
05F02037J	SANDERS, COURTNEY	2219 NC HIGHWAY 42 W UNIT J
05F02037G	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03072A	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03073A	JERRY M COATS AND PHYLLIS G COATS TRUST	2149 NC HWY 42 WEST
05F02037D	JP COATS LLC	2150 NC HWY 42 WEST
05F02037C	JP COATS LLC	2151 NC HWY 42 WEST
05F02035G	UACFE LLC	12 LAFOY DRIVE
05F02035F	BODDIE-NOELL ENTERPRISES, INC.	PO BOX 1908 Rocky Mount, NC 27802
05F02035H	UACFE LLC	12 LAFOY DRIVE
05F02035A	SPRING BRANCH SQUARE, LLC	303 PARKRIDGE DR
05F02036	SPRING BRANCH PLAZA LLC	PO BOX 1559 WAKE FOREST, NC 27588
05F02035D	MALLIPADDI, PRAMOD	4807 CHESTNUT GROVE DRCHAMPAIGN, IL 61822
05F02035	PARMAR, AMRUTLAL	388 BROADMOOR WAY
05G03199B	JOHNSON, NETTIE ERDINE	2740 NC HIGHWAY 42 W
05F02038	NC DEPT OF TRANSPORTATION	PO BOX 3165 WILSON, NC 27895
05G02195B	JP COATS LLC	2149 NC HWY 42 WEST
05G03066X	MENDEZ, SELVIN OMAR	148 LEEWAY CT
05G03067S	COLPETZER, KEITH E	144 LEEWAY CT
05G03068G	TORREZ, GIRELDA PAOLA MEJIA	140 LEEWAY CT
05G03067C	CONYERS, JOHNNIE L	136 LEEWAY CT
05G03199H	TAP PROPERTIES LLC	273 D BLUE POND RD





Appendix F Owner Authorization Forms

Kimley»Horn

August 1, 2020

Dear Clayton Area Property Owner:

The purpose of this letter is to notify you of an application filed with the Town f Clayton for a land use change or development proposal involving property adjacent to, or near, 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: 8/11/2020 **Meeting Time**: 6:00-8:00 PM EST

Virtual Meeting Instructions (conference ID: 267 683 787#):

- Link to Meeting website: https://bit.ly/2PepkCC
- QR Code (using smart phone camera):
- Call-in Number (for audio only): +1 984-204-1608

Type of Application:

- 2020-103-PD-MU Lumen Planned Development Rezoning
- 2020-104-SD Lumen Planned Development

Project/proposal property address: 2219 NC 42 West Clayton, NC 27520

Description of project/proposal: Zoning change from existing Residential Estate (RE) To Planned Development – Mixed Use (PD-MU). Master Plan Development

Upcoming public meetings for this application (Planning Board and/or Town Council):

- Planning Board: AUGUST 24, 2020
- Town Council: SEPTEMBER 21, 2020 (to be confirmed after Planning Board)

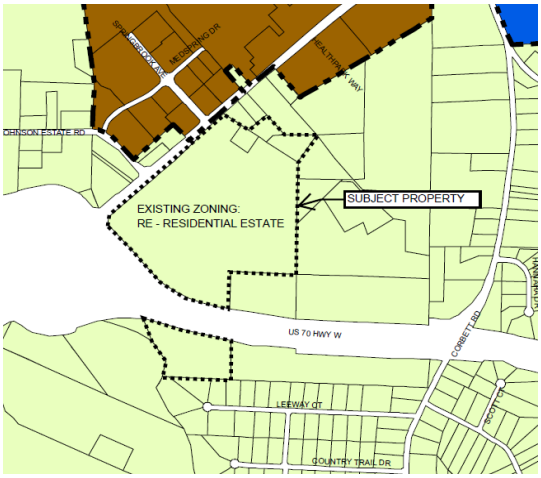
The following is enclosed with this letter and will be discussed during the virtual Neighborhood Meeting:

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

kimley-horn.com | 421 Fayetteville Street Raleigh, NC 27601 | 919-677-2000



Project Locator Map



Current Zoning Map (Amended April 2, 2018)

If you have any questions prior to or after this meeting, you may contact us at 919-677-2000. You may also contact the Planning Department at 919-553-5002.

Sincerely,

Richard L. Brown, PLA
Landscape Architect | Land Planner, Kimley-Horn

CC: Town of Clayton Planning Department
Lori Bryant & Haley Hogg

Received by TOC 8/12/2020

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

Project: Lumen Planned Development District Rezoning Case

Application: Rezoning Case #2020-103-PDD

Location/Date: Virtual - 8/11/2020 @ 6pm ET

	NAME	ADDRESS
1	Maureen & Matthew Pooley	2219 F NC Highway 42 West
2	Austin Bell (representative of Atlas Stark Holdings)	911 N West Street Raleigh, NC 27603
3	Courtney Saunders	2219 NC Highway 42 West, Unit J
4	James Wooten	2117 NC Highway 42 West
5	Jerry & Phyllis Coats	2149 NC Highway 42 West
6	Chris Johnson	2740 NC Highway 42 West
7	John Corbett	371 Corbett Road
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NEIGHBORHOOD MEETING SUMMARY FORM

FILL OUT THE FOLLOWING:

Application: Rezoning Case #2020-103-PDD Date of Mailing: 7/31/2020

Date of Meeting: 8/11/2020 Time of Meeting: 6 PM ET

Location of Meeting: Virtual

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: Matt Gross, PLA 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.*

The virtual neighborhood meeting was held on Tuesday evening at 6PM. The meeting began with introductions of the applicant team and all meeting attendees.

After all introductions were made, Richard Brown of the applicant team began to give a project introduction outlining the request summary for property rezoning and the

ultimate intent to gain an approved mixed use planned development district master plan. Mr. Brown also discussed all meetings which have been held, and all of

the meetings which will be held in the future. After a brief introduction of the application process, an introduction to the existing site condtions, zoning, as well as

all relevant site conditions were made. As the applicant team began to introduce the proposed zoning change and land use development map, all applicable Town

Comp Plan policy documents were introduced to describe how the proposed site development follows the Town's future Land Use Map as well as all roadway improvements forthcoming.

After presentation of proposed zoning and conceptual land use map and key dates moving forward, the applicant team opened the floor for questions and conversations with meeting attendees.

Many attendees were interested in the provisions of the perimeter landscape buffers ensuring that the proposed site development would not negatively impact their properties.

Additionally, attendees were interested in property access impacts as existing driveways cross the project area, applicant team assured adjacent property owners that property access

would be preserved and improved through the provision of a more formal private or public street network. Additional comments concerning contract purchasing on the property and recent broker contact.

The applicant team further detailed the ultimate project process regarding land purchasing, subdivision plan approval and estimated start date of construction. An additional comment was the impact of the

project on surrounding roadways, specifically with a connection to Corbett Road. If connection is made from the development to Corbett Rd, how much traffic will that add?

The applicant team explained that this project does not intend to connect to Corbett, as it only provides a street stub to the property boundary. After all questions and comments were finished, the meeting was adjourned.

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

Parcel ID Number	Property Owner Name	Address
05G03199L	Stanley, Russel C	1028 Breeze Lane
05G03071N	POOLEY, MATTHEW R	2219 F NC HIGHWAY 42 W
05G03066	MERRIMAN, JASON T.	2219D NC HIGHWAY 42 W
05F02037H	BLINSON, BENJAMIN G	2219-I NC 42 WEST
05F02037J	SANDERS, COURTNEY	2219 NC HIGHWAY 42 W UNIT J
05F02037G	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03072A	WOOTEN, JAMES H SR	2117 N C 42 WEST
05G03073A	JERRY M COATS AND PHYLLIS G COATS TRUST	2149 NC HWY 42 WEST
05F02037D	JP COATS LLC	2150 NC HWY 42 WEST
05F02037C	JP COATS LLC	2151 NC HWY 42 WEST
05F02035G	UACFE LLC	12 LAFOY DRIVE
05F02035F	BODDIE-NOELL ENTERPRISES, INC.	PO BOX 1908 Rocky Mount, NC 27802
05F02035H	UACFE LLC	12 LAFOY DRIVE
05F02035A	SPRING BRANCH SQUARE, LLC	303 PARKRIDGE DR
05F02036	SPRING BRANCH PLAZA LLC	PO BOX 1559 WAKE FOREST, NC 27588
05F02035D	MALLIPADDI, PRAMOD	4807 CHESTNUT GROVE DRCHAMPAIGN, IL 61822
05F02035	PARMAR, AMRUTLAL	388 BROADMOOR WAY
05G03199B	JOHNSON, NETTIE ERDINE	2740 NC HIGHWAY 42 W
05F02038	NC DEPT OF TRANSPORTATION	PO BOX 3165 WILSON, NC 27895
05G02195B	JP COATS LLC	2149 NC HWY 42 WEST
05G03066X	MENDEZ, SELVIN OMAR	148 LEEWAY CT
05G03067S	COLPETZER, KEITH E	144 LEEWAY CT
05G03068G	TORREZ, GIRELDA PAOLA MEJIA	140 LEEWAY CT
05G03067C	CONYERS, JOHNNIE L	136 LEEWAY CT
05G03199H	TAP PROPERTIES LLC	273 D BLUE POND RD


Kimley»Horn
421 Fayetteville Street
Suite 600
Raleigh, NC 27601
BLINSON, BENJAMIN G
2219-I NC 42 WEST
Clayton, NC 27520
NEOPOST
07/31/2020
US POSTAGE $000.65
Kimley»Horn
421 Fayetteville Street
Suite 600
Raleigh, NC 27601
TAP PROPERTIES LLC
273 D BLUE POND RD
Clayton, NC 27520

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

Project: Lumen Planned Development District Rezoning Case

Application: Rezoning Case #2020-103-PDD

Location/Date: Virtual - 12/4/2020 @ 6pm ET

	NAME	ADDRESS
1	Russell Stanley	1028 Breeze Lane, Clayton, NC 27520
2	Jerry & Phyllis Coats	2149 NC Highway 42 West
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NEIGHBORHOOD MEETING SUMMARY FORM

FILL OUT THE FOLLOWING:

Application: Rezoning Case #2020-103-PDD Date of Mailing: 7/31/2020

Date of Meeting: 8/11/2020 Time of Meeting: 6 PM ET

Location of Meeting: Virtual

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: Matt Gross, PLA 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.*

The virtual neighborhood meeting was held on Thursday evening at 6PM. The meeting began with introductions of the applicant team and all meeting attendees.

After all introductions were made, Matt Gross reintroduced the project to all attendees, outlining the reasoning behind holding a second neighborhood meeting.

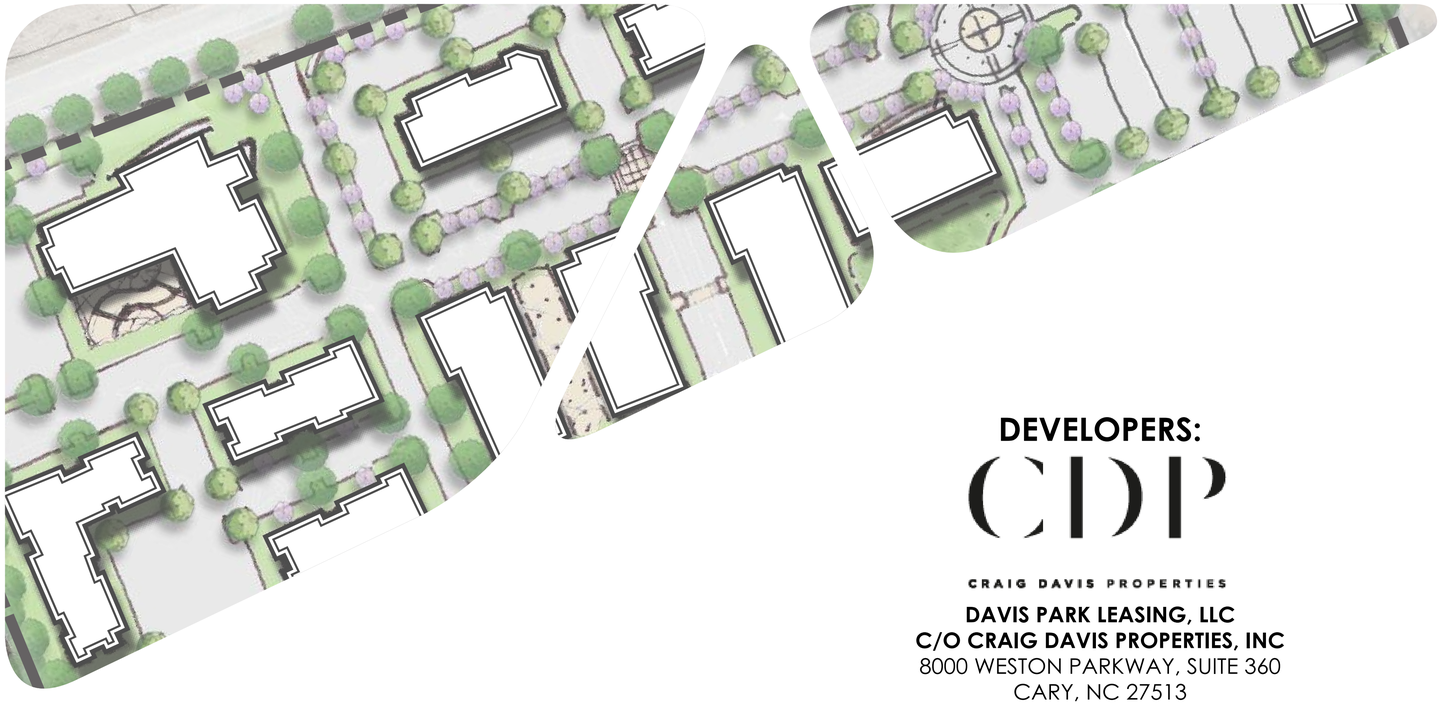
This outline described all master plan changes which postdates the previous meeting held in August. Mr. Gross also discussed all meetings which have been held, and all of

the meetings which will be held in the future. After presentation of proposed zoning and conceptual land use map and key dates moving forward, the applicant team opened the floor

for questions and conversations with meeting attendees. Of the attendees present on the call, no questions or further discussion was held and or presented. Thus the meeting adjuorned with no

controversy, confusion or further action items remaining.

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



LUMEN

PLANNED DEVELOPMENT MASTER PLAN

PREPARED FOR: TOWN OF CLAYTON, NC

TOWN PROJECT NUMBER: 2020-103-PD-MU

revision date: 08/17/2020

revision date: 11/04/2020

revision date: 12/04/2020

revision date: 01/29/2021

revision date: 09/10/2021

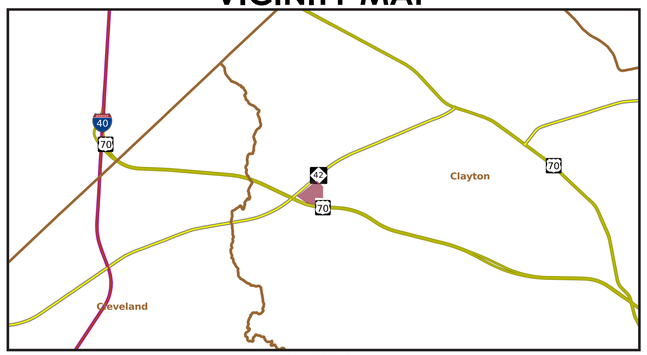
DEVELOPERS:

CDP

CRAIG DAVIS PROPERTIES

DAVIS PARK LEASING, LLC
C/O CRAIG DAVIS PROPERTIES, INC
8000 WESTON PARKWAY, SUITE 360
CARY, NC 27513
craig.davis@craigdavisproperties.com

VICINITY MAP



NOT TO SCALE

MASTER PLAN SHEET INDEX:

MP-01 ..... EXISTING CONDITIONS
MP-02 ..... EXISTING SITE BOUNDARY SURVEY
MP-03..... MASTER LAND USE PLAN
MP-04..... BLOCKING FRAMEWORK & PHASING PLAN
MP-05..... PROJECTED ROAD PHASING IMPLEMENTATION PLAN
MP-06..... CONCEPTUAL UTILITY PLAN
MP-07..... URBAN STREET TYPOLOGIES

APPLICANT / LEAD CONSULTANT:

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601
P (919)677-2000
F (919)677-2050
NC CERTIFICATE OF AUTHORIZATION: F-0102





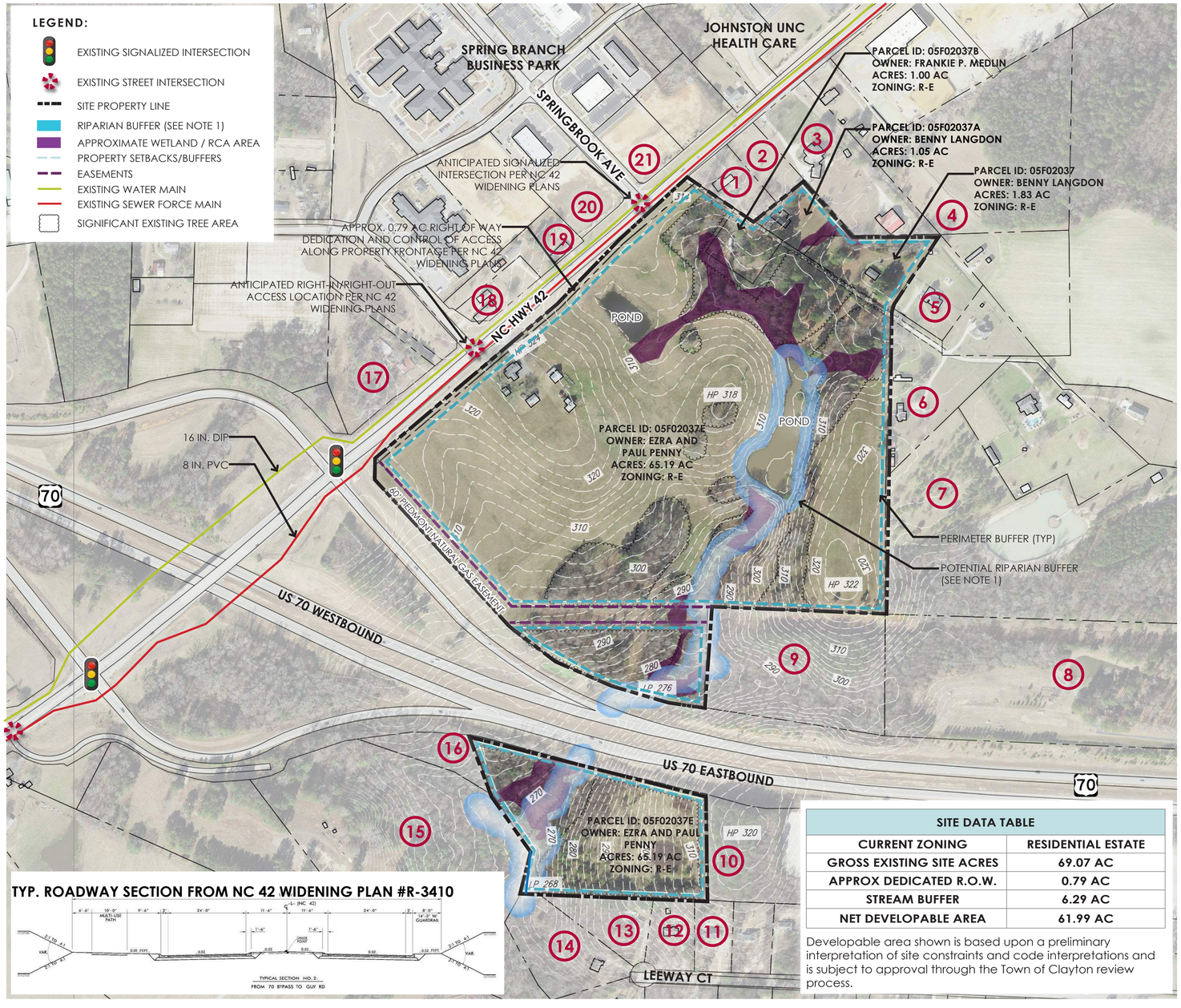
PROJECT LOCATION MAP



LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | JULY 1, 2020

Kimley»Horn



SITE DATA TABLE	
CURRENT ZONING	RESIDENTIAL ESTATE
GROSS EXISTING SITE ACRES	69.07 AC
APPROX DEDICATED R.O.W.	0.79 AC
STREAM BUFFER	6.29 AC
NET DEVELOPABLE AREA	61.99 AC

Developable area shown is based upon a preliminary interpretation of site constraints and code interpretations and is subject to approval through the Town of Clayton review process.

ADJOINING PROPERTIES:

1. PROPERTY OWNER: JP COATS LLC
PIN: 4881
ZONING: R-E
USE: RESIDENTIAL

2. PROPERTY OWNER: JP COATS LLC
PIN: 6817
ZONING: R-E
USE: RESIDENTIAL

3. PROPERTY OWNER: JERRY M. COATS AND PHYLLIS G. COATS TRUST
PIN: 9811
ZONING: R-E
USE: RESIDENTIAL

4. PROPERTY OWNER: JAMES H WOOTEN SR.
PIN: 3888
ZONING: R-E
USE: RESIDENTIAL

5. PROPERTY OWNER: COURTNEY SANDERS
PIN: 2367
ZONING: R-E
USE: RESIDENTIAL

6. PROPERTY OWNER: JASON T. MERRIMAN
PIN: 2010
ZONING: R-E
USE: RESIDENTIAL

7. PROPERTY OWNER: MATTHEW R. POOLEY
PIN: 6369
ZONING: R-E
USE: RESIDENTIAL

8. PROPERTY OWNER: JOSEPH CHRISTOPHER JOHNSON
PIN: 7856
ZONING: R-E
USE: RESIDENTIAL

9. PROPERTY OWNER: RUSSEL STANLEY
PIN: 7932
ZONING: R-E
USE: VACANT

10. PROPERTY OWNER: TAP PROPERTIES LLC
PIN: 3154
ZONING: R-E
USE: VACANT

11. PROPERTY OWNER: JOHNNIE L. CONYERS
PIN: 2849
ZONING: R-E
USE: RESIDENTIAL

12. PROPERTY OWNER: GIRELDA PAOLA MEJIA TORREZ
PIN: 2849
ZONING: R-E
USE: RESIDENTIAL

13. PROPERTY OWNER: KIETH E. COLPETZER
PIN: 9966
ZONING: R-E
USE: RESIDENTIAL

14. PROPERTY OWNER: SELVIN OMAR MENDEZ
PIN: 8860
ZONING: R-E
USE: RESIDENTIAL

15. PROPERTY OWNER: JP COATS LLC
PIN: 2187
ZONING: R-E
USE: RESIDENTIAL

16. PROPERTY OWNER: NC DEPT OF TRANSPORTATION
PIN: 5269
ZONING: R-E
USE: RESIDENTIAL

17. PROPERTY OWNER: AMRUTLAL PARMAR
PIN: 1102
ZONING: R-E
USE: RESIDENTIAL

18. PROPERTY OWNER: SPRING BRANCH PLAZA LLC
PIN: 5397
ZONING: B-3
USE: COMMERCIAL

19. PROPERTY OWNER: SPRING BRANCH PLAZA LLC
PIN: 6554
ZONING: B-3
USE: COMMERCIAL

20. PROPERTY OWNER: UACFE LLC
PIN: 8797
ZONING: PD-MU
USE: VACANT

21. PROPERTY OWNER: BODDIE-NOELL ENTERPRISES, INC.
PIN: 1925
ZONING: PD-MU
USE: VACANT

EXISTING CONDITIONS NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. All base data has been provided by Johnston County GIS and shall be confirmed with a topographic and boundary survey prior to development of construction drawings.
3. This diagram does not consider subsurface conditions such as utilities, unsuitable soils, rock or other elements that may influence the detailed design or the location of infrastructure. A preliminary soils, geotech or similar investigation should inform the final design.
4. Right-of-way dedication as well as control of access is proposed along the property frontage per NC 42 Widening Plan (Project #R-3410).
5. Adjacent property information based on Johnston County Register of Deeds.
6. Planometric information based on publicly available information from the Johnston County Geographical Information Systems Database.
7. Topographic information based on publicly available information from the Johnston County Geographical Information Systems Database.
8. All easement information shown is per publicly available information from the Johnston County Geographical Information Systems Database.
9. Per FIRM Map 3720164800K, Panel: 1648, there are no FEMA floodplains located on the subject property. See Section 12 of the masterplan narrative for more information.

0 100 200 400

Kimley»Horn

preliminary not for construction

preliminary not for construction

REV DATE	SHEET
8.17.2020	
11.04.2020	
12.04.2020	
1.29.2021	MP-01
9.10.2021	

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

EXISTING CONDITIONS SITE INVENTORY

JULY 1, 2020

SITE DATA TABLE

PARCEL #	PARCEL ID	NCPIN#	OWNER	REFERENCE	NET AREA SQ FT (AC)
1	05F02037E	164800-72-2724	EZRA LEE PENNY, ET AL	DB 5585, PG 167	2,839,523 (65.19)
2	05F02037B	164800-73-4448	FRANKIE P MEDLIN	DB 810, PG 24	43,533 (1.00)
3	05F0237A	164800-73-6660	BENNY LANGDON, ET AL	DB 676, PG 216	45,787 (1.05)
4	05F02037	164800-83-0418	BENNY LANGDON, ET AL	DB 957, PG 612	79,673 (1.83)

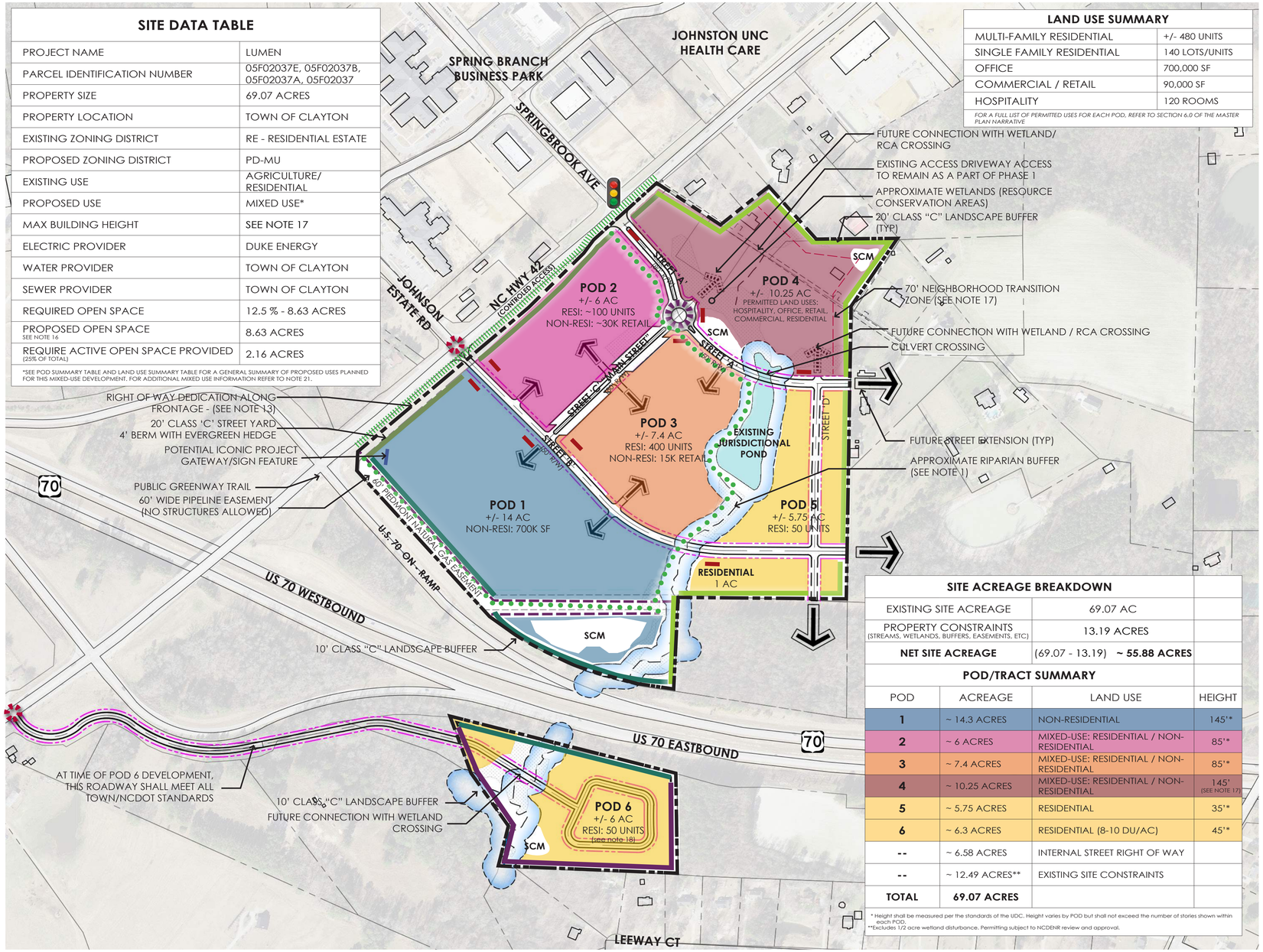
GENERAL NOTES

1. THIS IS A SURVEY OF AN EXISTING PARCEL(S) OF LAND. THIS IS A BOUNDARY SURVEY.
2. ALL MONUMENTS RECOVERED AND USED AS SHOWN HEREON.
3. NO NCGS MONUMETS WERE FOUND WITHIN 2000 FEET OF THIS SITE.
4. ALL DISTANCES ARE HORIZONTAL GROUND.
5. ZONING: R-C (RESIDENTIAL CENTER)
   SETBACKS: FRONT: 35'; SIDE: 10'; SIDE INTERIOR: 15'; SIDE STREET: 25'; REAR: 30'
   BUILDING HEIGHT: 6-1/2"
   MINIMUM LOT SIZE: 10,000 SF
6. SITE ADDRESS: 2375 NC HWY 42, CLAYTON, NC 27520
7. BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN AN AREA OF MINIMAL FLOOD HAZARD, ZONE X AS DEFINED BY F.E.M.A.'S FLOOD INSURANCE RATE MAP, #3720154600 J DATED JULY 20, 2015, PG 3295, OF 9500, FOR JOHNSTON COUNTY, NORTH CAROLINA, AND INCORPORATED AREAS.
8. THE PROPERTY IS SUBJECT TO ALL EASEMENTS AND RIGHTS-OF-WAY OF RECORD, INCLUDING BUT NOT LIMITED TO DB 752, PG 78; DB 1196, PG 76; DB 1196, PG 78; DB 1196, PG 80; DB 1196, PG 82; DB 1196, PG 84; DB 1196, PG 86; DB 1196, PG 88; DB 1196, PG 90; DB 1196, PG 92; DB 1196, PG 94; DB 1196, PG

SITE DATA TABLE

PROJECT NAME	LUMEN
PARCEL IDENTIFICATION NUMBER	05F02037E, 05F02037B, 05F02037A, 05F02037
PROPERTY SIZE	69.07 ACRES
PROPERTY LOCATION	TOWN OF CLAYTON
EXISTING ZONING DISTRICT	RE - RESIDENTIAL ESTATE
PROPOSED ZONING DISTRICT	PD-MU
EXISTING USE	AGRICULTURE/ RESIDENTIAL
PROPOSED USE	MIXED USE*
MAX BUILDING HEIGHT	SEE NOTE 17
ELECTRIC PROVIDER	DUKE ENERGY
WATER PROVIDER	TOWN OF CLAYTON
SEWER PROVIDER	TOWN OF CLAYTON
REQUIRED OPEN SPACE	12.5 % - 8.63 ACRES
PROPOSED OPEN SPACE SEE NOTE 16	8.63 ACRES
REQUIRE ACTIVE OPEN SPACE PROVIDED (25% OF TOTAL)	2.16 ACRES

*SEE POD SUMMARY TABLE AND LAND USE SUMMARY TABLE FOR A GENERAL SUMMARY OF PROPOSED USES PLANNED FOR THIS MIXED-USE DEVELOPMENT. FOR ADDITIONAL MIXED USE INFORMATION REFER TO NOTE 21.



LAND USE SUMMARY

MULTI-FAMILY RESIDENTIAL	+/- 480 UNITS
SINGLE FAMILY RESIDENTIAL	140 LOTS/UNITS
OFFICE	700,000 SF
COMMERCIAL / RETAIL	90,000 SF
HOSPITALITY	120 ROOMS

FOR A FULL LIST OF PERMITTED USES FOR EACH POD, REFER TO SECTION 6.0 OF THE MASTER PLAN NARRATIVE

SITE ACREAGE BREAKDOWN

EXISTING SITE ACREAGE	69.07 AC	
PROPERTY CONSTRAINTS (STREAMS, WETLANDS, BUFFERS, EASEMENTS, ETC)	13.19 ACRES	
NET SITE ACREAGE	(69.07 - 13.19) **~ 55.88 ACRES**	

POD/TRACT SUMMARY

POD	ACREAGE	LAND USE	HEIGHT
1	~ 14.3 ACRES	NON-RESIDENTIAL	145'*
2	~ 6 ACRES	MIXED-USE: RESIDENTIAL / NON-RESIDENTIAL	85'*
3	~ 7.4 ACRES	MIXED-USE: RESIDENTIAL / NON-RESIDENTIAL	85'*
4	~ 10.25 ACRES	MIXED-USE: RESIDENTIAL / NON-RESIDENTIAL	145' (SEE NOTE 17)
5	~ 5.75 ACRES	RESIDENTIAL	35'*
6	~ 6.3 ACRES	RESIDENTIAL (8-10 DU/AC)	45'*
--	~ 6.58 ACRES	INTERNAL STREET RIGHT OF WAY	
--	~ 12.49 ACRES**	EXISTING SITE CONSTRAINTS	
TOTAL	**69.07 ACRES**		

* Height shall be measured per the standards of the UDC. Height varies by POD but shall not exceed the number of stories shown within each POD.
**Excludes 1/2 acre wetland disturbance. Permitting subject to NCDENR review and approval.

MASTER PLAN LEGEND:

- SIGNALIZED INTERSECTION (FULL MOVEMENT)
- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- POTENTIAL PROJECT IDENTITY/SIGNAGE LOCATIONS
- LIMITED SITE ACCESS - RIGHT-IN / RIGHT-OUT
- SPECIAL INTERSECTION (I.E. TRAFFIC CIRCLE, ETC.)
- EASEMENTS
- PUBLIC STREET R.O.W.
- PUBLIC GREENWAY TRAIL
- PRIVATE GREENWAY TRAIL
- 10' CLASS C LANDSCAPE BUFFER
- 20' CLASS C LANDSCAPE BUFFER (6' FENCE OR WALL)
- 20' CLASS C STREET YARD BUFFER (4' BERM + HEDGE)
- 10' CLASS C LANDSCAPE BUFFER
- 70' NEIGHBORHOOD TRANSITION ZONE (NOTE 17)

NOTE: SEE SHEET MP-07 FOR STREET TYPOLOGY SECTIONS

MASTER LAND USE PLAN NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. All lots within the master plan shall have frontage on a public street.
3. The proposed street network and typologies are preliminary and subject to change pending Town approval.
4. Allowable uses shall be permitted in accordance with Figure 1: Table of Permitted Uses within the master plan narrative. Additional permitted uses will be allowed so long as the number of units and square footages shown herein are not exceeded on the site are removed.
5. Uses may be transferred between pods provided that the resulting trip generations do not exceed the trip budgets set within the approved TIA.
6. Pedestrian circulation network and greenway alignment is preliminary and subject to approvals by the Town, NCDOT, and the Army Corps of Engineers.
7. Stormwater management facilities may be shared or designed as part of individual pods and will meet the requirements of the Town of Clayton Stormwater Design Manual.
8. A 10' wide Class C Landscape Buffer will be provided between pod 6 and the adjoining residential properties.
9. A 20' Class C Landscape Buffer will be provided between Pod 4 and Pod 5 and the adjacent residential with the inclusion of a 6' fence.
10. A 10' Class C Landscape Buffer will be provided along all property boundaries adjacent US-70. Provision of a 6' evergreen screen will be provided.
11. A 20' Class C Street Yard Buffer will be provided along NC 42 with a 4' berm and evergreen plantings.
12. Environmental findings have determined that the large existing pond is jurisdictional and subject to such rules and regulations. All wetlands have been located and no impacts greater than 1/2 an acre will be conducted.
13. Right-of-way dedication as well as control of access is proposed along the property frontage per NC 42 Widening Plan (Project #R-3410).
14. All pods shall be submitted for site plan or subdivision review in accordance with Article 7 of Unified Development Code.
15. All future public street stub-outs will be constructed to the property line and offer of cross access will be provided to the immediate property adjoiner.
16. Following requirements of the Town's Unified Development Code (section 155.203), this Master Plan will provide open space totaling to 12.5% of the development's area. 25% of provided open space will be active. Open space for each pod will be met with the overall open space plan for the development. This plan shall be provided at subdivision permitting process. Qualifying open space shall consist of but is not limited to: private mini parks, plazas and squares, neighborhood parks, amenity areas, and greenways.
17. Height shall be measured per the standards of the UDC. Height varies by POD but shall not exceed the number of stories shown within each POD. All uses within POD 4 shall be limited to the base height (145'). However, in no case shall the height exceed 45' within the 70 foot neighborhood transition zone as identified on the master plan.
18. All PODS shall meet the access requirements as defined in the Town's UDC at the time of subdivision submittal for each POD. POD 6 shall provide two access points as soon as development exceeds 30 dwelling units.
19. Code section 155.502(D) states that a 20-foot minimum required setback from the stream buffer for all buildings be provided.
20. Code section 155.500 Natural Resource Protection identifies all jurisdictional wetlands as resource conservation areas (RCA). Therefore, all wetlands present on site shall assumed as such.
21. Refer to section 7.0 in the Master Plan Narrative for further information regarding Land Use Intensity and Design Controls and Mixed Use Requirements.

0 100 200 400

Kimley»Horn

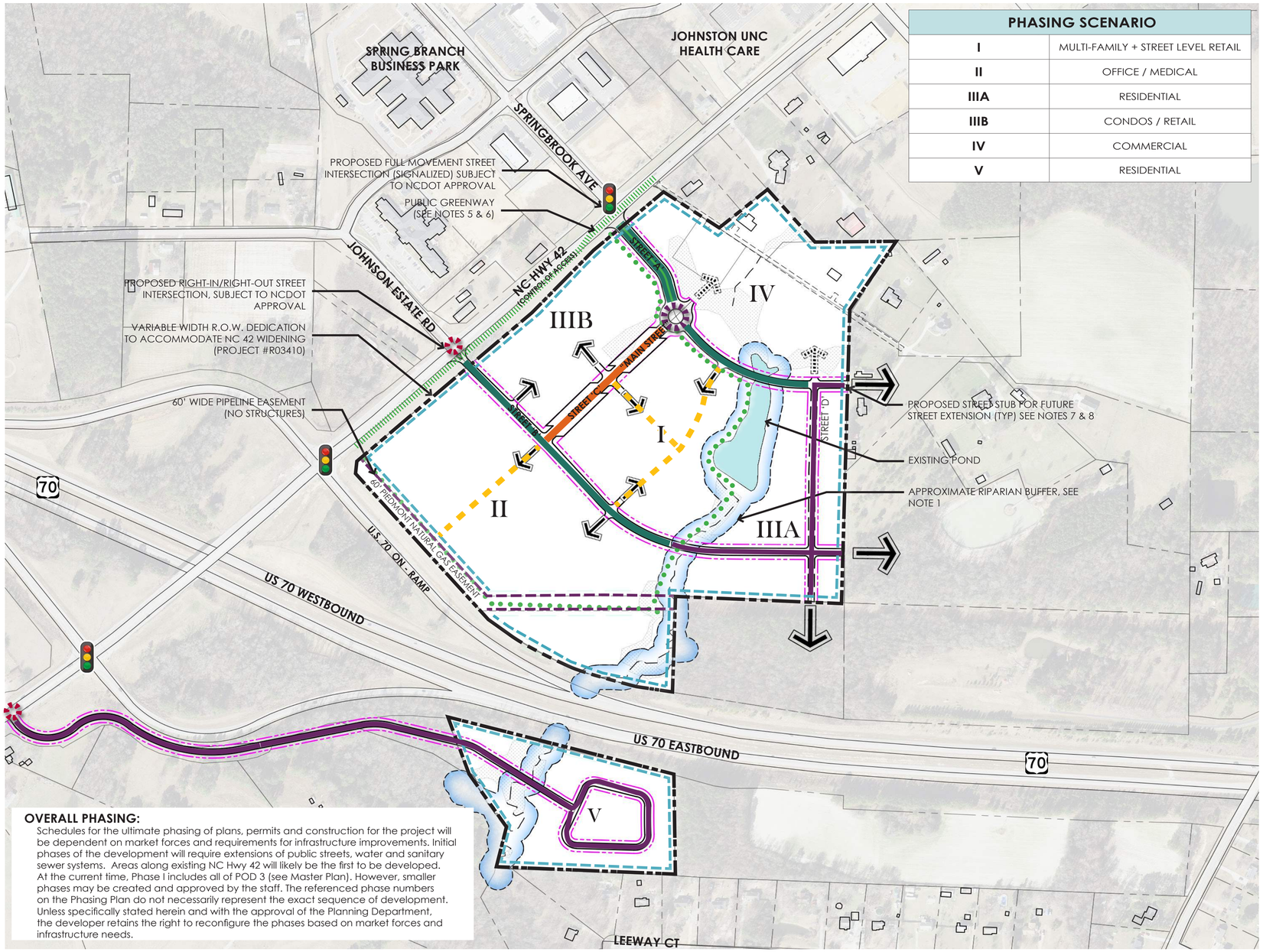
REV DATE	SHEET
8.17.2020	
11.04.2020	
12.04.2020	
1.29.2021	MP-03
9.10.2021	

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

MASTER LAND USE PLAN

JULY 1, 2020



PHASING SCENARIO	
I	MULTI-FAMILY + STREET LEVEL RETAIL
II	OFFICE / MEDICAL
IIIA	RESIDENTIAL
IIIB	CONDOS / RETAIL
IV	COMMERCIAL
V	RESIDENTIAL

OVERALL PHASING:

Schedules for the ultimate phasing of plans, permits and construction for the project will be dependent on market forces and requirements for infrastructure improvements. Initial phases of the development will require extensions of public streets, water and sanitary sewer systems. Areas along existing NC Hwy 42 will likely be the first to be developed. At the current time, Phase I includes all of POD 3 (see Master Plan). However, smaller phases may be created and approved by the staff. The referenced phase numbers on the Phasing Plan do not necessarily represent the exact sequence of development. Unless specifically stated herein and with the approval of the Planning Department, the developer retains the right to reconfigure the phases based on market forces and infrastructure needs.

MASTER PLAN LEGEND:

- SIGNALIZED INTERSECTION (FULL MOVEMENT)
- LIMITED SITE ACCESS - RIGHT-IN / RIGHT-OUT
- SPECIALTY INTERSECTION - I.E. TRAFFIC CIRCLE
- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- PUBLIC GREENWAY TRAIL
- PRIVATE GREENWAY TRAIL
- RIPARIAN BUFFER (SEE NOTE 1)
- PROPERTY SETBACKS/BUFFERS
- EASEMENT

STREET TYPOLOGIES:

- PUBLIC STREET R.O.W.
- PRIVATE STREET (INTERNAL)
- NEIGHBORHOOD STREET - 26' TRAVELWAY (50' PUBLIC R.O.W.)
- AVENUE - 2 LANE DIVIDED (80' R.O.W.)
- AVENUE - 2 LANE - 36' TRAVELWAY (60' R.O.W.)
- "MAIN STREET" - 24' TRAVELWAY; ON-STREET ANGLED PARKING (80' PUBLIC R.O.W)

NOTE: SEE SHEET MP-07 FOR STREET TYPOLOGY SECTIONS

BLOCKING FRAMEWORK AND PHASING PLAN NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. Street network alignment and typologies are preliminary and subject to change pending final design and approval by the Town of Clayton Public Works Department.
3. Primary streets as shown on this plan may be public or private, but all primary streets will be designed and constructed to then-current public street standards.
4. Proposed phasing order is preliminary and subject to change pending final development plans and timing of construction.
5. Pedestrian circulation network and greenway alignment is preliminary and subject to approvals by the Town, NCDOT and the Army Corps of Engineers.
6. Greenway connections will be stubbed up to the Right-Of-Way as shown subject to NCDOT and Army Corps of Engineer approvals. On-site greenway design and installation will be coordinated with the Town of Clayton and NCDOT.
7. Proposed street stubs and exact locations are preliminary and subject to final design. These locations and offer of cross access will be coordinated at time of subdivision and infrastructure permits. The number of street stub-outs will not be modified, even if the locations may be subject to site/subdivision review.
8. Street infrastructure will be constructed in phases to be determined at the time of subdivision. Modifications to access driveways will be required. However, access will be maintained to adjoining properties with existing access through the subject property during all phases of development.
9. A shared stormwater management system is anticipated to serve the overall development. A phased stormwater management plan as necessary to serve each development phase, will be designed at the subdivision stage. These plans will be in conformance with the Town's stormwater regulations in place at the time of this zoning approval.

0 100 200 400

Kimley»Horn

preliminary not for construction

preliminary not for construction

REV DATE
8.17.2020
11.04.2020
12.04.2020
1.29.2021
9.10.2021

SHEET

MP-04

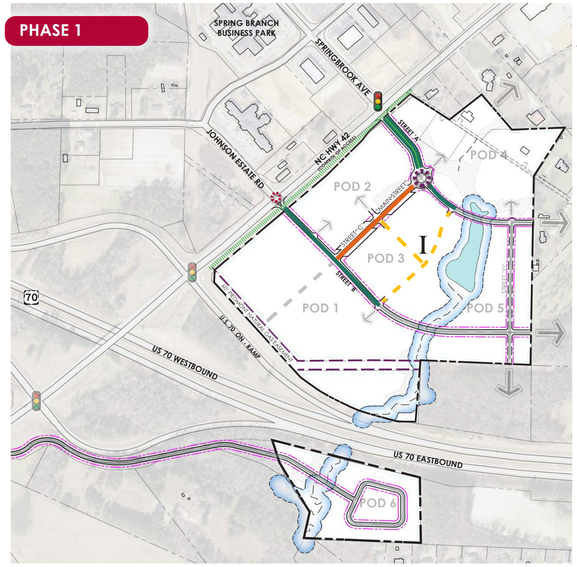
LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

BLOCKING FRAMEWORK & PHASING PLAN

JULY 1, 2020

PHASE 1



PHASE 1 NOTES:

Major Intersections:
- Street 'A' intersection @ NC42 (signalized as warranted by ncdot)lanage per NCDOT requirements
- Street 'B' intersection @ NC42 (right-in / right-out)
- Traffic Circle Intersection

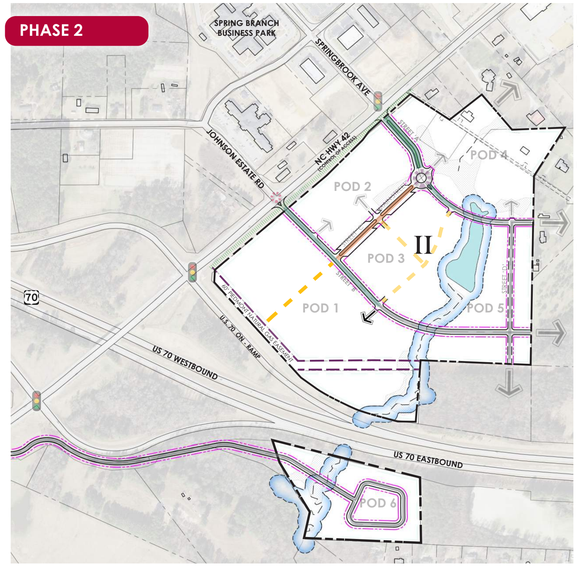
Implementation of Streets:
- Portions of public streets A, B, & C as shown
- Intersection for streets A&C
- Intersection for streets B&C
- Instalation of Private drive extension from street 'C'
- Required driveway access development pod 3

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase improvements
- Greenway along NC42

Utility Installation:
- Public Water / Public Sewer adequate to serve phase 1
- Pump Station and Force Main anticipated as a part of this phase

Stormwater Management:
- Stormwater Control Measures to adequately serve phase 1

PHASE 2



PHASE 2 NOTES:

Major Intersections:
- N/A

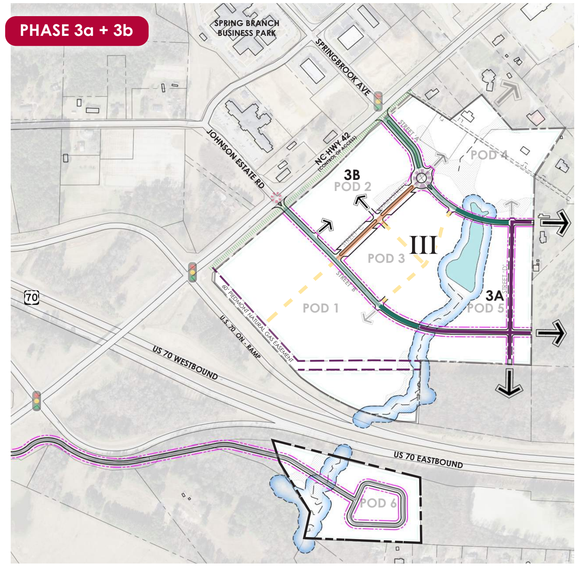
Implementation of Streets:
- Installation of Private drive connecting phase two to streets B and C
- Required driveway access for development pod 1

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase two improvements

Utility Installation:
- Public Water / Public Sewer adequate to serve phase 2

Stormwater Management:
- Stormwater Control Measures to adequately serve phase 2

PHASE 3a + 3b



PHASE 3 NOTES:

Major Intersections:
- N/A

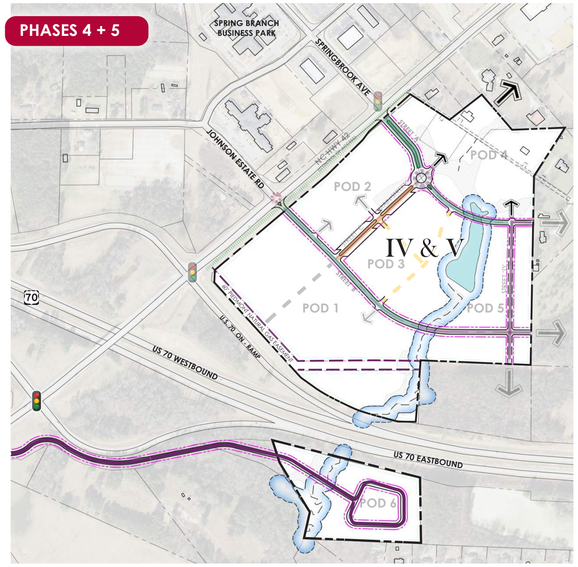
Implementation of Streets:
- Extension of Street 'A' with pond culvert crossing and stub off-site
- Street 'B' extension and stub off-site
- Street 'D' through development pod 5 with off-site stub
- Required driveway access for development pod 2

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase three improvements
- Internal greenway alignments

Utility Installation:
- Public Water / Public Sewer adequate to serve phase 3

Stormwater Management:
- Stormwater Control Measures to adequately serve phase 3

PHASES 4 + 5



PHASE 4 + 5 NOTES:

Major Intersections:
- N/A

Implementation of Streets:
- Access drives bridging wetlands into development pod 4
- Northern road alignment shall stub off-site
- Two access points will be provided for pod 6 if density exceeds 30 dwelling units

Pedestrian Installation:
- Public Sidewalks on both sides of all streets to be constructed to adequately serve phase four improvements

Utility Installation:
- Public Water / Public Sewer adequate to serve phases 4 & 5

Stormwater Management:
- Stormwater Control Measures to adequately serve phases 4 & 5

MASTER PLAN LEGEND:

- SIGNALIZED INTERSECTION (FULL MOVEMENT)
- LIMITED SITE ACCESS - RIGHT-IN / RIGHT-OUT
- SPECIALTY INTERSECTION - I.E. TRAFFIC CIRCLE
- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- RIPARIAN BUFFER (SEE NOTE 1)
- PROPERTY SETBACKS/BUFFERS
- EASEMENT

STREET TYPOLOGIES:

- PUBLIC STREET R.O.W.
- PRIVATE STREET (INTERNAL)
- NEIGHBORHOOD STREET - 26' TRAVELWAY (50' PUBLIC R.O.W.)
- FUTURE PHASE - TYPOLOGY VARIES
- AVENUE - 2 LANE DIVIDED (80' R.O.W.)
- AVENUE - 2 LANE - 36' TRAVELWAY (60' R.O.W.)
- "MAIN STREET" - 24' TRAVELWAY: ON-STREET ANGLED PARKING (80' PUBLIC R.O.W)

NOTE: SEE SHEET MP-07 FOR STREET TYPOLOGY SECTIONS

PHASING SCENARIO	
I	MULTI-FAMILY + STREET LEVEL RETAIL
II	OFFICE / MEDICAL
IIIA	RESIDENTIAL
IIIB	CONDOS / RETAIL
IV	COMMERCIAL
V	RESIDENTIAL

NCDOT ROADWAY IMPROVEMENTS

NC 42 at Springbrook Ave/East Site Driveway*
- Construct an eastbound right-turn lane on NC 42 with 150 feet of storage
- Construct a westbound left-turn lane on NC 42 with 400 feet of storage
- Provide dual left-turn lanes, a through lane, and a right-turn lane exiting the site driveway (construction of one of the left-turn lanes to be phased subject to the NCDOT widening of NC 42)
- Re-stripe Springbrook Avenue to a left-turn lane and a shared through/right lane
- Modify the traffic signal to accommodate the new laneage

NC 42 at Johnson Estate Road/West Site Driveway*
- Construct an eastbound right-turn lane on NC 42 with 200 feet of storage

** Subject to NCDOT approval*

ROAD IMPLEMENTATION PHASING PLAN NOTES:

1. Changes may be required to this plan sheet based upon NCDOT's traffic requirements.
2. Schedules for the ultimate phasing of plans, permits and construction for the project will be dependent on market forces and requirements for infrastructure improvements. Initial phases of the development will require extensions of public streets, water and sanitary sewer systems. Areas along existing NC Hwy 42 will likely be the first to be developed. At the current time, Phase I includes all of POD 3 (see Master Plan). However, smaller phases may be created and approved by the staff. The referenced phase numbers on the Phasing Plan do not necessarily represent the exact sequence of development. Unless specifically stated herein and with the approval of the Planning Department, the developer retains the right to reconfigure the phases based on market forces and infrastructure needs.

Kimley»Horn





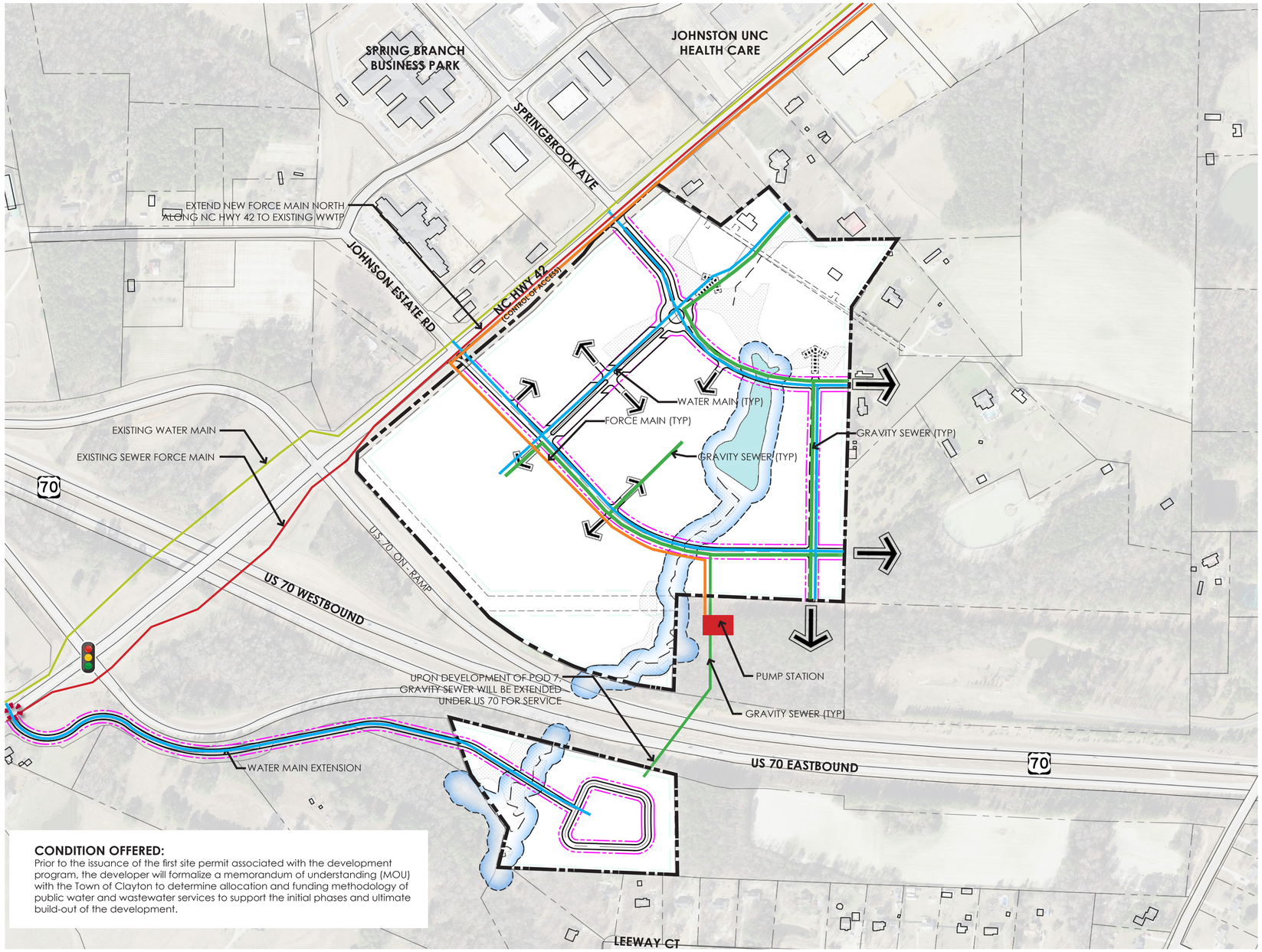
REV DATE	SHEET
8.17.2020	
11.04.2020	
12.04.2020	
1.29.2021	MP-05
9.10.2021	

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

PROJECTED ROAD IMPLEMENTATION PHASING PLAN

JULY 1, 2020



CONDITION OFFERED:
Prior to the issuance of the first site permit associated with the development program, the developer will formalize a memorandum of understanding (MOU) with the Town of Clayton to determine allocation and funding methodology of public water and wastewater services to support the initial phases and ultimate build-out of the development.

LEGEND:

- PROPOSED INTERNAL/EXTERNAL POD AND STREET STUB LOCATIONS
- PUBLIC STREET R.O.W.
- EXISTING WATER MAIN
- EXISTING SEWER FORCE MAIN
- WATER MAIN
- PROPSED SEWER FORCE MAIN
- GRAVITY SEWER
- PUMP STATION

CONCEPTUAL UTILITY PLAN NOTES:

1. Streams and wetland and jurisdictional determinations have been preliminarily mapped by Kimley-Horn and Associates. Applicability and status of these features will be confirmed and reviewed by by NCDENR and the Army Corps of Engineers prior to development.
2. Street network alignment and typologies are preliminary and subject to change pending final design and approval by the Town of Clayton Public Works Department.
3. Proposed street stubs and exact locations are preliminary and subject to final design. These locations and offer of cross access will be coordinated at time of subdivision and infrastructure permits.
4. A shared stormwater management system is anticipated to serve the overall development. A phased stormwater management plan with be determined and designed at the subdivision stage and will be in conformance with the Town's stormwater regulations in place at the time of this zoning approval.
5. Where public utilities are outside of the public rights of ways,a public utility easement will be provided.

WATER AND SEWER NARRATIVE

Sanitary Sewer Service

There is an existing 8" force main within NC 42 along the project frontage, operated by the County. The project is anticipated to be developed in multiple phases (refer to exhibit MP-01). The site will drain by gravity to a proposed pump station. This pump station will provide a force main that will be extended along the NC 42 corridor to a point of gravity connection near the existing WWTP. The phasing of the project and capacity limitations of the Johnston County and Town of Clayton infrastructure will determine the appropriate point of connection for the proposed force main.

Given the current capacity limitations in the Town's existing sanitary sewer infrastructure, it is understood that the phasing of the development may be subject to available capacity at the time of the initial subdivision/development plan for the property. The Town is currently planning to add treatment capacity by 2023. Average daily Sewer flows based on the proposed land uses and projected intensities are expected to be between 250,000-400,000 GPD.

Based on currently estimated flows and existing infrastructure, the proposed pump station and force main extension is anticipated to be required in Phase 1 of the development (based on MP-01). The pump station and force main will be the responsibility of the developer/applicant and will need to be sized based on project flows associated with actual development project(s) at the time of Subdivision application. The size and specification of sewer infrastructure shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

Water Service

Water services exist along the property along the NC Highway 42 frontage. Water services will be connected to the existing main and looped through the property via a public main. The size and specification of water infrastructure shall be determined during final design and will conform to Town of Clayton Public Works and Utilities Department requirements.

Based on anticipated domestic and fire flow demands of the development, an elevated water tower may be required for this area prior to the completion of the full build-out of this development. Coordination with the Town of Clayton and Johnston County Utilities will determine the location and sizing of the water tower. The design and construction of the water tower will be a public project in order to serve the growing demands of the area. No land area is being reserved on the subject property for construction of this facility.

0 100 200 400

Kimley»Horn

preliminary not for construction

preliminary not for construction

9.10.2021

SHEET

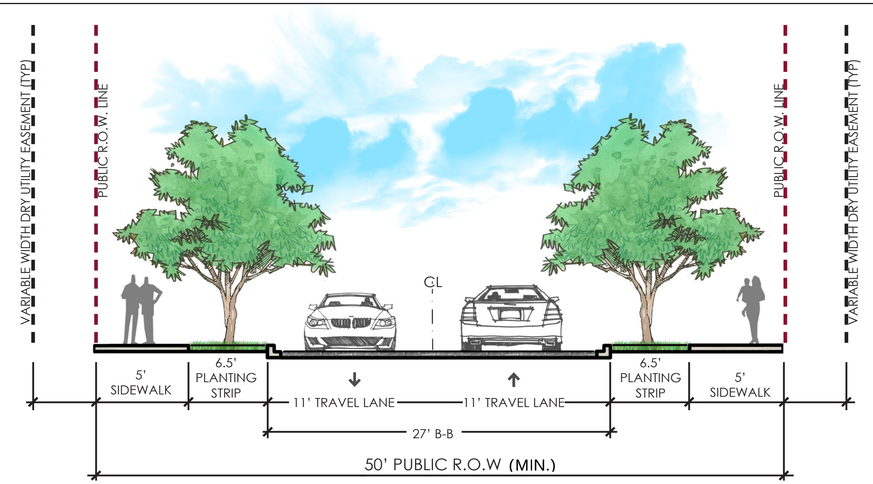
MP-06

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

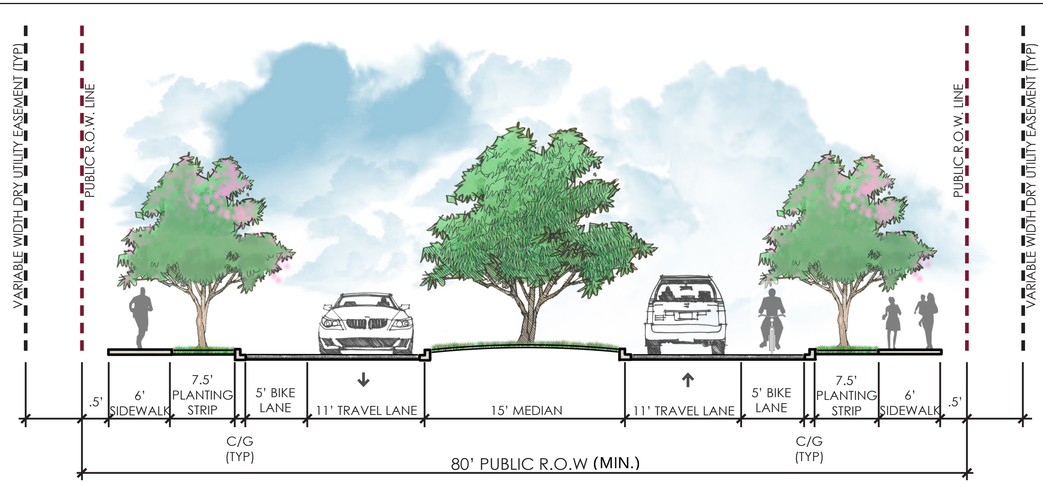
CONCEPTUAL UTILITY PLAN

October 2021



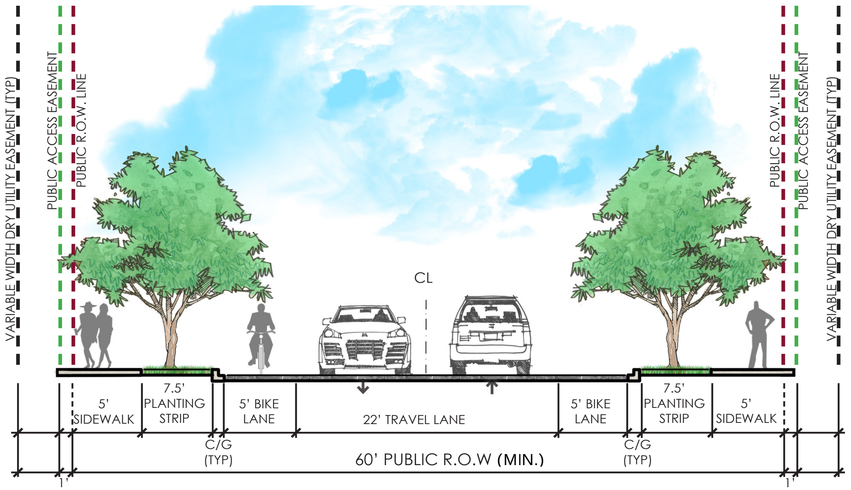
A MP-04 **NEIGHBORHOOD STREET**

TYPICAL SECTION
NOT TO SCALE



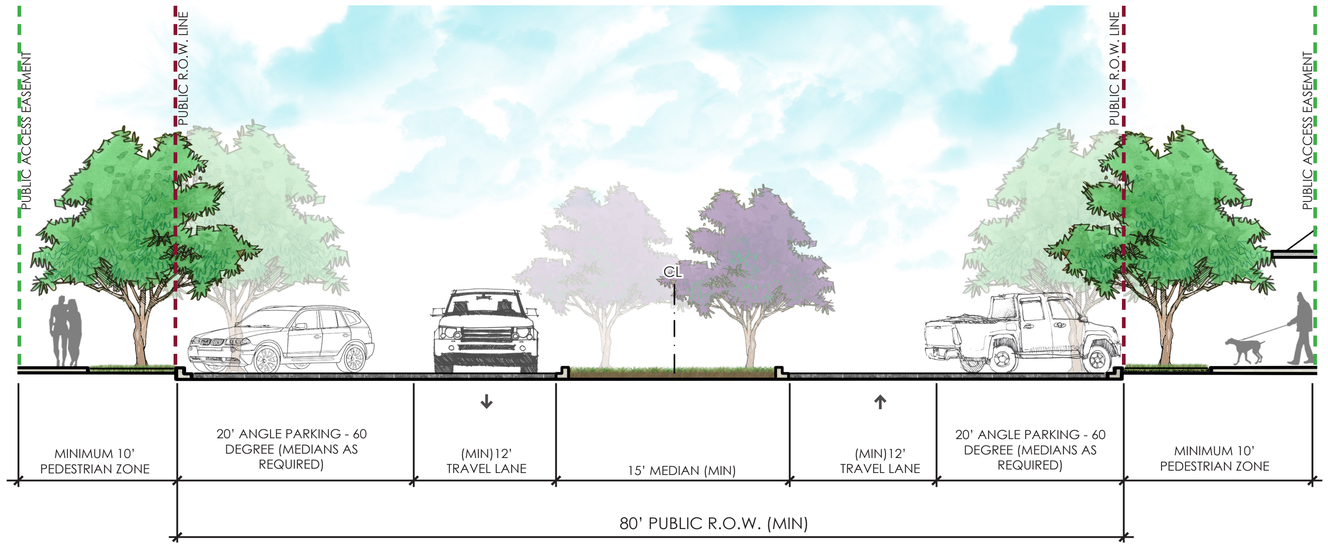
B MP-04 **AVENUE - 2 LANE DIVIDED**

TYPICAL SECTION
NOT TO SCALE



C MP-04 **LOCAL COLLECTOR**

TYPICAL SECTION
NOT TO SCALE



D MP-04 **MAIN STREET**

TYPICAL SECTION
NOT TO SCALE

Kimley»Horn

NOTES:
1. Street section are for illustrative purposes and subject to final design. All public and private streets will be subject to the Town's public street standards applicable at the time of this master plan approval.
2. All street trees shall be planted a minimum of 10' from any water, sewer, storm water, utility, or driveway.
3. Where 5' sidewalk falls outside of the Right-of-Way a public access easement shall be provided.

LUMEN - PLANNED DEVELOPMENT DISTRICT

2020-103-PD-MU | CLAYTON, NORTH CAROLINA

URBAN STREET TYPOLOGIES

JULY 1, 2020

preliminary not for construction

REV DATE
8.17.2020
11.04.2020
12.04.2020
1.29.2021
09.10.2021

SHEET
MP-07

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

April 9, 2021

NOTICE

SUBJECT:	**Project:**	2020-103-PDD Lumen Planned Development District Rezoning
		2020-104-SD Lumen Preliminary Plat Master Plan
		Development Agreement
	Address:	Located off NC HWY 42 W
	TAG #(s):	05F02037E, 0502037B, 05F02037A, and 05F02037
	Applicant:	Kimley Horn

Dear Clayton Area Property Owner:

Notice is hereby given that the Clayton Town Council will hold an evidentiary and public hearing on ***Monday, April 19, 2021 at 6:00 PM***, to make a decision on the above referenced projects. The subject parcels total 65.19 acres in size. They are located off NC HWY 42 W, adjacent to 70 bypass. See the map on the back of this letter.

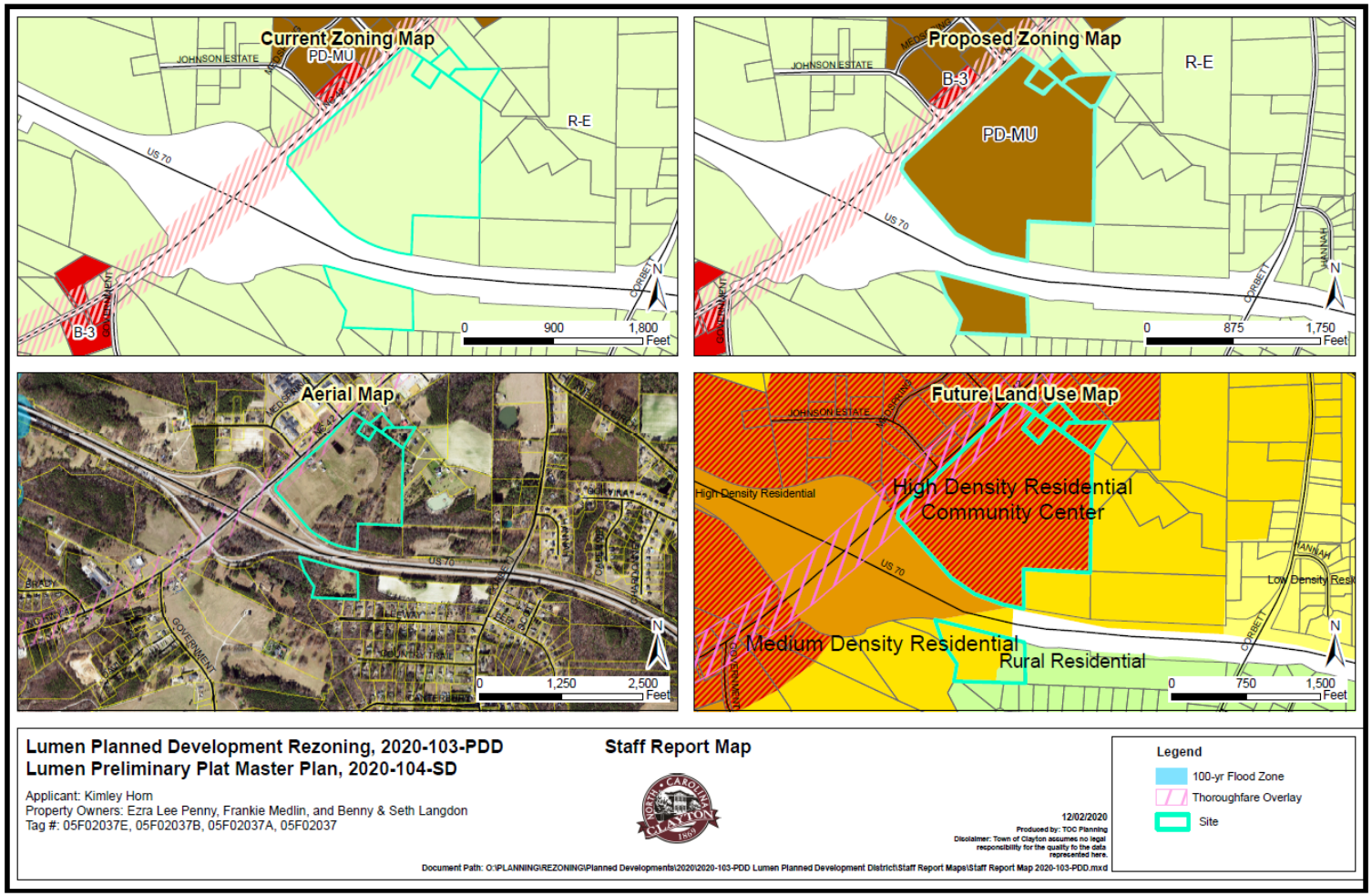
The Town Council will hold a public hearing to consider the above referenced rezoning application and Development Agreement. The applicant is proposing to rezone the subject parcels from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). The Town Council will hold an evidentiary hearing to consider the above referenced Preliminary Plat Master Plan application. The applicant is requesting master plan approval for a mixed use development on the subject parcels that will include 700,000 SF of non-residential office/institutional uses, up to 90,000 SF of commercial/retail uses, up to 480 multi-family residential units, up to 120 single-family lots, and up to 120 rooms and/or 10,000 SF for a hospitality/civic use.

During a public hearing, the Council reserves the right to approve the request as presented or any portion of the request without necessity of withdrawal or modification of the application or additional public hearing on the matter. Likewise, the Town Council may designate approval to the district requested or another district or districts without modification of the request or additional public hearing. During an evidentiary hearing, the Clayton Town Council must make findings of fact based upon sworn testimony and other credible evidence. Citizens may give testimony in an evidentiary hearing after they have taken an oath. Based upon records in the Johnston County Tax Office, you are the owner of property that is within 100 feet of this proposed rezoning request. You are invited to join this meeting and express your opinions on this request to the Town Council.

If you should need additional assistance or information, please contact the Planning Department at (919) 553-5002 or email at jcaines@townofclaytonnc.org.

Sincerely,

Jeff Caines, AICP
Senior Planner


Current Zoning Map
PD-MU
R-E
B-3
JOHNSON ESTATE
US 70
CORBETT
GOVERNMENT
0 900 1,800 Feet
Proposed Zoning Map
B-3
PD-MU
R-E
0 875 1,750 Feet
Aerial Map
0 1,250 2,500 Feet
Future Land Use Map
High Density Residential
High Density Residential
Community Center
Medium Density Residential
Rural Residential
Low Density Resi
0 750 1,500 Feet
Lumen Planned Development Rezoning, 2020-103-PDD
Lumen Preliminary Plat Master Plan, 2020-104-SD
Applicant: Kimley Horn
Property Owners: Ezra Lee Penny, Frankie Medlin, and Benny & Seth Langdon
Tag #: 05F02037E, 05F02037B, 05F02037A, 05F02037
Staff Report Map
12/02/2020
Produced by: TOC Planning
Disclaimer: Town of Clayton assumes no legal responsibility for the quality fo the data represented here.
Document Path: O:\PLANNING\REZONING\Planned Developments\2020\2020-103-PDD Lumen Planned Development District\Staff Report Maps\Staff Report Map 2020-103-PDD.mxd
Legend
100-yr Flood Zone
Thoroughfare Overlay
Site

PUBLIC NOTICE

In accordance with NC GS 160A-364 the Clayton Town Council will hold public hearings and evidentiary hearings on Monday, April 19, 2021, at 6 PM at Town Hall, 111 East Second Street, to consider the following requests:

- **2020-103-PDD Lumen Planned Development Rezoning; request to rezone 69.07 acres of land from Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). The properties are located off NC HWY 42 W adjacent to 70 bypass and across from Spring Branch Medical Park. TAG #s: 05F02037E, 05F02037B, 05F02037A, 05F02037**

- **2020-104-SD Lumen Preliminary Plat Master Plan; request for a master plan to develop 69.07 acres of land for commercial and residential uses. The plan includes allowances for up to 480 multi-family units, 140 single-family lots, 700,000 SF of office, 90,000 SF of commercial/retail, and up to 120 rooms for a hospitality use. The properties are located off NC HWY 42 W, adjacent to 70 bypass and across from Spring Branch Medical Park. TAG #s: 05F02037E, 05F02037B, 05F02037A, 05F02037**

- **Development Agreement with Davis Park Leasing, LLC pertaining to the development of a new mixed use project (Lumen, 2020-104-SD) located off NC HWY 42 W adjacent to 70 bypass and across from Spring Branch Medical Park. The development will include allowances for up to 480 multi-family units, 140 single-family lots, 700,000 SF of office uses, 90,000 SF of commercial uses, and up to 120 rooms for a hospitality use. TAG #s: 05F02037E, 05F02037B, 05F02037A, 05F02037.**

For the Rezoning and Development Agreement the Town Council will hold public hearings. The Clayton Town Council reserves the right to approve the request as presented or any portion of the request without necessity of withdrawal or modification of the application or additional public hearing on the matter. Likewise, the Town Council may designate approval to the district requested or another district or districts without modification of the request or additional public hearing.

For the Preliminary Plat (Master Plan) the Council will hold evidentiary hearings. During an evidentiary hearing, the Clayton Town Council must make findings of fact based upon sworn testimony and other credible evidence. Citizens may give testimony in an evidentiary hearing after they have taken an oath.

This is an open meeting and the public is invited to attend.

Jeff Caines, AICP
919-553-5002

_____
The Johnstonian Newspaper

Please advertise on the following dates:
Wednesday, April 7, 2021
Wednesday, April 14, 2021

Affidavit of publication required.

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

TRC CERTIFICATION

April 6, 2021

Richard Brown
421 Fayetteville St. Suite 600
Raleigh, NC 27601
Richard.brown@kimley-horn.com

Re: 2020-104-SD Lumen Planned Development District

Mr. Brown,

The project listed above has received certification from the Technical Review Committee on April 6, 2021. In order to prepare for your upcoming Town Council meeting, please submit **ONE** 11x17 hardcopy of your latest site plan upon receipt of this notice. The project will now proceed to the following meeting:

Town Council: Monday April 19, 2021 at 6:00pm

Please let me know if you have any questions or need further assistance.

Thank you,

Lori Bryant
Development Services Coordinator
Lbryant@townofclaytonnc.org
(919) 359-9337

Staff Approval:

Project Manger's Approval — Date: 4/6/2021

Department of Engineering Approval — Date: 4/7/2021

Fire Inspector's Approval — Date: 04-08-2021

Updated February 2019

Traffic Impact Analysis

Lumen

Clayton, NC

Prepared for:

Davis Park Leasing, LLC.

Kimley»Horn

© Kimley-Horn and Associates, Inc. 2020

Traffic Impact Analysis for

Lumen

Clayton, North Carolina

Prepared for:

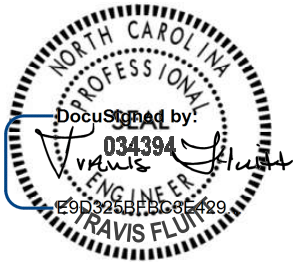
Davis Park Leasing, LLC.
Cary, NC

Prepared by:

Kimley-Horn and Associates, Inc.
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

July 2020

011174036



7/1/2020

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Executive Summary

Kimley-Horn and Associates, Inc. has prepared a Traffic Impact Analysis (TIA) for the proposed Lumen development located on the northeast quadrant of the US 70 Bypass/NC 42 interchange in Clayton, North Carolina. The proposed development covers approximately 54 acres and as currently envisioned will include approximately 140 single-family homes, 480 apartments, a 120-room hotel, 700,000 square feet (SF) of medical office space, 35,000 SF of general retail space, and a 55,000 SF supermarket. The site is proposed to be accessed via a full-movement access onto NC 42 at Springbrook Avenue and a right-in/right-out only access generally across NC 42 from Johnson Estate Road. Build-out of the development is anticipated in the year 2027.

North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP) Project R-3410 proposes to widen NC 42 to a four-lane, median-divided roadway through the study area along with other geometric and traffic signal improvements. Improvements associated with that project were assumed to be in place for the future traffic conditions, and traffic volume forecast data was used to develop the future year volumes for this analysis.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the Lumen development. The traffic conditions studied include the existing (2020) traffic condition and the projected (2027) background and build-out traffic conditions.

As shown in Table ES-1, the development has the potential to generate 32,596 new daily trips, with 1,713 new trips during the AM peak hour and 1,818 new trips during the PM peak hour.

Table ES-1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out	In	Out
210	Single-Family Detached Housing	140	d.u.	709	709	26	78	88	52
221	Multifamily Housing (Mid-Rise)	480	d.u.	1,307	1,307	41	118	122	78
310	Hotel	120	rooms	464	464	32	23	33	31
720	Medical Office Building	700,000	s.f.	13,403	13,403	1,073	189	189	1,071
820	Shopping Center	35,000	s.f.	1,472	1,472	105	64	120	130
850	Supermarket	55,000	s.f.	2,937	2,937	126	84	259	249
Subtotal				20,292	20,292	1,403	556	811	1,611
Internal Capture				*2,893*	*2,893*	*123*	*123*	*201*	*201*
Pass-by Capture				*1,101*	*1,101*	*0*	*0*	*108*	*94*
Net New External Trips				**16,298**	**16,298**	**1,280**	**433**	**502**	**1,316**

Capacity analyses were performed using Synchro Version 10 software. Table ES-2 summarizes the operation of the study intersections for the AM and PM peak hour traffic conditions.

Table ES-2
Level-of-Service Summary

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
NC 42 at US 70 Eastbound Ramps (Signalized)		
Existing (2020) Traffic	B (15.2)	A (8.0)
Background (2027) Traffic – with Committed Improvements by NCDOT	C (23.7)	C (28.2)
Build-out (2027) Traffic – with Committed Improvements by NCDOT	D (44.5)	D (36.8)
NC 42 at US 70 Westbound Ramps (Signalized)		
Existing (2020) Traffic	B (12.5)	B (13.8)
Background (2027) Traffic – with Committed Improvements by NCDOT	C (27.9)	C (21.1)
Build-out (2027) Traffic – with Committed Improvements by NCDOT	C (24.3)	C (22.3)
NC 42 at Johnson Estate Road/West Site Driveway (Unsignalized)		
Existing (2020) Traffic – Directional Crossover	SB – B (12.9) EBL – A (9.0)	SB – C (18.9) EBL – B (10.3)
Background (2027) Traffic – Right-in/Right-out with Committed Improvements by NCDOT	SB – B (13.8)	SB – C (16.5)
Build-out (2027) Traffic – Right-in/Right-out with Committed & Recommended Improvements	NB – C (24.1) SB – C (15.7)	NB – E (37.0) SB – D (27.4)
NC 42 at Springbrook Avenue/East Site Driveway		
Existing (2020) Traffic – Unsignalized	SB – C (24.5) EBL – A (9.5)	SB – D (28.2) EBL – A (10.0)
Background (2027) Traffic – Signalized with Committed Improvements by NCDOT	A (8.0)	A (8.1)
Build-out (2027) Traffic – Signalized with Committed & Recommended Improvements	D (36.0)	D (47.5)
NC 42 at Johnston Health/HealthPark Way (Signalized)		
Existing (2020) Traffic	A (6.0)	B (10.7)
Background (2027) Traffic –with Committed Improvements by NCDOT	B (11.3)	B (10.4)
Build-out (2027) Traffic –with Committed Improvements by NCDOT	B (12.0)	B (12.4)

Table ES-2 (cont.) Level-of-Service Summary		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
NC 42 at Amelia Church Road (Signalized)		
Existing (2020) Traffic	C (26.8)	C (29.9)
Background (2027) Traffic – with Committed Improvements by NCDOT	C (32.7)	C (32.4)
Build-out (2027) Traffic –with Committed Improvements by NCDOT	C (33.2)	D (43.5)

Committed Improvements

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

NC 42:

- Widen NC 42 to a four-lane divided roadway through the study area

NC 42 at US 70 Bypass Eastbound Ramps:

- Construct an additional southbound right-turn lane on the US 70 Bypass Eastbound Off-Ramp to provide dual right-turn lanes with 350 feet of storage each
- Restripe the existing eastbound shared through/right lane on NC 42 as a through lane and construct an exclusive eastbound right-turn lane with 200 feet of storage
- Modify the existing traffic signal to accommodate the committed laneage

NC 42 at US 70 Bypass Westbound Ramps:

- Reconfigure/widen the northbound approach of the US 70 Bypass Westbound Off-Ramp to provide an exclusive left-turn lane with 150 feet of storage, a shared through/left lane, and dual right-turn lanes with 450 feet of storage on that approach
- Restripe the existing westbound shared through/right lane on NC 42 as a through lane and construct an exclusive westbound right-turn lane with 450 feet of storage on that approach
- Modify the existing traffic signal to accommodate the committed laneage

NC 42 at Johnson Estate Road:

- Reconfigure the intersection to restrict Johnson Estate Road to a right-in/right-out only access

NC 42 at Springbrook Avenue:

- Provide an eastbound left-turn lane on NC 42 with 450 feet of storage
- Provide a westbound right-turn lane on NC 42 with 125 feet of storage

[Traffic signal installation is currently underway at this intersection as part of a separate project.]

NC 42 at Johnston Medical Center/HealthPark Way:

- Provide a left-turn lane with 450 feet of storage and a right-turn lane with 175 feet of storage on eastbound NC 42

- Provide a left-turn lane with 425 feet of storage and a right-turn lane with 225 feet of storage on westbound NC 42
- Modify the existing traffic signal to accommodate the committed laneage

NC 42 at Amelia Church Road:

- Provide a northbound left-turn lane on Amelia Church Road with 425 feet of storage and construct an exclusive northbound right-turn lane with 100 feet of storage
- Construct a southbound left-turn lane on Amelia Church Road with 100 feet of storage and construct an additional southbound right-turn lane on Amelia Church Road to provide dual right-turn lanes with 200 feet of storage on that approach
- Construct an additional eastbound left-turn lane on NC 42 to provide dual left-turn lanes with 375 feet of storage each on that approach
- Provide an exclusive eastbound right-turn lane on NC 42 with 100 feet of storage
- Provide an exclusive westbound left-turn lane on NC 42 with 200 feet of storage
- Modify the existing traffic signal to accommodate the committed laneage

While the traffic analysis for the TIP project recommended additional improvements as part of that project to accommodate projected future volumes, only those improvements identified on the project public hearing maps were included in this analysis to be conservative.

Recommended Improvements

In addition to the improvements committed to be performed as part of TIP Project R-3410, the following improvements are recommended to be performed to accommodate site traffic volumes:

NC 42 at Johnson Estate Road/West Site Driveway:

- Construct an exclusive eastbound right-turn lane on NC 42 with 150 feet of storage and appropriate taper

NC 42 at Springbrook Avenue/East Site Driveway:

- Construct an exclusive eastbound right-turn lane on NC 42 with 150 feet of storage and appropriate taper
- Construct dual westbound left-turn lanes on NC 42, each with 400 feet of storage and appropriate taper
- Provide dual northbound left-turn lanes, a shared through/right lane, and an exclusive right-turn lane on the northbound approach of the East Site Driveway
- Modify the traffic signal to accommodate the recommended laneage

Analyses indicate that with the committed and recommended improvements in place, all of the study intersections are expected to operate at acceptable LOS at project build-out. While some occasional long queues are anticipated in the peak hours on the East Site Driveway, no significant queueing issues are anticipated at other study intersections at project build-out.

The committed and recommended roadway laneage is shown on **Figure ES-1**.

NOT TO SCALE

LEGEND

- EXISTING LANE
- EXISTING STOP SIGN
- RECOMMENDED LANE
- RECOMMENDED STOP SIGN
- * RECOMMENDED TRAFFIC SIGNAL MODIFICATION
- COMMITTED LANE (BY OTHERS)
- COMMITTED TRAFFIC SIGNAL INSTALLATION (BY OTHERS)
- COMMITTED TRAFFIC SIGNAL MODIFICATION (BY OTHERS)
- XX' STORAGE LENGTH

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FIGURE ES-1

COMMITTED AND RECOMMENDED ROADWAY LANEAGE

LUMEN
CLAYTON, NC
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1.0 Introduction

Kimley-Horn and Associates, Inc. has prepared a Traffic Impact Analysis (TIA) for the proposed Lumen development located on the northeast quadrant of the US 70 Bypass/NC 42 interchange in Clayton, North Carolina. The proposed development covers approximately 54 acres and as currently envisioned will include approximately 140 single-family homes, 480 apartments, a 120-room hotel, 700,000 square feet (SF) of medical office space, 35,000 SF of general retail space, and a 55,000 SF supermarket. The site is proposed to be accessed via a full-movement access onto NC 42 at Springbrook Avenue and a right-in/right-out only access generally across NC 42 from Johnson Estate Road. Build-out of the development is anticipated in the year 2027.

North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program (STIP) Project R-3410 proposes to widen NC 42 to a four-lane, median-divided roadway through the study area along with other geometric and traffic signal improvements. Improvements associated with that project were assumed to be in place for the future traffic conditions, and traffic volume forecast data was used to develop the future year volumes for this analysis.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. The traffic conditions studied include the existing (2020) traffic condition and the projected (2027) background and build-out traffic conditions.

Town of Clayton and NCDOT staff provided background data and were consulted regarding the elements to be covered in this analysis. The TIA Scoping Documents are included in the Appendix.

2.0 Inventory

2.1 *Study Area*

The study area for this development in includes the following intersections:

- NC 42 at US 70 Eastbound Ramps
- NC 42 at US 70 Westbound Ramps
- NC 42 at Johnson Estate Road/West Site Driveway
- NC 42 at Springbrook Avenue/East Site Driveway
- NC 42 at Johnston Health/HealthPark Way
- NC 42 at Amelia Church Road

Figure 2.1 shows the site location, and the conceptual site plan is shown on **Figure 2.2**

2.2 *Existing Conditions*

The Lumen project is proposed is proposed to be located on the northeast quadrant of the US 70 Bypass/NC 42 interchange in Clayton, North Carolina. Roadways in the area include US 70 Bypass, NC 42, Amelia Church Road, Springbrook Avenue, and Johnson Estate Road. The existing roadway laneage is shown in **Figure 2.3**.

US 70 Bypass is a 4-lane divided highway with a posted speed limit of 70 mph in the vicinity of NC 42. The estimated 2020 average daily traffic (ADT) volume on US 70 is approximately 38,700 vehicles per day (vpd) northwest of NC 42.

NC 42 is generally a 3-lane undivided roadway in the study area with a variable posted speed limit. NC 42 is planned to be widened to a 4-lane divided roadway as part of NCDOT Project R-3410. The estimated 2020 ADT volume is approximately 17,000 vpd west of Amelia Church Road.

Amelia Church Road is generally a 2-lane undivided roadway with a posted speed limit of 45 mph. The estimated 2020 ADT volume is approximately 11,700 vpd north of NC 42.

Springbrook Avenue is a 2-lane divided roadway with an assumed speed limit of 35 mph. The estimated 2020 ADT volume is approximately 1,600 vpd north of NC 42.

Johnson Estate Road is a 2-lane undivided roadway with an assumed speed limit of 55 mph. The estimated 2020 ADT volume is less than 1,000 vpd north of NC 42.

FIGURE 2.1

SITE LOCATION

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MASTER PLAN LEGEND:

- LIMITED SITE ACCESS - RIGHT-IN / RIGHT-OUT
- SIGNALIZED INTERSECTION (FULL MOVEMENT)
- SITE PROPERTY LINE
- RIPARIAN BUFFER
- APPROXIMATE STREAM CENTERLINE
- PROPERTY SETBACKS/BUFFERS

0 100 200 400

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REVISIONS	DATE	SHEET
		MP

LUMEN - PLANNED DEVELOPMENT DISTRICT (Z-#-20) (MP-#-20)
CLAYTON, NORTH CAROLINA

MASTER / LAND PLAN CONCEPT
JULY 1, 2020

FIGURE 2.2

CONCEPTUAL SITE PLAN

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NOT TO SCALE

LEGEND

- EXISTING LANE
- EXISTING STOP SIGN
- EXISTING TRAFFIC SIGNAL
- SPEED LIMIT XX — POSTED SPEED LIMIT
- XX' — STORAGE LENGTH

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FIGURE 2.3

EXISTING ROADWAY LANEAGE

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3.0 Traffic Generation

The traffic generation potential of the Lumen development was determined using the traffic generation rates published in *Trip Generation* (Institute of Transportation Engineers, Tenth Edition, 2017). It should be noted that, based on previous data collection at large medical office sites, alternative PM peak hour trip generation rates for the medical office space were used in this analysis. That methodology is summarized and included in the Appendix of this report and was approved by the Town of Clayton and NCDOT for use in this study.

As currently envisioned, the development is anticipated to include approximately 140 single-family homes, 480 apartments, a 120-room hotel, 700,000 SF of medical office space, 35,000 SF of general retail space, and a 55,000 SF supermarket.

Trip generation calculations for the site are shown below in Table 3.1.

Table 3.1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily		AM Peak Hour		PM Peak Hour	
				In	Out	In	Out	In	Out
210	Single-Family Detached Housing	140	d.u.	709	709	26	78	88	52
221	Multifamily Housing (Mid-Rise)	480	d.u.	1,307	1,307	41	118	122	78
310	Hotel	120	rooms	464	464	32	23	33	31
720	Medical Office Building	700,000	s.f.	13,403	13,403	1,073	189	189	1,071
820	Shopping Center	35,000	s.f.	1,472	1,472	105	64	120	130
850	Supermarket	55,000	s.f.	2,937	2,937	126	84	259	249
Subtotal				20,292	20,292	1,403	556	811	1,611
Internal Capture				*2,893*	*2,893*	*123*	*123*	*201*	*201*
Pass-by Capture				*1,101*	*1,101*	*0*	*0*	*108*	*94*
Net New External Trips				**16,298**	**16,298**	**1,280**	**433**	**502**	**1,316**

As shown in Table 3.1, the development has the potential to generate 32,596 new daily trips, with 1,713 new trips during the AM peak hour and 1,818 new trips during the PM peak hour.

Internal capture and pass-by reductions were performed per NCDOT Congestion Management guidelines. Pass-by traffic was assigned to the network at the site driveways based on peak hour traffic patterns.

Detailed trip generation calculations are included in the Appendix of this report.

4.0 Site Traffic Distribution

The projected site-generated trips were assigned to the surrounding roadway network. The directional distribution and assignment for this development were based on a review of surrounding land uses and discussions with NCDOT and the Town of Clayton. The following overall distribution was used for the development:

- 35% to/from the north on US 70
- 25% to/from the east on NC 42
- 10% to/from the west on NC 42
- 10% to/from the south on US 70
- 10% to/from the north on Amelia Church Road
- 5% to/from the south on Amelia Church Road
- 5% to/from the north on Springbrook Avenue

Figure 4.1 shows the site traffic distribution and percent assignment for the project.

NOT TO SCALE

LEGEND

(XX%) OVERALL DISTRIBUTION

XX% INBOUND PERCENT ASSIGNMENT

(XX%) OUTBOUND PERCENT ASSIGNMENT

SITE TRAFFIC DISTRIBUTION
AND PERCENT ASSIGNMENT

FIGURE
4.1

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5.0 Projected Traffic Volumes

5.1 *Existing Traffic*

AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM) turning movement counts were obtained from NCDOT at the following intersections:

- NC 42 at US 70 Eastbound Ramps — March 8, 2016
- NC 42 at US 70 Westbound Ramps — March 8, 2016
- NC 42 at Johnson Estate Drive — September 21, 2016
- NC 42 at Springbrook Avenue — September 21, 2016
- NC 42 at Johnson Health/HealthPark Way — September 21, 2016
- NC 42 at Amelia Church Road — September 20, 2016

To estimate existing peak hour traffic volumes, a 3% annual growth rate was applied to the turning movement count volumes up to the study year 2020. It should also be noted that as the 20,724 SF medical office building south of NC 42 on HealthPark Way was not in place when the turning movement counts were collected or accounted for in the TIP forecast data (discussed below), trip generation was performed for that site, and the resulting traffic was assigned equally to/from the east and west on NC 42 at the HealthPark Way intersection. To be conservative, existing and forecast volumes were not reduced to account for the addition of those site trips to the network.

The existing AM and PM peak hour traffic volumes are shown on **Figure 5.1**, and the traffic count data are included in the Appendix.

5.2 *NCDOT TIP Project R-3410*

NCDOT proposes to widen NC 42 to a four-lane, median-divided roadway (in addition to other geometric and traffic signal improvements) through the study area as part of STIP Project R-3410. Traffic volume forecast data and associated recommended improvements were outlined in the "Traffic Technical Memo for NC 42 Widening for NC 50 to US 70 Business" (Mott MacDonald, September 2018) and were incorporated in each of the future traffic conditions for this study. Those volumes accounted for the converting the intersection of NC 42 at Johnson Estate Road from a directional crossover (left-in/right-in/right-out) to a right-in/right-out driveway and associated diversion of left-turn traffic to Springbrook Avenue. TIP project information is included in the Appendix of this report. Weekday AM and PM peak hour volumes for the background traffic condition, developed per a review of NCDOT TIP forecast volumes, are shown on **Figures 5.2** and **5.3**.

5.3 *Site Traffic*

Project site traffic was generated and assigned to the adjacent roadway network according to the distribution discussed previously in *Section 4.0*. AM and PM peak hour site traffic volumes are shown on **Figures 5.2 and 5.3** for the AM and PM peak hours, respectively.

5.4 *Forecast Volume Traffic Reductions*

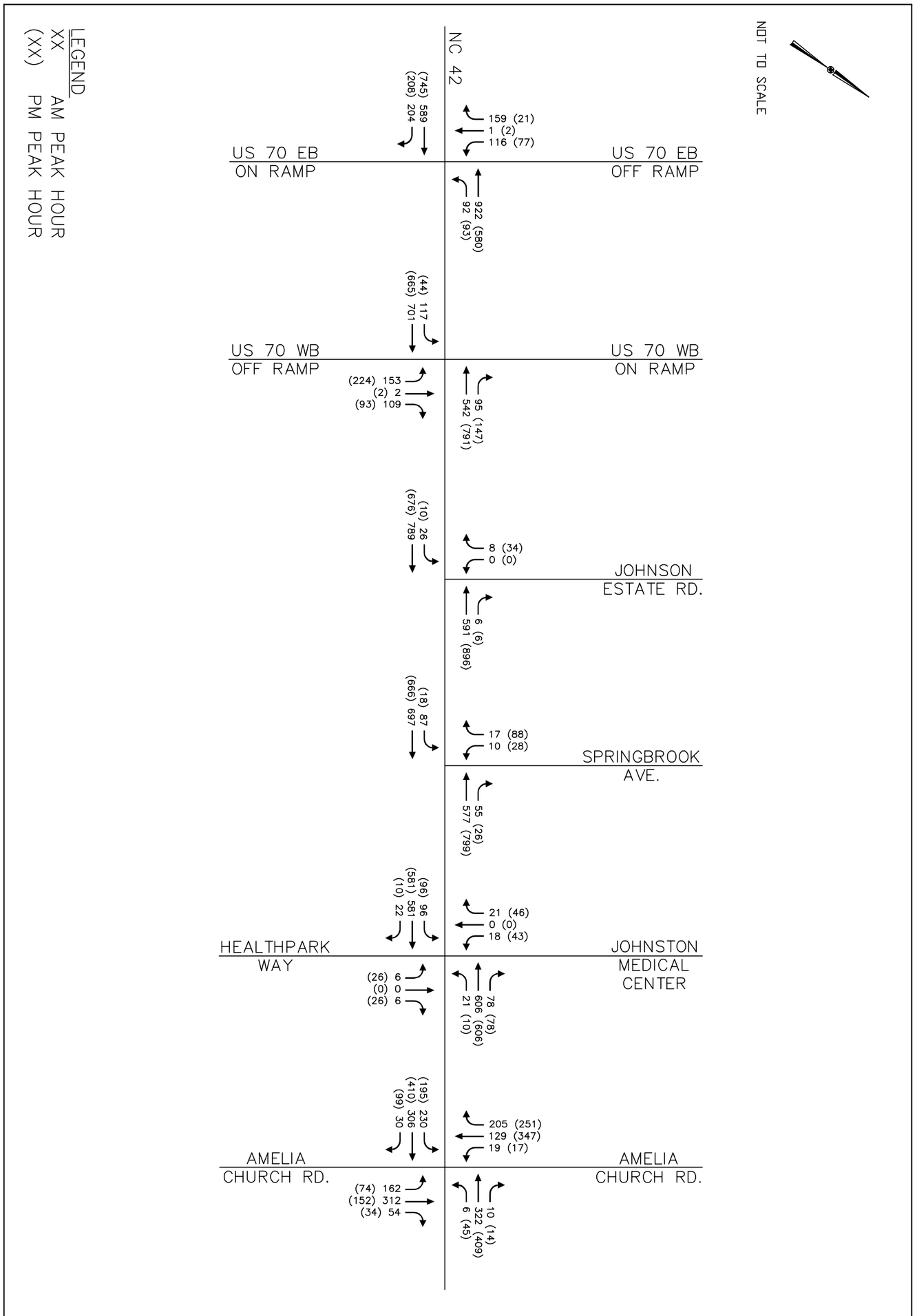
The subject project parcel represents approximately 10% of the traffic analysis zone (TAZ) in the model used for traffic forecast volume development. The model indicates that the TAZ was assumed to generate approximately 21,300 daily trips, and therefore this parcel would proportionally generate 2,130 daily trips. As this project is anticipated to generate approximately 32,600 daily trips, the forecast was estimated to account for approximately 6.5% of this project's trip generation.

To account for project traffic already assumed to be on the network in the forecast data, net new external site traffic volumes were reduced by 6.5% at off-site intersections. Turns into/out of the site were not reduced at site driveways. Instead, though through movement volumes at those intersections were reduced proportionally. AM and PM peak hour forecast volume reductions are shown on **Figures 5.2 and 5.3** for the AM and PM peak hours, respectively.

5.5 *Build-Out Traffic*

Projected build-out traffic volumes include background traffic volumes, total site traffic, and forecast volume reductions. Traffic volume calculations are detailed in intersection spreadsheets in the Appendix of this report. The projected (2027) AM and PM peak hour build-out volumes are shown on **Figures 5.2** and **5.3**, respectively.

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NOT TO SCALE

NC 42

158(0)[158]
0(0)[0]
200(448){−29}[619]

US 70 EB OFF RAMP

1029(43){−3}[1069]
266(43){−3}[306]

US 70 WB ON RAMP

277(152){−10}[419]
819(87){−6}[900]

13(0)[13]

JOHNSON ESTATE RD.

10(0)[10]
1126(238){−15}[1349]

40(0)[40]
0(64)[64]
37(0)[37]

SPRINGBROOK AVE.

52(0)[52]
1081(0){−33}[1048]
0(512)[512]

81(0)[81]
0(0)[0]
61(0)[61]

JOHNSTON MEDICAL CENTER

66(0)[66]
1037(512){−33}[1516]
21(0)[21]

246(128){−8}[366]
175(0)[175]
24(0)[24]

AMELIA CHURCH RD.

32(0)[32]
704(320){−21}[1003]
29(0)[29]

[1294]{−8}(128)1174
[459](0)459

US 70 EB ON RAMP

[335](0)335
[1578]{−37}(576)1039

US 70 WB OFF RAMP

[476](0)476
[0](0)0
[539]{−8}(128)419

[1614]{−46}(256)1404
[448](448)0

WEST SITE DRWY.

[86](86)0

[43](43)0
[110](0)110
[1339]{−22}(43)1318
[256](256)0

EAST SITE DRWY.

[195](195)0
[22](22)0
[130](130)0

[106](0)106
[1438]{−11}(173)1276
[22](0)22

HEALTHPARK WAY

[6](0)6
[0](0)0
[6](0)6

[440]{−3}(43)400
[955]{−7}(108)854
[127]{−1}(22)106

AMELIA CHURCH RD.

[208]{−4}(64)148
[387](0)387
[48](0)48

SITE

LEGEND

XX BACKGROUND TRAFFIC
(XX) PRIMARY SITE TRAFFIC
<XX> PASS-BY TRAFFIC
{XX} FORECAST VOLUME REDUCTIONS
[XX] TOTAL BUILD-OUT TRAFFIC

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PROJECTED (2027) BACKGROUND AND BUILD-OUT AM PEAK HOUR TRAFFIC VOLUMES

FIGURE 5.2

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PROJECTED (2027) BACKGROUND AND BUILD-OUT AM PEAK HOUR TRAFFIC VOLUMES

FIGURE 5.3

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6.0 Capacity Analysis

Capacity analyses were performed for the AM and PM peak hours for the existing (2020) traffic condition and the projected background and build-out traffic conditions at the study intersections using Synchro Version 10 software to determine the operating characteristics of the adjacent road network and the impacts of the proposed project.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a set time duration. Capacity is combined with Level-of-Service (LOS) to describe the operating characteristics of a road segment or intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual (HCM)* defines six levels of service, LOS A through LOS F, with A representing the shortest average delays and F representing the longest average delays. LOS D is the typically accepted standard for signalized intersections in urbanized areas. For signalized intersections, LOS is defined for the overall intersection operation.

For unsignalized intersections, only the movements that must yield right-of-way experience control delay. Therefore, LOS criteria for the overall intersection is not reported by Synchro/SimTraffic Version 10 or computable using methodology published in the *HCM.* It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. Table 6.0 lists the LOS control delay thresholds published in the *HCM* for signalized and unsignalized intersections.

Table 6.0
Level-of-Service Control Delay Thresholds

Level-of-Service	Signalized Intersections – Control Delay Per Vehicle [sec/veh]	Unsignalized Intersections – Average Control Delay [sec/veh] & Qualitative Operational Description	
A	≤ 10	≤ 10	Short Delays
B	> 10 – 20	> 10 – 15	
C	> 20 – 35	> 15 – 25	
D	> 35 – 55	> 25 – 35	Moderate Delays
E	> 55 – 80	> 35 – 50	
F	> 80	> 50	Long Delays

A peak hour factor (PHF) of 0.90 was used for all turning movements in each of the traffic conditions, and per NCDOT guidance, right-turns on red (RTOR) were prohibited even if allowed in the field. Additionally, while actual existing and projected volumes are shown in the figures, a minimum volume of 4 vehicles was used for intersection movements even if existing or projected volumes were found to be lower. Signal inputs were generally obtained from the NCDOT TIP project analysis, and signal timings were optimized for each traffic condition.

6.1 *NC 42 at US 70 Eastbound Ramps*

Analyses indicate that the signalized intersection of NC 42 at the US 70 Eastbound Ramps currently operates at LOS B in the AM peak hour and LOS A in the PM peak hour.

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

- Widen NC 42 to a four-lane divided roadway through the study area
- Construct an additional southbound right-turn lane on the US 70 Bypass Eastbound Off-Ramp to provide dual right-turn lanes with 350 feet of storage each
- Restripe the existing eastbound shared through/right lane on NC 42 as a through lane and construct an exclusive eastbound right-turn lane with 200 feet of storage
- Modify the existing traffic signal to accommodate the committed laneage

As noted previously, while the Technical Traffic Memo for the TIP Project identified additional improvements at this intersection to accommodate future traffic volumes, only those improvements identified on the project public hearing maps were included to be conservative.

Analyses indicate that with the committed improvements in place, the intersection is anticipated to operate at LOS C in the background traffic condition and LOS D at project build-out. No roadway improvements are recommended to be performed at this intersection as part of the proposed Lumen Property development.

Table 6.1 summarizes the operation of the intersection of NC 42 at US 70 Eastbound Ramps for the existing (2020) and projected (2027) background and build-out traffic conditions.

Table 6.1
Level-of-Service
NC 42 at US 70 Eastbound Ramps (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2020) Traffic	B (15.2)	A (8.0)
Background (2027) Traffic – with Committed Improvements by NCDOT	C (23.7)	C (28.2)
Build-out (2027) Traffic – with Committed Improvements by NCDOT	D (44.5)	D (36.8)

6.2 *NC 42 at US 70 Westbound Ramps*

Analyses indicate that the signalized intersection of NC 42 at the US 70 Westbound Ramps currently operates at LOS B in both the AM and PM peak hours.

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

- Widen NC 42 to a four-lane divided roadway through the study area
- Reconfigure/widen the northbound approach of the US 70 Bypass Westbound Off-Ramp to provide an exclusive left-turn lane with 150 feet of storage, a shared through/left lane, and dual right-turn lanes with 450 feet of storage on that approach
- Restripe the existing westbound shared through/right lane on NC 42 as a through lane and construct an exclusive westbound right-turn lane with 450 feet of storage on that approach
- Modify the existing traffic signal to accommodate the committed laneage

As noted previously, while the Technical Traffic Memo for the TIP Project identified additional improvements at this intersection to accommodate future traffic volumes, only those improvements identified on the project public hearing maps were included to be conservative.

Analyses indicate that with the committed improvements in place, the intersection is anticipated to operate at LOS C in the study year 2027 with or without the proposed project in place. No roadway improvements are recommended to be performed at this intersection as part of the proposed Lumen Property development.

Table 6.2 summarizes the operation of the intersection of NC 42 at US 70 Westbound Ramps for the existing (2020) and projected (2027) background and build-out traffic conditions.

Table 6.2
Level-of-Service
NC 42 at US 70 Westbound Ramps (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2020) Traffic	B (12.5)	B (13.8)
Background (2027) Traffic – with Committed Improvements by NCDOT	C (27.9)	C (21.1)
Build-out (2027) Traffic – with Committed Improvements by NCDOT	C (24.3)	C (22.3)

6.3 *NC 42 at Johnson Estate Road/West Site Driveway*

Analyses indicate that the unsignalized directional crossover (left-in/right-in/right-out) intersection of NC 42 at Johnson Estate Road currently operates with short delays on the minor street approach (Johnson Estate Road) in the peak hours.

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

- Widen NC 42 to a four-lane divided roadway through the study area
- Reconfigure the intersection to restrict Johnson Estate Road to a right-in/right-out only access

With the committed improvements and access limitation in place, the intersection is expected to operate with short delays on the minor street approach (Johnson Estate Road) in the projected (2027) background traffic condition.

In addition to the improvements committed to be performed as part of TIP Project R-3410, the following improvements are recommended to be performed to accommodate site traffic volumes:

- Construct the West Site Driveway as a right-in/right-out access with one ingress lane and one egress lane
- Construct an exclusive eastbound right-turn lane on NC 42 with 150 feet of storage and appropriate tapers

Analyses indicate that with the recommended improvements in place, the intersection is expected to operate with short delays in the AM peak hour and moderate delays in the PM peak hour for the minor street approaches (Johnson Estate Road/West Site Driveway) at project build-out. No queuing issues are anticipated at this intersection.

Table 6.3 summarizes the operation of the intersection of NC 42 at Johnson Estate Road/West Site Driveway for the existing (2020) and projected (2027) background and build-out traffic conditions.

Table 6.3
Level-of-Service
NC 42 at Johnson Estate Road/West Site Driveway (Unsignalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2020) Traffic – Directional Crossover	SB – B (12.9) EBL – A (9.0)	SB – C (18.9) EBL – B (10.3)
Background (2027) Traffic – Right-in/Right-out with Committed Improvements by NCDOT	SB – B (13.8)	SB – C (16.5)
Build-out (2027) Traffic – Right-in/Right-out with Committed & Recommended Improvements	NB – C (24.1) SB – C (15.7)	NB – E (37.0) SB – D (27.4)

6.4 *NC 42 at Springbrook Avenue/East Site Driveway*

Analyses indicate that the unsignalized full-movement intersection of NC 42 at Springbrook Avenue currently operates with short delays on the minor street approach (Springbrook Avenue) in the peak hours. Traffic signal installation is currently underway at this intersection as part of a separate project and was included in each of the future traffic conditions.

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

- Widen NC 42 to a four-lane divided roadway through the study area
- Provide an eastbound left-turn lane on NC 42 with 200 feet of storage
- Provide a westbound right-turn lane on NC 42 with 200 feet of storage

With the committed improvements and traffic signal in place, the intersection is expected to operate at LOS A in both peak hours in the projected (2027) background traffic condition.

In addition to the improvements committed to be performed as part of TIP Project R-3410, the following improvements are recommended to be performed to accommodate site traffic volumes:

- Construct an exclusive eastbound right-turn lane on NC 42 with 150 feet of storage
- Construct dual westbound left-turn lanes on NC 42, each with 400 feet of storage
- Provide dual northbound left-turn lanes, a shared through/right lane, and an exclusive right-turn lane on the northbound approach of the East Site Driveway
- Modify the traffic signal to accommodate the recommended laneage

Analyses indicate that with the recommended improvements in place, the intersection is expected to operate at LOS D in both peak hours at project build-out. SimTraffic simulations show the potential for long queues on the minor street approaches in the peak hours. It is anticipated that some traffic on Springbrook Avenue heading west on NC 42 may use Johnson Estate Road if delays and queues on that approach become long.

Table 6.4 summarizes the operation of the intersection of NC 42 at Springbrook Avenue/East Site Driveway for the existing (2020) and projected (2027) background and build-out traffic conditions.

Table 6.4 Level-of-Service NC 42 at Springbrook Avenue/East Site Driveway		
Condition	**AM Peak Hour LOS (Delay)**	**PM Peak Hour LOS (Delay)**
Existing (2020) Traffic – Unsignalized	SB – C (24.5) EBL – A (9.5)	SB – D (28.2) EBL – A (10.0)
Background (2027) Traffic – Signalized with Committed Improvements by NCDOT	A (8.0)	A (8.1)
Build-out (2027) Traffic – Signalized with Committed & Recommended Improvements	D (36.0)	D (47.5)

6.5 *NC 42 at Johnston Health/HealthPark Way*

Analyses indicate that the signalized intersection of NC 42 at Johnston Health/HealthPark Way currently operates at LOS A in the AM peak hour and LOS B in the PM peak hour.

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

- Widen NC 42 to a four-lane divided roadway through the study area
- Provide a left-turn lane with 450 feet of storage and a right-turn lane with 175 feet of storage on eastbound NC 42
- Provide a left-turn lane with 425 feet of storage and a right-turn lane with 225 feet of storage on westbound NC 42
- Modify the existing traffic signal to accommodate the committed laneage

Analyses indicate that with the committed improvements in place, the intersection is anticipated to operate at LOS B in the study year 2027 with or without the proposed project in place. No roadway improvements are recommended to be performed at this intersection as part of the proposed Lumen Property development.

Table 6.5 summarizes the operation of the intersection of NC 42 at Johnston Health/HealthPark Way for the existing (2020) and projected (2027) background and build-out traffic conditions.

Table 6.5
Level-of-Service
NC 42 at Johnston Health/HealthPark Way (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2020) Traffic	A (6.0)	B (10.7)
Background (2027) Traffic – with Committed Improvements by NCDOT	B (11.3)	B (10.4)
Build-out (2027) Traffic – with Committed Improvements by NCDOT	B (12.0)	B (12.4)

6.6 *NC 42 at Amelia Church Road*

Analyses indicate that the signalized intersection of NC 42 at Amelia Church Road currently operates at LOS C in the AM and PM peak hours.

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

- Widen NC 42 to a four-lane divided roadway through the study area
- Provide a northbound left-turn lane on Amelia Church Road with 425 feet of storage and construct an exclusive northbound right-turn lane with 100 feet of storage
- Construct a southbound left-turn lane on Amelia Church Road with 100 feet of storage and construct an additional southbound right-turn lane on Amelia Church Road to provide dual right-turn lanes with 200 feet of storage on that approach
- Construct an additional eastbound left-turn lane on NC 42 to provide dual left-turn lanes with 375 feet of storage each on that approach
- Provide an exclusive eastbound right-turn lane on NC 42 with 100 feet of storage
- Provide an exclusive westbound left-turn lane on NC 42 with 200 feet of storage
- Modify the existing traffic signal to accommodate the committed laneage

Analyses indicate that with the committed improvements in place, the intersection is anticipated to operate at LOS D or better in the study year 2027 with or without the proposed project in place. No roadway improvements are recommended to be performed at this intersection as part of the proposed Lumen Property development.

Table 6.6 summarizes the operation of the intersection of NC 42 at Amelia Church Road for the existing (2020) and projected (2027) background and build-out traffic conditions.

Table 6.6
Level-of-Service
NC 42 at Amelia Church Road (Signalized)

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Existing (2020) Traffic	C (26.8)	C (29.9)
Background (2027) Traffic – with Committed Improvements by NCDOT	C (32.7)	C (32.4)
Build-out (2027) Traffic –with Committed Improvements by NCDOT	C (33.2)	D (43.5)

7.0 Recommendations

Committed Improvements

The following improvements are committed to be performed as part of NCDOT STIP Project R-3410 and were included in the background and build-out traffic conditions in this analysis:

NC 42:

- Widen NC 42 to a four-lane divided roadway through the study area

NC 42 at US 70 Bypass Eastbound Ramps:

- Construct an additional southbound right-turn lane on the US 70 Bypass Eastbound Off-Ramp to provide dual right-turn lanes with 350 feet of storage each
- Restripe the existing eastbound shared through/right lane on NC 42 as a through lane and construct an exclusive eastbound right-turn lane with 200 feet of storage
- Modify the existing traffic signal to accommodate the committed laneage

NC 42 at US 70 Bypass Westbound Ramps:

- Reconfigure/widen the northbound approach of the US 70 Bypass Westbound Off-Ramp to provide an exclusive left-turn lane with 150 feet of storage, a shared through/left lane, and dual right-turn lanes with 450 feet of storage on that approach
- Restripe the existing westbound shared through/right lane on NC 42 as a through lane and construct an exclusive westbound right-turn lane with 450 feet of storage on that approach
- Modify the existing traffic signal to accommodate the committed laneage

NC 42 at Johnson Estate Road:

- Reconfigure the intersection to restrict Johnson Estate Road to a right-in/right-out only access

NC 42 at Springbrook Avenue:

- Provide an eastbound left-turn lane on NC 42 with 450 feet of storage
- Provide a westbound right-turn lane on NC 42 with 125 feet of storage

[Traffic signal installation is currently underway at this intersection as part of a separate project.]

NC 42 at Johnston Medical Center/HealthPark Way:

- Provide a left-turn lane with 450 feet of storage and a right-turn lane with 175 feet of storage on eastbound NC 42
- Provide a left-turn lane with 425 feet of storage and a right-turn lane with 225 feet of storage on westbound NC 42
- Modify the existing traffic signal to accommodate the committed laneage

NC 42 at Amelia Church Road:

- Provide a northbound left-turn lane on Amelia Church Road with 425 feet of storage and construct an exclusive northbound right-turn lane with 100 feet of storage
- Construct a southbound left-turn lane on Amelia Church Road with 100 feet of storage and construct an additional southbound right-turn lane on Amelia Church Road to provide dual right-turn lanes with 200 feet of storage on that approach
- Construct an additional eastbound left-turn lane on NC 42 to provide dual left-turn lanes with 375 feet of storage each on that approach
- Provide an exclusive eastbound right-turn lane on NC 42 with 100 feet of storage
- Provide an exclusive westbound left-turn lane on NC 42 with 200 feet of storage
- Modify the existing traffic signal to accommodate the committed laneage

While the traffic analysis for the TIP project recommended additional improvements as part of that project to accommodate projected future volumes, only those improvements identified on the project public hearing maps were included in this analysis to be conservative.

Recommended Improvements

In addition to the improvements committed to be performed as part of TIP Project R-3410, the following improvements are recommended to be performed to accommodate site traffic volumes:

NC 42 at Johnson Estate Road/West Site Driveway:

- Construct an exclusive eastbound right-turn lane on NC 42 with 150 feet of storage and appropriate taper

NC 42 at Springbrook Avenue/East Site Driveway:

- Construct an exclusive eastbound right-turn lane on NC 42 with 150 feet of storage and appropriate taper
- Construct dual westbound left-turn lanes on NC 42, each with 400 feet of storage and appropriate taper
- Provide dual northbound left-turn lanes, a shared through/right lane, and an exclusive right-turn lane on the northbound approach of the East Site Driveway
- Modify the traffic signal to accommodate the recommended laneage

Analyses indicate that with the committed and recommended improvements in place, all of the study intersections are expected to operate at acceptable LOS at project build-out. While some occasional long queues are anticipated in the peak hours on the East Site Driveway, no significant queueing issues are anticipated at other study intersections at project build-out.

The committed and recommended roadway laneage is shown on **Figure 7.1**.

NOT TO SCALE

K:\RAL_TPTO_Traffic\011174036 Lumen\T5 - Report-Submittals\TIA Figures\Lumen TIA Figures.dwg

FIGURE 7.1

COMMITTED AND RECOMMENDED ROADWAY LANEAGE

LUMEN
CLAYTON, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

Appendix

Appendix A:

TIA Scoping Documents

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: Lumen Previous Name: If Applicable

Location: Northeast quadrant of NC 42 at US 70 Bypass County: Johnston Municipality: Clayton

Project Description: Mixed-use development consisting of multifamily residential, hotel, medical office, grocery, and retail space

Project Contact:	Applicant	TIA Consultant
Company Name	Davis Park Leasing, LLC	Kimley-Horn
Contact Person	Craig Davis	Travis Fluitt
Phone Number	919-678-4301	919-653-2948
Email	craig.davis@cdpcre.com	travis.fluitt@kimley-horn.com
Mailing Address	8000 Weston Parkway, Suite 360 Cary, NC 27513	421 Fayetteville Street, Suite 600 Raleigh, NC 27601

Site Plan Prepared By: Kimley-Horn Site Plan Date: April 2020

See site plan/vicinity map requirements on page 2.

Parcel Size: 53.5 Acre(s) Anticipated Build-Out Year: 2027

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	Single Family	140	d.u.	1418	Adj. Street	26	78	104	88	52	140	ITE Equation
					Adj. Street							ITE Equation
221	Multifam Mid-Rise	480	d.u.	2614	Adj. Street	41	118	159	122	78	200	ITE Equation
310	Hotel	120	rooms	928	Adj. Street	32	23	55	33	31	64	ITE Equation
720	Medical Office	700000	s.f.	26806	Adj. Street	1073	189	1262	189	1071	1260	Local Data**
820	Shopping Center	35000	s.f.	2944	Adj. Street	105	64	169	120	130	250	ITE Equation
850	Supermarket	55000	s.f.	5874	Adj. Street	126	84	210	259	249	508	ITE Rate
Total				40584		1403	556	1959	811	1611	2422	

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: Peak hour volume data collected at local large medical office buildings.

☒ 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 100 peak hour trips

☒ This project is located in a known STIP and/ or local CIP project # R-3410

☒ This project includes a rezoning request.

NCDOT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need Screening → TIA Scoping → TIA Submittal

☒ 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	Print Name	Date
Craig M. Davis	Craig M. Davis	6/29/2020

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: _____ **Project Reference Number:** _____

☒ **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 | Print Name

Email concurrence may be used in lieu of the signature.

NCDOT TIA Scoping Checklist

TIA Need Screening → TIA Scoping → TIA Submittal

Project Name: Lumen **TIA Scoping Date:** 5/19/2020

☒ **TIA Need Screening Forms are Attached.** Project Reference #: _____ 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	NC 42	Conventional Full-Mvmt	Signal	0	NE	At Springbrook
Access B	NC 42	RIRO	2-Way Stop	0	NE	At Johnson Est.
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		
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).

☐

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).

☒ 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	Single Family	140	d.u.	1418	Adj. Street	26	78	104	88	52	140	ITE Equation
					Adj. Street							ITE Equation
221	Multifam Mid-Rise	480	d.u.	2614	Adj. Street	41	118	159	122	78	200	ITE Equation
310	Hotel	120	rooms	928	Adj. Street	32	23	55	33	31	64	ITE Equation
720	Medical Office	700000	s.f.	26806	Adj. Street	1073	189	1262	189	1071	1260	Local Data**
820	Shopping Center	35000	s.f.	2944	Adj. Street	105	64	169	120	130	250	ITE Equation
850	Supermarket	55000	s.f.	5874	Adj. Street	126	84	210	259	249	508	ITE Rate
Unadjusted Site Trips				40584		1403	556	1959	811	1611	2422	
Internal Capture Trips (Attach Calculation Sheets)				5786		123	123	246	201	201	402	ITE Rate
Internal Capture % of Unadjusted Site Trips				14 %		12 %			17 %			
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
820	Shopping Center	Yes - Adjust External Trips		34 %		0 %			34 %			ITE Rate
850	Supermarket	Yes - Adjust External Trips		36 %		0 %			36 %			ITE Rate
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)				2202		0	0	0	108	94	202	
Adjacent Street Volumes				31500					2520			Other Data**
Non-Pass-By Primary Trips				32596		1280	433	1713	502	1316	1818	
Diverted Trips, if Applicable and Justifiable												Please Select

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

Previously-approved by Cong. Mgmt. for large MOB sites, the ITE regression equation was used for AM peak hour trip generation, while a rate of 1.8 trips per 1,000 SF was used for the PM peak hour trip generation. Adjacent street volumes based on forecast for NC 42 project for daily and PM peak hours.
*See attached note re: site traffic adjustments associated with NC 42 forecast

☐ 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												

☒ **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.

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 _____

☒ 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	US 70 EB Ramp	Signal	Please Select	Forecast	Interp 2027	
#2	NC 42	US 70 WB Ramp	Signal	Please Select	Forecast	Interp 2027	
#3	NC 42	Johnson Estate	2-Way Stop	Please Select	Forecast	Interp 2027	RI/RO in future
#4	NC 42	Springbrook Ave	2-Way Stop	Please Select	Forecast	Interp 2027	Future Signal
#5	NC 42	Healthpark Way	Signal	Please Select	Forecast	Interp 2027	
#6	NC 42	Amelia Church Rd	Signal	Please Select	Forecast	Interp 2027	
#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: R-3410

☒ Roadway/Intersection Configuration & Traffic Control

☒ Traffic Signal Phasing & Timing Data

☐ Crash Data: _____ Period: _____

☒ Other:

Will grow existing turning movement counts from 2016 at 3% per year to estimate 2020 study year volumes.

As 20,724 SF of medical office building space southeast of NC 42 on HealthPark Way was not constructed in 2016 when turning movement counts were collected (or accounted for in the traffic forecast), trip generation performed and trips assigned equally to east and west on NC 42.

☒ **Future Year Conditions**

☒ Project Build-Out Year: 2027

☐ Future Analysis Year(s): _____

☐ 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
R-3410	Widening NC 42 to a four-lane median divided roadway	2028

Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

☐ Annual Growth Factor: 0 %

Justification/Data Source: Using forecast for future no-build volumes; no growth or app. dev. included

☒ **Local Comprehensive Transportation Plan Compliance**

☒ Identify Applicable Local Transportation Planning Documents

NCDOT Comprehensive Transportation Plan: Johnston County (December 2014)
Town of Clayton Comprehensive Plan 2040 (October 2015)
JCMH/NC 42 West Small Area Plan (November 2007)
NCDOT R-4310 (NC-42 Widening)

☒ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #
NC 42	Boulevard	45	4-Lane Median Divided	110'		All

☒ 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)

Analyses will assume TIP improvements based on Public Hearing Maps dated May 2018.
Will provide study year 2027 analysis with a traditional RCI (left-in/right-in/right-out) at the intersection of NC 42 at Springbrook Avenue/East Site Driveway as an alternative analysis in addition to the full-movement intersection analysis currently proposed as part of project.

Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire ____ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

Signature	Print Name	Date
	CRAIG M. DAVIS	6/29/2020

TIA CONSULTANT

Signature	Print Name	Date
	Travis Fluitt	6/25/2020

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

Signature	Print Name	Date

Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division ____District____ on _____.

Signature	Print Name

Email concurrence may be used in lieu of the signature.

Lumen Property

Table 1 - Trip Generation

Land Use	Intensity		Daily			AM Peak Hour			PM Peak Hour		
			Total	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
210 Single Family Detached Housing	140	d.u.	1,418	709	709	104	26	78	140	88	52
221 Multifamily Housing (Mid-Rise)	480	d.u.	2,614	1,307	1,307	159	41	118	200	122	78
310 Hotel	120	rooms	928	464	464	55	32	23	64	33	31
720 Medical Office Building	700,000	s.f.	26,806	13,403	13,403	1,262	1,073	189	1,260	189	1,071
820 Shopping Center	35,000	s.f.	2,944	1,472	1,472	169	105	64	250	120	130
850 Supermarket	55,000	s.f.	5,874	2,937	2,937	210	126	84	508	259	249
Subtotal			**40,584**	**20,292**	**20,292**	**1,959**	**1,403**	**556**	**2,422**	**811**	**1,611**
Internal Capture											
210 Single Family Detached Housing			367	184	183	2	0	2	63	44	19
221 Multifamily Housing (Low-Rise)			678	340	338	5	1	4	89	61	28
310 Hotel			311	67	244	20	0	20	15	10	5
720 Medical Office Building			1,839	917	922	117	64	53	51	13	38
820 Shopping Center			865	462	403	45	26	19	61	23	38
850 Supermarket			1,726	923	803	57	32	25	123	50	73
Internal Capture Total			*5,786*	*2,893*	*2,893*	*246*	*123*	*123*	*402*	*201*	*201*
Total External Trips			**34,798**	**17,399**	**17,399**	**1,713**	**1,280**	**433**	**2,020**	**610**	**1,410**
Pass-By Capture	AM	PM									
820 Shopping Center[1]	0%	34%	708	354	354	0	0	0	64	33	31
850 Supermarket	0%	36%	1,494	747	747	0	0	0	138	75	63
Pass-By Capture Total			*2,202*	*1,101*	*1,101*	*0*	*0*	*0*	*202*	*108*	*94*
Total Net New External Trips			**32,596**	**16,298**	**16,298**	**1,713**	**1,280**	**433**	**1,818**	**502**	**1,316**

K:\RAL_TPTO_Traffic\011174036 Lumen\T4 - Analysis\[LumenProperty-TIAData.xls]Trip Gen 6/25/20

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY

GROSS TRIP GENERATION

INPUT

Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Office	13,403	13,403	1,073	189	189	1,071
Retail	4,409	4,409	231	148	379	379
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2,016	2,016	67	196	210	130
Hotel	464	464	32	23	33	31
	20,292	20,292	1,403	556	811	1,611

INTERNAL TRIPS

OUTPUT

Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Office	917	922	64	53	13	38
Retail	1,385	1,206	58	44	73	111
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	524	521	1	6	105	47
Hotel	67	244	0	20	10	5
	2,893	2,893	123	123	201	201
% Reduction	14.3%		12.6%		16.6%	

EXTERNAL TRIPS

OUTPUT

Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
	Enter	Exit	Enter	Exit	Enter	Exit
Office	12,486	12,481	1,009	136	176	1,033
Retail	3,024	3,203	173	104	306	268
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1,492	1,495	66	190	105	83
Hotel	397	220	32	3	23	26
	17,399	17,399	1,280	433	610	1,410

NOT TO SCALE

LEGEND

(XX%) OVERALL DISTRIBUTION

XX% INBOUND PERCENT ASSIGNMENT

(XX%) OUTBOUND PERCENT ASSIGNMENT

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FIGURE 4.1

SITE TRAFFIC DISTRIBUTION AND PERCENT ASSIGNMENT

LUMEN
CLAYTON, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

NC 42 Forecast Volume Adjustments in Build-out Traffic Condition
Forecast Data Review
The subject parcel represents approximately 10% of the TAZ in this area in the model used for forecast volume development. The model indicates that the TAZ was assumed to generate approximately 21,266 daily trips. This parcel, therefore, was assumed to generate approximately 2,127 daily trips. This development is anticipated to generate approximately 32,600 daily trips, meaning that approximately 6.5% of those trips were accounted for in the forecast.
Peak Hour Volume Adjustments
At Offsite Intersections: Net new external trips will be reduced by 6.5% to account for the portion of those trips already accounted for in the traffic forecast (which is proposed to be used as the basis for background traffic volumes). **At Site Driveways:** Eastbound and westbound through volumes along NC 42 will be reduced proportionally based on the 6.5% reduction of site trips at off-site intersections. Entering and exiting driveway volumes will represent total peak hour net new external trips.

Kimley»Horn

KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102



MEMORANDUM

To:	Mr. David Spencer, P.E. Mr. Priyatham Konda, P.E.
From:	Earl Lewellyn, P.E. Kimley-Horn and Associates, Inc.
Date:	December 18, 2019
Subject:	Medical Office Trip Generation Duke Health - Green Level Mixed-Use Destination Center

As you are aware, the subject project is proposed to include a significant amount of medical office space. The Institute of Transportation Engineers (ITE) Trip Generation Manual contains limited data for medical office buildings larger than 50,000 SF. In light of this, Kimley Horn collected traffic volume data at the three medical office buildings listed below for the purpose of establishing a trip generation methodology for the medical office components of the subject project. Building area and date of data collection are also listed below.

1. 234 E. Crooked Creek Parkway, Durham (130,390 SF) — November 5 & 6, 2019
2. Brier Creek - West, Raleigh (54,584 SF) — November 11, 2019
3. Brier Creek – East, Raleigh (63,527 SF) — November 11, 2019

The above sites were selected based on the following criteria to provide consistency with the medical office facilities envisioned on the subject site.

- Located with the Triangle
- Building area greater than 50,000 SF
- Occupied by medical office only
- Occupied by multiple medical practices
- Limited number of driveways and ability to isolate site traffic from other buildings/land uses
- Similar traffic generating characteristics in relation to surrounding street network

Site driveway volumes were collected at each of the above sites. Intersection turning movement counts at nearby intersections were used to determine the peak hour of the adjacent street in each case. **Tables 1 and 2** below summarize the actual AM and PM peak hour site generation in comparison to the effective rates that would result from the current ITE regression equations.

AM Peak Hour – Table 1		Actual Data				ITE Effective Rate [1]
Site	Size (SF)	Enter	Exit	Total	Rate	
Crooked Creek - Durham - Day 1 [2]	130,390	249	33	282	2.163	2.170
Crooked Creek - Durham - Day 2 [2]	130,390	224	53	277	2.124	2.170
Brier Creek - East Building	63,527	99	14	113	1.779	2.345
Brier Creek - West Building [3]	54,584	125	14	139	2.547	2.382

PM Peak Hour – Table 2		Actual Data				ITE Effective Rate [1]
Site	Size (SF)	Enter	Exit	Total	Rate	
Crooked Creek - Durham - Day 1 [2]	130,390	38	192	230	1.764	3.405
Crooked Creek - Durham - Day 2 [2]	130,390	30	204	234	1.795	3.405
Brier Creek - East Building	63,527	12	67	79	1.244	3.416
Brier Creek - West Building [3]	54,584	21	69	90	1.649	3.426

[1] Effective Rate is based on the ITE regression equation at the given building size.

[2] A local resident informed our counter that neighbors use the site connection between NC 54 and Crooked Creek Pkwy as a "cut-thru" to avoid Fayetteville Road. No adjustment was applied to the data to be conservative.

[3] A small portion of the recorded volumes were associated with the adjacent bank ATM kiosk. No adjustment was applied to the data to be conservative.

In summary, we find that the ITE regression equation for the AM peak hour accurately models the trip generation of larger sized medical office buildings, such as those proposed for the subject project. Therefore, we recommend that the ITE regression equation continue to be used for the AM peak hour.

However, the ITE regression equation for the PM peak hour grossly overestimates the actual traffic impact of larger sized medical office buildings. The highest rate observed was 1.795 trips per 1,000 SF. Based on the data, recommend a flat rate of 1.80 trips per 1,000 SF for the PM peak hour.

For the reasons noted, this methodology more accurately models the trip generation of the proposed medical office buildings while remaining conservative. Therefore, we propose using this methodology for subsequent phasing analyses and "trip conversion" calculations.

Your Company Name Here

Crooked Creek Pkwy @ Duke Health Dr.
Durham, NC
Counter:JF
November 5, 2019

File Name : CrookedCreek1
Site Code : 00019411
Start Date : 11/5/2019
Page No : 1

Groups Printed- Vehicles

	Crooked Creek Pkwy. Eastbound				Crooked Creek Pkwy. Westbound				Driveway Duke Health Northbound				Southbound	
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
07:00 AM	0	0	19	19	0	0	0	0	0	0	0	0	0	19
07:15 AM	0	0	23	23	5	0	0	5	0	0	0	0	0	28
07:30 AM	0	0	41	41	4	0	0	4	1	0	1	2	0	47
07:45 AM	0	0	64	64	2	0	0	2	1	0	1	2	0	68
Total	0	0	147	147	11	0	0	11	2	0	2	4	0	162
08:00 AM	0	0	33	33	3	0	0	3	2	0	0	2	0	38
08:15 AM	0	0	33	33	0	0	0	0	2	0	0	2	0	35
08:30 AM	0	0	27	27	3	0	0	3	2	0	1	3	0	33
08:45 AM	0	0	32	32	0	0	0	0	8	0	1	9	0	41
Total	0	0	125	125	6	0	0	6	14	0	2	16	0	147
*** BREAK ***			157		8				7		2			
04:00 PM	0	0	4	4	1	0	0	1	29	0	2	31	0	36
04:15 PM	0	0	10	10	0	0	0	0	19	0	2	21	0	31
04:30 PM	0	0	6	6	0	0	0	0	30	0	5	35	0	41
04:45 PM	0	0	6	6	1	0	0	1	17	0	3	20	0	27
Total	0	0	26	26	2	0	0	2	95	0	12	107	0	135
05:00 PM	0	0	4	4	0	0	0	0	44	0	4	48	0	52
05:15 PM	0	0	8	8	1	0	0	1	20	0	7	27	0	36
05:30 PM	0	0	3	3	0	0	0	0	16	0	1	17	0	20
05:45 PM	0	0	4	4	1	0	0	1	18	0	4	22	0	27
Total	0	0	19	19	2	0	0	2	98	0	16	114	0	135
Grand Total	0	0	317	317	21	0	0	21	209	0	32	241	0	579
Apprch %	0	0	100		100	0	0		86.7	0	13.3			
Total %	0	0	54.7	54.7	3.6	0	0	3.6	36.1	0	5.5	41.6	0	
			21		2				97		15			

	Crooked Creek Pkwy. Eastbound				Crooked Creek Pkwy. Westbound				Driveway Duke Health Northbound				Southbound	
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:30 AM														
07:30 AM	0	0	41	41	**4**	0	0	**4**	1	0	**1**	**2**	0	47
07:45 AM	0	0	**64**	**64**	2	0	0	2	1	0	1	2	0	**68**
08:00 AM	0	0	33	33	3	0	0	3	**2**	0	0	2	0	38
08:15 AM	0	0	33	33	0	0	0	0	2	0	0	2	0	35
Total Volume	0	0	171	171	9	0	0	9	6	0	2	8	0	188
% App. Total	0	0	100		100	0	0		75	0	25			
PHF	.000	.000	.668	.668	.563	.000	.000	.563	.750	.000	.500	1.00	.000	.691
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:30 PM														
04:30 PM	0	0	6	6	0	0	0	0	30	0	5	35	0	41
04:45 PM	0	0	6	6	**1**	0	0	**1**	17	0	3	20	0	27
05:00 PM	0	0	4	4	0	0	0	0	**44**	0	4	**48**	0	**52**
05:15 PM	0	0	**8**	**8**	1	0	0	1	20	0	**7**	27	0	36
Total Volume	0	0	24	24	2	0	0	2	111	0	19	130	0	156
% App. Total	0	0	100		100	0	0		85.4	0	14.6			
PHF	.000	.000	.750	.750	.500	.000	.000	.500	.631	.000	.679	.677	.000	.750

Your Company Name Here

Crooked Creek Pkwy. @ Duke Health Drive
Durham, NC
Counter:JF
November 6, 2019

File Name : CrookedCreek2
Site Code : 00019411
Start Date : 11/6/2019
Page No : 1

Groups Printed- Vehicles

	Crooked Creek Pkwy. Eastbound				Crooked Creek Pkwy. Westbound				Driveway Duke Health Northbound				Southbound	
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
07:00 AM	0	0	21	21	1	0	0	1	0	0	0	0	0	22
07:15 AM	0	0	39	39	5	0	0	5	0	0	2	2	0	46
07:30 AM	0	0	35	35	4	0	0	4	1	0	1	2	0	41
07:45 AM	0	0	51	51	3	0	0	3	2	0	0	2	0	56
Total	0	0	146	146	13	0	0	13	3	0	3	6	0	165
08:00 AM	0	0	31	31	5	0	0	5	2	0	0	2	0	38
08:15 AM	0	0	31	31	1	0	0	1	4	0	0	4	0	36
08:30 AM	0	0	21	21	2	0	0	2	2	0	1	3	0	26
08:45 AM	0	0	29	29	0	0	0	0	7	0	1	8	0	37
Total	0	0	112	112	8	0	0	8	15	0	2	17	0	137
*** BREAK ***			134		11				10			11		
04:00 PM	0	0	6	6	0	0	0	0	17	0	2	19	0	25
04:15 PM	0	0	5	5	1	0	0	1	22	0	6	28	0	34
04:30 PM	0	0	6	6	0	0	0	0	26	0	2	28	0	34
04:45 PM	0	0	5	5	0	0	0	0	17	0	5	22	0	27
Total	0	0	22	22	1	0	0	1	82	0	15	97	0	120
05:00 PM	0	0	3	3	0	0	0	0	44	0	7	51	0	54
05:15 PM	0	0	1	1	1	0	0	1	27	0	4	31	0	33
05:30 PM	0	0	0	0	2	0	0	2	21	0	1	22	0	24
05:45 PM	0	0	0	0	1	0	0	1	1	0	2	3	0	4
Total	0	0	4	4	4	0	0	4	93	0	14	107	0	115
Grand Total	0	0	284	284	26	0	0	26	193	0	34	227	0	537
Apprch %	0	0	100		100	0	0		85	0	15			
Total %	0	0	52.9	52.9	4.8	0	0	4.8	35.9	0	6.3	42.3	0	
			9		3				109		17			

	Crooked Creek Pkwy. Eastbound				Crooked Creek Pkwy. Westbound				Driveway Duke Health Northbound				Southbound	
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 07:15 AM														
07:15 AM	0	0	39	39	**5**	0	0	**5**	0	0	**2**	**2**	0	46
07:30 AM	0	0	35	35	4	0	0	4	1	0	1	2	0	41
07:45 AM	0	0	**51**	**51**	3	0	0	3	**2**	0	0	2	0	**56**
08:00 AM	0	0	31	31	5	0	0	5	2	0	0	2	0	38
Total Volume	0	0	156	156	17	0	0	17	5	0	3	8	0	181
% App. Total	0	0	100		100	0	0		62.5	0	37.5			
PHF	.000	.000	.765	.765	.850	.000	.000	.850	.625	.000	.375	1.00	.000	.808
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1														
Peak Hour for Entire Intersection Begins at 04:15 PM														
04:15 PM	0	0	5	5	**1**	0	0	**1**	22	0	6	28	0	34
04:30 PM	0	0	**6**	**6**	0	0	0	0	26	0	2	28	0	34
04:45 PM	0	0	5	5	0	0	0	0	17	0	5	22	0	27
05:00 PM	0	0	3	3	0	0	0	0	**44**	0	**7**	**51**	0	**54**
Total Volume	0	0	19	19	1	0	0	1	109	0	20	129	0	149
% App. Total	0	0	100		100	0	0		84.5	0	15.5			
PHF	.000	.000	.792	.792	.250	.000	.000	.250	.619	.000	.714	.632	.000	.690

Your Company Name Here

NC 540 SB/EB @ Green Level West
Cary, NC
Counter:JE
October 30, 2019

File Name : NC54Drive1
Site Code : 00019412
Start Date : 11/5/2019
Page No : 1

Groups Printed- Unshifted

	NC 54 Eastbound					NC 54 Westbound					Northbound					Duke Health Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	4
07:15 AM	0	0	0	0	0	0	0	9	0	9	0	0	0	0	0	0	0	4	0	4	13
07:30 AM	0	0	0	0	0	0	0	15	0	15	0	0	0	0	0	0	0	3	0	3	18
07:45 AM	0	0	0	0	0	0	0	25	0	25	0	0	0	0	0	0	0	6	0	6	31
Total	0	0	0	0	0	0	0	53	0	53	0	0	0	0	0	0	0	13	0	13	66
08:00 AM	0	0	0	0	0	0	0	27	0	27	0	0	0	0	0	0	0	2	0	2	29
08:15 AM	0	0	0	0	0	0	0	13	0	13	0	0	0	0	0	0	0	8	0	8	21
08:30 AM	0	0	0	0	0	0	0	19	0	19	0	0	0	0	0	0	0	8	0	8	27
08:45 AM	0	0	0	0	0	0	0	21	0	21	0	0	0	0	0	0	0	14	0	14	35
Total	0	0	0	0	0	0	0	80	0	80	0	0	0	0	0	0	0	32	0	32	112
*** BREAK ***								84										24			
04:00 PM	0	0	0	0	0	0	0	11	0	11	0	0	0	0	0	0	0	28	0	28	39
04:15 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	19	0	19	24
04:30 PM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	29	0	29	32
04:45 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	20	0	20	25
Total	0	0	0	0	0	0	0	24	0	24	0	0	0	0	0	0	0	96	0	96	120
05:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	32	0	32	34
05:15 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	19	0	19	24
05:30 PM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	9	0	9	12
05:45 PM	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	19	0	19	25
Total	0	0	0	0	0	0	0	16	0	16	0	0	0	0	0	0	0	79	0	79	95
Grand Total	0	0	0	0	0	0	0	173	0	173	0	0	0	0	0	0	0	220	0	220	393
Apprch %	0	0	0	0		0	0	100	0		0	0	0	0		0	0	100	0		
Total %	0	0	0	0	0	0	0	44	0	44	0	0	0	0	0	0	0	56	0	56	
								15										80			

	NC 54 Eastbound					NC 54 Westbound					Northbound					Duke Health Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	**27**	0	**27**	0	0	0	0	0	0	0	2	0	2	29
08:15 AM	0	0	0	0	0	0	0	13	0	13	0	0	0	0	0	0	0	8	0	8	21
08:30 AM	0	0	0	0	0	0	0	19	0	19	0	0	0	0	0	0	0	8	0	8	27
08:45 AM	0	0	0	0	0	0	0	21	0	21	0	0	0	0	0	0	0	**14**	0	**14**	**35**
Total Volume	0	0	0	0	0	0	0	80	0	80	0	0	0	0	0	0	0	32	0	32	112
% App. Total	0	0	0	0		0	0	100	0		0	0	0	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.741	.000	.741	.000	.000	.000	.000	.000	.000	.000	.571	.000	.571	.800
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	0	**11**	0	**11**	0	0	0	0	0	0	0	28	0	28	**39**
04:15 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	19	0	19	24
04:30 PM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	**29**	0	**29**	32
04:45 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	20	0	20	25
Total Volume	0	0	0	0	0	0	0	24	0	24	0	0	0	0	0	0	0	96	0	96	120
% App. Total	0	0	0	0		0	0	100	0		0	0	0	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.545	.000	.545	.000	.000	.000	.000	.000	.000	.000	.828	.000	.828	.769

Your Company Name Here

NC 54 @ Duke Health Driveway
Durham, NC
Counter:LV
November 5, 2019

File Name : NC54Drive2
Site Code : 00019412
Start Date : 11/6/2019
Page No : 1

Groups Printed- Vehicles

	NC 54 Eastbound					NC 54 Westbound					Northbound					Driveway Duke Health Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	2	0	2	5
07:15 AM	0	0	0	0	0	0	0	12	0	12	0	0	0	0	0	0	0	5	0	5	17
07:30 AM	0	0	0	0	0	0	0	11	0	11	0	0	0	0	0	0	0	4	0	4	15
07:45 AM	0	0	0	0	0	0	0	22	0	22	0	0	0	0	0	0	0	5	0	5	27
Total	0	0	0	0	0	0	0	48	0	48	0	0	0	0	0	0	0	16	0	16	64
08:00 AM	0	0	0	0	0	0	0	27	0	27	0	0	0	0	0	0	0	3	0	3	30
08:15 AM	0	0	0	0	0	0	0	10	0	10	0	0	0	0	0	0	0	8	0	8	18
08:30 AM	0	0	0	0	0	0	0	20	0	20	0	0	0	0	0	0	0	16	0	16	36
08:45 AM	0	0	0	0	0	0	0	19	0	19	0	0	0	0	0	0	0	15	0	15	34
Total	0	0	0	0	0	0	0	76	0	76	0	0	0	0	0	0	0	42	0	42	118
*** BREAK ***								79										32			
04:00 PM	0	0	0	0	0	0	0	9	0	9	0	0	0	0	0	0	0	25	0	25	34
04:15 PM	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	20	0	20	26
04:30 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	27	0	27	32
04:45 PM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	23	0	23	27
Total	0	0	0	0	0	0	0	24	0	24	0	0	0	0	0	0	0	95	0	95	119
05:00 PM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	30	0	30	34
05:15 PM	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	15	0	15	21
05:30 PM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	10	0	10	14
05:45 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	17	0	17	22
Total	0	0	0	0	0	0	0	19	0	19	0	0	0	0	0	0	0	72	0	72	91
Grand Total	0	0	0	0	0	0	0	167	0	167	0	0	0	0	0	0	0	225	0	225	392
Apprch %	0	0	0	0		0	0	100	0		0	0	0	0		0	0	100	0		
Total %	0	0	0	0	0	0	0	42.6	0	42.6	0	0	0	0	0	0	0	57.4	0	57.4	
								18										78			

	NC 54 Eastbound					NC 54 Westbound					Northbound					Driveway Duke Health Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	**27**	0	**27**	0	0	0	0	0	0	0	3	0	3	30
08:15 AM	0	0	0	0	0	0	0	10	0	10	0	0	0	0	0	0	0	8	0	8	18
08:30 AM	0	0	0	0	0	0	0	20	0	20	0	0	0	0	0	0	0	**16**	0	**16**	**36**
08:45 AM	0	0	0	0	0	0	0	19	0	19	0	0	0	0	0	0	0	15	0	15	34
Total Volume	0	0	0	0	0	0	0	76	0	76	0	0	0	0	0	0	0	42	0	42	118
% App. Total	0	0	0	0		0	0	100	0		0	0	0	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.704	.000	.704	.000	.000	.000	.000	.000	.000	.000	.656	.000	.656	.819
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	0	**9**	0	**9**	0	0	0	0	0	0	0	25	0	25	**34**
04:15 PM	0	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	20	0	20	26
04:30 PM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	**27**	0	**27**	32
04:45 PM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	23	0	23	27
Total Volume	0	0	0	0	0	0	0	24	0	24	0	0	0	0	0	0	0	95	0	95	119
% App. Total	0	0	0	0		0	0	100	0		0	0	0	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.667	.000	.667	.000	.000	.000	.000	.000	.000	.000	.880	.000	.880	.875

National Data & Surveying Services

Intersection Turning Movement Count

Location: Fayetteville Rd & W State Hwy 54
City: Durham
Control: Signalized

Project ID: 18-09582-001
Date: 10/23/2018

Total

NS/EW Streets:	Fayetteville Rd				Fayetteville Rd				W State Hwy 54				W State Hwy 54					Fayettev	Tot	
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND							
	2	2	1	0	2	2	1	0	1	2	1	0	1	2	1	0				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
7:00 AM	66	107	35	0	23	224	47	0	30	69	76	0	59	93	9	0	838	294	582	2483
7:15 AM	83	117	54	0	29	185	33	0	37	84	76	0	75	116	19	0	908	247	624	2542
7:30 AM	87	146	47	1	33	179	38	1	50	97	102	0	73	98	31	0	983	250	629	2565
7:45 AM	85	133	45	0	43	195	44	0	50	83	104	0	53	106	36	1	978	282	648	2608
8:00 AM	98	101	48	0	43	181	55	0	41	92	93	0	50	93	36	0	931	279	641	2477
8:15 AM	86	127	39	0	46	191	50	0	35	95	96	0	62	95	23	0	945	287	647	1836
8:30 AM	86	129	54	1	43	192	52	0	40	100	91	0	62	88	38	0	976	287	672	1189
8:45 AM	86	124	58	0	31	127	61	0	33	58	62	0	44	84	23	0	791	219	517	517
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
TOTAL VOLUMES :	677	984	380	2	291	1474	380	1	316	678	700	0	478	773	215	1	7350			
APPROACH %'s :	33.14%	48.16%	18.60%	0.10%	13.56%	68.69%	17.71%	0.05%	18.65%	40.02%	41.32%	0.00%	32.58%	52.69%	14.66%	0.07%				
PEAK HR :	07:30 AM - 08:30 AM																TOTAL			
PEAK HR VOL :	356	507	179	1	165	746	187	1	176	367	395	0	238	392	126	1	3837			
PEAK HR FACTOR :	0.908	0.868	0.932	0.250	0.897	0.956	0.850	0.250	0.880	0.946	0.950	0.000	0.815	0.925	0.875	0.250	0.976			
	0.928				0.957				0.942				0.937							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND							
	2	2	1	0	2	2	1	0	1	2	1	0	1	2	1	0				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
4:00 PM	99	180	67	1	38	158	54	0	66	98	60	0	67	114	22	0	1024	250	656	2846
4:15 PM	89	165	73	0	38	157	69	0	58	104	101	0	72	104	29	0	1059	264	684	2991
4:30 PM	99	175	72	1	39	195	66	1	61	94	101	0	74	104	33	0	1115	300	716	3083
4:45 PM	110	184	60	0	42	211	66	1	66	111	104	0	83	145	30	0	1213	319	790	3113
5:00 PM	102	201	74	1	52	178	75	0	60	112	104	0	71	143	44	0	1217	305	801	3102
5:15 PM	99	209	71	0	40	185	62	0	57	119	90	0	76	135	48	0	1191	287	776	2301
5:30 PM	85	208	81	0	33	185	66	1	59	119	102	0	71	121	37	0	1168	284	746	1525
5:45 PM	108	178	58	0	46	193	65	1	56	114	95	0	78	145	34	0	1171	304	779	779
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL			
TOTAL VOLUMES :	791	1500	556	3	328	1462	523	4	483	871	757	0	592	1011	277	0	9158			
APPROACH %'s :	27.75%	52.63%	19.51%	0.11%	14.16%	63.10%	22.57%	0.17%	22.88%	41.26%	35.86%	0.00%	31.49%	53.78%	14.73%	0.00%				
PEAK HR :	04:45 PM - 05:45 PM																TOTAL			
PEAK HR VOL :	396	802	286	1	167	759	269	2	242	461	400	0	301	544	159	0	4789			
PEAK HR FACTOR :	0.900	0.959	0.883	0.250	0.803	0.899	0.897	0.500	0.917	0.968	0.962	0.000	0.907	0.938	0.828	0.000	0.984			
	0.980				0.935				0.981				0.969							

Crooked Creek Site - Durham

Peak Hour of Adj Street (7:45-8:45; 4:45-5:45)

Day 1 - AM	In	Out	Total
Crooked Creek	165	9	174
NC 54	84	24	108
Total	**249**	**33**	**282**

Day 2 - AM	In	Out	Total
Crooked Creek	145	21	166
NC 54	79	32	111
Total	**224**	**53**	**277**

Average - AM	In	Out	Total
Crooked Creek	155	15	170
NC 54	82	28	110
Total	**237**	**43**	**280**

Day 1 - PM	In	Out	Total
Crooked Creek	22	112	134
NC 54	15	80	95
Total	**37**	**192**	**229**

Day 2 - PM	In	Out	Total
Crooked Creek	12	126	138
NC 54	18	78	96
Total	**30**	**204**	**234**

Average PM	In	Out	Total
Crooked Creek	17	119	136
NC 54	17	79	96
Total	**34**	**198**	**232**

	Size	KH Method	KH Calc	Actual	KH Calc Rate	Actual Rate	% of KH
KHA AM (ITE Office) 9	130.39	EQN	237	280	1.815	2.144	118.1%
KHA PM	130.39	1.74	227	232	1.740	1.775	102.0%

	Size	ITE Method	ITE Calc	Actual	ITE Calc Rate	Actual Rate	% of ITE
ITE Med Office AM 10	130.39	EQN	283	280	2.170	2.144	98.8%
ITE Med Office PM 10	130.39	EQN	444	232	3.405	1.775	52.1%

Your Company Name Here

Willey St. Parking Lot
Raleigh NC
Counter:JCG
November 19, 2019

File Name : willeyparking east
Site Code : 00001945
Start Date : 11/19/2019
Page No : 1

Groups Printed- Vehicles

	Willey St. Eastbound				Willey St. Westbound				Northbound				Parking Lot Southbound						
Start Time	Left In	Thru	Right	App. Total	Left	Thru	Right In	App. Total	Left	Thru	Right	App. Total	Left Out	Thru	Right Out	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	6	0	0	6	0	0	8	8	0	0	0	0	0	0	0	0	0	14	14
07:15 AM	10	0	0	10	0	0	6	6	0	0	0	0	2	0	0	2	0	18	18
07:30 AM	9	0	0	9	0	0	11	11	0	0	0	0	1	0	3	4	0	24	24
07:45 AM	15	0	0	15	0	0	11	11	0	0	0	0	3	0	0	3	0	29	29
Total	40	0	0	40	0	0	36	36	0	0	0	0	6	0	3	9	0	85	85
08:00 AM	13	0	0	13	0	0	15	15	0	0	0	0	1	0	2	3	0	31	31
08:15 AM	11	0	0	11	0	0	14	14	0	0	0	0	3	0	1	4	0	29	29
08:30 AM	13	0	0	13	0	0	12	12	0	0	0	0	1	0	8	9	0	34	34
08:45 AM	10	0	0	10	0	0	14	14	0	0	0	0	4	0	10	14	0	38	38
Total	47	0	0	47	0	0	55	55	0	0	0	0	9	0	21	30	0	132	132
*** BREAK ***	48						51						8		6				
04:00 PM	3	0	0	3	0	0	5	5	0	0	0	0	15	0	4	19	0	27	27
04:15 PM	1	0	0	1	0	0	7	7	0	0	0	0	7	0	7	14	0	22	22
04:30 PM	3	0	0	3	0	0	1	1	0	0	0	0	7	0	13	20	0	24	24
04:45 PM	3	0	0	3	0	0	4	4	0	0	0	0	16	0	9	25	0	32	32
Total	10	0	0	10	0	0	17	17	0	0	0	0	45	0	33	78	0	105	105
05:00 PM	1	0	0	1	0	0	2	2	0	0	0	0	12	0	22	34	0	37	37
05:15 PM	1	0	0	1	0	0	2	2	0	0	0	0	7	0	7	14	0	17	17
05:30 PM	1	0	0	1	0	0	4	4	0	0	0	0	3	0	8	11	0	16	16
05:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	5	0	3	8	0	9	9
Total	4	0	0	4	0	0	8	8	0	0	0	0	27	0	40	67	0	79	79
Grand Total	101	0	0	101	0	0	116	116	0	0	0	0	87	0	97	184	0	401	401
Apprch %	100						100						47.3		52.7				
Total %	25.2			25.2			28.9	28.9				0	21.7		24.2	45.9	0	100	
	4						8						27		40				

	Willey St. Eastbound		Willey St. Westbound		Northbound	Parking Lot Southbound			
Start Time	Left In	App. Total	Right In	App. Total	App. Total	Left Out	Right Out	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 08:00 AM									
08:00 AM	**13**	**13**	**15**	**15**	0	1	2	3	31
08:15 AM	11	11	14	14	0	3	1	4	29
08:30 AM	13	13	12	12	0	1	8	9	34
08:45 AM	10	10	14	14	0	**4**	**10**	**14**	**38**
Total Volume	47	47	55	55	0	9	21	30	132
% App. Total	100		100			30	70		
PHF	.904	.904	.917	.917	.000	.563	.525	.536	.868
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 04:15 PM									
04:15 PM	1	1	**7**	**7**	0	7	7	14	22
04:30 PM	**3**	**3**	1	1	0	7	13	20	24
04:45 PM	3	3	4	4	0	**16**	9	25	32
05:00 PM	1	1	2	2	0	12	**22**	**34**	**37**
Total Volume	8	8	14	14	0	42	51	93	115
% App. Total	100		100			45.2	54.8		
PHF	.667	.667	.500	.500	.000	.656	.580	.684	.777

Your Company Name Here

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : wileyparking west
Site Code : 00000000
Start Date : 11/19/2019
Page No : 1

Groups Printed- Unshifted

	Site Drive Eastbound					A Westbound					Main Northbound					Main Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	0	0	0	1	0	1	0	0	1	10	0	0	0	10	0	0	8	0	8	20
07:15 AM	2	0	0	0	2	0	0	0	0	0	19	0	0	0	19	0	0	12	0	12	33
07:30 AM	2	0	0	0	2	0	0	0	0	0	21	0	0	0	21	0	0	14	0	14	37
07:45 AM	0	0	2	0	2	0	0	0	0	0	18	0	0	0	18	0	0	23	0	23	43
Total	5	0	2	0	7	0	1	0	0	1	68	0	0	0	68	0	0	57	0	57	133
08:00 AM	1	0	6	0	7	0	0	0	0	0	19	0	0	0	19	0	0	10	0	10	36
08:15 AM	1	0	2	0	3	0	0	0	0	0	12	0	0	0	12	0	0	8	0	8	23
08:30 AM	5	0	4	0	9	0	0	0	0	0	12	0	0	0	12	0	0	17	0	17	38
08:45 AM	5	0	8	0	13	0	0	0	0	0	7	0	0	0	7	0	0	13	0	13	33
Total	12	0	20	0	32	0	0	0	0	0	50	0	0	0	50	0	0	48	0	48	130
*** BREAK ***	4		10								70							55			
04:00 PM	19	0	24	0	43	0	0	1	0	1	5	0	0	0	5	0	0	4	0	4	53
04:15 PM	15	0	8	0	23	0	0	0	0	0	2	0	0	0	2	0	0	2	0	2	27
04:30 PM	27	0	24	0	51	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	54
04:45 PM	12	0	12	0	24	0	0	0	0	0	5	0	0	0	5	0	0	2	0	2	31
Total	73	0	68	0	141	0	0	1	0	1	12	0	0	0	12	0	0	11	0	11	165
05:00 PM	18	0	22	0	40	0	0	0	0	0	3	0	0	0	3	0	0	5	0	5	48
05:15 PM	5	0	5	0	10	0	0	0	0	0	3	0	0	0	3	0	0	3	0	3	16
05:30 PM	5	0	7	0	12	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	15
05:45 PM	2	0	5	0	7	0	0	0	0	0	1	0	0	0	1	0	0	3	0	3	11
Total	30	0	39	0	69	0	0	0	0	0	8	0	0	0	8	0	0	13	0	13	90
Grand Total	120	0	129	0	249	0	1	1	0	2	138	0	0	0	138	0	0	129	0	129	518
Apprch %	48.2	0	51.8	0		0	50	50	0		100	0	0	0		0	0	100	0		
Total %	23.2	0	24.9	0	48.1	0	0.2	0.2	0	0.4	26.6	0	0	0	26.6	0	0	24.9	0	24.9	
	30		39								8							13			

	Site Drive Eastbound					A Westbound					Main Northbound					Main Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**2**	0	0	0	2	0	0	0	0	0	19	0	0	0	19	0	0	12	0	12	33
07:30 AM	2	0	0	0	2	0	0	0	0	0	**21**	0	0	0	**21**	0	0	14	0	14	37
07:45 AM	0	0	2	0	2	0	0	0	0	0	18	0	0	0	18	0	0	**23**	0	**23**	**43**
08:00 AM	1	0	**6**	0	**7**	0	0	0	0	0	19	0	0	0	19	0	0	10	0	10	36
Total Volume	5	0	8	0	13	0	0	0	0	0	77	0	0	0	77	0	0	59	0	59	149
% App. Total	38.5	0	61.5	0		0	0	0	0		100	0	0	0		0	0	100	0		
PHF	.625	.000	.333	.000	.464	.000	.000	.000	.000	.000	.917	.000	.000	.000	.917	.000	.000	.641	.000	.641	.866
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	19	0	**24**	0	43	0	0	**1**	0	**1**	**5**	0	0	0	**5**	0	0	**4**	0	**4**	53
04:15 PM	15	0	8	0	23	0	0	0	0	0	2	0	0	0	2	0	0	2	0	2	27
04:30 PM	**27**	0	24	0	**51**	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	**54**
04:45 PM	12	0	12	0	24	0	0	0	0	0	5	0	0	0	5	0	0	2	0	2	31
Total Volume	73	0	68	0	141	0	0	1	0	1	12	0	0	0	12	0	0	11	0	11	165
% App. Total	51.8	0	48.2	0		0	0	100	0		100	0	0	0		0	0	100	0		
PHF	.676	.000	.708	.000	.691	.000	.000	.250	.000	.250	.600	.000	.000	.000	.600	.000	.000	.688	.000	.688	.764

File Name: K:\DUR_LDEV\WM Expansion - Globe Road\T3 - Background Data\Counts\GlobeBrier.ppd
Start Date: 10/9/2019
Start Time: 6:00:00 AM
Site Code: 00019361
Comment 1: Globe Rd. @ Brier Creek Pkwy.
Comment 2: Raleigh, NC
Comment 3: Counter:JCG/LV
Comment 4: October 9, 2019

	Globe Rd. Eastbound				Brier Creek Pkwy Westbound				Globe Rd. Northbound				Southbound					
Start Time	Left	Thru	Right	Tks	Left	Thru	Right	TkS	Left	Thru	Right	Tks	Left	Thru	Right	Peds		
06:00 AM	0	16	54	2	4	32	0	0	31	0	5	0	0	0	0	0		
06:15 AM	1	21	98	0	5	48	0	0	43	0	6	0	0	0	0	0		
06:30 AM	0	32	185	2	4	91	0	2	70	0	8	11	0	0	0	0		
06:45 AM	2	58	153	2	9	96	0	1	77	0	15	2	0	0	0	0		
07:00 AM	1	53	120	1	12	169	0	0	94	0	45	2	0	0	0	0	279	1421
07:15 AM	2	97	115	3	10	179	0	0	78	0	40	3	0	0	0	0	326	1543
07:30 AM	3	91	119	4	13	255	1	2	77	0	61	3	0	0	0	0	421	1595
07:45 AM	12	81	151	1	12	247	0	0	76	0	55	4	0	0	0	0	395	1573
08:00 AM	4	87	134	4	24	235	0	4	70	0	55	2	0	0	0	0	401	1559
08:15 AM	3	83	113	1	18	230	0	3	80	0	47	4	0	0	0	0	378	1449
08:30 AM	6	88	118	2	18	237	0	3	76	0	56	1	0	0	0	0	399	
08:45 AM	1	111	126	4	14	193	0	1	82	0	63	1	0	0	0	0	381	
09:00 AM	0	87	92	10	26	143	0	0	73	0	35	3	0	0	0	0	291	
09:15 AM	1	95	56	2	11	122	0	0	74	0	42	6	0	0	0	0		
09:30 AM	0	91	60	5	13	112	0	4	65	0	26	3	0	0	0	0		
09:45 AM	4	79	43	8	13	92	0	0	52	0	21	4	0	0	0	0		
10:00 AM	1	98	52	4	14	71	0	4	48	0	20	3	0	0	0	0		
10:15 AM	0	90	53	6	15	97	0	4	56	0	20	4	0	0	0	0		
10:30 AM	0	96	41	3	21	82	0	1	71	0	24	3	0	0	0	0		
10:45 AM	1	108	42	7	10	85	0	1	49	0	27	5	0	0	0	0		
11:00 AM	3	107	42	3	4	95	0	2	36	0	20	3	0	0	0	0		
11:15 AM	0	140	48	3	19	83	0	1	41	0	17	3	0	0	0	0		
11:30 AM	1	151	48	5	9	100	0	2	54	0	28	2	0	0	0	0		
11:45 AM	1	185	61	6	9	92	0	1	43	0	17	3	0	0	0	0		
12:00 PM	0	172	76	3	16	101	0	0	57	0	26	3	0	0	0	0		
12:15 PM	1	176	53	2	26	136	0	1	51	0	25	4	0	0	0	0		
12:30 PM	2	164	59	4	22	138	0	3	41	0	33	3	0	0	0	0		
12:45 PM	0	159	59	5	16	148	0	0	52	0	27	3	0	0	0	0		
01:00 PM	2	125	57	3	29	155	0	1	53	0	29	5	0	0	0	0		
01:15 PM	2	137	59	4	16	122	0	1	47	0	27	1	0	0	0	0		
01:30 PM	0	122	56	6	27	127	0	0	51	0	22	2	0	0	0	0		
01:45 PM	3	122	53	4	20	125	0	1	51	0	21	6	0	0	0	0		
02:00 PM	0	137	60	4	12	120	0	1	45	0	21	1	0	0	0	0		
02:15 PM	0	124	65	3	16	108	0	1	53	0	29	6	0	0	0	0		
02:30 PM	1	107	67	13	22	107	0	0	54	0	23	5	0	0	0	0		
02:45 PM	4	125	59	3	20	111	0	3	60	0	29	4	0	0	0	0		
03:00 PM	0	148	52	5	17	99	0	0	63	0	22	1	0	0	0	0		
03:15 PM	1	152	84	2	21	107	0	1	56	0	33	2	0	0	0	0		
03:30 PM	0	163	77	3	23	86	0	3	60	0	26	6	0	0	0	0		
03:45 PM	0	182	84	9	22	108	0	0	50	0	54	1	0	0	0	0		
04:00 PM	0	193	95	6	13	135	0	0	50	0	50	1	0	0	0	0	391	1683
04:15 PM	3	222	107	5	13	95	0	0	67	0	50	2	0	0	0	0	380	1878
04:30 PM	3	245	99	4	28	146	0	1	37	0	53	3	0	0	0	0	472	1974
04:45 PM	2	251	138	5	24	108	0	2	35	0	57	3	0	0	0	0	440	2000
05:00 PM	0	313	113	2	19	172	0	0	37	0	82	3	0	0	0	0	586	2072
05:15 PM	0	288	143	2	22	116	0	0	35	0	50	2	0	0	0	0	476	1958
05:30 PM	2	257	134	2	23	147	0	0	38	0	71	0	0	0	0	0	498	
05:45 PM	5	294	99	1	17	140	0	0	24	0	61	0	0	0	0	0	512	
06:00 PM	3	243	127	2	19	141	0	0	45	0	69	0	0	0	0	0	472	
06:15 PM	1	196	140	2	23	120	0	2	38	0	47	1	0	0	0	0		
06:30 PM	2	175	134	1	29	176	0	1	42	0	102	2	0	0	0	0		
06:45 PM	0	148	133	1	19	104	0	0	52	0	39	0	0	0	0	0		
07:00 PM	0	118	61	1	17	113	0	0	81	0	46	2	0	0	0	0		
07:15 PM	2	145	61	0	29	101	0	0	64	0	44	1	0	0	0	0		
07:30 PM	3	132	75	0	26	66	0	0	45	0	21	0	0	0	0	0		

Brier Creek - East Bldg

Peak Hour of Adj Street (7:30 - 8:30; 5:00 - 6:00)

Day 1 - AM	In	Out	Total
East Bldg	99	14	113

Day 1 - PM	In	Out	Total
East Bldg	12	67	79

Day 2 - AM	In	Out	Total
East Bldg			0

Day 2 - PM	In	Out	Total
East Bldg			0

Average - AM	In	Out	Total
East Bldg	99	14	113

Average PM	In	Out	Total
East Bldg	12	67	79

	Size	KH Method	KH Calc	Actual	KH Calc Rate	Actual Rate	% of KH
KHA AM (ITE Office) 9	63.527	EQN*	133	113	2.095	1.779	84.9%
KHA PM	63.527	1.74	111	79	1.740	1.244	71.5%

	Size	ITE Method	ITE Calc	Actual	ITE Calc Rate	Actual Rate	% of ITE
ITE Med Office AM 10	63.527	EQN	149	113	2.345	1.779	75.8%
ITE Med Office PM 10	63.527	EQN	217	79	3.416	1.244	36.4%

Brier Creek - West Bldg

Peak Hour of Adj Street (7:30 - 8:30; 5:00 - 6:00)

Day 1 - AM	In	Out	Total
West Bldg	125	14	139
Day 1 - PM	In	Out	Total
West Bldg	21	69	90

Day 2 - AM	In	Out	Total
West Bldg			0
Day 2 - PM	In	Out	Total
West Bldg			0

Average - AM	In	Out	Total
West Bldg	125	14	139
Average PM	In	Out	Total
West Bldg	21	69	90

	Size	KH Method	KH Calc	Actual	KH Calc Rate	Actual Rate	% of KH
KHA AM (ITE Office) 9	54.584	EQN	118	139	2.160	2.547	117.9%
KHA PM	54.584	1.74	95	90	1.740	1.649	94.8%

	Size	ITE Method	ITE Calc	Actual	ITE Calc Rate	Actual Rate	% of ITE
ITE Med Office AM 10	54.584	EQN	130	139	2.382	2.547	106.9%
ITE Med Office PM 10	54.584	EQN	187	90	3.426	1.649	48.1%

Appendix B:

Traffic Count Data

QUALITY COUNTS LLC
920 Blairhill Rd, Suite 106, Charlotte, NC 28217
704.215.4616

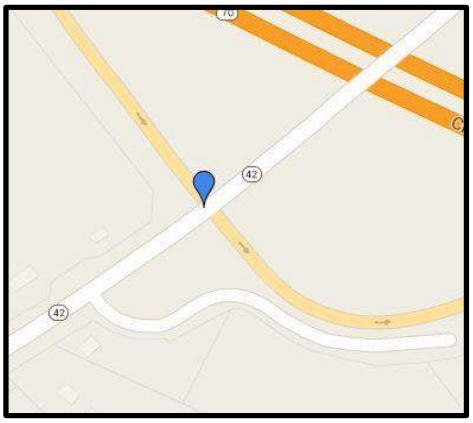
Count Number: 13724909
County: Johnston
City: Clayton, NC
Division: 4

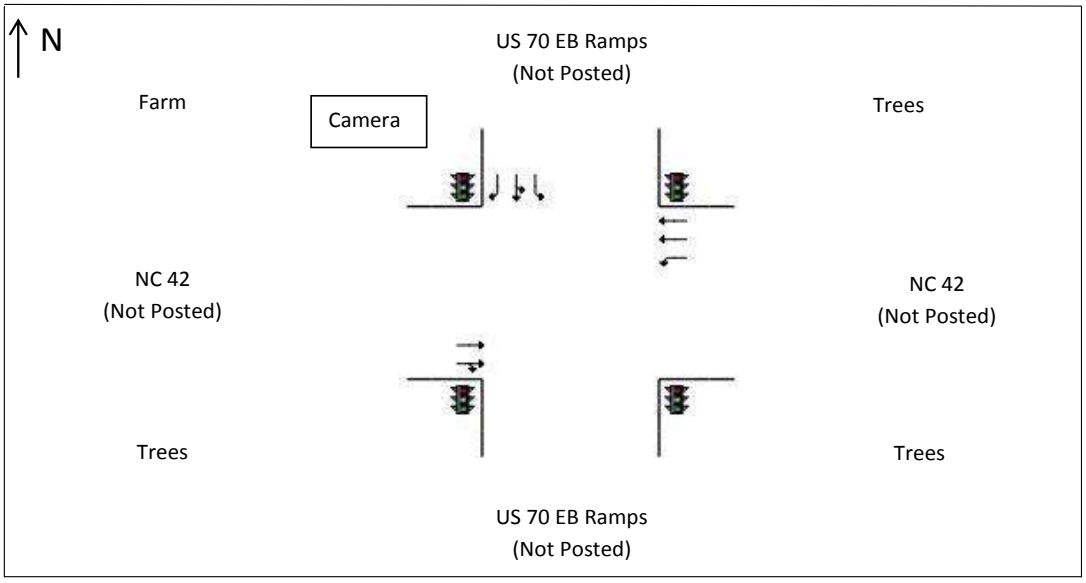
Location: US 70 EB Ramps – NC 42
General Location Type: Intersection
Count Type: Turning Movement
Count Start Date: 03/08/2016
Time: 6AM-7PM
Volume: 18,632

Maximum Temperature: 78° F
Minimum Temperature: 47° F
Precipitation: 0.00 in
Snowfall: 0.0 in
Average Sky Cover: 0.5
Weather Conditions: Clear

1. **School in Session:** Yes
2. **Pedestrians Counted**: Yes
3. **Disabled Pedestrians Present**: No
   Description and Approaches Used: N/A
4. **Counted By**: Ethan Zelinskas, Charles Keister, Kyana Hall
5. **Data Processor**: Nigel Case
6. **Signal Inventory**: N/A
7. **Data Collection Method**: Video/Count Board
8. **Equipment Operating Properly**: Yes
9. **Area Lighting Present**: No
10. **Nearest Roadway Stop Sign < 300 ft:** No
    If yes, list approaches: N/A
11. **Nearest Traffic Signal < 300 ft:** No
    If yes, list approaches: N/A
12. **At-Grade Railroad Crossing Present (<200 ft):** No
    If yes, list approaches & distance: N/A
13. **Other:**

↑ North





Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724909
Site Code : 13724909
Start Date : 3/8/2016
Page No : 1

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

	US 70 EB Ramps Southbound					NC 42 Westbound					US 70 EB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	4	0	5	0	9	0	67	5	0	72	0	0	0	0	0	14	91	0	0	105	186
06:15 AM	1	0	7	0	8	0	95	11	0	106	0	0	0	0	0	43	113	0	0	156	270
06:30 AM	3	0	10	0	13	0	106	13	0	119	0	0	0	0	0	54	132	0	0	186	318
06:45 AM	8	0	8	0	16	0	138	14	0	152	0	0	0	0	0	34	167	0	0	201	369
Total	16	0	30	0	46	0	406	43	0	449	0	0	0	0	0	145	503	0	0	648	1143
07:00 AM	5	1	11	0	17	0	134	10	1	145	0	0	0	0	0	51	156	0	0	207	369
07:15 AM	8	0	18	0	26	0	117	20	0	137	0	0	0	0	0	34	152	0	0	186	349
07:30 AM	8	2	17	0	27	0	137	30	0	167	0	0	0	0	0	39	144	0	0	183	377
07:45 AM	4	0	17	0	21	0	127	18	1	146	0	0	0	0	0	43	175	0	0	218	385
Total	25	3	63	0	91	0	515	78	2	595	0	0	0	0	0	167	627	0	0	794	1480
08:00 AM	4	0	14	0	18	0	120	12	0	132	0	0	0	0	0	52	189	0	0	241	391
08:15 AM	3	0	20	0	23	0	131	23	0	154	0	0	0	0	0	51	154	0	0	205	382
08:30 AM	6	1	15	0	22	0	164	17	0	181	0	0	0	0	0	33	122	0	0	155	358
08:45 AM	12	0	14	0	26	0	146	8	0	154	0	0	0	0	0	26	173	0	0	199	379
Total	25	1	63	0	89	0	561	60	0	621	0	0	0	0	0	162	638	0	0	800	1510
09:00 AM	6	0	16	0	22	0	126	19	0	145	0	0	0	0	0	25	154	0	0	179	346
09:15 AM	3	0	10	0	13	0	115	8	0	123	0	0	0	0	0	38	125	0	0	163	299
09:30 AM	4	1	13	0	18	0	114	26	0	140	0	0	0	0	0	29	104	0	0	133	291
09:45 AM	7	0	14	0	21	0	115	13	0	128	0	0	0	0	0	28	125	0	0	153	302
Total	20	1	53	0	74	0	470	66	0	536	0	0	0	0	0	120	508	0	0	628	1238
10:00 AM	9	0	14	0	23	0	120	17	0	137	0	0	0	0	0	18	120	0	0	138	298
10:15 AM	3	0	14	0	17	0	125	10	0	135	0	0	0	0	0	19	116	0	0	135	287
10:30 AM	10	0	14	0	24	0	127	15	0	142	0	0	0	0	0	18	122	0	0	140	306
10:45 AM	7	2	12	0	21	0	148	16	0	164	0	0	0	0	0	22	109	0	0	131	316
Total	29	2	54	0	85	0	520	58	0	578	0	0	0	0	0	77	467	0	0	544	1207
11:00 AM	7	0	7	0	14	0	141	19	0	160	0	0	0	0	0	26	119	0	0	145	319
11:15 AM	8	0	14	0	22	0	141	14	0	155	0	0	0	0	0	16	113	0	1	130	307
11:30 AM	15	0	6	0	21	0	138	15	0	153	0	0	0	0	0	17	134	0	0	151	325
11:45 AM	7	0	15	0	22	0	160	12	0	172	0	0	0	0	0	20	116	0	0	136	330
Total	37	0	42	0	79	0	580	60	0	640	0	0	0	0	0	79	482	0	1	562	1281
12:00 PM	8	0	10	0	18	0	152	20	0	172	0	0	0	0	0	28	100	0	0	128	318
12:15 PM	4	0	10	0	14	0	146	13	0	159	0	0	0	0	0	24	113	0	0	137	310
12:30 PM	8	1	12	0	21	0	152	17	0	169	0	0	0	0	0	22	142	0	0	164	354
12:45 PM	5	0	17	0	22	0	142	12	0	154	0	0	0	0	0	25	126	0	0	151	327
Total	25	1	49	0	75	0	592	62	0	654	0	0	0	0	0	99	481	0	0	580	1309
01:00 PM	9	1	16	0	26	0	141	9	0	150	0	0	0	0	0	26	125	0	0	151	327
01:15 PM	9	1	5	0	15	0	133	13	0	146	0	0	0	0	0	29	126	0	0	155	316
01:30 PM	8	1	17	0	26	0	136	13	0	149	0	0	0	0	0	25	108	0	0	133	308
01:45 PM	11	0	23	0	34	0	128	7	1	136	0	0	0	0	0	32	110	0	0	142	312
Total	37	3	61	0	101	0	538	42	1	581	0	0	0	0	0	112	469	0	0	581	1263
02:00 PM	12	1	14	0	27	0	129	5	0	134	0	0	0	0	0	24	112	0	0	136	297
02:15 PM	9	0	17	0	26	0	121	16	0	137	0	0	0	0	0	30	113	0	0	143	306
02:30 PM	14	1	15	0	30	0	132	15	0	147	0	0	0	0	0	23	146	0	0	169	346
02:45 PM	11	0	22	0	33	0	179	14	0	193	0	0	0	0	0	44	143	0	0	187	413
Total	46	2	68	0	116	0	561	50	0	611	0	0	0	0	0	121	514	0	0	635	1362
03:00 PM	14	1	17	0	32	0	155	22	2	179	0	0	0	0	0	33	144	0	0	177	388
03:15 PM	17	0	17	0	34	0	160	22	2	184	0	0	0	0	0	50	124	0	0	174	392
03:30 PM	23	1	18	0	42	0	183	22	0	205	0	0	0	0	0	39	137	0	0	176	423
03:45 PM	28	0	24	0	52	0	189	7	1	197	0	0	0	0	0	38	151	0	0	189	438
Total	82	2	76	0	160	0	687	73	5	765	0	0	0	0	0	160	556	0	0	716	1641

Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724909
Site Code : 13724909
Start Date : 3/8/2016
Page No : 2

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

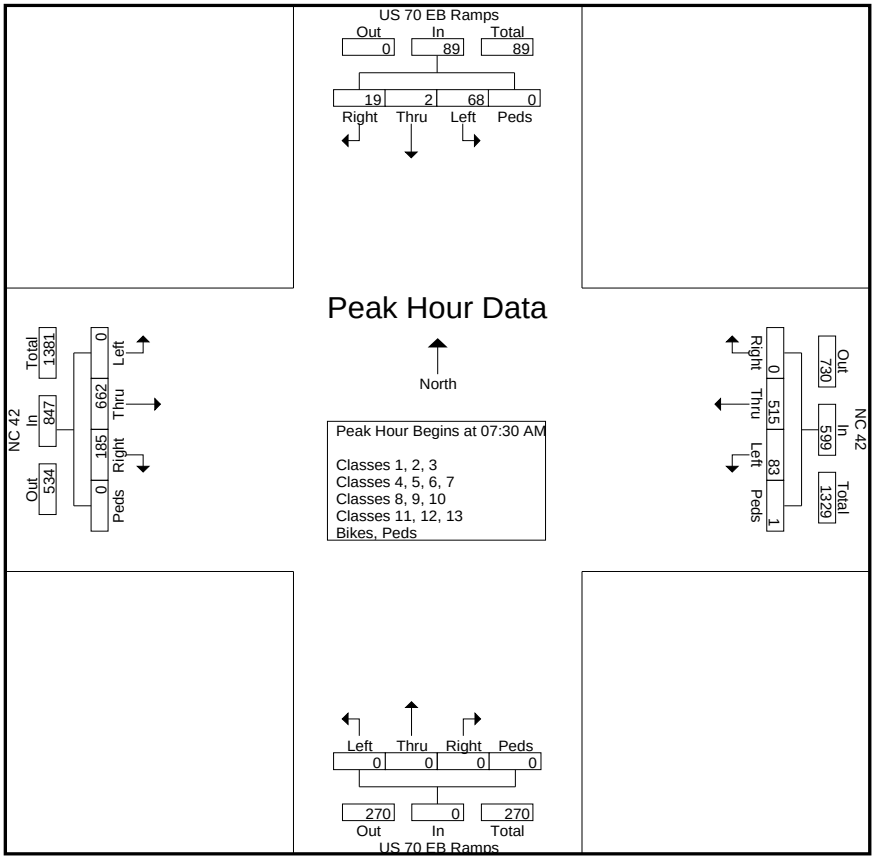
	US 70 EB Ramps Southbound					NC 42 Westbound					US 70 EB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	30	1	21	0	52	0	190	17	0	207	0	0	0	0	0	38	137	0	0	175	434
04:15 PM	30	3	22	0	55	0	202	17	0	219	0	0	0	0	0	41	129	0	0	170	444
04:30 PM	34	1	19	0	54	0	194	22	0	216	0	0	0	0	0	43	135	0	0	178	448
04:45 PM	22	0	32	0	54	0	206	19	0	225	0	0	0	0	0	52	137	0	0	189	468
Total	116	5	94	0	215	0	792	75	0	867	0	0	0	0	0	174	538	0	0	712	1794
05:00 PM	34	0	25	0	59	0	194	22	0	216	0	0	0	0	0	49	128	0	0	177	452
05:15 PM	43	0	27	0	70	0	213	26	0	239	0	0	0	0	0	37	133	0	0	170	479
05:30 PM	42	1	19	0	62	0	206	15	0	221	0	0	0	0	0	43	125	0	0	168	451
05:45 PM	32	0	34	0	66	0	206	20	0	226	0	0	0	0	0	30	135	0	0	165	457
Total	151	1	105	0	257	0	819	83	0	902	0	0	0	0	0	159	521	0	0	680	1839
06:00 PM	28	0	27	0	55	0	181	12	1	194	0	0	0	0	0	38	135	0	0	173	422
06:15 PM	34	1	17	0	52	0	165	13	1	179	0	0	0	0	0	35	141	0	1	177	408
06:30 PM	24	0	20	0	44	0	138	17	0	155	0	0	0	0	0	42	142	0	0	184	383
06:45 PM	22	0	17	0	39	0	131	10	0	141	0	0	0	0	0	25	147	0	0	172	352
Total	108	1	81	0	190	0	615	52	2	669	0	0	0	0	0	140	565	0	1	706	1565
Grand Total	717	22	839	0	1578	0	7656	802	10	8468	0	0	0	0	0	1715	6869	0	2	8586	18632
Apprch %	45.4	1.4	53.2	0		0	90.4	9.5	0.1		0	0	0	0		20	80	0	0		
Total %	3.8	0.1	4.5	0	8.5	0	41.1	4.3	0.1	45.4	0	0	0	0	0	9.2	36.9	0	0	46.1	
Classes 1, 2, 3	658	13	808	0	1479	0	7302	777	8	8087	0	0	0	0	0	1590	6544	0	1	8135	17701
% Classes 1, 2, 3	91.8	59.1	96.3	0	93.7	0	95.4	96.9	80	95.5	0	0	0	0	0	92.7	95.3	0	50	94.7	95
Classes 4, 5, 6, 7	50	2	19	0	71	0	279	22	0	301	0	0	0	0	0	93	270	0	0	363	735
% Classes 4, 5, 6, 7	7	9.1	2.3	0	4.5	0	3.6	2.7	0	3.6	0	0	0	0	0	5.4	3.9	0	0	4.2	3.9
Classes 8, 9, 10	9	7	12	0	28	0	75	3	0	78	0	0	0	0	0	31	55	0	0	86	192
% Classes 8, 9, 10	1.3	31.8	1.4	0	1.8	0	1	0.4	0	0.9	0	0	0	0	0	1.8	0.8	0	0	1	1
Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	1	0	0	1	2	4
% Bikes, Peds	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0.1	0	0	50	0	0

Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724909
Site Code : 13724909
Start Date : 3/8/2016
Page No : 4

	US 70 EB Ramps Southbound					NC 42 Westbound					US 70 EB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**8**	**2**	17	0	**27**	0	**137**	**30**	0	**167**	0	0	0	0	0	39	144	0	0	183	377
07:45 AM	4	0	17	0	21	0	127	18	**1**	146	0	0	0	0	0	43	175	0	0	218	385
08:00 AM	4	0	14	0	18	0	120	12	0	132	0	0	0	0	0	**52**	**189**	0	0	**241**	**391**
08:15 AM	3	0	**20**	0	23	0	131	23	0	154	0	0	0	0	0	51	154	0	0	205	382
Total Volume	19	2	68	0	89	0	515	83	1	599	0	0	0	0	0	185	662	0	0	847	1535
% App. Total	21.3	2.2	76.4	0		0	86	13.9	0.2		0	0	0	0		21.8	78.2	0	0		
PHF	.594	.250	.850	.000	.824	.000	.940	.692	.250	.897	.000	.000	.000	.000	.000	.889	.876	.000	.000	.879	.981

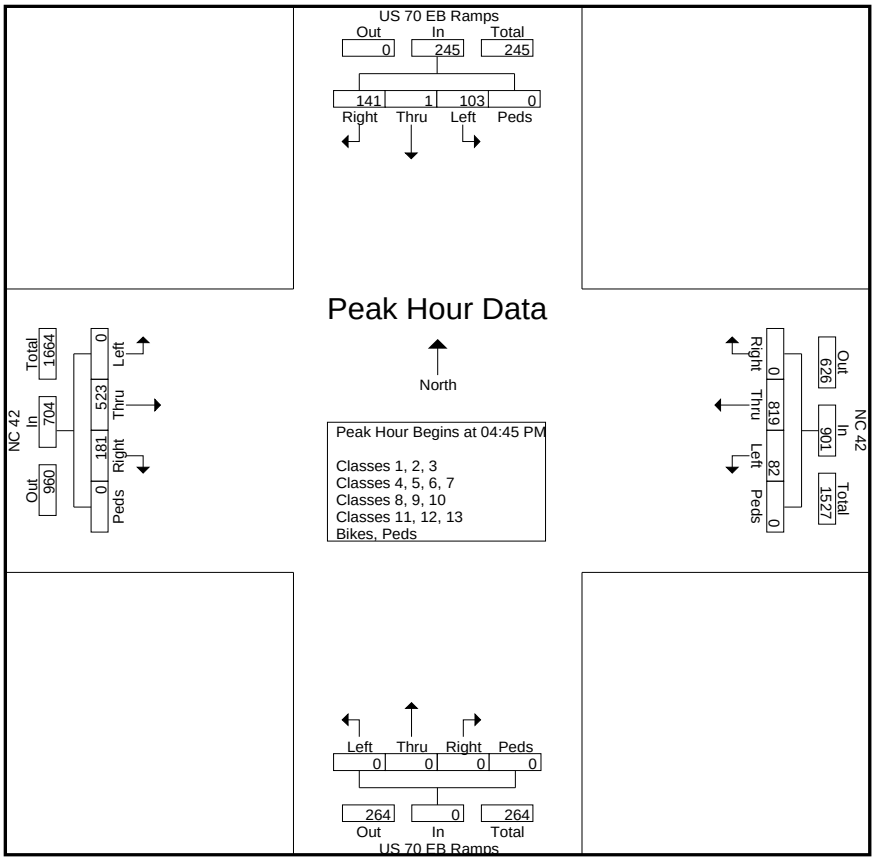


Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724909
Site Code : 13724909
Start Date : 3/8/2016
Page No : 8

	US 70 EB Ramps Southbound					NC 42 Westbound					US 70 EB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	22	0	**32**	0	54	0	206	19	0	225	0	0	0	0	0	**52**	**137**	0	0	**189**	468
05:00 PM	34	0	25	0	59	0	194	22	0	216	0	0	0	0	0	49	128	0	0	177	452
05:15 PM	**43**	0	27	0	**70**	0	**213**	**26**	0	**239**	0	0	0	0	0	37	133	0	0	170	**479**
05:30 PM	42	**1**	19	0	62	0	206	15	0	221	0	0	0	0	0	43	125	0	0	168	451
Total Volume	141	1	103	0	245	0	819	82	0	901	0	0	0	0	0	181	523	0	0	704	1850
% App. Total	57.6	0.4	42	0		0	90.9	9.1	0		0	0	0	0		25.7	74.3	0	0		
PHF	.820	.250	.805	.000	.875	.000	.961	.788	.000	.942	.000	.000	.000	.000	.000	.870	.954	.000	.000	.931	.966



QUALITY COUNTS LLC
920 Blairhill Rd, Suite 106, Charlotte, NC 28217
704.215.4616

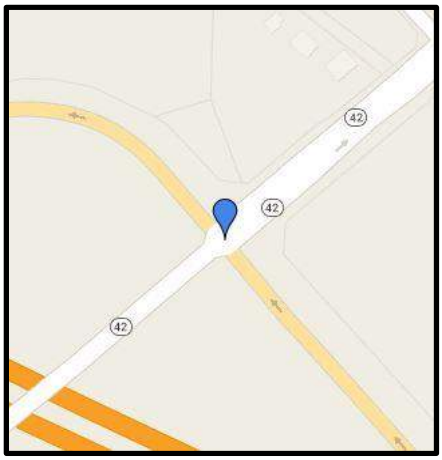
Count Number: 13724909
County: Johnston
City: Clayton, NC
Division: 4

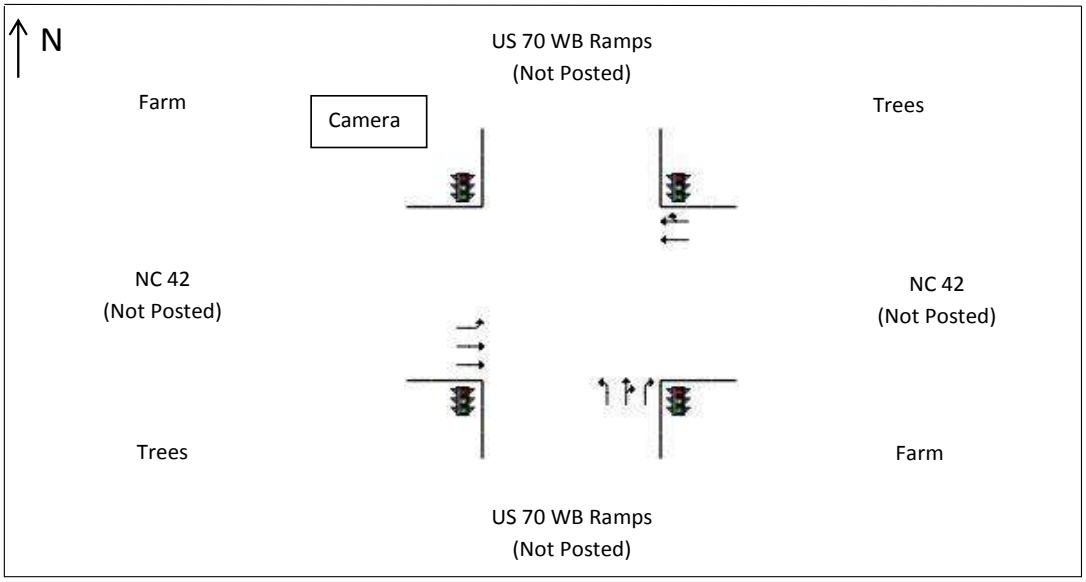
Location: US 70 WB Ramps – NC 42
General Location Type: Intersection
Count Type: Turning Movement
Count Start Date: 03/08/2016
Time: 6AM-7PM
Volume: 18,274

Maximum Temperature: 78° F
Minimum Temperature: 47° F
Precipitation: 0.00 in
Snowfall: 0.0 in
Average Sky Cover: 0.5
Weather Conditions: Clear

1. **School in Session:** Yes
2. **Pedestrians Counted**: Yes
3. **Disabled Pedestrians Present**: No
   Description and Approaches Used: N/A
4. **Counted By**: Terrance Jefferson, Yvonne Jaramillo
5. **Data Processor**: Nigel Case
6. **Signal Inventory**: N/A
7. **Data Collection Method**: Video/Count Board
8. **Equipment Operating Properly**: Yes
9. **Area Lighting Present**: No
10. **Nearest Roadway Stop Sign < 300 ft:** No
    If yes, list approaches: N/A
11. **Nearest Traffic Signal < 300 ft:** No
    If yes, list approaches: N/A
12. **At-Grade Railroad Crossing Present (<200 ft):** No
    If yes, list approaches & distance: N/A
13. **Other:**

↑ North





Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724910
Site Code : 13724910
Start Date : 3/8/2016
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Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

	US 70 WB Ramps Southbound					NC 42 Westbound					US 70 WB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	27	58	0	0	85	5	0	17	0	22	0	53	41	0	94	201
06:15 AM	0	0	0	0	0	28	74	0	0	102	16	0	29	0	45	0	74	42	0	116	263
06:30 AM	0	0	0	0	0	31	86	0	0	117	11	0	36	0	47	0	105	46	0	151	315
06:45 AM	0	0	0	0	0	32	99	0	0	131	16	0	53	0	69	0	116	48	0	164	364
Total	0	0	0	0	0	118	317	0	0	435	48	0	135	0	183	0	348	177	0	525	1143
07:00 AM	0	0	0	0	0	34	108	0	0	142	17	1	38	0	56	0	112	50	0	162	360
07:15 AM	0	0	0	0	0	24	112	0	0	136	26	0	30	0	56	0	137	39	0	176	368
07:30 AM	0	0	0	0	0	9	88	0	0	97	18	0	27	0	45	0	87	24	0	111	253
07:45 AM	0	0	0	0	0	22	113	0	0	135	39	0	36	0	75	0	167	33	0	200	410
Total	0	0	0	0	0	89	421	0	0	510	100	1	131	0	232	0	503	146	0	649	1391
08:00 AM	0	0	0	0	0	19	106	0	0	125	29	1	31	0	61	0	178	29	0	207	393
08:15 AM	0	0	0	0	0	20	126	0	0	146	19	1	27	0	47	0	147	31	0	178	371
08:30 AM	0	0	0	0	0	23	137	0	0	160	10	0	42	0	52	0	131	11	0	142	354
08:45 AM	0	0	0	0	0	16	115	0	0	131	19	0	37	0	56	0	173	21	0	194	381
Total	0	0	0	0	0	78	484	0	0	562	77	2	137	0	216	0	629	92	0	721	1499
09:00 AM	0	0	0	0	0	27	119	0	1	147	21	1	28	0	50	0	131	30	0	161	358
09:15 AM	0	0	0	0	0	21	90	0	0	111	16	1	25	0	42	0	121	14	1	136	289
09:30 AM	0	0	0	0	0	20	120	0	0	140	16	0	23	0	39	0	112	9	0	121	300
09:45 AM	0	0	0	0	0	28	89	0	0	117	17	0	34	0	51	0	116	12	0	128	296
Total	0	0	0	0	0	96	418	0	1	515	70	2	110	0	182	0	480	65	1	546	1243
10:00 AM	0	0	0	1	1	16	114	0	0	130	15	0	20	0	35	0	115	18	1	134	300
10:15 AM	0	0	0	0	0	23	112	0	0	135	22	0	22	0	44	0	114	12	0	126	305
10:30 AM	0	0	0	0	0	23	119	0	0	142	16	0	23	0	39	0	133	9	0	142	323
10:45 AM	0	0	0	0	0	23	132	0	0	155	24	1	28	0	53	0	115	7	0	122	330
Total	0	0	0	1	1	85	477	0	0	562	77	1	93	0	171	0	477	46	1	524	1258
11:00 AM	0	0	0	0	0	15	135	0	0	150	21	0	23	0	44	0	112	15	0	127	321
11:15 AM	0	0	0	0	0	20	135	0	0	155	18	0	23	0	41	0	118	7	0	125	321
11:30 AM	0	0	0	0	0	20	130	0	0	150	3	3	27	0	33	0	128	9	0	137	320
11:45 AM	0	0	0	0	0	18	131	0	0	149	14	0	37	0	51	0	125	10	0	135	335
Total	0	0	0	0	0	73	531	0	0	604	56	3	110	0	169	0	483	41	0	524	1297
12:00 PM	0	0	0	0	0	18	143	0	0	161	17	0	33	0	50	0	103	8	0	111	322
12:15 PM	0	0	0	0	0	20	143	0	0	163	20	1	21	0	42	0	116	6	1	123	328
12:30 PM	0	0	0	0	0	26	158	0	0	184	13	0	23	0	36	0	147	12	0	159	379
12:45 PM	0	0	0	0	0	16	130	0	0	146	10	0	29	0	39	0	133	4	0	137	322
Total	0	0	0	0	0	80	574	0	0	654	60	1	106	0	167	0	499	30	1	530	1351
01:00 PM	0	0	0	0	0	9	128	0	1	138	11	0	23	0	34	0	134	6	0	140	312
01:15 PM	0	0	0	0	0	19	124	0	0	143	18	0	25	0	43	0	108	18	0	126	312
01:30 PM	0	0	0	0	0	24	124	0	0	148	26	0	27	0	53	0	118	6	0	124	325
01:45 PM	0	0	0	0	0	16	122	0	0	138	16	0	17	0	33	0	124	11	0	135	306
Total	0	0	0	0	0	68	498	0	1	567	71	0	92	0	163	0	484	41	0	525	1255
02:00 PM	0	0	0	0	0	16	108	0	0	124	14	1	30	0	45	0	135	8	0	143	312
02:15 PM	0	0	0	0	0	17	115	0	0	132	20	0	27	0	47	0	111	9	0	120	299
02:30 PM	0	0	0	0	0	11	121	0	0	132	12	2	25	0	39	0	153	17	0	170	341
02:45 PM	0	0	0	0	0	24	162	0	0	186	22	1	31	0	54	0	158	12	0	170	410
Total	0	0	0	0	0	68	506	0	0	574	68	4	113	0	185	0	557	46	0	603	1362
03:00 PM	0	0	0	0	0	17	147	0	1	165	17	0	31	0	48	0	150	6	0	156	369
03:15 PM	0	0	0	0	0	24	166	0	0	190	14	0	26	0	40	0	138	6	0	144	374
03:30 PM	0	0	0	0	0	23	170	0	0	193	22	1	37	0	60	0	152	7	0	159	412
03:45 PM	0	0	0	0	0	24	154	0	0	178	28	1	42	0	71	0	164	17	0	181	430
Total	0	0	0	0	0	88	637	0	1	726	81	2	136	0	219	0	604	36	0	640	1585

Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724910
Site Code : 13724910
Start Date : 3/8/2016
Page No : 2

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

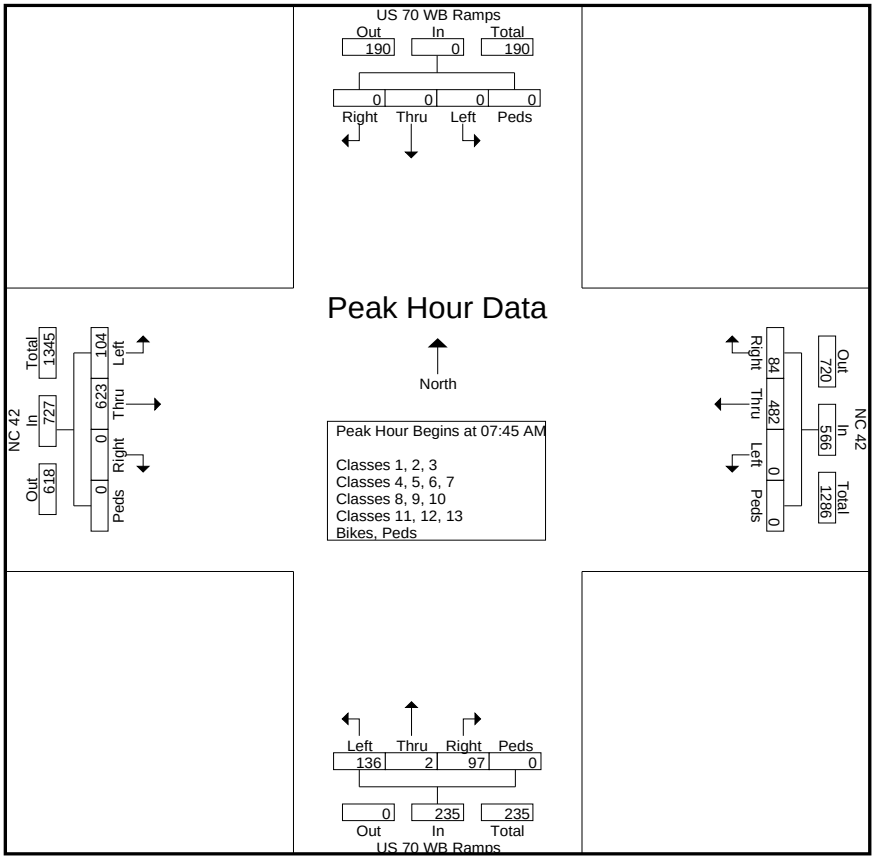
	US 70 WB Ramps Southbound					NC 42 Westbound					US 70 WB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	21	181	0	0	202	17	0	34	0	51	0	136	14	0	150	403
04:15 PM	0	0	0	0	0	25	166	0	0	191	18	0	51	0	69	0	160	5	0	165	425
04:30 PM	0	0	0	0	0	32	172	0	0	204	24	0	48	0	72	0	135	8	0	143	419
04:45 PM	0	0	0	0	0	33	169	0	1	203	27	1	54	0	82	0	154	13	0	167	452
Total	0	0	0	0	0	111	688	0	1	800	86	1	187	0	274	0	585	40	0	625	1699
05:00 PM	0	0	0	0	0	36	186	0	0	222	14	1	36	0	51	0	147	12	0	159	432
05:15 PM	0	0	0	0	0	30	176	0	0	206	18	0	61	0	79	0	155	6	0	161	446
05:30 PM	0	0	0	0	0	29	177	0	0	206	18	0	49	0	67	0	130	10	0	140	413
05:45 PM	0	0	0	0	0	23	170	0	0	193	16	0	53	0	69	0	159	16	0	175	437
Total	0	0	0	0	0	118	709	0	0	827	66	1	199	0	266	0	591	44	0	635	1728
06:00 PM	0	0	0	0	0	22	157	0	0	179	13	0	40	0	53	0	146	18	0	164	396
06:15 PM	0	0	0	0	0	23	145	0	0	168	18	1	34	0	53	0	150	6	0	156	377
06:30 PM	0	0	0	0	0	16	130	0	0	146	28	0	20	0	48	0	153	9	0	162	356
06:45 PM	0	0	0	0	0	4	124	0	0	128	12	1	29	0	42	0	159	5	0	164	334
Total	0	0	0	0	0	65	556	0	0	621	71	2	123	0	196	0	608	38	0	646	1463
Grand Total	0	0	0	1	1	1137	6816	0	4	7957	931	20	1672	0	2623	0	6848	842	3	7693	18274
Apprch %	0	0	0	100		14.3	85.7	0	0.1		35.5	0.8	63.7	0		0	89	10.9	0		
Total %	0	0	0	0	0	6.2	37.3	0	0	43.5	5.1	0.1	9.1	0	14.4	0	37.5	4.6	0	42.1	
Classes 1, 2, 3	0	0	0	0	0	1100	6563	0	4	7667	905	15	1550	0	2470	0	6568	770	2	7340	17477
% Classes 1, 2, 3	0	0	0	0	0	96.7	96.3	0	100	96.4	97.2	75	92.7	0	94.2	0	95.9	91.4	66.7	95.4	95.6
Classes 4, 5, 6, 7	0	0	0	0	0	29	196	0	0	225	24	3	94	0	121	0	221	61	0	282	628
% Classes 4, 5, 6, 7	0	0	0	0	0	2.6	2.9	0	0	2.8	2.6	15	5.6	0	4.6	0	3.2	7.2	0	3.7	3.4
Classes 8, 9, 10	0	0	0	0	0	8	57	0	0	65	2	2	28	0	32	0	59	11	0	70	167
% Classes 8, 9, 10	0	0	0	0	0	0.7	0.8	0	0	0.8	0.2	10	1.7	0	1.2	0	0.9	1.3	0	0.9	0.9
Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
% Bikes, Peds	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	33.3	0	0

Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724910
Site Code : 13724910
Start Date : 3/8/2016
Page No : 4

	US 70 WB Ramps Southbound					NC 42 Westbound					US 70 WB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	22	113	0	0	135	**39**	0	36	0	**75**	0	167	**33**	0	200	**410**
08:00 AM	0	0	0	0	0	19	106	0	0	125	29	**1**	31	0	61	0	**178**	29	0	**207**	393
08:15 AM	0	0	0	0	0	20	126	0	0	146	19	1	27	0	47	0	147	31	0	178	371
08:30 AM	0	0	0	0	0	**23**	**137**	0	0	**160**	10	0	**42**	0	52	0	131	11	0	142	354
Total Volume	0	0	0	0	0	84	482	0	0	566	97	2	136	0	235	0	623	104	0	727	1528
% App. Total	0	0	0	0		14.8	85.2	0	0		41.3	0.9	57.9	0		0	85.7	14.3	0		
PHF	.000	.000	.000	.000	.000	.913	.880	.000	.000	.884	.622	.500	.810	.000	.783	.000	.875	.788	.000	.878	.932

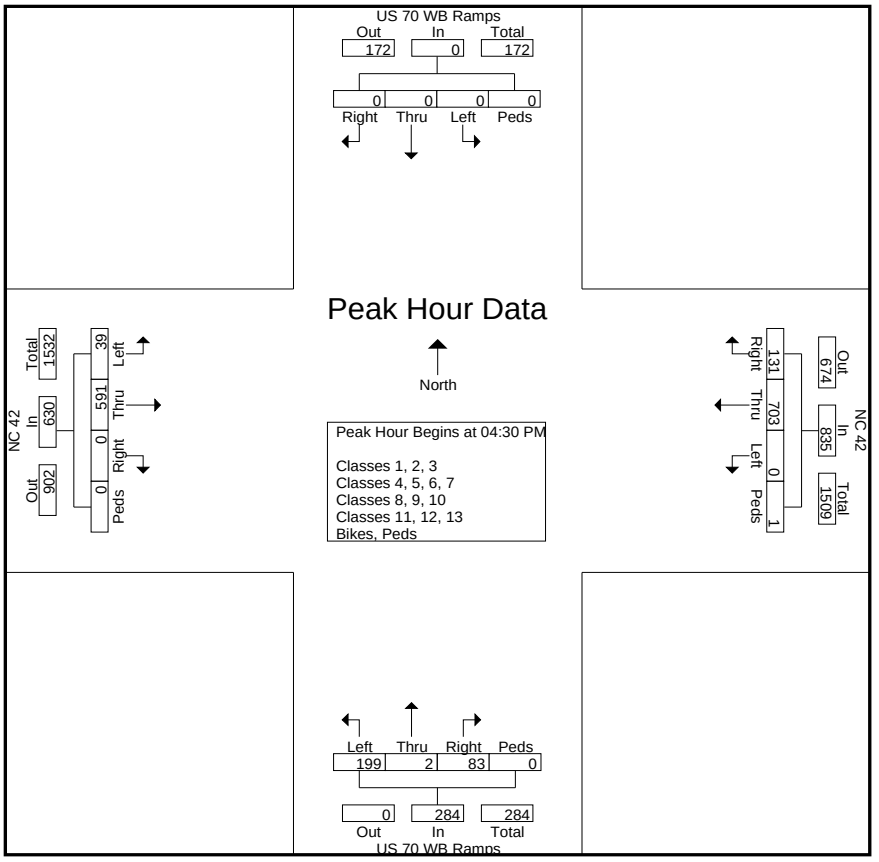


Quality Counts, LLC

920 Blairhill Rd Ste 106
Charlotte, NC 28217

File Name : 13724910
Site Code : 13724910
Start Date : 3/8/2016
Page No : 8

	US 70 WB Ramps Southbound					NC 42 Westbound					US 70 WB Ramps Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	32	172	0	0	204	24	0	48	0	72	0	135	8	0	143	419
04:45 PM	0	0	0	0	0	33	169	0	**1**	203	**27**	**1**	54	0	**82**	0	154	**13**	0	**167**	**452**
05:00 PM	0	0	0	0	0	**36**	**186**	0	0	**222**	14	1	36	0	51	0	147	12	0	159	432
05:15 PM	0	0	0	0	0	30	176	0	0	206	18	0	**61**	0	79	0	**155**	6	0	161	446
Total Volume	0	0	0	0	0	131	703	0	1	835	83	2	199	0	284	0	591	39	0	630	1749
% App. Total	0	0	0	0		15.7	84.2	0	0.1		29.2	0.7	70.1	0		0	93.8	6.2	0		
PHF	.000	.000	.000	.000	.000	.910	.945	.000	.250	.940	.769	.500	.816	.000	.866	.000	.953	.750	.000	.943	.967



QUALITY COUNTS LLC
920 Blairhill Rd, Suite 106, Charlotte, NC 28217
704.215.4616

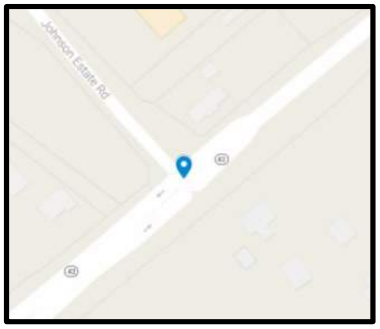
Count Number: 16-10418
County: Johnston
City: Clayton
Division: 4

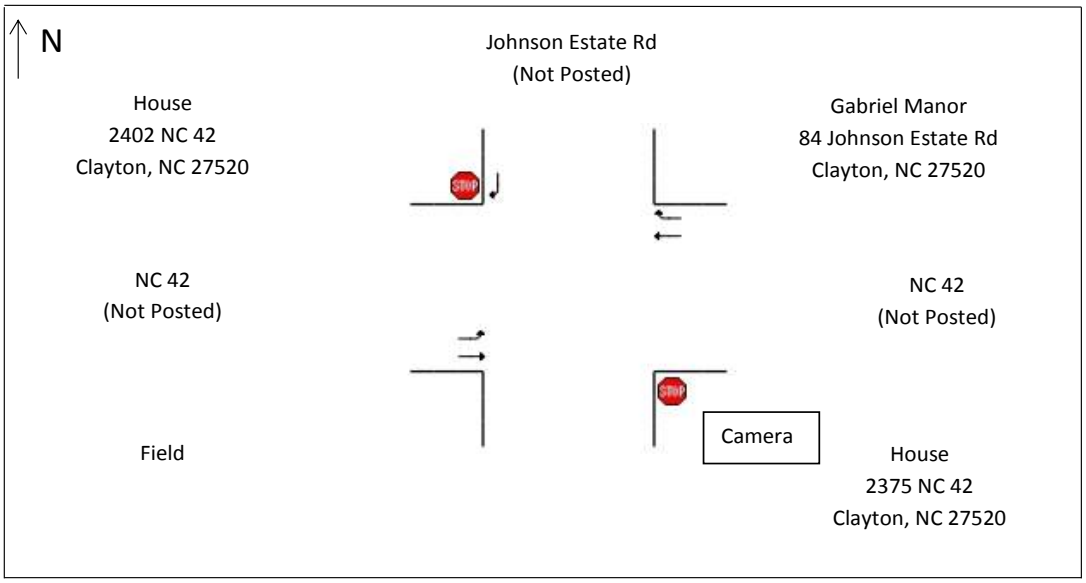
Location: NC 42 & Johnson Estate Rd
General Location Type: Intersection
Count Type: Turning Movement (classification)
Count Start Date: 09/21/2016
Time: 6:00am – 7:00pm
Volume: 14,564

Maximum Temperature: 75° F
Minimum Temperature: 70° F
Precipitation: 0.49 in
Snowfall: 0.0 in
Average Sky Cover: 1.0
Weather Conditions: Thunderstorm, Rain, Fog

1. **School in Session:** Yes
2. **Pedestrians Counted**: Yes
3. **Disabled Pedestrians Present**: No
   Description and Approaches Used: N/A
4. **Counted By**: Taylor Collier, Will Porter, Annik Ciucio, Terrance Jefferson
5. **Data Processor**: Nick Mathie
6. **Signal Inventory**: N/A
7. **Data Collection Method**: Video/Count Board
8. **Equipment Operating Properly**: Yes
9. **Area Lighting Present**: No
10. **Nearest Roadway Stop Sign < 300 ft:** No
    If yes, list approaches: N/A
11. **Nearest Traffic Signal < 300 ft:** No
    If yes, list approaches: N/A
12. **At-Grade Railroad Crossing Present (<200 ft):** No
    If yes, list approaches & distance: N/A
13. **Other:**

↑ North





Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10418
Site Code : 16-10418
Start Date : 9/21/2016
Page No : 1

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

	Johnson Estate Rd Southbound					NC 42 Westbound					Johnson Estate Rd Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	0	0	0	1	0	76	0	0	76	0	0	0	0	0	0	63	2	0	65	142
06:15 AM	2	0	0	0	2	1	93	0	0	94	0	0	0	0	0	0	75	1	0	76	172
06:30 AM	2	0	0	0	2	0	97	0	0	97	0	0	0	0	0	0	100	8	0	108	207
06:45 AM	3	0	0	0	3	2	124	0	0	126	0	0	0	0	0	0	108	10	0	118	247
Total	8	0	0	0	8	3	390	0	0	393	0	0	0	0	0	0	346	21	0	367	768
07:00 AM	3	0	0	0	3	0	113	0	0	113	0	0	0	0	0	0	126	5	0	131	247
07:15 AM	0	0	0	0	0	0	139	0	0	139	0	0	0	0	0	0	124	5	0	129	268
07:30 AM	0	0	0	0	0	0	138	0	0	138	0	0	0	0	0	0	175	2	0	177	315
07:45 AM	4	0	0	0	4	0	115	0	0	115	0	0	0	0	0	0	195	8	0	203	322
Total	7	0	0	0	7	0	505	0	0	505	0	0	0	0	0	0	620	20	0	640	1152
08:00 AM	2	0	0	0	2	5	136	0	0	141	0	0	0	0	0	0	171	7	1	179	322
08:15 AM	1	0	0	0	1	0	136	0	0	136	0	0	0	0	0	0	160	6	0	166	303
08:30 AM	0	0	0	0	0	0	109	0	0	109	0	0	0	0	0	0	146	2	1	149	258
08:45 AM	3	0	0	0	3	1	114	0	1	116	0	0	0	0	0	0	162	2	0	164	283
Total	6	0	0	0	6	6	495	0	1	502	0	0	0	0	0	0	639	17	2	658	1166
09:00 AM	1	0	0	0	1	2	127	0	0	129	0	0	0	0	0	0	114	1	0	115	245
09:15 AM	2	0	0	0	2	1	133	0	0	134	0	0	0	0	0	0	114	2	1	117	253
09:30 AM	4	0	0	0	4	2	119	0	0	121	0	0	0	0	0	0	117	4	0	121	246
09:45 AM	0	0	0	0	0	1	109	0	0	110	0	0	0	0	0	0	128	0	0	128	238
Total	7	0	0	0	7	6	488	0	0	494	0	0	0	0	0	0	473	7	1	481	982
10:00 AM	3	0	0	0	3	1	115	0	0	116	0	0	0	0	0	0	109	4	1	114	233
10:15 AM	1	0	0	0	1	1	121	0	0	122	0	0	0	0	0	0	118	1	0	119	242
10:30 AM	4	0	0	0	4	0	141	0	0	141	0	0	0	0	0	0	112	2	0	114	259
10:45 AM	1	0	0	0	1	0	111	0	0	111	0	0	0	0	0	0	105	4	0	109	221
Total	9	0	0	0	9	2	488	0	0	490	0	0	0	0	0	0	444	11	1	456	955
11:00 AM	5	0	0	0	5	1	117	0	0	118	0	0	0	0	0	0	119	2	0	121	244
11:15 AM	3	0	0	0	3	1	127	0	0	128	0	0	0	0	0	0	117	6	0	123	254
11:30 AM	3	0	0	0	3	2	127	0	0	129	0	0	0	0	0	0	123	3	0	126	258
11:45 AM	6	0	0	0	6	0	140	0	0	140	0	0	0	0	0	0	115	4	3	122	268
Total	17	0	0	0	17	4	511	0	0	515	0	0	0	0	0	0	474	15	3	492	1024
12:00 PM	2	0	0	0	2	2	159	0	0	161	0	0	0	0	0	0	124	2	0	126	289
12:15 PM	3	0	0	0	3	1	134	0	0	135	0	0	0	1	1	0	121	3	0	124	263
12:30 PM	2	0	0	0	2	1	140	0	0	141	0	0	0	0	0	0	116	2	1	119	262
12:45 PM	2	0	0	0	2	2	106	0	0	108	0	0	0	0	0	0	145	4	0	149	259
Total	9	0	0	0	9	6	539	0	0	545	0	0	0	1	1	0	506	11	1	518	1073
01:00 PM	4	0	0	0	4	0	128	0	0	128	0	0	0	0	0	0	146	2	0	148	280
01:15 PM	3	0	0	0	3	3	107	0	0	110	0	0	0	0	0	0	121	3	1	125	238
01:30 PM	4	0	0	0	4	1	130	0	0	131	0	0	0	0	0	0	118	11	0	129	264
01:45 PM	1	0	0	0	1	3	129	0	0	132	0	0	0	0	0	0	120	2	3	125	258
Total	12	0	0	0	12	7	494	0	0	501	0	0	0	0	0	0	505	18	4	527	1040
02:00 PM	4	0	0	0	4	2	133	0	0	135	0	0	0	0	0	0	123	5	0	128	267
02:15 PM	1	0	0	0	1	2	108	0	0	110	0	0	0	0	0	0	142	2	0	144	255
02:30 PM	2	0	0	0	2	1	136	0	0	137	0	0	0	0	0	0	146	7	0	153	292
02:45 PM	5	0	0	0	5	0	152	0	0	152	0	0	0	0	0	0	163	4	0	167	324
Total	12	0	0	0	12	5	529	0	0	534	0	0	0	0	0	0	574	18	0	592	1138
03:00 PM	10	0	0	0	10	2	127	0	0	129	0	0	0	0	0	0	156	1	1	158	297
03:15 PM	5	0	0	0	5	0	133	0	0	133	0	0	0	0	0	0	131	4	0	135	273
03:30 PM	4	0	0	0	4	1	154	0	0	155	0	0	0	0	0	0	149	2	0	151	310
03:45 PM	3	0	0	0	3	0	137	0	0	137	0	0	0	0	0	0	150	3	0	153	293
Total	22	0	0	0	22	3	551	0	0	554	0	0	0	0	0	0	586	10	1	597	1173
04:00 PM	5	0	0	0	5	2	166	0	0	168	0	0	0	0	0	0	141	2	0	143	316

Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10418
Site Code : 16-10418
Start Date : 9/21/2016
Page No : 2

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

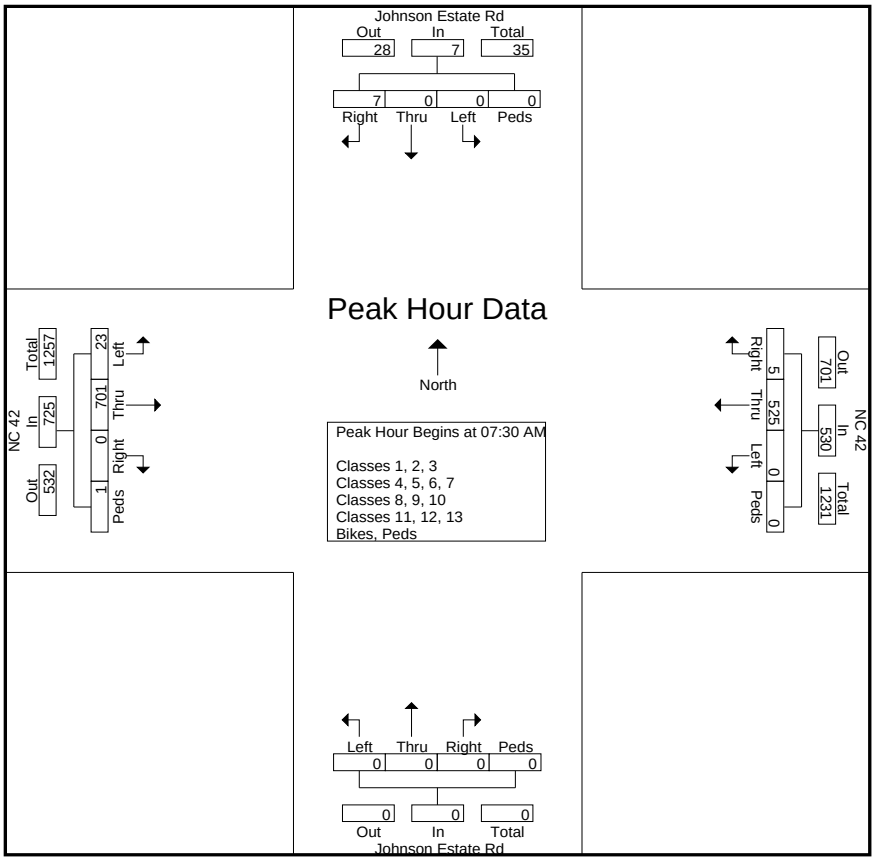
	Johnson Estate Rd Southbound					NC 42 Westbound					Johnson Estate Rd Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:15 PM	8	0	0	0	8	1	178	0	0	179	0	0	0	0	0	0	151	3	0	154	341
04:30 PM	11	0	0	0	11	4	170	0	0	174	0	0	0	0	0	0	166	1	0	167	352
04:45 PM	7	0	0	0	7	3	212	0	0	215	0	0	0	0	0	0	154	2	0	156	378
Total	31	0	0	0	31	10	726	0	0	736	0	0	0	0	0	0	612	8	0	620	1387
05:00 PM	8	0	0	0	8	1	208	0	0	209	0	0	0	0	0	0	147	2	0	149	366
05:15 PM	13	0	0	0	13	0	172	0	0	172	0	0	0	0	0	0	149	2	0	151	336
05:30 PM	2	0	0	0	2	1	204	0	0	205	0	0	0	0	0	0	151	3	1	155	362
05:45 PM	3	0	0	0	3	1	192	0	0	193	0	0	0	0	0	0	158	1	0	159	355
Total	26	0	0	0	26	3	776	0	0	779	0	0	0	0	0	0	605	8	1	614	1419
06:00 PM	1	0	0	0	1	1	204	0	0	205	0	0	0	0	0	0	162	1	0	163	369
06:15 PM	1	0	0	0	1	0	180	0	0	180	0	0	0	0	0	0	135	4	0	139	320
06:30 PM	3	0	0	0	3	0	159	0	0	159	0	0	0	0	0	0	158	0	0	158	320
06:45 PM	1	0	0	0	1	0	137	0	0	137	0	0	0	0	0	0	137	3	0	140	278
Total	6	0	0	0	6	1	680	0	0	681	0	0	0	0	0	0	592	8	0	600	1287
Grand Total	172	0	0	0	172	56	7172	0	1	7229	0	0	0	1	1	0	6976	172	14	7162	14564
Apprch %	100	0	0	0		0.8	99.2	0	0		0	0	0	100		0	97.4	2.4	0.2		
Total %	1.2	0	0	0	1.2	0.4	49.2	0	0	49.6	0	0	0	0	0	0	47.9	1.2	0.1	49.2	
Classes 1, 2, 3	166	0	0	0	166	55	6962	0	0	7017	0	0	0	0	0	0	6751	167	12	6930	14113
% Classes 1, 2, 3	96.5	0	0	0	96.5	98.2	97.1	0	0	97.1	0	0	0	0	0	0	96.8	97.1	85.7	96.8	96.9
Classes 4, 5, 6, 7	6	0	0	0	6	1	141	0	0	142	0	0	0	0	0	0	167	5	0	172	320
% Classes 4, 5, 6, 7	3.5	0	0	0	3.5	1.8	2	0	0	2	0	0	0	0	0	0	2.4	2.9	0	2.4	2.2
Classes 8, 9, 10	0	0	0	0	0	0	69	0	0	69	0	0	0	0	0	0	58	0	0	58	127
% Classes 8, 9, 10	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0.8	0	0	0.8	0.9
Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	2	2	4
% Bikes, Peds	0	0	0	0	0	0	0	0	100	0	0	0	0	100	100	0	0	0	14.3	0	0

Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10418
Site Code : 16-10418
Start Date : 9/21/2016
Page No : 4

	Johnson Estate Rd Southbound					NC 42 Westbound					Johnson Estate Rd Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	**138**	0	0	138	0	0	0	0	0	0	175	2	0	177	315
07:45 AM	**4**	0	0	0	**4**	0	115	0	0	115	0	0	0	0	0	0	**195**	**8**	0	**203**	**322**
08:00 AM	2	0	0	0	2	**5**	136	0	0	**141**	0	0	0	0	0	0	171	7	**1**	179	322
08:15 AM	1	0	0	0	1	0	136	0	0	136	0	0	0	0	0	0	160	6	0	166	303
Total Volume	7	0	0	0	7	5	525	0	0	530	0	0	0	0	0	0	701	23	1	725	1262
% App. Total	100	0	0	0		0.9	99.1	0	0		0	0	0	0		0	96.7	3.2	0.1		
PHF	.438	.000	.000	.000	.438	.250	.951	.000	.000	.940	.000	.000	.000	.000	.000	.000	.899	.719	.250	.893	.980

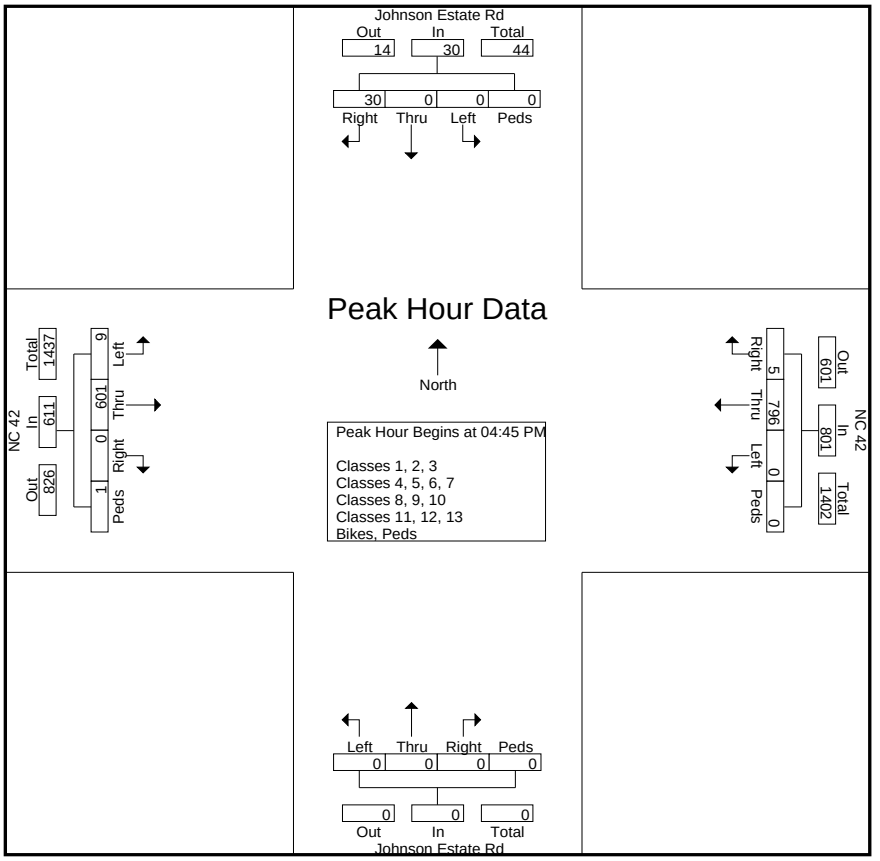


Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10418
Site Code : 16-10418
Start Date : 9/21/2016
Page No : 8

	Johnson Estate Rd Southbound					NC 42 Westbound					Johnson Estate Rd Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	7	0	0	0	7	**3**	**212**	0	0	**215**	0	0	0	0	0	0	**154**	2	0	**156**	**378**
05:00 PM	8	0	0	0	8	1	208	0	0	209	0	0	0	0	0	0	147	2	0	149	366
05:15 PM	**13**	0	0	0	**13**	0	172	0	0	172	0	0	0	0	0	0	149	2	0	151	336
05:30 PM	2	0	0	0	2	1	204	0	0	205	0	0	0	0	0	0	151	**3**	**1**	155	362
Total Volume	30	0	0	0	30	5	796	0	0	801	0	0	0	0	0	0	601	9	1	611	1442
% App. Total	100	0	0	0		0.6	99.4	0	0		0	0	0	0		0	98.4	1.5	0.2		
PHF	.577	.000	.000	.000	.577	.417	.939	.000	.000	.931	.000	.000	.000	.000	.000	.000	.976	.750	.250	.979	.954



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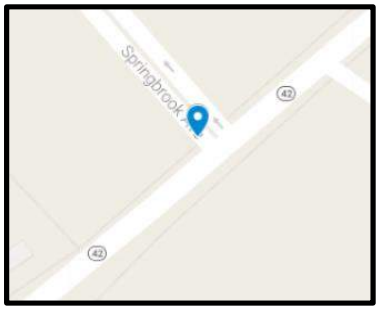
Count Number: 16-10419
County: Johnston
City: Clayton
Division: 4

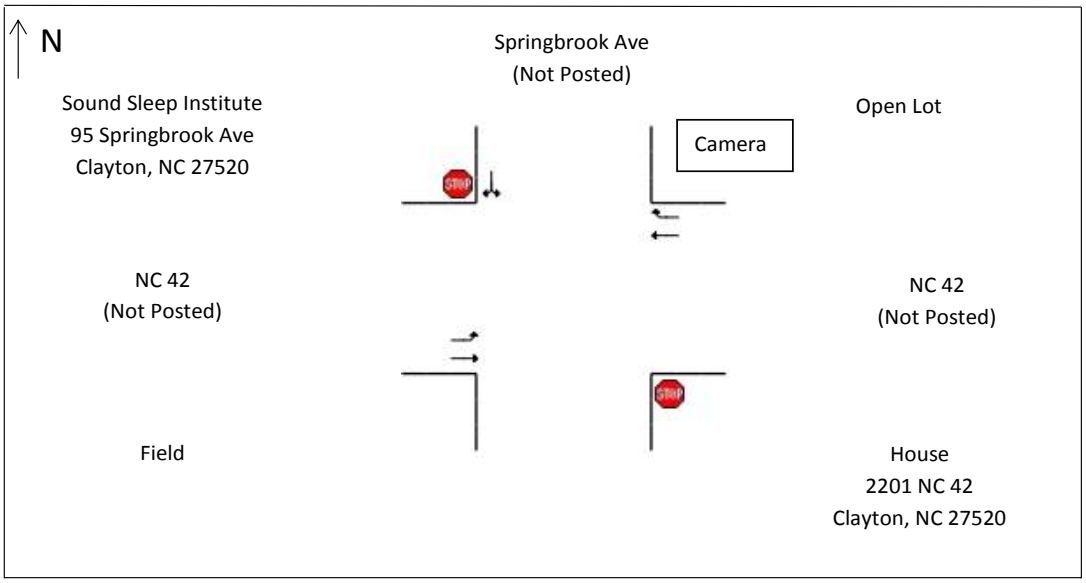
Location: NC 42 & Springbrook Ave
General Location Type: Intersection
Count Type: Turning Movement (classification)
Count Start Date: 09/21/2016
Time: 6:00am – 7:00pm
Volume: 15,011

Maximum Temperature: 75° F
Minimum Temperature: 70° F
Precipitation: 0.49 in
Snowfall: 0.0 in
Average Sky Cover: 1.0
Weather Conditions: Thunderstorm, Rain, Fog

1. **School in Session:** Yes
2. **Pedestrians Counted**: Yes
3. **Disabled Pedestrians Present**: No
   Description and Approaches Used: N/A
4. **Counted By**: Mayrim Lloret, Cyrus Behzadi
5. **Data Processor**: Nick Mathie
6. **Signal Inventory**: N/A
7. **Data Collection Method**: Video/Count Board
8. **Equipment Operating Properly**: Yes
9. **Area Lighting Present**: Yes
10. **Nearest Roadway Stop Sign < 300 ft:** No
    If yes, list approaches: N/A
11. **Nearest Traffic Signal < 300 ft:** No
    If yes, list approaches: N/A
12. **At-Grade Railroad Crossing Present (<200 ft):** No
    If yes, list approaches & distance: N/A
13. **Other:**

↑ North





Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10419
Site Code : 16-10419
Start Date : 9/21/2016
Page No : 1

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

	Springbrook Ave Southbound					NC 42 Westbound					Springbrook Ave Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	2	0	2	1	76	0	0	77	0	0	0	0	0	0	62	2	0	64	143
06:15 AM	0	0	3	0	3	0	95	0	0	95	0	0	0	0	0	0	70	1	0	71	169
06:30 AM	0	0	2	0	2	1	98	0	0	99	0	0	0	0	0	0	97	4	0	101	202
06:45 AM	0	0	1	0	1	5	124	0	0	129	0	0	0	0	0	0	105	7	0	112	242
Total	0	0	8	0	8	7	393	0	0	400	0	0	0	0	0	0	334	14	0	348	756
07:00 AM	2	0	5	0	7	3	111	0	0	114	0	0	0	0	0	0	118	5	0	123	244
07:15 AM	4	0	0	0	4	8	135	0	0	143	0	0	0	0	0	0	120	8	0	128	275
07:30 AM	4	0	3	0	7	4	130	0	0	134	0	0	0	0	0	0	158	14	0	172	313
07:45 AM	0	0	1	0	1	19	114	0	0	133	0	0	0	0	0	0	168	24	0	192	326
Total	10	0	9	0	19	34	490	0	0	524	0	0	0	0	0	0	564	51	0	615	1158
08:00 AM	4	0	1	0	5	11	135	0	0	146	0	0	0	0	0	0	159	14	0	173	324
08:15 AM	7	0	4	0	11	15	134	0	0	149	0	0	0	0	0	0	134	25	0	159	319
08:30 AM	5	0	7	0	12	10	110	0	0	120	0	0	0	0	0	0	139	8	0	147	279
08:45 AM	9	0	5	0	14	7	106	0	0	113	0	0	0	0	0	0	154	12	0	166	293
Total	25	0	17	0	42	43	485	0	0	528	0	0	0	0	0	0	586	59	0	645	1215
09:00 AM	9	0	7	0	16	12	120	0	0	132	0	0	0	0	0	0	103	8	0	111	259
09:15 AM	10	0	8	0	18	7	127	0	0	134	0	0	0	0	0	0	104	12	0	116	268
09:30 AM	12	0	7	0	19	11	110	0	0	121	0	0	0	0	0	0	106	13	1	120	260
09:45 AM	8	0	7	0	15	7	104	0	0	111	0	0	0	0	0	0	116	8	0	124	250
Total	39	0	29	0	68	37	461	0	0	498	0	0	0	0	0	0	429	41	1	471	1037
10:00 AM	10	0	10	0	20	13	111	0	0	124	0	0	0	0	0	0	99	15	0	114	258
10:15 AM	14	0	8	0	22	6	104	0	0	110	0	0	0	0	0	0	106	11	0	117	249
10:30 AM	10	0	9	0	19	12	120	0	0	132	0	0	0	0	0	0	104	9	0	113	264
10:45 AM	10	0	8	0	18	10	112	0	0	122	0	0	0	0	0	0	99	8	0	107	247
Total	44	0	35	0	79	41	447	0	0	488	0	0	0	0	0	0	408	43	0	451	1018
11:00 AM	10	0	5	0	15	6	110	0	0	116	0	0	0	0	0	0	109	6	0	115	246
11:15 AM	16	0	9	0	25	14	120	0	0	134	0	0	0	0	0	0	113	8	0	121	280
11:30 AM	8	0	12	0	20	7	129	0	0	136	0	0	0	0	0	0	118	4	0	122	278
11:45 AM	10	0	11	0	21	7	135	0	0	142	0	0	0	0	0	0	110	8	0	118	281
Total	44	0	37	0	81	34	494	0	0	528	0	0	0	0	0	0	450	26	0	476	1085
12:00 PM	12	0	11	0	23	6	161	0	0	167	0	0	0	0	0	0	115	7	0	122	312
12:15 PM	9	0	7	0	16	8	130	0	0	138	0	0	0	0	0	0	117	8	0	125	279
12:30 PM	11	0	10	0	21	12	109	0	0	121	0	0	0	0	0	0	105	7	0	112	254
12:45 PM	4	0	10	0	14	15	109	0	0	124	0	0	0	0	0	0	127	14	0	141	279
Total	36	0	38	0	74	41	509	0	0	550	0	0	0	0	0	0	464	36	0	500	1124
01:00 PM	4	0	9	0	13	14	127	0	0	141	0	0	0	0	0	0	144	8	0	152	306
01:15 PM	4	0	6	0	10	11	108	0	0	119	0	0	0	0	0	0	110	13	0	123	252
01:30 PM	11	0	8	0	19	11	122	0	0	133	0	0	0	0	0	0	107	7	0	114	266
01:45 PM	6	0	7	0	13	7	124	0	0	131	0	0	0	0	0	0	111	8	0	119	263
Total	25	0	30	0	55	43	481	0	0	524	0	0	0	0	0	0	472	36	0	508	1087
02:00 PM	9	0	11	0	20	7	127	0	0	134	0	0	0	0	0	0	115	8	0	123	277
02:15 PM	6	0	14	0	20	16	105	0	0	121	0	0	0	0	0	0	125	11	0	136	277
02:30 PM	10	0	11	0	21	9	129	0	0	138	0	0	0	0	0	0	139	13	0	152	311
02:45 PM	13	0	10	0	23	7	141	0	0	148	0	0	0	0	0	0	152	8	0	160	331
Total	38	0	46	0	84	39	502	0	0	541	0	0	0	0	0	0	531	40	0	571	1196
03:00 PM	21	0	11	0	32	6	107	0	0	113	0	0	0	0	0	0	144	11	0	155	300
03:15 PM	14	0	11	0	25	6	120	0	0	126	0	0	0	0	0	0	126	4	0	130	281
03:30 PM	19	0	4	0	23	8	138	0	0	146	0	0	0	0	0	0	144	9	1	154	323
03:45 PM	10	0	10	0	20	6	127	0	0	133	0	0	0	0	0	0	144	3	0	147	300
Total	64	0	36	0	100	26	492	0	0	518	0	0	0	0	0	0	558	27	1	586	1204
04:00 PM	16	0	10	0	26	5	152	0	0	157	0	0	0	0	0	0	133	6	0	139	322

Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10419
Site Code : 16-10419
Start Date : 9/21/2016
Page No : 2

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

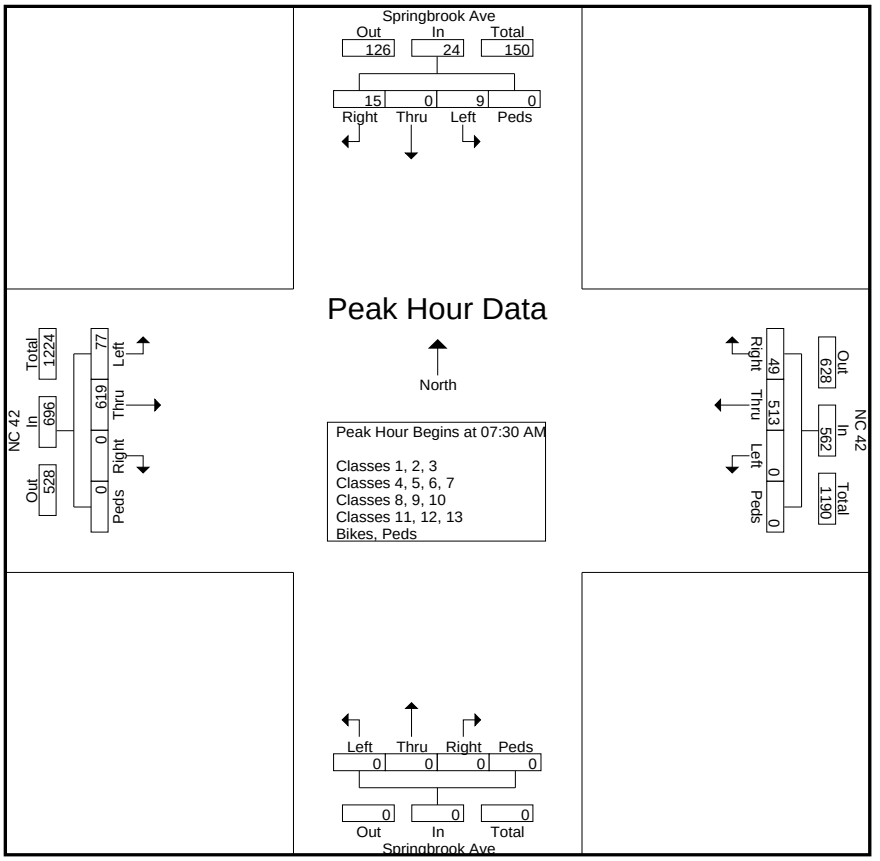
	Springbrook Ave Southbound					NC 42 Westbound					Springbrook Ave Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:15 PM	15	0	10	0	25	6	170	0	0	176	0	0	0	0	0	0	149	4	0	153	354
04:30 PM	25	0	6	0	31	7	144	1	0	152	0	0	0	0	0	0	158	4	0	162	345
04:45 PM	23	0	4	0	27	7	196	0	0	203	0	0	0	0	0	0	143	5	0	148	378
Total	79	0	30	0	109	25	662	1	0	688	0	0	0	0	0	0	583	19	0	602	1399
05:00 PM	15	0	5	1	21	3	200	0	0	203	0	0	0	0	0	0	142	3	0	145	369
05:15 PM	8	0	4	0	12	3	163	0	0	166	0	0	0	0	0	0	137	4	0	141	319
05:30 PM	8	0	9	0	17	4	198	0	0	202	0	0	0	0	0	0	148	4	0	152	371
05:45 PM	8	0	5	0	13	4	193	0	0	197	0	0	0	0	0	0	153	3	0	156	366
Total	39	0	23	1	63	14	754	0	0	768	0	0	0	0	0	0	580	14	0	594	1425
06:00 PM	10	0	1	0	11	1	199	0	0	200	0	0	0	0	0	0	159	2	0	161	372
06:15 PM	2	0	7	0	9	0	181	0	0	181	0	0	0	0	0	0	132	3	0	135	325
06:30 PM	2	0	2	0	4	2	162	0	0	164	0	0	0	0	0	0	148	5	0	153	321
06:45 PM	3	0	2	0	5	2	143	0	0	145	0	0	0	0	0	0	134	5	0	139	289
Total	17	0	12	0	29	5	685	0	0	690	0	0	0	0	0	0	573	15	0	588	1307
Grand Total	460	0	350	1	811	389	6855	1	0	7245	0	0	0	0	0	0	6532	421	2	6955	15011
Apprch %	56.7	0	43.2	0.1		5.4	94.6	0	0		0	0	0	0		0	93.9	6.1	0		
Total %	3.1	0	2.3	0	5.4	2.6	45.7	0	0	48.3	0	0	0	0	0	0	43.5	2.8	0	46.3	
Classes 1, 2, 3	448	0	343	1	792	380	6639	1	0	7020	0	0	0	0	0	0	6301	414	0	6715	14527
% Classes 1, 2, 3	97.4	0	98	100	97.7	97.7	96.8	100	0	96.9	0	0	0	0	0	0	96.5	98.3	0	96.5	96.8
Classes 4, 5, 6, 7	10	0	7	0	17	9	150	0	0	159	0	0	0	0	0	0	170	4	0	174	350
% Classes 4, 5, 6, 7	2.2	0	2	0	2.1	2.3	2.2	0	0	2.2	0	0	0	0	0	0	2.6	1	0	2.5	2.3
Classes 8, 9, 10	2	0	0	0	2	0	65	0	0	65	0	0	0	0	0	0	61	3	0	64	131
% Classes 8, 9, 10	0.4	0	0	0	0.2	0	0.9	0	0	0.9	0	0	0	0	0	0	0.9	0.7	0	0.9	0.9
Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	2	3
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0

Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10419
Site Code : 16-10419
Start Date : 9/21/2016
Page No : 4

	Springbrook Ave Southbound					NC 42 Westbound					Springbrook Ave Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	4	0	3	0	7	4	130	0	0	134	0	0	0	0	0	0	158	14	0	172	313
07:45 AM	0	0	1	0	1	**19**	114	0	0	133	0	0	0	0	0	0	**168**	24	0	**192**	**326**
08:00 AM	4	0	1	0	5	11	**135**	0	0	146	0	0	0	0	0	0	159	14	0	173	324
08:15 AM	**7**	0	**4**	0	**11**	15	134	0	0	**149**	0	0	0	0	0	0	134	**25**	0	159	319
Total Volume	15	0	9	0	24	49	513	0	0	562	0	0	0	0	0	0	619	77	0	696	1282
% App. Total	62.5	0	37.5	0		8.7	91.3	0	0		0	0	0	0		0	88.9	11.1	0		
PHF	.536	.000	.563	.000	.545	.645	.950	.000	.000	.943	.000	.000	.000	.000	.000	.000	.921	.770	.000	.906	.983

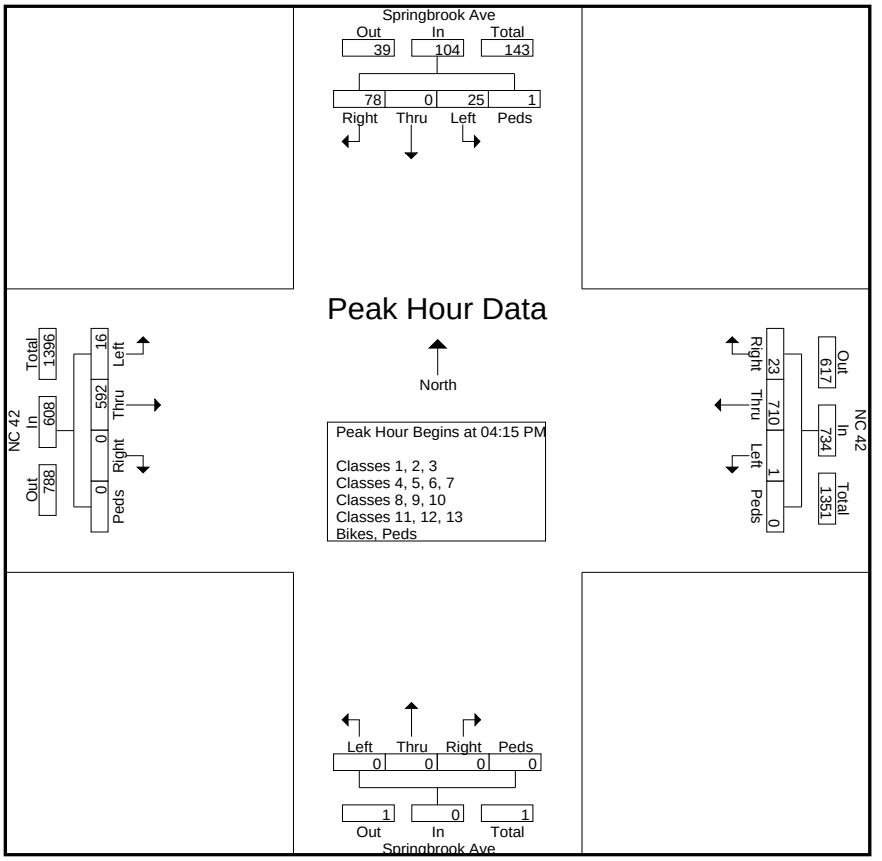


Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10419
Site Code : 16-10419
Start Date : 9/21/2016
Page No : 8

	Springbrook Ave Southbound					NC 42 Westbound					Springbrook Ave Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	15	0	**10**	0	25	6	170	0	0	176	0	0	0	0	0	0	149	4	0	153	354
04:30 PM	**25**	0	6	0	**31**	**7**	144	**1**	0	152	0	0	0	0	0	0	**158**	4	0	**162**	345
04:45 PM	23	0	4	0	27	7	196	0	0	**203**	0	0	0	0	0	0	143	**5**	0	148	**378**
05:00 PM	15	0	5	**1**	21	3	**200**	0	0	203	0	0	0	0	0	0	142	3	0	145	369
Total Volume	78	0	25	1	104	23	710	1	0	734	0	0	0	0	0	0	592	16	0	608	1446
% App. Total	75	0	24	1		3.1	96.7	0.1	0		0	0	0	0		0	97.4	2.6	0		
PHF	.780	.000	.625	.250	.839	.821	.888	.250	.000	.904	.000	.000	.000	.000	.000	.000	.937	.800	.000	.938	.956



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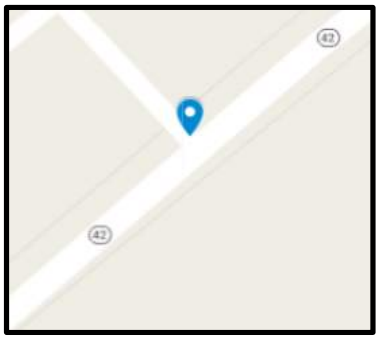
Count Number: 16-10420
County: Johnston
City: Clayton
Division: 4

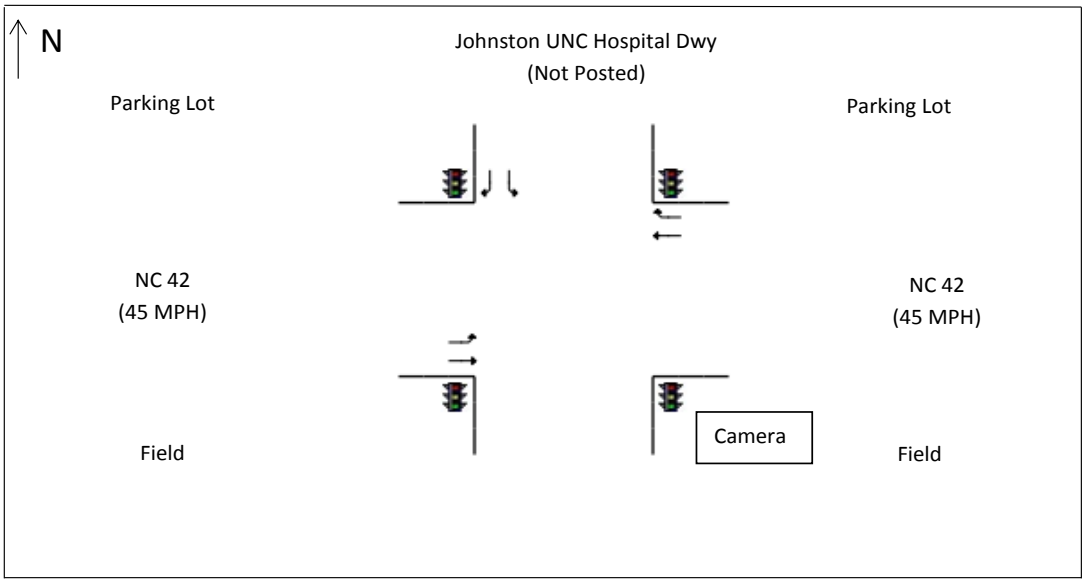
Location: NC 42 & Johnston UNC Hospital Main Entrance
General Location Type: Intersection
Count Type: Turning Movement (classification)
Count Start Date: 09/21/2016
Time: 6:00am – 7:00pm
Volume: 15,153

Maximum Temperature: 75° F
Minimum Temperature: 70° F
Precipitation: 0.49 in
Snowfall: 0.0 in
Average Sky Cover: 1.0
Weather Conditions: Thunderstorm, Rain, Fog

1. **School in Session:** Yes
2. **Pedestrians Counted**: Yes
3. **Disabled Pedestrians Present**: No
   Description and Approaches Used: N/A
4. **Counted By**: Terrance Jefferson, Tommy Jones
5. **Data Processor**: Nick Mathie
6. **Signal Inventory**: N/A
7. **Data Collection Method**: Video/Count Board
8. **Equipment Operating Properly**: Yes
9. **Area Lighting Present**: Yes
10. **Nearest Roadway Stop Sign < 300 ft:** No
    If yes, list approaches: N/A
11. **Nearest Traffic Signal < 300 ft:** No
    If yes, list approaches: N/A
12. **At-Grade Railroad Crossing Present (<200 ft):** No
    If yes, list approaches & distance: N/A
13. **Other:**

↑ North





Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10420
Site Code : 16-10420
Start Date : 9/21/2016
Page No : 1

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

	Johnston UNC Hospital Dwy Southbound					NC 42 Westbound					Johnston UNC Hospital Dwy Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	5	0	5	4	78	0	0	82	0	0	0	0	0	0	54	6	0	60	147
06:15 AM	3	0	1	0	4	2	89	0	0	91	0	0	0	0	0	0	67	4	0	71	166
06:30 AM	5	0	5	0	10	17	94	0	0	111	0	0	0	0	0	0	77	12	0	89	210
06:45 AM	3	0	1	0	4	14	126	0	0	140	0	0	0	0	0	0	98	4	0	102	246
Total	11	0	12	0	23	37	387	0	0	424	0	0	0	0	0	0	296	26	0	322	769
07:00 AM	7	0	6	0	13	8	108	0	0	116	0	0	0	0	0	0	111	6	0	117	246
07:15 AM	9	0	3	0	12	10	133	0	0	143	0	0	0	0	0	0	102	14	0	116	271
07:30 AM	6	0	5	0	11	14	127	0	0	141	0	0	0	0	0	0	136	19	0	155	307
07:45 AM	3	0	4	0	7	22	129	0	0	151	0	0	0	0	0	0	140	26	0	166	324
Total	25	0	18	0	43	54	497	0	0	551	0	0	0	0	0	0	489	65	0	554	1148
08:00 AM	6	0	1	0	7	14	142	0	0	156	0	0	0	0	0	0	128	21	0	149	312
08:15 AM	4	0	6	0	10	19	140	0	0	159	0	0	0	0	0	0	112	19	0	131	300
08:30 AM	5	0	8	0	13	21	112	0	0	133	0	0	0	0	0	0	121	21	0	142	288
08:45 AM	5	0	6	0	11	14	108	0	0	122	0	0	0	0	0	0	149	10	0	159	292
Total	20	0	21	0	41	68	502	0	0	570	0	0	0	0	0	0	510	71	0	581	1192
09:00 AM	9	0	8	0	17	12	122	0	0	134	0	0	0	0	0	0	98	15	0	113	264
09:15 AM	15	0	10	0	25	18	117	0	0	135	0	0	0	0	0	0	101	13	0	114	274
09:30 AM	8	0	8	0	16	18	113	0	0	131	0	0	0	0	0	0	93	20	1	114	261
09:45 AM	9	0	12	0	21	16	97	0	0	113	0	0	0	0	0	0	96	18	0	114	248
Total	41	0	38	0	79	64	449	0	0	513	0	0	0	0	0	0	388	66	1	455	1047
10:00 AM	11	0	17	0	28	15	107	0	0	122	0	0	0	0	0	0	99	13	0	112	262
10:15 AM	21	0	8	0	29	13	93	0	0	106	0	0	0	0	0	0	93	17	0	110	245
10:30 AM	21	0	15	0	36	13	117	0	0	130	0	0	0	0	0	0	92	24	0	116	282
10:45 AM	19	0	16	0	35	13	100	0	0	113	0	0	0	0	0	0	85	18	0	103	251
Total	72	0	56	0	128	54	417	0	0	471	0	0	0	0	0	0	369	72	0	441	1040
11:00 AM	6	0	23	0	29	8	102	0	0	110	0	0	0	0	0	0	102	11	0	113	252
11:15 AM	15	0	9	0	24	11	112	0	0	123	0	0	0	0	0	0	108	10	0	118	265
11:30 AM	17	0	19	0	36	11	113	0	0	124	0	0	0	0	0	0	102	11	0	113	273
11:45 AM	18	0	21	0	39	9	120	0	0	129	0	0	0	0	0	0	118	13	0	131	299
Total	56	0	72	0	128	39	447	0	0	486	0	0	0	0	0	0	430	45	0	475	1089
12:00 PM	23	0	16	0	39	12	135	0	0	147	0	0	0	0	0	0	117	8	0	125	311
12:15 PM	20	0	18	0	38	10	118	0	0	128	0	0	0	0	0	0	111	15	0	126	292
12:30 PM	17	0	13	0	30	13	126	0	0	139	0	0	0	0	0	0	97	11	0	108	277
12:45 PM	13	0	8	0	21	18	108	0	0	126	0	0	0	0	0	0	120	21	0	141	288
Total	73	0	55	0	128	53	487	0	0	540	0	0	0	0	0	0	445	55	0	500	1168
01:00 PM	15	0	15	0	30	12	127	0	0	139	0	0	0	0	0	0	126	20	0	146	315
01:15 PM	10	0	11	0	21	17	107	0	0	124	0	0	0	0	0	0	100	27	0	127	272
01:30 PM	18	0	9	0	27	8	116	0	0	124	0	0	0	0	0	0	104	15	0	119	270
01:45 PM	15	0	14	0	29	14	104	0	0	118	0	0	0	0	0	0	86	20	0	106	253
Total	58	0	49	0	107	51	454	0	0	505	0	0	0	0	0	0	416	82	0	498	1110
02:00 PM	17	0	18	0	35	13	118	0	0	131	0	0	0	0	0	0	105	10	0	115	281
02:15 PM	10	0	14	0	24	14	109	0	0	123	0	0	0	0	0	0	130	17	0	147	294
02:30 PM	25	0	22	0	47	11	115	0	0	126	0	0	0	0	0	0	124	17	0	141	314
02:45 PM	29	0	18	0	47	7	120	0	0	127	0	0	0	0	0	0	133	21	0	154	328
Total	81	0	72	0	153	45	462	0	0	507	0	0	0	0	0	0	492	65	0	557	1217
03:00 PM	20	0	18	0	38	19	93	0	0	112	0	0	0	0	0	0	130	30	0	160	310
03:15 PM	17	0	15	0	32	9	110	0	0	119	0	0	0	0	0	0	122	14	0	136	287
03:30 PM	22	0	22	0	44	13	123	0	0	136	0	0	0	0	0	0	129	17	0	146	326
03:45 PM	12	0	17	0	29	11	120	0	0	131	0	0	0	0	0	0	143	9	0	152	312
Total	71	0	72	0	143	52	446	0	0	498	0	0	0	0	0	0	524	70	0	594	1235
04:00 PM	26	0	21	0	47	4	132	0	0	136	0	0	0	0	0	0	133	8	0	141	324

Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10420
Site Code : 16-10420
Start Date : 9/21/2016
Page No : 2

Groups Printed- Classes 1, 2, 3 - Classes 4, 5, 6, 7 - Classes 8, 9, 10 - Classes 11, 12, 13 - Bikes, Peds

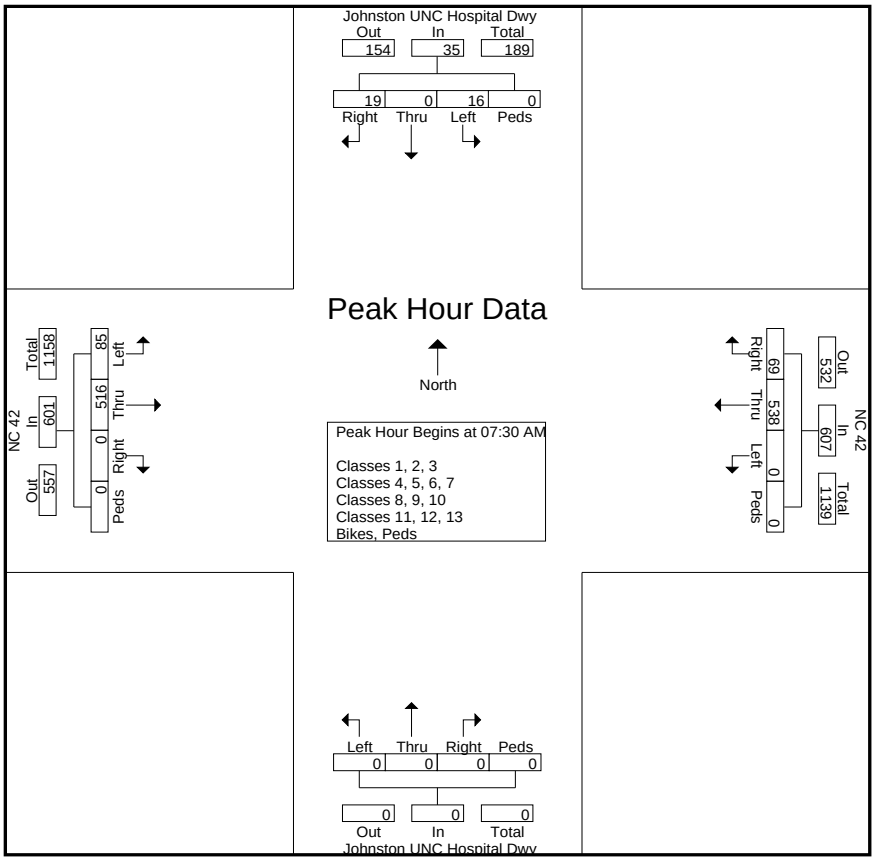
	Johnston UNC Hospital Dwy Southbound					NC 42 Westbound					Johnston UNC Hospital Dwy Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:15 PM	20	0	16	0	36	4	150	0	0	154	0	0	0	0	0	0	140	16	0	156	346
04:30 PM	17	0	18	0	35	6	139	0	0	145	0	0	0	0	0	0	157	7	0	164	344
04:45 PM	29	0	27	0	56	11	173	0	0	184	0	0	0	0	0	0	146	8	0	154	394
Total	92	0	82	0	174	25	594	0	0	619	0	0	0	0	0	0	576	39	0	615	1408
05:00 PM	28	0	26	0	54	5	167	0	0	172	0	0	0	0	0	0	137	8	0	145	371
05:15 PM	15	0	19	0	34	7	151	0	0	158	0	0	0	0	0	0	143	3	0	146	338
05:30 PM	22	0	12	0	34	7	178	0	0	185	0	0	0	0	0	0	141	6	0	147	366
05:45 PM	18	0	14	0	32	4	171	0	0	175	0	0	0	0	0	0	158	9	0	167	374
Total	83	0	71	0	154	23	667	0	0	690	0	0	0	0	0	0	579	26	0	605	1449
06:00 PM	13	0	6	0	19	5	183	0	0	188	0	0	0	0	0	0	148	6	0	154	361
06:15 PM	11	0	3	0	14	4	165	0	0	169	0	0	0	0	0	0	134	7	0	141	324
06:30 PM	8	0	2	0	10	12	154	0	0	166	0	0	0	0	0	0	133	12	0	145	321
06:45 PM	15	0	5	0	20	3	122	0	0	125	0	0	0	0	0	0	119	11	0	130	275
Total	47	0	16	0	63	24	624	0	0	648	0	0	0	0	0	0	534	36	0	570	1281
Grand Total	730	0	634	0	1364	589	6433	0	0	7022	0	0	0	0	0	0	6048	718	1	6767	15153
Apprch %	53.5	0	46.5	0		8.4	91.6	0	0		0	0	0	0		0	89.4	10.6	0		
Total %	4.8	0	4.2	0	9	3.9	42.5	0	0	46.3	0	0	0	0	0	0	39.9	4.7	0	44.7	
Classes 1, 2, 3	718	0	619	0	1337	580	6186	0	0	6766	0	0	0	0	0	0	5793	711	1	6505	14608
% Classes 1, 2, 3	98.4	0	97.6	0	98	98.5	96.2	0	0	96.4	0	0	0	0	0	0	95.8	99	100	96.1	96.4
Classes 4, 5, 6, 7	12	0	14	0	26	9	178	0	0	187	0	0	0	0	0	0	193	7	0	200	413
% Classes 4, 5, 6, 7	1.6	0	2.2	0	1.9	1.5	2.8	0	0	2.7	0	0	0	0	0	0	3.2	1	0	3	2.7
Classes 8, 9, 10	0	0	1	0	1	0	69	0	0	69	0	0	0	0	0	0	62	0	0	62	132
% Classes 8, 9, 10	0	0	0.2	0	0.1	0	1.1	0	0	1	0	0	0	0	0	0	1	0	0	0.9	0.9
Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Classes 11, 12, 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes, Peds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10420
Site Code : 16-10420
Start Date : 9/21/2016
Page No : 4

	Johnston UNC Hospital Dwy Southbound					NC 42 Westbound					Johnston UNC Hospital Dwy Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**6**	0	5	0	**11**	14	127	0	0	141	0	0	0	0	0	0	136	19	0	155	307
07:45 AM	3	0	4	0	7	**22**	129	0	0	151	0	0	0	0	0	0	**140**	**26**	0	**166**	**324**
08:00 AM	6	0	1	0	7	14	**142**	0	0	156	0	0	0	0	0	0	128	21	0	149	312
08:15 AM	4	0	**6**	0	10	19	140	0	0	**159**	0	0	0	0	0	0	112	19	0	131	300
Total Volume	19	0	16	0	35	69	538	0	0	607	0	0	0	0	0	0	516	85	0	601	1243
% App. Total	54.3	0	45.7	0		11.4	88.6	0	0		0	0	0	0		0	85.9	14.1	0		
PHF	.792	.000	.667	.000	.795	.784	.947	.000	.000	.954	.000	.000	.000	.000	.000	.000	.921	.817	.000	.905	.959

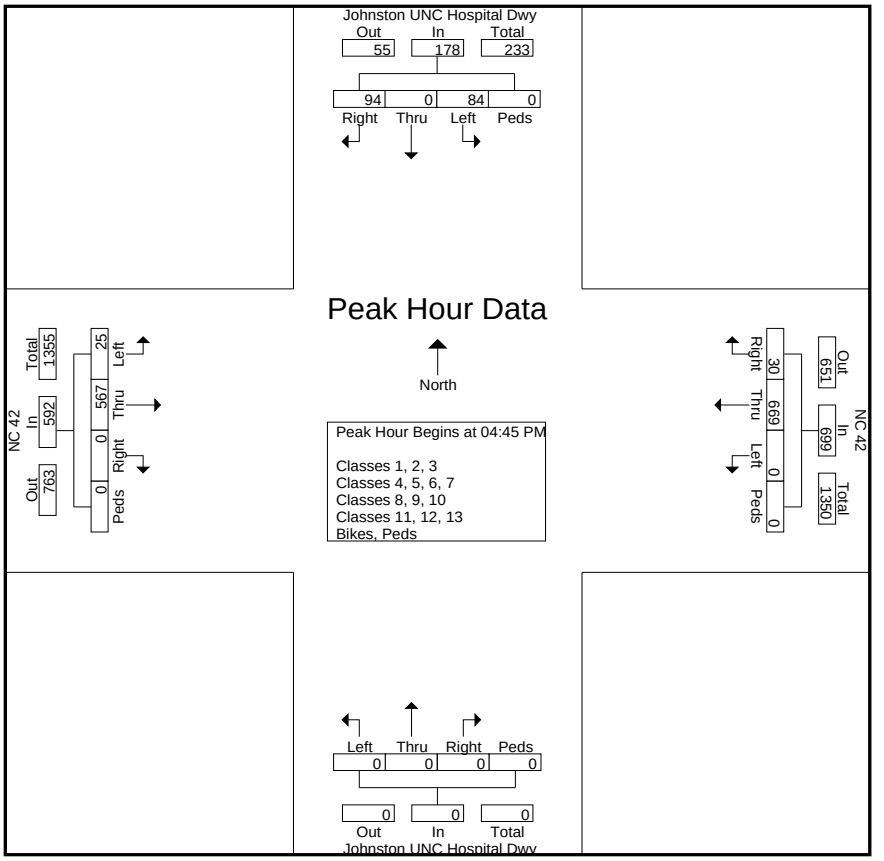


Quality Counts

920 Blairhill Rd, STE 106
Charlotte, NC 28217

File Name : 16-10420
Site Code : 16-10420
Start Date : 9/21/2016
Page No : 8

	Johnston UNC Hospital Dwy Southbound					NC 42 Westbound					Johnston UNC Hospital Dwy Northbound					NC 42 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**29**	0	**27**	0	**56**	**11**	173	0	0	184	0	0	0	0	0	0	**146**	**8**	0	**154**	**394**
05:00 PM	28	0	26	0	54	5	167	0	0	172	0	0	0	0	0	0	137	8	0	145	371
05:15 PM	15	0	19	0	34	7	151	0	0	158	0	0	0	0	0	0	143	3	0	146	338
05:30 PM	22	0	12	0	34	7	**178**	0	0	**185**	0	0	0	0	0	0	141	6	0	147	366
Total Volume	94	0	84	0	178	30	669	0	0	699	0	0	0	0	0	0	567	25	0	592	1469
% App. Total	52.8	0	47.2	0		4.3	95.7	0	0		0	0	0	0		0	95.8	4.2	0		
PHF	.810	.000	.778	.000	.795	.682	.940	.000	.000	.945	.000	.000	.000	.000	.000	.000	.971	.781	.000	.961	.932



DAVENPORT

Home Office:
305 West Fourth Street, Suite 2A
Winston-Salem, NC 27101
Main: 336.744.1636 Fax: 336.458.9377

Project Number: 16-02306
Division: 4
County: Johnston
City: Clayton

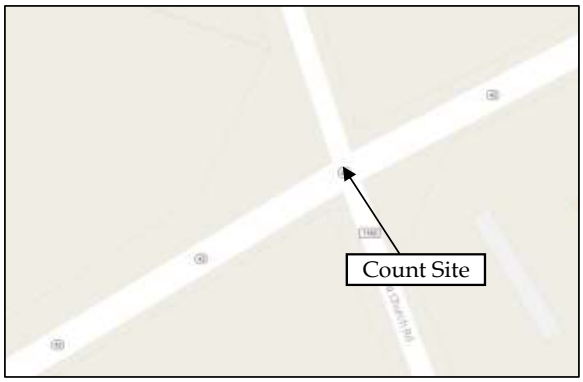
Intersection: NC 42 and SR 1552 (Amelia Church Road)
13-Hour Traffic Volume: 17,792 Vehicles

	Day 1
Count Date:	09/20/2016
Count Time:	6:00am-7:00pm
Weather Conditions:	75-Hi/71-Lo/Prec: 0.00"
Average Sky Cover	0.94
Milepost:	N/A

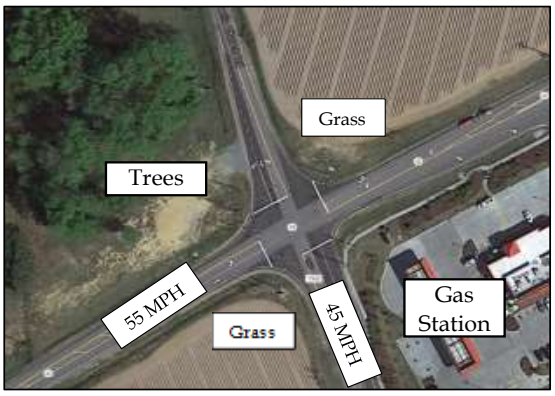
Comments:

1. Counted By: M.Davenport
2. Data Processor: Swapneel Kodupuganti
3. Method Used: Jamar Traffic Data Collector with video.
4. Equipment Operating as Specified by the Manufacturer: Yes
5. School in Session: Yes
6. Break Times: None
7. Area Lighting Present: None
8. Traffic Control: Signal Controlled
9. Signal Cabinet Number: 04-0904
10. Disabled Pedestrians: None observed
11. Construction Present: Road work was Observed far ahead on the North leg of the count location which should not impact any traffic on the road because no detours were observed
12. Traffic Flow Disruption: None observed
13. Railroad Crossings: None within 200 ft of each leg
14. Other Signal or Stop Controlled Intersections: None within 300 ft of each leg

Vicinity Map



Intersection Sketch



DAVENPORT

305 West 4th Street, Winston Salem NC, 27101
Ph:(336)744-1636

Counted by:M.Davenport

Weather:Cloudy

File Name : 1602306
Site Code : 01602306
Start Date : 9/20/2016
Page No : 1

Groups Printed- Classes 1 thru 3 - Classes 4 thru 7 - Classes 8 thru 10 - Classes 11 thru 13

	SR 1552 (Amelia Church Road) Southbound					NC 42 Westbound					SR 1552 (Amelia Church Road) Northbound					NC 42 Eastbound							
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
06:00 AM	26	9	1	0	36	0	25	1	0	26	0	37	25	0	62	2	30	31	0	63	0	187	187
06:15 AM	33	9	0	0	42	1	45	0	0	46	2	65	30	0	97	10	36	30	0	76	0	261	261
06:30 AM	37	10	2	0	49	3	53	1	0	57	4	82	33	0	119	9	50	44	0	103	0	328	328
06:45 AM	28	14	2	0	44	7	65	7	0	79	6	85	36	0	127	9	58	47	0	114	0	364	364
Total	124	42	5	0	171	11	188	9	0	208	12	269	124	0	405	30	174	152	0	356	0	1140	1140
07:00 AM	45	13	1	0	59	2	49	3	0	54	6	121	33	0	160	8	61	54	0	123	0	396	396
07:15 AM	52	31	1	0	84	4	76	2	0	82	12	103	45	0	160	6	57	66	0	129	0	455	455
07:30 AM	35	33	2	0	70	2	55	1	0	58	11	66	27	0	104	4	61	45	0	110	0	342	342
07:45 AM	43	30	3	0	76	2	79	0	0	81	10	47	39	0	96	7	72	48	0	127	0	380	380
Total	175	107	7	0	289	10	259	6	0	275	39	337	144	0	520	25	251	213	0	489	0	1573	1573
08:00 AM	52	21	11	0	84	1	76	2	0	79	15	61	33	0	109	10	82	45	0	137	0	409	409
08:15 AM	54	19	12	0	85	7	62	5	0	74	7	54	32	0	93	12	66	45	0	123	0	375	375
08:30 AM	38	12	2	0	52	7	66	4	0	77	5	56	26	0	87	6	77	40	0	123	0	339	339
08:45 AM	41	16	4	0	61	3	92	5	0	100	7	45	20	0	72	8	89	47	0	144	0	377	377
Total	185	68	29	0	282	18	296	16	0	330	34	216	111	0	361	36	314	177	0	527	0	1500	1500
09:00 AM	43	22	1	0	66	3	84	6	0	93	4	31	18	0	53	11	96	44	0	151	0	363	363
09:15 AM	38	23	0	0	61	1	63	7	0	71	2	33	19	0	54	5	66	36	0	107	0	293	293
09:30 AM	38	19	5	0	62	3	58	2	0	63	4	27	31	0	62	12	65	37	0	114	0	301	301
09:45 AM	49	21	2	0	72	4	66	1	0	71	5	25	16	0	46	9	65	31	0	105	0	294	294
Total	168	85	8	0	261	11	271	16	0	298	15	116	84	0	215	37	292	148	0	477	0	1251	1251
10:00 AM	29	22	4	0	55	5	69	3	0	77	6	21	17	0	44	13	52	31	0	96	0	272	272
10:15 AM	20	15	4	0	39	2	70	7	0	79	6	29	6	0	41	19	55	35	0	109	0	268	268
10:30 AM	31	20	1	0	52	2	58	3	0	63	6	34	15	0	55	13	46	37	0	96	0	266	266
10:45 AM	32	24	2	0	58	3	58	2	0	63	6	19	21	0	46	14	70	32	0	116	0	283	283
Total	112	81	11	0	204	12	255	15	0	282	24	103	59	0	186	59	223	135	0	417	0	1089	1089
11:00 AM	34	21	0	0	55	1	64	6	0	71	6	25	10	0	41	12	85	30	0	127	0	294	294
11:15 AM	21	19	2	0	42	4	65	5	0	74	1	24	16	0	41	8	70	32	0	110	0	267	267
11:30 AM	45	34	3	0	82	6	67	4	0	77	3	18	18	0	39	4	75	31	0	110	0	308	308
11:45 AM	38	18	5	0	61	3	67	6	0	76	7	17	11	0	35	11	77	41	0	129	0	301	301
Total	138	92	10	0	240	14	263	21	0	298	17	84	55	0	156	35	307	134	0	476	0	1170	1170
12:00 PM	37	25	4	0	66	2	69	5	0	76	0	25	20	0	45	10	71	32	0	113	0	300	300
12:15 PM	28	30	2	0	60	2	81	9	0	92	5	20	14	0	39	13	63	39	0	115	0	306	306
12:30 PM	48	24	3	0	75	3	52	5	0	60	6	22	13	0	41	21	75	44	0	140	0	316	316
12:45 PM	45	29	3	0	77	2	70	0	0	72	5	21	11	0	37	13	65	36	0	114	0	300	300
Total	158	108	12	0	278	9	272	19	0	300	16	88	58	0	162	57	274	151	0	482	0	1222	1222
01:00 PM	47	25	2	0	74	2	73	4	0	79	2	23	14	0	39	8	61	41	0	110	0	302	302
01:15 PM	33	25	2	0	60	1	59	2	0	62	7	29	16	0	52	16	93	36	0	145	0	319	319
01:30 PM	43	18	3	0	64	5	62	4	0	71	4	28	10	0	42	16	66	32	0	114	0	291	291
01:45 PM	47	15	1	0	63	2	46	4	0	52	5	20	11	0	36	8	72	35	1	115	1	266	267
Total	170	83	8	0	261	10	240	14	0	264	18	100	51	0	169	48	292	144	1	484	1	1178	1179
02:00 PM	33	31	5	0	69	2	62	5	0	69	6	21	19	0	46	16	79	28	0	123	0	307	307
02:15 PM	40	34	0	0	74	2	53	8	0	63	7	22	25	0	54	18	75	41	0	134	0	325	325
02:30 PM	37	29	1	0	67	4	65	6	0	75	3	22	12	0	37	12	67	35	0	114	0	293	293
02:45 PM	40	36	1	0	77	3	56	3	0	62	7	28	13	0	48	9	85	49	0	143	0	330	330
Total	150	130	7	0	287	11	236	22	0	269	23	93	69	0	185	55	306	153	0	514	0	1255	1255

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Groups Printed- Classes 1 thru 3 - Classes 4 thru 7 - Classes 8 thru 10 - Classes 11 thru 13

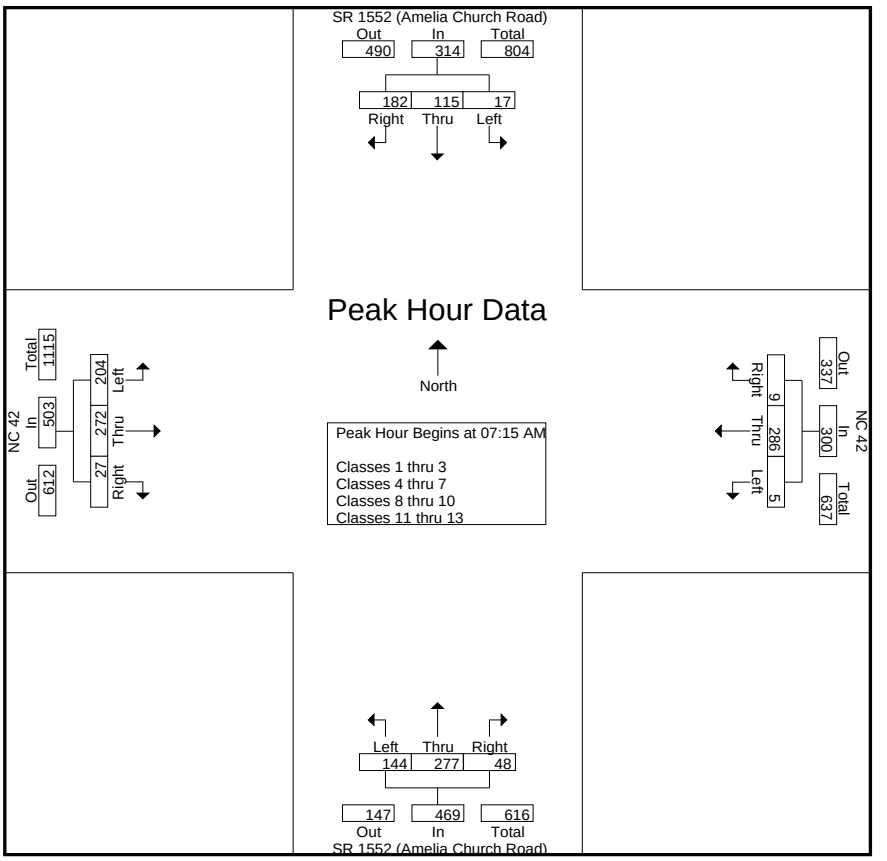
	SR 1552 (Amelia Church Road) Southbound					NC 42 Westbound					SR 1552 (Amelia Church Road) Northbound					NC 42 Eastbound							
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	51	31	8	0	90	1	77	7	0	85	7	17	19	0	43	17	78	43	0	138	0	356	356
03:15 PM	58	71	8	0	137	5	81	3	0	89	5	25	19	0	49	12	76	35	1	123	1	398	399
03:30 PM	35	37	3	0	75	6	74	3	0	83	2	29	19	0	50	24	73	43	0	140	0	348	348
03:45 PM	46	57	7	0	110	1	63	4	0	68	3	16	16	0	35	23	89	53	0	165	0	378	378
Total	190	196	26	0	412	13	295	17	0	325	17	87	73	0	177	76	316	174	1	566	1	1480	1481
04:00 PM	43	57	8	0	108	2	86	11	0	99	6	26	9	0	41	20	92	42	0	154	0	402	402
04:15 PM	35	57	7	0	99	2	57	3	0	62	4	31	19	0	54	17	83	54	0	154	0	369	369
04:30 PM	55	76	3	0	134	0	100	13	0	113	4	30	24	0	58	25	87	43	0	155	0	460	460
04:45 PM	50	90	2	0	142	3	80	7	0	90	9	43	13	0	65	16	88	43	0	147	0	444	444
Total	183	280	20	0	483	7	323	34	0	364	23	130	65	0	218	78	350	182	0	610	0	1675	1675
05:00 PM	51	71	5	0	127	4	93	8	0	105	9	27	15	0	51	22	97	45	0	164	0	447	447
05:15 PM	67	71	5	0	143	5	90	12	0	107	8	35	14	0	57	25	92	42	0	159	0	466	466
05:30 PM	67	88	5	0	160	3	75	4	0	82	3	31	17	0	51	23	98	42	0	163	0	456	456
05:45 PM	69	68	10	0	147	1	78	11	0	90	7	26	15	0	48	23	78	32	0	133	0	418	418
Total	254	298	25	0	577	13	336	35	0	384	27	119	61	0	207	93	365	161	0	619	0	1787	1787
06:00 PM	51	88	3	0	142	2	77	13	0	92	5	37	20	0	62	20	74	54	0	148	0	444	444
06:15 PM	39	53	3	0	95	4	63	4	0	71	10	34	11	0	55	24	84	54	0	162	0	383	383
06:30 PM	43	55	4	0	102	1	50	10	0	61	4	23	10	0	37	17	82	31	0	130	0	330	330
06:45 PM	36	47	0	0	83	4	52	6	0	62	3	24	10	0	37	19	71	43	0	133	0	315	315
Total	169	243	10	0	422	11	242	33	0	286	22	118	51	0	191	80	311	182	0	573	0	1472	1472
Grand Total	2176	1813	178	0	4167	150	3476	257	0	3883	287	1860	1005	0	3152	709	3775	2106	2	6590	2	17792	17794
Apprch %	52.2	43.5	4.3			3.9	89.5	6.6			9.1	59	31.9			10.8	57.3	32					
Total %	12.2	10.2	1		23.4	0.8	19.5	1.4		21.8	1.6	10.5	5.6		17.7	4	21.2	11.8		37	0	100	
Classes 1 thru 3	2119	1796	174		4089	150	3414	252		3816	282	1843	998		3123	704	3696	2058		6460	0	0	17488
% Classes 1 thru 3	97.4	99.1	97.8	0	98.1	100	98.2	98.1	0	98.3	98.3	99.1	99.3	0	99.1	99.3	97.9	97.7	100	98	0	0	98.3
Classes 4 thru 7	43	15	4		62	0	59	5		64	5	15	7		27	4	60	43		107	0	0	260
% Classes 4 thru 7	2	0.8	2.2	0	1.5	0	1.7	1.9	0	1.6	1.7	0.8	0.7	0	0.9	0.6	1.6	2	0	1.6	0	0	1.5
Classes 8 thru 10	14	2	0		16	0	3	0		3	0	2	0		2	1	19	5		25	0	0	46
% Classes 8 thru 10	0.6	0.1	0	0	0.4	0	0.1	0	0	0.1	0	0.1	0	0	0.1	0.1	0.5	0.2	0	0.4	0	0	0.3
Classes 11 thru 13	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
% Classes 11 thru 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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	SR 1552 (Amelia Church Road) Southbound				NC 42 Westbound				SR 1552 (Amelia Church Road) Northbound				NC 42 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**52**	31	1	**84**	**4**	76	**2**	**82**	12	**103**	**45**	**160**	6	57	**66**	129	**455**
07:30 AM	35	**33**	2	70	2	55	1	58	11	66	27	104	4	61	45	110	342
07:45 AM	43	30	3	76	2	**79**	0	81	10	47	39	96	7	72	48	127	380
08:00 AM	52	21	**11**	84	1	76	2	79	**15**	61	33	109	**10**	**82**	45	**137**	409
Total Volume	182	115	17	314	9	286	5	300	48	277	144	469	27	272	204	503	1586
% App. Total	58	36.6	5.4		3	95.3	1.7		10.2	59.1	30.7		5.4	54.1	40.6		
PHF	.875	.871	.386	.935	.563	.905	.625	.915	.800	.672	.800	.733	.675	.829	.773	.918	.871

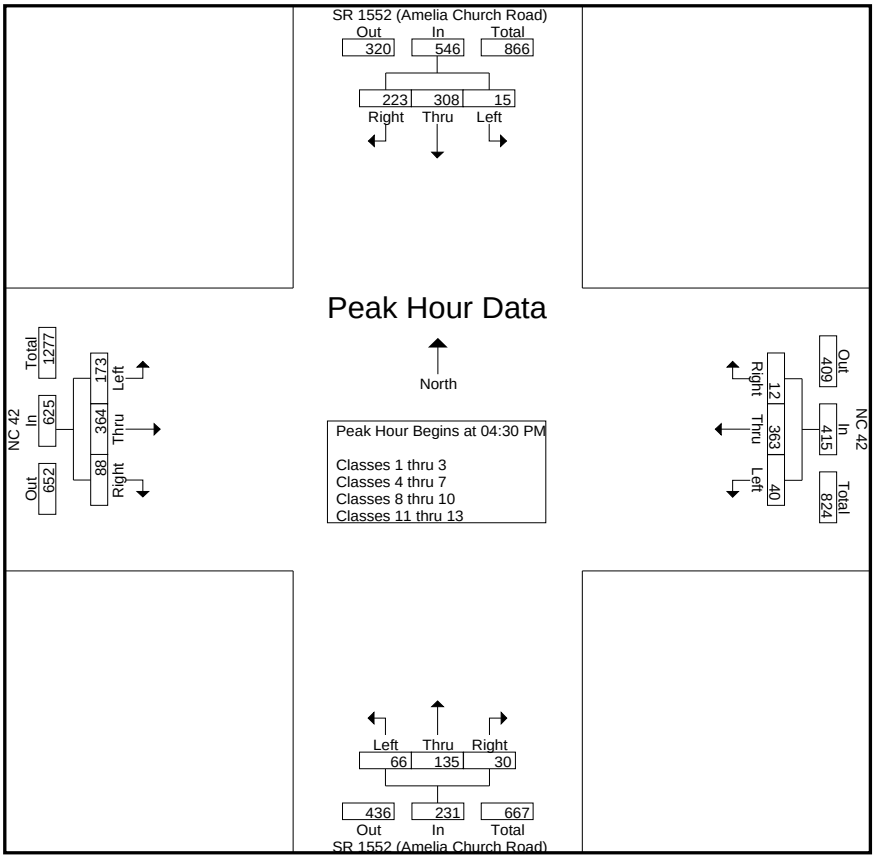


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	SR 1552 (Amelia Church Road) Southbound				NC 42 Westbound				SR 1552 (Amelia Church Road) Northbound				NC 42 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	55	76	3	134	0	**100**	**13**	**113**	4	30	**24**	58	**25**	87	43	155	460
04:45 PM	50	**90**	2	142	3	80	7	90	**9**	**43**	13	**65**	16	88	43	147	444
05:00 PM	51	71	**5**	127	4	93	8	105	9	27	15	51	22	**97**	**45**	**164**	447
05:15 PM	**67**	71	5	**143**	**5**	90	12	107	8	35	14	57	25	92	42	159	**466**
Total Volume	223	308	15	546	12	363	40	415	30	135	66	231	88	364	173	625	1817
% App. Total	40.8	56.4	2.7		2.9	87.5	9.6		13	58.4	28.6		14.1	58.2	27.7		
PHF	.832	.856	.750	.955	.600	.908	.769	.918	.833	.785	.688	.888	.880	.938	.961	.953	.975



Appendix C:

HealthPark Way

MOB Trip Generation

Lumen Property

Table A - HealthPark Way Trip Generation (Southeast of NC 42)

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out
720 Medical Office Building	20,724 s.f.	710	355	355	55	43	12	72	20	52
Total Net New External Trips		**710**	**355**	**355**	**55**	**43**	**12**	**72**	**20**	**52**

K:\RAL_TPTO_Traffic\011174036 Lumen\T4 - Analysis\[LumenProperty-TIAData.xls]Trip Gen-HealthParkMOB 6/30/20

Appendix D:
NCDOT TIP Project R-3410
Traffic Memo Excerpts and
Public Hearing Maps

Traffic Technical Memo

for

NC 42 Widening from NC 50 to US 70 Business

STIP Project No. R-3410, Johnston County

WBS No. 38857.1.R1.2

Developed For:

North Carolina Department of Transportation
Highway Division 4

By:

MOTT MACDONALD

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Project No. 388988AA

September 2018

NORTH CAROLINA PROFESSIONAL SEAL 034993 ENGINEER R. TRAVIS BRASWELL

9/28/18

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1.0 INTRODUCTION

As part of State Transportation Improvement Program (STIP) R-3410, the North Carolina Department of Transportation (NCDOT) proposes to improve NC 42 in Johnston County from NC 50 in Garner to US 70 Business in Clayton by widening it to a four-lane, median-divided facility. In order to assist in the evaluation of the proposed widening, traffic operations at the following locations were evaluated for the base year (2016) and design year (2040):

1. NC 42 and NC 50
2. NC 42 and SR 1603 (Nicklaus Drive)
3. NC 42 and SR 3131 (Wood Haven Lane)
4. NC 42 and SR 1524 (Old Drug Store Road) – western intersection
5. NC 42 and SR 1524 (Old Drug Store Road) – eastern intersection
6. NC 42 and Son-Lan Parkway/SR 1628 (Cleveland Crossing Drive)
7. NC 42 and Bratton Drive
8. NC 42 and Walmart Driveway/Son-Lan Parkway
9. NC 42 and SR 1525 (Cornwallis Road)
10. NC 42 and SR 1549 (Austin Pond Road)
11. NC 42 and Anna Drive
12. NC 42 and SR 1664 (Spring Valley Road)/Nathaniel Drive
13. NC 42 and Brady Drive
14. NC 42 and SR 1556 (Government Road)
15. NC 42 and US 70 Bypass EB Ramps
16. NC 42 and US 70 Bypass WB Ramps
17. NC 42 and Johnston Estate Road
18. NC 42 and Springbrook Avenue
19. NC 42 and Johnston Medical Center/Health Park
20. NC 42 and SR 1552 (Amelia Church Road)
21. NC 42 and SR 1584 (Short Johnson Road)
22. NC 42 and Trailwood Drive/Pinecroft Drive
23. NC 42 and Walnut Creek Drive/Winding Wood Drive
24. NC 42 and Laurel Ridge Drive
25. NC 42 and SR 1660 (Stonebrook Drive)
26. NC 42 and Wexford Drive/State Avenue
27. NC 42 and Waterford Drive

28. NC 42 and Lee Court/Gas Station Driveway
29. NC 42 and SR 1551(Guy Road)
30. NC 42 and Cricket Hollow Run
31. NC 42 and SR 1555 (Barber Mill Road)/West Clayton Elementary School
32. NC 42 and Woodbriar Road
33. NC 42 (Lombard Street) and Vogue Street
34. NC 42 (Lombard Street) and Regency Park Drive
35. NC 42 (Lombard Street) and US 70 Business EB Ramps
36. NC 42 (Lombard Street) and Hamby Street
37. Hamby Street and Barbour Street

As part of this evaluation, the following scenarios were evaluated:

- 2016 Base Year No Build
- 2040 Design Year No Build
- 2040 Design Year Build

2.0 PROJECT DESCRIPTION

R-3410 will improve NC 42 by widening to a four-lane divided facility with turn lanes provided as needed. The project limits run from the intersection of NC 42 and NC 50 in Garner, to US 70 Business in Clayton. It should be noted that at an adjacent STIP (I-4739) is currently in the planning and design stage and includes improvements to the I-40 and NC 42 interchange, as well as adjacent intersections to the west of I-40. Therefore, intersections associated with the I-4739 project were not included in the analyses for R-3410. The proposed I-4739 design provided by Stantec was incorporated into the Synchro analysis in order to provide consistency at the points where R-3410 will tie in to I-4739. These locations are on NC 42 between Old Drug Store Road and SR 1010 (Cleveland Road) and on NC 42 on the western side of Son Lan Parkway.

The three scenarios listed in Section 1.0 were analyzed and are described in further detail later in this memorandum. ***Figure 1***, located in ***Appendix A***, shows the project study area. All figures are located in ***Appendix A***. The following is a list of the figures provided:

- ***Figure 1*** – Study Area
- ***Figure 2*** – 2016 Base Year No Build Laneage
- ***Figure 3*** – 2016 Base Year No Build Traffic Volumes

- ***Figure 4*** – 2016 Base Year No Build Intersection Levels of Service
- ***Figure 5*** – 2040 Design Year No Build Laneage
- ***Figure 6*** – 2040 Design Year No Build Traffic Volumes
- ***Figure 7*** – 2040 Design Year No Build Intersection Levels of Service
- ***Figure 8*** – 2040 Design Year Build Laneage
- ***Figure 9*** – 2040 Design Year Build Traffic Volumes
- ***Figure 10*** – 2040 Design Year Build Intersection Levels of Service

The purpose of this technical memorandum is to evaluate the proposed widening along NC 42 in the design year (2040) and provide recommendations that would improve operations along the corridor over the No Build scenario.

3.0 ANALYSIS PROCESS

Data Collection

Current aerial photography of the study area was reviewed and used in the development of the existing geometrics. These existing conditions were confirmed during site visits performed on April 7 and April 12, 2017.

In order to coordinate the improvement plan for the build conditions with other planned projects, the NCDOT STIP and the Capital Area Metropolitan Planning Organization (CAMPO) transportation plans were researched to identify planned projects in the study area. Two projects, STIP I-4739 (SPOT ID H090031) and STIP I-5111 (SPOT ID H090044) were considered for inclusion in this analysis. As mentioned in Section 2.0, STIP I-4739 will provide access improvements along NC 42 in the vicinity of the I-40/NC 42 interchange and is scheduled to be constructed by 2023. STIP I-5111 will widen I-40 between I-440 (Exit 301) in Raleigh and NC 42 (Exit 312) in Clayton by adding two lanes in each direction and upgrade the I-40/NC 42 interchange and the surrounding area with construction to be finished by 2022. These two STIP projects are anticipated to be fully constructed before the subject project (R-3410) is constructed and are anticipated to accommodate the future traffic in and around the I-40/NC 42 interchange. The proposed design information for I-4739 is provided in ***Appendix B***.

Signal plans used in the 2016 Base Year analysis were obtained from the NCDOT. This data was used in developing the Synchro analysis files and is located in ***Appendix C*****.**

West Clayton Elementary School is a local, two-lane road that provides access to the West Clayton Elementary School. No AADT information is available along West Clayton Elementary School.

Woodbriar Road is a local, two-lane residential road with a posted speed limit of 25 mph south of NC 42. No AADT information is available along Woodbriar Road.

Vogue Street is a local, two-lane residential road south of NC 42. No AADT information is available along Vogue Street.

Regency Park Drive is a local, two-lane road with a posted speed limit of 25 mph that provides access to commercial development south of NC 42. It also provides access to US 70 Business via S Smith Street.

US 70 Business is a four-lane, median-divided, principal arterial with a posted speed limit of 45 mph within the study area. The land uses along US 70 Business are primarily commercial and office. The 2016 AADT along US 70 Business was 31,000 vpd north of NC 42 and 39,000 vpd south of NC 42.

SR 1756 (Lombard Street) is a local, two-lane road that extends from US 70 Business to the eastern extents of the study area. The posted speed limit along Lombard Street is 25 mph. The land uses along Lombard Street are a primarily residential within the study area.

Hamby Street is a local, two-lane residential road with a posted speed limit of 25 mph north and south of Lombard Street. No AADT information is available along Hamby Street.

Barbour Street is a local, two-lane residential road east and west of Hamby Street. No AADT information is available along Barbour Street.

Volume Development

Turning movement volumes for the study area intersections were developed using the R-3410 traffic forecast prepared by NCDOT (dated December 30, 2016) using NCDOT procedures. The forecast provides volume data for the 2016 Base Year No Build, 2016 Base Year Build, 2040 Design Year No Build, and 2040 Design Year Build scenarios. Peak hour turning movements were estimated from the daily volume information using NCDOT's IAU breakout spreadsheets. As noted in the forecast cover letter, a forecast for I-4739 was completed in September 2015. The R-3410 forecast has overlapping intersections included in the forecast; however, due to differences in constraints between

the two forecasts, the R-3410 forecast does not include the I-4739 forecast data or project and thus cannot be compared to the I-4739 forecast data.

The River Oaks mixed-use development is proposed on the north side of NC 42 and is anticipated to be completely built out by the 2040 design year. This development will provide an extension of Son-Lan Parkway noted above, which will connect as the northern leg of the NC 42 and Walmart Driveway intersection. Because no portion of this development is complete and open at the time of this analysis, only a default value of 4 vehicles was included on the turning movements for this leg in the 2016 Base Year analysis. In order to account for additional delay at this traffic signal in the 2040 design year, the estimated site traffic volumes from the River Oaks TIA (Kimley-Horn and Associates, Inc.; 5/22/09) were included in the turning movements. Although site traffic associated this development will affect several adjacent intersections, they were only accounted for at the NC 42 and Walmart Driveway intersection due to the large difference in volumes on the northern leg between the 2016 Base Year and the 2040 Design Year that were not accounted for in the traffic forecast. Additionally, it was assumed that the traffic forecast accounted for development of this parcel as part of overall growth and development along the corridor and that specific traffic impacts related to the development were mitigated through the TIA approval process. Therefore, the R-3410 analysis did not recommend improvements on the northern leg of the NC 42 and Walmart Driveway intersection. The River Oaks TIA and supporting information was provided by NCDOT and is included in ***Appendix B***.

For the 2040 Design Year Build scenario, volumes were rerouted as needed to accommodate restricted intersections and u-turns along the corridor. The following assumptions were made for the rerouting of volumes in the Build scenario:

- Eastbound left-turns onto Nicklaus Drive were rerouted to Pierce Road (not in analysis), which provides a connection to Nicklaus from NC 50 north of NC 42.
- Southbound left-turns from Nicklaus Drive were rerouted to a median break for u-turns located west of the intersection.
- Westbound left-turns onto Wood Haven Lane were rerouted to the median break for u-turns west of Nicklaus Drive.

- Northbound left-turns from Wood Haven Lane were rerouted to a median break for u-turns east of the intersection.
- The unsignalized intersection with Old Drug Store Road will be converted to right-in/right-out only. It is assumed this road is currently being used primarily for cut-through traffic since it also connects to SR 1010 (Cleveland Road) and only a small portion of traffic is being generated from the parcels with access to this facility. As a result, the majority of the turning movements here were rerouted to the SR 1010 intersection.
- The intersection of Bratton Drive and Shopping Center Drive will be restricted to right-in/right-out only movements. As a result, the eastbound left-turns as well as the northbound and southbound through and left-turn movements were rerouted to the adjacent upstream intersection with Son-Lan Parkway and Cleveland Crossing Drive. Additionally, a small portion of the westbound left-turns were rerouted to the adjacent upstream intersection with Walmart Drive and the remaining trips were rerouted to Cleveland Crossing Drive.
- The Austin Pond Road, Nathaniel Drive/Spring Valley Road, and Brady Drive intersections will all be restricted to right-in/right-out movements, while Anna Drive will maintain full-movement access. The restricted turning movements were rerouted to u-turns at Cornwallis Road, Anna Drive, and Government Road.
- Johnson Estate Road will be restricted to right-in/right-out movements only; however, there is connectivity to Springbrook Avenue to the east. As a result, restricted movements were rerouted to Springbrook Avenue.
- Short Johnson Road will be restricted to right-in/right-out movements only. As a result, restricted movements were rerouted to Amelia Church Road.
- Pinecroft Drive/Trailwood Drive and State Avenue/Wexford Drive will maintain full-movement access while Winding Wood Drive/Walnut Creek Drive, Laurel Ridge Drive, and Stonebrook Drive will be restricted to right-in/right-out only access. There is interconnectivity between Pinecroft Drive and Winding Wood; therefore, restricted southbound left-turns from Winding Wood Drive were rerouted to Pinecroft Drive as westbound u-turns and as southbound left-turns. Additional

restricted movements at these intersections were rerouted to u-turns at Pinecroft Drive and State Avenue/Wexford Drive.

- Waterford Drive and Lee Court/Gas Station Driveway will be restricted to right-in/right-out movements only while Guy Road will remain a full-movement intersection. The gas station on the north side of NC 42 has an additional access to Guy Road; therefore, southbound left-turns from the gas station onto NC 42 were rerouted to Guy Road. There is also interconnectivity between Wexford Avenue and Waterford Drive, so northbound left-turns from Waterford Drive and westbound left-turns onto Waterford Drive were rerouted to Wexford Drive. Additional restricted movements were rerouted to u-turns at State Avenue/Wexford Drive and at Guy Road.

- The southern leg of Barber Mill Road will be realigned to provide a T-intersection just east of Guy Road. The existing southern leg at Guy Road serves Town of Clayton facilities and will have access to the realigned portion of Barber Mill Road. Additionally, Cricket Hollow Run/Storage Facility Drive will be restricted to right-in/right-out movements only. Volumes from the realignment of Barber Mill Road as well as restricted movements at Cricket Hollow Run/Storage Facility Drive were rerouted to the new Barber Mill Road intersection or as u-turns at the Elementary School Driveway.

- Woodbriar Road and Vogue Street will both be restricted to right-in/right-out movements only and the restricted movements were rerouted to u-turns at the Elementary School Driveway and at a median break east of Vogue Street.

- Regency Park Drive/Storage Drive will be restricted to right-in/right-out movements only. Restricted movements for these intersections were rerouted to a median break east of Vogue Street. Due to the close spacing of the US 70 Business ramp, there is no reasonable location to provide for u-turn movements east of Regency Park Drive. Therefore, the northbound left-turns from Regency Park Drive were rerouted to turn right onto NC 42, right onto Hamby Street, and then left from Blanchard Street (not in analysis) onto NC 42.

The peak hour volume breakouts and rerouting calculations are located in ***Appendix D***. The peak hour volumes used in the 2016 Base Year No Build, 2040 Design Year No Build, and 2040 Design Year Build analyses are provided in ***Figures 3, 6, and 9***.

Synchro and SimTraffic Analysis

Synchro and SimTraffic analyses were performed for the 2016 Base Year No Build, 2040 Design Year No Build, and 2040 Design Year Build scenarios. The analyses were based on NCDOT's Congestion Management Analysis Guidelines unless otherwise noted in this document.

The following Synchro coding assumptions were made for the analyses:

- For movements analyzed but not forecasted, a default value of four vehicles was used for analysis purposes.
- When turn lanes were added, a minimum of 100 feet of full storage was provided.
- For the Build analysis, the 95th percentile queues from Synchro and maximum queues from SimTraffic (based on ten runs) were used to determine recommendations for turn lanes and their associated storage lengths.
- For unsignalized intersection analyses, the HCM 2010 lane level of service (LOS) and control delay output from Synchro are used to present the delay.
- If signals had protected/permitted traffic phasing in the existing conditions, they were analyzed as such in the 2016 Base Year analysis; however, they were converted to protected only phasing for all 2040 analyses.

4.0 2016 BASE YEAR NO BUILD ANALYSIS

The 2016 Base Year No Build peak hour volumes, existing laneage configurations, and traffic control information were coded in Synchro Version 9 software to determine the estimated levels of service for the 2016 Base Year scenario. ***Figures 2 and 3*** show the 2016 laneage and volumes used for analysis, respectively. ***Figure 4*** shows the 2016 Base Year No Build Intersection Level of Service. ***Table 1*** (signalized) and **Table 2** (unsignalized) provide the results of the 2016 Base Year No Build analysis. A description of the analysis results follows the table, and the Synchro and SimTraffic analysis results are located in ***Appendix E***.

control on side streets. All unsignalized left-turns on the mainline operate at LOS C or better in the 2016 Base Year.

The 2016 Synchro analyses results are located in ***Appendix E***.

2016 Base Year No Build Simulation Summary

During the AM peak period, the SimTraffic analysis showed brief periods of moderate queuing at several intersections, as follows:

- Eastbound, Westbound, and Northbound approaches at NC 50
- Eastbound, Westbound, and Southbound approaches at Cornwallis Road
- Westbound and Northbound approaches at Barber Mill Road
- Southbound approach at US 70 Business EB Ramps

Additionally, westbound queues at the western Old Drug Store Road intersection were considerable throughout the AM peak period, spilling back to the Cleveland Road intersection for the last half of the analysis period and resulting in queuing and delay on the adjacent eastern Old Drug Store Road intersection.

During the PM peak period, the SimTraffic analysis showed similar periods of moderate queuing as the AM peak period at the following intersections:

- Westbound approach at NC 50
- Southbound approach at Amelia Church Road
- Southbound approach at Guy Road

Additionally, the eastern Old Drug Store Road, Cornwallis Road, and Barber Mill Road intersections showed more considerable queueing during the PM peak period, with the most significant being the westbound approach at Barber Mill Road. Queues on this approach began spilling back through adjacent intersections within 10 minutes of the analysis period and ultimately reached the end of the model limits. This results in additional queuing and delay on the side street approaches of the adjacent intersections.

6.0 2040 DESIGN YEAR NO BUILD ANALYSIS

As mentioned in Section 3.0, there are two planned projects in the study area that will result in modified laneage at several intersections in the 2040 Design Year. The following

intersection laneage was modified in the 2040 Design Year No Build analysis to accommodate the geometric modifications anticipated to occur as a result of STIP I-4739 and coded into the 2040 Design Year No Build Synchro models.

NC 42 and Old Drug Store Road (western intersection)

- Westbound left-turn extended to Cleveland Road intersection
- Eastbound receiving lane added, resulting in two eastbound lanes on NC 42 east of the Old Drug Store intersection
- Northbound left-turn extended to provide 450 feet of full storage and appropriate taper
- Exclusive northbound right-turn provided with 450 feet of full storage and appropriate taper

NC 42 and Old Drug Store Road (eastern intersection)

1. Restrict to right-in/right-out only movements. In addition, the Old Drug Store intersection with Cleveland Road (not included in R-3410 analysis) was restricted to right-out only movements. Traffic volumes were rerouted for the R-3410 2040 Design Year analyses as a result of these changes.

NC 42 and Cleveland Crossing Drive/Son-Lan Parkway

2. Eastbound left-turn lane extended to provide 450 feet of full storage and appropriate taper
3. Eastbound right-turn lane extended to provide 450 feet of full storage and appropriate taper
4. Westbound right-turn lane restriped to provide a shared thru and right-turn movement and additional receiving lane added, resulting in three westbound lanes west of the intersection.

In addition, field observations indicated recent construction activity to extend the eastbound right-turn lane at the NC 42 and Cornwallis Road intersection. For the 2040 Design Year analyses, this eastbound right-turn lane was modified to provide 750 feet of full storage and appropriate taper.

The 2040 peak hour volumes were coded into the 2040 Design Year No Build Synchro models using the modified laneage configurations and traffic control information to determine estimated levels of service for the study area intersections. ***Figure 5*** shows the laneage used for the 2040 Design Year No Build analysis, ***Figure 6*** shows the volumes,

Synchro analyses results are located in ***Appendix F***.

2040 Design Year No Build Simulation Summary

The SimTraffic analysis showed that both the AM and PM peak periods operate similarly, with extensive queuing at all signalized intersections, with the exception of the US 70 Bypass intersections, where NC 42 is already a 4-lane facility. While some of the queuing is self-contained to an intersection, there is anticipated to be significant spillback at multiple intersections, resulting in increased queuing and delay at stop-controlled intersections when compared to the 2016 Base Year analysis.

7.0 2040 DESIGN YEAR BUILD ANALYSIS

Analyses were performed for the 2040 Design Year Build scenario. The majority of the NC 42 corridor, between NC 50 and the US 70 Business EB Ramps intersection was widened to at least a 4-lane, median-divided facility. In addition, traditional intersection improvements were included, as were intersection restrictions and median openings for u-turns. Full movement intersections were allowed at key points along the corridor, based on NCDOT's median opening guidelines as well as discussions with NCDOT Division 4 staff. The proposed Build laneage is provided by ***Figure 8***; however, the following key changes included in the 2040 Design Year Build analysis should be noted:

NC 42 and Bratton Drive

Due to the close spacing of traffic signals at Son-Lan Parkway/Cleveland Crossing Dr. and Walmart Driveway/Son-Lan Parkway and based on discussions with NCDOT, this intersection was restricted to right-in/right-out only access on NC 42 in the 2040 Design Year Build scenario.

NC 42 and Barber Mill Road

Based on preliminary analysis and discussions with NCDOT, Barber Mill Road was realigned to intersect NC 42 just east of Guy Road. This results in an offset T intersection configuration with Guy Road and Barber Mill Road

The results of the Synchro and SimTraffic analysis are included in ***Appendix G***. ***Figures 8 and 9*** show the laneage and volumes used in the 2040 Design Year Build analysis, respectively, while ***Figure 10*** shows the resulting LOS.

consideration was given to signalization as an improvement. However, these intersections were not anticipated to meet peak hour signal warrants to justify a traffic signal or were too close to adjacent signalized intersections to be considered as a reasonable improvement. In these instances, the proposed storage lengths are anticipated to contain the queues for these movement and/or the queuing and delay observed in the simulation was determined to not be unreasonable for that movement.

The 2040 Design Year Build Synchro analyses results are located in ***Appendix G***.

2040 Design Year Build Simulation Summary

During the AM peak period, the SimTraffic analysis showed brief periods of moderate queuing at several intersections, as follows:

- All approaches at Cleveland Crossing Drive/Son-Lan Parkway
- Westbound approach at the realigned Barber Mill Road intersection intermittently queues through the adjacent Cricket Hollow Run intersection
- Westbound approach at West Clayton Elementary School intermittently queues through the adjacent Woodbriar Road intersection

Additionally, the queues were more significant at the following locations in the AM peak hour:

- Eastbound approach at Cleveland Road queues through the NC 50 intersection
- Northbound approach at Walmart Driveway
- Eastbound and northbound approaches at Cornwallis Road

During the PM peak period, the SimTraffic analysis showed brief periods of moderate queuing at several intersections, as follows:

- Westbound and southbound approaches at Amelia Church Road
- Westbound approach at the realigned Barber Mill Road intermittently queues through the adjacent Cricket Hollow Run intersection

Additionally, the queues were more significant at the following locations in the PM peak hour:

- Eastbound approach at Old Drug Store Road

- Southbound approach at Walmart Driveway
- Southbound approach at Cornwallis Road
- Southbound approach at US 70 Business EB Off-Ramp
- Northbound approach at Regency Park Drive
- Southbound queues at Hamby Street queues through the adjacent Barbour Street intersection resulting in queues along the eastbound Barbour Street approach

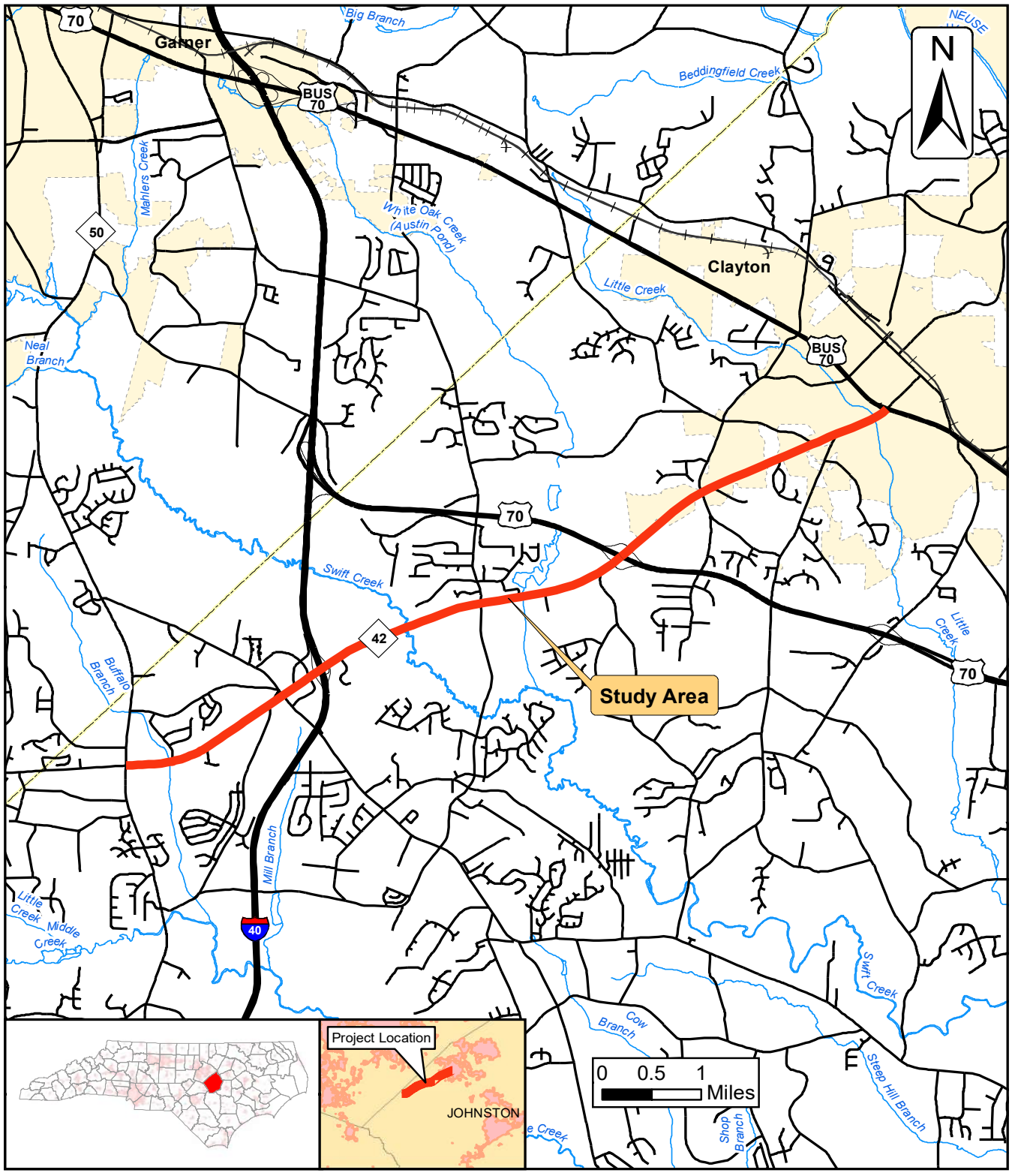
It should be noted that the NC 42 widening under R-3410 and associated intersection improvements analyzed end at the US 70 Business EB Ramps intersection in Clayton.

9.0 RESULTS

Without improvements, NC 42 is anticipated to experience significant congestion and considerable queuing by the 2040 Design Year; therefore, improvements are needed by 2040 to provide desirable levels of service or at least show improvement over the 2040 Design Year No Build conditions.

Along with widening the corridor, traditional intersection improvements will be needed and were explored at each of the study area intersections to further alleviate congestion. These improvements primarily focused on relieving congestion along the NC 42 mainline, but were also considered for the side streets. To further reduce delay and aid in mainline progression, access at several of the intersections along the corridor was restricted and median breaks were strategically included along the corridor to allow for u-turn movements. ***Figure 8*** shows the recommended future laneage along the corridor. With these improvements in place, it is anticipated that the majority (12 of 15) of the signalized intersections will operate at LOS D or better in the AM and PM peak hours. Similarly, the majority of the unsignalized intersections are projected to have no stop- or yield-controlled movements that operate at worse than LOS D, with 17 of the 27 unsignalized intersections falling into this category.

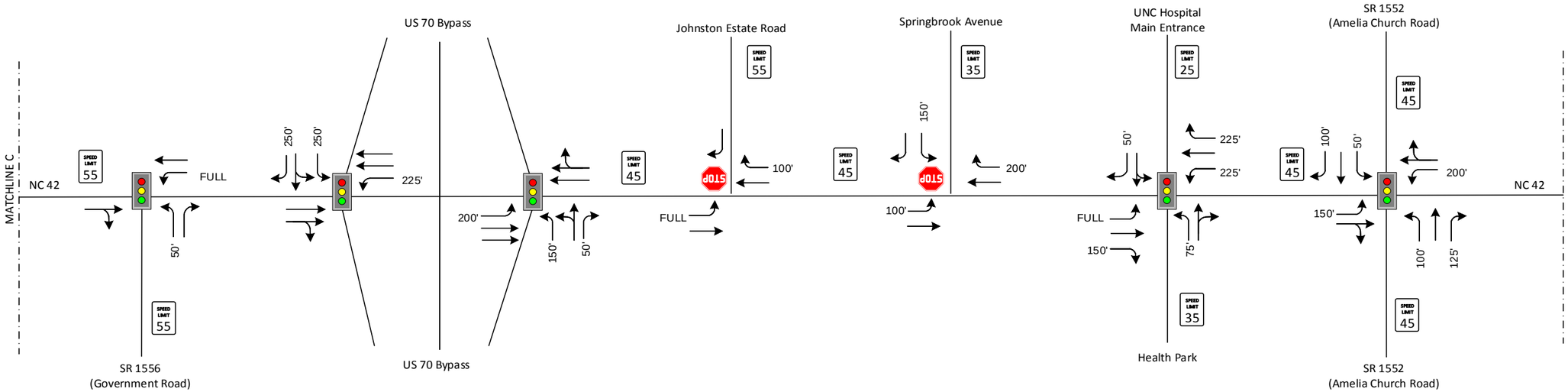
Appendix A: Figures



R-3410
NC 42 Widening
Clayton, NC
Johnston County

Figure 1
Study Area

MOTT MACDONALD



Legend

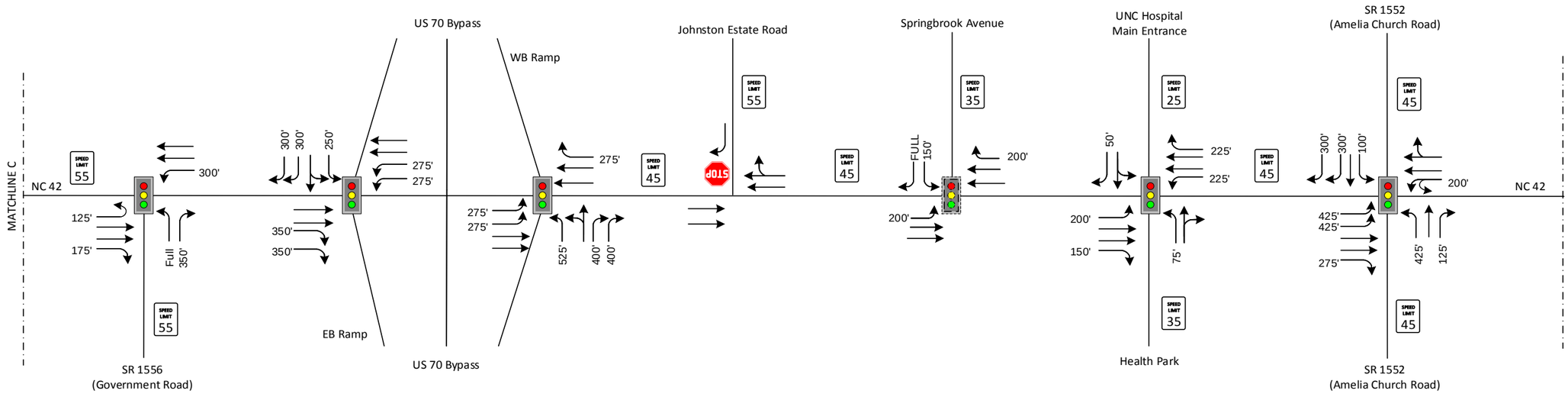
- Number of Lanes
- xxx' Storage Distances
- FULL Continuous Lane
- Existing Signal
- Stop Sign
- Speed Limit

N

R-3410
NC 42 Widening
Clayton, NC
Johnston County

Figure 2
2016 Base Year No Build Laneage
Sheet 4 of 7

MOTT MACDONALD



Legend

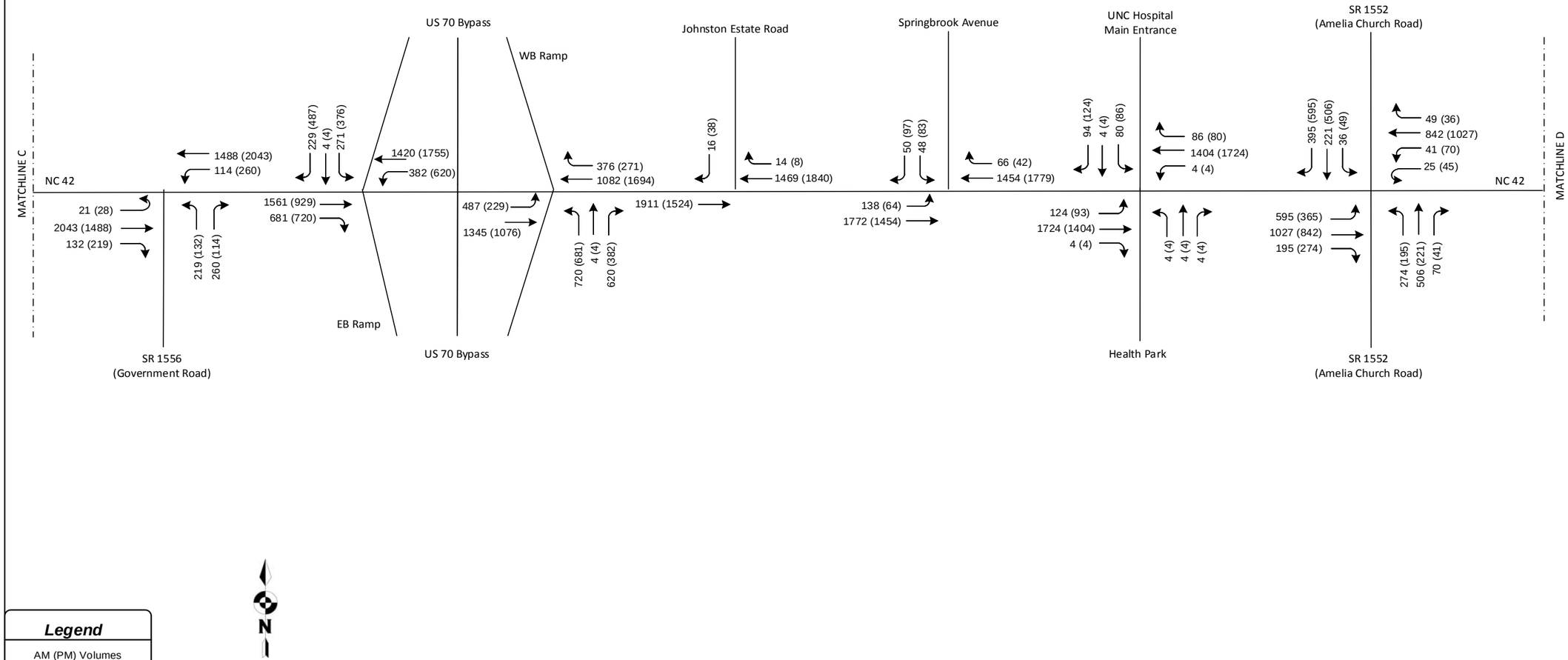
- Number of Lanes
- xxx' Storage Distances
- FULL Continuous Lane
- Speed Limit 30
- Existing Signal
- Proposed Signal
- Stop Sign

N

R-3410
NC 42 Widening
Clayton, NC
Johnston County

Figure 8
2040 Design Year Build Laneage
Sheet 4 of 7

MOTT MACDONALD



R-3410
NC 42 Widening
Clayton, NC
Johnston County

Figure 9
2040 Design Year Build Traffic Volumes
Sheet 4 of 7

MOTT MACDONALD

Appendix D: Volumes

Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

December 30, 2016

MEMORANDUM TO: Bob Deaton
Project Development and Environmental Analysis Branch

FROM: Elisabeth R. Bray
Transportation Planning Branch

SUBJECT: Traffic Forecast for R-3410
Johnston County
NC 42 from NC 50 to US 70 Bus

Please find attached the 2016/2040 traffic forecast for the above mentioned project. TIP Project R-3410 is defined as the widening of NC 42 from NC 50 to US 70 Bus in Clayton. This if the first forecast for this project. This project lies within the Capital Area Metropolitan Planning Organization (CAMPO). The entirety of the project falls within the model boundary for CAMPO.

A forecast for I-4739 which is the I-40/NC 42 Interchange and surrounding area was completed in September 2015. This forecast includes intersections that are also included in the R-3410 forecast. However, a comparison of the Base Year No-Build Scenario is not relevant since the I-4739 forecast includes I-540. In addition, the 2040 No-Build Scenario can't be compared because the I-4739 forecast includes the widening of NC 42, whereas R-3410 doesn't since it is the subject project. It is also important to note that the limits of the widening of NC 42 in the R-3410 forecast go beyond what is included in the MTP, which ends the widening at Amelia Church Rd. The I-4739 forecast is fiscally constrained to the MTP, whereas the R-3410 includes the widening of NC 42 through US 70 Bus in Clayton. The widening from Amelia Church Rd. to US 70 Bus has a profound impact on the travel patterns on NC 42, therefore making the two forecasts less comparable.

The following people were contacted for information about the project area:

- Rupal Desai, PE – TPB CAMPO Coordinator
- Alex Rickard – CAMPO Coordinator
- Jimmy Eatmon, PE – Division 4 Planning Engineer
- Jay McLeod, AICP – Town of Clayton
- Matthew Kirkland – Johnston County
- Bryan Coates – Wake County

The following scenarios are provided:

- 2016 Base Year No Build

- 2016 Base Year Build
- 2040 Future Year No Build
- 2040 Future Year Build

Certain Assumptions were made during the development of this forecast:

Fiscal Constraint:
For projects falling within an MPO, forecasts are fiscally constrained to match the assumptions of the MPO's MTP. The CAMPO MTP is dated June 15, 2013.

It should be noted that R-3410 has a construction year of 2023 in the 2016-2025 STIP.

Development Activity:
According to Jay Mcleod, the Town of Clayton has been growing at approximately 3% per year for the past decade-and-a-half. The following developments along NC 42 are approved:

- Spring Branch Medical Park (including AS & PC Medical Plaza) – probably about half built-out.
- Health Park at 42 West – just starting construction.
- Brookside subdivision – just starting construction.
- Clayton Professional Center – just finishing construction.
- Amelia Station Medical Office – just finishing construction.
- Clayton Operations Center Expansion – construction currently on hold, but to resume shortly.

The Town of Clayton is also currently constructing a greenway which will bring additional pedestrian traffic from Amelia Church Rd. to NC 42, just east of West Clayton Elementary and southwest of US 70 Bus. Also anticipated are additional hospital-related (probably 100,000 sq. ft. or more) and commercial projects at the intersection of Amelia Church Road, and possibly a commercial/grocery operation nearer to the Hwy 70 Bypass intersection. The Town is also trying to facilitate a connection between NC 42 and Winston Road, via Spring Brook Drive, and winding back up through the Winston Pointe subdivision. This is a long term connectivity goal and may not occur for several years, but would provide increased access to the hospital.

According to Bryan Coates, Wake County, there is a rezoning application for a residential community on Cleveland School Rd between NC 42 and NC 50.

Methodology:
For the No Build Scenario, the ten and twenty year historical AADT growth rates and the model growth rates were reviewed. The selected growth rates were then applied to the Base Year No Build 2016 AADTs and grown with the straight line method to forecast the Future Year No Build 2040 volumes. Adjustments were then made to refine and balance the resulting volume estimates.

For the Base Year Build Scenario, the percent difference between the volumes on the Base Year Model No Build scenario and the Base Year Model Build scenario was calculated. Along NC 42, an average percent difference was calculated in sections

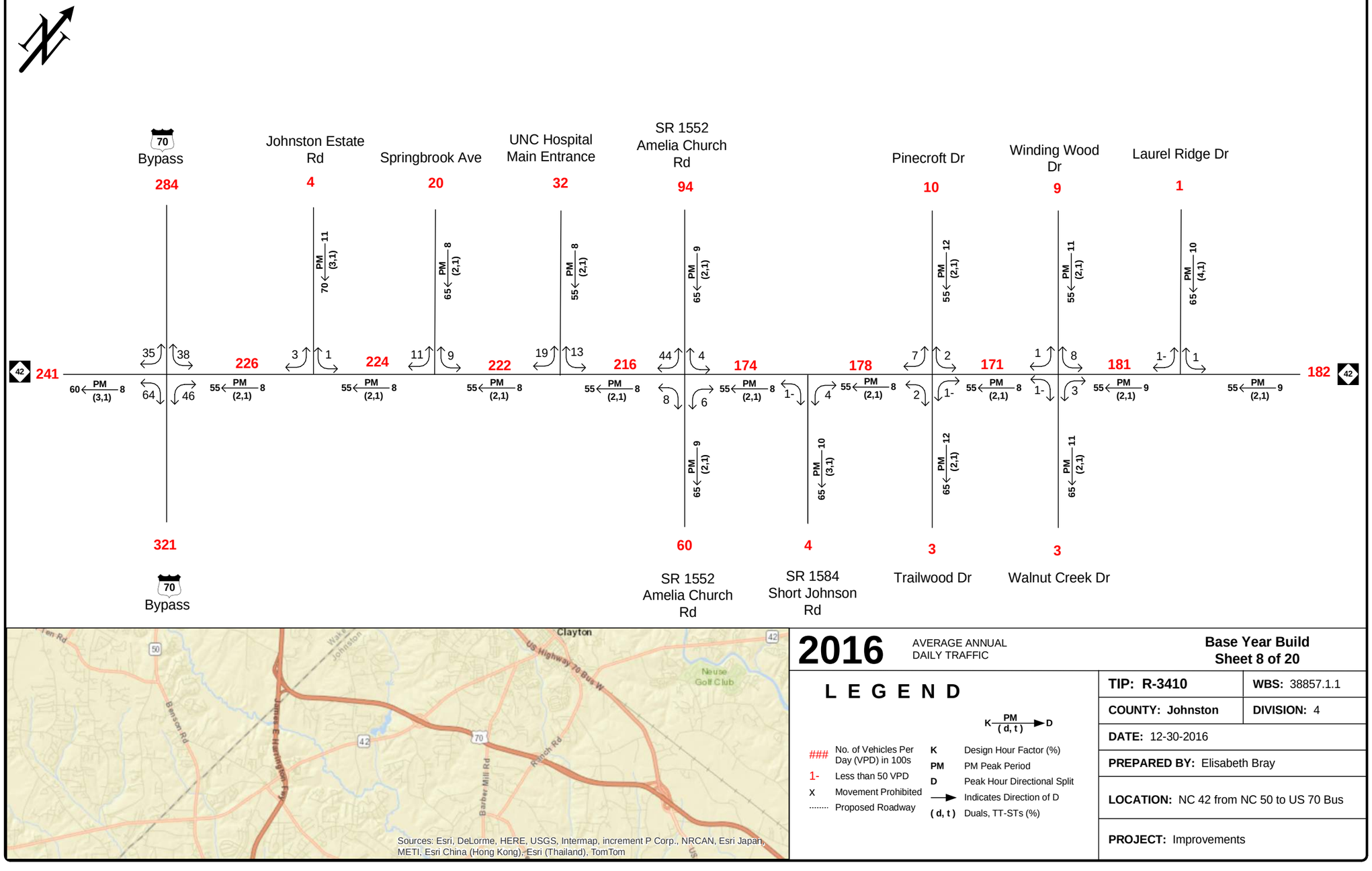
where traffic increases were similar. The percent difference was then applied to the Base Year No Build AADTs to calculate the Base Year Build AADTs. For the Future Year Build Scenario, the absolute difference was applied in the same manner as the Base Year Build Scenario because the changes were more representative of the growth in the area. All turns were estimated using the data from the No Build Scenarios and engineering judgment based on the change in traffic patterns due to increases and decreases in volumes in the project area. Adjustments were then made to refine and balance the resulting volume estimates.

Interpolation:
To determine any intermediate years, straight-line interpolation may be used. AADT volumes may be extrapolated for up to two years immediately following 2040. If it is determined that any of these assumptions have become inconsistent with the project and surrounding area activity, please request updated projections at this location. Once a plan is decided for I-4739, a new forecast may need to be request for R-3410.

If you have any questions, or I can be of any further assistance on this project, please do not hesitate to contact me at 919-707-0938, email: erbray@ncdot.gov.

cc : FILE (Johnston County, TIP Project R-3410)

cc: (*via e-mail as PDF Attachments*):
Glenn Mumford, PE, Roadway Design Branch
Scott Walston, PE, Transportation Planning Branch
Brian Wert, PE, Transportation Planning Branch
Michael Reese, PE, CPM, Congestion Management Section
Clark Morrison, PhD, PE, Pavement Management
Jimmy Eatmon, PE, Division 4 Program and Schedule Support Manager
Chris Lukasina, CAMPO



2016

AVERAGE ANNUAL DAILY TRAFFIC

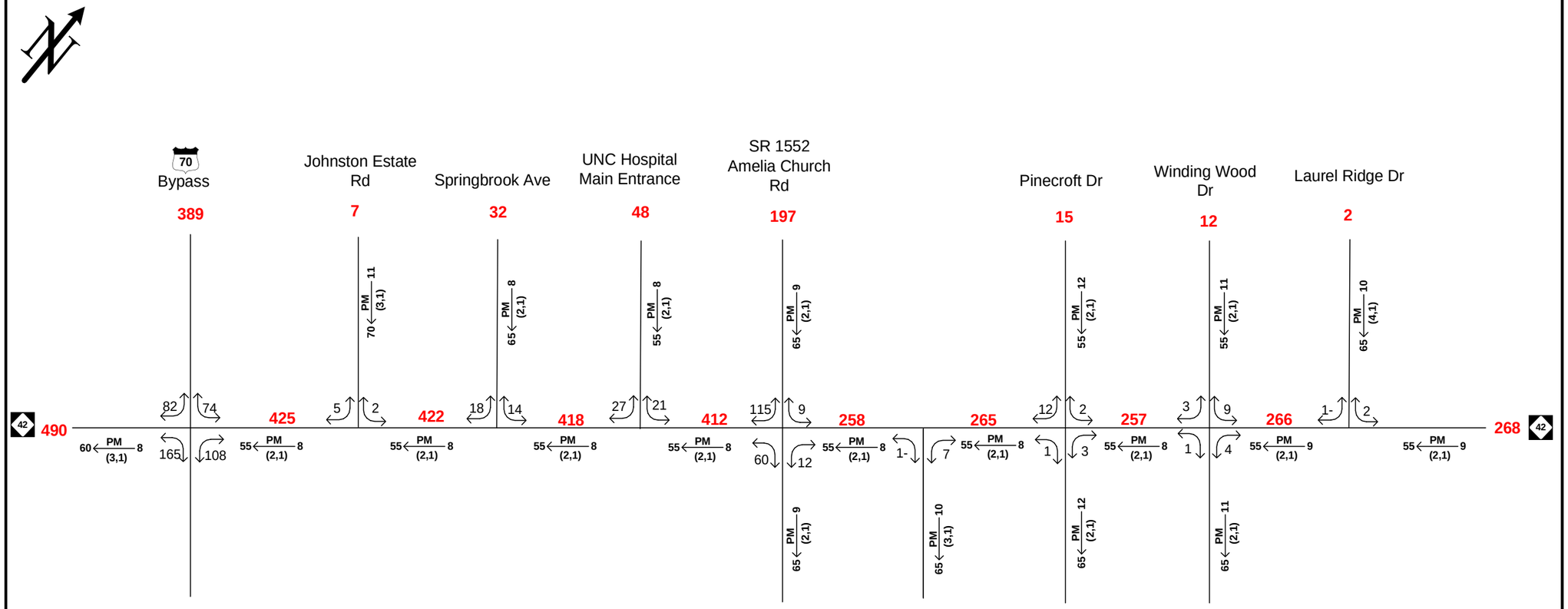
Base Year Build
Sheet 8 of 20

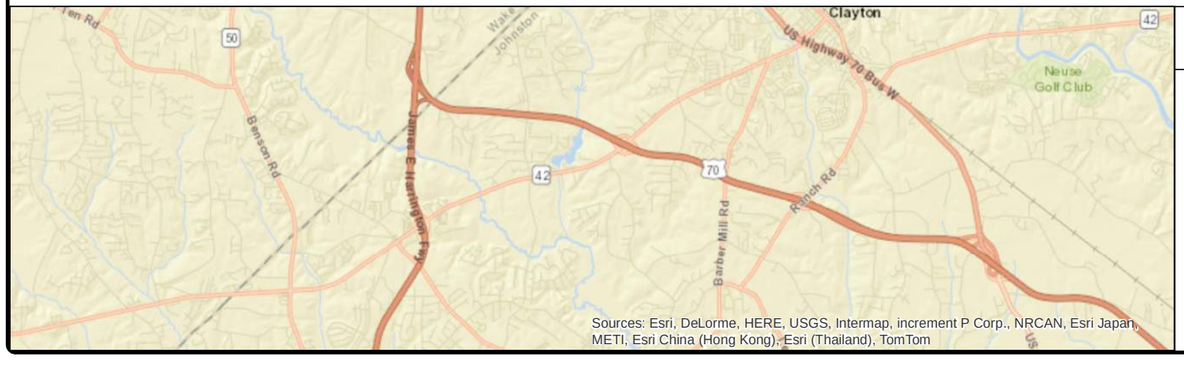
L E G E N D

PM: K → D (d, t)

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	PM	PM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
.....	Proposed Roadway	→	Indicates Direction of D
		(d, t)	Duals, TT-STs (%)

TIP: R-3410	**WBS:** 38857.1.1
COUNTY: Johnston	**DIVISION:** 4
DATE: 12-30-2016	
PREPARED BY: Elisabeth Bray	
LOCATION: NC 42 from NC 50 to US 70 Bus	
PROJECT: Improvements	





2040

AVERAGE ANNUAL DAILY TRAFFIC

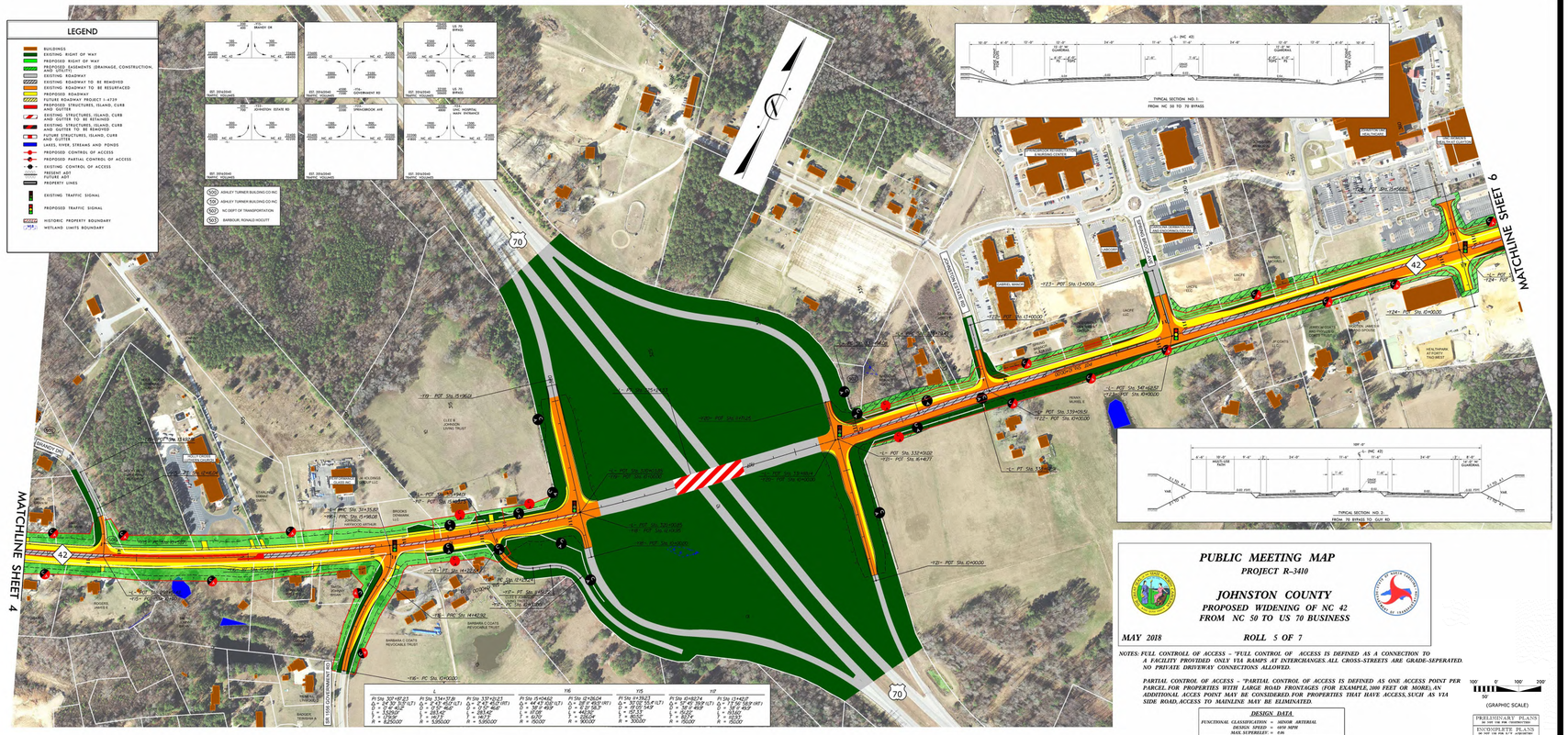
Future Year Build
Sheet 18 of 20

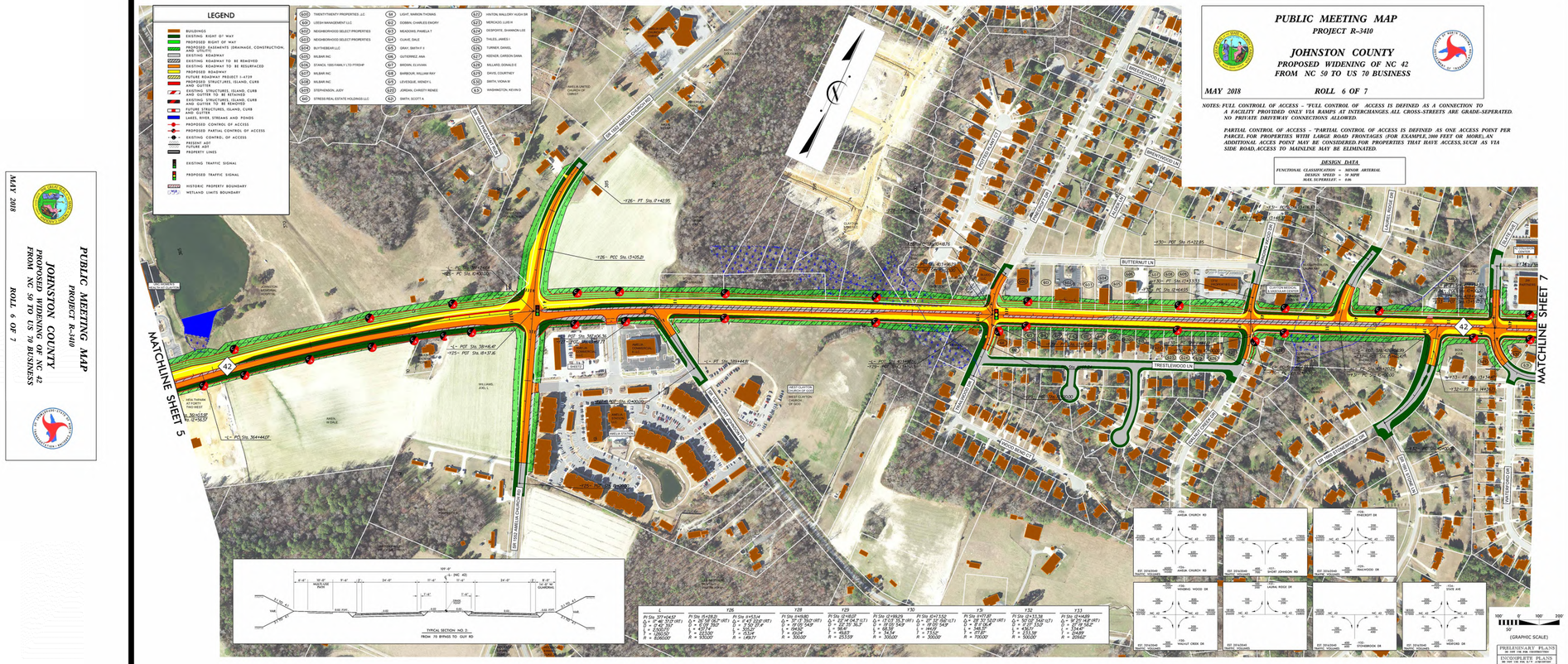
L E G E N D

K — PM (d, t) — D

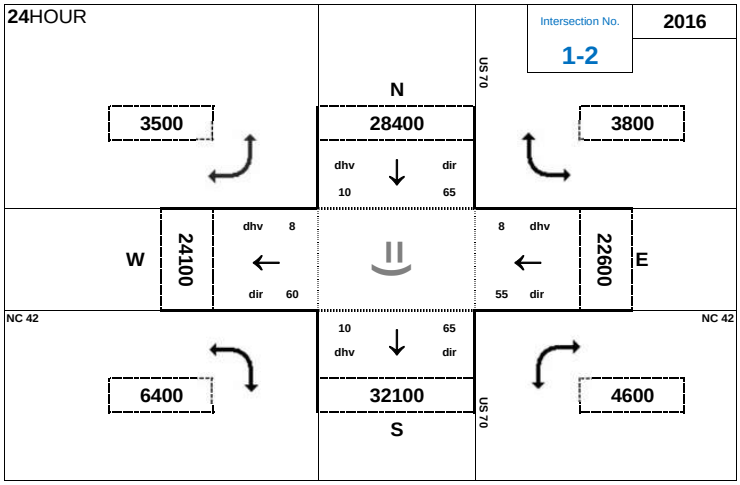
###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	PM	PM Peak Period
X	Movement Prohibited	D	Peak Hour Directional Split
.....	Proposed Roadway	→	Indicates Direction of D
		(d, t)	Duals, TT-STs (%)

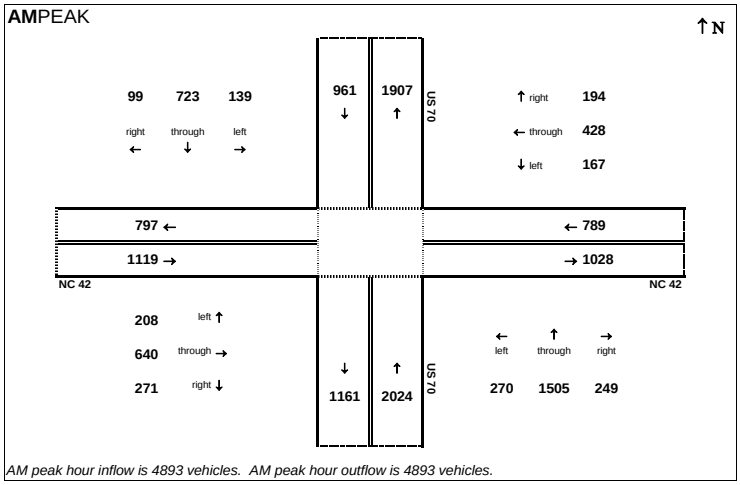
TIP: R-3410	**WBS:** 38857.1.1
COUNTY: Johnston	**DIVISION:** 4
DATE: 12-30-2016	
PREPARED BY: Elisabeth Bray	
LOCATION: NC 42 from NC 50 to US 70 Bus	
PROJECT: Improvements	


LEGEND
BUILDINGS
EXISTING RIGHT OF WAY
PROPOSED RIGHT OF WAY
EXISTING EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
EXISTING ROADWAY
EXISTING ROADWAY TO BE REMOVED
EXISTING ROADWAY TO BE RESURFACED
PROPOSED ROADWAY
FUTURE ROADWAY PROJECT I-4739
EXISTING STRUCTURES, ISLAND, CURB AND GUTTER
EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE RETAINED
EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
FUTURE STRUCTURES, ISLAND, CURB AND GUTTER
LAKES, RIVER, STREAMS AND PONDS
PROPOSED CONTROL OF ACCESS
PROPOSED PARTIAL CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
PRESENT ADT
FUTURE ADT
PROPERTY LINES
EXISTING TRAFFIC SIGNAL
PROPOSED TRAFFIC SIGNAL
HISTORIC PROPERTY BOUNDARY
WETLAND LIMITS BOUNDARY
ASHLEY TURNER BUILDING CO INC
NC DEPT OF TRANSPORTATION
BARBOUR, RONALD HOUSTON
MATCHLINE SHEET 4
MATCHLINE SHEET 6
SR 1155 GOVERNMENT RD
TYPICAL SECTION NO. 1
FROM NC 50 TO 70 BYPASS
TYPICAL SECTION NO. 3
FROM 70 BYPASS TO GOVT RD
PUBLIC MEETING MAP
PROJECT R-3410
JOHNSTON COUNTY
PROPOSED WIDENING OF NC 42
FROM NC 50 TO US 70 BUSINESS
MAY 2018
ROLL 5 OF 7
NOTES: FULL CONTROL OF ACCESS - "FULL CONTROL OF ACCESS IS DEFINED AS A CONNECTION TO A FACILITY PROVIDED ONLY VIA RAMPS AT INTERCHANGES.ALL CROSS-STREETS ARE GRADE-SEPERATED. NO PRIVATE DRIVEWAY CONNECTIONS ALLOWED.
PARTIAL CONTROL OF ACCESS - "PARTIAL CONTROL OF ACCESS IS DEFINED AS ONE ACCESS POINT PER PARCEL FOR PROPERTIES WITH LARGE ROAD FRONTAGES (FOR EXAMPLE, 300 FEET OR MORE). AN ADDITIONAL ACCES POINT MAY BE CONSIDERED FOR PROPERTIES THAT HAVE ACCESS, SUCH AS VIA SIDE ROAD, ACCESS TO MAINLINE MAY BE ELIMINATED.
DESIGN DATA
FUNCTIONAL CLASSIFICATION = MINOR ARTERIAL
DESIGN SPEED = 55/50 MPH
MAX SUPERELEV = 8.0%
(GRAPHIC SCALE)
PRELIMINARY PLANS
INCOMPLETE PLANS

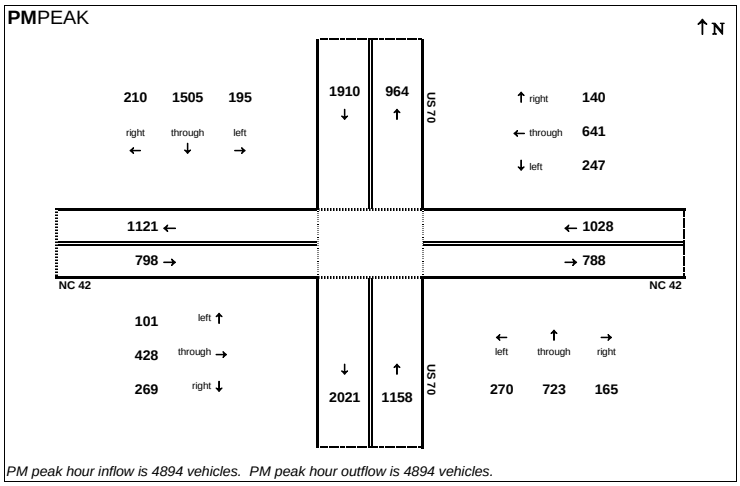

LEGEND
BUILDINGS
EXISTING RIGHT O' WAY
PROPOSED RIGHT OF WAY
PROPOSED EASEMENTS (DRAINAGE, CONSTRUCTION, AND UTILITY)
EXISTING ROADWAY
EXISTING ROADWAY TO BE REMOVED
EXISTING ROADWAY TO BE RESURFACED
PROPOSED ROADWAY
PROPOSED ROADWAY PROJECT = 4729
PROPOSED STRUCTURES, ISLANDS, CURB AND GUTTER
EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO REMAIN
EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
FUTURE STRUCTURES, ISLAND, CURB AND GUTTER
LAKES, RIVER, STREAMS AND PONDS
PROPOSED CONTROL OF ACCESS
PROPOSED PARTIAL CONTROL OF ACCESS
EXISTING CONTROL OF ACCESS
PRESENT ADT
FUTURE ADT
PROPERTY LINES
EXISTING TRAFFIC SIGNAL
PROPOSED TRAFFIC SIGNAL
HISTORIC PROPERTY BOUNDARY
WETLAND LIMITS BOUNDARY
PUBLIC MEETING MAP
PROJECT R-3410
JOHNSTON COUNTY
PROPOSED WIDENING OF NC 42
FROM NC 50 TO US 70 BUSINESS
MAY 2018
ROLL 6 OF 7
MATCHLINE SHEET 5
MATCHLINE SHEET 7
42
NC 50 BUSINESS (BENSON ROAD)
SR 1002 (BRIAR CHAPEL CHURCH RD)
SR 1002 (BRIAR CHAPEL CHURCH RD)
SR 1002 (BRIAR CHAPEL CHURCH R

Appendix E:
Intersection Forecast Breakout Sheets and Interpolation





AM peak hour inflow is 4893 vehicles. AM peak hour outflow is 4893 vehicles.



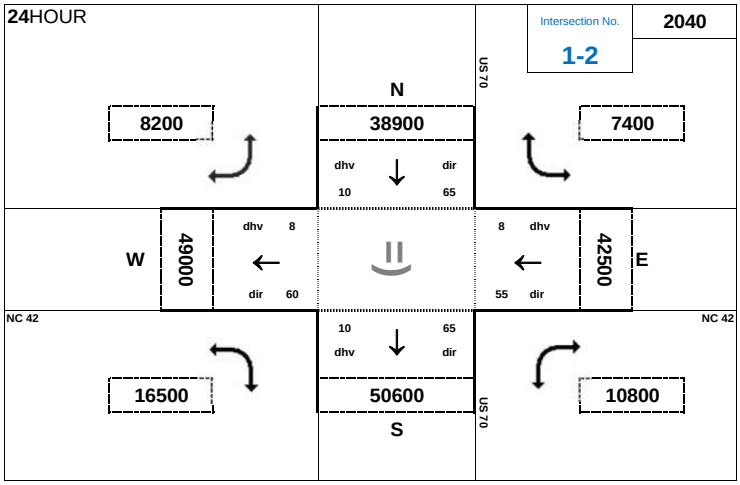
PM peak hour inflow is 4894 vehicles. PM peak hour outflow is 4894 vehicles.

Peak Hour Volume Breakouts Report:
NC 42 at US 70

Traffic Forecast Release Date:
December-16

Traffic Data Year:
EXIST BUILD

Project:
R-3410

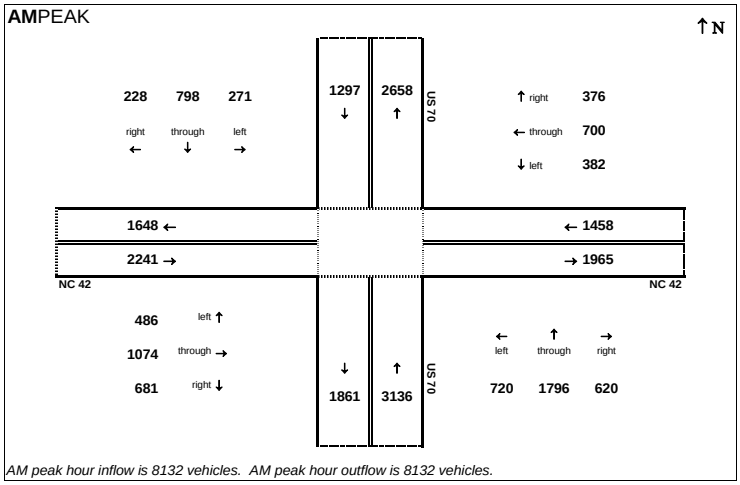


Peak Hour Volume Breakouts Report:
NC 42 at US 70

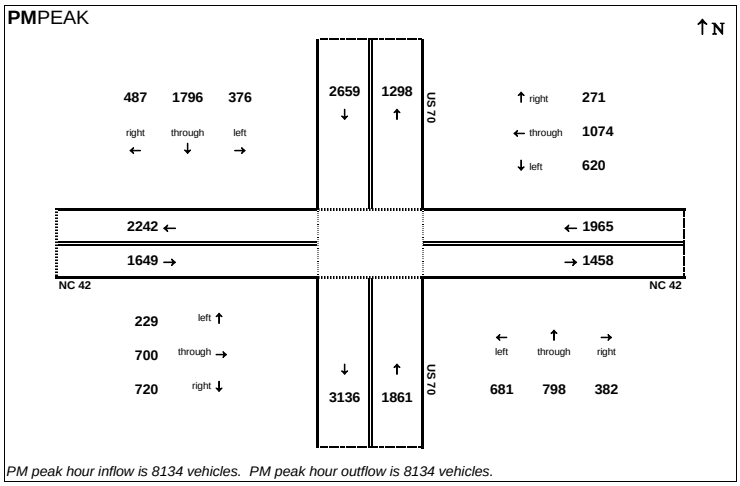
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December-16

Traffic Data Year:
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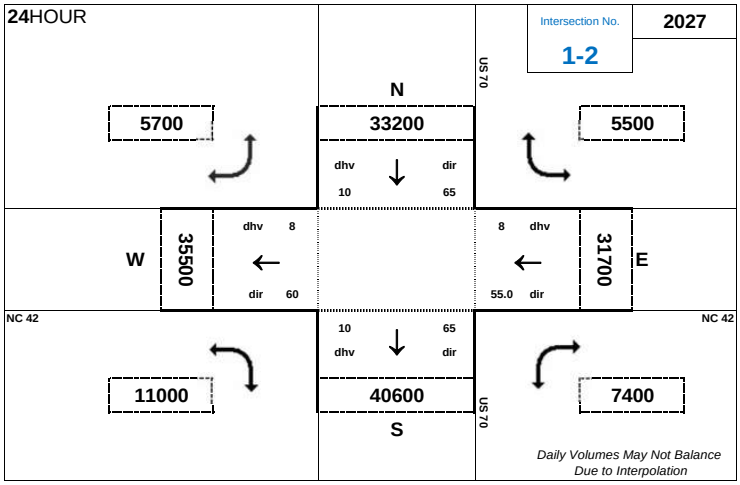
Project:
R-3410

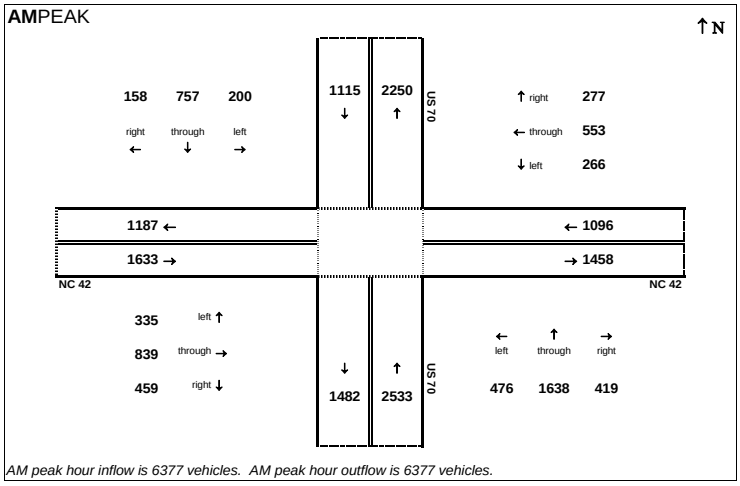


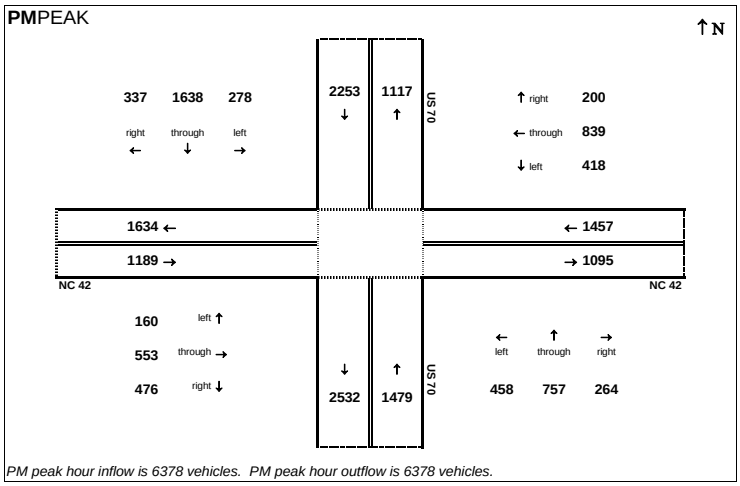
AM peak hour inflow is 8132 vehicles. AM peak hour outflow is 8132 vehicles.



PM peak hour inflow is 8134 vehicles. PM peak hour outflow is 8134 vehicles.





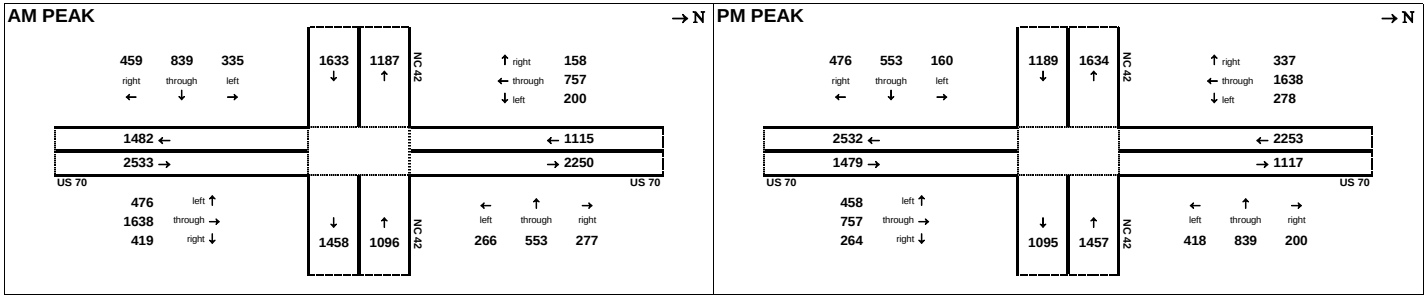


Peak Hour Volume Breakouts Report:
NC 42 at US 70

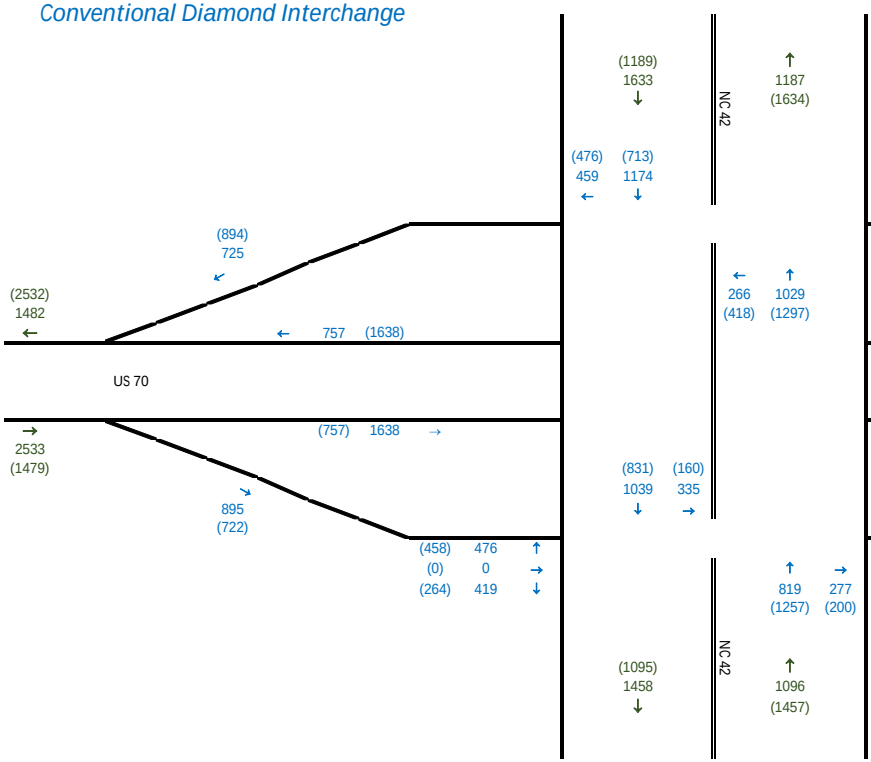
Traffic Forecast Release Date:
December-16

Traffic Data Year:
12/30/0216

Project:
R-3410



Conventional Diamond Interchange

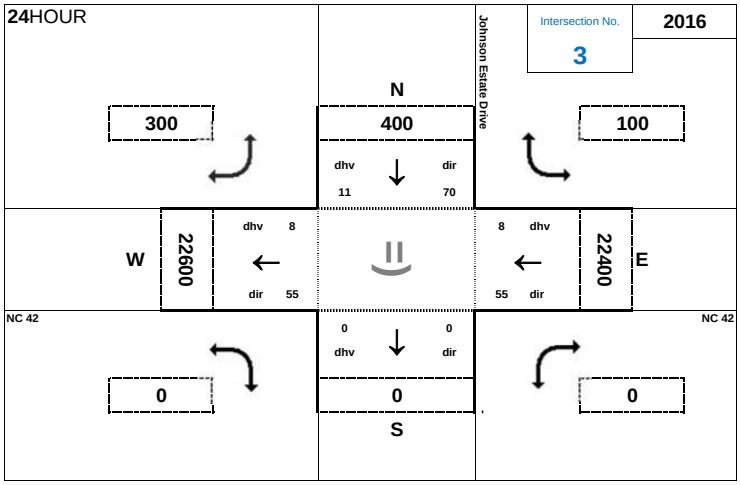


INT ID:

US 70 at NC 42

- AM / (###) - PM

2027	Interpolation		
TIP:	R-3410	WBS:	38857.1.1
COUNTY:	Johnston	DATE:	12/30/2016
PREPARED BY:	NJB		
LOCATION:	NC 42 from NC 50 to US 70 Bus		

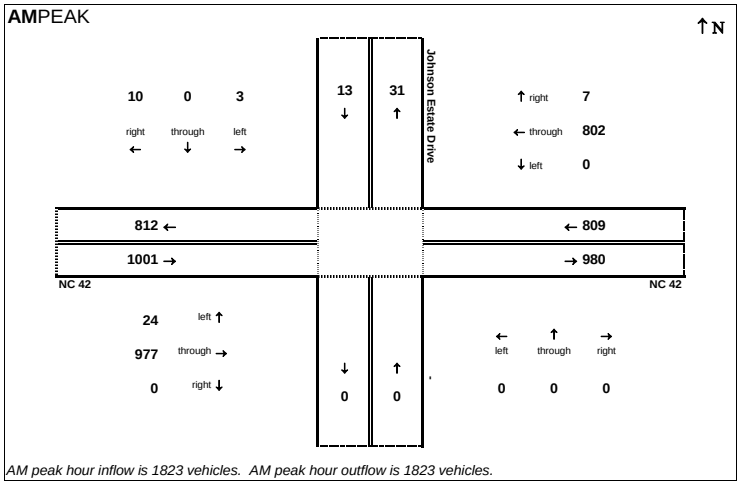


Peak Hour Volume Breakouts Report:
NC 42 at Johnson Estate Drive

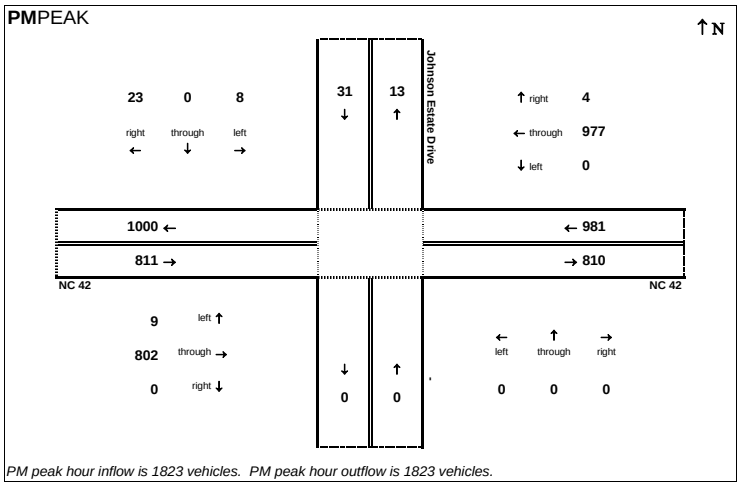
Traffic Forecast Release Date:
December-16

Traffic Data Year:
EXIST BUILD

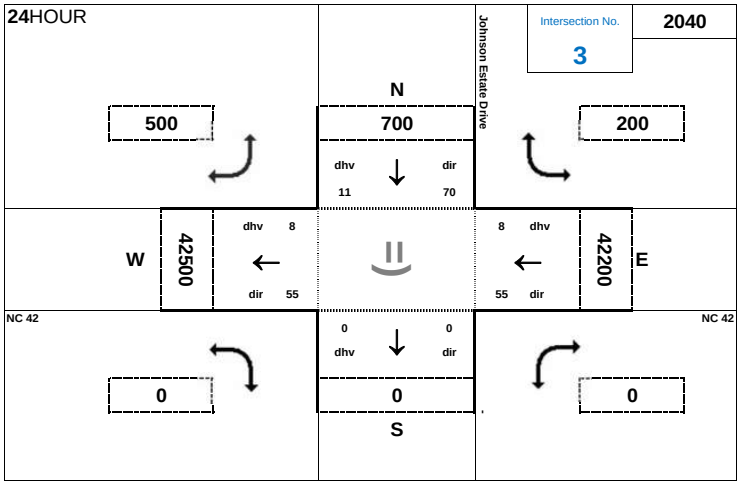
Project:
R-3410



AM peak hour inflow is 1823 vehicles. AM peak hour outflow is 1823 vehicles.



PM peak hour inflow is 1823 vehicles. PM peak hour outflow is 1823 vehicles.

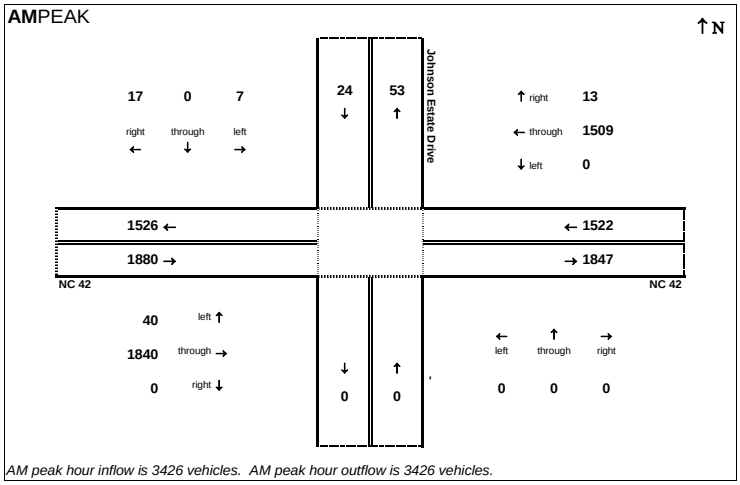


Peak Hour Volume Breakouts Report:
NC 42 at Johnson Estate Drive

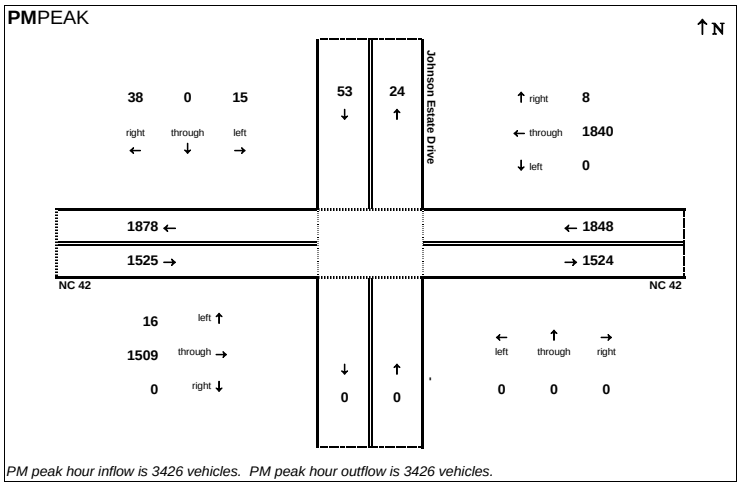
Traffic Forecast Release Date:
December-16

Traffic Data Year:
BUILD

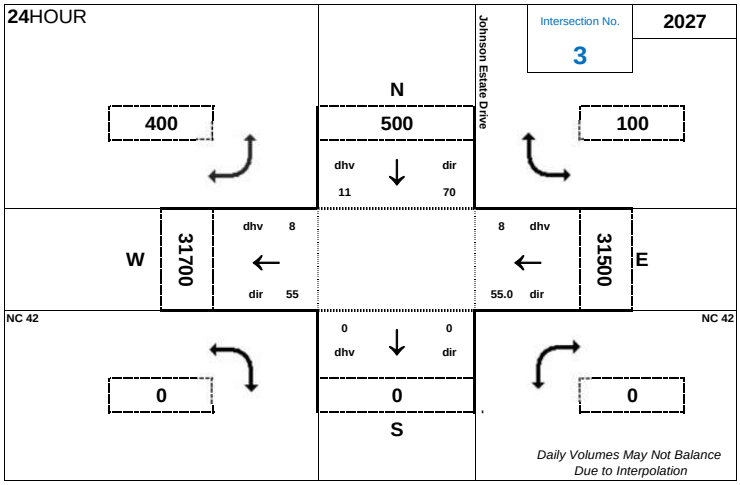
Project:
R-3410



AM peak hour inflow is 3426 vehicles. AM peak hour outflow is 3426 vehicles.



PM peak hour inflow is 3426 vehicles. PM peak hour outflow is 3426 vehicles.

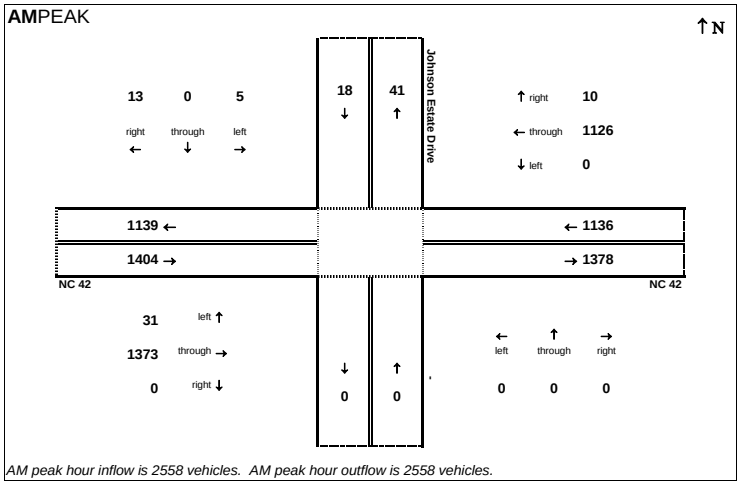


Peak Hour Volume Breakouts Report:
NC 42 at Johnson Estate Drive

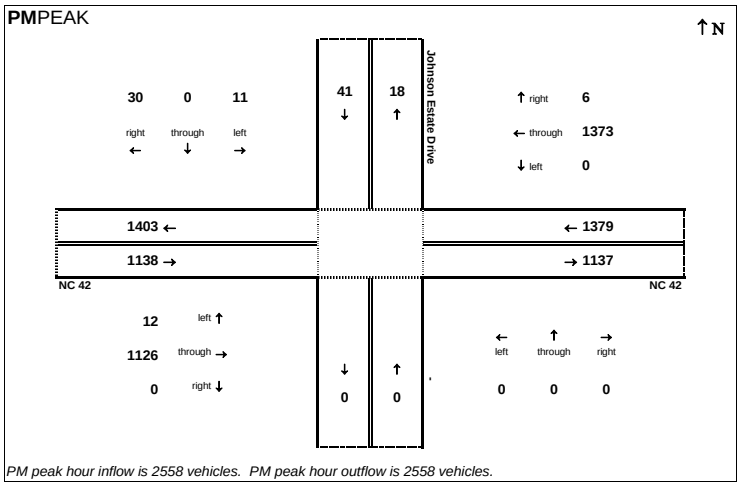
Traffic Forecast Release Date:
December-16

Traffic Data Year:
12/30/0216

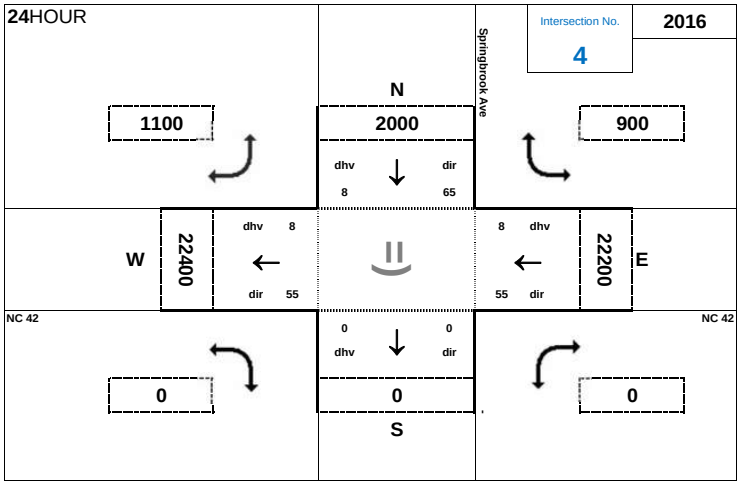
Project:
R-3410



AM peak hour inflow is 2558 vehicles. AM peak hour outflow is 2558 vehicles.



PM peak hour inflow is 2558 vehicles. PM peak hour outflow is 2558 vehicles.

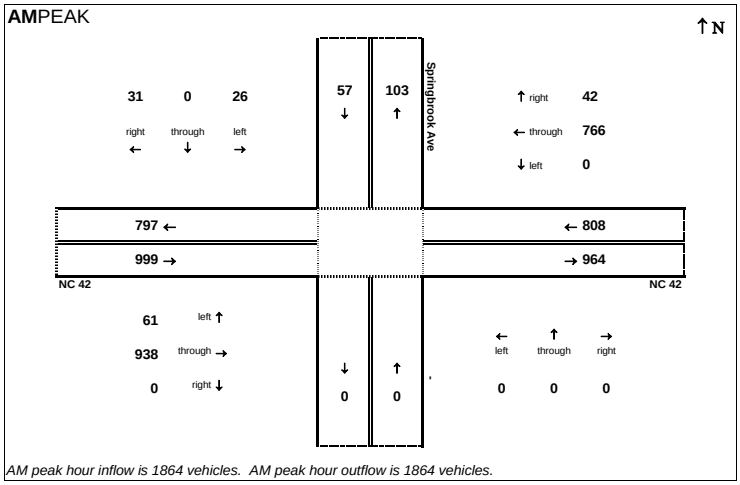


Peak Hour Volume Breakouts Report:
NC 42 at Springbrook Ave

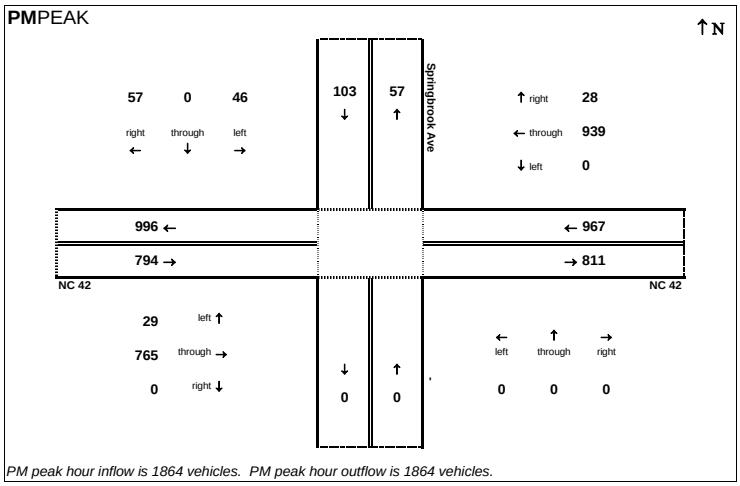
Traffic Forecast Release Date:
December-16

Traffic Data Year:
EXIST BUILD

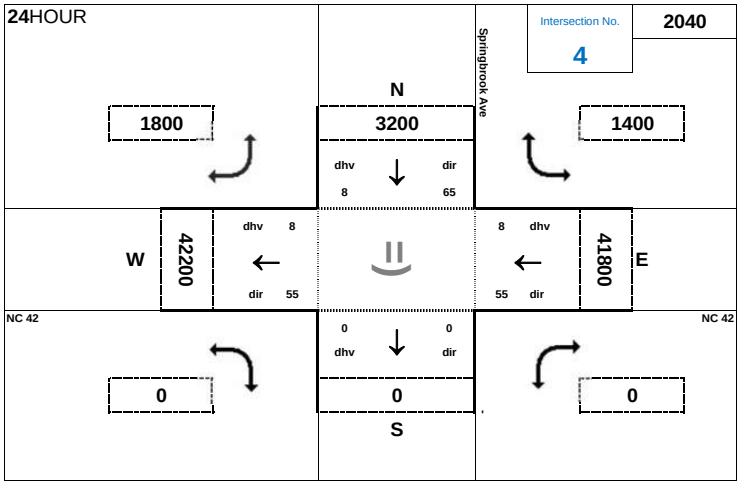
Project:
R-3410



AM peak hour inflow is 1864 vehicles. AM peak hour outflow is 1864 vehicles.



PM peak hour inflow is 1864 vehicles. PM peak hour outflow is 1864 vehicles.

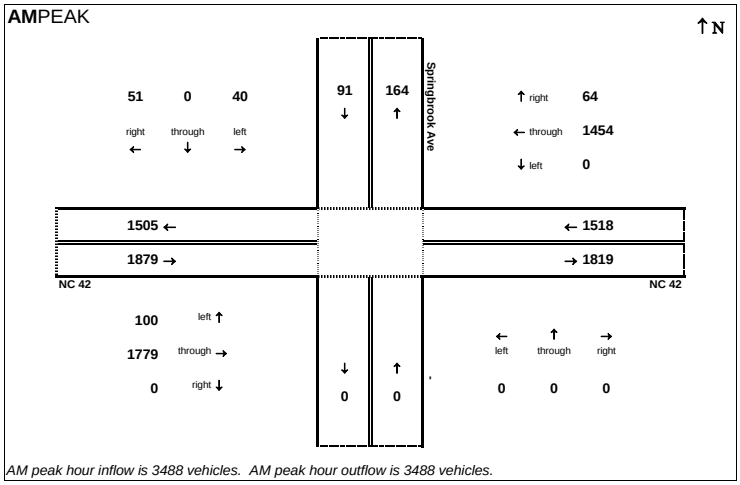


Peak Hour Volume Breakouts Report:
NC 42 at Springbrook Ave

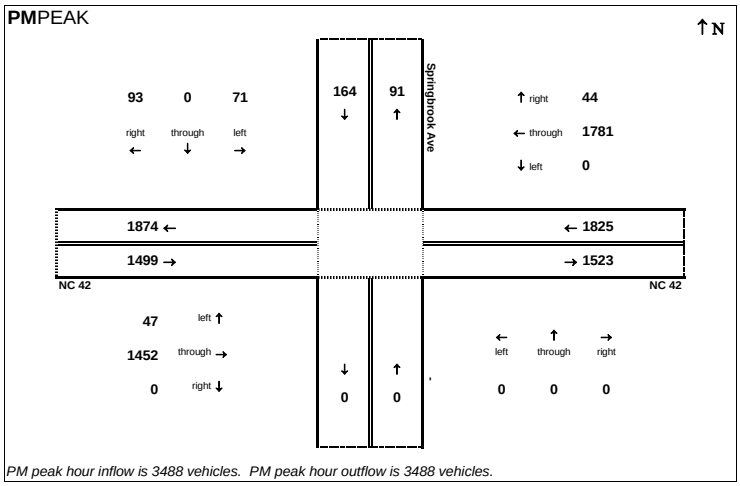
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December-16

Traffic Data Year:
BUILD

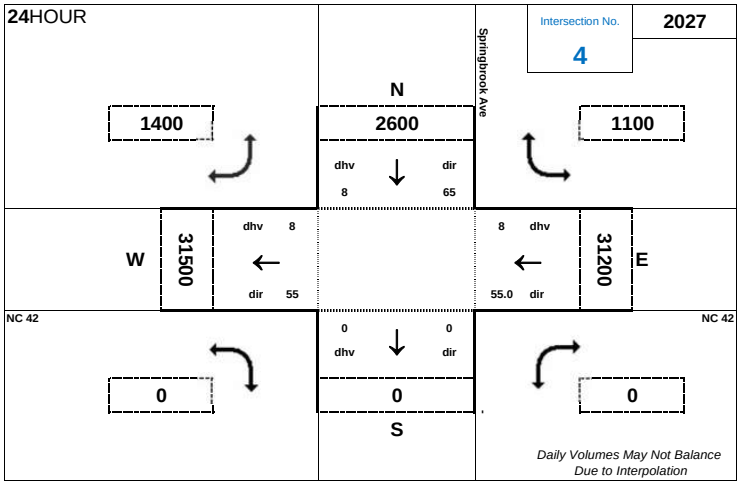
Project:
R-3410

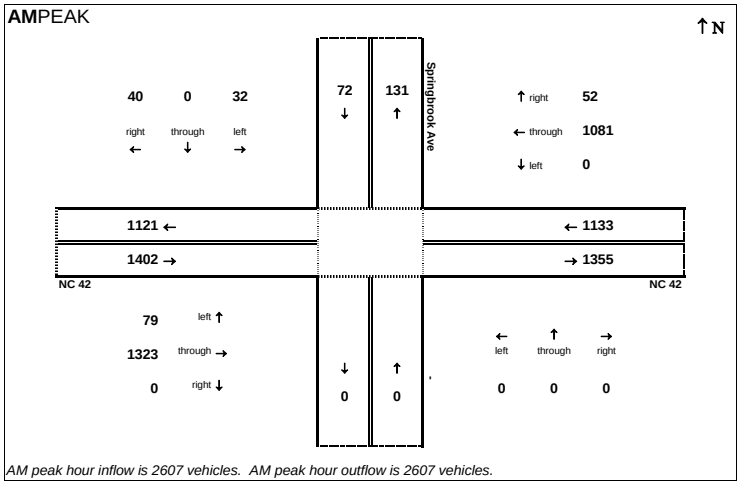


AM peak hour inflow is 3488 vehicles. AM peak hour outflow is 3488 vehicles.

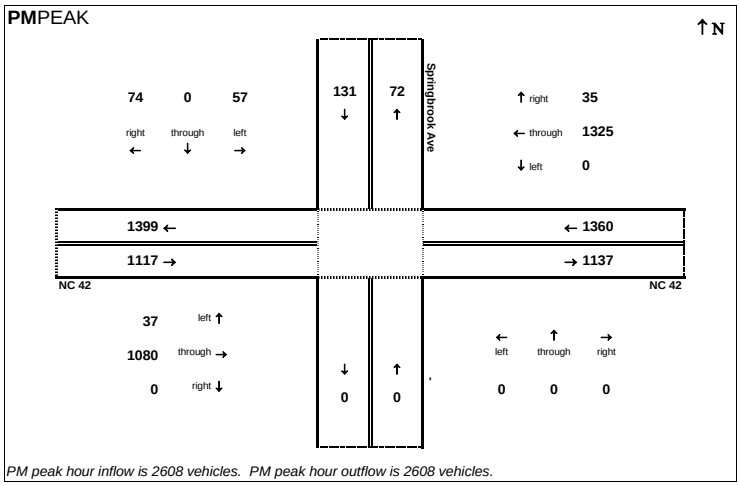


PM peak hour inflow is 3488 vehicles. PM peak hour outflow is 3488 vehicles.





AM peak hour inflow is 2607 vehicles. AM peak hour outflow is 2607 vehicles.



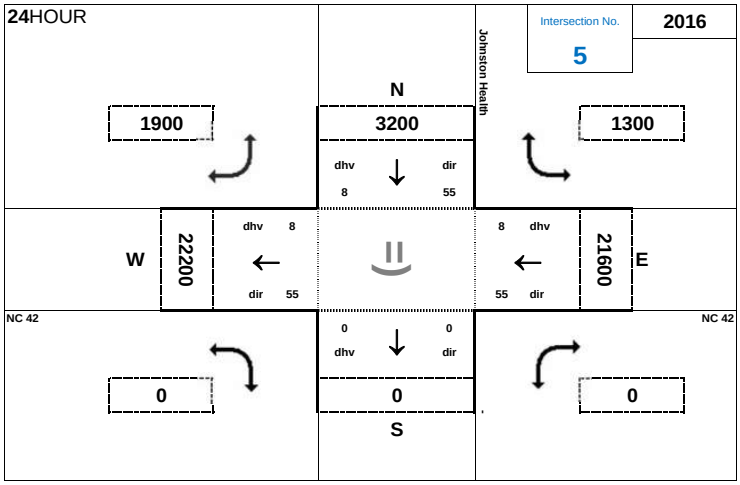
PM peak hour inflow is 2608 vehicles. PM peak hour outflow is 2608 vehicles.

Peak Hour Volume Breakouts Report:
NC 42 at Springbrook Ave

Traffic Forecast Release Date:
December-16

Traffic Data Year:
12/30/0216

Project:
R-3410

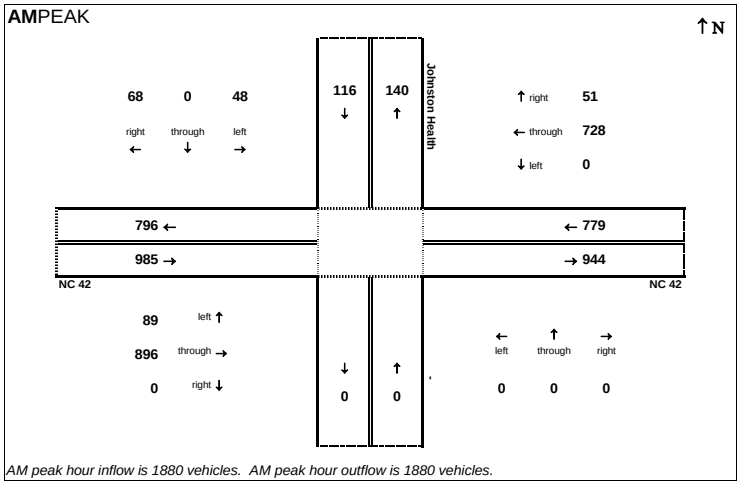


Peak Hour Volume Breakouts Report:
NC 42 at Johnston Med/Health Park

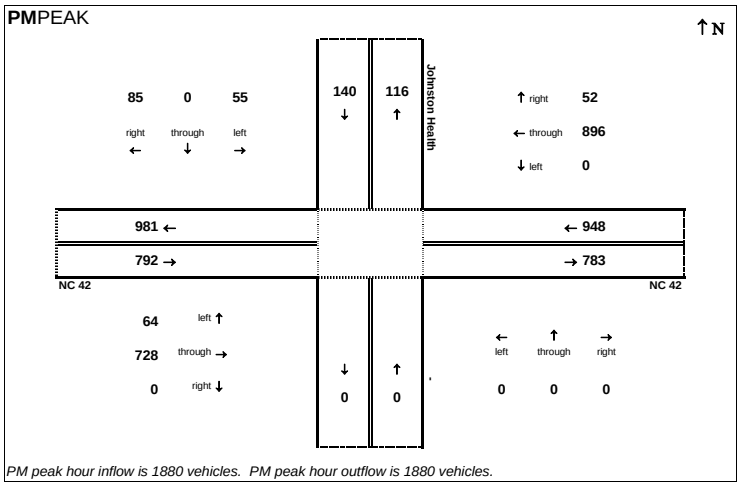
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December-16

Traffic Data Year:
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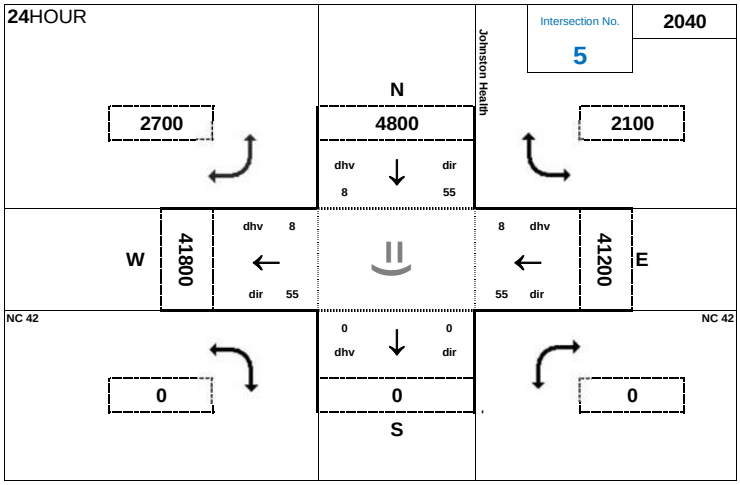
Project:
R-3410



AM peak hour inflow is 1880 vehicles. AM peak hour outflow is 1880 vehicles.



PM peak hour inflow is 1880 vehicles. PM peak hour outflow is 1880 vehicles.

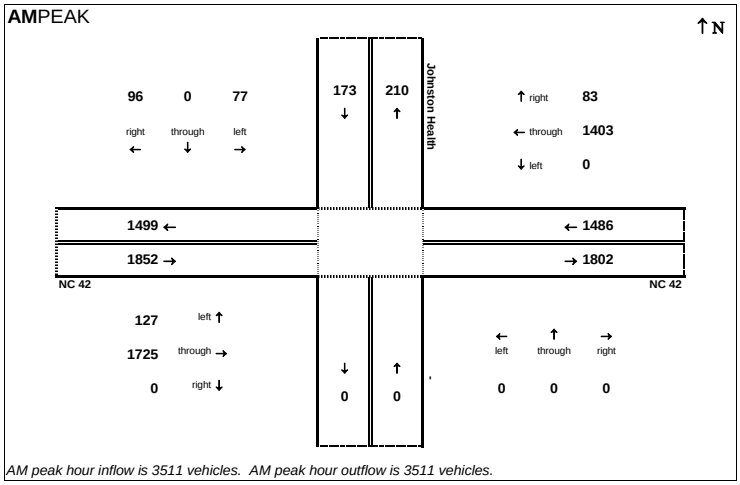


Peak Hour Volume Breakouts Report:
NC 42 at Johnston Med/Health Park

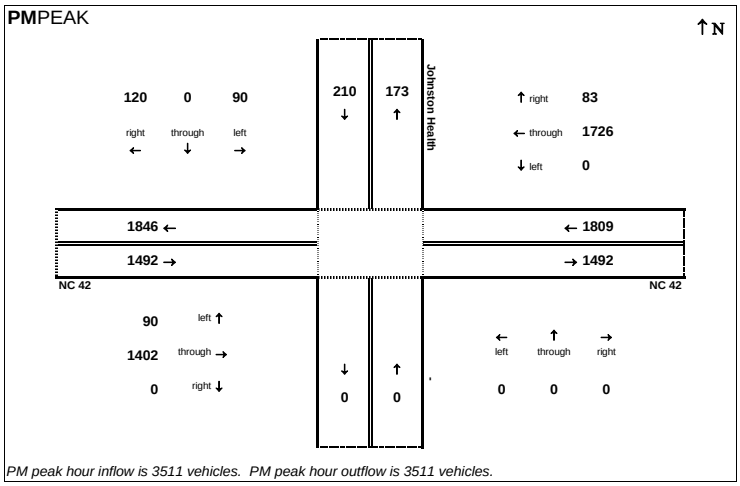
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December-16

Traffic Data Year:
BUILD

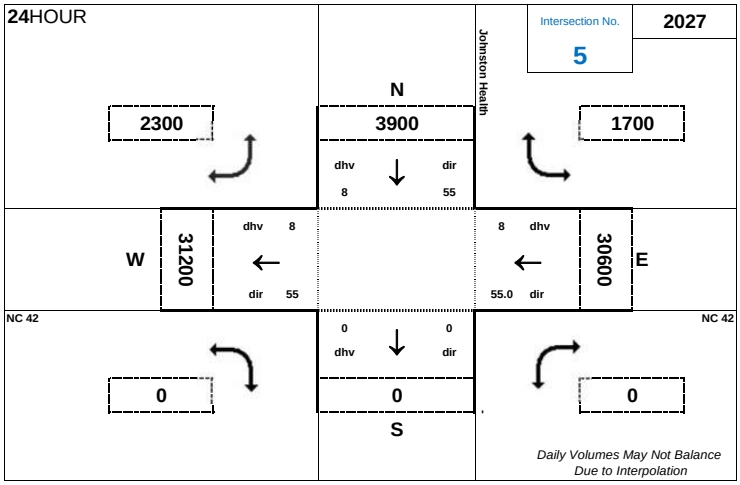
Project:
R-3410

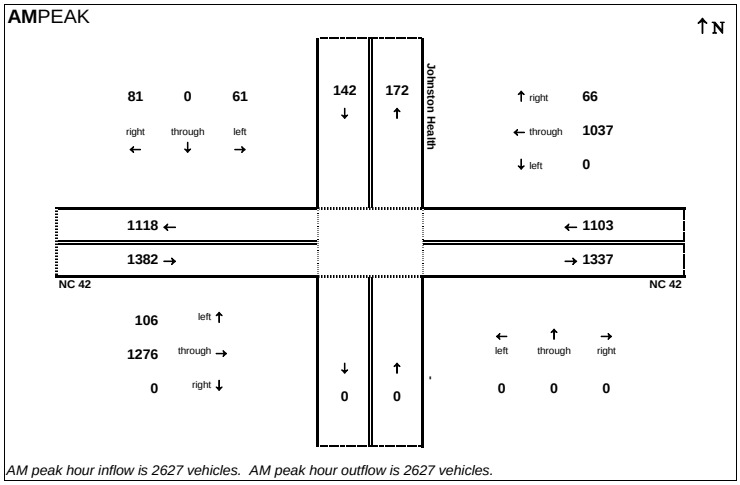


AM peak hour inflow is 3511 vehicles. AM peak hour outflow is 3511 vehicles.

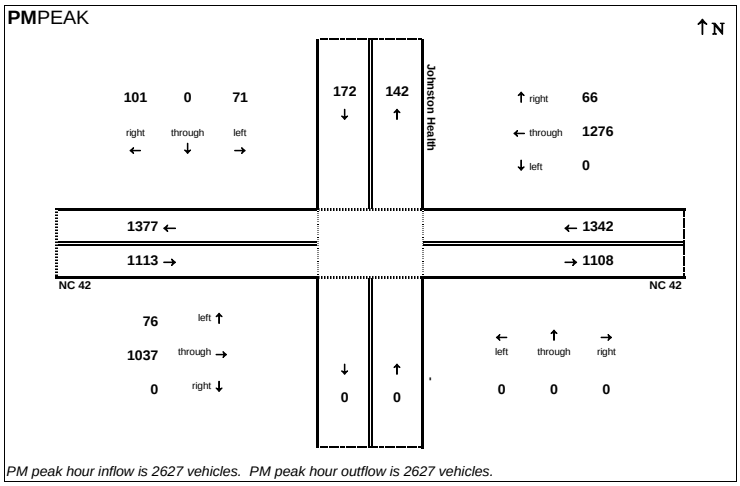


PM peak hour inflow is 3511 vehicles. PM peak hour outflow is 3511 vehicles.





AM peak hour inflow is 2627 vehicles. AM peak hour outflow is 2627 vehicles.



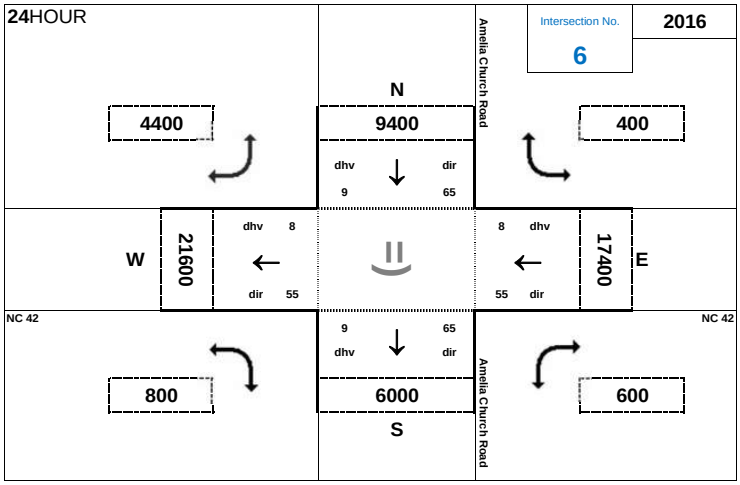
PM peak hour inflow is 2627 vehicles. PM peak hour outflow is 2627 vehicles.

Peak Hour Volume Breakouts Report:
NC 42 at Johnston Med/Health Park

Traffic Forecast Release Date:
December-16

Traffic Data Year:
12/30/0216

Project:
R-3410

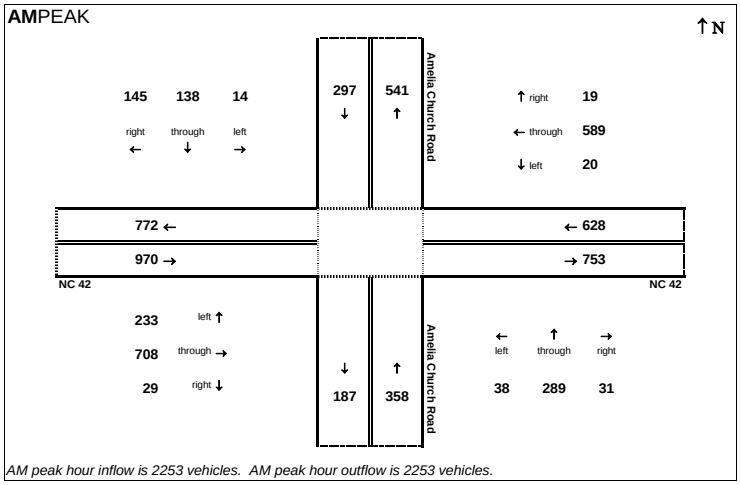


Peak Hour Volume Breakouts Report:
NC 42 at Amelia Church Road

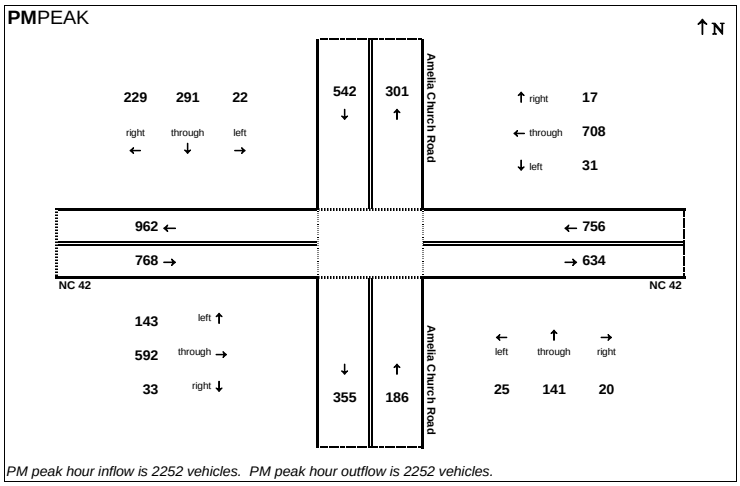
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December-16

Traffic Data Year:
EXIST BUILD

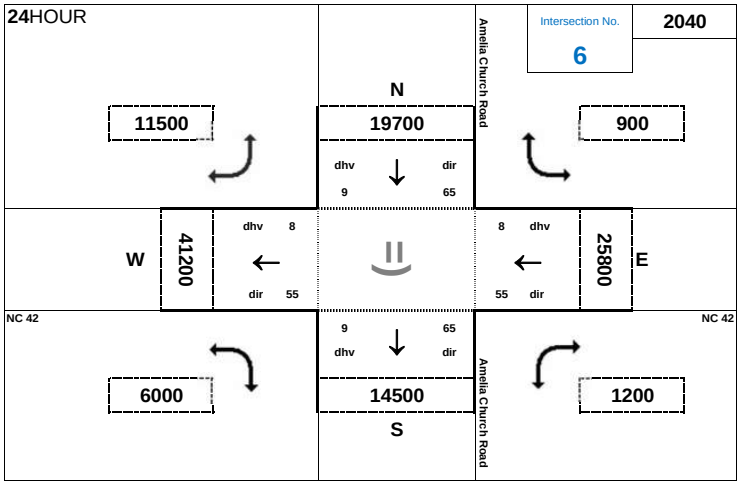
Project:
R-3410



AM peak hour inflow is 2253 vehicles. AM peak hour outflow is 2253 vehicles.



PM peak hour inflow is 2252 vehicles. PM peak hour outflow is 2252 vehicles.

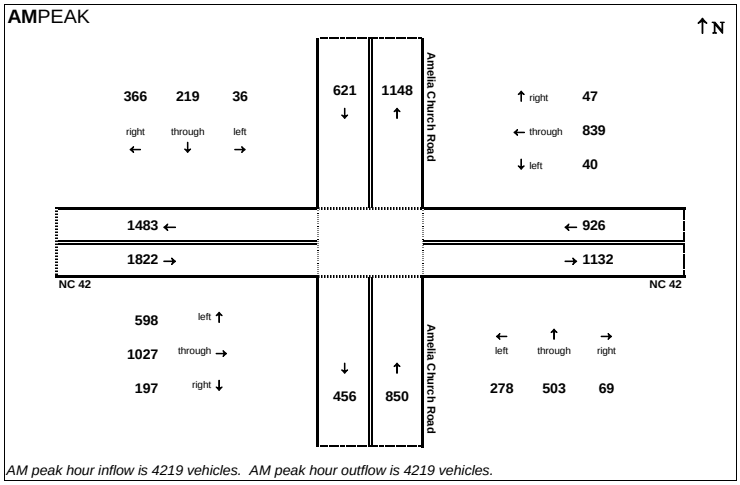


Peak Hour Volume Breakouts Report:
NC 42 at Amelia Church Road

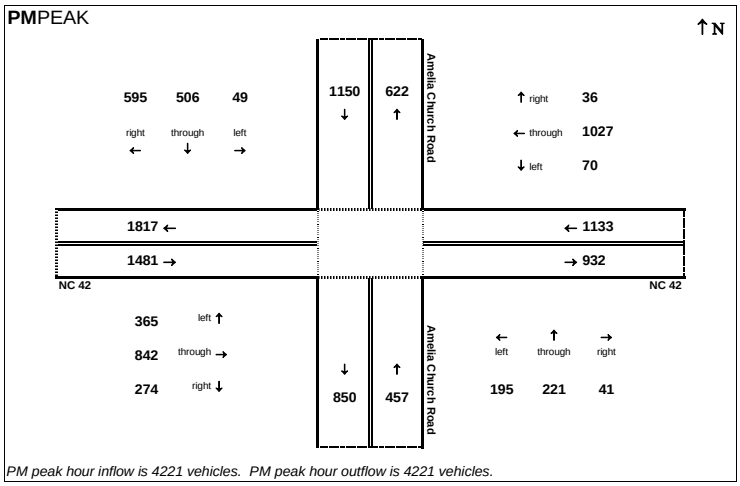
Traffic Forecast Release Date:
December-16

Traffic Data Year:
BUILD

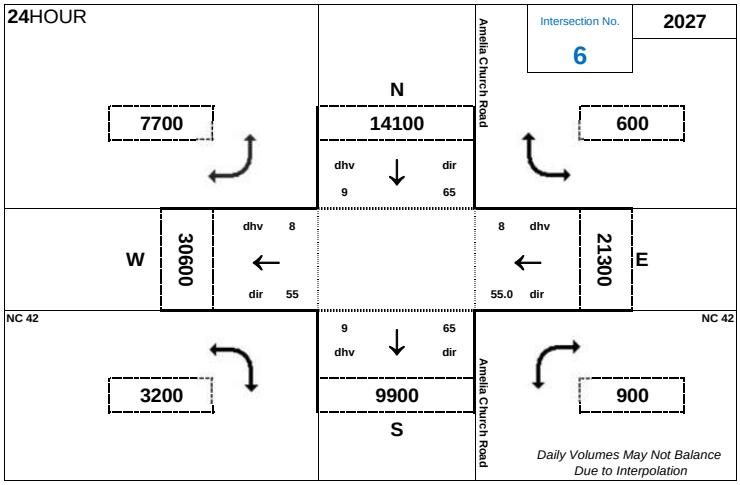
Project:
R-3410

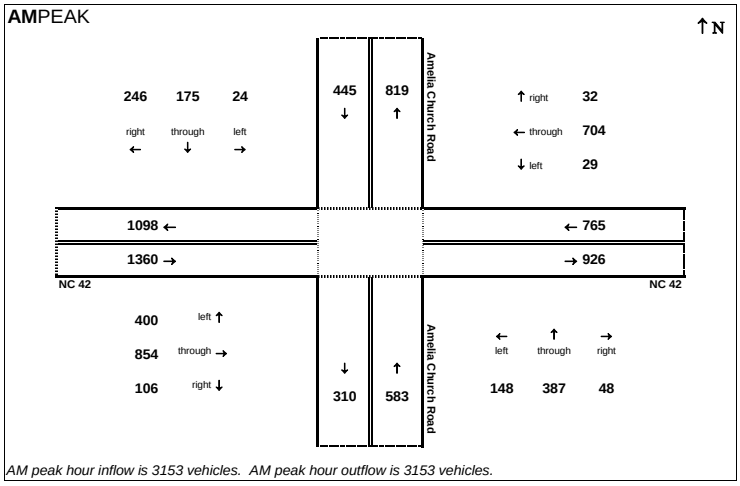


AM peak hour inflow is 4219 vehicles. AM peak hour outflow is 4219 vehicles.

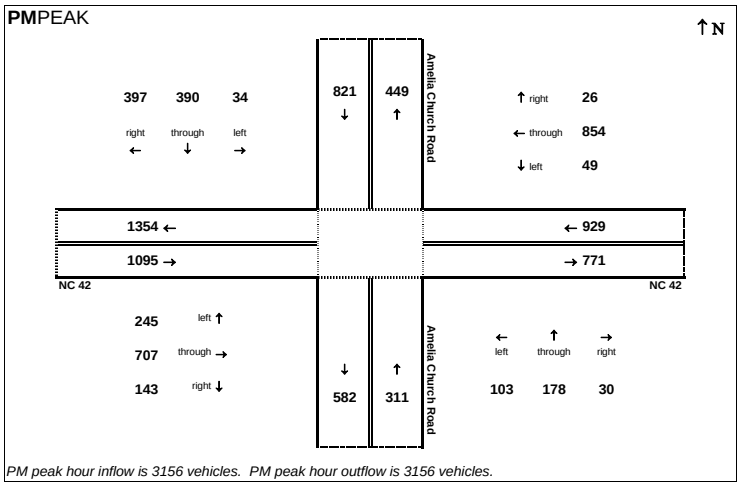


PM peak hour inflow is 4221 vehicles. PM peak hour outflow is 4221 vehicles.





AM peak hour inflow is 3153 vehicles. AM peak hour outflow is 3153 vehicles.



PM peak hour inflow is 3156 vehicles. PM peak hour outflow is 3156 vehicles.

Peak Hour Volume Breakouts Report:
NC 42 at Amelia Church Road

Traffic Forecast Release Date:
December-16

Traffic Data Year:
12/30/0216

Project:
R-3410

Appendix F:

Trip Generation

Lumen Property

Table 1 - Trip Generation

Land Use	Intensity		Daily			AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out	Total	In	Out
210 Single Family Detached Housing	140	d.u.	1,418	709	709	104	26	78	140	88	52
221 Multifamily Housing (Mid-Rise)	480	d.u.	2,614	1,307	1,307	159	41	118	200	122	78
310 Hotel	120	rooms	928	464	464	55	32	23	64	33	31
720 Medical Office Building	700,000	s.f.	26,806	13,403	13,403	1,262	1,073	189	1,260	189	1,071
820 Shopping Center	35,000	s.f.	2,944	1,472	1,472	169	105	64	250	120	130
850 Supermarket	55,000	s.f.	5,874	2,937	2,937	210	126	84	508	259	249
Subtotal			**40,584**	**20,292**	**20,292**	**1,959**	**1,403**	**556**	**2,422**	**811**	**1,611**
Internal Capture											
210 Single Family Detached Housing			367	184	183	2	0	2	63	44	19
221 Multifamily Housing (Low-Rise)			678	340	338	5	1	4	89	61	28
310 Hotel			311	67	244	20	0	20	15	10	5
720 Medical Office Building			1,839	917	922	117	64	53	51	13	38
820 Shopping Center			865	462	403	45	26	19	61	23	38
850 Supermarket			1,726	923	803	57	32	25	123	50	73
Internal Capture Total			*5,786*	*2,893*	*2,893*	*246*	*123*	*123*	*402*	*201*	*201*
Total External Trips			**34,798**	**17,399**	**17,399**	**1,713**	**1,280**	**433**	**2,020**	**610**	**1,410**
Pass-By Capture	AM	PM									
820 Shopping Center[1]	0%	34%	708	354	354	0	0	0	64	33	31
850 Supermarket	0%	36%	1,494	747	747	0	0	0	138	75	63
Pass-By Capture Total			*2,202*	*1,101*	*1,101*	*0*	*0*	*0*	*202*	*108*	*94*
Total Net New External Trips			**32,596**	**16,298**	**16,298**	**1,713**	**1,280**	**433**	**1,818**	**502**	**1,316**

K:\RAL_TPTO_Traffic\011174036 Lumen\T4 - Analysis\[LumenProperty-TIAData.xls]Trip Gen 6/25/20

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY

GROSS TRIP GENERATION

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
INPUT	Office	13,403	13,403	1,073	189	189	1,071
	Retail	4,409	4,409	231	148	379	379
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	2,016	2,016	67	196	210	130
	Hotel	464	464	32	23	33	31
		20,292	20,292	1,403	556	811	1,611

INTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	917	922	64	53	13	38
	Retail	1,385	1,206	58	44	73	111
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	524	521	1	6	105	47
	Hotel	67	244	0	20	10	5
		2,893	2,893	123	123	201	201
	% Reduction	14.3%		12.6%		16.6%	

EXTERNAL TRIPS

	Land Use	Daily		A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit	Enter	Exit
OUTPUT	Office	12,486	12,481	1,009	136	176	1,033
	Retail	3,024	3,203	173	104	306	268
	Restaurant	0	0	0	0	0	0
	Cinema/Entertainment	0	0	0	0	0	0
	Residential	1,492	1,495	66	190	105	83
	Hotel	397	220	32	3	23	26
		17,399	17,399	1,280	433	610	1,410

Appendix G:

Intersection Spreadsheets

INTERSECTION ANALYSIS SHEET

			AM In	AM Out	PM In	PM Out
Project:	**Lumen Property**	**Net New Trips:**	1,280	433	502	1,316
Location:	**Clayton, NC**	**Pass-By Trips:**	0	0	108	94
Ct. Date	**3/8/2016**					
N/S Street:	**US 70 EB Ramps**	**Annual Growth Rate:**	0.0%	**Existing Year:**	2020	
E/W Street:	**NC 42**	**Growth Factor:**	0	**Buildout Year:**	2027	

AM PEAK HOUR
AM PHF = 0.97

Description	NC 42 Eastbound			NC 42 Westbound			US 70 EB Ramps Northbound			US 70 EB Ramps Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	0	523	181	82	819	0	0	0	0	103	1	141
Growth to 2020	0	66	23	10	103	0	0	0	0	13	0	18
2020 Existing Traffic	0	589	204	92	922	0	0	0	0	116	1	159
2027 Forecast Volume	0	1174	459	266	1029	0	0	0	0	200	0	158
2027 Background Traffic	0	1174	459	266	1029	0	0	0	0	200	0	158
Project Traffic												
Percent Assignment Inbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	35%	0%	0%
Inbound Project Traffic	0	128	0	0	0	0	0	0	0	448	0	0
Percent Assignment Outbound	0%	0%	0%	10%	10%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	43	43	0	0	0	0	0	0	0
Total Project Traffic	0	128	0	43	43	0	0	0	0	448	0	0
Forecast Vol. Red. (For Site Traffic)	0	-8	0	-3	-3	0	0	0	0	-29	0	0
2027 Buildout Total	0	1294	459	306	1069	0	0	0	0	619	0	158
Percent Impact (Approach)		7.3%			6.3%			-			57.7%	

Overall Percent Impact 17.0%

PM PEAK HOUR
PM PHF = 0.98

Description	NC 42 Eastbound			NC 42 Westbound			US 70 EB Ramps Northbound			US 70 EB Ramps Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	0	662	185	83	515	0	0	0	0	68	2	19
Growth to 2020	0	83	23	10	65	0	0	0	0	9	0	2
2020 Existing Traffic	0	745	208	93	580	0	0	0	0	77	2	21
2027 Forecast Volume	0	0	0	0	0	0	0	0	0	0	0	0
2027 Background Traffic	0	713	476	418	1297	0	0	0	0	278	0	337
Project Traffic												
Percent Assignment Inbound	0%	10%	0%	0%	0%	0%	0%	0%	0%	35%	0%	0%
Inbound Project Traffic	0	50	0	0	0	0	0	0	0	176	0	0
Percent Assignment Outbound	0%	0%	0%	10%	10%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	132	132	0	0	0	0	0	0	0
Total Project Traffic	0	50	0	132	132	0	0	0	0	176	0	0
Forecast Vol. Red. (For Site Traffic)	0	-3	0	-9	-9	0	0	0	0	-11	0	0
2027 Buildout Total	0	760	476	541	1420	0	0	0	0	443	0	337
Percent Impact (Approach)		4.0%			13.5%			-			22.6%	

Overall Percent Impact 12.3%

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INTERSECTION ANALYSIS SHEET

		AM In	AM Out	PM In	PM Out
Project:	**Lumen Property**	**Net New Trips:**	1,280	433	502	1,316
Location:	**Clayton, NC**	**Pass-By Trips:**	0	0	108	94
Ct. Date	**3/8/2016**					
N/S Street:	**US 70 WB Ramps**	**Annual Growth Rate:**	0.0%	**Existing Year:**	2020	
E/W Street:	**NC 42**	**Growth Factor:**	0	**Buildout Year:**	2027	

AM PEAK HOUR
AM PHF = 0.93

Description	NC 42 Eastbound			NC 42 Westbound			US 70 WB Ramps Northbound			US 70 WB Ramps Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	104	623	0	0	482	84	136	2	97	0	0	0
Growth to 2020	13	78	0	0	60	11	17	0	12	0	0	0
2020 Existing Traffic	117	701	0	0	542	95	153	2	109	0	0	0
2027 Forecast Volume	335	1039	0	0	819	277	476	0	419	0	0	0
2027 Background Traffic	335	1039	0	0	819	277	476	0	419	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	45%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Inbound Project Traffic	0	576	0	0	0	0	0	0	128	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	35%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	87	152	0	0	0	0	0	0
Total Project Traffic	0	576	0	0	87	152	0	0	128	0	0	0
Forecast Vol. Red. (For Site Traffic)	0	-37	0	0	-6	-10	0	0	-8	0	0	0
2027 Buildout Total	335	1578	0	0	900	419	476	0	539	0	0	0
Percent Impact (Approach)		30.1%			18.1%			12.6%			-	

Overall Percent Impact 22.2%

PM PEAK HOUR
PM PHF = 0.97

Description	NC 42 Eastbound			NC 42 Westbound			US 70 WB Ramps Northbound			US 70 WB Ramps Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	39	591	0	0	703	131	199	2	83	0	0	0
Growth to 2020	5	74	0	0	88	16	25	0	10	0	0	0
2020 Existing Traffic	44	665	0	0	791	147	224	2	93	0	0	0
2027 Forecast Volume	160	831	0	0	1257	200	458	0	264	0	0	0
2027 Background Traffic	160	831	0	0	1257	200	458	0	264	0	0	0
Project Traffic												
Percent Assignment Inbound	0%	45%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%
Inbound Project Traffic	0	226	0	0	0	0	0	0	50	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	20%	35%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	263	461	0	0	0	0	0	0
Total Project Traffic	0	226	0	0	263	461	0	0	50	0	0	0
Forecast Vol. Red. (For Site Traffic)	0	-15	0	0	-17	-30	0	0	-3	0	0	0
2027 Buildout Total	160	1042	0	0	1503	631	458	0	311	0	0	0
Percent Impact (Approach)		18.8%			33.9%			6.5%			-	

Overall Percent Impact 24.4%

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INTERSECTION ANALYSIS SHEET

			AM In	AM Out	PM In	PM Out
Project:	**Lumen Property**	**Net New Trips:**	1,280	433	502	1,316
Location:	**Clayton, NC**	**Pass-By Trips:**	0	0	108	94
Ct. Date	**9/21/2016**					
N/S Street:	**Johnson Estate Road/West Site Driveway**	**Annual Growth Rate:**	0.0%	**Existing Year:**	2020	
E/W Street:	**NC 42**	**Growth Factor:**	0	**Buildout Year:**	2027	

AM PEAK HOUR
AM PHF = 0.98

Description	NC 42 Eastbound			NC 42 Westbound			West Site Driveway Northbound			Johnson Estate Road/West Site Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	23	701	0	0	525	5	0	0	0	0	0	7
Growth to 2020	3	88	0	0	66	1	0	0	0	0	0	1
2020 Existing Traffic	26	789	0	0	591	6	0	0	0	0	0	8
2027 Forecast Volume	31	1373	0	0	1126	10	0	0	0	5	0	13
Convert J.E. Forecast to RIRO	-31	31	0	0	0	0	0	0	0	-5	0	0
2027 Background Traffic	0	1404	0	0	1126	10	0	0	0	0	0	13
Project Traffic												
Percent Assignment Inbound	0%	20%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	256	448	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	55%	0%	0%	0%	20%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	238	0	0	0	86	0	0	0
Total Project Traffic	0	256	448	0	238	0	0	0	86	0	0	0
Forecast Vol. Red. (For Site Traffic)	0	-46	0	0	-15	0	0	0	0	0	0	0
2027 Buildout Total	0	1614	448	0	1349	10	0	0	86	0	0	13
Percent Impact (Approach)		34.1%			17.5%			100.0%			0.0%	

Overall Percent Impact 29.2%

PM PEAK HOUR
PM PHF = 0.95

Description	NC 42 Eastbound			NC 42 Westbound			West Site Driveway Northbound			Johnson Estate Road/West Site Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	9	601	0	0	796	5	0	0	0	0	0	30
Growth to 2020	1	75	0	0	100	1	0	0	0	0	0	4
2020 Existing Traffic	10	676	0	0	896	6	0	0	0	0	0	34
2027 Forecast Volume	12	1126	0	0	1373	6	0	0	0	11	0	30
Convert J.E. Forecast to RIRO	-12	12	0	0	0	0	0	0	0	-11	0	0
2027 Background Traffic	0	1138	0	0	1373	6	0	0	0	0	0	30
Project Traffic												
Percent Assignment Inbound	0%	20%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	100	176	0	0	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	55%	0%	0%	0%	20%	0%	0%	0%
Outbound Project Traffic	0	0	0	0	724	0	0	0	263	0	0	0
Total External Site Traffic	0	100	176	0	724	0	0	0	263	0	0	0
Pass-By Capture Reduction	0	-49	0	0	0	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	43	5	0	0	0	0	0	5	0	0	0
Total Pass-By Traffic	0	-6	5	0	0	0	0	0	5	0	0	0
Total Project Traffic	0	94	181	0	724	0	0	0	268	0	0	0
Forecast Vol. Red. (For Site Traffic)	0	-18	0	0	-47	0	0	0	0	0	0	0
2027 Buildout Total	0	1214	181	0	2050	6	0	0	268	0	0	30
Percent Impact (Approach)		19.7%			35.2%			100.0%			0.0%	

Overall Percent Impact 33.8%

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INTERSECTION ANALYSIS SHEET

Project:	**Lumen Property**
Location:	**Clayton, NC**
Ct. Date	**9/21/2016**
N/S Street:	**Springbrook Avenue/East Site Driveway**
E/W Street:	**NC 42**

	AM In	AM Out	PM In	PM Out
Net New Trips:	1,280	433	502	1,316
Pass-By Trips:	0	0	108	94

Annual Growth Rate:	0.0%	**Existing Year:**	2020
Growth Factor:	0	**Buildout Year:**	2027

AM PEAK HOUR
AM PHF = 0.98

Description	NC 42 Eastbound				NC 42 Westbound			East Site Driveway Northbound			Springbrook Avenue Southbound		
	U-Turn	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	0	77	619	0	0	513	49	0	0	0	9	0	15
Growth to 2020	0	10	78	0	0	64	6	0	0	0	1	0	2
2020 Existing Traffic	0	87	697	0	0	577	55	0	0	0	10	0	17
2027 Forecast Volume	0	79	1323	0	0	1081	52	0	0	0	32	0	40
Convert J.E. Forecast to RIRO	0	31	-5	0	0	0	0	0	0	0	5	0	0
2027 Background Traffic	0	110	1318	0	0	1081	52	0	0	0	37	0	40
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	20%	40%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	0	256	512	0	0	0	0	0	0	64	0
Percent Assignment Outbound	10%	0%	10%	0%	0%	0%	0%	45%	5%	30%	0%	0%	0%
Outbound Project Traffic	43	0	43	0	0	0	0	195	22	130	0	0	0
Total Project Traffic	43	0	43	256	512	0	0	195	22	130	0	64	0
Forecast Vol. Red. (For Site Traffic)	0	0	-22	0	0	-33	0	0	0	0	0	0	0
2027 Buildout Total	43	110	1339	256	512	1048	52	195	22	130	37	64	40
Percent Impact (Approach)			19.6%			31.8%			100.0%			45.4%	

Overall Percent Impact 32.9%

PM PEAK HOUR
PM PHF = 0.96

Description	NC 42 Eastbound				NC 42 Westbound			East Site Driveway Northbound			Springbrook Avenue Southbound		
	U-Turn	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	0	16	592	0	0	710	23	0	0	0	25	0	78
Growth to 2020	0	2	74	0	0	89	3	0	0	0	3	0	10
2020 Existing Traffic	0	18	666	0	0	799	26	0	0	0	28	0	88
2027 Forecast Volume	0	37	1080	0	0	1325	35	0	0	0	57	0	74
Convert J.E. Forecast to RIRO	0	12	-11	0	0	0	0	0	0	0	11	0	0
2027 Background Traffic	0	49	1069	0	0	1325	35	0	0	0	68	0	74
Project Traffic													
Percent Assignment Inbound	0%	0%	0%	20%	40%	0%	0%	0%	0%	0%	0%	5%	0%
Inbound Project Traffic	0	0	0	100	201	0	0	0	0	0	0	25	0
Percent Assignment Outbound	10%	0%	10%	0%	0%	0%	0%	45%	5%	30%	0%	0%	0%
Outbound Project Traffic	132	0	132	0	0	0	0	592	66	395	0	0	0
Total External Site Traffic	132	0	132	100	201	0	0	592	66	395	0	25	0
Pass-By Capture Reduction	0	0	-49	0	0	-59	0	0	0	0	0	0	0
Pass-By Capture Assignment	0	0	5	43	59	0	0	52	0	38	0	0	0
Total Pass-By Traffic	0	0	-44	43	59	-59	0	52	0	38	0	0	0
Total Project Traffic	132	0	88	143	260	-59	0	644	66	433	0	25	0
Forecast Vol. Red. (For Site Traffic)	0	0	-24	0	0	-17	0	0	0	0	0	0	0
2027 Buildout Total	132	49	1133	143	260	1249	35	644	66	433	68	25	74
Percent Impact (Approach)			24.9%			13.0%			100.0%			15.0%	

Overall Percent Impact 40.2%

INTERSECTION ANALYSIS SHEET

Project:	**Lumen Property**
Location:	**Clayton, NC**
Ct. Date	**9/21/2016**
N/S Street:	**Johnston Health/Health Park Way**
E/W Street:	**NC 42**

	AM In	AM Out	PM In	PM Out
Net New Trips:	1,280	433	502	1,316
Pass-By Trips:	0	0	108	94

Annual Growth Rate:	0.0%	**Existing Year:**	2020
Growth Factor:	0	**Buildout Year:**	2027

AM PEAK HOUR
AM PHF = 0.96

Description	NC 42 Eastbound			NC 42 Westbound			Health Park Way Northbound			Johnson Health Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	85	516	0	0	538	69	0	0	0	16	0	19
Growth to 2020	11	65	0	0	68	9	0	0	0	2	0	2
HealthPark Way Trip Gen	0	0	22	21	0	0	6	0	6	0	0	0
2020 Existing Traffic	96	581	22	21	606	78	6	0	6	18	0	21
2027 Forecast Volume	106	1276	22	21	1037	66	6	0	6	61	0	81
2027 Background Traffic	106	1276	22	21	1037	66	6	0	6	61	0	81
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	512	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	173	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	173	0	0	512	0	0	0	0	0	0	0
Forecast Vol. Red. (For Site Traffic)	0	-11	0	0	-33	0	0	0	0	0	0	0
2027 Buildout Total	106	1438	22	21	1516	66	6	0	6	61	0	81
Percent Impact (Approach)		11.1%			32.0%			0.0%			0.0%	

Overall Percent Impact 20.6%

PM PEAK HOUR
PM PHF = 0.91

Description	NC 42 Eastbound			NC 42 Westbound			Health Park Way Northbound			Johnson Health Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	85	516	0	0	538	69	0	0	0	38	0	41
Growth to 2020	11	65	0	0	68	9	0	0	0	5	0	5
HealthPark Way Trip Gen	0	0	10	10	0	0	26	0	26	0	0	0
2020 Existing Traffic	96	581	10	10	606	78	26	0	26	43	0	46
2027 Forecast Volume	76	1037	10	10	1276	66	26	0	26	71	0	101
2027 Background Traffic	76	1037	10	10	1276	66	26	0	26	71	0	101
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%
Inbound Project Traffic	0	0	0	0	201	0	0	0	0	0	0	0
Percent Assignment Outbound	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	0	526	0	0	0	0	0	0	0	0	0	0
Total Project Traffic	0	526	0	0	201	0	0	0	0	0	0	0
Forecast Vol. Red. (For Site Traffic)	0	-34	0	0	-13	0	0	0	0	0	0	0
2027 Buildout Total	76	1529	10	10	1464	66	26	0	26	71	0	101
Percent Impact (Approach)		32.6%			13.1%			0.0%			0.0%	

Overall Percent Impact 21.5%

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INTERSECTION ANALYSIS SHEET

			AM In	AM Out	PM In	PM Out
Project:	**Lumen Property**	**Net New Trips:**	1,280	433	502	1,316
Location:	**Clayton, NC**	**Pass-By Trips:**	0	0	108	94
Ct. Date	**9/20/2016**					
N/S Street:	**Amelia Church Road**	**Annual Growth Rate:**	0.0%	**Existing Year:**	2020	
E/W Street:	**NC 42**	**Growth Factor:**	0	**Buildout Year:**	2027	

AM PEAK HOUR
AM PHF = 0.87

Description	NC 42 Eastbound			NC 42 Westbound			Amelia Church Road Northbound			Amelia Church Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	204	272	27	5	286	9	144	277	48	17	115	182
Growth to 2020	26	34	3	1	36	1	18	35	6	2	14	23
2020 Existing Traffic	230	306	30	6	322	10	162	312	54	19	129	205
2027 Forecast Volume	400	854	106	29	704	32	148	387	48	24	175	246
2027 Background Traffic	400	854	106	29	704	32	148	387	48	24	175	246
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	25%	0%	5%	0%	0%	0%	0%	10%
Inbound Project Traffic	0	0	0	0	320	0	64	0	0	0	0	128
Percent Assignment Outbound	10%	25%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	43	108	22	0	0	0	0	0	0	0	0	0
Total Project Traffic	43	108	22	0	320	0	64	0	0	0	0	128
Forecast Vol. Red. (For Site Traffic)	-3	-7	-1	0	-21	0	-4	0	0	0	0	-8
2027 Buildout Total	440	955	127	29	1003	32	208	387	48	24	175	366
Percent Impact (Approach)		11.4%			30.1%			10.0%			22.7%	

Overall Percent Impact 18.1%

PM PEAK HOUR
PM PHF = 0.98

Description	NC 42 Eastbound			NC 42 Westbound			Amelia Church Road Northbound			Amelia Church Road Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2016 Traffic Count	173	364	88	40	363	12	66	135	30	15	308	223
Growth to 2020	22	46	11	5	46	2	8	17	4	2	39	28
2020 Existing Traffic	195	410	99	45	409	14	74	152	34	17	347	251
2027 Forecast Volume	245	707	143	49	854	26	103	178	30	34	390	397
2027 Background Traffic	245	707	143	49	854	26	103	178	30	34	390	397
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	25%	0%	5%	0%	0%	0%	0%	10%
Inbound Project Traffic	0	0	0	0	126	0	25	0	0	0	0	50
Percent Assignment Outbound	10%	25%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Outbound Project Traffic	132	329	66	0	0	0	0	0	0	0	0	0
Total Project Traffic	132	329	66	0	126	0	25	0	0	0	0	50
Forecast Vol. Red. (For Site Traffic)	-9	-21	-4	0	-8	0	-2	0	0	0	0	-3
2027 Buildout Total	368	1015	205	49	972	26	126	178	30	34	390	444
Percent Impact (Approach)		33.2%			12.0%			7.5%			5.8%	

Overall Percent Impact 19.0%

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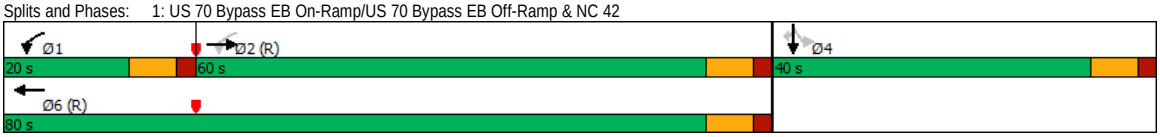
Appendix H:
Synchro Output:
Existing (2020)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	589	204	92	922	0	0	0	0	116	4	159
Future Volume (vph)	0	589	204	92	922	0	0	0	0	116	4	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			0%			0%			4%	
Storage Length (ft)	0		0	225		0	0		0	275		275
Storage Lanes	0		0	1		0	0		0	1		1
Taper Length (ft)	25			300			25			100		
Satd. Flow (prot)	0	3418	0	1770	3539	0	0	0	0	1648	1656	1552
Flt Permitted				0.275						0.950	0.955	
Satd. Flow (perm)	0	3418	0	512	3539	0	0	0	0	1648	1656	1552
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			25	
Link Distance (ft)		260			1187			548			472	
Travel Time (s)		3.2			14.7			6.8			12.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										49%		
Lane Group Flow (vph)	0	881	0	102	1024	0	0	0	0	66	67	177
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				2						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		14.0		7.0	14.0					7.0	7.0	7.0
Minimum Split (s)		21.0		14.0	21.0					14.0	14.0	14.0
Total Split (s)		60.0		20.0	80.0					40.0	40.0	40.0
Total Split (%)		50.0%		16.7%	66.7%					33.3%	33.3%	33.3%
Yellow Time (s)		5.0		5.0	5.0					5.0	5.0	5.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0					-2.0	-2.0	-2.0
Total Lost Time (s)		5.0		5.0	5.0					5.0	5.0	5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max					None	None	None
Act Effct Green (s)		74.2		84.0	89.0					21.0	21.0	21.0
Actuated g/C Ratio		0.62		0.70	0.74					0.18	0.18	0.18
v/c Ratio		0.42		0.22	0.39					0.23	0.23	0.65
Control Delay		13.4		3.9	7.1					42.5	42.6	56.8
Queue Delay		0.0		0.0	0.0					0.0	0.0	0.0
Total Delay		13.4		3.9	7.1					42.5	42.6	56.8
LOS		B		A	A					D	D	E
Approach Delay		13.4			6.8						50.7	
Approach LOS		B			A						D	
Queue Length 50th (ft)		170		7	86					46	47	129
Queue Length 95th (ft)		263		11	86					85	86	192
Internal Link Dist (ft)		180			1107			468			392	
Turn Bay Length (ft)				225						275		275
Base Capacity (vph)		2112		535	2624					480	483	452
Starvation Cap Reductn		0		0	0					0	0	0
Spillback Cap Reductn		0		0	0					0	0	0
Storage Cap Reductn		0		0	0					0	0	0
Reduced v/c Ratio		0.42		0.19	0.39					0.14	0.14	0.39

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 86 (72%), Referenced to phase 2:EBWB and 6:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 47.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: US 70 Bypass EB On-Ramp/US 70 Bypass EB Off-Ramp & NC 42

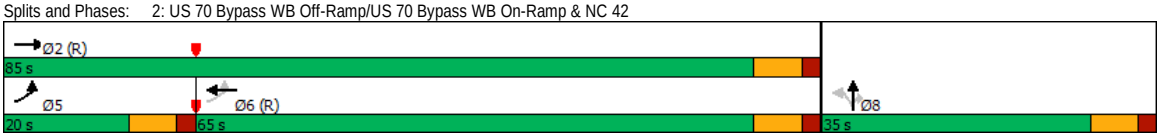


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	701	0	0	542	95	153	4	109	0	0	0
Future Volume (vph)	117	701	0	0	542	95	153	4	109	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			3%			0%	
Storage Length (ft)	200		0	0		0	150		50	0		0
Storage Lanes	1		0	0		0	1		1	0		0
Taper Length (ft)	250			25			125			25		
Satd. Flow (prot)	1778	3557	0	0	3444	0	1656	1663	1560	0	0	0
Flt Permitted	0.354						0.950	0.954				
Satd. Flow (perm)	663	3557	0	0	3444	0	1656	1663	1560	0	0	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			45	
Link Distance (ft)		1187			711			1791			500	
Travel Time (s)		14.7			8.8			34.9			7.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	130	779	0	0	708	0	87	87	121	0	0	0
Turn Type	D.P+P	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases	6						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	14.0			14.0		7.0	7.0	7.0			
Minimum Split (s)	14.0	21.0			21.0		14.0	14.0	14.0			
Total Split (s)	20.0	85.0			65.0		35.0	35.0	35.0			
Total Split (%)	16.7%	70.8%			54.2%		29.2%	29.2%	29.2%			
Yellow Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0	-2.0			
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Max			C-Max		None	None	None			
Act Effct Green (s)	88.4	93.4			78.4		16.6	16.6	16.6			
Actuated g/C Ratio	0.74	0.78			0.65		0.14	0.14	0.14			
v/c Ratio	0.22	0.28			0.31		0.38	0.38	0.56			
Control Delay	4.6	3.5			6.9		50.5	50.5	57.5			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	4.6	3.5			6.9		50.5	50.5	57.5			
LOS	A	A			A		D	D	E			
Approach Delay		3.6			6.9			53.4				
Approach LOS		A			A			D				
Queue Length 50th (ft)	17	52			58		65	65	89			
Queue Length 95th (ft)	31	71			105		113	113	144			
Internal Link Dist (ft)		1107			631			1711			420	
Turn Bay Length (ft)	200						150		50			
Base Capacity (vph)	652	2767			2250		414	415	390			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	0.20	0.28			0.31		0.21	0.21	0.31			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 61 (51%), Referenced to phase 2:EBT and 6:EBWB, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 47.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: US 70 Bypass WB Off-Ramp/US 70 Bypass WB On-Ramp & NC 42





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	26	789	591	6	0	8
Future Volume (vph)	26	789	591	6	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			75	0	0
Storage Lanes	1			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	1863	1863	1583	0	1611
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1863	1863	1583	0	1611
Link Speed (mph)		55	55		55	
Link Distance (ft)		711	850		375	
Travel Time (s)		8.8	10.5		4.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	877	657	7	0	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	789	591	6	0	8
Future Vol, veh/h	26	789	591	6	0	8
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	-	-	75	-	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	29	877	657	7	0	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	664	0	-	0	-	657
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	925	-	-	-	0	465
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	925	-	-	-	-	465
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	925	-	-	-	465
HCM Lane V/C Ratio	0.031	-	-	-	0.019
HCM Control Delay (s)	9	-	-	-	12.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	697	577	55	10	17
Future Volume (vph)	87	697	577	55	10	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	100			200	150	0
Storage Lanes	1			1	1	1
Taper Length (ft)	200				50	
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Link Speed (mph)		55	55		35	
Link Distance (ft)		850	435		358	
Travel Time (s)		10.5	5.4		7.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	774	641	61	11	19
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	697	577	55	10	17
Future Vol, veh/h	87	697	577	55	10	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	200	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	97	774	641	61	11	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	702	0	-	0	1609	641
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	968	-
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	895	-	-	-	115	475
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	368	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	895	-	-	-	103	475
Mov Cap-2 Maneuver	-	-	-	-	103	-
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	368	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	24.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	895	-	-	-	103	475
HCM Lane V/C Ratio	0.108	-	-	-	0.108	0.04
HCM Control Delay (s)	9.5	-	-	-	44.1	12.9
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.4	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	581	22	21	606	78	6	4	6	18	4	21
Future Volume (vph)	96	581	22	21	606	78	6	4	6	18	4	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			2%			0%	
Storage Length (ft)	0		125	200		200	75		0	0		50
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	25			100			50			25		
Satd. Flow (prot)	1778	1872	1591	1761	1853	1575	1752	1669	0	0	1788	1583
Flt Permitted	0.336			0.369			0.742				0.754	
Satd. Flow (perm)	629	1872	1591	684	1853	1575	1368	1669	0	0	1405	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		375			562			963			874	
Travel Time (s)		5.7			8.5			18.8			23.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	646	24	23	673	87	7	11	0	0	24	23
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	24.0	24.0	14.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	15.0	85.0	85.0	15.0	85.0	85.0	20.0	20.0		20.0	20.0	20.0
Total Split (%)	12.5%	70.8%	70.8%	12.5%	70.8%	70.8%	16.7%	16.7%		16.7%	16.7%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Act Effct Green (s)	100.5	99.1	99.1	102.5	91.5	91.5	10.1	10.1			10.1	10.1
Actuated g/C Ratio	0.84	0.83	0.83	0.85	0.76	0.76	0.08	0.08			0.08	0.08
v/c Ratio	0.17	0.42	0.02	0.03	0.48	0.07	0.06	0.08			0.21	0.17
Control Delay	1.2	3.3	1.2	1.0	5.3	3.6	51.0	51.2			54.9	53.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	1.2	3.3	1.2	1.0	5.3	3.6	51.0	51.2			54.9	53.7
LOS	A	A	A	A	A	A	D	D			D	D
Approach Delay		3.0			5.0			51.1			54.3	
Approach LOS		A			A			D			D	
Queue Length 50th (ft)	5	195	1	1	95	8	5	8			18	17
Queue Length 95th (ft)	3	37	3	m2	261	28	20	27			45	43
Internal Link Dist (ft)		295			482			883			794	
Turn Bay Length (ft)			125	200		200	75					50
Base Capacity (vph)	627	1546	1314	679	1413	1201	171	208			175	197
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.17	0.42	0.02	0.03	0.48	0.07	0.04	0.05			0.14	0.12

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 58.1%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 5: HealthPark Way/Johnston Medical Center & NC 42



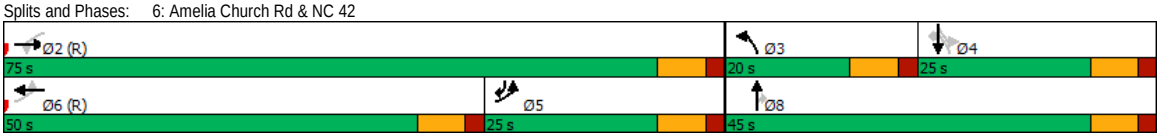


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	306	30	6	322	10	162	312	54	19	129	205
Future Volume (vph)	230	306	30	6	322	10	162	312	54	19	129	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	90		0	150		0	100		100	50		50
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			50			100		
Satd. Flow (prot)	1770	1839	0	1770	1855	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.397			0.490			0.503			0.553		
Satd. Flow (perm)	740	1839	0	913	1855	0	937	1863	1583	1030	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		434			612			509			275	
Travel Time (s)		5.4			7.6			7.7			4.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	373	0	7	369	0	180	347	60	21	143	228
Turn Type	D.P+P	NA		D.Pm	NA		D.P+P	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2			6		3	8			4	5
Permitted Phases	6			2			4		8	4		4
Detector Phase	5	2		2	6		3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0		14.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0		21.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	25.0	75.0		75.0	50.0		20.0	45.0	45.0	25.0	25.0	25.0
Total Split (%)	20.8%	62.5%		62.5%	41.7%		16.7%	37.5%	37.5%	20.8%	20.8%	20.8%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag				Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes				Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Max		C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	69.4	74.4		74.4	49.4		30.6	35.6	35.6	16.1	16.1	36.1
Actuated g/C Ratio	0.58	0.62		0.62	0.41		0.26	0.30	0.30	0.13	0.13	0.30
v/c Ratio	0.43	0.33		0.01	0.48		0.53	0.63	0.13	0.15	0.57	0.48
Control Delay	9.8	5.6		10.3	29.5		38.5	41.6	30.1	46.8	57.4	23.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	5.6		10.3	29.5		38.5	41.6	30.1	46.8	57.4	23.2
LOS	A	A		B	C		D	D	C	D	E	C
Approach Delay		7.3			29.2			39.4			37.0	
Approach LOS		A			C			D			D	
Queue Length 50th (ft)	41	80		2	210		108	230	34	15	105	97
Queue Length 95th (ft)	76	123		9	317		164	318	65	39	168	141
Internal Link Dist (ft)		354			532			429			195	
Turn Bay Length (ft)	90			150			100		100	50		50
Base Capacity (vph)	600	1140		566	764		347	621	527	171	310	476
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.33		0.01	0.48		0.52	0.56	0.11	0.12	0.46	0.48

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 47 (39%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Amelia Church Rd & NC 42

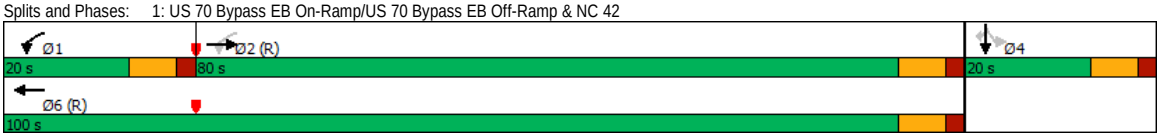


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	745	208	93	580	0	0	0	0	77	4	21
Future Volume (vph)	0	745	208	93	580	0	0	0	0	77	4	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			0%			0%			4%	
Storage Length (ft)	0		0	225		0	0		0	275		275
Storage Lanes	0		0	1		0	0		0	1		1
Taper Length (ft)	25			300			25			200		
Satd. Flow (prot)	0	3440	0	1770	3539	0	0	0	0	1648	1658	1552
Flt Permitted				0.238						0.950	0.956	
Satd. Flow (perm)	0	3440	0	443	3539	0	0	0	0	1648	1658	1552
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			55			25	
Link Distance (ft)		260			1187			548			472	
Travel Time (s)		3.2			14.7			6.8			12.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										48%		
Lane Group Flow (vph)	0	1059	0	103	644	0	0	0	0	45	45	23
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				2						4		4
Detector Phase		2		1	6					4	4	4
Switch Phase												
Minimum Initial (s)		14.0		7.0	14.0					7.0	7.0	7.0
Minimum Split (s)		21.0		14.0	21.0					14.0	14.0	14.0
Total Split (s)		80.0		20.0	100.0					20.0	20.0	20.0
Total Split (%)		66.7%		16.7%	83.3%					16.7%	16.7%	16.7%
Yellow Time (s)		5.0		5.0	5.0					5.0	5.0	5.0
All-Red Time (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0					-2.0	-2.0	-2.0
Total Lost Time (s)		5.0		5.0	5.0					5.0	5.0	5.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Recall Mode		C-Max		None	C-Max					None	None	None
Act Effct Green (s)		87.5		96.8	102.8					11.0	11.0	11.0
Actuated g/C Ratio		0.73		0.81	0.86					0.09	0.09	0.09
v/c Ratio		0.42		0.22	0.21					0.30	0.30	0.16
Control Delay		7.7		2.8	1.2					55.4	55.4	51.9
Queue Delay		0.0		0.0	0.0					0.0	0.0	0.0
Total Delay		7.7		2.8	1.2					55.4	55.4	51.9
LOS		A		A	A					E	E	D
Approach Delay		7.7			1.4						54.7	
Approach LOS		A			A						D	
Queue Length 50th (ft)		161		7	16					34	34	17
Queue Length 95th (ft)		227		11	19					73	73	43
Internal Link Dist (ft)		180			1107			468			392	
Turn Bay Length (ft)				225						275		275
Base Capacity (vph)		2509		541	3031					206	207	194
Starvation Cap Reductn		0		0	0					0	0	0
Spillback Cap Reductn		0		0	0					0	0	0
Storage Cap Reductn		0		0	0					0	0	0
Reduced v/c Ratio		0.42		0.19	0.21					0.22	0.22	0.12

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 78 (65%), Referenced to phase 2:EBWB and 6:WBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.42	
Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 51.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: US 70 Bypass EB On-Ramp/US 70 Bypass EB Off-Ramp & NC 42

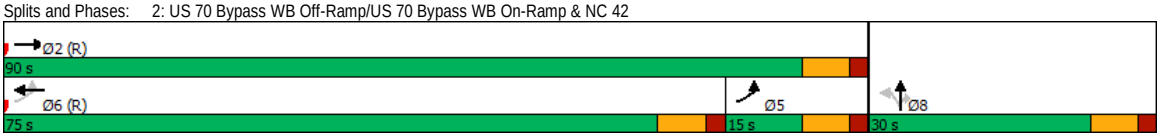


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	665	0	0	791	147	224	4	93	0	0	0
Future Volume (vph)	44	665	0	0	791	147	224	4	93	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			3%			0%	
Storage Length (ft)	200		0	0		0	150		50	0		0
Storage Lanes	1		0	0		0	1		1	0		0
Taper Length (ft)	250			25			200			25		
Satd. Flow (prot)	1778	3557	0	0	3441	0	1656	1663	1560	0	0	0
Flt Permitted	0.232						0.950	0.954				
Satd. Flow (perm)	434	3557	0	0	3441	0	1656	1663	1560	0	0	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			45	
Link Distance (ft)		1187			711			1791			500	
Travel Time (s)		14.7			8.8			34.9			7.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	49	739	0	0	1042	0	127	126	103	0	0	0
Turn Type	D.P+P	NA			NA		Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases	6						8		8			
Detector Phase	5	2			6		8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	14.0			14.0		7.0	7.0	7.0			
Minimum Split (s)	14.0	21.0			21.0		14.0	14.0	14.0			
Total Split (s)	15.0	90.0			75.0		30.0	30.0	30.0			
Total Split (%)	12.5%	75.0%			62.5%		25.0%	25.0%	25.0%			
Yellow Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0			-2.0		-2.0	-2.0	-2.0			
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0	5.0			
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?	Yes				Yes							
Recall Mode	None	C-Max			C-Max		None	None	None			
Act Effct Green (s)	89.5	93.5			81.5		16.5	16.5	16.5			
Actuated g/C Ratio	0.75	0.78			0.68		0.14	0.14	0.14			
v/c Ratio	0.11	0.27			0.45		0.56	0.55	0.48			
Control Delay	2.5	3.1			7.4		57.1	56.8	54.4			
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0			
Total Delay	2.5	3.1			7.4		57.1	56.8	54.4			
LOS	A	A			A		E	E	D			
Approach Delay		3.1			7.4			56.2				
Approach LOS		A			A			E				
Queue Length 50th (ft)	3	53			141		97	96	75			
Queue Length 95th (ft)	6	63			281		157	155	126			
Internal Link Dist (ft)		1107			631			1711			420	
Turn Bay Length (ft)	200						150		50			
Base Capacity (vph)	435	2771			2336		345	346	325			
Starvation Cap Reductn	0	0			0		0	0	0			
Spillback Cap Reductn	0	0			0		0	0	0			
Storage Cap Reductn	0	0			0		0	0	0			
Reduced v/c Ratio	0.11	0.27			0.45		0.37	0.36	0.32			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 74 (62%), Referenced to phase 2:EBT and 6:EBWB, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 51.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: US 70 Bypass WB Off-Ramp/US 70 Bypass WB On-Ramp & NC 42





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	676	896	4	0	34
Future Volume (vph)	10	676	896	4	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			100	0	0
Storage Lanes	1			1	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	1863	1863	1583	0	1611
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1863	1863	1583	0	1611
Link Speed (mph)		55	55		55	
Link Distance (ft)		711	850		375	
Travel Time (s)		8.8	10.5		4.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	751	996	4	0	38
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	676	896	4	0	34
Future Vol, veh/h	10	676	896	4	0	34
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	-	-	100	-	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	11	751	996	4	0	38

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1000	0	-	0	-	996
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	692	-	-	-	0	297
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	692	-	-	-	-	297
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	692	-	-	-	297
HCM Lane V/C Ratio	0.016	-	-	-	0.127
HCM Control Delay (s)	10.3	-	-	-	18.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	18	666	799	26	28	88
Future Volume (vph)	18	666	799	26	28	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	100			200	150	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				50	
Satd. Flow (prot)	1770	1863	1863	1583	1752	1568
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1863	1583	1752	1568
Link Speed (mph)		55	55		35	
Link Distance (ft)		850	435		358	
Travel Time (s)		10.5	5.4		7.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	740	888	29	31	98
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	666	799	26	28	88
Future Vol, veh/h	18	666	799	26	28	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	200	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	3	3
Mvmt Flow	20	740	888	29	31	98

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	917	0	-	0	1668	888
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	780	-
Critical Hdwy	4.12	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.218	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	744	-	-	-	105	341
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	450	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	744	-	-	-	102	341
Mov Cap-2 Maneuver	-	-	-	-	102	-
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	450	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	28.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	744	-	-	-	102	341
HCM Lane V/C Ratio	0.027	-	-	-	0.305	0.287
HCM Control Delay (s)	10	-	-	-	55.1	19.7
HCM Lane LOS	A	-	-	-	F	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	581	10	10	606	78	26	4	26	43	4	46
Future Volume (vph)	96	581	10	10	606	78	26	4	26	43	4	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			2%			0%	
Storage Length (ft)	0		125	200		200	75		0	0		50
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	25			100			50			25		
Satd. Flow (prot)	1778	1872	1591	1761	1853	1575	1752	1601	0	0	1781	1583
Flt Permitted	0.333			0.367			0.723				0.718	
Satd. Flow (perm)	623	1872	1591	680	1853	1575	1333	1601	0	0	1337	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		375			562			963			874	
Travel Time (s)		5.7			8.5			18.8			23.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	646	11	11	673	87	29	33	0	0	52	51
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	6		2	2		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	24.0	24.0	14.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	15.0	85.0	85.0	15.0	85.0	85.0	20.0	20.0		20.0	20.0	20.0
Total Split (%)	12.5%	70.8%	70.8%	12.5%	70.8%	70.8%	16.7%	16.7%		16.7%	16.7%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Act Effct Green (s)	95.7	98.7	98.7	100.7	86.4	86.4	12.1	12.1			12.1	12.1
Actuated g/C Ratio	0.80	0.82	0.82	0.84	0.72	0.72	0.10	0.10			0.10	0.10
v/c Ratio	0.18	0.42	0.01	0.02	0.50	0.08	0.22	0.20			0.39	0.32
Control Delay	2.7	5.0	3.4	3.2	7.6	5.8	52.5	51.6			58.3	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	2.7	5.0	3.4	3.2	7.6	5.8	52.5	51.6			58.3	54.8
LOS	A	A	A	A	A	A	D	D			E	D
Approach Delay		4.7			7.3			52.0			56.6	
Approach LOS		A			A			D			E	
Queue Length 50th (ft)	13	81	1	1	105	13	21	24			38	37
Queue Length 95th (ft)	23	372	m8	m3	223	31	51	56			78	77
Internal Link Dist (ft)		295			482			883			794	
Turn Bay Length (ft)			125	200		200	75					50
Base Capacity (vph)	596	1540	1309	655	1334	1134	166	200			167	197
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.18	0.42	0.01	0.02	0.50	0.08	0.17	0.17			0.31	0.26

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 10.7	Intersection LOS: B
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 5: HealthPark Way/Johnston Medical Center & NC 42





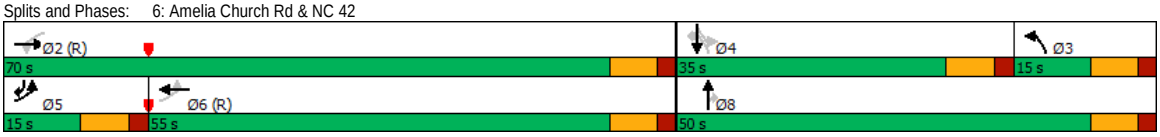
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	410	99	45	409	14	74	152	34	17	347	251
Future Volume (vph)	195	410	99	45	409	14	74	152	34	17	347	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	90		0	150		0	100		100	50		50
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	100			100			50			100		
Satd. Flow (prot)	1770	1809	0	1770	1853	0	1770	1863	1583	1770	1863	1583
Flt Permitted	0.318			0.328			0.165			0.580		
Satd. Flow (perm)	592	1809	0	611	1853	0	307	1863	1583	1080	1863	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			45			45	
Link Distance (ft)		434			612			509			275	
Travel Time (s)		5.4			7.6			7.7			4.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	566	0	50	470	0	82	169	38	19	386	279
Turn Type	D.P+P	NA		D.Pm	NA		D.P+P	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2			6		3	8			4	5
Permitted Phases	6			2			4		8	4		4
Detector Phase	5	2		2	6		3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0		14.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0		21.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	15.0	70.0		70.0	55.0		15.0	50.0	50.0	35.0	35.0	15.0
Total Split (%)	12.5%	58.3%		58.3%	45.8%		12.5%	41.7%	41.7%	29.2%	29.2%	12.5%
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead				Lag		Lag			Lead	Lead	Lead
Lead-Lag Optimize?	Yes				Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Max		C-Max	C-Max		None	None	None	None	None	None
Act Effct Green (s)	64.8	69.8		69.8	54.2		38.0	40.2	40.2	28.8	28.8	40.4
Actuated g/C Ratio	0.54	0.58		0.58	0.45		0.32	0.34	0.34	0.24	0.24	0.34
v/c Ratio	0.51	0.54		0.14	0.56		0.39	0.27	0.07	0.07	0.86	0.52
Control Delay	16.6	15.2		14.9	29.0		41.7	29.1	25.0	35.5	63.4	25.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	15.2		14.9	29.0		41.7	29.1	25.0	35.5	63.4	25.6
LOS	B	B		B	C		D	C	C	D	E	C
Approach Delay		15.6			27.6			32.1			47.2	
Approach LOS		B			C			C			D	
Queue Length 50th (ft)	58	192		18	280		42	90	19	11	284	127
Queue Length 95th (ft)	126	276		42	394		77	143	43	32	#442	192
Internal Link Dist (ft)		354			532			429			195	
Turn Bay Length (ft)	90			150			100		100	50		50
Base Capacity (vph)	423	1051		355	837		221	698	593	270	465	532
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.54		0.14	0.56		0.37	0.24	0.06	0.07	0.83	0.52

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 3 (3%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 29.9	Intersection LOS: C
Intersection Capacity Utilization 80.0%	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.

Splits and Phases: 6: Amelia Church Rd & NC 42



Appendix I:

Synchro Output:

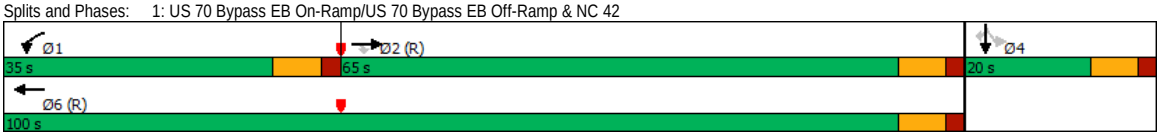
Background (2027)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1174	459	266	1029	0	0	0	0	200	4	158
Future Volume (vph)	0	1174	459	266	1029	0	0	0	0	200	4	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			0%			0%			4%	
Storage Length (ft)	0		200	225		0	0		0	250		350
Storage Lanes	0		1	1		0	0		0	1		2
Taper Length (ft)	25			300			25			200		
Satd. Flow (prot)	0	3557	1591	1770	3539	0	0	0	0	1648	1654	2731
Flt Permitted				0.950						0.950	0.954	
Satd. Flow (perm)	0	3557	1591	1770	3539	0	0	0	0	1648	1654	2731
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			45			55			25	
Link Distance (ft)		1054			1187			548			844	
Travel Time (s)		13.1			18.0			6.8			23.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										49%		
Lane Group Flow (vph)	0	1304	510	296	1143	0	0	0	0	113	113	176
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		14.0	14.0	7.0	14.0					7.0	7.0	7.0
Minimum Split (s)		21.0	21.0	14.0	21.0					14.0	14.0	14.0
Total Split (s)		65.0	65.0	35.0	100.0					20.0	20.0	20.0
Total Split (%)		54.2%	54.2%	29.2%	83.3%					16.7%	16.7%	16.7%
Yellow Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0					-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Max	C-Max	None	C-Max					None	None	None
Act Effct Green (s)		65.1	65.1	26.0	96.1					13.9	13.9	13.9
Actuated g/C Ratio		0.54	0.54	0.22	0.80					0.12	0.12	0.12
v/c Ratio		0.68	0.59	0.77	0.40					0.59	0.59	0.56
Control Delay		23.1	23.3	67.1	0.3					63.4	63.4	57.1
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		23.1	23.3	67.1	0.3					63.4	63.4	57.1
LOS		C	C	E	A					E	E	E
Approach Delay		23.1			14.0						60.6	
Approach LOS		C			B						E	
Queue Length 50th (ft)		384	267	185	0					88	87	73
Queue Length 95th (ft)		492	404	m247	0					153	153	115
Internal Link Dist (ft)		974			1107			468			764	
Turn Bay Length (ft)			200	225						250		350
Base Capacity (vph)		1929	862	442	2834					206	206	341
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.68	0.59	0.67	0.40					0.55	0.55	0.52

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 59 (49%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 23.7 Intersection LOS: C
Intersection Capacity Utilization 67.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 70 Bypass EB On-Ramp/US 70 Bypass EB Off-Ramp & NC 42

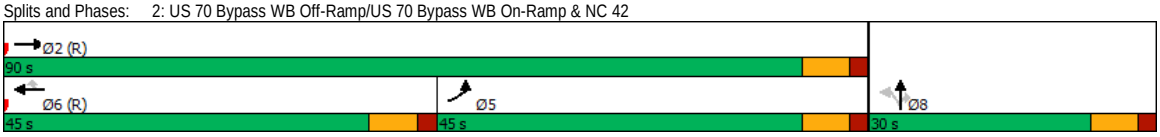


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	1039	0	0	819	277	476	4	419	0	0	0
Future Volume (vph)	335	1039	0	0	819	277	476	4	419	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			3%			0%	
Storage Length (ft)	200		0	0		450	150		450	0		0
Storage Lanes	1		0	0		1	1		2	0		0
Taper Length (ft)	250			25			200			25		
Satd. Flow (prot)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Flt Permitted	0.950						0.950	0.953				
Satd. Flow (perm)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		1187			711			1791			500	
Travel Time (s)		18.0			10.8			34.9			7.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	372	1154	0	0	910	308	264	269	466	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Detector Phase	5	2			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	14.0			14.0	14.0	7.0	7.0	7.0			
Minimum Split (s)	14.0	21.0			21.0	21.0	14.0	14.0	14.0			
Total Split (s)	45.0	90.0			45.0	45.0	30.0	30.0	30.0			
Total Split (%)	37.5%	75.0%			37.5%	37.5%	25.0%	25.0%	25.0%			
Yellow Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None	None			
Act Effct Green (s)	40.0	85.7			40.7	40.7	24.3	24.3	24.3			
Actuated g/C Ratio	0.33	0.71			0.34	0.34	0.20	0.20	0.20			
v/c Ratio	0.63	0.45			0.76	0.58	0.79	0.80	0.84			
Control Delay	26.5	4.8			22.9	20.0	62.9	64.0	60.5			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Delay	26.5	4.8			22.9	20.0	62.9	64.0	60.5			
LOS	C	A			C	C	E	E	E			
Approach Delay		10.1			22.1			62.1				
Approach LOS		B			C			E				
Queue Length 50th (ft)	254	81			248	124	204	209	197			
Queue Length 95th (ft)	316	92			293	187	#333	#343	#282			
Internal Link Dist (ft)		1107			631			1711			420	
Turn Bay Length (ft)	200					450	150		450			
Base Capacity (vph)	592	2540			1195	534	345	346	571			
Starvation Cap Reductn	0	0			0	0	0	0	0			
Spillback Cap Reductn	0	0			0	0	0	0	0			
Storage Cap Reductn	0	0			0	0	0	0	0			
Reduced v/c Ratio	0.63	0.45			0.76	0.58	0.77	0.78	0.82			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 50 (42%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 27.9 Intersection LOS: C
Intersection Capacity Utilization 67.0% 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.

Splits and Phases: 2: US 70 Bypass WB Off-Ramp/US 70 Bypass WB On-Ramp & NC 42



[redacted]

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1404	1126	10	0	13
Future Volume (vph)	0	1404	1126	10	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	3539	3536	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3536	0	0	1611
Link Speed (mph)		45	45		55	
Link Distance (ft)		711	850		375	
Travel Time (s)		10.8	12.9		4.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1560	1262	0	0	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1404	1126	10	0	13
Future Vol, veh/h	0	1404	1126	10	0	13
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	0	1560	1251	11	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	631
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	424
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	424
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	424
HCM Lane V/C Ratio	-	-	-	0.034
HCM Control Delay (s)	-	-	-	13.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	110	1318	1081	52	37	40
Future Volume (vph)	110	1318	1081	52	37	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	450			125	150	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				50	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		35	
Link Distance (ft)		850	1341		358	
Travel Time (s)		12.9	20.3		7.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	1464	1201	58	41	44
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	12.0	7.0	7.0	12.0	12.0
Minimum Split (s)	14.0	19.0	14.0	14.0	19.0	19.0
Total Split (s)	25.0	100.0	75.0	75.0	20.0	20.0
Total Split (%)	20.8%	83.3%	62.5%	62.5%	16.7%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	15.5	100.8	79.2	79.2	14.0	14.0
Actuated g/C Ratio	0.13	0.84	0.66	0.66	0.12	0.12
v/c Ratio	0.53	0.49	0.51	0.06	0.20	0.24
Control Delay	61.3	2.4	6.5	5.8	50.6	51.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	2.4	6.5	5.8	50.6	51.8
LOS	E	A	A	A	D	D
Approach Delay		7.0	6.5		51.2	
Approach LOS		A	A		D	
Queue Length 50th (ft)	87	73	105	10	29	31
Queue Length 95th (ft)	m131	82	108	17	65	69
Internal Link Dist (ft)		770	1261		278	
Turn Bay Length (ft)	450			125	150	
Base Capacity (vph)	297	2971	2336	1044	221	197
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.49	0.51	0.06	0.19	0.22

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 119 (99%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 58.5%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 4: NC 42 & Springbrook Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	1276	22	21	1037	66	6	4	6	61	4	81
Future Volume (vph)	106	1276	22	21	1037	66	6	4	6	61	4	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			2%			0%	
Storage Length (ft)	450		175	425		225	75		0	0		50
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	100			100			50			25		
Satd. Flow (prot)	1778	3557	1591	1761	3522	1575	1752	1669	0	0	1779	1583
Flt Permitted	0.950			0.950			0.710				0.730	
Satd. Flow (perm)	1778	3557	1591	1761	3522	1575	1309	1669	0	0	1360	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		1341			562			963			874	
Travel Time (s)		20.3			8.5			18.8			23.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	1418	24	23	1152	73	7	11	0	0	72	90
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases			2			6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	24.0	24.0	14.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	85.0	85.0	15.0	75.0	75.0	20.0	20.0		20.0	20.0	25.0
Total Split (%)	20.8%	70.8%	70.8%	12.5%	62.5%	62.5%	16.7%	16.7%		16.7%	16.7%	20.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Act Effct Green (s)	15.3	91.9	91.9	9.6	79.7	79.7	12.9	12.9			12.9	30.3
Actuated g/C Ratio	0.13	0.77	0.77	0.08	0.66	0.66	0.11	0.11			0.11	0.25
v/c Ratio	0.52	0.52	0.02	0.16	0.49	0.07	0.05	0.06			0.49	0.23
Control Delay	64.8	7.2	5.8	41.5	5.3	4.7	47.5	47.5			61.7	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	64.8	7.2	5.8	41.5	5.3	4.7	47.5	47.5			61.7	33.7
LOS	E	A	A	D	A	A	D	D			E	C
Approach Delay		11.5			6.0			47.5			46.1	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	95	216	6	17	114	10	5	8			53	53
Queue Length 95th (ft)	160	242	m12	m32	149	m22	20	26			101	90
Internal Link Dist (ft)		1261			482			883			794	
Turn Bay Length (ft)	450		175	425		225	75					50
Base Capacity (vph)	296	2724	1218	146	2338	1045	163	208			170	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.40	0.52	0.02	0.16	0.49	0.07	0.04	0.05			0.42	0.19

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 116 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: HealthPark Way/Johnston Medical Center & NC 42



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	400	854	106	29	704	32	148	387	48	24	175	246
Future Volume (vph)	400	854	106	29	704	32	148	387	48	24	175	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	375		100	200		0	350		100	100		200
Storage Lanes	2		1	1		0	1		1	1		2
Taper Length (ft)	200			100			50			100		
Satd. Flow (prot)	3433	3539	1583	1770	3514	0	1770	1863	1583	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.512		
Satd. Flow (perm)	3433	3539	1583	1770	3514	0	1770	1863	1583	954	1863	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		607			612			509			889	
Travel Time (s)		9.2			9.3			7.7			13.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	444	949	118	32	818	0	164	430	53	27	194	273
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases			2						8	4		4
Detector Phase	5	2	3	1	6		3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	25.0	55.0	25.0	15.0	45.0		25.0	50.0	50.0	25.0	25.0	25.0
Total Split (%)	20.8%	45.8%	20.8%	12.5%	37.5%		20.8%	41.7%	41.7%	20.8%	20.8%	20.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	20.0	60.7	83.0	9.5	44.6		17.3	40.4	40.4	18.0	18.0	38.0
Actuated g/C Ratio	0.17	0.51	0.69	0.08	0.37		0.14	0.34	0.34	0.15	0.15	0.32
v/c Ratio	0.78	0.53	0.11	0.23	0.63		0.64	0.69	0.10	0.19	0.69	0.31
Control Delay	48.2	17.4	2.7	55.9	34.5		60.0	40.0	25.9	47.0	61.6	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	17.4	2.7	55.9	34.5		60.0	40.0	25.9	47.0	61.6	17.9
LOS	D	B	A	E	C		E	D	C	D	E	B
Approach Delay		25.3			35.3			43.9			36.6	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	159	133	9	24	280		120	276	27	18	142	55
Queue Length 95th (ft)	225	304	18	57	361		191	379	55	47	222	76
Internal Link Dist (ft)		527			532			429			809	
Turn Bay Length (ft)	375		100	200			350		100	100		200
Base Capacity (vph)	572	1790	1130	147	1307		295	698	593	159	310	883
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.53	0.10	0.22	0.63		0.56	0.62	0.09	0.17	0.63	0.31

Intersection Summary

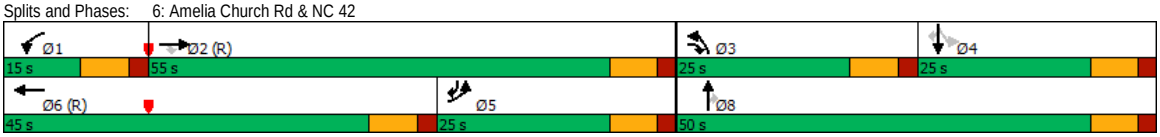
Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 119 (99%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 32.7	Intersection LOS: C
Intersection Capacity Utilization 74.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Amelia Church Rd & NC 42



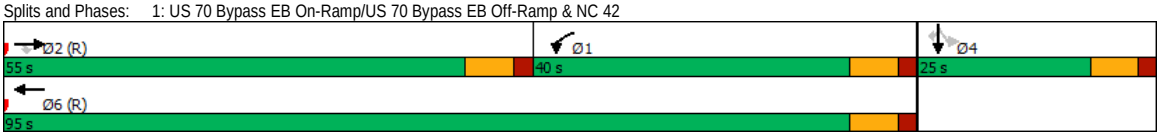
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	713	476	418	1297	0	0	0	0	278	4	337
Future Volume (vph)	0	713	476	418	1297	0	0	0	0	278	4	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			0%			0%			4%	
Storage Length (ft)	0		200	225		0	0		0	250		350
Storage Lanes	0		1	1		0	0		0	1		2
Taper Length (ft)	25			300			25			200		
Satd. Flow (prot)	0	3557	1591	1770	3539	0	0	0	0	1648	1654	2731
Flt Permitted				0.950						0.950	0.954	
Satd. Flow (perm)	0	3557	1591	1770	3539	0	0	0	0	1648	1654	2731
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			45			55			25	
Link Distance (ft)		1565			1187			548			842	
Travel Time (s)		19.4			18.0			6.8			23.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										49%		
Lane Group Flow (vph)	0	792	529	464	1441	0	0	0	0	158	155	374
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		14.0	14.0	7.0	14.0					7.0	7.0	7.0
Minimum Split (s)		21.0	21.0	14.0	21.0					14.0	14.0	14.0
Total Split (s)		55.0	55.0	40.0	95.0					25.0	25.0	25.0
Total Split (%)		45.8%	45.8%	33.3%	79.2%					20.8%	20.8%	20.8%
Yellow Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0					-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Lead/Lag		Lead	Lead	Lag								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Max	C-Max	None	C-Max					None	None	None
Act Effct Green (s)		50.3	50.3	35.0	90.3					19.7	19.7	19.7
Actuated g/C Ratio		0.42	0.42	0.29	0.75					0.16	0.16	0.16
v/c Ratio		0.53	0.79	0.90	0.54					0.59	0.57	0.84
Control Delay		27.7	40.8	49.0	1.4					56.0	55.4	65.7
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		27.7	40.8	49.0	1.4					56.0	55.4	65.7
LOS		C	D	D	A					E	E	E
Approach Delay		33.0			13.0						61.2	
Approach LOS		C			B						E	
Queue Length 50th (ft)		238	352	351	2					120	117	160
Queue Length 95th (ft)		299	504	#546	0					196	192	#243
Internal Link Dist (ft)		1485			1107			468			762	
Turn Bay Length (ft)			200	225						250		350
Base Capacity (vph)		1492	667	516	2664					274	275	455
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.53	0.79	0.90	0.54					0.58	0.56	0.82

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 7 (6%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 28.2	Intersection LOS: C
Intersection Capacity Utilization 72.9%	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: 1: US 70 Bypass EB On-Ramp/US 70 Bypass EB Off-Ramp & NC 42



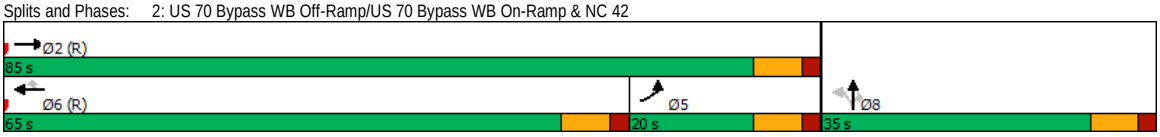
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	831	0	0	1257	200	458	4	264	0	0	0
Future Volume (vph)	160	831	0	0	1257	200	458	4	264	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			3%			0%	
Storage Length (ft)	200		0	0		450	150		450	0		0
Storage Lanes	1		0	0		1	1		2	0		0
Taper Length (ft)	250			25			200			25		
Satd. Flow (prot)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Flt Permitted	0.950						0.950	0.953				
Satd. Flow (perm)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		1187			711			1791			500	
Travel Time (s)		18.0			10.8			34.9			7.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	178	923	0	0	1397	222	254	259	293	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Detector Phase	5	2			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	14.0			14.0	14.0	7.0	7.0	7.0			
Minimum Split (s)	14.0	21.0			21.0	21.0	14.0	14.0	14.0			
Total Split (s)	20.0	85.0			65.0	65.0	35.0	35.0	35.0			
Total Split (%)	16.7%	70.8%			54.2%	54.2%	29.2%	29.2%	29.2%			
Yellow Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None	None			
Act Effct Green (s)	15.0	84.4			64.4	64.4	25.6	25.6	25.6			
Actuated g/C Ratio	0.12	0.70			0.54	0.54	0.21	0.21	0.21			
v/c Ratio	0.80	0.37			0.74	0.26	0.72	0.73	0.50			
Control Delay	80.0	4.2			9.8	6.0	55.3	56.1	43.9			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Delay	80.0	4.2			9.8	6.0	55.3	56.1	43.9			
LOS	E	A			A	A	E	E	D			
Approach Delay		16.4			9.2			51.4				
Approach LOS		B			A			D				
Queue Length 50th (ft)	149	111			91	27	191	195	113			
Queue Length 95th (ft)	#262	133			128	40	281	286	156			
Internal Link Dist (ft)		1107			631			1711			420	
Turn Bay Length (ft)	200					450	150		450			
Base Capacity (vph)	222	2501			1890	845	414	415	686			
Starvation Cap Reductn	0	0			0	0	0	0	0			
Spillback Cap Reductn	0	0			0	0	0	0	0			
Storage Cap Reductn	0	0			0	0	0	0	0			
Reduced v/c Ratio	0.80	0.37			0.74	0.26	0.61	0.62	0.43			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 72.9%	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: US 70 Bypass WB Off-Ramp/US 70 Bypass WB On-Ramp & NC 42



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1138	1373	6	0	30
Future Volume (vph)	0	1138	1373	6	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	0	1
Taper Length (ft)	25				25	
Satd. Flow (prot)	0	3539	3536	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3536	0	0	1611
Link Speed (mph)		45	45		55	
Link Distance (ft)		711	850		375	
Travel Time (s)		10.8	12.9		4.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1264	1533	0	0	33
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1138	1373	6	0	30
Future Vol, veh/h	0	1138	1373	6	0	30
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	0	1264	1526	7	0	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	767
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	345
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	345
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	345
HCM Lane V/C Ratio	-	-	-	0.097
HCM Control Delay (s)	-	-	-	16.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	49	1069	1325	35	68	74
Future Volume (vph)	49	1069	1325	35	68	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	450			125	150	0
Storage Lanes	1			1	1	1
Taper Length (ft)	100				50	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		35	
Link Distance (ft)		850	1341		358	
Travel Time (s)		12.9	20.3		7.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	1188	1472	39	76	82
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	12.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	19.0	14.0	14.0	14.0	14.0
Total Split (s)	15.0	100.0	85.0	85.0	20.0	20.0
Total Split (%)	12.5%	83.3%	70.8%	70.8%	16.7%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	9.5	97.2	85.2	85.2	12.8	12.8
Actuated g/C Ratio	0.08	0.81	0.71	0.71	0.11	0.11
v/c Ratio	0.39	0.41	0.59	0.03	0.40	0.49
Control Delay	46.7	1.2	7.1	2.7	55.8	59.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	1.2	7.1	2.7	55.8	59.9
LOS	D	A	A	A	E	E
Approach Delay		3.2	7.0		57.9	
Approach LOS		A	A		E	
Queue Length 50th (ft)	42	20	234	7	55	60
Queue Length 95th (ft)	86	23	400	m11	105	112
Internal Link Dist (ft)		770	1261		278	
Turn Bay Length (ft)	450			125	150	
Base Capacity (vph)	147	2865	2512	1123	221	197
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.41	0.59	0.03	0.34	0.42

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 116 (97%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 54.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 4: NC 42 & Springbrook Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	1037	10	10	1276	66	26	4	26	71	4	101
Future Volume (vph)	76	1037	10	10	1276	66	26	4	26	71	4	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			2%			0%	
Storage Length (ft)	450		175	425		225	75		0	0		50
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	100			100			50			25		
Satd. Flow (prot)	1778	3557	1591	1761	3522	1575	1752	1601	0	0	1779	1583
Flt Permitted	0.950			0.950			0.690				0.712	
Satd. Flow (perm)	1778	3557	1591	1761	3522	1575	1272	1601	0	0	1326	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		1341			562			963			874	
Travel Time (s)		20.3			8.5			18.8			23.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	1152	11	11	1418	73	29	33	0	0	83	112
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases			2			6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	24.0	24.0	14.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	85.0	85.0	15.0	80.0	80.0	20.0	20.0		20.0	20.0	20.0
Total Split (%)	16.7%	70.8%	70.8%	12.5%	66.7%	66.7%	16.7%	16.7%		16.7%	16.7%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Act Effct Green (s)	12.9	97.5	97.5	9.2	81.6	81.6	13.3	13.3			13.3	28.4
Actuated g/C Ratio	0.11	0.81	0.81	0.08	0.68	0.68	0.11	0.11			0.11	0.24
v/c Ratio	0.44	0.40	0.01	0.08	0.59	0.07	0.21	0.19			0.56	0.30
Control Delay	61.1	4.4	3.7	40.0	5.4	4.5	51.3	50.0			65.3	37.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	61.1	4.4	3.7	40.0	5.4	4.5	51.3	50.0			65.3	37.4
LOS	E	A	A	D	A	A	D	D			E	D
Approach Delay		8.2			5.6			50.6			49.3	
Approach LOS		A			A			D			D	
Queue Length 50th (ft)	52	53	1	8	117	10	20	23			61	68
Queue Length 95th (ft)	98	201	m5	m13	149	m17	51	56			115	116
Internal Link Dist (ft)		1261			482			883			794	
Turn Bay Length (ft)	450		175	425		225	75					50
Base Capacity (vph)	222	2890	1292	146	2393	1070	159	200			165	402
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.38	0.40	0.01	0.08	0.59	0.07	0.18	0.17			0.50	0.28

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 79 (66%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 10.4	Intersection LOS: B
Intersection Capacity Utilization 64.4%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 5: HealthPark Way/Johnston Medical Center & NC 42



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	707	143	49	854	26	103	178	30	34	390	397
Future Volume (vph)	245	707	143	49	854	26	103	178	30	34	390	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	375		100	200		0	350		100	100		200
Storage Lanes	2		1	1		0	1		1	1		2
Taper Length (ft)	200			100			50			100		
Satd. Flow (prot)	3433	3539	1583	1770	3525	0	1770	1863	1583	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.633		
Satd. Flow (perm)	3433	3539	1583	1770	3525	0	1770	1863	1583	1179	1863	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		607			612			509			889	
Travel Time (s)		9.2			9.3			7.7			13.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	272	786	159	54	978	0	114	198	33	38	433	441
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases			2						8	4		4
Detector Phase	5	2	3	1	6		3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	20.0	50.0	15.0	15.0	45.0		15.0	55.0	55.0	40.0	40.0	20.0
Total Split (%)	16.7%	41.7%	12.5%	12.5%	37.5%		12.5%	45.8%	45.8%	33.3%	33.3%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	15.0	50.0	65.0	9.7	41.9		10.0	48.1	48.1	33.1	33.1	48.1
Actuated g/C Ratio	0.12	0.42	0.54	0.08	0.35		0.08	0.40	0.40	0.28	0.28	0.40
v/c Ratio	0.63	0.53	0.19	0.38	0.79		0.78	0.27	0.05	0.12	0.84	0.40
Control Delay	38.2	12.6	7.4	60.2	41.4		86.7	24.7	21.4	32.6	56.7	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	12.6	7.4	60.2	41.4		86.7	24.7	21.4	32.6	56.7	16.2
LOS	D	B	A	E	D		F	C	C	C	E	B
Approach Delay		17.7			42.4			44.9			36.1	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	108	117	38	40	366		88	99	15	22	310	90
Queue Length 95th (ft)	130	93	35	83	452		#186	155	36	50	#461	123
Internal Link Dist (ft)		527			532			429			809	
Turn Bay Length (ft)	375		100	200			350		100	100		200
Base Capacity (vph)	429	1474	857	147	1231		147	776	659	343	543	1116
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.53	0.19	0.37	0.79		0.78	0.26	0.05	0.11	0.80	0.40

Intersection Summary

Area Type: Other

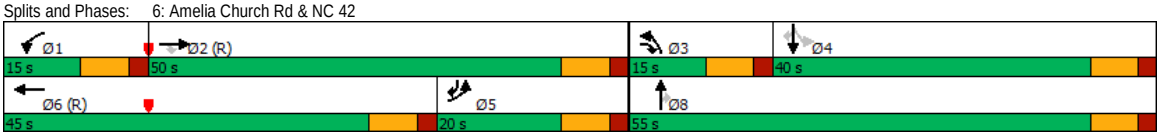
Cycle Length: 120

Actuated Cycle Length: 120

Offset: 82 (68%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 32.4	Intersection LOS: C
Intersection Capacity Utilization 74.4%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Amelia Church Rd & NC 42



Appendix J:

Synchro Output:

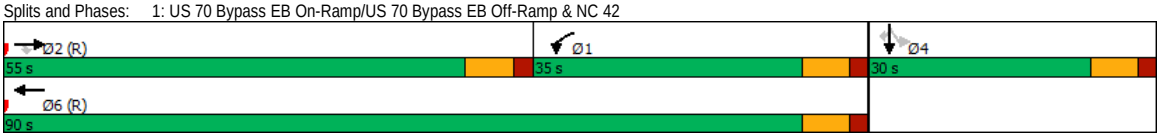
Build-out (2027)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1294	459	306	1069	0	0	0	0	619	4	158
Future Volume (vph)	0	1294	459	306	1069	0	0	0	0	619	4	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			0%			0%			4%	
Storage Length (ft)	0		200	225		0	0		0	250		350
Storage Lanes	0		1	1		0	0		0	1		2
Taper Length (ft)	25			300			25			200		
Satd. Flow (prot)	0	3557	1591	1770	3539	0	0	0	0	1648	1653	2731
Flt Permitted				0.950						0.950	0.953	
Satd. Flow (perm)	0	3557	1591	1770	3539	0	0	0	0	1648	1653	2731
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			45			55			25	
Link Distance (ft)		1054			1187			548			844	
Travel Time (s)		13.1			18.0			6.8			23.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	1438	510	340	1188	0	0	0	0	344	348	176
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		14.0	14.0	7.0	14.0					7.0	7.0	7.0
Minimum Split (s)		21.0	21.0	14.0	21.0					14.0	14.0	14.0
Total Split (s)		55.0	55.0	35.0	90.0					30.0	30.0	30.0
Total Split (%)		45.8%	45.8%	29.2%	75.0%					25.0%	25.0%	25.0%
Yellow Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0					-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Lead/Lag		Lead	Lead	Lag								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Max	C-Max	None	C-Max					None	None	None
Act Effct Green (s)		50.0	50.0	30.0	85.0					25.0	25.0	25.0
Actuated g/C Ratio		0.42	0.42	0.25	0.71					0.21	0.21	0.21
v/c Ratio		0.97	0.77	0.77	0.47					1.00	1.01	0.31
Control Delay		51.9	39.4	52.8	4.4					97.2	99.0	42.0
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		51.9	39.4	52.8	4.4					97.2	99.0	42.0
LOS		D	D	D	A					F	F	D
Approach Delay		48.7			15.2						86.7	
Approach LOS		D			B						F	
Queue Length 50th (ft)		565	334	284	168					~283	~290	65
Queue Length 95th (ft)		#730	479	m#390	158					#489	#494	103
Internal Link Dist (ft)		974			1107			468			764	
Turn Bay Length (ft)			200	225						250		350
Base Capacity (vph)		1482	662	442	2506					343	344	568
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.97	0.77	0.77	0.47					1.00	1.01	0.31

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 63 (53%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 44.5 Intersection LOS: D
Intersection Capacity Utilization 82.5% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 70 Bypass EB On-Ramp/US 70 Bypass EB Off-Ramp & NC 42

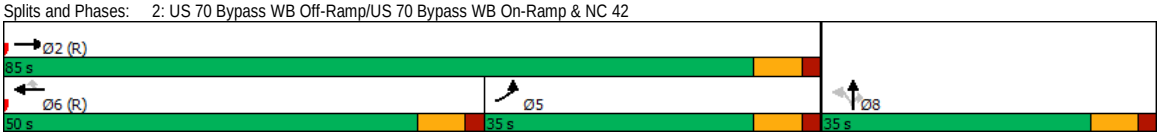


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	1578	0	0	900	419	476	4	539	0	0	0
Future Volume (vph)	335	1578	0	0	900	419	476	4	539	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			3%			0%	
Storage Length (ft)	200		0	0		450	150		450	0		0
Storage Lanes	1		0	0		1	1		2	0		0
Taper Length (ft)	250			25			200			25		
Satd. Flow (prot)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Flt Permitted	0.950						0.950	0.953				
Satd. Flow (perm)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		1187			711			1791			500	
Travel Time (s)		18.0			10.8			34.9			7.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	372	1753	0	0	1000	466	264	269	599	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Detector Phase	5	2			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	14.0			14.0	14.0	7.0	7.0	7.0			
Minimum Split (s)	14.0	21.0			21.0	21.0	14.0	14.0	14.0			
Total Split (s)	35.0	85.0			50.0	50.0	35.0	35.0	35.0			
Total Split (%)	29.2%	70.8%			41.7%	41.7%	29.2%	29.2%	29.2%			
Yellow Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
Lead/Lag	Lag				Lead	Lead						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None	None			
Act Effct Green (s)	30.0	80.5			45.5	45.5	29.5	29.5	29.5			
Actuated g/C Ratio	0.25	0.67			0.38	0.38	0.25	0.25	0.25			
v/c Ratio	0.84	0.74			0.75	0.78	0.65	0.66	0.89			
Control Delay	42.4	5.4			16.7	22.4	48.9	49.4	60.0			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Delay	42.4	5.4			16.7	22.4	48.9	49.4	60.0			
LOS	D	A			B	C	D	D	E			
Approach Delay		11.9			18.5			54.9				
Approach LOS		B			B			D				
Queue Length 50th (ft)	310	248			354	324	192	196	253			
Queue Length 95th (ft)	m316	m253			370	m#463	291	297	#361			
Internal Link Dist (ft)		1107			631			1711			420	
Turn Bay Length (ft)	200					450	150		450			
Base Capacity (vph)	444	2385			1334	596	414	415	686			
Starvation Cap Reductn	0	0			0	0	0	0	0			
Spillback Cap Reductn	0	0			0	0	0	0	0			
Storage Cap Reductn	0	0			0	0	0	0	0			
Reduced v/c Ratio	0.84	0.74			0.75	0.78	0.64	0.65	0.87			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 65 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 24.3 Intersection LOS: C
Intersection Capacity Utilization 82.5% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 70 Bypass WB Off-Ramp/US 70 Bypass WB On-Ramp & NC 42





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1614	448	0	1349	10	0	0	86	0	0	13
Future Volume (vph)	0	1614	448	0	1349	10	0	0	86	0	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3539	1583	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3536	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		711			850			682			375	
Travel Time (s)		10.8			12.9			18.6			7.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1793	498	0	1510	0	0	0	96	0	0	14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection												
Int Delay, s/veh	0.6											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1614	448	0	1349	10	0	0	86	0	0	13
Future Vol, veh/h	0	1614	448	0	1349	10	0	0	86	0	0	13
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	-	-	150	-	-	-	-	-	0	-	-	0
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	0	1793	498	0	1499	11	0	0	96	0	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	897	-	-	755
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	283	0	0	351
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	283	-	-	351
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	24.1	15.7
HCM LOS			C	C

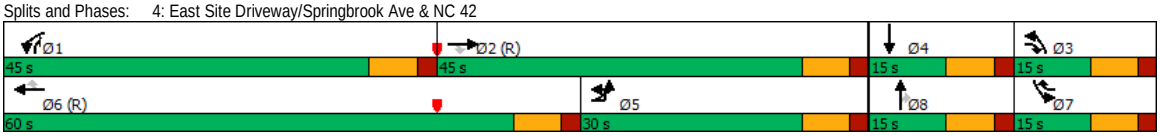
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	283	-	-	-	-	351
HCM Lane V/C Ratio	0.338	-	-	-	-	0.041
HCM Control Delay (s)	24.1	-	-	-	-	15.7
HCM Lane LOS	C	-	-	-	-	C
HCM 95th %tile Q(veh)	1.4	-	-	-	-	0.1

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	43	110	1339	256	512	1048	52	195	22	130	37	64	40
Future Volume (vph)	43	110	1339	256	512	1048	52	195	22	130	37	64	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)			0%			0%			0%			0%	
Storage Length (ft)		450		150	400		125	350		250	150		0
Storage Lanes		1		1	2		1	1		1	1		0
Taper Length (ft)		100			200			100			50		
Satd. Flow (prot)	0	1770	3539	1583	3433	3539	1583	3433	1578	1504	1770	1757	0
Flt Permitted		0.950			0.950			0.950			0.950		
Satd. Flow (perm)	0	1770	3539	1583	3433	3539	1583	3433	1578	1504	1770	1757	0
Right Turn on Red				No			No			No			No
Satd. Flow (RTOR)													
Link Speed (mph)			45			45			25			35	
Link Distance (ft)			850			1341			810			358	
Travel Time (s)			12.9			20.3			22.1			7.0	
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)													
Mid-Block Traffic (%)			0%			0%			0%			0%	
Shared Lane Traffic (%)										43%			
Lane Group Flow (vph)	0	170	1488	284	569	1164	58	217	86	82	41	115	0
Turn Type	Prot	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases				2			6			8			
Detector Phase	5	5	2	3	1	6	7	3	8	1	7	4	
Switch Phase													
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	7.0	12.0	7.0	7.0	7.0	12.0	12.0	
Minimum Split (s)	14.0	14.0	19.0	14.0	14.0	14.0	19.0	14.0	14.0	14.0	19.0	19.0	
Total Split (s)	30.0	30.0	45.0	15.0	45.0	60.0	15.0	15.0	15.0	45.0	15.0	15.0	
Total Split (%)	25.0%	25.0%	37.5%	12.5%	37.5%	50.0%	12.5%	12.5%	12.5%	37.5%	12.5%	12.5%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)		25.0	51.7	61.7	28.3	55.0	70.2	10.0	13.0	42.3	10.2	10.0	
Actuated g/C Ratio		0.21	0.43	0.51	0.24	0.46	0.58	0.08	0.11	0.35	0.08	0.08	
v/c Ratio		0.46	0.98	0.35	0.70	0.72	0.06	0.76	0.51	0.16	0.28	0.79	
Control Delay		43.9	47.0	8.2	37.2	15.2	3.4	71.3	63.8	18.1	56.8	88.4	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		43.9	47.0	8.2	37.2	15.2	3.4	71.3	63.8	18.1	56.8	88.4	
LOS		D	D	A	D	B	A	E	E	B	E	F	
Approach Delay			41.0			21.8			58.3			80.1	
Approach LOS			D			C			E			F	
Queue Length 50th (ft)		102	499	47	168	267	4	86	69	35	30	89	
Queue Length 95th (ft)		m150	#832	m91	206	337	m6	#142	#148	58	68	#190	
Internal Link Dist (ft)			770			1261			730			278	
Turn Bay Length (ft)		450		150	400		125	350		250	150		
Base Capacity (vph)		368	1525	814	1144	1622	925	286	170	676	149	146	
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.46	0.98	0.35	0.50	0.72	0.06	0.76	0.51	0.12	0.28	0.79	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 78 (65%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 36.0 Intersection LOS: D
Intersection Capacity Utilization 76.3% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Site Driveway/Springbrook Ave & NC 42



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	1438	22	21	1516	66	6	4	6	61	4	81
Future Volume (vph)	106	1438	22	21	1516	66	6	4	6	61	4	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			2%			0%	
Storage Length (ft)	450		175	425		225	75		0	0		50
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	100			100			50			25		
Satd. Flow (prot)	1778	3557	1591	1761	3522	1575	1752	1669	0	0	1779	1583
Flt Permitted	0.950			0.950			0.710				0.730	
Satd. Flow (perm)	1778	3557	1591	1761	3522	1575	1309	1669	0	0	1360	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		1341			562			963			874	
Travel Time (s)		20.3			8.5			18.8			23.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	1598	24	23	1684	73	7	11	0	0	72	90
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases			2			6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	24.0	24.0	14.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	20.0	85.0	85.0	15.0	80.0	80.0	20.0	20.0		20.0	20.0	20.0
Total Split (%)	16.7%	70.8%	70.8%	12.5%	66.7%	66.7%	16.7%	16.7%		16.7%	16.7%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Act Effct Green (s)	13.8	91.9	91.9	9.6	81.1	81.1	12.9	12.9			12.9	28.9
Actuated g/C Ratio	0.12	0.77	0.77	0.08	0.68	0.68	0.11	0.11			0.11	0.24
v/c Ratio	0.58	0.59	0.02	0.16	0.71	0.07	0.05	0.06			0.49	0.24
Control Delay	61.6	7.6	1.0	44.8	8.8	6.3	47.5	47.5			61.7	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	61.6	7.6	1.0	44.8	8.8	6.3	47.5	47.5			61.7	35.6
LOS	E	A	A	D	A	A	D	D			E	D
Approach Delay		11.2			9.1			47.5			47.2	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	73	616	2	17	237	15	5	8			53	53
Queue Length 95th (ft)	m78	m650	m1	m24	273	m20	20	26			101	96
Internal Link Dist (ft)		1261			482			883			794	
Turn Bay Length (ft)	450		175	425		225	75					50
Base Capacity (vph)	223	2724	1218	146	2381	1065	163	208			170	397
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.53	0.59	0.02	0.16	0.71	0.07	0.04	0.05			0.42	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 117 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 70.5%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 5: HealthPark Way/Johnston Medical Center & NC 42





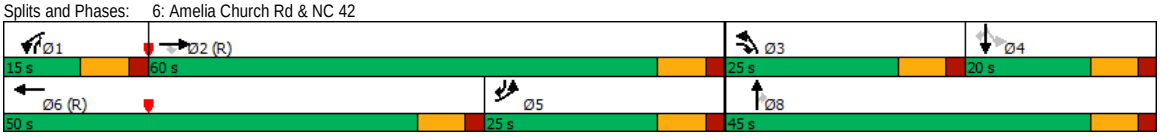
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	955	127	29	1003	32	208	387	48	24	175	366
Future Volume (vph)	440	955	127	29	1003	32	208	387	48	24	175	366
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	375		100	200		0	350		100	100		200
Storage Lanes	2		1	1		0	1		1	1		2
Taper Length (ft)	200			100			50			100		
Satd. Flow (prot)	3433	3539	1583	1770	3522	0	1770	1863	1583	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.512		
Satd. Flow (perm)	3433	3539	1583	1770	3522	0	1770	1863	1583	954	1863	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		607			612			509			889	
Travel Time (s)		9.2			9.3			7.7			13.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	489	1061	141	32	1150	0	231	430	53	27	194	407
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8	1		4	5
Permitted Phases			2						8	4		4
Detector Phase	5	2	3	1	6		3	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	25.0	60.0	25.0	15.0	50.0		25.0	45.0	15.0	20.0	20.0	25.0
Total Split (%)	20.8%	50.0%	20.8%	12.5%	41.7%		20.8%	37.5%	12.5%	16.7%	16.7%	20.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead		Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	20.0	59.0	83.3	9.5	45.8		19.3	39.2	53.8	15.0	15.0	35.0
Actuated g/C Ratio	0.17	0.49	0.69	0.08	0.38		0.16	0.33	0.45	0.12	0.12	0.29
v/c Ratio	0.85	0.61	0.13	0.23	0.86		0.81	0.71	0.07	0.23	0.84	0.50
Control Delay	41.3	7.5	1.1	55.9	42.0		70.9	42.5	18.8	52.7	80.8	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	7.5	1.1	55.9	42.0		70.9	42.5	18.8	52.7	80.8	21.7
LOS	D	A	A	E	D		E	D	B	D	F	C
Approach Delay		16.8			42.4			49.9			41.3	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	171	44	6	24	430		174	287	23	19	149	92
Queue Length 95th (ft)	#270	120	10	57	526		#296	406	47	50	#275	126
Internal Link Dist (ft)		527			532			429			809	
Turn Bay Length (ft)	375		100	200			350		100	100		200
Base Capacity (vph)	572	1741	1108	147	1342		295	621	715	119	232	811
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.61	0.13	0.22	0.86		0.78	0.69	0.07	0.23	0.84	0.50

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 4 (3%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 33.2	Intersection LOS: C
Intersection Capacity Utilization 84.2%	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: 6: Amelia Church Rd & NC 42



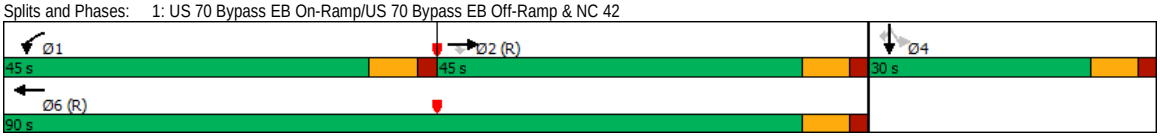
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	760	476	541	1420	0	0	0	0	443	4	337
Future Volume (vph)	0	760	476	541	1420	0	0	0	0	443	4	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			0%			0%			4%	
Storage Length (ft)	0		200	225		0	0		0	250		350
Storage Lanes	0		1	1		0	0		0	1		2
Taper Length (ft)	25			300			25			200		
Satd. Flow (prot)	0	3557	1591	1770	3539	0	0	0	0	1648	1653	2731
Flt Permitted				0.950						0.950	0.953	
Satd. Flow (perm)	0	3557	1591	1770	3539	0	0	0	0	1648	1653	2731
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		55			45			55			25	
Link Distance (ft)		1565			1187			548			842	
Travel Time (s)		19.4			18.0			6.8			23.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	0	844	529	601	1578	0	0	0	0	246	250	374
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Detector Phase		2	2	1	6					4	4	4
Switch Phase												
Minimum Initial (s)		14.0	14.0	7.0	14.0					7.0	7.0	7.0
Minimum Split (s)		21.0	21.0	14.0	21.0					14.0	14.0	14.0
Total Split (s)		45.0	45.0	45.0	90.0					30.0	30.0	30.0
Total Split (%)		37.5%	37.5%	37.5%	75.0%					25.0%	25.0%	25.0%
Yellow Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0					-2.0	-2.0	-2.0
Total Lost Time (s)		5.0	5.0	5.0	5.0					5.0	5.0	5.0
Lead/Lag		Lag	Lag	Lead								
Lead-Lag Optimize?		Yes	Yes	Yes								
Recall Mode		C-Max	C-Max	None	C-Max					None	None	None
Act Effct Green (s)		40.0	40.0	41.8	86.8					23.2	23.2	23.2
Actuated g/C Ratio		0.33	0.33	0.35	0.72					0.19	0.19	0.19
v/c Ratio		0.71	1.00	0.97	0.62					0.77	0.78	0.71
Control Delay		39.0	79.2	55.4	2.2					62.6	63.5	53.1
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0
Total Delay		39.0	79.2	55.4	2.2					62.6	63.5	53.1
LOS		D	E	E	A					E	E	D
Approach Delay		54.5			16.9						58.8	
Approach LOS		D			B						E	
Queue Length 50th (ft)		298	407	~464	50					188	191	152
Queue Length 95th (ft)		373	#640	m#668	102					#292	#306	211
Internal Link Dist (ft)		1485			1107			468			762	
Turn Bay Length (ft)			200	225						250		350
Base Capacity (vph)		1185	530	617	2560					343	344	568
Starvation Cap Reductn		0	0	0	0					0	0	0
Spillback Cap Reductn		0	0	0	0					0	0	0
Storage Cap Reductn		0	0	0	0					0	0	0
Reduced v/c Ratio		0.71	1.00	0.97	0.62					0.72	0.73	0.66

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 64 (53%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 36.8	Intersection LOS: D
Intersection Capacity Utilization 84.3%	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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: US 70 Bypass EB On-Ramp/US 70 Bypass EB Off-Ramp & NC 42

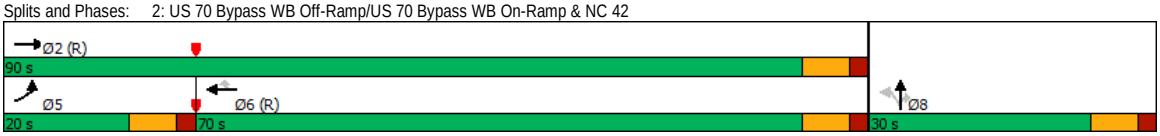


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1042	0	0	1503	631	458	4	311	0	0	0
Future Volume (vph)	160	1042	0	0	1503	631	458	4	311	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			3%			0%	
Storage Length (ft)	200		0	0		450	150		450	0		0
Storage Lanes	1		0	0		1	1		2	0		0
Taper Length (ft)	250			25			200			25		
Satd. Flow (prot)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Flt Permitted	0.950						0.950	0.953				
Satd. Flow (perm)	1778	3557	0	0	3522	1575	1656	1661	2745	0	0	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			45	
Link Distance (ft)		1187			711			1791			500	
Travel Time (s)		18.0			10.8			34.9			7.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	178	1158	0	0	1670	701	254	259	346	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Detector Phase	5	2			6	6	8	8	8			
Switch Phase												
Minimum Initial (s)	7.0	14.0			14.0	14.0	7.0	7.0	7.0			
Minimum Split (s)	14.0	21.0			21.0	21.0	14.0	14.0	14.0			
Total Split (s)	20.0	90.0			70.0	70.0	30.0	30.0	30.0			
Total Split (%)	16.7%	75.0%			58.3%	58.3%	25.0%	25.0%	25.0%			
Yellow Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0			
Lost Time Adjust (s)	-2.0	-2.0			-2.0	-2.0	-2.0	-2.0	-2.0			
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0	5.0			
Lead/Lag	Lead				Lag	Lag						
Lead-Lag Optimize?	Yes				Yes	Yes						
Recall Mode	None	C-Max			C-Max	C-Max	None	None	None			
Act Effct Green (s)	15.0	86.6			66.5	66.5	23.4	23.4	23.4			
Actuated g/C Ratio	0.12	0.72			0.55	0.55	0.20	0.20	0.20			
v/c Ratio	0.80	0.45			0.86	0.80	0.79	0.80	0.65			
Control Delay	62.8	5.6			14.0	14.9	63.5	64.6	50.3			
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0			
Total Delay	62.8	5.6			14.0	14.9	63.5	64.6	50.3			
LOS	E	A			B	B	E	E	D			
Approach Delay		13.2			14.3			58.5				
Approach LOS		B			B			E				
Queue Length 50th (ft)	116	289			363	256	194	200	139			
Queue Length 95th (ft)	m#215	306			m428	m306	#314	#324	195			
Internal Link Dist (ft)		1107			631			1711			420	
Turn Bay Length (ft)	200					450	150		450			
Base Capacity (vph)	226	2566			1952	873	345	346	571			
Starvation Cap Reductn	0	0			0	0	0	0	0			
Spillback Cap Reductn	0	0			0	0	0	0	0			
Storage Cap Reductn	0	0			0	0	0	0	0			
Reduced v/c Ratio	0.79	0.45			0.86	0.80	0.74	0.75	0.61			

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 114 (95%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 84.3% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: US 70 Bypass WB Off-Ramp/US 70 Bypass WB On-Ramp & NC 42





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1214	181	0	2050	6	0	0	268	0	0	30
Future Volume (vph)	0	1214	181	0	2050	6	0	0	268	0	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		150	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	3539	1583	0	3539	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	3539	0	0	0	1611	0	0	1611
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		711			850			802			375	
Travel Time (s)		10.8			12.9			21.9			7.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1349	201	0	2285	0	0	0	298	0	0	33
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection												
Int Delay, s/veh	2.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1214	181	0	2050	6	0	0	268	0	0	30
Future Vol, veh/h	0	1214	181	0	2050	6	0	0	268	0	0	30
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	-	-	150	-	-	-	-	-	0	-	-	0
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	0	1349	201	0	2278	7	0	0	298	0	0	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	675	-	-	1143
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	396	0	0	194
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	396	-	-	194
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	37	27.4
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	396	-	-	-	-	194
HCM Lane V/C Ratio	0.752	-	-	-	-	0.172
HCM Control Delay (s)	37	-	-	-	-	27.4
HCM Lane LOS	E	-	-	-	-	D
HCM 95th %tile Q(veh)	6.1	-	-	-	-	0.6

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	132	49	1133	143	260	1249	35	644	66	433	68	25	74
Future Volume (vph)	132	49	1133	143	260	1249	35	644	66	433	68	25	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)			0%			0%			0%			0%	
Storage Length (ft)		450		150	400		125	350		250	150		0
Storage Lanes		1		1	2		1	1		1	1		0
Taper Length (ft)		100			200			100			50		
Satd. Flow (prot)	0	1770	3539	1583	3433	3539	1583	3433	1571	1504	1770	1654	0
Flt Permitted		0.950			0.950			0.950			0.950		
Satd. Flow (perm)	0	1770	3539	1583	3433	3539	1583	3433	1571	1504	1770	1654	0
Right Turn on Red				No			No			No			No
Satd. Flow (RTOR)													
Link Speed (mph)			45			45			25			35	
Link Distance (ft)			850			1341			972			358	
Travel Time (s)			12.9			20.3			26.5			7.0	
Confl. Peds. (#/hr)													
Confl. Bikes (#/hr)													
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)													
Mid-Block Traffic (%)			0%			0%			0%			0%	
Shared Lane Traffic (%)										44%			
Lane Group Flow (vph)	0	201	1259	159	289	1388	39	716	285	269	76	110	0
Turn Type	Prot	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases				2			6			8			
Detector Phase	5	5	2	3	1	6	7	3	8	1	7	4	
Switch Phase													
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	14.0	14.0	19.0	14.0	14.0	14.0	14.0	14.0	20.0	14.0	14.0	14.0	
Total Split (s)	20.0	20.0	55.0	30.0	20.0	55.0	15.0	30.0	30.0	20.0	15.0	15.0	
Total Split (%)	16.7%	16.7%	45.8%	25.0%	16.7%	45.8%	12.5%	25.0%	25.0%	16.7%	12.5%	12.5%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Max	None	None	C-Max	None	None	None	None	None	None	
Act Effct Green (s)		15.0	50.4	75.4	14.6	50.0	59.8	25.0	28.0	47.6	9.8	10.0	
Actuated g/C Ratio		0.12	0.42	0.63	0.12	0.42	0.50	0.21	0.23	0.40	0.08	0.08	
v/c Ratio		0.91	0.85	0.16	0.69	0.94	0.05	1.00	0.78	0.45	0.53	0.80	
Control Delay		82.6	27.7	3.2	76.3	39.0	7.8	81.7	60.3	30.7	66.6	92.3	
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		82.6	27.7	3.2	76.3	39.0	7.8	81.7	60.3	30.7	66.6	92.3	
LOS		F	C	A	E	D	A	F	E	C	E	F	
Approach Delay			32.1			44.5			66.1			81.8	
Approach LOS			C			D			E			F	
Queue Length 50th (ft)		163	451	19	123	278	7	~288	226	165	57	85	
Queue Length 95th (ft)		#304	543	39	170	#676	m14	#418	#389	251	110	#186	
Internal Link Dist (ft)			770			1261			892			278	
Turn Bay Length (ft)		450		150	400		125	350		250	150		
Base Capacity (vph)		221	1485	994	429	1474	791	715	366	602	147	137	
Starvation Cap Reductn		0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio		0.91	0.85	0.16	0.67	0.94	0.05	1.00	0.78	0.45	0.52	0.80	

Intersection Summary

Area Type: Other

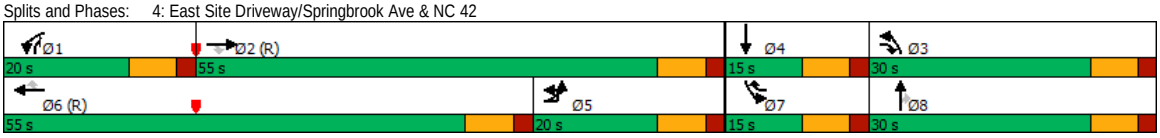
Cycle Length: 120

Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 47.5	Intersection LOS: D
Intersection Capacity Utilization 85.5%	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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: East Site Driveway/Springbrook Ave & NC 42



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	1529	10	10	1464	66	26	4	26	71	4	101
Future Volume (vph)	76	1529	10	10	1464	66	26	4	26	71	4	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			1%			2%			0%	
Storage Length (ft)	450		175	425		225	75		0	0		50
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	25			100			50			25		
Satd. Flow (prot)	1778	3557	1591	1761	3522	1575	1752	1601	0	0	1779	1583
Flt Permitted	0.950			0.950			0.690				0.712	
Satd. Flow (perm)	1778	3557	1591	1761	3522	1575	1272	1601	0	0	1326	1583
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			25	
Link Distance (ft)		1341			562			963			874	
Travel Time (s)		20.3			8.5			18.8			23.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	1699	11	11	1627	73	29	33	0	0	83	112
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases			2			6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	5
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	14.0	24.0	24.0	14.0	31.0	31.0	14.0	14.0		14.0	14.0	14.0
Total Split (s)	25.0	85.0	85.0	15.0	75.0	75.0	20.0	20.0		20.0	20.0	25.0
Total Split (%)	20.8%	70.8%	70.8%	12.5%	62.5%	62.5%	16.7%	16.7%		16.7%	16.7%	20.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0			-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Act Effct Green (s)	13.4	97.5	97.5	9.2	81.1	81.1	13.3	13.3			13.3	28.9
Actuated g/C Ratio	0.11	0.81	0.81	0.08	0.68	0.68	0.11	0.11			0.11	0.24
v/c Ratio	0.42	0.59	0.01	0.08	0.68	0.07	0.21	0.19			0.56	0.29
Control Delay	53.5	6.3	5.8	62.3	10.7	6.5	51.3	50.0			65.3	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	53.5	6.3	5.8	62.3	10.7	6.5	51.3	50.0			65.3	36.7
LOS	D	A	A	E	B	A	D	D			E	D
Approach Delay		8.5			10.8			50.6			48.9	
Approach LOS		A			B			D			D	
Queue Length 50th (ft)	67	140	1	9	141	11	20	23			61	68
Queue Length 95th (ft)	m84	421	m4	m13	m642	m18	51	56			115	112
Internal Link Dist (ft)		1261			482			883			794	
Turn Bay Length (ft)	450		175	425		225	75					50
Base Capacity (vph)	296	2891	1293	146	2380	1064	159	200			165	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	0.28	0.59	0.01	0.08	0.68	0.07	0.18	0.17			0.50	0.24

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 71.4%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 5: HealthPark Way/Johnston Medical Center & NC 42





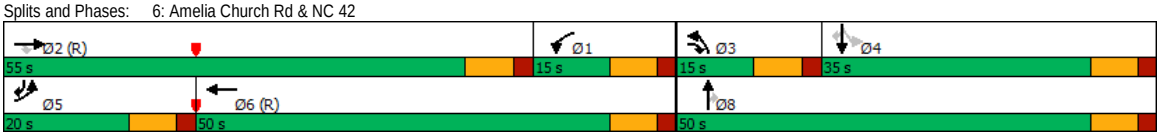
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	1015	205	49	972	26	126	178	30	34	390	444
Future Volume (vph)	368	1015	205	49	972	26	126	178	30	34	390	444
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	375		100	200		0	350		100	100		200
Storage Lanes	2		1	1		0	1		1	1		2
Taper Length (ft)	200			100			50			100		
Satd. Flow (prot)	3433	3539	1583	1770	3525	0	1770	1863	1583	1770	1863	2787
Flt Permitted	0.950			0.950			0.950			0.633		
Satd. Flow (perm)	3433	3539	1583	1770	3525	0	1770	1863	1583	1179	1863	2787
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		607			612			509			889	
Travel Time (s)		9.2			9.3			7.7			13.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	409	1128	228	54	1109	0	140	198	33	38	433	493
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8			4	5
Permitted Phases			2						8	4		4
Detector Phase	5	2	3	1	6		3	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	7.0	14.0	7.0	7.0	14.0		7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	14.0	21.0	14.0	14.0	21.0		14.0	14.0	14.0	14.0	14.0	14.0
Total Split (s)	20.0	55.0	15.0	15.0	50.0		15.0	50.0	50.0	35.0	35.0	20.0
Total Split (%)	16.7%	45.8%	12.5%	12.5%	41.7%		12.5%	41.7%	41.7%	29.2%	29.2%	16.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	15.0	53.0	64.0	9.8	45.0		10.0	45.0	45.0	30.0	30.0	50.0
Actuated g/C Ratio	0.12	0.44	0.53	0.08	0.38		0.08	0.38	0.38	0.25	0.25	0.42
v/c Ratio	0.95	0.72	0.27	0.38	0.84		0.95	0.28	0.06	0.13	0.93	0.42
Control Delay	81.2	29.2	8.0	60.0	41.2		117.7	27.6	24.4	36.4	72.3	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.2	29.2	8.0	60.0	41.2		117.7	27.6	24.4	36.4	72.3	26.2
LOS	F	C	A	E	D		F	C	C	D	E	C
Approach Delay		38.5			42.1			61.4			47.3	
Approach LOS		D			D			E			D	
Queue Length 50th (ft)	153	462	35	40	408		110	106	16	23	329	151
Queue Length 95th (ft)	#261	531	132	83	500		#239	167	39	53	#524	202
Internal Link Dist (ft)		527			532			429			809	
Turn Bay Length (ft)	375		100	200			350		100	100		200
Base Capacity (vph)	429	1563	844	147	1321		147	698	593	294	465	1161
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.72	0.27	0.37	0.84		0.95	0.28	0.06	0.13	0.93	0.42

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	

Offset: 80 (67%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 43.5	Intersection LOS: D
Intersection Capacity Utilization 82.4%	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: 6: Amelia Church Rd & NC 42

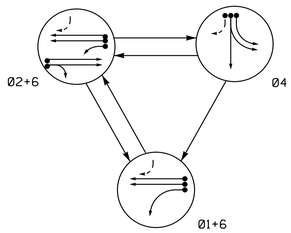


Appendix K:

Signal Plans

PROJECT REFERENCE NO.	SHEET NO.
SS-4904DY	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION				
SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 04	FLASH
11	←	↖	→	↑
21,22	R	G	R	Y
41,42	R	R	G	R
61,62	G	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.

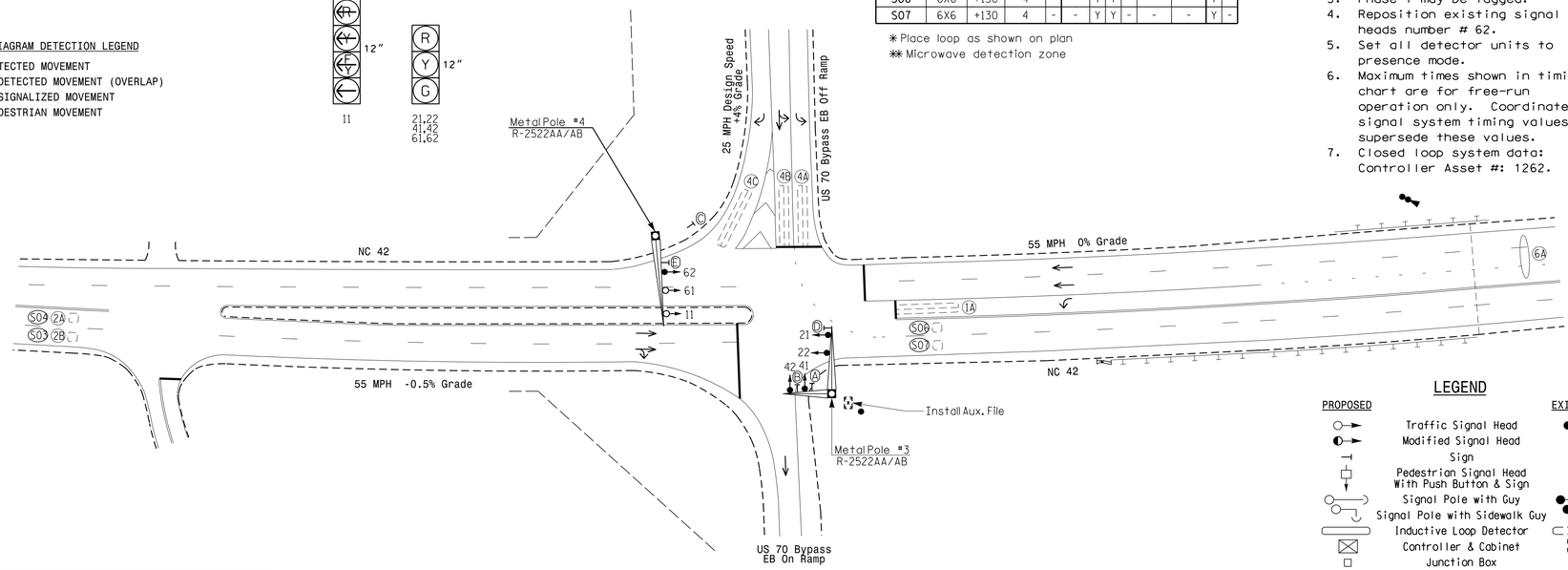
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	Y	-	3	-	-
2A/S04	6X6	420	6	-	2	Y	Y	-	-	-	Y	-
2B/S05	6X6	420	6	-	2	Y	Y	-	-	-	Y	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
4C	6X40	*	2-4-2	-	4	Y	Y	-	-	20	-	-
6A	**	420	**	-	6	Y	Y	-	-	-	-	-
S06	6X6	+130	4	-	-	Y	Y	-	-	-	Y	-
S07	6X6	+130	4	-	-	Y	Y	-	-	-	Y	-

* Place loop as shown on plan
** Microwave detection zone

3 Phase
Fully Actuated
NC 42-US 70 BYP (East System) CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Reposition existing signal heads number # 62.
5. Set all detector units to presence mode.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Closed loop system data: Controller Asset #: 1262.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
	Metal Pole with Mastarm	
	Microwave Detection Zone	
	Microwave Detector	
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
Ⓒ	"YIELD" Sign (R1-2)	Ⓒ
Ⓓ	No Left Turn Sign (R3-2)	Ⓓ
Ⓔ	No Right Turn Sign (R3-1)	Ⓔ

OASIS 2070 TIMING CHART				
FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 6
Min Green 1 *	7	14	7	14
Extension 1 *	2.0	6.0	2.0	6.0
Max Green 1 *	15	90	30	90
Yellow Clearance	3.0	5.3	3.6	5.3
Red Clearance	2.9	1.0	2.3	1.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	1.5	-	1.5
Max Variable Initial *	-	46	-	46
Time Before Reduction *	-	15	-	15
Time To Reduce *	-	30	-	30
Minimum Gap	-	3.4	-	3.4
Recall Mode	-	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

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kgoodin

Signal Upgrade Corr. File: 04-16-40326

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Prepared In the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
NC Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

NC 42
at
US 70 Bypass EB Ramp

Division 4 Johnston County W. of Clayton

PLAN DATE: November 2016 REVIEWED BY: JPG
PREPARED BY: KGP, Jr. REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

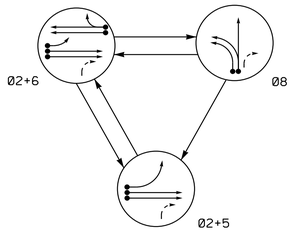
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 029904 ENGINEER JASON P. GALLOWAY

DocuSigned by: Jason P. Galloway 12/12/2016
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DATE

SIG. INVENTORY NO. 04-1262

PROJECT REFERENCE NO.	SHEET NO.
SS-4904DY	Sig. 1.0

PHASING DIAGRAM



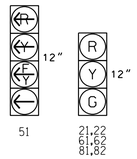
PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION				
SIGNAL FACE	PHASE 02+5	PHASE 02+6	PHASE 04+8	FLASH
21,22	G	G	R	Y
51	←G	←G	←R	←Y
61,62	R	G	R	Y
81,82	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



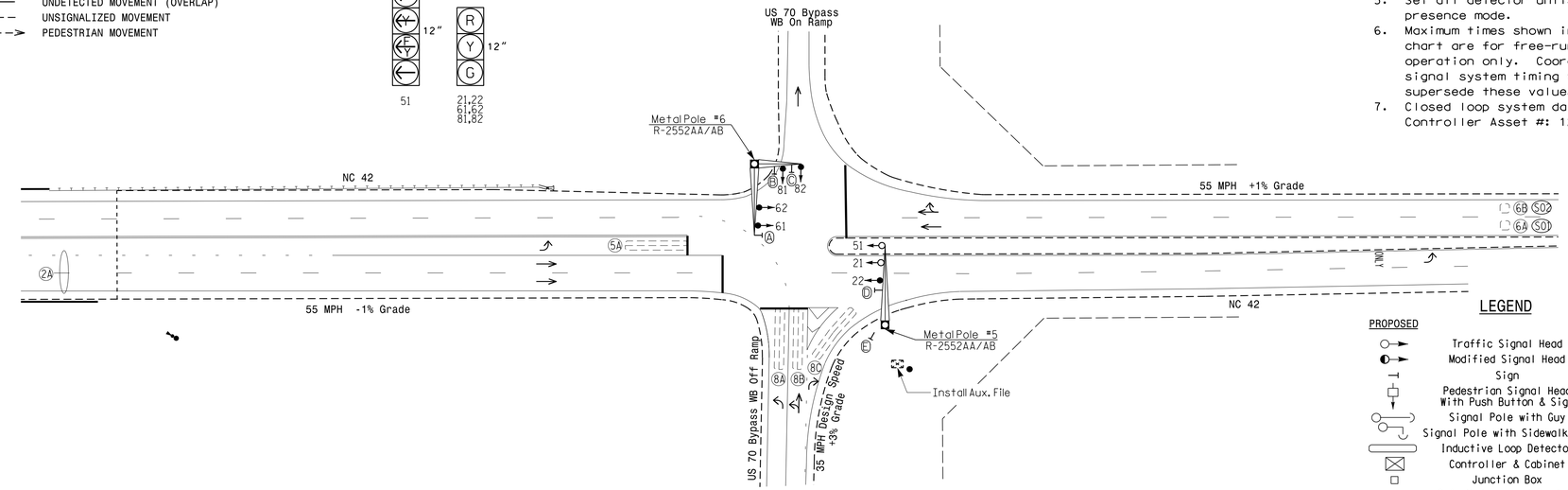
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	✻✻	420	✻✻	-	2	Y	Y	-	-	-	-	-
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
				-	2	Y	Y	-	-	3	-	-
6A/S01	6X6	420	6	-	6	Y	Y	-	-	-	Y	-
6B/S02	6X6	420	6	-	6	Y	Y	-	-	-	Y	-
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	-	-	-
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	-	-	-
8C	6X40	✳	2-4-2	-	8	Y	Y	-	-	20	-	-

✳ Place loop as shown on plan
✻✻ Microwave detection zone

3 Phase
Fully Actuated
NC 42-US 70 BYP (East System) CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Reposition existing signal head number #22.
5. Set all detector units to presence mode.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Closed loop system data: Controller Asset #: 1261.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
	Metal Pole with Mastarm	
	Microwave Detection Zone	
	Microwave Detector	
Ⓐ	No Left Turn Sign (R3-2)	Ⓐ
Ⓑ	Left Arrow "ONLY" Sign (R3-5L)	Ⓑ
Ⓒ	Combined Through and Left Arrow Sign (R3-6L)	Ⓒ
Ⓓ	No Right Turn Sign (R3-1)	Ⓓ
Ⓔ	"YIELD" Sign (R1-2)	Ⓔ

OASIS 2070 TIMING CHART

FEATURE	PHASE 2	PHASE 5	PHASE 6	PHASE 8
Min Green 1 *	14	7	14	7
Extension 1 *	6.0	2.0	6.0	2.0
Max Green 1 *	90	15	90	0
Yellow Clearance	5.3	3.0	5.3	3.7
Red Clearance	1.0	2.9	1.0	1.9
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	1.5	-
Max Variable Initial *	46	-	46	-
Time Before Reduction *	15	-	15	-
Time To Reduce *	30	-	30	-
Minimum Gap	3.4	-	3.4	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade Corr. File: 04-16-40326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 029904 ENGINEER JASON P. GALLOWAY

Prepared In the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 42
at
US 70 Bypass WB Ramp

Division 4 Johnston County W. of Clayton

PLAN DATE:	November 2016	REVIEWED BY:	JPG
PREPARED BY:	KGP, Jr.	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

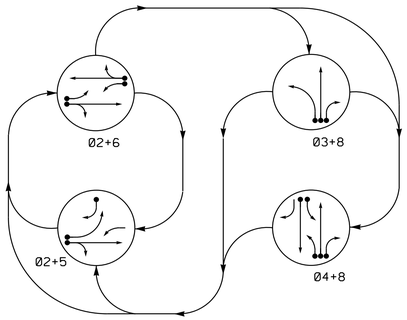
docusigned by: Jason P. Galloway 12/9/2016
E7D0EA7D481BA1D... DATE

SIG. INVENTORY NO. 04-1261

09-DEC-2016 09:26
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kgandhi

PROJECT REFERENCE NO.	SHEET NO.
	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION					
SIGNAL FACE	PHASE				
	Ø2+5	Ø2+6	Ø3+8	Ø4+8	FLASH
21,22	G	G	R	R	Y
31	~~R~~	~~R~~	-	~~F Y~~	~~R~~
41	R	R	R	G	R
42	R/-	R	R	G	R
51	-	~~F Y~~	~~R~~	~~R~~	~~Y~~
61	~~F Y~~	~~F Y~~	~~R~~	~~R~~	~~Y~~
62,63	R	G	R	R	Y
81,82	R	R	G	G	R

SIGNAL FACE I.D.

All Heads L.E.D.

31
51

61

21,22
41
62,63
81,82

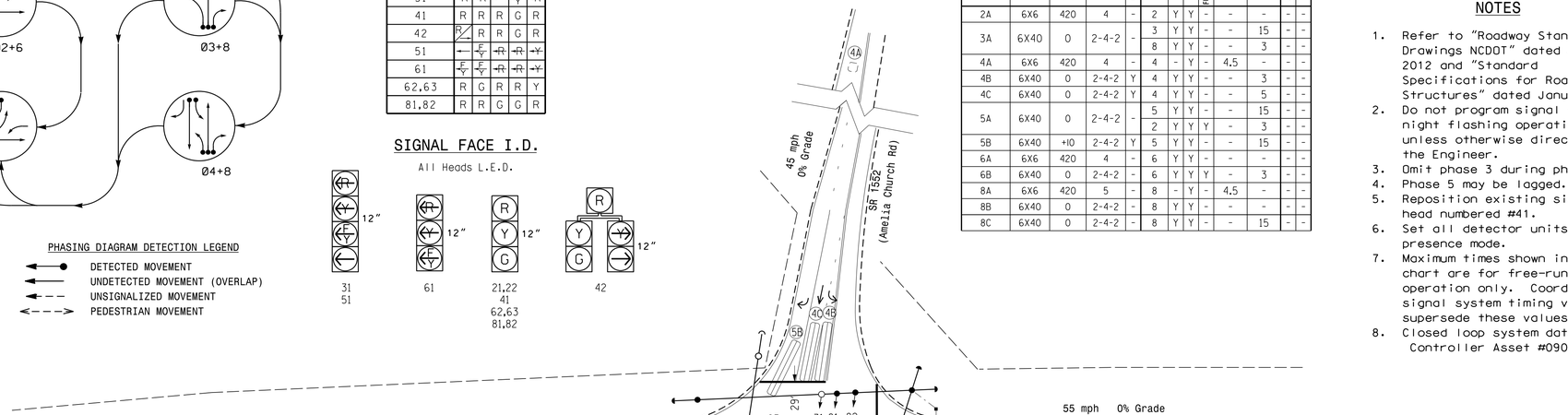
42

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	420	4	-	2	Y	Y	-	-	-	-	-
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
					8	Y	Y	-	-	3	-	-
4A	6X6	420	4	-	4	-	Y	-	4.5	-	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4C	6X40	0	2-4-2	Y	4	Y	Y	-	-	5	-	-
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
5B	6X40	+10	2-4-2	Y	5	Y	Y	-	-	15	-	-
6A	6X6	420	4	-	6	Y	Y	-	-	-	-	-
6B	6X40	0	2-4-2	-	6	Y	Y	Y	-	3	-	-
8A	6X6	420	5	-	8	-	Y	-	4.5	-	-	-
8B	6X40	0	2-4-2	-	8	Y	Y	-	-	-	-	-
8C	6X40	0	2-4-2	-	8	Y	Y	-	-	15	-	-

4 Phase
Fully Actuated
NC 42 W. Closed Loop System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Omit phase 3 during phase 4 on.
4. Phase 5 may be lagged.
5. Reposition existing signal head numbered #41.
6. Set all detector units to presence mode.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data: Controller Asset #0904.



OASIS 2070 TIMING CHART

FEATURE	PHASE					
	2	3	4	5	6	8
Min Green 1 *	14	7	7	7	14	7
Extension 1 *	6.0	2.0	2.0	2.0	6.0	2.0
Max Green 1 *	90	15	30	15	90	30
Yellow Clearance	5.2	3.0	4.5	3.0	5.2	4.5
Red Clearance	1.1	2.1	1.1	2.4	1.1	1.1
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	2.5	-	-	-	2.5	-
Max Variable Initial *	46	-	-	-	46	-
Time Before Reduction *	15	-	-	-	15	-
Time To Reduce *	30	-	-	-	30	-
Minimum Gap	3.4	-	-	-	3.4	-
Recall Mode	MIN RECALL	-	-	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	

This Plan Supersedes Plan Sealed on 4/01/2015

Signal Upgrade

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 42
at
SR 1552 (Amelia Church Road)

Division 4 Johnston County Clayton

PLAN DATE: May 2015 REVIEWED BY: Jason Galloway
PREPARED BY: K.G. Peedin, Jr REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 029904 ENGINEER JASON P. GALLOWAY

Docusigned by: Jason Galloway 5/18/2015
F700EA70481841D...
DATE

SIG. INVENTORY NO. 04-0904

10 MAY 2015 09:47:26
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rpatterson

DocuSign Envelope ID: 2482187D-9F3C-477E-BB2A-7E3E2CC9A350

PROJECT REFERENCE NO.	SHEET NO.
36249,3645	Sig. 1.0

PHASING DIAGRAM

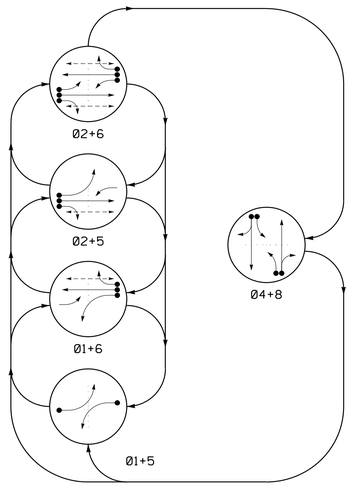


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	~~F~~ ~~C~~ Y	~~F~~ ~~C~~ Y	~~R~~ R	~~Y~~ Y
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	~~F~~ ~~C~~ Y	←	~~F~~ ~~C~~ Y	~~R~~ R	~~Y~~ Y
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK
P61,P62	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	+5	2-4-2	X	1	Y	Y	-	-	10	-	X
					6	Y	Y	Y	-	3	-	X
2A/S8	6X6	300	4	X	2	Y	Y	-	-	-	Y	-
4A	6X40	+5	2-4-2	-	4	Y	Y	-	-	-	-	-
4B*	6X40	+5	2-4-2	-	4	Y	Y	-	-	-	-	-
5A	6X40	+5	2-4-2	X	5	Y	Y	-	-	10	-	-
					2	Y	Y	Y	-	3	-	-
6A/S9	6X6	300	4	X	6	Y	Y	-	-	-	Y	-
8A	6X40	+5	2-4-2	X	8	Y	Y	-	-	-	-	X
8B	6X40	+5	2-4-2	X	8	Y	Y	-	-	-	-	X

*Phase 4B loop was previously Phase 5B loop.

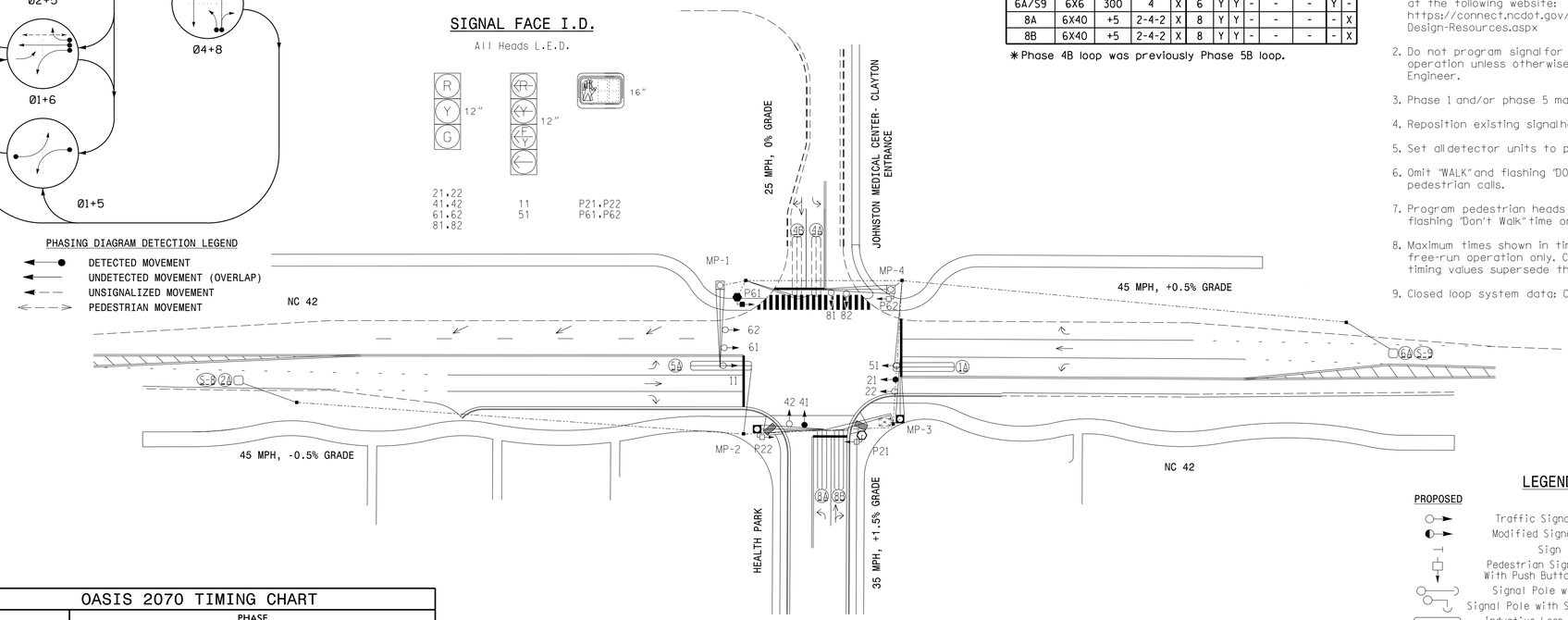
5 Phase
Fully Actuated
NC 42 (Clayton) East Closed Loop System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012, "Standard Specifications for Roads and Structures" dated January 2012, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: https://connect.ncdot.gov/resources/safety/Pages/ITS Design-Resources.aspx
2. Do not program signal for late night falshing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Reposition existing signal heads numbered 21 and 41.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Controller Asset #1361.

PHASING DIAGRAM DETECTION LEGEND

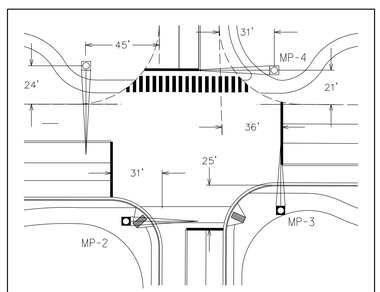
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	2.0	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	20	90	25	20	90	25
Yellow Clearance	3.0	4.6	3.8	3.0	4.6	3.8
Red Clearance	2.4	1.2	2.4	2.4	1.2	2.4
Red Revert	-	-	-	-	-	-
Walk 1 *	-	7	-	-	7	-
Don't Walk 1	-	10	-	-	17	-
Seconds Per Actuation *	-	2.5	-	-	2.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



PROPOSED STOPBAR & POLE LOCATIONS

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Metal Pole with Mastarm	
	Modified Pedestrian Head	N/A
	Type II Signal Pedestal	
N/A	Wheelchair Ramp	

NC Dept of Transportation
Division of Highways
Final Drawing Date: 11/17/2016
Docusigned by: Jason P. Galloway
ITS & Signing Unit

Signal Upgrade

Prepared By:
A. MortonThomas and Associates, Inc.
Consulting Engineers
6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609
TEL (919) 855-9989 FAX (919) 855-5687
E-MAIL MSURASKY@AMTENGINEERING.COM
AMT FILE # 112-153.001

Prepared In the Offices of:
750 M.Greenleaf Hwy,Garner,NC 27529

NC 42
AT
JOHNSTON MEDICAL CENTER-CLAYTON ENTRANCE AND HEALTH PARK
DIVISION 4 JOHNSTON COUNTY CLAYTON
PLAN DATE: October 2016 REVIEWED BY: MS
PREPARED BY: TJW REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 27333 ENGINEER MICHAEL N. MSURASKY
Docusigned by: 10/28/2016
DOCUSIGNED BY:
DATE
SIG. INVENTORY NO. 04-1361

$$$$$$SETTING$$$$$$
$$$$$$

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

DELIVERY VIA EMAIL

July 20, 2020

Samantha L. Wullenwaber, MPA
Planning Director - Town of Clayton
PO Box 879
Clayton, NC 27528

COUNTY: Johnston

SUBJECT: TIA Review of Proposed Lumen Development on NC 42

Dear Ms. Wullenwaber,

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. 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

- 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.
- 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.
- ROW necessary for improvements identified necessary herein shall be the responsibility of the developer and shall be dedicated as public ROW in the final plat. Installation of right turn lanes will typically require 15’ of dedication.
- 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.

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

Other Requirements

- A right-of-way reservation shall be a requirement of the driveway permit and recorded via plat for the proposed subdivision for the property frontage along NC 42 to match R-3410 Public Hearing Maps.
- If any driveway access is requested prior to the R-3410 project, additional improvements not included in the TIA may be required at the driveway.
- The installation of any 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 provided the other development does not move forward as intended. It 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 roadway improvements and right-of-way dedication necessary to accommodate the road construction shall be the responsibility of the owner/developers. These conditions are based on current traffic volumes and projected growth for the study area. Should the timelines presented for project build-out dates not be met and traffic conditions change due to growth in adjacent areas, these recommendations may not be applicable. Feel free to contact me if you have any additional questions or concerns.

Sincerely,

Sam Lawhorn

Sam Lawhorn, PE
District Engineer

cc: Kevin Bowen, PE - Division Engineer
Andy Brown, PE - Division Traffic Engineer
Jim Dunlop, PE – Congestion Management Engineer
Joshua Baird, PE – Town of Clayton - Town Engineer
Kevin Dean, PE – Kimberly Horn Engineering
Driveway Permit File

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

DEPARTMENT OF TRANSPORTATION

TRANSPORTATION MOBILITY AND SAFETY DIVISION
TRAFFIC MANAGEMENT UNIT
CONGESTION MANAGEMENT SECTION

July 16, 2020

Traffic Impact Analysis Review Report

Lumen

TIA Project: SC-2020-115
Division: 4
County: Johnston
Description: Lumen Development on NC 42

NORTH CAROLINA PROFESSIONAL SEAL 018080 ENGINEER JAMES H. DUNLOP

16 July 2020

James H. Dunlop, P. E.
Congestion Management Engineer

Charles Sorrell
Congestion Management Project Design Engineer

MAILING ADDRESS:
1561 Mail Service Center
Raleigh, North Carolina 27699-1561

Telephone: 919-814-5000

LOCATION:
750 North Greenfield Parkway
Garner, North Carolina 27529

Website: WWW.NCDOT.ORG/DOH/Preconstruct/Traffic/Congestion/CM/

Lumen Development TIA

SC-2020-115 **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 sealed Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Key Dates	
Initially Received by CMS	7/1/20
Complete Information Received by CMS	7/1/20
Date of Preliminary Review Accepting TIA for Review	7/13/20
Sealed TIA Prepared by Kimley Horn	7/1/20
Site Plan Prepared by Kimley Horn	7/1/20

Proposed Development

According to the TIA, the proposed Lumen Development is to be located on NC 42 in Johnston County. The TIA states the development is to be constructed by 2027 and is to consist of the following:

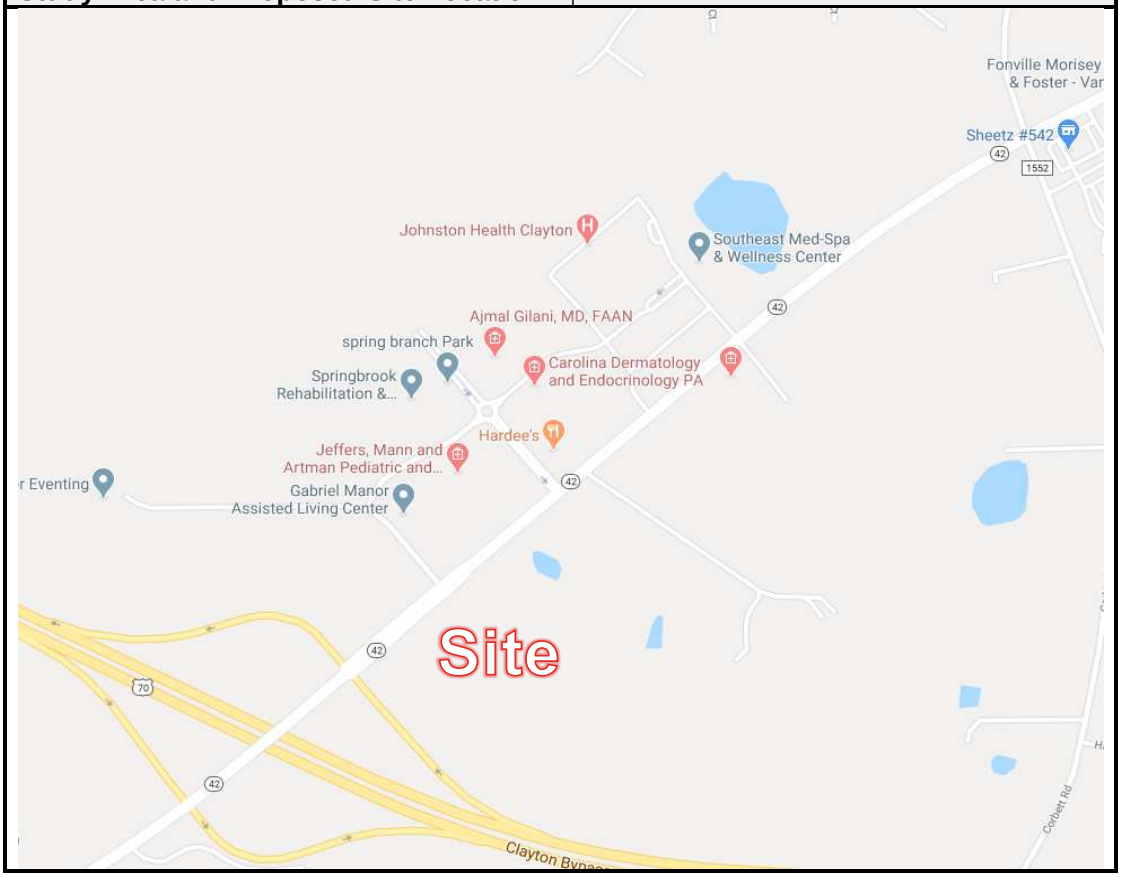
Land Use	Land Use Code	Size
Single Family Detached Housing	210	140 units
Multifamily Housing (Mid-Rise)	221	480 units
Hotel	310	120 rooms
Medical Office Building	720	700,000 s.f.
Shopping Center	820	35,000 s.f.
Supermarket	850	55,000 s.f.

Trip Generation - Unadjusted Volumes During a Typical Weekday
Based on appropriate methodology outlined in the *ITE Trip Generation Manual, 10th Ed.*

	IN	OUT	TOTAL
AM Peak Hour	1,361	530	1,891
PM Peak Hour	811	1,611	2,422
Daily Trips			40,584

Study Area

Study Area and Proposed Site Location - ↑ N



TIP Projects in Study Area			
Project	Description	Let Date	Completion
R-3410	NC 42 from NC 50 To US 70 Business widen to multilanes (8.6 miles)	Jan 2025	2025

TIA Comments

The following items vary from our recommended practices:

-

- The TIA indicated that one or more intersections in the analysis network had a Level of Service (LOS) F for some approaches without identifying mitigation.
- The TIA indicated that the level of service at one or more intersections in the analysis network degraded by at least one level without identifying mitigation.
- The TIA did not provide traffic analysis results for all movements for an approach (*Policy on Street and Driveway Access to North Carolina Highways*, 2003, page 20) (This detail was only provided in the Synchro output pages in the appendix.)
- TIP Project R-3410 is in the immediate area of this project. As this rezoning was not included in the forecast, then TIP Design Year Analysis should be provided. Justification should be provided for its exclusion.
- Unadjusted daily trips should also be provided in the Trip Generation tables in the body of the report. The Driveway Manual requires daily trips be shown without adjustments such as modal splits, pass-by trips, and internal capture rates.

General Reference

For reference to various documents applicable to this review please reference the following links: https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx and https://connect.ncdot.gov/resources/safety/Teppl/Pages/Teppl-Topic.aspx?Topic_List=C37.

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 at (919) 814-5000.

Recommendations

Legend	
❶	Improvement by Developer. Congestion Management concurs with recommendation.
❷	Improvement by Developer. Additional or modified recommendation.
❸	Committed improvement by TIP Project R-3410

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.

NC 42 and US 70 EB Ramp

- **SB US 70 EB Ramp**
  - Dual 350' (Each) Right-Turn Lanes ❸
  - Extend Left-Turn Lane to 400' ❷

  - Eastbound receiving Lane beginning at NC 42 and ending 1200’ south of NC 42 with an appropriate taper. ❷
- **WB NC 42**
  - Dual 250’ (Each) Left-Turn Lanes (One existing) ❷
- **EB NC 42**
  - 200’ Right-Turn Lane ❸
  - Restripe Existing Right-Turn Lane to Thru Lane ❸

NC 42 and US 70 WB Ramp

- **NB US 70 WB Ramp**
  - Dual 450’ (Each) Right-Turn Lanes ❸
- **WB NC 42**
  - 450’ Right-Turn Lane ❸
  - Restripe Existing Right-Turn Lane to Thru Lane ❸

NC 42 and Johnson Estate Rd./West Site Driveway

- **NB West Site Driveway**
  - Two-lane cross-section: one ingress, one egress ❶
  - Egress: Right-Turn Lane ❶
  - 100’ Internal Protected Stem ❷
- **EB NC 42**
  - 350’ Right-Turn Lane ❷
  - Dual Thru Lanes (One existing) ❸
- **WB NC 42**
  - Restripe Existing Right-Turn Lane to Thru/Right-Turn Lane ❸

NC 42 and Springbrook Ave./East Site Driveway

If TIP R-3410 is not completed prior to the construction of Lumen Development, additional improvements will be required. A solution to reduce the additional needed improvements is for the development to be built in phases with limitations on each phase depending on the roadway capacity.

- **NB East Site Driveway**
  - Seven-lane cross-section: two ingress, five egress ❷
  - Egress: Dual Left-Turn Lanes (1,200’ receiving lane required without R-3410) Thru Lane and Dual Right-Turn Lanes (1,200’ receiving lane required without R-3410) ❷
  - 400’ Internal Protected Stem ❷
- **EB NC 42**
  - 150’ Right-Turn Lane ❶

  - Dual Thru Lanes (One existing) ❸
  - Dual 200’ (Each) Left-Turn Lanes (One existing) (Full receiving lane on Springbrook Road required; accommodations for the U-Turn movement on NC 42 also required without R-3410) ❷
- **WB NC 42**
  - 125’ Right-Turn Lane ❸
  - Dual Thru Lanes (One existing) ❸
  - Dual 400’ (Each) Left-Turn Lanes ❶

NC 42 and Healthpark Way/Johnston Medical Center

- **EB NC 42**
  - 175’ Right-Turn Lane ❸
  - Dual Thru Lanes (One existing) ❸
  - 450’ Left-Turn Lane ❸
- **WB NC 42**
  - Dual Thru Lanes (One existing) ❸
  - 425’ Left-Turn Lane ❸

NC 42 and Amelia Church Rd.

- **WB NC 42**
  - Dual Thru Lanes (One existing) ❸
  - 200’ Left-Turn Lane ❸
- **EB NC 42**
  - 100’ Right-Turn Lane ❸
  - Dual Thru Lanes (One existing) ❸
  - Dual 375’ (Each) Left-Turn Lanes ❸
- **NB Amelia Church Rd.**
  - 350’ Left-Turn Lane ❸
- **SB Amelia Church Rd.**
  - 100’ Left-Turn Lane ❸
  - Dual 200’ (Each) Right-Turn Lanes ❸

Lumen
SC-2020-115
Existing Laneage
Recommended Laneage
Laneage Built By TIP R-3410
NCDOT Recommendation
Existing Signal
Signal Proposed By Others
Developer Proposed Signal
Monitor for Signal
XXX Storage
XXX NCDOT Recommended Storage
<XXX> Distance Between Intersections
IPS Internal Protected Stem
All Distances in Feet
Drawing Not to Scale
NC 42
Amelia Church Rd
Amelia Church Rd
Healthpark Way
Johnston Medical Center
150
East Site Driveway
Springbrook Ave.
Full
400 IPS
400
400
200
150
West Site Driveway
Johnston Estate Rd
100 IPS
350
US 70 WB Ramp
US 70 WB Ramp
US 70 EB Ramp
US 70 EB Ramp
250
Extend to 400'
1,200
Charles Sorrell 7/8/20

Wetland Delineation Report

PENNY FARM SITE
DAVIS PARK LEASING, LLC
JOHNSTON COUNTY, NORTH CAROLINA
NOVEMBER 2020

Confidential Business Information

Prepared for:

Davis Park Leasing, LLC
940 NW Cary Parkway
Cary, NC 27513

Prepared by:

Kimley-Horn and Associates, Inc.
421 Fayetteville Street
Suite 600
Raleigh, NC 27601

Project No. 011174036

WETLAND DELINEATION REPORT

PENNY FARM SITE
JOHNSTON COUNTY, NORTH CAROLINA

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Appendix A: Figures

Figure 1. Vicinity Map
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Figure 3. Jurisdictional Features Map
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ACRONYMS USED

GIS – Geographic Information System

GPS – Global Positioning Unit

NCDWR – North Carolina Division of Water Resources

NCSCO – North Carolina State Climate Office

NRCS – Natural Resource Conservation Service

NWI – National Wetlands Inventory

OHWM – Ordinary Highwater Mark

USACE - US Army Corps of Engineers

USDA – US Department of Agriculture

USFWS – US Fish and Wildlife Service

USGS – US Geological Survey

WETLAND DELINEATION REPORT
Clayton, Johnston County, North Carolina

1.0 INTRODUCTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) was retained by Davis Park Leasing, LLC (Davis) to conduct a delineation of wetlands and other waters of the U.S. for the approximate 69-acre Penny Farm Site (the "Study Area") in Clayton, North Carolina. The Study Area is split into two portions: the larger portion is located in the northeastern quadrant of the intersection of NC 42 and US Highway 70 and the lower, smaller portion is located in the southeastern quadrant of the intersection of NC 42 and US Highway 70 in Johnston County (**Figure 1**). The Study Area is situated within an agricultural area with scattered, low-density pockets of single-family residential land uses in the vicinity.

The 69-acre Study Area evaluated by Kimley-Horn consists of one large parcel (PIN 164800-72-2724) and three smaller parcels (PINs 164800-73-4448, 164800-73-6660, and 164800-73-9443). The Study Area was historically pasture land for livestock and is currently maintained by mowing. Small, undeveloped forested areas are also present within the Study Area. Five structures are located within the Study Area: one single-family residence, one smaller shed associated with the residence, and three wooden sheds storing farm equipment, likely used for maintenance. Additionally, one large farm pond and two non-jurisdictional constructed ponds/basins are located with the Study Area.

The findings detailed in this document are based on field surveys conducted by Kimley-Horn's professional staff and information obtained from readily available Federal, State, County, and local regulatory agencies at the time of the assessment.

2.0 METHODS

Prior to conducting the wetlands and other waters of the U.S. delineation, a desktop evaluation of the Study Area was completed by Kimley-Horn using a combination of existing information obtained from publicly available sources including reports, published literature, on-line databases, and geographic information system (GIS) data. The following data sources were used to assist in the delineation:

- Recent and historical aerial imagery
- NC Floodplain Mapping Program QL2 LiDAR Elevation Data
- US Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Soil Survey of Johnston County, NC
- US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI)
- USGS Topographic Quadrangle Maps
- NC State Climate Office Precipitation Data

After reviewing the available information, Kimley-Horn conducted site visits to identify and verify potentially jurisdictional features within the Study Area on August 12, 2020 and August 20, 2020. The wetland and other waters of the U.S. delineation was conducted utilizing the 1987 *US Army Corps of Engineers (USACE) Wetlands Delineation Manual* and the *USACE Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0).* Kimley-Horn focused the delineation in areas of low elevation, NWI wetland signatures, areas of hydric soils, and around stream/ditch signatures on LiDAR, USGS, and NRCS soil mapping.

Kimley-Horn used routine USACE delineation methodology to evaluate the Study Area. Areas identified during the desktop delineation that may contain potential wetland and other waters of the U.S. were assessed in the field to determine if hydrologic indicators, hydrophytic vegetation, and hydric soils were present. Non-wetland waters of the U.S. (streams) were reviewed to determine flow regime using a three-tier approach that evaluates geomorphology, hydrology, and biology within the channel. Other waters of the U.S. (ponds, lakes, and open waters) were reviewed to determine if the features contained an ordinary highwater mark (OHWM) and/or a direct surface water connection to jurisdictional waters in accordance with the 2020 Navigable Waters Protection Rule.

Recent and seasonal precipitation levels were evaluated in advance of field delineations to establish current conditions relative to normal levels. Recent rainfall or above-normal levels of precipitation can present atypical conditions for field teams, potentially skewing hydrology observations across the Study Area. Therefore, field teams considered rainfall data when evaluating potential features to determine if observed flow and/or hydrology indicators were typical for the Study Area or were temporary or atypical conditions resulting from abnormally high or low rainfall levels.

If a wetland or waterbody was determined to meet the requisite criteria, field teams collected a wetland or stream data form at each location to support this observation. The feature's bounds were geolocated using a handheld Trimble Geo7x global positioning system (GPS) unit capable of sub-meter accuracy. Additionally, wetland boundaries and critical points on non-wetland waters of the U.S. were flagged in the field.

The GPS data recorded in the field was then differentially corrected. Kimley-Horn then verified the data for accuracy and completeness in ArcGIS and generated a Jurisdictional Features Map (**Figure 3**). Delineated features within the Study Area were given alphanumeric identifiers based on feature class (wetland=W, stream=S, pond=P) and feature numbers (1, 2, 3, etc.).

3.0 RESULTS

The Study Area is located in the coastal plain physiographic region of North Carolina in Johnston County. Topography is moderate with elevations ranging from 270 to 320 feet above mean sea level throughout the Study Area (**Figure 2**). The Study Area is within four parcels that have been historically utilized for agriculture dating back to the 1960s, with a smaller portion reserved for agricultural practices as far back as 1938.

According to the USACE's Antecedent Precipitation Tool (APT), the Study Area was experiencing wetter than normal conditions based on the 30-year average at the time the field visit was conducted. Observed conditions appeared normal and typical for riparian systems in this physiographic region of the state during the growing season (dry season per the APT). Weather during the field visits were sunny and warm, with no precipitation recorded within the last 24 hours.

Three streams are mapped on the NRCS Soil Survey of Johnston County as occurring within the Study Area; however, no ponds or basins are shown. The most recent USGS topographic map only maps one stream, but pond P2 and the northernmost basin are shown. The USGS topographic map does not show the pond or the basin as connected to any stream feature.

The Johnston County Soil Survey identifies ten (10) different soil types within the Study Area, as shown in **Figure 4**. The following soil types occur within the Project:

- CeC – Cecil loam
- GoA – Goldsboro sandy loam
- McB – Marlboro-Cecil complex
- NoB – Norfolk loamy sand
- PaD – Pacolet loam
- Tn – Toisnot loam
- WaB – Wagram loamy sand
- WoB – Wedowee sandy loam
- WoD – Wedowee sandy loam
- Wt – Wehadkee loam

Based on the National List of Hydric Soils from the NRCS within the Study Area, Toisnot loam (Tn) and Wehadkee loam (Wt) is classified as hydric soil in Johnston County. Additionally, the NRCS classifies Goldsboro sandy loam (GoA), Wagram loamy sand (WaB), and Wehadkee loam (Wt) as primarily non-hydric soils in Johnston County that may contain significant inclusions or hydric components The NRCS classifies Cecil loam (CeC), Marlboro-Cecil complex (McB), Norfolk loamy sand (NoB), Pacolet loam (PaD), Toisnot loam (Tn), and Weedowee sandy loam (WoB and WoD) as non-hydric soils in Johnston County.

Land use in the Study Area and vicinity is composed primarily of agricultural land utilized for pasture, with scattered forested areas. The pasture tract is maintained by mowing and the dominant vegetation is a species of fescue (*Festuca spp.)*. Canopy and sapling tree communities within the forested wetland areas were composed of sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), ironwood (*Carpinus caroliniana*), and other hardwood bottomland species with a dense herbaceous layer composed of browntop (*Microstegium vimineum*), giant cane (*Arundinaria gigantea*), and netted-chain fern (*Woodwardia areolata*).

3.1 POTENTIAL WETLANDS AND OTHER WATERS OF THE U.S.

Kimley-Horn staff conducted site visits to delineate the approximately 69-acre Study Area on August 12, 2020 and August 20,2020. Kimley-Horn identified eight wetlands, three streams, and one potentially jurisdictional pond (**Figure 3**). Information on these features can be found in Table 3.1 below.

Table 3.1 Potential Wetlands and Other Waters of the U.S., 69-Acre Penny Farm Site, Johnston County.

Site ID	Field Survey Date	Location (Lat, Long)		Jurisdictional Determination	Amount of Jurisdictional Waters
W1	8/12/20	35.62427	-78.503423	Water of the U.S., wetland	0.38 ac.
W2	8/12/20	35.623023	-78.504449	Water of the U.S., wetland	0.40 ac.
W3	8/12/20	35.626546	-78.503663	Water of the U.S., wetland	2.00 ac.
W4	8/12/20	35.625957	-78.502147	Water of the U.S., wetland	0.40 ac.
W5/W7	8/12/20	35.621394	-78.506154	Water of the U.S., wetland	1.04 ac.
W6	8/12/20	35.620468	-78.506258	Water of the U.S., wetland	0.01 ac.
W8	8/12/20	35.622539	-78.504339	Water of the U.S., wetland	0.21 ac.
W9	8/12/20	35.627309	-78.502472	Water of the U.S., wetland	0.20 ac.
S1	8/12/20	35.623510	-78.504085	Water of the U.S., non-wetland	2,156 LF
S2	8/12/20	35.622721	-78.504089	Water of the U.S., non-wetland	17 LF
S3	8/12/20	35.62.954	-78.506439	Water of the U.S., non-wetland	90 LF
P2	8/12/20	35.625150	-78.503041	Water of the U.S., non-wetland	1.27 ac.

3.2 DETAILED DELINEATIONS

3.2.1 WETLAND WATERS OF THE U.S.

There were nine wetlands identified within the Study Area during the site visit: one wetland located in a maintained yard and eight forested wetlands. Vegetation observed within the forested wetland areas had moderately dense canopy cover created by mature trees, scattered sapling-sized trees, and a dense herbaceous layer throughout. The mature canopy trees and sapling-sized trees were largely bottomland hardwood species such as sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), ironwood (*Carpinus caroliniana*), blackgum (*Nyssa sylvatica*), and American elm (*Ulmus americana*). The dense herbaceous layer was composed of soft rush (*Juncus effusus*),

browntop (*Microstegium vimineum*), giant cane (*Arundinaria gigantea*), and netted-chain fern (*Woodwardia areolata*), and laurel greenbrier (*Smilax laurifolia*). Vegetation observed within the wetland located in the maintained yard was largely a fescue grass species (*Festuca spp.)* with scattered browntop and soft rush.

Wetland W1 (0.38 ac.) is a seep that is located southwest of pond P2. Surface water flows out of a pipe outlet from pond P2 and seepage through the berm of P2 contributes to the hydrology of wetland W1. The wetland boundary was delineated by the presence of observable hydrology indicators such as ponded and or flowing surface water, high water table, soil saturation, large drainage patterns, iron oxidizing bacteria, and topographic elevation changes. Wetland W1 appears to have been formed after the construction of pond P2 and appears to pond water throughout the wetland for extended durations.

Wetland W2 (0.40 ac.) is located in the central portion of the Study Area near US Highway 70. W2 is a narrow relic channel of S1 that is now located within the floodplain of S1. While the wetland is primarily within a forested area, an underground utility and maintained easement crosses W2 east to west. The wetland boundary was delineated by the presence of observable hydrology indicators such as soil saturation, ponded surface water, water-stained leaves, and slight topographic elevation changes. These indicators provide evidence that water frequently ponds for extended durations throughout the wetland.

Wetland W3 (1.89 ac.) is a large riparian wetland system located in the northern portion of the Study Area. Wetland W3 receives hydrology primarily from groundwater and surface water input. W3 is confined by topographic breaks on sides while draining south towards the headwaters of pond P2. Areas within the lower portion of wetland W3 are frequently inundated by tailwater conditions in P2. The wetland boundary was delineated by the presence of observable hydrology indicators such as ponded surface water, soil saturation, large drainage patterns, the presence of wetland fern species, buttressed tree roots, and topography.

Wetland W4 (0.40 ac.) is located in the northeast corner of the Study Area. Wetland W4 is a small headwater wetland that receives hydrology from groundwater seeps and surface runoff from the eastern portion of the Study Area and adjacent properties. The wetland drains into pond P2, where areas that are adjacent to the pond receive additional surface water interaction and tailwater conditions from P2. The wetland boundary was delineated by the presence of observable hydrology indicators such as ponded surface water, soil saturation, large drainage patterns, buttressed tree roots, and topographic elevation changes.

Wetland W5/W7 is located in the southern portion of the Study Area, south of US Highway 70. Wetland W5/W7 is a large bottomland hardwood forested wetland located in the floodplain of stream S1. Hydrology is contributed to by stormwater runoff from the adjacent US Highway 70, stream S1 overtopping or flooding events, and groundwater input. The wetland boundary was delineated by the presence of observable hydrology indicators such as ponded surface water, soil saturation, large drainage patterns, buttressed tree roots, the presence of wetland fern species, and small topographic elevation changes.

Wetland W6 is located in the southern portion of the Study Area, south of US Highway 70, further downstream on S1 than W5/W7. Wetland W6 is a small relic oxbow that is connected on both ends to stream S1. Hydrology within wetland W6 is supported by groundwater and flooding events in S1. The wetland boundary was delineated by the presence of observable hydrology indicators such as ponded surface water, soil saturation, and small topographic elevation changes.

Wetland W8 is located in the southeastern corner of the Study Area north of US Highway 70, within the floodplain of stream S1. W8 drains to S1 near the confluence point of S1 and W2. Wetland W8 is a small floodplain wetland that abuts both S1 and S2, which flows into the Study Area from offsite to the east. The wetland receives hydrology from groundwater and overbank events from S1 and S2. The wetland boundary was delineated by the presence of observable hydrology indicators such as ponded surface water, soil saturation, large drainage patterns, buttressed tree roots, the presence of wetland fern species, and small topographic elevation changes.

Wetland W9 is located along the northern boundary of the Study Area. W9 is a headwater wetland that originates within a narrow, forested area draining from a residential yard. W9 concentrates into stream S1 for a short reach before dissipating back into wetland W3. The wetland boundary was delineated by the presence of observable hydrology indicators such as ponded surface water, soil saturation, small drainage patterns, wetland vegetation, and small topographic elevation changes.

3.2.2 Non-Wetland Waters of the U.S. (Streams)

Three streams (S1, S2, and S3) were identified within the Study Area. Stream S1 is a strong perennial reach that originates at a pipe outlet flowing from pond P2 and flows under US Highway 70, eventually flowing offsite. A short reach of S1 is located in the northern portion of the Study Area, however it quickly dissipates into W3. Stream S2 is a perennial stream that flows from a pond located offsite to the east, flows through a forested area, and ultimately discharges into S1 near wetland W8. Stream S3 is a perennial stream that originates offsite to the west, flows through a forested area and then ultimately discharges into S1 south of US Highway 70. The most recent USGS Topographic Map indicates the presence of one blue line feature in the approximate location of S2, turning and following S1 and continuing offsite to the South. The NRCS Soil Survey of Johnston County has three streams mapped within the Study Area, and one stream offsite to the northeast of the Study Area. The three on-site features were identified during the site visit as S1, S2, and S3, however the offsite stream was not present. Wetland W9 is in the approximate location of the mapped feature.

3.2.3 Other Waters of the U.S. (Ponds, Lakes, and Open Waters)

One manmade pond (P2) was identified within the Study Area, constructed in the 1980s as an impoundment of a jurisdictional stream (S1). Wetlands W3 and W4 drain into pond P2 before discharging through the constructed berm via culvert before continuing south as stream S1. Additionally, seepage through the berm of P2 contributes to the hydrology within wetland W1.

3.2.4 NEUSE RIVER BASIN RIPARIAN BUFFERS

The Study Area is located within the Neuse River Basin; therefore, streamside riparian areas may be subject to the Neuse River Basin Buffer Rules administered by the NC Department of Water Resources (NCDWR) and delegated to Johnston County. Neuse River Basin Buffer Rules require a 50-foot wide protected riparian buffer adjacent to surface waters that are approximately shown on either the NRCS Soil Survey Map or the most recent 1:24,000 (7.5 minute) USGS Topographic Map. The most recent USGS Topographic Map indicates the presence of two ponds (the northern non-jurisdictional basin, and pond P2) and one blue line feature (identified as stream S2 and the lower portion of stream S1). The NRCS Soil Survey of Johnston County has four streams mapped within the Study Area and a 50' radius of the Study Area. Three of the mapped NRCS streams were observed during the site visit (streams S1, S2, and S3), and are likely subject to Neuse River Basin Buffer Rules. However, the mapped NRCS stream originating north of the Study Area and flowing into stream S1 was not observed. Wetland W9 was identified in the approximate location of the mapped feature during the site visit. No ponds are shown on the NRCS Soil Survey. While pond P2 is shown on the USGS Topographic Map, it is not shown as connected to a stream feature, however since P2 is an impoundment of the NRCS Soil Survey steam, pond P2 will likely be subject to Neuse River Basin Buffer Rules.

3.2.5 NON-WATERS OF THE U.S.

Two non-jurisdictional constructed basins were also located within the Study Area (**Figure 3**). One of the basins is located south of NC 42 and is at the upper end of the watershed. The smaller basin is located along US 70 in the southern portion of the Study Area and provides stormwater treatment collected from US 70. The basins are both manmade and primarily sustained by precipitation and surface runoff.

4.0 LITERATURE CITED

U.S Army Corps of Engineers. 2020. Antecedent Precipitation Tool (APT) - v1.0.13. https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool/releases/tag/v1.0.13

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U. S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi.

Environmental Laboratory. (2010). Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0). United States Army Engineer Research and Development Center, Vicksburg, Mississippi.

N.C. Department of Environment and Natural Resources – Division of Water Quality. 2010. Methodology for Identification of Intermittent and Perennial Streams and Their Origins, Version 4.11. NCDENR, NCDWQ, Raleigh, North Carolina.

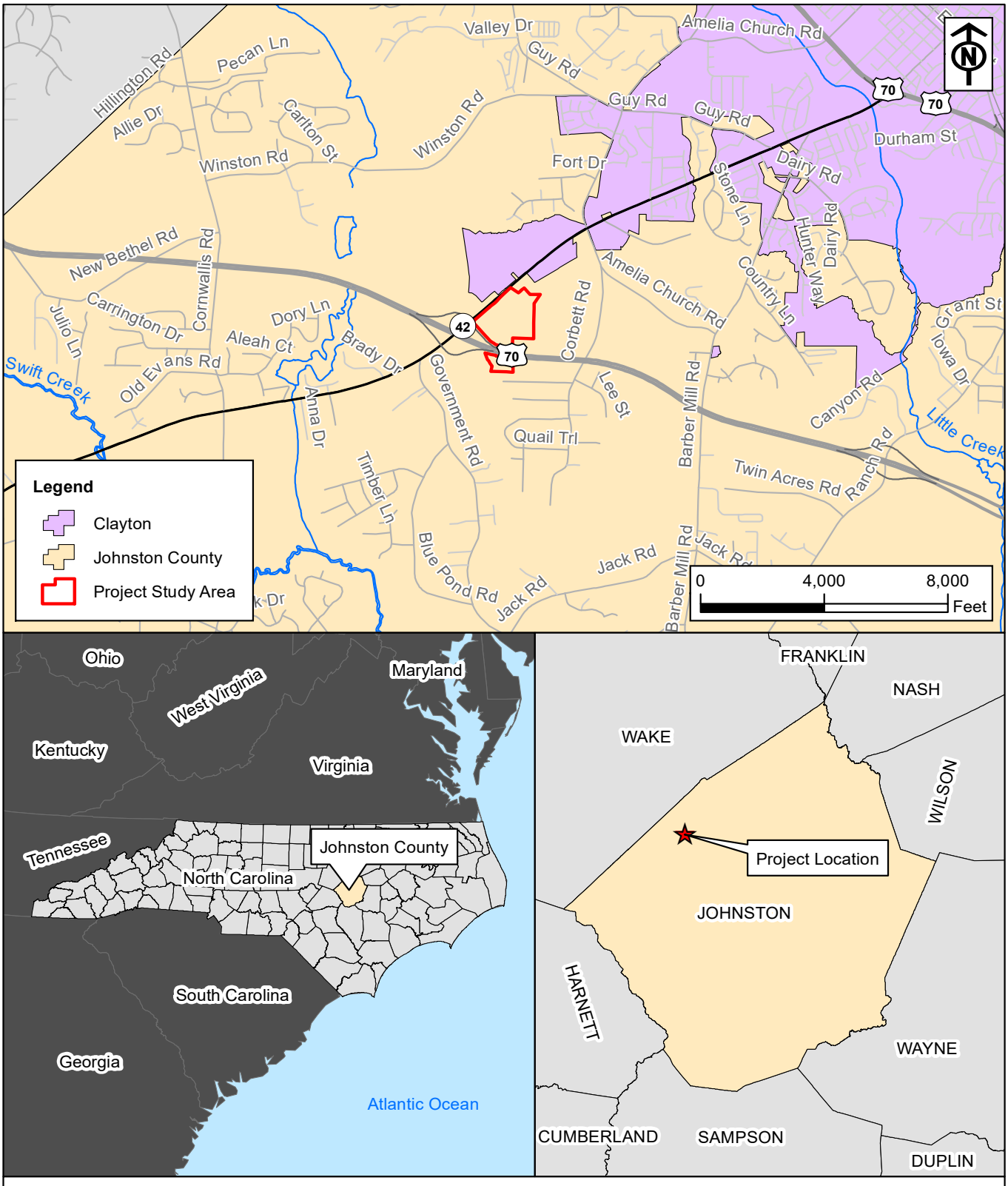
U.S. Department of Agriculture- Natural Resources Conservation Service. 2020. List of Hydric Soils. https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/

U.S. Department of Agriculture- Natural Resources Conservation Service. 1994. Soil Survey of Johnston County, North Carolina.

U.S. Fish and Wildlife Service (USFWS). 2019. The National Wetlands Inventory (NWI). https://www.fws.gov/wetlands/

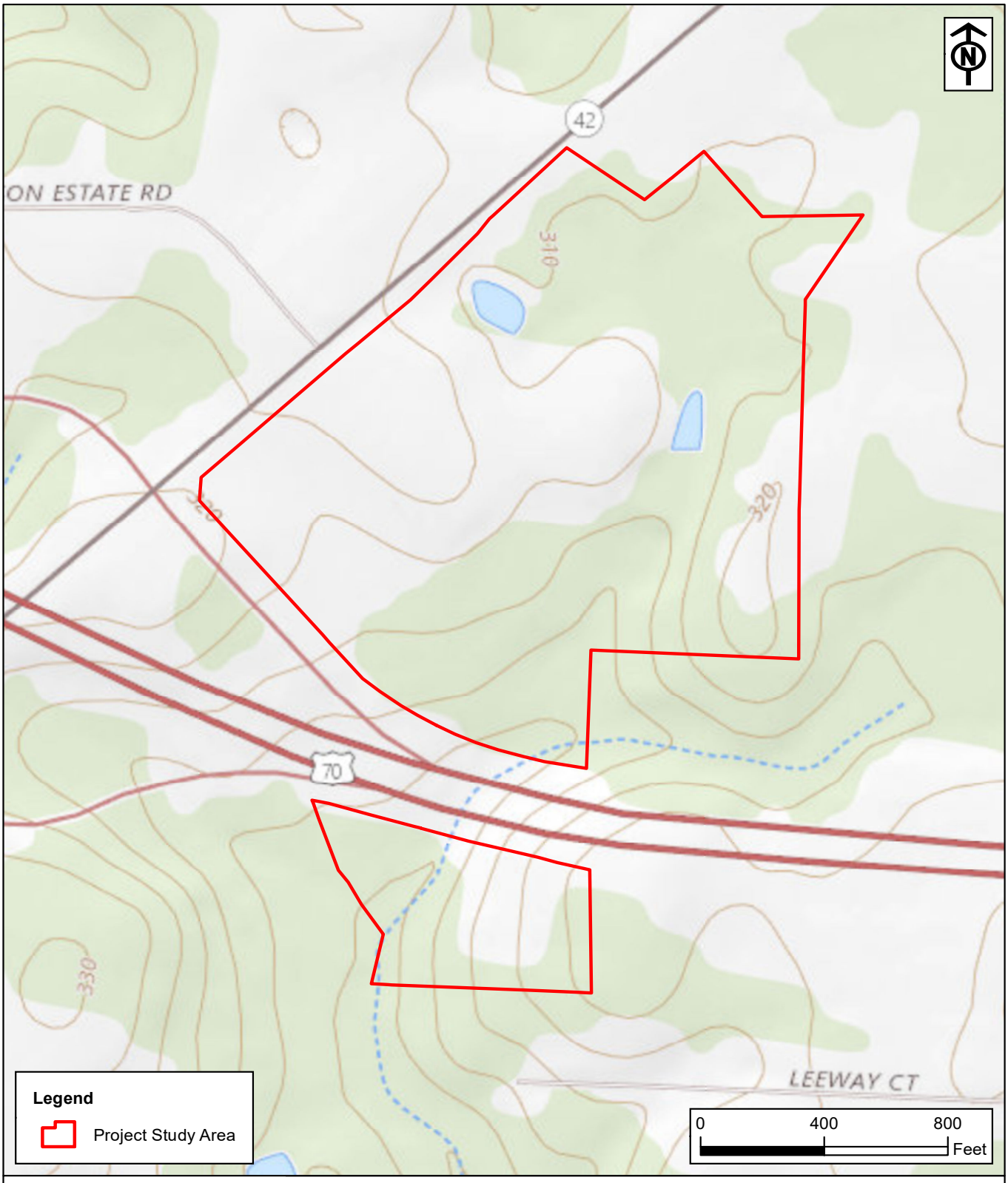
U.S. Geological Survey (USGS). 2019. Edmondson, North Carolina, Topographic Quadrangle (7.5-minute series; 1:24,000)

U.S. Geological Survey (USGS). 2019. Garner, North Carolina, Topographic Quadrangle (7.5-minute series; 1:24,000)



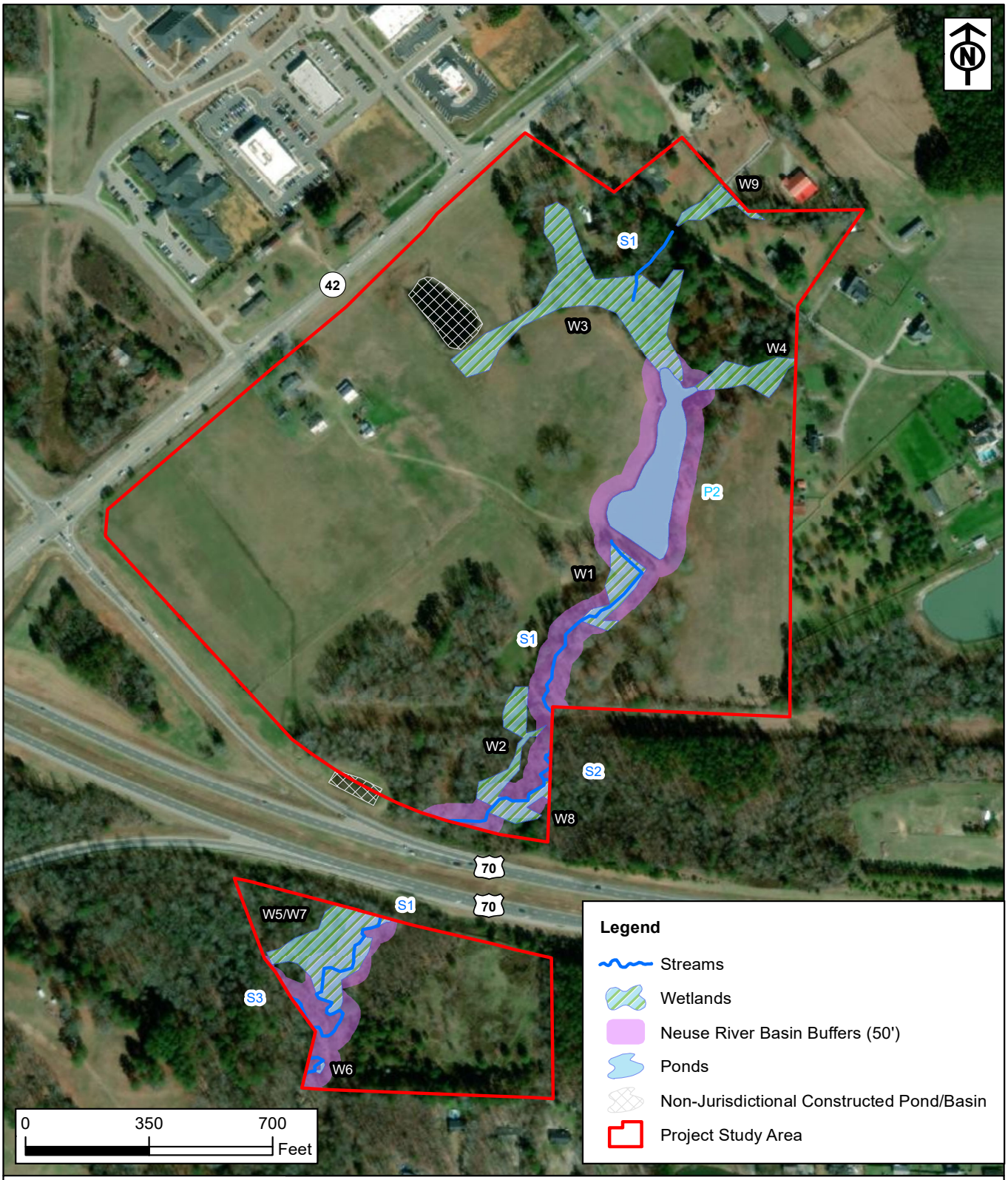
Kimley»Horn

Figure 1: Vicinity Map
Penny Farm
Clayton, Johnston County, NC
August 2020



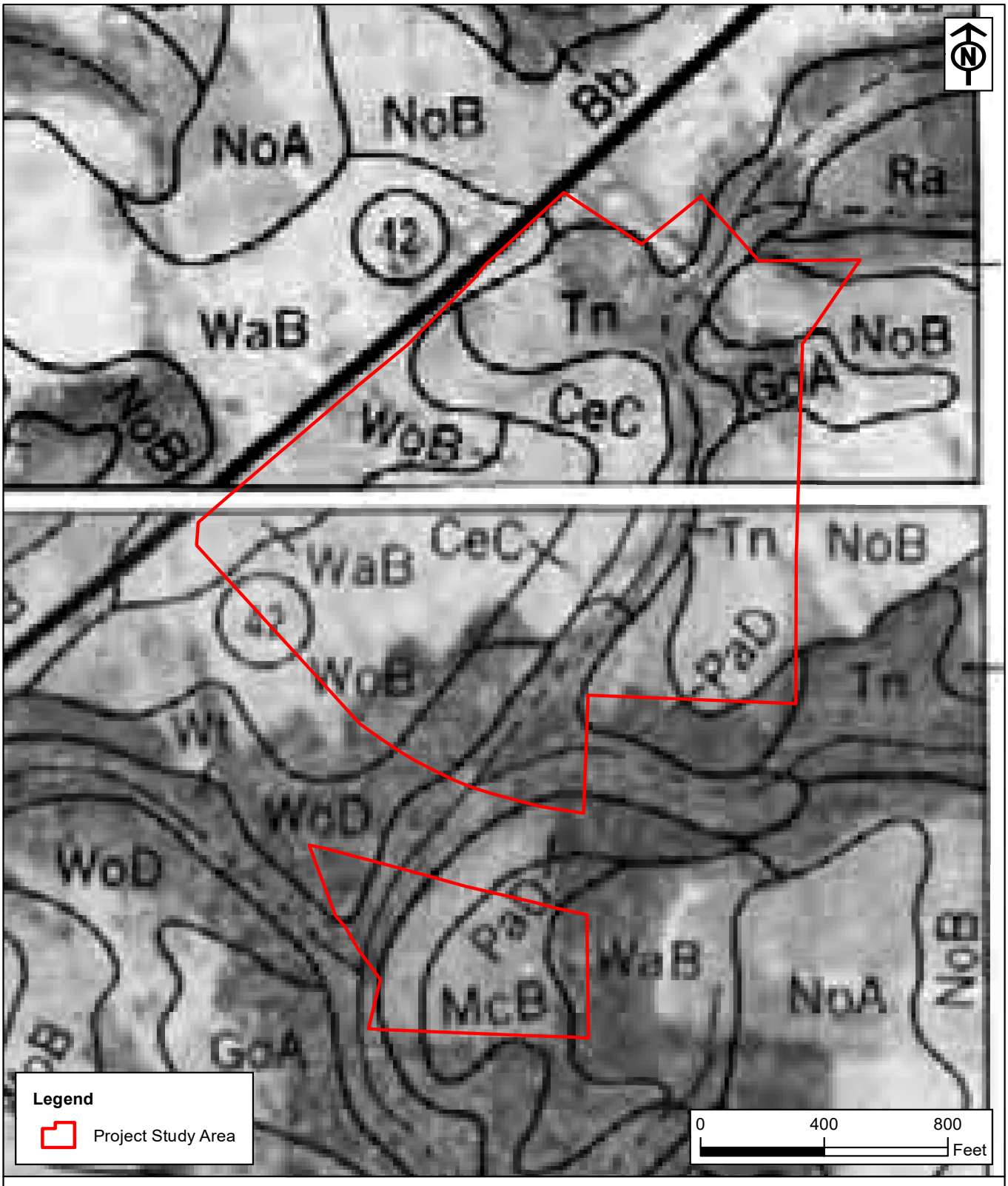
Kimley»Horn

Figure 2: USGS Topographic Map
Penny Farm
Clayton, Johnston County, NC
August 2020



Kimley»Horn

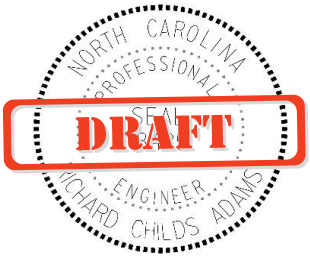
Figure 3: Jurisdictional Features Map
Penny Farm
Clayton, Johnston County, NC
August 2020



Kimley»Horn

Figure 4: NRCS Soil Survey
Penny Farm
Clayton, Johnston County, NC
August 2020

KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102



November 9, 2020

Haley Hogg, AICP, CZO
Senior Planner
Town of Clayton
111 East Second Street
PO Box 879
Clayton, NC 27528

RE: ***Parking Demand Analysis Related to the Lumen – Planned Development District***

Dear Ms. Hogg:

This letter has been prepared to summarize the results and findings of an analysis of parking needs for the Lumen Planned Development District and the potential for parking reduction per the Town of Clayton Unified Development Code (UDC). The 65.2-acre mixed-use development is bounded by NC Hwy 42 and US 70 in Clayton, NC. We understand that a likely development scenario could be approximately 480 multi-family residential units, 140 single-family residential units, 700,000 square feet of office space approximated to be half general office and half medical office, 90,000 square feet of approximately retail space, and a 120-room hotel. The multi-family residential land use is estimated to include 288 1-bedroom units and 192 units with 2 or more bedrooms. This analysis studied the potential for reducing parking for the planned development vs. code requirements based on anticipated actual parking demand for a mixed-use development of this nature.

Parking Rates for the Planned Development

Table 1 describes the parking requirements proposed for the planned development as mentioned within Section 8 – Parking & Loading of the rezoning application submitted to the Town of Clayton. For the most part, these ratios align with the requirements set forth in the Town of Clayton UDC. Deviations from the Clayton code include the multi-family residential parking ratio, the medical office parking ratio, and the commercial/retail parking ratio.

Table 1: Lumen – Planned Development District Parking Data			
Land Use	**Density**	**Proposed Minimum Parking Ratio**	**Total Parking Required**
Multi-family – 1 bedroom	288 Units	1 Space per Unit	288 Spaces
Multi-family – 2+ bedrooms	192 Units	1.5 Spaces per Unit	288 Spaces
Single-family residential	140 Units	2 Spaces per Unit	280 Spaces
Commercial/Retail	90,000 SF	4 Spaces per 1,000 SF	360 Spaces
General/Medical Office	700,000 SF	3.33 Spaces per 1,000 SF	2,332 Spaces
Hotel/Motel	120 Rooms	1 Space per Room	120 Spaces
Total Minimum Parking Supply			**3,668 Spaces**

Based on these planned parking ratios, the mixed-use development is expecting to have a total parking supply of at least of 3,668 spaces. The Town of Clayton currently requires developments with a multi-family residential use to provide 1 space per studio/1-bedroom unit, 2 spaces for each unit that contains 2 or more bedrooms, and 1 guest parking space for every 4 units. In addition, a medical office land use or a general retail land use are required to provide 5 spaces per 1,000 square feet. While the Lumen Planned Development District is not currently consistent with these requirements, a parking demand analysis was performed to evaluate the parking requirement deviations.

Parking Reduction Analysis

Per section 155.401.C.4.a. within Article 4: General Development Standards of the UDC, alternate parking ratios may be used provided that data from relevant journals or studies provide adequate support for the change. With this in mind, data from the *ITE Parking Generation Manual* was used to evaluate whether lower parking ratios would adequately provide for the proposed development.

ITE Parking Generation Manual

The Institute of Transportation Engineers (ITE) *Parking Generation Manual* (5th Edition) was used to determine parking ratios for the proposed development based on national standard rates. The manual provides parking professionals with data sets and tools for various land uses as a means of calculation and comparison. For this study, the following land uses were examined:

- **Mid-rise multifamily housing (LUC 221)**: apartments, townhouses, or condominiums located within the same building with at least three other dwelling units and with between three and 10 levels (floors) of residence.
- **General Office (LUC 710)**: a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted.
- **Medical-Dental Office (LUC 720)**: a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care.

- **Shopping Center (LUC 820)**: an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit.
- **Hotel (LUC 310)**: a place of lodging that provides sleeping accommodations and supporting facilities such as a full-service restaurant, cocktail lounge, meeting rooms, banquet room, and convention facilities.

The *Parking Generation Manual* does not provide parking data for single-family residential land uses. Therefore, this reduction analysis uses the rate set forth in the Town of Clayton UDC of 2 spaces per unit. The data used in this analysis was for a weekday within general urban/suburban context areas with no nearby rail transit. **Table 2** provides a summary of the required number of spaces for the planned development using the *Parking Generation Manual* rates. See **Attachment A** for the ITE data used for each land use.

Table 2: *ITE Parking Generation Manual* Parking Demand Calculations

Land Use	Density	ITE Average Parking Rate	Total Parking Required
Multi-family Housing (Mid-Rise)	480 Units	1.31 per Unit	629 spaces
Single-family Residential	140 Units	2 per Unit*	280 spaces
General Office	350,000 SF	2.39 per 1,000 SF	837 spaces
Medical-Dental Office	350,000 SF	3.23 per 1,000 SF	1,131 spaces
Shopping Center	90,000 SF	1.95 per 1,000 SF	176 spaces
Hotel	120 Rooms	0.74 per Room	89 spaces
Total	-	-	**3,142 spaces**

*Single-family Residential rate from Town of Clayton UDC was used due to lack of data from ITE

As shown in the data above, the development would demand approximately 3,142 spaces on the average weekday. The Lumen Planned Development District parking ratios create a minimum total parking supply of 3,668 spaces which is 526 spaces greater than what the ITE *Parking Generation Manual* calculates as the total parking demand.

Conclusions

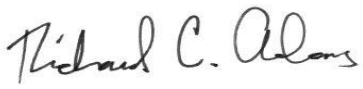
Based on the *ITE Parking Generation Manual* calculations, the proposed Lumen Planned Development District will produce a demand for approximately 3,142 parking spaces. This is 526 fewer parking spaces than required by the current ratios proposed in the mixed-use development's master plan indicating that the overall parking supply will be more than 15% greater than actual anticipated demand. When taking all of this into account, the deviation from the Town of Clayton UDC parking requirements for the given land uses should still be sufficient to cover the expected parking demand for all of the land uses.

It should also be noted that some parking could be shared due to the different peak demand times for several of the proposed land uses, further reducing overall parking demand.

If you have any questions regarding this analysis, please contact me at (919) 677-2131 or richard.adams@kimley-horn.com.

Sincerely,

KIMLEY-HORN AND ASSOCIATES, INC



Richard C. Adams, P.E.
Senior Vice President

Attachments: Attachment A: ITE *Parking Generation Manual* (5th Edition) Data
Attachment B: Parking Analysis Spreadsheet

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Land Use: 221 Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and with between three and 10 levels (floors) of residence. Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), and affordable housing (Land Use 223) are related land uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday (one general urban/suburban study site), a Saturday (two general urban/suburban study sites), and a Sunday (one dense multi-use urban study site).

	Percent of Peak Parking Demand		
Hour Beginning	Weekday	Saturday	Sunday
12:00–4:00 a.m.	100	100	100
5:00 a.m.	94	99	–
6:00 a.m.	83	97	–
7:00 a.m.	71	95	–
8:00 a.m.	61	88	–
9:00 a.m.	55	83	–
10:00 a.m.	54	75	–
11:00 a.m.	53	71	–
12:00 p.m.	50	68	–
1:00 p.m.	49	66	33
2:00 p.m.	49	70	40
3:00 p.m.	50	69	27
4:00 p.m.	58	72	13
5:00 p.m.	64	74	33
6:00 p.m.	67	74	60
7:00 p.m.	70	73	67
8:00 p.m.	76	75	47
9:00 p.m.	83	78	53
10:00 p.m.	90	82	73
11:00 p.m.	93	88	93

Source: ITE Parking Generation Manual (5th Edition)

Additional Data

In prior editions of *Parking Generation*, the mid-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of parking demand data found no clear differences in parking demand between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

The average parking supply ratios for the study sites with parking supply information are shown in the table below.

		Parking Supply Ratio	
Setting	**Proximity to Rail Transit**	**Per Dwelling Unit**	**Per Bedroom**
Center City Core	Within ½ mile of rail transit	1.1 (15 sites)	1.0 (12 sites)
Dense Multi-Use Urban	Within ½ mile of rail transit	1.2 (39 sites)	0.9 (34 sites)
	Not within ½ mile of rail transit	1.2 (65 sites)	0.8 (56 sites)
General Urban/ Suburban	Within ½ mile of rail transit	1.5 (25 sites)	0.8 (12 sites)
	Not within ½ mile of rail transit	1.7 (62 sites)	1.0 (39 sites)

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Colorado, District of Columbia, Maryland, Massachusetts, New Jersey, New York, Oregon, Virginia, Washington, and Wisconsin.

It is expected that the number of bedrooms and number of residents are likely correlated to the parking demand generated by a residential site. Parking studies of multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex). Future parking studies should also indicate the number of levels contained in the residential building.

Source Numbers

21, 209, 247, 255, 277, 401, 402, 419, 505, 512, 522, 533, 535, 536, 537, 538, 545, 546, 547, 575, 576, 577, 579, 580, 581, 583, 584, 585, 587

Source: ITE Parking Generation Manual (5th Edition)

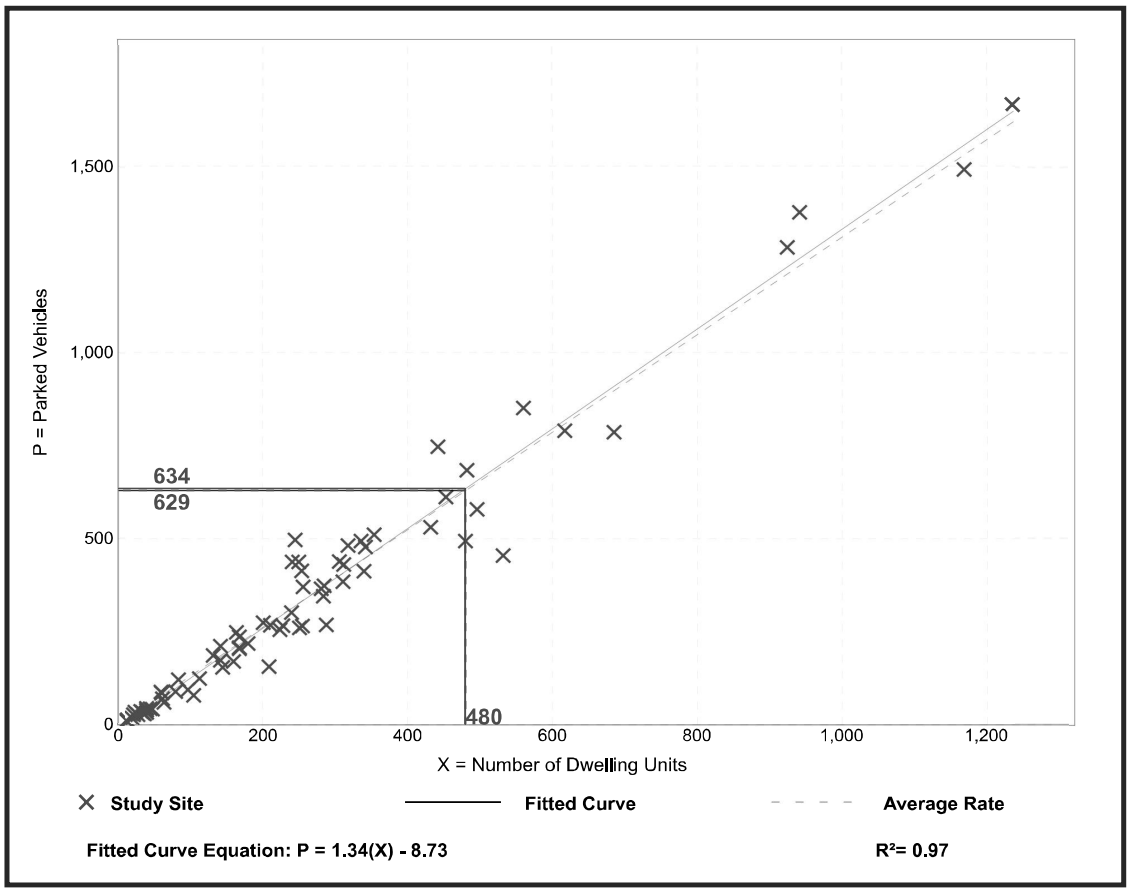
Multifamily Housing (Mid-Rise)
(221)

Peak Period Parking Demand vs: **Dwelling Units**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban (no nearby rail transit)**
Peak Period of Parking Demand: **10:00 p.m. - 5:00 a.m.**
Number of Studies: 73
Avg. Num. of Dwelling Units: 261

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.31	0.75 - 2.03	1.13 / 1.47	1.26 - 1.36	0.22 (17%)

Data Plot and Equation



Parking Generation Manual, 5th Edition ● Institute of Transportation Engineers

Source: ITE Parking Generation Manual (5th Edition)

Land Use: 710 General Office Building

Description

A general office building houses multiple tenants. It is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services, such as a bank or savings and loan institution, a restaurant, or cafeteria and service retail facilities. A general office building with a gross floor area of 5,000 square feet or less is classified as a small office building (Land Use 712). Corporate headquarters building (Land Use 714), single tenant office building (Land Use 715), medical-dental office building (Land Use 720), office park (Land Use 750), and research and development center (Land Use 760) are additional related uses.

If information is known about individual buildings, it is suggested that the general office building category be used rather than office parks when estimating parking generation for one or more office buildings in a single development. The office park category is more general and should be used when a breakdown of individual or different uses is not known. If the general office building category is used and if additional buildings, such as banks, restaurants, or retail stores are included in the development, the development should be treated as a multiuse project. On the other hand, if the office park category is used, internal trips are already reflected in the data and do not need to be considered.

When the buildings are interrelated (defined by shared parking facilities or the ability to easily walk between buildings) or house one tenant, it is suggested that the total area or employment of all the buildings be used for calculating parking generation. When the individual buildings are isolated and not related to one another, it is suggested that parking generation be calculated for each building separately and then summed.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday at 30 study sites in a general urban/suburban setting and two study sites in a dense multi-use urban setting.

Source: ITE Parking Generation Manual (5th Edition)

	Percent of Weekday Peak Parking Demand	
Hour Beginning	General Urban/Suburban	Dense Multi–Use Urban
12:00–4:00 a.m.	–	–
5:00 a.m.	–	–
6:00 a.m.	–	–
7:00 a.m.	13	26
8:00 a.m.	48	65
9:00 a.m.	88	95
10:00 a.m.	100	100
11:00 a.m.	100	100
12:00 p.m.	85	99
1:00 p.m.	84	99
2:00 p.m.	93	97
3:00 p.m.	94	94
4:00 p.m.	85	90
5:00 p.m.	56	–
6:00 p.m.	20	–
7:00 p.m.	11	–
8:00 p.m.	–	–
9:00 p.m.	–	–
10:00 p.m.	–	–
11:00 p.m.	–	–

Additional Data

The average parking supply ratios for the study sites with parking supply information are as follows:

- 2.9 spaces per 1,000 square feet GFA in a dense multi-use urban setting that is not within ½ mile of rail transit (seven sites)
- 3.3 spaces per 1,000 square feet GFA (73 sites) and 1.2 spaces per employee (20 sites) in a general urban/suburban setting that is not within ½ mile of rail transit
- 3.0 spaces per 1,000 square feet GFA (seven sites) and 0.8 spaces per employee (two sites) in a general urban/suburban setting that is within ½ mile of rail transit

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Arizona, California, Colorado, Connecticut, Georgia, Illinois, Massachusetts, Minnesota, Montana, New Jersey, New York, Oklahoma, Oregon, Pennsylvania, Texas, Utah, and Washington.

Source Numbers

21, 22, 47, 122, 124, 142, 172, 201, 202, 205, 211, 215, 216, 217, 227, 239, 241, 243, 276, 295, 399, 400, 425, 431, 433, 436, 438, 440, 516, 531, 540, 551, 555, 556, 557, 571, 572, 588

Source: ITE Parking Generation Manual (5th Edition)

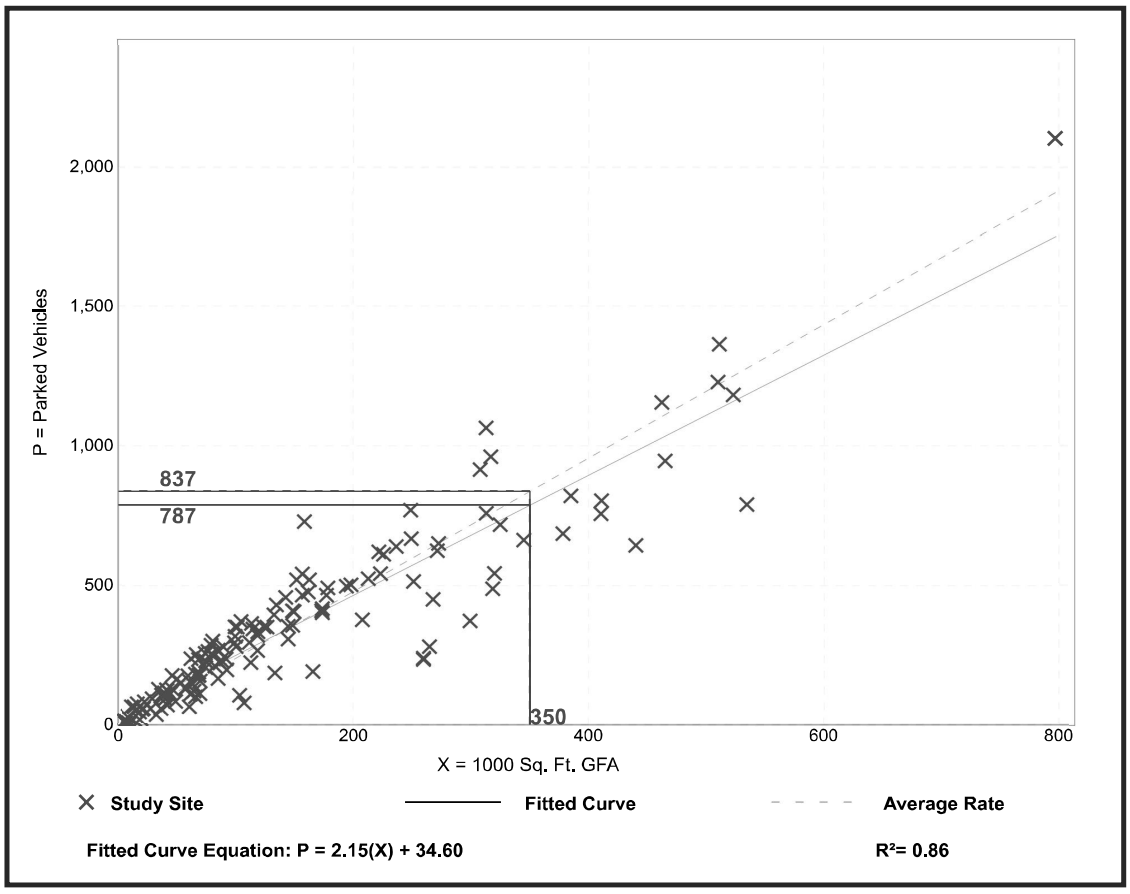
General Office Building
(710)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **9:00 a.m. - 3:00 p.m.**
Number of Studies: 148
Avg. 1000 Sq. Ft. GFA: 145

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
2.39	0.50 - 5.58	2.30 / 3.30	2.28 - 2.50	0.69 (29%)

Data Plot and Equation



Parking Generation Manual, 5th Edition ● Institute of Transportation Engineers

Source: ITE Parking Generation Manual (5th Edition)

Land Use: 720 Medical-Dental Office Building

Description

A medical-dental office building is a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility. General office building (Land Use 710), small office building (Land Use 712), and clinic (Land Use 630) are related uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday at 27 study sites in a general urban/suburban setting and two study sites in a dense multi-use urban setting.

	Percent of Weekday Peak Parking Demand	
Hour Beginning	General Urban/Suburban	Dense Multi–Use Urban
12:00–4:00 a.m.	–	–
5:00 a.m.	–	–
6:00 a.m.	–	–
7:00 a.m.	12	–
8:00 a.m.	43	61
9:00 a.m.	88	62
10:00 a.m.	99	96
11:00 a.m.	100	56
12:00 p.m.	83	29
1:00 p.m.	74	67
2:00 p.m.	94	100
3:00 p.m.	93	82
4:00 p.m.	86	79
5:00 p.m.	54	71
6:00 p.m.	–	–
7:00 p.m.	–	–
8:00 p.m.	–	–
9:00 p.m.	–	–
10:00 p.m.	–	–
11:00 p.m.	–	–

Source: ITE Parking Generation Manual (5th Edition)

Additional Data

Some of the study sites in the database are located within a hospital campus. The limited number of data points did not reveal a definitive difference in parking demand from stand-alone sites.

The average parking supply ratio for the 80 study sites with parking supply information is 4.3 spaces per 1,000 square feet GFA.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, Connecticut, Florida, Georgia, Illinois, Indiana, Maryland, Massachusetts, Minnesota, New Jersey, New York, Ohio, Pennsylvania, Tennessee, Texas, and Washington.

Source Numbers

36, 37, 84, 86, 120, 121, 153, 161, 173, 217, 218, 224, 239, 308, 309, 310, 315, 416, 428, 433, 527, 530, 531, 532, 553, 555, 563, 564

Source: ITE Parking Generation Manual (5th Edition)

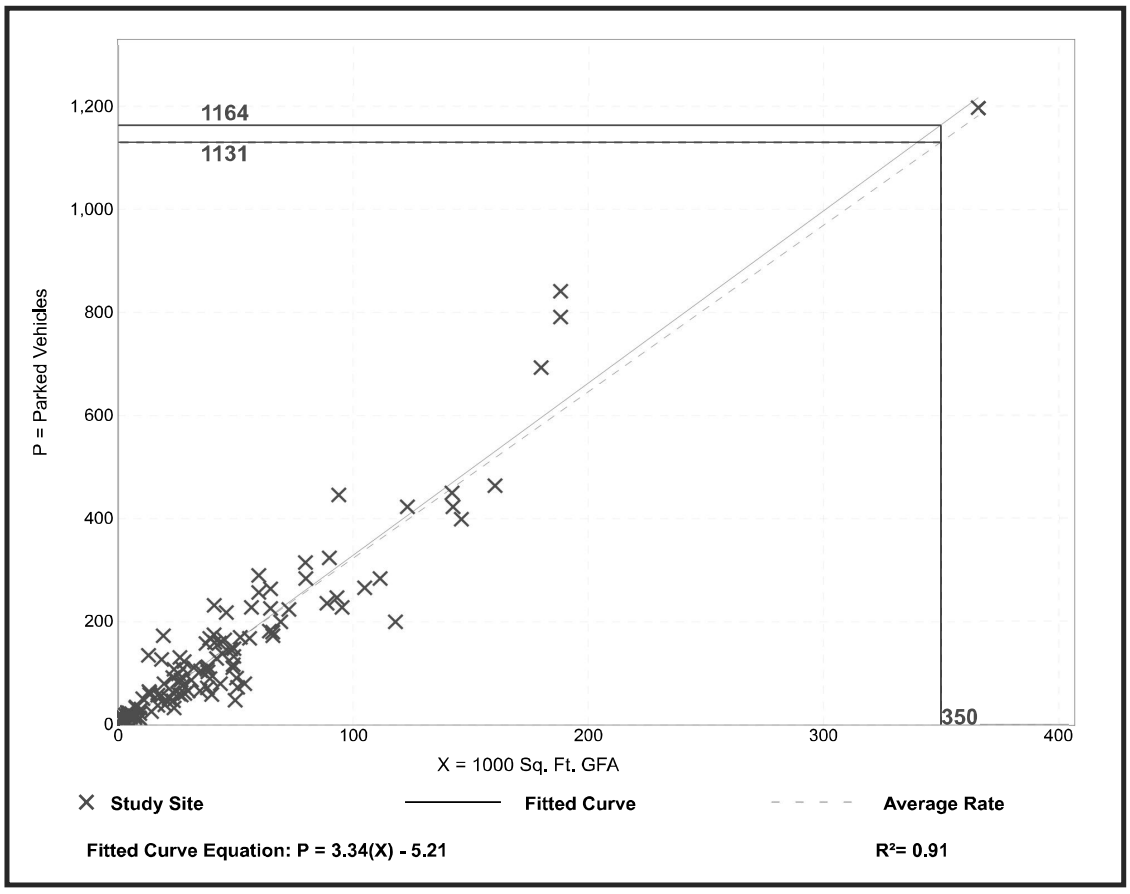
Medical-Dental Office Building
(720)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **9:00 a.m. - 4:00 p.m.**
Number of Studies: 117
Avg. 1000 Sq. Ft. GFA: 46

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
3.23	0.96 - 10.27	2.73 / 4.59	3.04 - 3.42	1.05 (33%)

Data Plot and Equation



Parking Generation Manual, 5th Edition ● Institute of Transportation Engineers

Source: ITE Parking Generation Manual (5th Edition)

Land Use: 820 Shopping Center

Description

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand **during the month of December** on a weekday (seven study sites), a Friday (eight study sites), and a Saturday (19 study sites).

	Percent of Peak Parking Demand during December		
Hour Beginning	Weekday	Friday	Saturday
12:00–4:00 a.m.	–	–	–
5:00 a.m.	–	–	–
6:00 a.m.	–	–	–
7:00 a.m.	–	–	–
8:00 a.m.	–	–	–
9:00 a.m.	–	–	–
10:00 a.m.	–	74	–
11:00 a.m.	–	87	85
12:00 p.m.	77	97	97
1:00 p.m.	100	100	98
2:00 p.m.	98	92	100
3:00 p.m.	90	85	97
4:00 p.m.	76	84	88
5:00 p.m.	82	78	77
6:00 p.m.	89	75	64
7:00 p.m.	90	63	–
8:00 p.m.	84	–	–
9:00 p.m.	–	–	–
10:00 p.m.	–	–	–
11:00 p.m.	–	–	–

Source: ITE Parking Generation Manual (5th Edition)

The following table presents a time-of-day distribution of parking demand **during a non-December month** on a weekday (18 study sites), a Friday (seven study sites), and a Saturday (13 study sites).

	Percent of Non–December Peak Parking Demand		
Hour Beginning	**Weekday**	**Friday**	**Saturday**
12:00–4:00 a.m.	–	–	–
5:00 a.m.	–	–	–
6:00 a.m.	–	–	–
7:00 a.m.	–	–	–
8:00 a.m.	15	32	27
9:00 a.m.	32	50	46
10:00 a.m.	54	67	67
11:00 a.m.	71	80	85
12:00 p.m.	99	100	95
1:00 p.m.	100	98	100
2:00 p.m.	90	90	98
3:00 p.m.	83	78	92
4:00 p.m.	81	81	86
5:00 p.m.	84	86	79
6:00 p.m.	86	84	71
7:00 p.m.	80	79	69
8:00 p.m.	63	70	60
9:00 p.m.	42	–	51
10:00 p.m.	15	–	38
11:00 p.m.	–	–	–

Additional Data

The parking demand database includes data from strip, neighborhood, community, town center, and regional shopping centers. Some of the centers contain non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs, and recreational facilities.

Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.

Source: ITE Parking Generation Manual (5th Edition)

The parking demand data plots and analysis are based on the total gross leasable area (GLA) of the center. In cases of smaller centers without an enclosed mall or peripheral buildings, the GLA could be the same as the gross floor area (GFA) of the center.

The average parking supply ratios for the study sites with parking supply information are the following:

- 5.1 spaces per 1,000 square feet GFA (137 sites) in a general urban/suburban setting
- 4.7 spaces per 1,000 square feet GFA (five sites) in a dense multi-use urban setting

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alabama, Alberta (CAN), Arizona, California, Colorado, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, North Carolina, New Jersey, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, and Washington.

Future data submissions should attempt to provide information on the composition of each study site (types and number of stores, restaurants, or other tenants within the shopping center).

Source Numbers

3, 18, 21, 32, 39, 47, 87, 88, 89, 103, 142, 145, 152, 153, 154, 174, 175, 176, 179, 202, 203, 204, 205, 209, 215, 219, 224, 241, 265, 274, 313, 314, 315, 431, 432, 433, 436, 438, 441, 511, 525, 527, 531, 533, 542, 556, 558, 565

Source: ITE Parking Generation Manual (5th Edition)

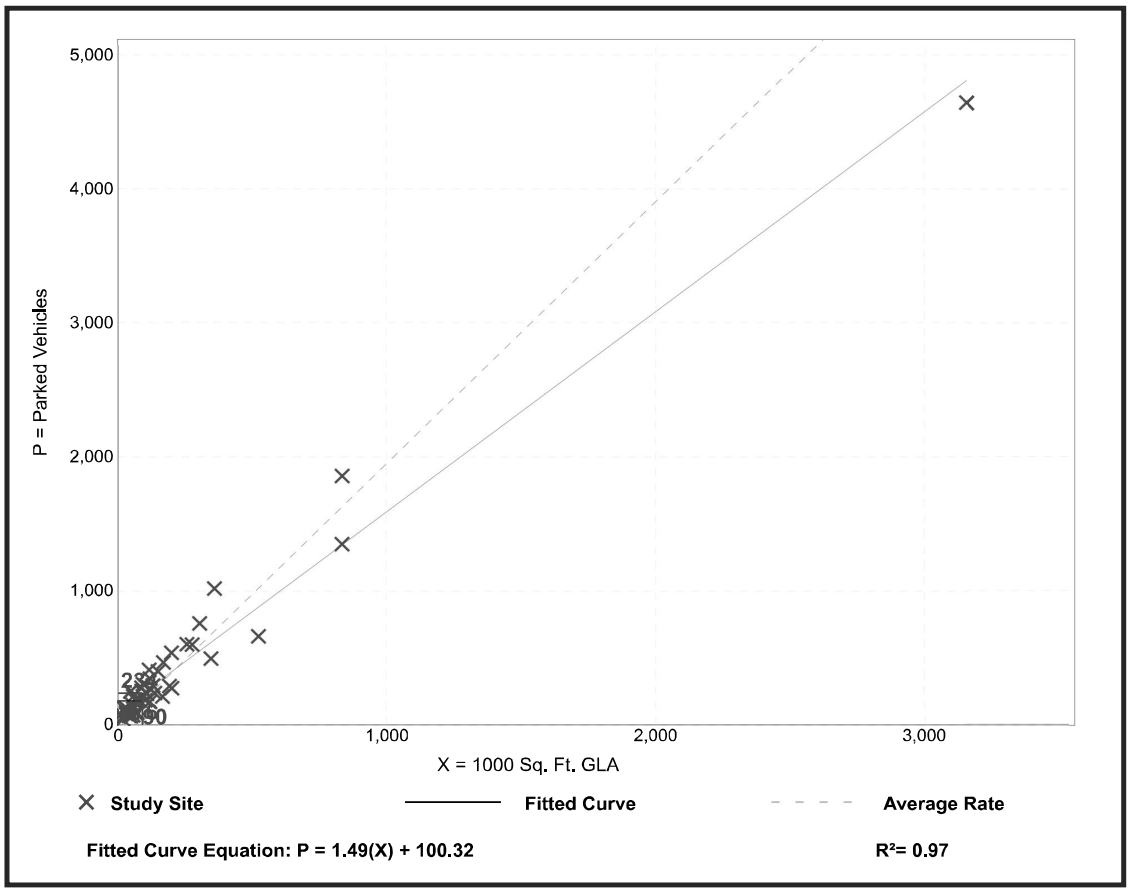
Shopping Center - Non-December
(820)

Peak Period Parking Demand vs: **1000 Sq. Ft. GLA**
On a: **Weekday (Monday - Thursday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **12:00 - 6:00 p.m.**
Number of Studies: 46
Avg. 1000 Sq. Ft. GLA: 218

Peak Period Parking Demand per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.95	1.27 - 7.98	1.99 / 3.68	1.73 - 2.17	0.75 (38%)

Data Plot and Equation



Parking Generation Manual, 5th Edition ● Institute of Transportation Engineers

Source: ITE Parking Generation Manual (5th Edition)

Land Use: 310 Hotel

Description

A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as a full-service restaurant, cocktail lounge, meeting rooms, banquet room, and convention facilities. It typically provides a swimming pool or another recreational facility such as a fitness room. All suites hotel (Land Use 311), business hotel (Land Use 312), motel (Land Use 320), and resort hotel (Land Use 330) are related uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand (1) on a weekday (four study sites) and a Saturday (five study sites) in a general urban/suburban setting and (2) on a weekday (one study site) and a Saturday (one study site) in a dense multi-use urban setting.

	Percent of Peak Parking Demand			
	General Urban/Suburban		Dense Multi–Use Urban	
Hour Beginning	Weekday	Saturday	Weekday	Saturday
12:00–4:00 a.m.	96	74	93	100
5:00 a.m.	–	–	–	–
6:00 a.m.	91	62	97	95
7:00 a.m.	89	62	100	95
8:00 a.m.	90	72	93	89
9:00 a.m.	100	74	72	85
10:00 a.m.	98	76	69	74
11:00 a.m.	89	77	65	61
12:00 p.m.	85	79	78	47
1:00 p.m.	75	78	78	42
2:00 p.m.	81	67	63	41
3:00 p.m.	70	64	59	43
4:00 p.m.	74	67	58	48
5:00 p.m.	65	73	52	53
6:00 p.m.	73	83	63	64
7:00 p.m.	78	92	74	67
8:00 p.m.	93	97	78	78
9:00 p.m.	96	100	72	81
10:00 p.m.	95	91	84	93
11:00 p.m.	95	83	92	98

Additional Data

Some properties contained in this land use provide guest transportation services such as airport shuttles, limousine service, or golf course shuttle service, which may have an impact on the overall parking generation rates.

The average parking supply ratios for both the 17 study sites located in a general urban/suburban setting and the two study sites in a dense multi-use urban setting are 1.1 spaces per room.

The sites were surveyed in the 1980s, the 1990s, and the 2000s in Arizona, California, Connecticut, Florida, Illinois, New York, Texas, and Washington.

For all lodging uses, it is important to collect data on occupied rooms as well as total rooms.

Parking demand at a hotel may be related to the presence of supporting facilities such as convention facilities, restaurants, meeting/banquet space, and other retail. Future data submissions should indicate the presence of these amenities and specify their size. Reporting the level of activity at the supporting facilities (such as full, empty, partially active, number of people attending a meeting/ banquet) during observation may also be useful in further analysis of this land use.

Source Numbers

1, 117, 124, 152, 154, 157, 159, 201, 215, 217, 245, 315, 401, 438

Source: ITE Parking Generation Manual (5th Edition)

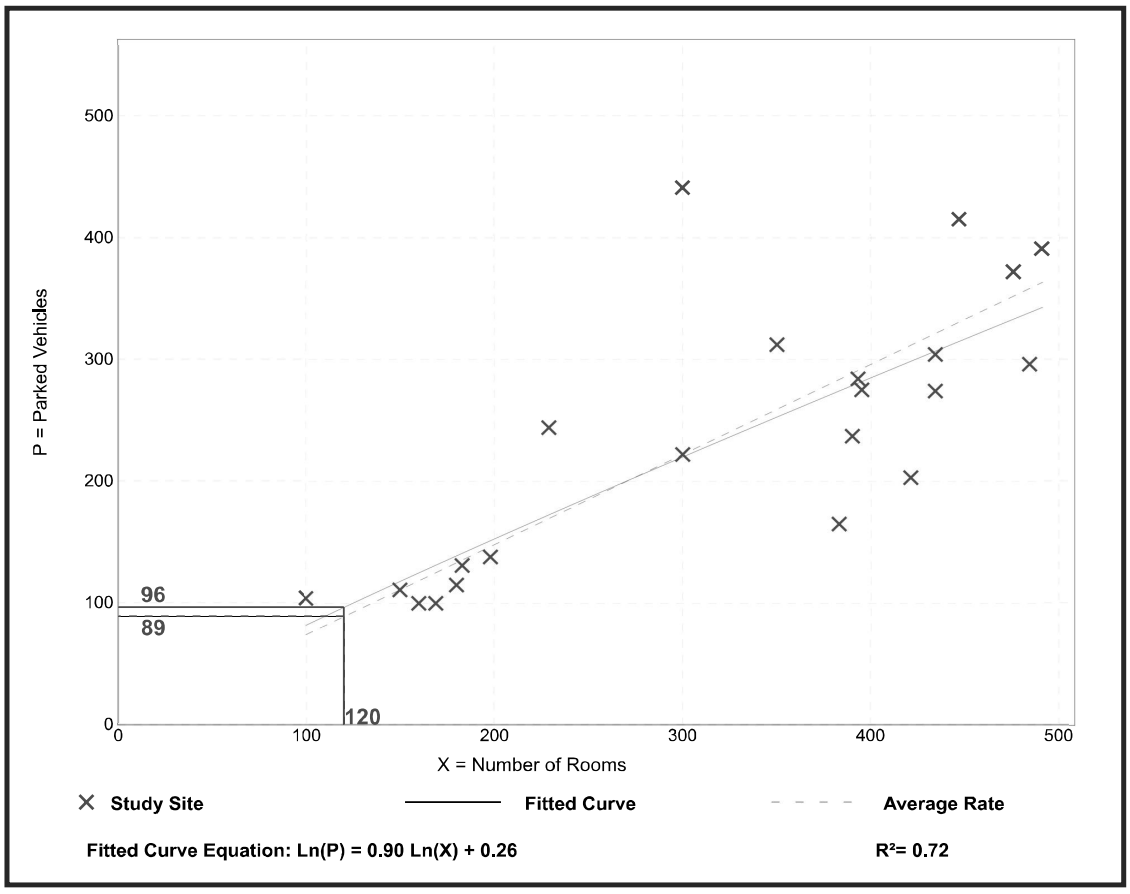
Hotel
(310)

Peak Period Parking Demand vs: **Rooms**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Peak Period of Parking Demand: **11:00 p.m. - 8:00 a.m.**
Number of Studies: 22
Avg. Num. of Rooms: 321

Peak Period Parking Demand per Room

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.74	0.43 - 1.47	0.64 / 0.99	0.65 - 0.83	0.22 (30%)

Data Plot and Equation



Parking Generation Manual, 5th Edition ● Institute of Transportation Engineers

Attachment B

Lumen MP Parking Study (Development Rates)
PEAK PARKING ACCUMULATION (WEEKDAY)

1. Development Program Summary

Multi-Family Residential	480	units
1 BR	288	units
2+ BR	192	units
Single Family Residential	140	units
General Office	350,000	sf
Medical Office	350,000	sf
Commercial / Retail	90,000	sf
Hospitality	120	rooms

2. Peak Parking Accumulation Factors

Multi-Family Residential (1 BR)	1.00	per unit
Multi-Family Residential (2+ BR)	1.50	per unit
Single Family Residential	2.00	per unit
General Office	3.33	per 1,000 sf
Medical Office	3.33	per 1,000 sf
Commercial / Retail	4.00	per 1,000 sf
Hospitality	1.00	per room

3. Peak Parking Accumulation (Single Use Methodology)

Multi-Family Residential	576	spaces
Single Family Residential	280	spaces
General Office	1,166	spaces
Medical Office	1,166	spaces
Commercial / Retail	360	spaces
Hospitality	120	spaces
Total	3,668	spaces

Kimley»Horn

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Lumen MP Parking Study (ITE Rates)
PEAK PARKING ACCUMULATION (WEEKDAY)

1. Development Program Summary

Multi-Family Residential	480	units
1 BR	288	units
2+ BR	192	units
Single Family Residential	140	units
General Office	350,000	sf
Medical Office	350,000	sf
Commercial / Retail	90,000	sf
Hospitality	120	rooms

2. Peak Parking Accumulation Factors

Multi-Family Residential	1.31	per unit
Single Family Residential	2.00	per unit
General Office	2.39	per 1,000 sf
Medical Office	3.23	per 1,000 sf
Commercial / Retail	1.95	per 1,000 sf
Hospitality	0.74	per room

3. Peak Parking Accumulation (Single Use Methodology)

Multi-Family Residential	629	spaces
Single Family Residential	280	spaces
General Office	837	spaces
Medical Office	1,131	spaces
Commercial / Retail	176	spaces
Hospitality	89	spaces
Total	3,142	spaces

Kimley»Horn

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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 = 0 *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		Mix of various lot sizes of Single-family, Townhomes, and Apartments
	Mixed-Use Commercial & Residential	30	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		
	Non-residential	10	30+10 =40	
	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	40+5 =45	Must result in increased property value
	Residential Subdivision - Additional amenities included	5 - 15	45+5 =50	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	55+15 =70	
	Job creation - Jobs created will have salaries at or above median income	5	70+5 =75	Must be greater than 50% of jobs added with documentation to confirm
	Residential - Multiple-Car Garages provided	5	75+5 =80	
	Residential - Overflow Parking provided	5		Subject to Planning and Engineering support
	Masonry Elements included in Building Construction	10	80+10 =90	
	Sustainable/High Efficiency Products and appliances used	5 - 15	90+15 =105	5 pts per, max 15 pts
	Private trail connection to Public Greenway	10	105+10 =115	
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	115-20 =95	Subject to Town policy and standards
	Out-of Town Status (After construction)	-10		
	Outside Fire District	-5		
	Inconsistent with Comp Plan	-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 improvments 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: Lumen Planned Development District **Acreage of Property:** 68.26 (4 parcels)

County Tag Number: (1): 05F02037E, (2): 05F02037B, (3): 05F02037A, (4): 05F02037 **NC PIN:** (1): 05F02037E, (2): 05F02037B, (3): 05F02037A, (4): 05F02037

Address/Location: 2219 NC 42 West, Clayton, NC 27520

Zoning District: PD-MU (Planned Development - Mixed Use)

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

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

Applicant: Kimley Horn Associates

Mailing Address: 421 Fayetteville Street, Suite 600 Raleigh, NC 27601

Phone Number: 919-653-2976 **Fax:**

Contact Person: W. Jordan Brewer, P.E.

Email Address: jordan.brewer@kimley-horn.com

PROPERTY OWNER INFORMATION

Name: (1): Penny, Ezra Lee; (2): Medlin, Frankie P; (3): Langdon, Benny; (4): Langdon, Benny

Mailing Address: (1): 406 Crossway Ln, Holly Springs, NC 27540; (2): 2219 N 42W, Clayton, NC 27520; (3): 19 Slateford Dr, Clayton, NC 27520; (4): 19 Slateford Dr, Clayton, NC 27520

Phone Number: **Fax:**

Email Address:

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): Mixed Use **Existing Use(s):** Residential

Invoice shall be mailed to the following:

Developer Name: Davis Park Leasing, LLC

Mailing Address: 940 NW Cary Parkway, Cary, NC 27513

Phone Number: (919) 872-6556 **Fax Number:**

Email Address: craig.davis@craigdavisproperties.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: 65.19 (4 parcels)

Single Family	# of Units	GPD per Unit	Total Requested GPD
1-2 Bedroom Units	see attached		
3 Bedroom Units			
>3 Bedroom Units			
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: 65.19 (4 parcels)

Use	Measurement Unit	# of Units	GPD per Unit	Total Requested GPD
see attached				
Total			------	

TOTAL REQUESTED GALLONS PER DAY: see attached

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.

W. Jordan Brewer, P.E.		11/04/2020
Print Name	***Signature of Applicant***	***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

Residential			
Single Family	# of Units	GPD per Unit	Total GPD
1-2 Bedroom Units	-	120	-
3 Bedroom Units	60	240	14,400
>3 bedroom Units	40	360	14,400
Total	100	------	28,800

Multi-Family	# of Units	GPD per Unit	Total GPD
Ph1 1-2 Bedroom Units	280	120	33,600
Future 1-2 Bedroom Units	90	120	10,800
Ph1 3 Bedroom Units	90	240	21,600
Future 3 Bedroom Units	40	240	9,600
>3 Bedroom Units	-	360	-
Total	500	------	75,600

Non-Residential				
Use	Measurement Unit	# of Units	GPD per Unit	Total GPD
Hotel	120 gal/room	120	120	14,400
Retail/Restaurants	50 gal/100 SF	45,000	0.5	22,500
Ph1 Medical Office	250 gal/pract./shift 1 pract. / 1,200 SF	150,000 SF 1.5 shifts	0.208	46,875
Future Medical Office	250 gal/pract./shift 1 pract. / 1,200 SF	550,000 SF 1.5 shifts	0.208	171,875
Total		45120	------	255,650

Wastewater Flow Allocation	
Phase 1 Development	
Q2 2023	55,200
Q3 2023	46,875
Q3 2024	14,400
Phase 1 Total GPD:	**116,500**

Future Development	243,550

Total Requested GPD:	**360,100**



11/4/2020

Town of Clayton
Planning Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
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Town Council
October 18, 2021

STAFF REPORT

Application Number: 2020-104-SD
Project Name: Lumen Preliminary Plat (acting as Master Plan)

Tag #(s): 05F02037E, 05F02037B, 05F02037A, 05F02037
Location: NC HWY 42 W, south of Spring Branch Medical Park
Overlay: Thoroughfare Overlay District
Applicant: Kimley Horn
Owner(s): Ezra Lee Penny, Frankie P Medline, Benny Langdon

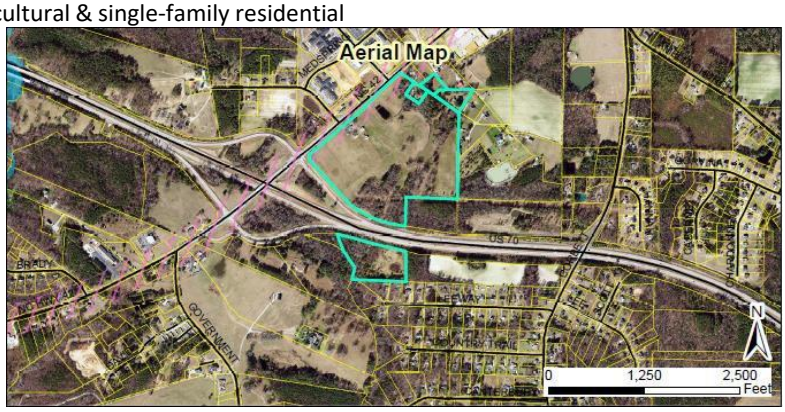
Public Noticing:

- Neighborhood meeting: August 11, 2020; second courtesy meeting held December 2, 2020
- Sign posted: April 9, 2021
- Letters mailed: April 9, 2021
- Newspaper ad published: April 7, 2021 and April 14, 2021

Since Town Council Public Hearing has been continued, no additional notice has been provided or required

REQUEST: Preliminary Plat, acting as a master plan, for a mixed use development that includes 700,000 SF of non-residential office/institutional uses, up to 90,000 SF of commercial/retail uses, up to 480 multi-family residential units, up to 120 single-family lots, and up to 120 rooms and/or 10,000 SF for a hospitality/civic use.

SITE DATA:
Acreage: 69.07 acres
Existing Use: Agricultural & single-family residential



ADJACENT ZONING AND LAND USES:

Direction	Zoning	Existing Use(s)
North	Planned Development Mixed Use (PD-MU)	Medical Office & Restaurant
South	Residential-Estate (R-E)	Single-Family Residential
East	Residential-Estate (R-E)	Single-Family Residential
West	Residential- Estate (R-E)	Single-Family Residential



DEVELOPMENT DATA:

Proposed Uses: Residential (mixture of multi-family and single-family) and non-residential uses (mixture of commercial/retail, office, institutional, and hospitality uses)

Proposed Density: Overall up to 600 units are proposed (mixture of multi and single family) which would create an overall proposed residential density of 9.2 units/acre for the entire development

Proposed Impervious Surface: 70% for non-residential Pods; Residential Pods have maximum density of 65% or 70% based upon unit type

Fire Protection: Town of Clayton

Access/Streets: Access will be provided off NC HWY 42 W

Water/Sewer Provider: Town of Clayton

Electric Provider: Town of Clayton

STAFF ANALYSIS:

Overview

The applicant is requesting approval of a preliminary plat, acting as a master plan. There is an associated rezoning application, 2020-103-PDD, running concurrently with this application to rezone the subject properties from

Residential-Estate (R-E) to Planned Development Mixed Use (PD-MU). There is also a proposed Developer's agreement running alongside this application that will be heard and decided upon by the Town Council.

The overall development is proposed to include a mixture of office/medical, condos/retail, multi-family, commercial, and single-family/townhome uses. The associated master plan and narrative included as attachments to this report show these uses distributed among 6 pods. Below is a breakdown of the pods which are proposed within this development:

Pod 1- Office/Medical
Pod 1 is the largest of the proposed pods in this development. It consists of 14.3 acres and would contain up to 700,000 SF of non-residential uses. The pod is located along NC HWY 42, just north of US HWY 70 Bypass. The maximum building height in this pod is proposed to be 145'. This height has been reviewed by the Town of Clayton Fire Department and they are comfortable with serving building(s) of this height. The height of 145' would only be permitted for hotel or office/medical uses, as noted in the Narrative. Other uses would be limited to 45' or 75'. The overall layout of the pod is not known at this time except that a stormwater pond will be located on the southernmost portion. Prior to development occurring on this pod, a site plan will be required to be submitted for review and approval by the Town. A variety of uses would be permitted on this pod, as outlined on the master plan and associated Narrative. These uses include: Office, Institutional, Retail, Restaurant, Veterinary Clinic, Hotel/Motel, and Conference Center. The full list of permitted uses are outlined on pages 9 and 10 of the attached Narrative provided by the applicant. All non-residential development on this pod would be subject to the design control standards in the Narrative, which would limit the impervious coverage to 70%.

Pod 2- Condos/Retail
Pod 2 will consist of 6 acres and include a mixture of condos and retail uses. The pod will include approximately 100 condo/multi-family units and approximately 30,000 SF of retail uses. This pod is located along NC HWY 42 directly south of Spring Branch Medical Park. An exact list of permitted commercial/retail uses allowed in this pod are outlined in the associated master plan narrative (pages 9 and 10). These include, but are not limited to, restaurant, retail sales, microbrewery, hotel, financial institution, office, and publisher. This pod will include mixed use buildings that will allow for a mixture of residential and non-residential uses. The uses and dimensional standards will be regulated in accordance with the master plan narrative. The exact layout of the pod will be determined in the future when the development submits a site plan for review and approval by the Town.

Pod 3- Multi-Family (Street Level Retail)
Pod 3 will consist of 7.4 acres with up to 400 multi-family units and 15,000 SF of retail uses. This pod is located in the center of the master plan development. As with Pod 2, the exact list of permitted uses allowed in this pod are outlined in the associated master plan narrative. The uses and dimensional standards will also be regulated in accordance with the master plan narrative. The layout of the pod will be determined in the future when the development submits a site plan for review and approval by the Town.

Pod 4- Commercial/Office/Hospitality/Retail/Residential
Pod 4 is the second largest pod in this mixed use development. It consists of 10.25 +/- acres and is located across Springbrook Avenue along NC HWY 42 W. It is the northeastern most pod in the development. This pod is proposed to include hospitality uses, such as a hotel, as well as office, retail, commercial, and residential uses. The maximum building height for this pod is proposed to be 145', which has been reviewed by the Town Fire department. This height would only be permitted for a Hotel or Office/Institutional use, as outlined in the narrative. Due to the location of this pod adjacent to existing single-family residences, the applicant has proposed a 70' "neighborhood transition zone" which is located along the exterior perimeter of the pod abutting the existing single-family residences. Per the master plan, the building height shall be limited to 45' in this zone to mitigate impacts on the

adjacent residences. The exact uses and dimensional standards will also be regulated in accordance with the master plan narrative. The layout of the pod will be determined in the future when the development submits a site plan for review and approval by the Town.

Pod 5- Residential
Pod 5 is located to the eastern most portion of the development and will be 5.75 acres in size. This pod is proposed to consist of residential uses as permitted within the master plan narrative. Some of the permitted residential uses include townhomes, single-family, nursing home, and duplexes. All of the permitted residential uses are outlined in the attached master plan narrative. The applicant has included residential design controls in the masterplan narrative, which outline dimensional standards required by residential use type. The layout of this pod will be determined in the future when the development submits a minor subdivision for review and approval by the Town.

Pod 6- Single-Family Residential
Pod 6 is located to the south of US HWY 70 bypass and is not connected to the rest of the development as the bypass bisects the development. This pod would be accessed off NC HWY 42 W via a road connection that is shown on the master plan. This pod is anticipated to be the final phase of the development per the master plan. It is 6 acres in size and would include up to 50 single-family residential units. The exact layout of the pod would be determined in the future when the development submits a minor subdivision for review and approval by the Town. The road connecting from NC HWY 42 W to this pod would be required to meet Town of Clayton standards and the pod will also be required to meet minimum access requirements of the UDC when it is reviewed for subdivision approval.

Parking Reduction Request
The applicant has submitted a letter outlining a request to reduce the parking requirements as a part of the Planned Development district. Specifically, they request to reduce the parking calculations for the multi-family residential units, commercial/retail, general/medical office, and hotel/motel uses. The single-family residential parking requirement will remain 2 spaces/unit to prevent issues with on-street parking.

The applicant has based the reduction of parking on The Institute of Transportation Engineers (ITE) Parking Generation Manual (5^{th} Edition). In total the request would reduce the required parking by 526 spaces for the entire development. Staff is comfortable with the request as it was made utilizing the ITE manual and since this is a mixed use development. Mixed use developments generally have an overlap in parking due to the mixture of uses and peak demand times.

Open Space/Amenities
Greenway is proposed to be located along the development's frontage on NC HWY 42 W. This portion of greenway will be public. The development is also proposing internal private greenway to run within the development and connect to the public greenway along NC HWY 42 W. Additionally, the development has noted on the master plan that the open space requirements of the UDC for a Planned Development will be met. Exact locations of additional open space will be depicted on minor site/subdivision plans for each pod and reviewed by the Town to ensure compliance.

Traffic Impact Analysis & NC HWY 42 Widening
A TIA was performed for this development by Kimley Horn. NCDOT also provided the Town with requirements from Congestion Management after the review of the TIA. Both the TIA and Congestion Management comments are included as attachments to this staff report. Additionally, due to the location of this development along NC HWY 42 W, the master plan shows right-of-way dedication along NC HWY 42 W for the future widening project.

The timing of the required off-site traffic improvements by NCDOT is unique for this development due to future widening of NC HWY 42. Town staff met with NCDOT to outline the required improvements in the associated Development Agreement. The applicant also has met with NCDOT to discuss the improvements further due to the coordination with the widening of NC HWY 42 W. As design on the NC HWY 42 project begins by NCDOT, they will verify what is actually needed for the Lumen development.

Landscaping/Buffering
The development will include required Class "C" landscaping buffers along the perimeter of the development. The buffers vary by project boundary, with a 20' Class "C" buffer utilizing a 6' fence/wall along the northeastern/eastern project boundaries abutting existing residential uses. The frontage along US HWY 70 bypass will include a 10' Class "C" buffer and 6' evergreen screening. The development's frontage along NC HWY 42 West will include a 20' Class "C" buffer that consists of a 4' berm & hedge and will meet the standards of the Thoroughfare Overlay District as well.

Consistency with Adopted Plans:

Consistency with the Comprehensive Plan 2040
The Comprehensive Plan's Future Land Use Map designates most of the properties as High Density Residential with the Community Center overlay. High-Density Residential is outlined to provide housing options close to major transportation corridors and includes a variety of housing types. This designation typically allows 10+ units/acre as a part of a Planned Development. The overall proposed project density is consistent with this, as the applicant is proposing 9.2 units/acre. The Community Center overlay builds upon the high-density designation to encourage mixed use developments that include residential components, as well as major anchor tenants and community serving office and retail uses.

There is a portion of the primary tract included in this request that is located south of US HWY 70 bypass and therefore not directly connected to the majority of the development. This portion of the property is designated as Medium Density Residential and Rural Residential. Medium Density Residential is outlined in the Comprehensive Plan to include neighborhoods that are urban in design and in close proximity to commercial uses. It is recommended to allow up to 7 units/acre as a part of a Planned Development. The Rural Residential portion of this property is described in the Comprehensive Plan as primarily consisting of single-family residences, with densities up to 2 units/acre. This pod is proposed to have a maximum density of 8-10 units/acre.

Overall, the proposed master plan is consistent with the Future Land Use map and Comprehensive Plan 2040 as it allows for mixed use development including commercial and residential and is located adjacent to a major transportation corridor. The plan is not entirely consistent with the southernmost portion of the primary tract though (POD 6), as that portion of the development is currently designated as Medium Density Residential/Rural Residential. However, this portion of the development is located directly east of property that is designated as High Density Residential which would allow up to 10 units/acre with a Planned Development designation. It is also located adjacent to a major transportation corridor. Due to its location and to provide a more uniform designation for the properties involved in this request, staff finds that the plan's request is reasonable despite this portion of land's inconsistencies between the future land use map and this portion of the development.

If the associated rezoning is approved to PD-MU the Future Land Use Map Designation would be updated accordingly for the southern portion of the development. Since the southernmost portion of the development (pod 6) does not propose any commercial development, staff recommends this portion of the development be modified to High-Density residential while the remainder of the parcels (north of the bypass) remain High-Density

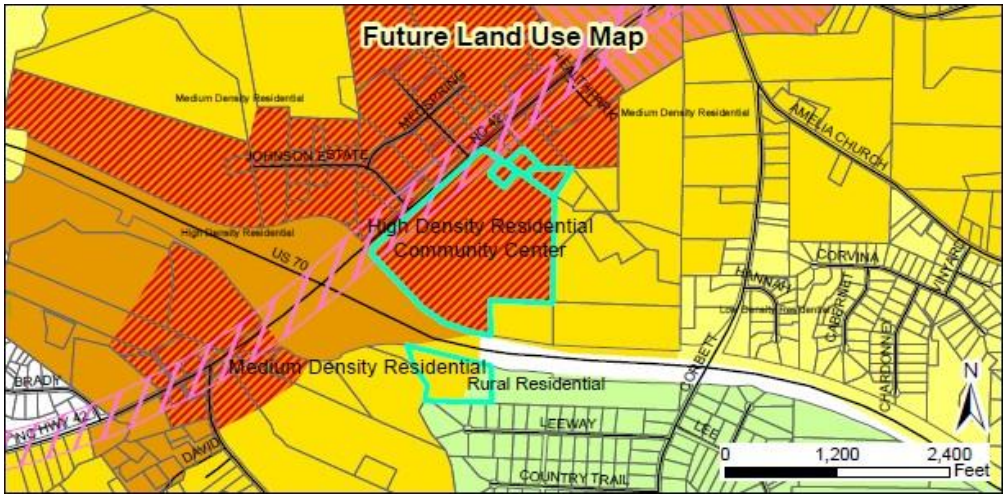
Residential with a Community Center overlay. Please see the "Consistency Statement" attachment that includes a map depicting this change.

Comprehensive Plan Goals supporting the master plan request include:

- **Goal LU1:** Preserve Clayton's small-town character while allowing for growth and development in appropriate areas.
- **Object LU1**.3: Encourage a mix of residential and non-residential land uses within Neighborhood and Community centers identified on the Future Land Use Map.
- **Goal LU3:** Provide a sense of place and enhance aesthetics along major corridors.
- **Objective LU3.1**: Identify and develop gateways into Clayton.

Comprehensive Plan Goals <u>not</u> supporting the master plan request include:

- None.



- **Unified Development Code**
  The proposed master plan is consistent with the requirements of the Unified Development Code for a plan at its level, with the exception of the proposed parking reductions. The parking reduction may be approved by the Town Council as a part of the master plan. Each pod of this plan will be reviewed individually as a site plan or subdivision plan to ensure consistency with the Unified Development Code and regulating standards of the master plan, as approved by the Town Council.

- **JCMH / NC 42 West Area Plan**
  The proposed master plan is overall consistent with the Town's Small Area Plan for NC HWY 42 West. The proposed master plan includes a greenway along NC HWY 42 West which would encourage pedestrian connectivity between this development and future development in the area. Architectural standards are included in the master plan's narrative, which will ensure a high-quality design and appearance consistent with this area plan. Landscaping design will be reviewed at site plan level for each pod, but the master plan does include the required 20' street buffer along NC HWY 42 West outlined in the Area Plan. Additionally, the Town has included a condition in the associated Development Agreement to require all

future outparcels with frontage on NC HWY 42 W to have no more than one bay of parking between the highway and buildings. This recommendation is outlined in the small area plan to create a street front building façade corridor that would further encourage a sense of place. Each phase of this development will be reviewed in accordance with the associated master plan and narrative, as well as the small area plan to further ensure that the layout and design remain consistent with this adopted plan.

Compatibility with Surrounding Land Uses
The proposed master plan is compatible with the surrounding land uses. Directly north of the proposed development is Spring Branch Medical Park, which is also zoned PD-MU and includes a mixture of uses. To the east of the proposed development are single-family residences, which would be abutting future Pod 5 that is to be developed with residential uses. To the north east of the development are single-family residences, which would abut Pod 4 that would include a mixture of residential and non-residential uses. To mitigate impacts on these single-family homes, the applicant has provided a transition zone to ensure no buildings of more than 45' in height are located within 70' of the neighboring properties for this pod.

CONSIDERATIONS:

- Each phase of the development will be reviewed as a separate minor site plan or subdivision plan prior to plat recordation or building permit issuance.
- If approved, this master plan will be recorded with Johnston County and shall guide future development for this land.
- Approval of the master plan is contingent upon approval of the associated rezoning and developer's agreement.

FINDINGS OF FACT:
The applicant has addressed the Findings of Fact outlined below, as listed in the Application.

1. Consistency with the adopted plans and policies of the Town.
   - Applicant Response:
     This master plan proposal is consistent with adopted plans of the Town of Clayton. This assemblage is part of the JHMC NC 42 West Area Plan that was adopted by the Town in November 2007. As a part of this plan, this parcel is designated mixed use and is intended to have high quality uses and a wide variety of both residential and non-residential uses for the surrounding area.

   - Staff Commentary:
     The subject properties are located within the area identified in the adopted NC HWY 42 West Area Plan adopted in 2007. The master plan meets the requirements of the UDC and is consistent with the Small Area Plan, as well as overall consistent with the Comp Plan 2040.

2. The subdivision meets all required specifications of this chapter.
   - Applicant Response:
     This plan proposal is consistent with adopted plans of the Town of Clayton. The applicant will ensure that the master plan will continue to meet all required specifications of the policies and Town Unified Development Code except where otherwise addressed through alternate design standards as spelled out within

the project master plan narrative.

- Staff Commentary:
  The proposed master plan meets the required specifications of the Unified Development Code. The actual subdivision of outparcels will be subject to minor subdivision review in the future and will be required to meet the standards of the UDC and master plan narrative requirements.

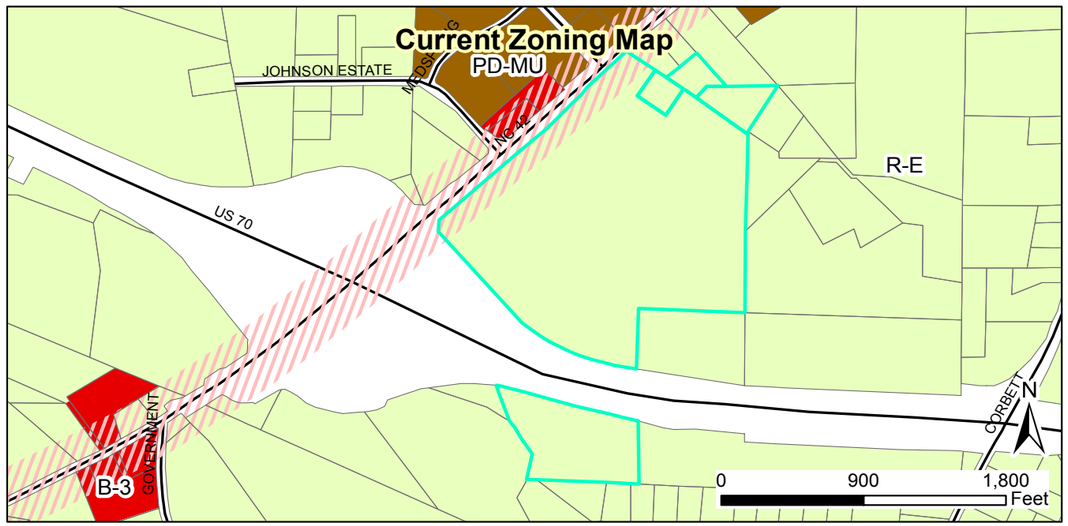
3. The subdivision will not be detrimental to the use or orderly development of other properties in the surrounding area and will not violate the character of existing standards for development of the properties in the surrounding area.
   - Applicant Response:
     The proposed project does not adversely affect the adjoining properties and property owners.
     The property is uniquely situated at a major gateway intersection with two of the Town's major transportation corridors. Land uses are conductive to the location and supported by traffic and compatible with the development patterns. The size of the assemblage and proposed infrastructure will also support the proposed mix of uses, with retail, office/institutional, public/civic, townhomes and even congregate care being proposed. Appropriate buffers are also proposed to protect the adjacent land uses.
   - Staff Commentary:
     The proposed master plan is consistent with the vision of the adopted Small Area Plan for the Town of Clayton. It is also consistent with the Future Land Use Map's vision for this location, adjacent to the bypass which will be future I-42. To mitigate impacts on adjacent residential development, the plan has incorporated a 70' neighborhood transition zone that will limit the height of buildings abutting existing residences in Pod 4.

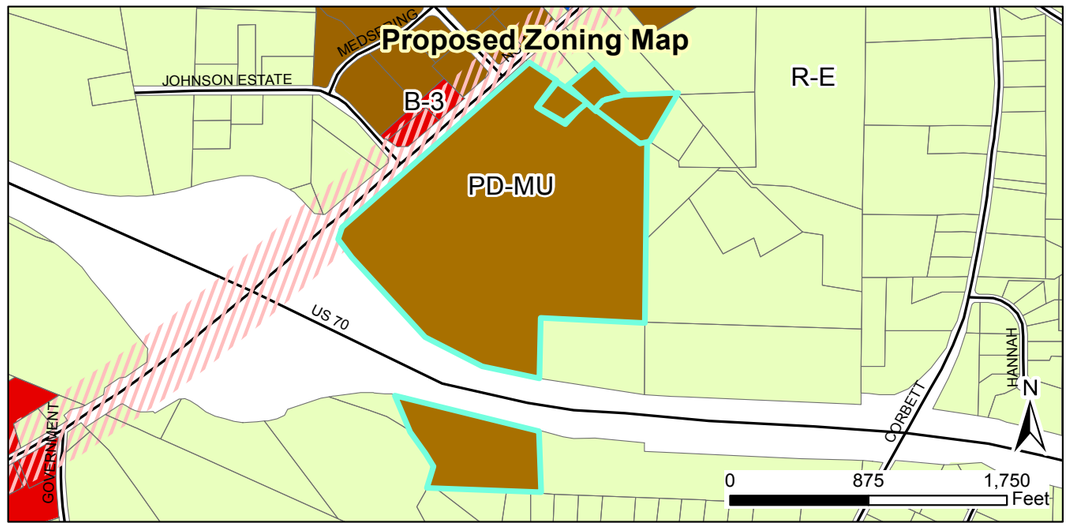
4. The subdivision design will provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, will provide for the unified and orderly use of or extension of public infrastructure, and will not materially endanger the environment, public health, safety, or the general welfare.
   - Applicant Response:
     Adequate public facilities, including existing and proposed streets, existing and proposed wastewater treatment, existing and proposed potable water and existing and proposed stormwater infrastructure are either existing or will be improved to meet the demands of the proposed uses to the maximum extent practicable. The approval of the master plan/rezoning will be contingent upon the execution of a developer agreement between the developer and the Town of Clayton regarding infrastructure sufficiency to support the proposed development. The development will also provide stub streets to promote inter connectivity and a means of access through the property to NC42
   - Staff Commentary:
     The proposed master plan will be required to make off-site roadway improvements as outlined in the TIA and NCDOT requirements to mitigate congestion in the immediate area.

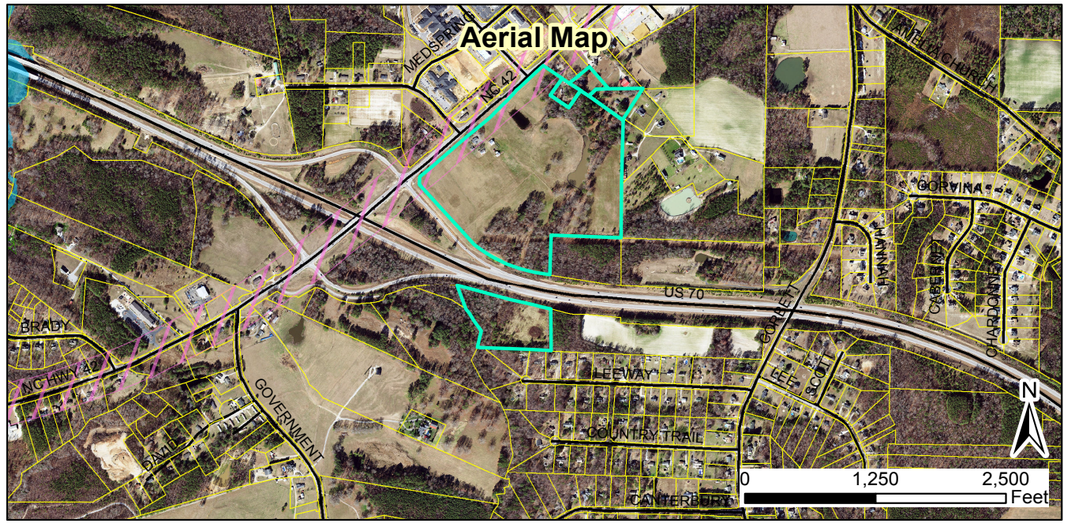
RECOMMENDED CONDITIONS OF APPROVAL:
If approved, staff is recommending conditions of approval be placed upon the application. These conditions are outlined in an attachment to the staff report. The applicant has reviewed the attachment and is in agreement with the conditions proposed by staff.

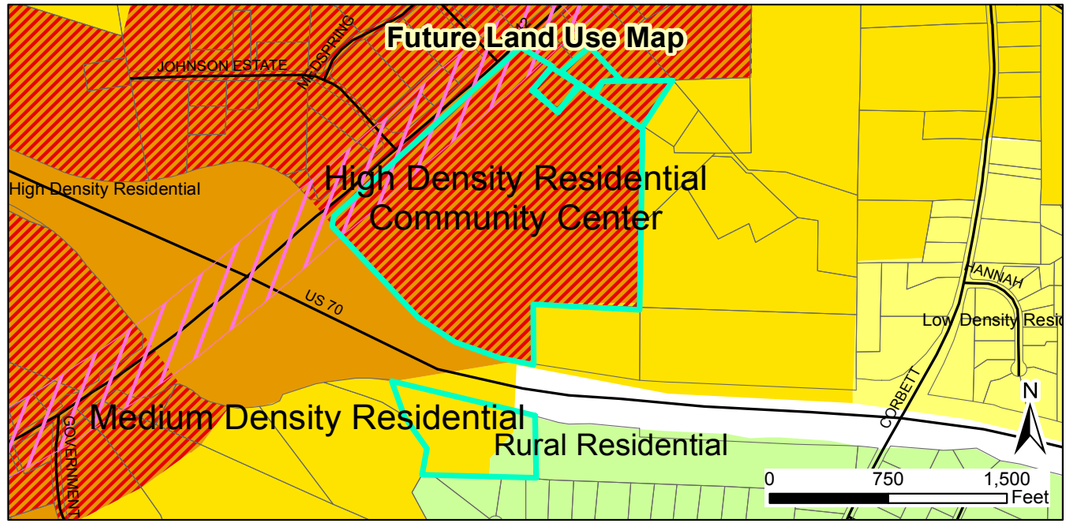
ATTACHMENTS:

1) Application
2) Master Plan Narrative
3) First Neighborhood Meeting Materials
4) Second Courtesy Neighborhood Meeting Summary
5) Site Plan
6) Adjacent Property Letter
7) Newspaper Ad
8) Signed TRC Letter
9) Traffic Impact Analysis
10) NCDOT Congestion Management Comments
11) Wetland Delineation Report
12) Lumen Parking Report
13) Wastewater Allocation Request
14) Wastewater Allocation Request - Scoring Sheet
15) Recommended Conditions of Approval - Signed









Lumen Planned Development Rezoning, 2020-103-PDD
Lumen Preliminary Plat Master Plan, 2020-104-SD

Applicant: Kimley Horn
Property Owners: Ezra Lee Penny, Frankie Medlin, and Benny & Seth Langdon
Tag #: 05F02037E, 05F02037B, 05F02037A, 05F02037

Staff Report Map

12/02/2020

Produced by: TOC Planning
Disclaimer: Town of Clayton assumes no legal responsibility for the quality fo the data represented here.

Legend

- 100-yr Flood Zone
- Thoroughfare Overlay
- Site

Document Path: O:\PLANNING\REZONING\Planned Developments\2020\2020-103-PDD Lumen Planned Development District\Staff Report Maps\Staff Report Map 2020-103-PDD.mxd

TOWN OF CLAYTON
SUBDIVISION APPROVAL 2020-104-SD
GRANTED

On the date listed below, the Town Council for the Town of Clayton met and held an evidentiary hearing to consider the following application:

Applicant:	Kimley Horn
Property Location:	NC Highway 42 West, south of Spring Branch Medical Park
Tax Parcel Number:	05F02037E, 05F02037B, 05F02037A & 05F02037
Proposed Use of Property:	Planned Development Mixed Use
Meeting Date:	October 18, 2021

Having heard all the evidence and argument presented at the hearing, the Town Council finds that the application is complete, that the application complies with all of the applicable requirements of the Clayton Zoning Ordinance for the subdivision proposed, and that, therefore, the application to subdivide the above-described property for the purpose indicated is hereby approved, subject to all applicable provisions of the Zoning Ordinance and the following conditions:

(1) The applicant shall complete the subdivision strictly in accordance with the plans submitted to and approved by this Board, a copy of which is filed in the Planning Department office.

(2) If any of the conditions affixed hereto or any part thereof shall be held invalid or void, then this approval shall be void and of no effect.

The Town Council imposed the following **additional conditions** of the Subdivision Approval:

1. Following Town Council approval, an electronic coy of the Preliminary Subdivision meeting the Conditions of Approval shall be submitted to the Planning Depa1tment for final approval. The Conditions of Approval for the Preliminary Subdivision and associated applications shall be recorded on the cover sheet.

2. The Development shall meet all conditions and agreements as stated in the Developer's Agreement (attached hereto) and signed by all involved development review patties.

3. 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.

4. The Development shall obtain all required local, state, and federal pe1mits in order to fill in any Resource Conservation Area.

5. The Development shall obtain all additional and required local, state, and federalpermits to construct the development as adopted by Town Council.

6. All Environmental impact permits (NCDEQ, USACE, etc.) may be required to be obtained prior to Construction Drawing Approval.

7. Development shall be constructed in substantial conformance with the Master Plan and Master Plan Narrative as approved by the Clayton Town Council on October 18, 2021.

8. All parcels subject to the rezoning and master plan shall be annexed into Town prior toany additional development approvals.

9. The parcel designated for the Water Tank and Pump Station shall be annexed into Town prior to approval of Construction Drawings for the Water Tank and/or Pump Station infrastructure.

10. The following use intensity maximums shall apply to the development:
    - Nonresidential use: 800,000 Square Feet (not including square footage dedicatedto hospitality use)
    - Hospitality use: 120 Rooms
    - Residential use: 620 Dwelling Units

    The Planning Director may administratively approve an increase in the nonresidential square footage by up to 10%, as long as the trip budget established in the approved Transportation Impact Analysis is not exceeded. In no case shall the nonresidential square footage of the project exceed 880,000 square feet without a master plan amendment approved by Town Council.

11. The development shall provide a 20-foot street yard buffer along the NC 42 frontage, which shall be installed as development occurs along the NC 42 frontage. This street yard buffer shall also include an opaque screening at a height of 6 feet at installation, consisting of a berm 4 feet in height with a continuous evergreen hedge 2feet in height (at installation) planted along the top of the berm.

12. Pod 4, as shown in the Master Plan dated September 10, 2021 and approved by the Town Council on October 18, 2021, shall have a maximum structure height of 145 feet, with the exception of the Neighborhood Transition Zone, which shall have a maximum structure height of 45 feet.

13. Nonresidential and residential structures in the development shall conform to the architectural standards in Section 9 of the Master Plan Narrative dated September 10,2021 and approved by the Town Council on October 18, 2021.

14. The Town of Clayton shall approve the final size and location of the Public Facilities, including the Pump Station and Water Tower, as outlined in Section 13 of the Master Plan Narrative dated September 10, 2021 and approved by the Town Council on October 18, 2021.

15. Phasing of off-site transportation improvements shall be approved by the North CarolinaDepartment of Transportation (NCDOT). Construction of off-site transportation improvements shall be in conformance with standards and requirements of the NCDOT, and shall be accepted by NCDOT.

IN WITNESS WHEREOF, the Town has caused this approval to be issued in its name.

TOWN OF CLAYTON

BY: _____
Jody L. McLeod
Mayor

ATTEST:

_____(SEAL)
Kimberly A. Moffett, CMC, NCCMC
Town Clerk

Town of Clayton
Town Council
Preliminary Subdivision Plat Motion Sheet

After considering the competent, material, and substantial evidence presented, including the application and materials of record, I move to **(PICK ONE)**:

- ■ Approve
- ■ Deny
- ■ Approve with Conditions

Preliminary Subdivision Plat Application Number 2020-104-SD - Lumen

This motion is based on the following findings:

1. The preliminary subdivision plat **IS** consistent with the adopted plans and policies of the town.

OR

The preliminary subdivision plat **IS NOT** consistent with the adopted plans and policies of the town. (State evidence supporting finding.)

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2. The subdivision **MEETS** all required specifications of the Town of Clayton Unified Development Code.

OR

The subdivision **DOES NOT MEET** all required specifications of the Town of Clayton Unified Development Code. (State evidence supporting finding.)

****

3. The subdivision **WILL NOT** be detrimental to the use or orderly development of other properties in the surrounding area and **WILL NOT** violate the character of existing standards for development of properties in the surrounding area.

OR

The subdivision **WILL** be detrimental to the use or orderly development of other properties in the surrounding area and **WILL** violate the character of existing standards

MOTION FORM
Item 6b
2020-104-SD
Lumen

for development of properties in the surrounding area. (State evidence supporting finding).

****

4. The subdivision design **WILL** provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, **WILL** provide for the unified and orderly use of or extension of public infrastructure, and **WILL NOT** materially endanger the environment, public health, safety, or the general welfare.

OR

The subdivision design **WILL NOT** provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, **WILL NOT** provide for the unified and orderly use of or extension of public infrastructure, and **WILL** materially endanger the environment, public health, safety, or the general welfare. (State evidence supporting finding).

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[If approved with conditions] The applicant meets this finding subject to the following conditions:

MOTION FORM
Item 6b
2020-104-SD
Lumen

Resolution #2021-49

TOWN OF CLAYTON
RESOLUTION GRANTING WASTEWATER TREATMENT CAPACITY
FOR LUMEN

WHEREAS, the Town of Clayton operates a wastewater treatment plant known and permitted as the "Little Creek Water Reclamation Facility"; and,

WHEREAS, said facility is permitted to treat a maximum average of 2.5 million gallons daily; and,

WHEREAS, the Town of Clayton holds several interlocal agreements which secure additional wastewater treatment capacity from other available sources; and,

WHEREAS, the North Carolina Department of Environment and Natural Resources (NCDENR) regulates, reviews, and permits flow tributary to newly extended or installed wastewater treatment collection facilities tributary to the Town of Clayton system; and,

WHEREAS, flow from sanitary sewer customers tributary to existing lines owned and operated as part of the Town of Clayton is bound to abide by the permitted average daily flow at the Little Creek Water Reclamation Facility in conjunction with other available sources and consistent with interlocal agreements regarding wastewater treatment.

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE TOWN COUNCIL FOR THE TOWN OF CLAYTON that the following is found:

1. The Town of Clayton has, according to the most recent accounting, sufficient excess and unallocated treatment capacity to approve additional allocation.

2. Such available capacity may be made available to users in accordance with regulatory and legal parameters established to ensure satisfactory treatment plant operation.

3. An additional allocation for wastewater treatment capacity is granted in the amount of 414,346 according to phasing table; **as indicated in the attached document.**

4. Said allocation is approved subject to and conditioned upon review and approval of all required regulatory processes.

5. Said allocation is non transferable, non assignable, and made for the projects as described and for the noted location unless explicitly approved by the Town of Clayton.

6. Said allocation may be revoked or reclaimed in accordance with the policies of the Town of Clayton as adopted or amended now or in the future. No property right is conferred with the granting of an allocation except as otherwise explicitly allowed by policy, ordinance, or action of the Town of Clayton.

7. Said allocation is subject to payment of applicable fees in accordance with adopted ordinances, policies, and fee schedules of the Town of Clayton.

Duly resolved by the Clayton Town Council this 18th day of October, 2021 while in regular session.

_____
Jody L. McLeod
Mayor

_____
Kimberly A. Moffett, CMC, NCCMC
Town Clerk

					Wastewater (GDP) Available for permitting															
Phase	**Description**	**Lots/Units/SF**	**GPD per unit**	**Wastewater (GDP)**	**Q1 2022**	**Q2 2022**	**Q3 2022**	**Q4 2022**	**Q1 2023**	**Q2 2023**	**Q3 2023**	**Q4 2023**	**Q1 2024**	**Q2 2024**	**Q3 2024**	**Q4 2024**	**Q1 2025**	**Q2 2025**	**Q3 2025**	**Q4 2025**
1	Multifamily - 2bed	281	240	67,488		67,488														
	Multifamily - 3bed	99	360	35,568		35,568														
	Medical Office 1	150,000 SF & 1.5 shifts	250 GPD/pract./shift 1 pract. / 1,200 SF	46,875			46,875													
	Retail	15,000	130 GPD/1000 SF	1,950			1,950													
	Single Family Development - 1-2 bed	-	120	-				-												
	Single Family Development - 3 bed	42	250	10,500				10,500												
	Single Family Development - >3 bed	28	480	13,440				13,440												
	Condo/Apartments	100	250	25,000			25,000													
	Retail	45,000	130 GPD/1000 SF	5,850						5,850										
	Medical Office 2	183,333 SF & 1.5 shifts	250 GPD/pract./shift 1 pract. / 1,200 SF	57,292						57,292										
2	Medical Office 3	183,333 SF & 1.5 shifts	250 GPD/pract./shift 1 pract. / 1,200 SF	57,292										57,292						
	Retail	30,000	130 GPD/1000 SF	3,900										3,900						
	Medical Office 4	183,333 SF & 1.5 shifts	250 GPD/pract./shift 1 pract. / 1,200 SF	57,292														57,292		
Future	Single Family Development	70	250	17,500																
	Hospitality	120	120 GPD/room	14,400																
Total							2022 Total	200,821		2023 Total		63,142		2024 Total		61,192		2025 Total		57,292
	ASSUMPTIONS																			414,346

1. An allocation for wastewater treatment capacity is requested for a total amount of 414346 GDP to Lumen Penny Farm based on the phasing table shown. Sewer permits and flow tracking for sewer extension forms may not be submitted prior to the date shown in chart for the specified phase. Wastewater allocation is subject to availability of capacity for treatment of sanitary sewer. The Town Engineer may increase amounts by up to 5% in the event more wastewater is needed to complete a sub portion of each phase.

2. Future phase schedule is to be determined. Sewer demand of the future phase is included in the total requested amount of 414346 GPD.

Town Council Agenda Cover Sheet

Meeting Date
October 18, 2021

Agenda Location
Public Hearings

Item Title

Economic Development Incentive Agreement - Lumen

Presenter

Patrick Pierce, Economic Development Director

Summary/Description

The Developer has requested an economic development incentive for the portion of the development that will be built as Class A Office space. This portion of the project will consist of four phases, netting a minimum of 525,000 sq ft of new Class A Office space, $200,000,000 million in investment and at least 100 new full-time jobs with an average minimum wage of $55,000 annually, including benefits.

The incentive agreement will provide a grant of 50% of the ad valorem taxes paid on the Class A Office space for a period of seven years, beginning in 2024. The maximum total grant amount over the life of the project is $2,500,000. Clawback provisions are provided for underperformance or untimely delivery of the project.

The subject properties are not currently in the Town Limits and will be required to be annexed. This project will increase the tax base of the Town, provide additional job opportunities for its residents and open new opportunities to attract businesses seeking Class A office space in Clayton and Johnston County.

Requested Action
Approval

Funding Source (If Applicable):
N/A

Cost: **Up to $2,500,000 over seven years** **Yes** ☒ **No** ☐

Additional Documents to be Included in Agenda Packet

Notice of Public Hearing
Economic Development Incentive Agreement

Meeting Timeline
Click or tap here to enter text.

NOTICE OF PUBLIC HEARING
BEFORE THE TOWN COUNCIL OF THE TOWN OF CLAYTON

WHEREAS, the Local Development Act of 1925 authorizes cities and counties to make appropriations and expenditures and to acquire and convey interests in real property for the purposes of aiding and encouraging the location of manufacturing enterprises, and locating industrial and commercial plants in the county which will, in the discretion of the governing body of the city or county, increase the population, taxable property, agricultural industries, employment, industrial output, or business prospects of the city or county; and

WHEREAS, these expenditures may be funded by the levy of property taxes and by the allocation of other revenues whose use is not otherwise restricted by law; and

WHEREAS, Davis Park Leasing, LLC (the "Company") has requested an economic development incentive from the Town of Clayton for the purpose of development of a Class A office complex to be located within the Town of Clayton, resulting in additional monetary investment and the creation of new jobs within the Town; and

WHEREAS, the Company will, at its sole cost and expense, invest not less than $200,000,000.00 in the office complex and, upon completion, the facility will employ an additional 100 full-time employees to be paid an average annual wage of $55,000 including benefits; and

WHEREAS, the development and construction of said office complex will increase the taxable property and business prospects of the Town; and

WHEREAS, the public benefit from the aforesaid improvements will include, inter alia, additional ad valorem tax revenues for the Town and additional employment opportunities for the citizens of the Town of Clayton and County of Johnston; and

WHEREAS, in accordance with the terms of N.C.G.S. 158-7.1, and subject to receipt by the Town of sufficient ad valorem tax revenues attributable to the investment by the Company as described herein, and further subject to the other terms and conditions hereinafter set forth, and such additional terms as the Town Council may impose following a public hearing, the Town desires to make the appropriations and expenditures and to authorize payment of the economic development incentives described herein.

THEREFORE, NOTICE is hereby given that the Town Council of the Town of Clayton will hold a public hearing to consider the following economic development incentives:

A monetary incentive to be paid to the Company in the estimated amount of $2,500,000 over a period of seven years, provided that the annual incentive grant paid by the Town shall not exceed the total ad valorem taxes paid by the Company to the Town each year.

The funds to be appropriated and expended herein as economic development incentives shall be appropriated from the economic development line item of the Town budget for the applicable fiscal years.

NOTICE is further given that the Town Council intends to approve the foregoing economic development incentives following the public hearing.

NOTICE is further given that the Town Council reserves the right to impose such additional or different covenants, conditions, and restrictions as it deems appropriate in its discretion.

NOTICE is further given that the Town Council of the Town of Clayton will hold the public hearing on the making of said appropriations and expenditures at its regular meeting to be held on October 18, 2021 at 6:00 p.m. in the Town Council Chambers, Clayton Town Hall, 111 East 2nd Street, Clayton, North Carolina.

All interested citizens are invited to appear and be heard.

This the 27th day of September, 2021.

Kimberly A. Moffett
Town Clerk
Town of Clayton

Publish: on or before October 7, 2021
Affidavit Requested

ECONOMIC DEVELOPMENT INCENTIVE AGREEMENT

Dated this _____ day of _____, 2021

by and between

TOWN OF CLAYTON

and

DAVIS PARK LEASING, LLC

ECONOMIC DEVELOPMENT INCENTIVE AGREEMENT

THIS ECONOMIC DEVELOPMENT INCENTIVE AGREEMENT (the "**Agreement**") is entered into this ____ day of _____, 2021, (the "**Effective Date**") by and between **THE TOWN OF CLAYTON, NORTH CAROLINA**, a legal subdivision of the State of North Carolina (the "**Town**"), and **Davis Park Leasing, LLC**, a NC limited liability company (the "**Company**"), each referred to individually as a "Party" or collectively as the "Parties."

WITNESSETH:

WHEREAS, the Town seeks to promote economic growth and development within its jurisdiction and the social and economic improvement of its citizens, and desires to accelerate the quality and quantity of economic growth and employment opportunities in its jurisdiction by encouraging business enterprises satisfying the aforementioned public purposes and thereby reduce physical, economic and social distress resulting from unemployment and underemployment existing in its jurisdiction; and

WHEREAS, the Town's rapidly growing population would benefit from the availability of additional employment opportunities; and

WHEREAS, the Company intends to develop approximately 64 acres to be annexed into the Town that will include development and construction of not less than 525,000 gross square feet of Class A office space, including all common areas and accessory spaces associated with such office use (the "**Office Complex**") and the Office Complex will be located on the parcels (the "**Project Site**") more fully described on Exhibit A attached hereto, both exhibits being incorporated herein by reference; and

WHEREAS, the buildings and other improvements to be installed and constructed at the Project Site in connection with the construction and equipping of the Office Complex will expand the Town's tax base through increased ad valorem tax value created as a consequence of the Company's capital investment in such buildings, machinery and equipment being brought into the Town and the construction of other new improvements at and near the Project Site; and

WHEREAS, in recognition of the significant public benefits derived by the Town from its expanded tax base and the new employment opportunities provided by the Company as a result of the Office Complex, the Town has agreed to provide the economic incentives and inducements to the Company described herein; and

WHEREAS, in consideration of the inducements set forth herein, the Company has agreed to locate the Office Complex at the Project Site, all on the terms and conditions as hereinafter described; and

WHEREAS, The Town Council of the Town of Clayton following a public hearing approved the Town's entry into this Agreement by resolution.

NOW, THEREFORE, in consideration of the premises and the terms herein, the sufficiency of which are hereby acknowledged, the parties contract and agree as follows:

1. Required Minimum Investment. The Company will construct the Office Complex at the Project Site and, in connection therewith, construct or cause to be constructed the improvements comprising the Office Complex which are subject to ad valorem taxation by the Town with a non-depreciated capital investment cost of a minimum of $200,000,000.00 (the "**Required Minimum Investment**") by not later than December 31, 2029, and place such real property in service on the Project Site in accordance with the following schedule:

Phase 1: 112,500 gross square feet of Class A office space (including all common and accessory areas associated therewith, but excluding accessory parking, the "**Office Area**") by no later than March 31, 2024

Phase 2: 150,000 additional gross square feet of Office Area by no later than December 31, 2025 (i.e. 262,500 cumulative gross square feet, which may include excess square footage from Phase 1)

Phase 3: 150,000 additional gross square feet of Office Area by no later than December 31, 2027 (i.e. 412,500 cumulative gross square feet, which may include excess square footage from one or more earlier phases)

Phase 4: 112,500 additional gross square feet of Office Area by no later than December 31, 2029 (i.e. 525,000 cumulative gross square feet, which may include excess square footage from one or more earlier phases)

2. New Employment. Within twelve (12) months following the completion of construction of each phase of the Office Complex, there shall be full time employment at the Office Complex of not less than 100 jobs new to Johnston County, North Carolina (i.e. not including any position transferred from another location within the county) with an average wage of not less than $55,000 per year, including benefits, and certification thereof shall be provided by the Company in the form attached hereto as Exhibit B. For avoidance of doubt, such new jobs may include any otherwise qualifying jobs located within an earlier phase of the project and exceeding the minimum required new jobs for such phase.

3. Incentive Grant. If the Company completes construction of the Office Complex in accordance with the schedule set forth above, the Town will realize economic benefits due to the expansion of tax base and the creation of jobs. As an incentive for the Company to construct the Office Complex, the Town will, in accordance with NCGS 158-7.1 and in accordance with the terms and conditions of this Agreement, provide an economic development performance grant (the **"Grant"**) with an estimated value of $2,500,000.00. The amount and timing of the Grant will depend on the net new ad valorem tax value for the Office Complex. The net new tax value means the increase in the total real property tax value of the Office Complex arising out of the Company's investments therein as listed with the Johnston County Tax Department, as such amounts may be reduced from year to year due to depreciation. The Grant is calculated only on

the new value added by the Office Complex to the Town's tax base. Accordingly, the net new tax value shall only include the cumulative value of the increased tax base related to the improvements during the years governed by this Agreement, which is subject to depreciation of such property placed on or in the Project Site as the result of the investments subsequent to the year of initial investment. Under this definition, net new tax value excludes (i) the unimproved value of the Project Site, (ii) any real or personal property of any nature in the surrounding development other than the real property comprising the Office Complex and (iii) any real property which, by whatever means, is permanently removed from the Project Site or the Office Complex.

4. Reporting and Verification. Each year the Company (the "**Reporting Party**") shall, in compliance with applicable law, list with the Tax Office all property comprising any portion of the Office Complex subject to ad valorem taxation. In addition, during the term of this Agreement beginning in the calendar year 2024, the Company shall provide to the Tax Office no later than March 1 an annual certification (the "**Annual Certification**") substantially in the form of Exhibit B attached hereto and incorporated herein by reference certifying the following for the immediately preceding calendar year (the "**Reported Year**"):

a. Total investments in the Office Complex made by the Reporting Party during the Reported Year and cumulatively during the term of this Agreement, including the costs thereof.

b. All ad valorem taxes paid during the Reported Year with respect to the investments for which Grant funds are requested to be paid.

c. Any change affecting ad valorem taxes with respect to any investments reported in prior Reported Years.

d. The employment within the Office Complex as of December 31 of the Reported Year, to be certified by the Reporting Party.

e. That operations are continuing within the Office Complex.

The investments and the property acquired therewith shall be identified to the Office Complex by Company with reference to specific tax parcels and tracked by the Company and the Town. The Reporting Party shall provide to the Town accurate and complete documentation of the investments made by the Company with respect to the Office Complex with each payment of ad valorem taxes and identify the ad valorem taxes applicable to the investments, all in a form reasonably acceptable to the Town with sufficient detail to enable the Town to confirm the accuracy thereof. The information provided to the Town shall include for the Reporting Party: (i) its annual tax listings and (ii) a complete list of all improvements with a designation of any new improvements made during the Reported Year.

The Annual Certification filed by the Reporting Party shall be certified by the Company and the Company shall at all times cooperate with the Town and the tax office as reasonably requested from time to time in order to assure the proper administration of the terms of this Agreement.

Company shall provide the Town with information sufficiently detailed to allow the Town to differentiate improvements and property added from time to time as part of the development of the Office Complex.

The failure of Company to provide any information or take any action required by this Agreement shall be deemed a default by the Company.

5. Grant Payments. Provided that the applicable portion of the Required Minimum Investment pursuant to Section 1 above has been made and reported to the Town as required hereby, that the employment count has been attained and maintained as of the end of each Reported Period and reported to the Tax Office, and further provided the Company is otherwise in full compliance with this Agreement, the Town shall pay the incentive Grant to Company from any lawfully available funds not otherwise restricted upon the terms and conditions hereinafter set forth.

The Grant amount shall at no time exceed ad valorem taxes actually paid and received with respect to the Office Complex. Each phase of the Grant shall be paid in up to seven (7) annual installments on or before April 15 of each calendar year for the previous calendar year beginning with the 2023 calendar year with the first Grant to be paid on or before April 15, 2024. The Grants shall be made based upon the ad valorem taxes paid by the Company as they are tracked through the seven (7)-year grant period (the "**Grant Period**"). Year 1 shall mean calendar year 2023, and Year 2, Year 3, Year 4, Year 5, Year 6 and Year 7 shall be the next successive calendar years through calendar year 2029.

Each of the Parties has determined, independently, that the assessed property tax value of the investments in the Office Complex is the most objective means of accounting for the economic benefit to the Town. For purposes of convenience only in quantifying the benefit to the Town, the amount of each Grant shall be measured by and equal to an amount equal to the following specified percentages of the ad valorem taxes paid by the Company in the previous year with respect to each phase:

Real Property

Tax Year	Grant %
Year 1	**50%**
Year 2	**50%**
Year 3	**50%**
Year 4	**50%**
Year 5	**50%**
Year 6	**50%**

Year 7	**50%**

The calculation of the Grants shall not be based upon any portion of ad valorem taxes paid which represents interest or penalties. Also, the calculation of the Grants shall not be based upon any fire, insurance, or service district ad valorem taxes, or any other charge, fee, assessment, or tax other than the Town's primary general revenue ad valorem tax.

In no event shall any Grants be paid under this Agreement to any party other than the Company and no Grants shall be paid after April 15, 2030 except in remedy of any payment overdue from the Town to the Company.

6. Conditions. During each of the years that the Company is eligible for Grants, the Grant for such year will be paid only after the Company pays in full the taxes applicable to the Office Complex for that year. In addition, the Town will be obligated to make Grants only if the following conditions are satisfied or, at Town's discretion, waived:

- Company is then current in the payments of all taxes, charges, and fees of every nature owed by them to the Town except as may be subject to a bona fide dispute continuously prosecuted and unresolved;

- All taxes, charges, and fees of every nature owed to the Town for the Office Complex are in a current payment status by whoever payable;

- There is no current appeal pending regarding the valuation of property at the Office Complex (in which case any Grant payment will be held in abeyance pending final resolution of the appeal);

- No violation of any other obligations of the Company to the Town, including conformity in all material respects with all Town ordinances and regulations and any laws, orders or regulations that the Town is obligated to enforce against the Company on behalf of another body of government, has occurred and not been cured; and

- The Company has complied with its other obligations and duties to the Town as set forth herein.

The payment of all taxes and other sums due the Town is a material condition of eligibility for a Grant in any year during the term of this Agreement and shall not be construed as implying or suggesting that the Town is reimbursing any or all ad valorem tax collected from the Company.

7. No Pledge of Faith and Credit. No provision of this Agreement shall be construed or interpreted as creating a pledge of the faith and credit of the Town within the meaning of any constitutional debt limitation. The parties acknowledge that the scope, term and duration hereof

are in all events reasonable. No provision of this Agreement shall be construed or interpreted as delegating governmental powers or as a donation or a lending of the credit of the Town within the meaning of the North Carolina Constitution. No provision of this Agreement shall be construed to pledge or to create a lien on any class or source of the Town's moneys. To the extent of any conflict between this Section and any other provision of this Agreement, this Section shall take priority.

If as a result of the Town's investigation and audit of the Annual Certifications, employment records or other matters, it is determined that the Grants have been overpaid, the Town may demand that the overpayment be repaid and any amounts to be repaid shall be due and payable within thirty days after request for repayment and shall accrue interest at the legal rate from that date until repaid.

8. Notices.

a. Whenever this Agreement requires or permits any consent, approval, notice, request, proposal, or demand (collectively, "Notice") from one party to another, the Notice must be in writing and shall be effective upon the first to occur of (i) actual receipt by the intended recipient, or (ii) the first (1st) business day after it is properly addressed and placed in the custody of a nationally-recognized overnight courier, postage prepaid, for next business day delivery.

b. Each party's address to which such Notices shall be delivered is listed below:

If to Company:	Davis Park Leasing, LLC 8000 Weston Parkway, Suite 360 Cary, NC 27513 Attention: Craig M. Davis
With a copy to:	Morningstar Law Group 421 Fayetteville Street, #521 Raleigh, NC 27601 Attn: Molly M. Stuart
If to the Town:	Town of Clayton 111 East 2nd Street Clayton, NC 27520 Attention: Town Manager
With a copy to:	Town Attorney Cauley Pridgen, PA 2500 Nash Street N, Suite C Wilson, NC 27896

c. Any party entitled to receive Notice hereunder may change the address which it previously had specified for receiving the same, at any time and from time to time, by delivering a written change notice in accordance with the above provisions to the other party five (5) business days prior to the effective date of such change.

9. Default. Any of the following shall constitute an event of default under this Agreement, and upon the occurrence thereof, the Town may, at its option, terminate this Agreement. Failure of the Town to exercise this option upon an act of default shall not be construed as a waiver by the Town to exercise said option at a subsequent date. Notwithstanding the foregoing, in the event of a default by the Company, the Town shall deliver written notice thereof to the Company, and the Company shall have an opportunity to cure such default. With respect to monetary defaults, the Company shall cure such defaults within ten business days after receipt of notice thereof. With respect to non-monetary defaults, the Company shall have 30 days to cure such defaults, provided that, if any such default shall not be amenable to cure within such 30-day period, the Town may not terminate this Agreement for so long as the Company is diligently and in good faith pursuing such cure.

a. Failure of the Company to meet any milestone dates herein for the construction of the Office Complex or the new employment.

b. Default beyond all applicable notice and cure periods (and, if disputed by the Company, as determined by a court of competent jurisdiction by final, unappealable decision)s by the Company upon any mortgage, deed of trust, or lease or other obligation secured by real property comprising any portion of the Office Complex or the filing of a petition seeking protection under the bankruptcy laws of the United States, or making an assignment for the benefit of creditors, or otherwise committing any act of insolvency.

Unless the Town waives such requirement in writing, default of the Company beyond all notice and cure periods shall release the Town of its obligation to make any further Grant otherwise required and shall allow the Town to seek reimbursement for all Grants made as of the date of default by the Company in an amount equal to the Grant(s) made to the Company for the year(s) during which such Grants applied.

10. Miscellaneous Provisions.

a. Governing Law. This Agreement has been drafted and shall be interpreted under the laws of the State of North Carolina and in the event any provision is found to be unenforceable or unconstitutional, all other provisions shall remain in full force and effect.

b. Binding Agreement. The parties hereto acknowledge that this Agreement and the foregoing actions and grants each represent binding contractual agreements among the parties hereto and that the Company is acting in reliance upon this Agreement

and the provisions and grants provided herein in its decision as to whether it will make its investment in the Town of Clayton, North Carolina.

c. Successors and Assigns. This Agreement shall not be assignable but shall run with the land comprising any portion of the Office Complex. In the event that any portion of the Project Site shall be developed in a manor such that no portion of the Office Complex shall be located thereon, the Town and the Company shall execute and record a release of this Agreement as to such portion of the Project Site.

d. Survival. The contractual commitments provided for herein and made by the parties hereto shall be deemed to continue into the future, survive, and remain binding upon future elected officials to the full extent permitted under applicable law.

e. Entire Agreement. This writing contains the entire agreement between the parties hereto and may be amended only by writing signed by all parties hereto.

f. Liability of Officers and Agents. No official, officer, agent or employee of the Town or Company shall be subject to any personal liability or accountability by reason of the execution or performance of this Agreement or any other documents related to the transactions contemplated hereby. Such officials, officers, agents, or employees shall be deemed to execute such documents in their official capacities only, and not in their individual capacities. This Section shall not relieve any such official, officer, agent or employee from the performance of any official duty provided by law. Nevertheless, the parties, and each person executing this Agreement on behalf thereof, represent and warrant that they have the full right and authority to enter into this Agreement, which is binding upon the party represented by them, and to sign on behalf of the party indicated, and are acting on behalf of themselves, their constituent members, and the successors and assigns of each of them.

g. Public Records. Notwithstanding any terms or conditions stated herein, the Town is at all times subject to North Carolina laws regarding open meetings and disclosure of public records, and nothing stated herein shall be construed as requiring the Town to violate such laws. Company is directed to N.C.G.S. Section 132-1.2, which describes the instances in which confidential information may be withheld from disclosure, the types of information that qualify as confidential information, and the methods for ensuring that confidential information is not disclosed. The responsibility for complying with these methods to avoid disclosure of confidential information lies with the Company.

h. Recording. This Agreement shall be recorded by the Company in the Johnston County registry within 14 days after execution hereof.

i. Counterparts. This Agreement may be executed in any number of separate counterparts. Each executed counterpart shall constitute an original, but all of

them taken together shall constitute a single document. The signatures of the parties may appear on separate signature pages.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

TOWN OF CLAYTON

By: _____
Jody Mcleod, Mayor

ATTEST:

_____
Kimberly A. Moffitt, Town Clerk

STATE OF NORTH CAROLINA
COUNTY OF _____

I, _____, a Notary Public in and for said County and State, certify that Kimberly A. Moffitt personally came before me this day and acknowledged that she is the Clerk of the Town of Clayton, a municipal corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its Mayor, sealed with its corporate seal and attested by herself as its Clerk.

Witness my hand and Notarial Seal, this ____ day of _____, 2021.

_____
_____, Notary Public

My Commission Expires: _____
(SEAL)

This instrument has been pre-audited to the extent, and in the manner required by, the "Local Government Budget and Fiscal Control Act."

TOWN OF CLAYTON

By: _____
Robert McKie, Finance Officer

DAVIS PARK LEASING, LLC

By: _____
Craig M. Davis, Member

STATE OF NORTH CAROLINA

COUNTY OF _____

I, _____, a Notary Public for said County and State, do hereby certify that _____, Member of _____, L.L.C., a North Carolina limited liability company, who is either [ ] personally known by me or [ ] provided satisfactory evidence of his/her identity in the form of _____, personally appeared before me this day and acknowledged the due execution of the foregoing instrument on behalf of the company.

Witness my hand and official seal, this _____ day of _____, 2___.

_____
_____, Notary Public

My Commission Expires: _____
(SEAL)

TABLE OF EXHIBITS

A. Project Site

B. Performance Certificate

EXHIBIT A
Description of Project Site

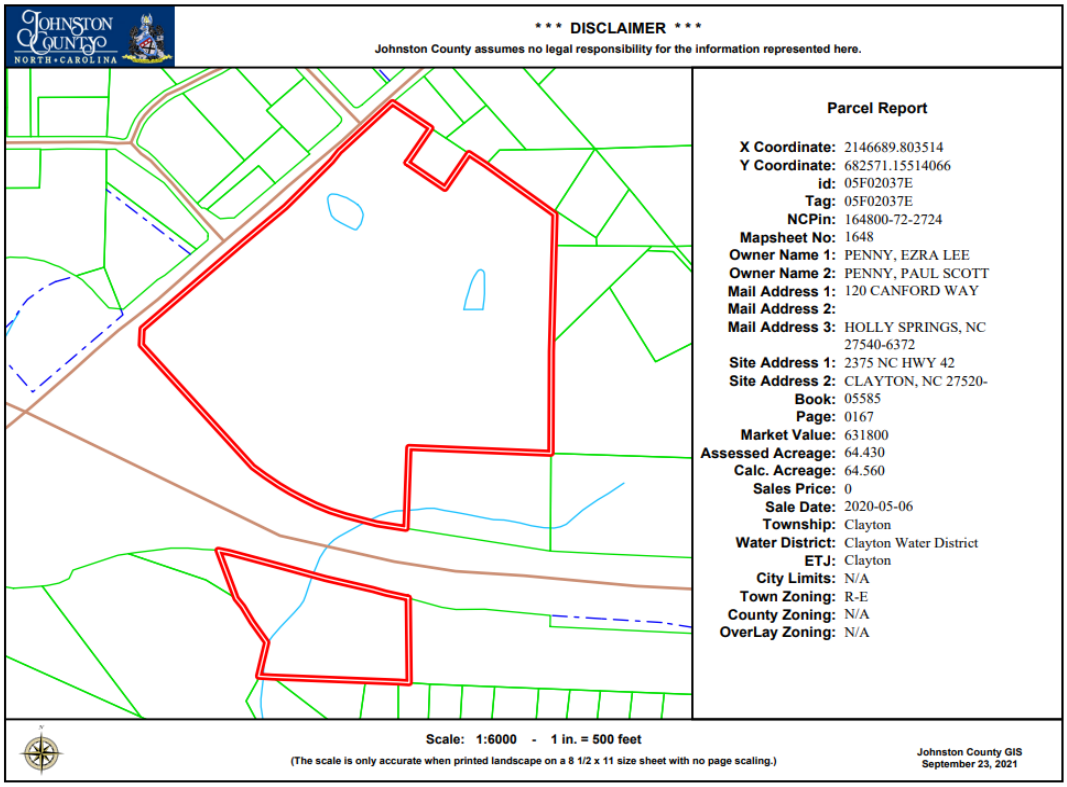


EXHIBIT B
Form of Performance Certificate

(Company Letterhead)

_____, 202___

PERFORMANCE CERTIFICATE

To: Town of Clayton, North Carolina

Attn: Town Manager

This Performance Certificate is furnished pursuant to the terms of that certain Economic Development Incentive Agreement, dated as _____, 2021 (the "Agreement"), by and between the Town of Clayton ("Town") and _____ (the "Company"). All items herein have the meanings given them in the Agreement.

The undersigned certifies that he/she is an employee and agent of the Company, is knowledgeable as to the matter set forth below, that knowledge of the matters set forth below is within the course and scope of his/her duties, and that he/she is authorized by the Company to provide this Certificate. The undersigned does hereby certify that:

As of December 31, 202__, employment at the Office Complex is _____ (_____). Attached hereto is a copy of the last Employer's Quarterly Tax and Wage Report filed with the State of North Carolina for the previous calendar year.

As of December 31, 202__, the total amount of the Company's investments paid or incurred in development of the Office Complex during the Reported Year was $_____ for real estate improvements. Ad valorem Taxes paid with respect to the investments for real estate improvements during the Reported Year were $_____.

No changes affecting ad valorem taxes with respect to any investments reported in prior years occurred except as follows:_____.

The Company was in operation at all times during the Reported Year.

No portion of the sums referred to above was paid or incurred for any improvement to real property other than the Office Complex.

The Company is at the date hereof in compliance with all applicable terms and conditions of the Agreement as set forth therein.

This the ___ day of _____, 202___.

_____
By:_____
Name:_____
Title:_____

Town Council Agenda Cover Sheet

Meeting Date
October 18, 2021

Agenda Location
Old Business

Item Title
Riverwood Ranch – Wastewater Request

Presenter
Joshua Baird – Engineering Director

Summary/Description
The initial phases of the above project have been completed and additional residential phases are currently in minor subdivision plan review. The project originally only requested 70,000 gallons per day to cover the initial phases. The developer would like to proceed with additional phases and has requested an additional 50,500 gpd to be permitted in early 2022. The approval is for allocation and project is responsible for any improvements to the downstream conveyance system (gravity collection system, pump stations, and force main).

Requested Action
Approval

Funding Source (If Applicable):
N/A

Cost: **N/A** **Yes** ☐ **No** ☒

Additional Documents to be Included in Agenda Packet

Meeting Timeline
Click or tap here to enter text.

	Riverwood Ranch								
Phase		Lots/Units/SF	Wastewater (GPD)	Jan-22	Jun-22	Jan-23	Jun-23	Jan-24	Jun-24
1A	Single Family Lots	43	10750	10750					
	Townhome Lots								
	Apartment Units								
	Amenity								
1B	Single Family Lots	40	10000	10000					
	Townhome Lots								
	Apartment Units								
2A	Single Family Lots	32	8000	8000					
	Townhome Lots								
	Apartment Units								
2B	Single Family Lots								
	Townhome Lots	48	12000	12000					
	Apartment Units								
2C	Single Family Lots	5	1250	1250					
	Townhome Lots								
	Apartment Units								
2D	Single Family Lots	34	8500	8500					
	Townhome Lots								
	Apartment Units								
		Total	50500	50500	0	0	0	0	0
		Cumm Total		50500	0	0	0	0	0

Resolution #2021-50

TOWN OF CLAYTON
RESOLUTION GRANTING WASTEWATER TREATMENT CAPACITY
FOR RIVERWOOD RANCH

WHEREAS, the Town of Clayton operates a wastewater treatment plant known and permitted as the "Little Creek Water Reclamation Facility"; and,

WHEREAS, said facility is permitted to treat a maximum average of 2.5 million gallons daily; and,

WHEREAS, the Town of Clayton holds several interlocal agreements which secure additional wastewater treatment capacity from other available sources; and,

WHEREAS, the North Carolina Department of Environment and Natural Resources (NCDENR) regulates, reviews, and permits flow tributary to newly extended or installed wastewater treatment collection facilities tributary to the Town of Clayton system; and,

WHEREAS, flow from sanitary sewer customers tributary to existing lines owned and operated as part of the Town of Clayton is bound to abide by the permitted average daily flow at the Little Creek Water Reclamation Facility in conjunction with other available sources and consistent with interlocal agreements regarding wastewater treatment.

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE TOWN COUNCIL FOR THE TOWN OF CLAYTON that the following is found:

1. The Town of Clayton has, according to the most recent accounting, sufficient excess and unallocated treatment capacity to approve additional allocation.

2. Such available capacity may be made available to users in accordance with regulatory and legal parameters established to ensure satisfactory treatment plant operation.

3. An additional allocation for wastewater treatment capacity is granted in the amount of 50,500 GPD to Riverwood Ranch according to phasing table; **as indicated below**.

	Riverwood Ranch								
Phase		Lots/Units/SF	Wastewater (GPD)	Jan-22	Jun-22	Jan-23	Jun-23	Jan-24	Jun-24
1A	Single Family Lots	43	10750	10750					
	Townhome Lots								
	Apartment Units								
	Amenity								
1B	Single Family Lots	40	10000	10000					
	Townhome Lots								
	Apartment Units								
2A	Single Family Lots	32	8000	8000					
	Townhome Lots								
	Apartment Units								
2B	Single Family Lots								
	Townhome Lots	48	12000	12000					
	Apartment Units								
2C	Single Family Lots	5	1250	1250					
	Townhome Lots								
	Apartment Units								
2D	Single Family Lots	34	8500	8500					
	Townhome Lots								
	Apartment Units								
		Total	50500	50500	0	0	0	0	0
		Cumm Total		50500	0	0	0	0	0

4. Said allocation is approved subject to and conditioned upon review and approval of all required regulatory processes.

5. Said allocation is non transferable, non assignable, and made for the projects as described and for the noted location unless explicitly approved by the Town of Clayton.

6. Said allocation may be revoked or reclaimed in accordance with the policies of the Town of Clayton as adopted or amended now or in the future. No property

right is conferred with the granting of an allocation except as otherwise explicitly allowed by policy, ordinance, or action of the Town of Clayton.

7. Said allocation is subject to payment of applicable fees in accordance with adopted ordinances, policies, and fee schedules of the Town of Clayton.

Duly resolved by the Clayton Town Council this 18th day of October, 2021 while in regular session.

_____
Jody L. McLeod
Mayor

_____
Kimberly A. Moffett, CMC, NCCMC
Town Clerk

Town Council Agenda Cover Sheet

Meeting Date
October 18, 2021

Agenda Location
New Business

Item Title

FY22 Road Rehabilitation Program

Presenter
Blake Mills, Director of Public Works
Rusty Clawson – Public Works Streets Superintendent

Summary/Description
ST Wooten Corporation was the lowest responsive, responsible bidder for the FY21 Road Rehabilitation Project with a bid amount of $993,289.50. The second bidder was $60,920 (6.1%) higher than ST Wooten. There is a provision in the contract included in Attachment 1 Project Special Provisions under the clause Contract Extension on Page 8 provides an option to increase the contract up to 100% of the original contract amount, if it is mutually agreeable by both parties. This option has already been exercised by Contract Modification No. 1 that increased the contract amount by $27,575.00 bringing the total to $1,020,864.50.

The proposed FY22 Road Rehabilitation Program includes 15 streets and is as follows:

Schedule A: Walnut Creek Subdivision (Treslewood Dr., Walnut Creek Dr., Woodbend Ct., Trailwood Dr., Holly Point Pl. and Westwood Pl.) - $302,261.75
Schedule B: Schedule B: Garrison Subdivision (Brandon Dr., Gracie Dr. and Ses Dr.) – $202,332.90
Schedule C: Pond Area (Pond St., Damon St., and Durham St.) - $260,850.15
Schedule D: Black Forest Area (Black Forest Dr., Trailing Oak Tr. and Red Leaf Trail) - $159,275.75
Addendum No. 1: Pond Street Concrete Flume and Rip Rap Channel - $11,125.00

The attached drawings show the location of the roads.

Criteria for selecting the roads for repair were based upon (1) highest rate of return, (2) severity of defects, (3) age of roadway, (4) proximity to other roads being repaired, (5) pavement condition index, (6) road classification, (7) traffic volume, (8) available funding and (9) coordination with Sewer and Water Renewal Projects.

ST Wooten's price to do the above work is $935,845.55 using the same unit prices in the original contract. The only exceptions are the unit prices shown in Schedule C, Items 21 & 22, Schedule D, Item 23 and Addendum No. 1 which are contingency items (total value $20,425).

Contract Modification No. 2 proposes to add an additional $935,835.55 to ST Wooten's Contract for a total contract amount of $1,956,710.05 or a 97.0% increase from the original contract.

ST Wooten proposes to start the concrete work as soon as possible and desires to complete all the asphalt work by December 31, 2021, however, due to the oncoming cold weather it may not be possible to complete 100% of the work and therefore the contract completion date is March 31, 2022.

Staff believes the price is fair and reasonable and recommends Town Council to approve Contract Modification No. 2 and authorize the Town Manager to execute the Contract Modification.

Requested Action
Approval

Funding Source (If Applicable):
Capital Outlay Street Repair and Improvements 100-55-55-5812
Capital Outlay Sidewalk Repair and Improvements 100-55-55-5810

Cost: **Yes** ☒ **No** ☐

Additional Documents to be Included in Agenda Packet
Resolution
Contract Modification No. 2
Map of Streets ST Wooten Contract Modification 2
ST Wooten Proposal FY22 Road Rehabilitation Program
FY21 Road Rehabilitation Project Executed Contract
Attachment 1 Project Special Provisions

Meeting Timeline
Town Council Meeting October 18, 2021

TOWN OF CLAYTON – FY 21 Road Rehabilitation Project
ATTACHMENT 1
PROJECT SPECIAL PROVISIONS
January 14, 2019

AWARDING OF CONTRACT

The base bid contract will be awarded to the lowest responsible bidder as required by North Carolina General Statutes. Consideration will be given only to proposals from Contractors who are properly licensed, bonded, experienced in the class of work proposed and who can refer to projects of similar magnitude and character as have been completed by them. The Town also reserves the right to reject any and all offers and to waive informalities or technicalities as it may deem to be in its best interest.

LEGAL AUTHORITY

It is the policy of the Town to comply with the N.C. General Statutes governing contracting applicable to local governments as they may be amended from time to time. These statutes include but are not limited to the following:

§ 133-27	Suspension from bidding § 33-30 Non-collusion affidavits (authority for local rule)
§ 133-33	Cost estimates; bidders' lists (authority for local rule)
§ 133-32	Gifts and favors regulated
§ 143-131	When counties, cities, towns and other subdivisions may let contracts on informal bids
§ 143-133	No evasion permitted (by division of bills or contracts)
§ 143-134.1	Interest on final payments due to prime contractors; payments to subcontractors
§ 159-28	Local Government Finance (Pre-audit requirements for written agreements)

Other specific duties, responsibilities, and authorities are contained in G.S. Chapters 14, 44A, 160A and 159, the Local Government Budget and Fiscal Control Act. By virtue of these statutes, the Town is empowered to enter into the contracts for the procurement of apparatus, supplies, materials, equipment, the contracting of services and contracts for the repair and construction of buildings and utility infrastructure.

NEGOTIATING WITH OFFERORS

The informal bidding statute G.S. 143-129 (b) allows negotiation with bidders when all bids exceed the "funds available for the project." In this case the Town may elect to negotiate with the lowest responsible offeror and make reasonable changes in the plans and specifications as necessary to bring the contract price within the funds available.

CONTRACT BONDS

A bid bond of 5% is required for this solicitation and shall be in the form of cash, cashier's check, certified check or bond. The bid bond shall accompany the bid package at the time the bid is submitted. Failure of the Contractor to provide the required bonds, insurance, and executed contract within ten business days after the notice of award is received by him/her shall be just cause for the forfeiture of any bid bond or bid deposit and rescinding the award of the contract. Award may then be made to the next lowest responsible bidder or the work may be re-advertised and constructed under contract or otherwise as the Town may decide.

Within ten business days of notification of award of contract equal to or exceeding $300,000, the Contractor shall secure and post a Performance Bond and Labor and Material Payment Bond, each in the amount of 100% of the Total Contract Sum. All such bonds shall be issued by a surety acceptable to the Town and appears on the list contained in the U.S. Treasury Department Circular 570. The Town shall be named as the beneficiary. Cash bonds will not be accepted.

PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

The Contractor shall obtain all permits as part of the contract, except for the Erosion and Sediment Control permit which will be secured the Town. There will be no costs for the permits received from the Town's inspection permitting department. All Contractors and Subcontractors shall have proper and current license under the State of North Carolina laws governing their respective trades.

INSURANCE

The Contractor shall provide all insurance coverage as required by General Statue GS 20-359.1, such as Workers' Compensation Insurance. Provide insurance in the following amounts:

General Liability	Each Occurrence	$1,000,000
	General Aggregate per Project	$2,000,000
Automobile Liability		$1,000,000
Workers Compensation and Employer's Liability		Statutory Limits
Umbrella Liability	Each Occurrence	$5,000,000
	General Aggregate per Project	$5,000,000

NOTICE TO PROCEED

A Notice to Proceed will be issued to the Contractor upon receipt of a fully executed contract, bonds (if required), insurance certificates, receipt of approval by other governmental agencies (if required) and any other documentation required by the Town.

COMPLETION DATE

All Work shall be completed by **June 25, 2021**. Please note that liquidated damages shall apply if all work is not completed by **June 25, 2021**.

LIQUIDATED DAMAGES

If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Town in the amount of **$500.00** for each calendar day of delay until the work is completed or accepted.

If the Town terminates the Contractor's right to proceed, liquidated damage will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase.

FIELD CONDITIONS

Contractors shall visit the work site, and be generally familiar with local conditions under which the work is to be performed and correlated personal observations with requirements of the contract documents.

PRECONSTRUCTION MEETING AND WEEKLY MEETINGS

Within ten days after the Effective Date of the Agreement, but before Contractor starts the work at the site, a conference attended by Contractor, Town, and others as appropriate will be held to discuss the construction schedule, to discuss procedures, and for processing applications for payment, and to establish a working understanding among the parties as to the Work.

The Contractor shall meet with the Town's project manager no less than once a week to discuss the progress, safety, and other concerns on the job. The meeting place, times and dates shall be mutually agreed upon by both parties.

CONTRACTOR'S CONSTRUCTION SCHEDULE

The Contractor, promptly after being awarded the contract and before starting work, shall prepare and submit to the Town's project manager a construction schedule for work. The schedule shall not exceed time limits current under the contract documents, shall be revised at appropriate intervals as required by the conditions of the work, and shall provide for expeditious and practicable execution of the work.

SUPERVISION AND CONSTRUCTION PROCEDURES

The Contractor shall supervise and direct the work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract, unless the contract documents give other specific instructions concerning these matters.

The Contractor shall be responsible for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the work for, or on behalf of, the Contractor or any of its Subcontractors.

Unless otherwise provided in the contract documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the work, whether temporary or permanent and whether or not incorporated or to be incorporated in the work.

The contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

REFERENCE POINTS

The Contractor shall be responsible for laying out the Work, shall protect and preserve any established reference points and property monuments, and shall make no changes or relocations without the prior approval of the Town. The Contractor shall report any reference point or property monument lost or destroyed or requiring relocation because of necessary changes in grade or locations, and shall be responsible for the accurate replacement or relocation by professionally qualified personnel.

USE OF SITE AND LAY DOWN AREA

The Contractor shall confine operations at the site to areas permitted by law and authorized by the Town for use and storage, and shall not unreasonably encumber the site with materials or equipment. The Contractor shall not park, stage, or store materials, equipment or vehicles within any public right-of-ways. The Contractor shall provide toilet facilities for his employees. The Contractor must receive authorization from the Town to the exact placement of the portable toilet(s) prior to installing at the job site.

TIME

The date of commencement of work is the date established in the contract. The word "day" shall mean calendar day.

Substantial Completion is when the work is sufficiently complete so the Town can occupy or utilize the work for its intended use, but punch list items still exist.

Extensions of time for adverse weather conditions shall be based on the thirty-year average (1971-2000) for precipitation, temperature, etc., from the National Oceanic and Atmospheric Administration (NOAA) station (RDU Airport) Climatography Report No. 20 for the months involved. The Contractor may request weather delays on a monthly basis with each Progress Payment Request, by providing documentation that the weather delays measured at the Clayton 3E NOAA Station are in excess of the average annual conditions for the time of the year (equal or greater than 0.10 inches of precipitation) for the RDU the thirty-year average (1971-2000) precipitation.

DAY AND TIME RESTRICTIONS

All construction activities must be conducted between the hours of 7:00 am and 5:00 pm, Monday through Friday, with the exception of Town holidays. All work hours shall be communicated to the Town, and any weekend or holiday or work on Monday – Friday outside the normal working hours (7:00 am and 5:00 pm) must be approved by the Town at least two work days in advance.

INSPECTION OF WORK

The Public Works Director and/or his representative shall at all times have access to the work whenever it is in preparation or progress and the CONTRACTOR shall provide facilities for such access and for inspection.

If the specifications, the Public Works Director`s instructions, laws, or ordinances, or any public authority require any work to be specially tested or approved, the CONTRACTOR shall give the Public Works Director timely notice of its readiness for inspection. Inspections by the Public Works Director shall be promptly made, and where practicable at the source of supply.

If any work should be covered up without approval or consent of the Public Works Director, it must, if required by the Public Works Director, be uncovered for examination at the CONTRACTOR'S expense.

CHANGES IN WORK

The TOWN without invalidating the CONTRACT, may make minor changes in the scope of work that do not affect the not to exceed amount or the time limit of the contract. Any change that increases price or adds time to the contract must be approved in writing by the Town's Project Manager or Designee, the Contractor, and the Town Manager or his Designee. Written change orders must be routed through the Finance Director and Contract Manager before being sent to the Town Manager to insure funds are available and changes are within the scope of the contract.

DECUCTIONS FOR UNCORRECTED WORK

If the Public Works Director deems it expedient to correct work not done in accordance with CONTRACT, an equitable deduction from the CONTRACT price shall be made therefore.

CORRECTIONS OF WORK BEFORE FINAL PAYMENT

The CONTRACTOR shall promptly remove from the premises all materials condemned by the Public Works Director as failing to conform with the CONTRACT, whether incorporated in the work or not, and the CONTRACTOR shall promptly replace and re-execute his/her own work in accordance with the CONTRACT and without expense to the TOWN and shall bear the expense of making good all work by themselves or other CONTRACTORS hired by them.

TRAFFIC CONTROL

The CONTRACTOR shall, where necessary, provide and maintain the access to and from all properties along the line of his/her work in accordance with the latest edition of the MUTCD (Manual on Uniform Traffic Control Devices). In addition, the latest edition of the "Work Zone Safety" Handbook published through the N.C. Institute for Transportation Research and Education (ITRE) shall be adhered to. With the following exceptions; flashing arrow boards shall be utilized when working on divided type roadway or as directed by the Public Works Director. No construction work shall begin until such time as all traffic control devices are in place.

Special permission will be required by Contractor performing work within the street right-of-way when: ANY STREETS ARE TOTALLY CLOSED TO THROUGH TRAFFIC.
This permit may be obtained from the Director of Public Works in advance (min. 48 hour notice).

SAFEGUARDS

The CONTRACTOR and his/her subcontractors shall provide flag persons, erect and maintain adequate barricades, warning signs, and lights at all excavations, closures, detours, and points of danger. Stop/Slow paddles shall be utilized by all flag persons. Additional flag persons, barricades, warning signs, and lights may be required at the PUBLIC WORKS DIRECTOR`s discretion.

OPENING SECTIONS OF ROAD TO TRAFFIC

Completed work shall be opened to traffic when and where directed by the PUBLIC WORKS DIRECTOR, but such opening shall not constitute final acceptance of the work. Maintenance shall be at the CONTRACTOR'S expense.

ACCESS TO PROPERTY

The Contractor shall, where necessary, provide and maintain access to and from all properties along the line of his/her work.

SIGNS

The Contractor shall erect construction signs as approved by the Town. Town will require "Construction Local Access Only" Signs or equivalent to be erected at the work site. The Contractor shall supply all signs, and caution devices as required for project safety. All work zone operations shall comply with the Federal and State Manual of Uniform Traffic Control Devices (MUTCD) standards. All work zone signs, barrels and safety cones shall be supplied and installed at the Contractor's expense.

CONSTRUCTION TRAFFIC RESTRICITONS

The contractor shall restrict all construction traffic to the major thoroughfares and minimize traffic through residential areas to the greatest extent possible.

Hauling traffic through the school zones shall be limited to school zone traffic speeds and shall not be used Monday through Friday during the drop off hours and pick up hours for the following schools noted below:

School	Address
Riverwood Elementary School	108 Athletic Club Blvd.
Riverwood Middle School	204 Athletic Club Blvd.
West Clayton Elementary School	1012 S. Lombard Street
Powhatan Elementary School	3145 Vinson Road
Cleveland Elementary School	10225 Cleveland Road
Cleveland High School	1892 Polenta Road
East Clayton Elementary School	2075 NC Highway 42 E.
Clayton Middle School	490 Guy Road
Clayton High School	600 S. Fayetteville St.
River Dell Elementary School	12100 Buffalo Road
Cooper Elementary School	849 Mial Street

JOB SAFETY

The Contractor shall take precautions for safety of, and shall provide protection to prevent damage, injury or loss to

1. Employees on the job and other persons who may be affected thereby;
2. The work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
3. Other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

If damage should occur to any property as a result of the contractor's work, said property shall be restored to the condition that existed prior to the damage.

GUIDELINES FOR PERSONNEL SAFETY (MINIMUM)

All persons shall wear a hard hat and reflective vest or outer garment conforming to the requirements of MUTCD at all times while on the project. Appropriate eye and hearing protection must be used. Working in shorts is prohibited. Shirts must cover shoulders, back and abdomen. Working in tennis or jogging shoes, sandals, boots with high heels, cowboy and other slip-on type boots is prohibited. Hard-sole, lace-up footwear, zippered boots or boots cinched up with straps which fit snugly about the ankle are adequate. Safety boots are strongly recommended.

OSHA REQUIREMENTS

The Contractor will comply with OSHA 1926, Subpart P (Trenching and Shoring), 29 CFR part 1910 (Confined Spaces) and all other applicable regulations.

EXISTING UTILITIES

The Contractor shall determine and verify the exact location and depth of all utilities within all areas of construction prior to the start of construction. The Contractor shall be responsible for

notifying other utility owners and providing protection and safeguards to prevent damage or interruption to existing facilities and to maintain accessibility to existing utilities.

The Contractor shall adhere to the provisions of 1985 Underground Damage Prevention Act North Carolina General Statutes 887 Chapter 785 Senate Bill 168 Article 3. To assist the contractor and utility owners in meeting the requirements of this law, there is a "one call system" called "NC ONECALL".

Most major utilities with underground facilities in the State subscribe to this service. For calls originating within North Carolina, The NC ONECALL telephone number is 1-800-632-4949.

For calls originating outside of North Carolina, the number is (336) 855-5760. The Contractor shall include the cost of any coordination and cooperation of utilities in his bid. No additional compensation shall be allowed for delays or inconveniences sustained by the Contractor due to utility relocation or adjustments. No additional payment will be made for re-mobilization required by the utility's failure to relocate utility at the request of the Contractor. The Contractor should refer to Section 108-10 (B) paragraph 3 of the Standard Specifications.

Where changes to utility facilities are to be made solely for the convenience of the Contractor, it shall be the Contractor's responsibility to arrange for such changes, and the Contractor shall bear all costs of such changes.

CONSTRUCTION STAKES

The CONTRACTOR SHALL set sufficient points to establish alignment and grade. The CONTRACTOR shall be responsible for preserving all stakes and marks.

TEST OF SAMPLES OF MATERIALS AND COMPLETED WORK

All tests of material shall be made by a recognized and approved testing laboratory and geotechnical company as approved by the Public Works Director. The expense of such test shall be borne by the CONTRACTOR. Should there be a failed test the contractor shall be responsible for the cost of re-testing. The Contractor at no cost to the town will provide a heavy construction vehicle for the purpose of performing proof roll testing of the road sub-grade, base and existing asphalt. Asphalt testing will be in accordance with NCDOT standards.
Testing of materials used in backfilling of utility and storm sewer trenches and fill materials used in roadway embankments may be required by the Public Works Director to determine the degree of compaction obtained.

SUBSURFACE INVESTIGATION

There is **no** subsurface information available on this project. The Contractor shall be responsible to conduct the necessary test pits to verify the exact location and depth of all utilities

DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS

The Contractor shall notify the Town promptly after becoming aware and before further disturbing any subsurface or physical conditions that differ materially from standard construction.

HAZARDOUS MATERIALS

If the Contractor encounters any materials considered or suspected of being hazardous, he shall immediately secure the area and contact the Fire Department for further instructions.

CUTTING AND PATCHING

The Contractor shall be responsible for cutting, fitting or patching required to complete the work or to make parts fit together properly. All areas shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the contract documents.

CONSTRUCTION ACTIVITY CONTROL AND CLEAN-UP

The Contractor on a daily basis shall be responsible to continuously control and clean up the site. Additionally, at the end of each work day, the site shall be secured, equipment locked, hazards marked, and public access to work site minimized. At completion of the work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the project.

RECORD DRAWINGS

The Contractor shall red-line a set of construction drawings to show any work that varies from the original plans and furnish to the Town at completion of work.

QUANTITY TICKETS

All quantity tickets for items not measurable in place, including but not limited to stone, asphalt, concrete shall be submitted to the Town at time of delivery at the job site. Tickets submitted after the truck has left the job site shall not be paid by the Town. Each ticket shall indicate the date" contractor, job location and name, type of material, quantity of material, truck number and will be signed by the Town Inspector at the time of delivery certifying that the materials were incorporated into the work.

MEASUREMENT QUANTITIES

The quantities of work performed will be computed by the Public Works Director on the basis of measurements taken by him/her or his/her assistants, and these measurements shall be final and binding. The specifications shall designate the manner in which the measurements of the various types of work shall be measured.

PAYMENT APPLICATIONS

The Town requires 30 calendar days from the date of agreement of quantities to the issuance of a payment. The Contractor and the Town shall measure and/or agree on the percent of work completed and/or quantities provided prior to the Town preparing a progress payment. All payments must be supported by an invoice from the Contractor with support documentation and sent to the Town's Finance Department.

TAXES

The Contractor shall pay sales, consumer, use and similar taxes for work provided by the contract, and shall itemize tax payments on payment applications.

CONTRACT EXTENSION

If the Town is able to find additional street maintenance funds, The Town and Contractor may mutually agree to extend this contract from $10,000 dollars to any amount up to and including a One Hundred (100) percent increase in value of the original contract. Any work added to the contract would be subject to a mutually agreeable new contract completion date.

WARRANTY

The Contractor warrants that materials and equipment furnished under the contract will be of good quality and new unless the contract documents require or permit otherwise. The Contractor

further warrants that the work will conform to the requirements of the contract documents and will be free from defects for no less than one year after final acceptance.

PROJECT CLOSEOUT DOCUMENT

Certificate of Final Completion

No final payment will be authorized until this document has been properly completed and submitted by the Contractor along with a final invoice.

Town of Clayton FY21 Road Rehabilitation Project

Town of Clayton FY21 Road Rehabilitation Project

AGREEMENT
BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between Town of Clayton ("Owner") and

ST Wooten Corporation ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: FY 21 Road Rehabilitation Project includes 1.5 inch mill & fill asphalt and Full Depth Patching as directed by the Town and a 1.5 inch asphalt overlay on top of a single Chip Seal (Woodbriar Drive). Work includes associated concrete curb and gutter, sidewalk, driveway aprons, handicapped ramps, and stormsewer piping.

1.01

ARTICLE 2 – THE PROJECT

The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Project

LOCATION OF WORK

Birkdale Drive from Muirfield Court to Lafoy Drive – 1.5" Asphalt Mill & Fill & associated concrete work

Neuse Ridge Drive from Birkdale Drive to 800' East of Lafoy Drive – 1.5" Asphalt Mill & Fill & associated concrete work.

Torrey Pines Drive from Parkridge Drive to Vinson Drive – 1.5" Asphalt Mill & Fill & associated concrete work.

Moore Street from HWY 70 Business to Main Street – 1.5" Asphalt Mill & Fill & associated concrete work.

Garrison Avenue from Amelia Church Road to 110' East of Gracie Lane – 1.5" Asphalt Mill & Fill & associated concrete work.

Hocutt Drive from 100' South of Lumber Court to Biltmore Drive – 1.5" Asphalt Mill & Fill & associated concrete work.

Woodbriar Drive from Lombard Street to Sunset Lane – Chip Seal and 1.5" Asphalt Overlay & associated concrete work.

Fayetteville Street from Front Street to Whitaker Street – 1.5" Asphalt Mill and Fill and associated concrete work.

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the Work has been designed by Not Applicable.

3.02 The Owner has retained Not Applicable ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

The Work will be substantially completed on or before **June 25, 2021**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **June 25, 2021**.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner **$500.00** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **$500.00** for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item):

Town of Clayton FY21 Road Rehabilitation Project

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

Payment shall be for the quantities and unit prices submitted in the Bid Schedule 1-8 for a Total Amount not to exceed **$993,289.50,** unless increased by an approved Change Order/Contract Amendment by the Town.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the **25th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract

a. **90%** percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

b. **0%** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **100%** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **100%** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of **8%** percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all available: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, if any, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement.
2. Performance bond.
3. Payment bond.
4. Standard General Conditions (pages 1 to 72, inclusive).
5. Supplementary Conditions with Project Special Provision (pages **1** to **14**, inclusive).
6. Bid Package documents incluldling Invitation to Bid, Bid Sheet Schedule 1-8, FY2021 Road Rehabilitiation Project General Requirements Attachment 2, Town of Clayton Manual of Specifications, Standards and Design, NCDOT Standard Specifications for Roads and Structures Section 660 Asphalt Treatment January 2018, and NCDOT Chip Seal Best Practices Manual March 2016.
7. Drawings (not attached but incorporated by reference) consisting of ___ sheets with each sheet bearing the following general title: ___ **[or]** the Drawings listed on the attached sheet index. **NOT APPLICABLE**
8. Addenda (numbers **1** to **1,** inclusive).
9. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (Invitation to Bid Submittal & Bid Sheet Schedule 1-8, Bid Bond, pages **1** to **15** , inclusive).
10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Orders.
    d. Field Orders.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

Town of Clayton FY21 Road Rehabilitation Project

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on APRIL 5/21 (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
	S.T. Wooten Corporation
By: JD Solomon	By:
Title: Town Manager	Title: Vice President
Attest: Jennifer Proctor	Attest:
Title: Sr. Admin. Assistant	Title: Asst. Sec.
Address for giving notices:	Address for giving notices:
	License No.: *(where applicable)*

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Finance Director

TOWN OF CLAYTON
Public Works, Water/Sewer, & Electric
653 NC Hwy 42 W., P.O. Box 879
Clayton, NC 27528
Phone: 919-553-1530
Fax: 919-553-1541

CONTRACT MODIFICATION NO. 2

Date: **October 18, 2021**

PROJECT: FY21/FY22 Road Rehabilitation Project

ORIGINAL CONTRACT AMOUNT: $993,289.50

CONTRACT AMOUNT BASED ON PREVIOUS MODIFICATIONS: $1,020,864.50

CONTRACT MODIFICATION NO. 2 AMOUNT: **$935,845.55**

REVISED CONTRACT AMOUNT: $1,956,710.05

ORIGINAL CONTRACT COMPLETION DATE: June 25, 2021

CONTRACT COMPLETION DATE CHANGES BASED ON PREVIOUS MODIFICATONS : June 30, 2021

REVISED CONTRACT COMPLETION DATE: **March 31, 2022**

CONTRACT MODIFICATION NO. 2 - JUSTIFICATION

This modification to the **FY 21/FY22 Road Rehabilitation Project** contract is made and entered into as of the **18th** day of **October, 2021** by the Town of Clayton (Town) and **ST Wooten Corporation**, (Contractor).

A. Exercise Option to add additional work to the original contract as approved by Town Council on October 18, 2021. Additional work as per ST Wooten proposal in the amount of $935,845.55 (attached). Summary of work is as follows:

Schedule A: Walnut Creek Subdivision (Treslewood Dr., Walnut Creek Dr., Woodbend Ct., Trailwood Dr., Holly Point Pl. and Westwood Pl.) - $302,261.75
Schedule B: Schedule B: Garrison Subdivision (Brandon Dr., Gracie Dr. and Ses Dr.) – $202,332.90
Schedule C: Pond Area (Pond St., Damon St., and Durham St.) - $260,850.15
Schedule D: Black Forest Area (Black Forest Dr., Trailing Oak Tr. and Red Leaf Trail) - $159,275.75
Addendum No. 1: Pond Street Concrete Flume and Rip Rap Channel - $11,125.00

In consideration of the work to be performed, the contract is "Not to Exceed" **$1,956,710.05** ***(revised contract amount)***.

The contract completion date is hereby extended, all work shall be completed by **March 31, 2022**.

TOWN OF CLAYTON:

By: _____
Public Services Director (or designee)

TOWN OF CLAYTON:

By: _____
Town Manager

CONTRACTOR:

By: _____

ATTEST BY:

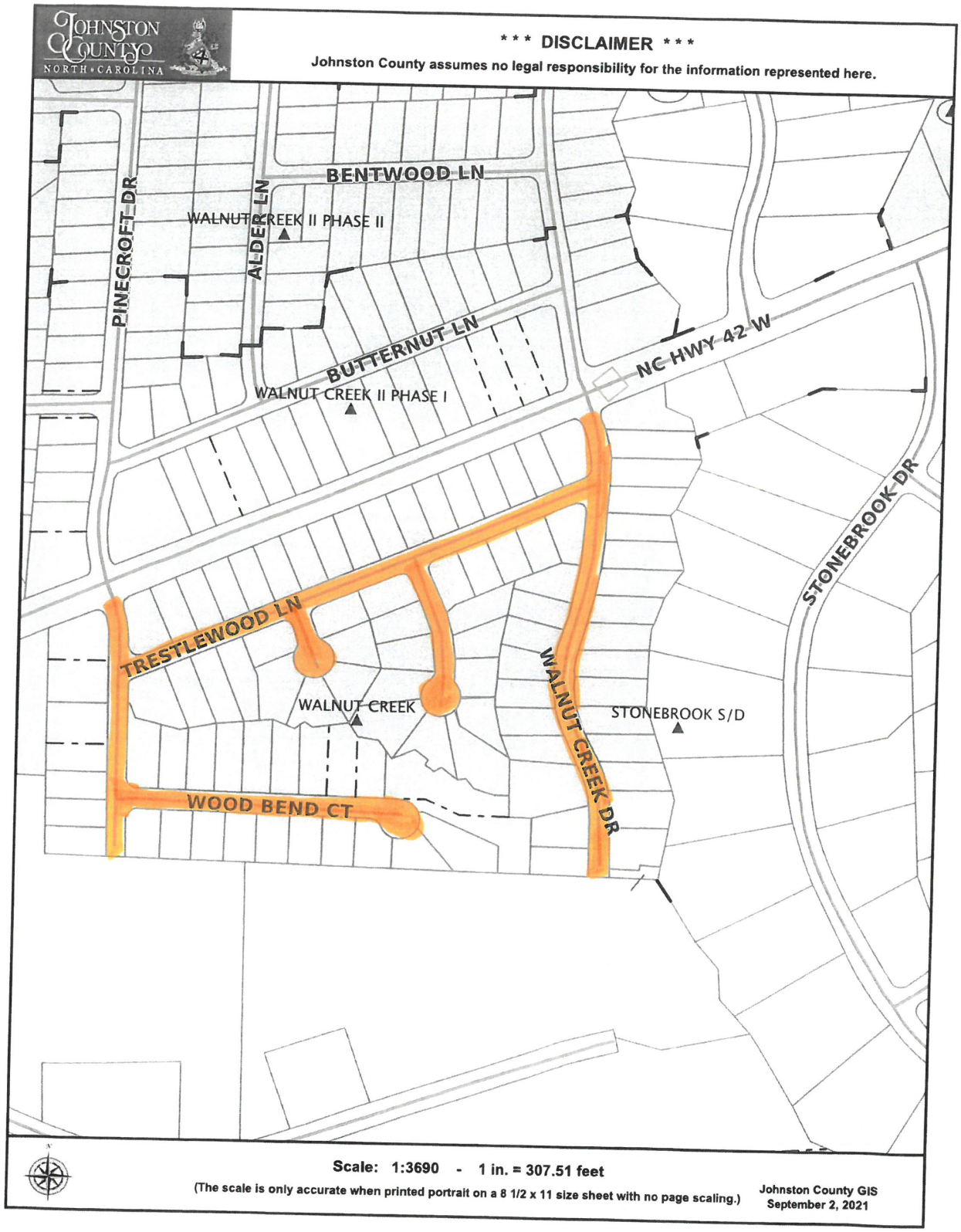
_____
Town Clerk

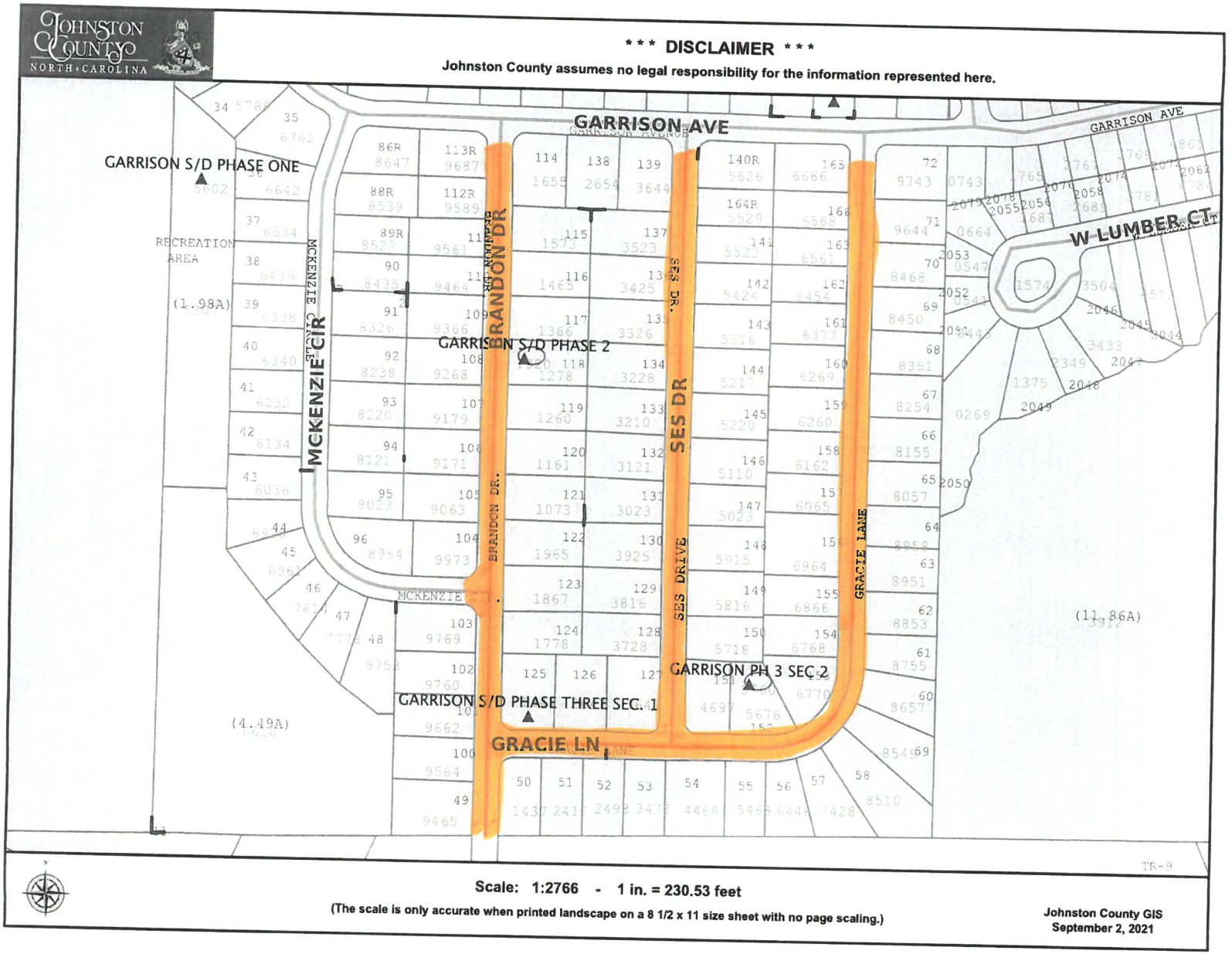
SEAL:

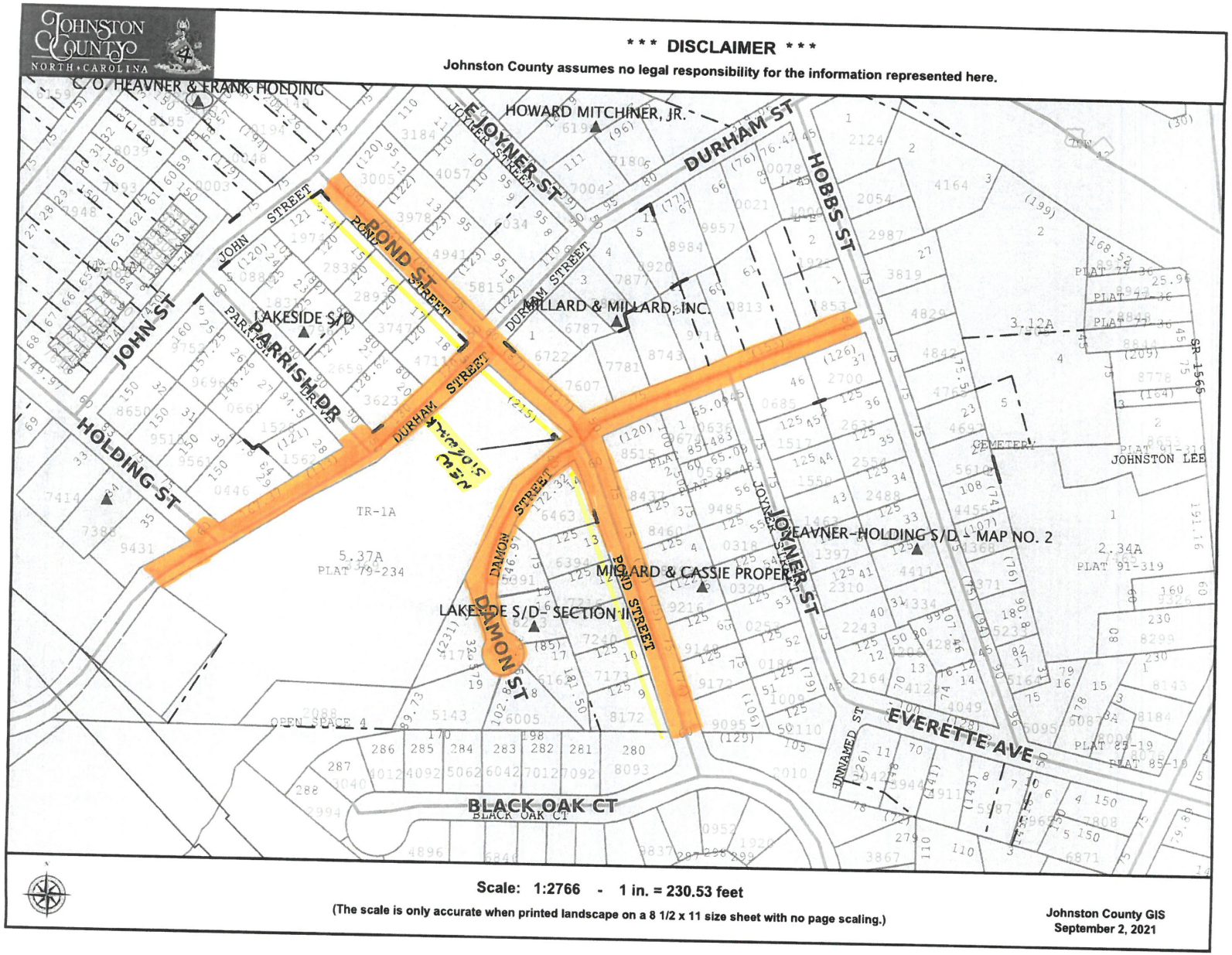
All other terms and conditions of the contract remain unchanged.
This Instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

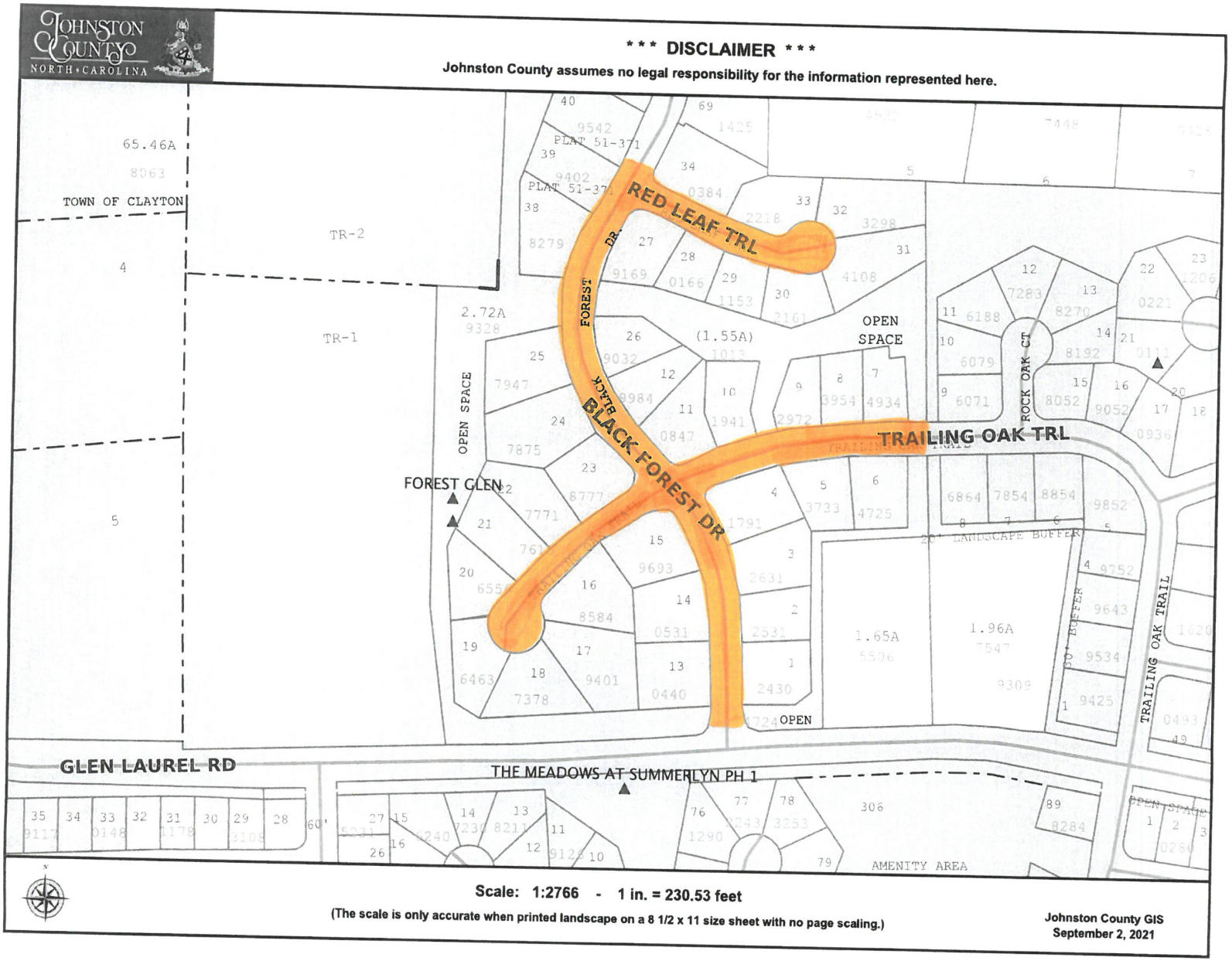
_____
Finance Director

_____
Date


JOHNSTON COUNTY
NORTH CAROLINA
*** DISCLAIMER ***
Johnston County assumes no legal responsibility for the information represented here.
BENTWOOD LN
PINECROFT DR
ALDER LN
WALNUT CREEK II PHASE II
BUTTERNUT LN
WALNUT CREEK II PHASE I
NC HWY 42 W
STONEBROOK DR
TRESTLEWOOD LN
WALNUT CREEK DR
WALNUT CREEK
STONEBROOK S/D
WOOD BEND CT
Scale: 1:3690 - 1 in. = 307.51 feet
(The scale is only accurate when printed portrait on a 8 1/2 x 11 size sheet with no page scaling.)
Johnston County GIS
September 2, 2021


JOHNSTON COUNTY
NORTH CAROLINA
*** DISCLAIMER ***
Johnston County assumes no legal responsibility for the information represented here.
GARRISON AVE
GARRISON S/D PHASE ONE
RECREATION AREA
(1.98A)
MCKENZIE CIR
BRANDON DR
GARRISON S/D PHASE 2
SES DR
SES DRIVE
GRACIE LANE
W LUMBER CT
MCKENZIE CT
GARRISON PH 3 SEC 2
GARRISON S/D PHASE THREE SEC. 1
GRACIE LN
(4.49A)
(11.86A)
Scale: 1:2766 - 1 in. = 230.53 feet
(The scale is only accurate when printed landscape on a 8 1/2 x 11 size sheet with no page scaling.)
Johnston County GIS
September 2, 2021


JOHNSTON COUNTY
NORTH CAROLINA
*** DISCLAIMER ***
Johnston County assumes no legal responsibility for the information represented here.
C. O. HEAVNER & FRANK HOLDING
HOWARD MITCHINER, JR.
E JOYNER ST
DURHAM ST
HOBBS ST
JOHN STREET
BOND ST
POND STREET
JOHN ST
PARRISH DR
LAKESIDE S/D
DURHAM STREET
MILLARD & MILLARD, INC.
HOLDING ST
TR-1A
5.37A
PLAT 79-234
DAMON STREET
JOYNER STREET
HEAVNER-HOLDING S/D - MAP NO. 2
MILLARD & CASSIE PROPERTY
LAKESIDE S/D- SECTION II
DAMON ST
OPEN SPACE 4
BLACK OAK CT
EVERETTE AVE
UNNAMED ST
3.12A
CEMETERY
JOHNSTON LEE
2.34A
PLAT 91-319
SR 1565
Scale: 1:2766 - 1 in. = 230.53 feet
(The scale is only accurate when printed landscape on a 8 1/2 x 11 size sheet with no page scaling.)
Johnston County GIS
September 2, 2021


JOHNSTON COUNTY
NORTH CAROLINA
*** DISCLAIMER ***
Johnston County assumes no legal responsibility for the information represented here.
65.46A
TOWN OF CLAYTON
TR-2
TR-1
4
5
2.72A
(1.55A)
OPEN SPACE
RED LEAF TRL
FOREST DR
BLACK FOREST DR
TRAILING OAK TRL
ROCK OAK CT
OPEN SPACE
FOREST GLEN
20' LANDSCAPE BUFFER
TRAILING OAK TRAIL
1.65A
1.96A
OPEN
GLEN LAUREL RD
THE MEADOWS AT SUMMERLYN PH 1
AMENITY AREA
Scale: 1:2766 - 1 in. = 230.53 feet
(The scale is only accurate when printed landscape on a 8 1/2 x 11 size sheet with no page scaling.)
Johnston County GIS
September 2, 2021

FY 22 Road Rehabilitation Program
ST Wooten Contract No. 2

Subdivison	Bid Amount
Walnut Creek	$302,261.75
Garrison	$202,332.90
Pond Area	$260,850.15
Black Forest Area	$159,275.75
Addendum No. 1	$11,125.00
Total	**$935,845.55**

S.T. Wooten Corporation
Company Name

Blake Jones
Print Name of Company Representative

Signature of Company Representative

10/12/21
Date

Schedule A. Walnut Creek Subdivision (Trestlewood Dr., Walnut Creek Dr., Woodbend Ct., Trailwood Dr., Holly Point Pl. and Westwood Pl.)

No.	Item	Unit	Estimated Quantity	Unit Price	Total
1	Mobilization/Demobilization	LS	1	$11,875.00	$11,875.00
2	Traffic Control	LS	1	$35,500.00	$35,500.00
3	1.5" Asphalt Milling - Street and Driveways/Misc	SY	12,628	$1.50	$18,942.00
4	4" Asphalt Milling	SY	665	$5.50	$3,657.50
5	2.5" I-19C (patching) CONTINGENCY ITEM	Ton	0	$100.00	$0.00
6	1.5" Surface Asphalt (S9.5B)	Ton	1,186	$92.00	$109,112.00
7	ABC stone - undercut, includes remove and replace of existing asphalt, base and subgrade to a depth of 12 inches or as directed by Engineer. CONTINGENCY ITEM	Ton	50	$35.00	$1,750.00
8	Remove Existing 4-6 inch Concrete Sidewalk/Sidewalk Ramp/Driveway Apron	SY	479	$36.00	$17,244.00
9	Remove Existing Curb and Gutter	L.F.	984	$23.00	$22,632.00
10	Install 24" or 30" Curb and Gutter	L.F.	1,204	$23.00	$27,692.00
11	Install 6" Thick Handicap Ramp (detectable warning domes paid separately). Note: Remove and Replace The Existing Curb and Gutter if necessary is a separate payment item. Install three single handicap ramps.	SY	132	$71.55	$9,444.60
12	Install detectable Warning Domes for Handicap Ramps 4 feet x 2 feet Placed over 6" Thick Concrete.	ea.	11	$850.00	$9,350.00
13	Install 4 inch Thick Concrete Sidewalk	SY	43	$34.65	$1,489.95
14	Install 6 Inch Thick Concrete Sidewalk/Driveway Apron	SY	304	$58.50	$17,784.00
15	Install 8 Inch Thick Concrete Sidewalk/Driveway Apron	SY	14	$67.05	$938.70
16	Adjust Manhole	ea.	22	$150.00	$3,300.00
17	Adjust Valve Box	ea.	20	$150.00	$3,000.00
18	Backfill Material adjacent new curbs, sidewalks, driveways, etc. - 4 Inch Depth Screened topsoil - free of roots and stones. Excess native dirt shall be hauled off-site. Grass Restoration: Seeding and Straw for all disturbed and topsoil areas are not a separate payment item it is considered incidental to the topsoil work.)	CY	95	$90.00	$8,550.00
19	Install New 4 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$34.65	$0.00
20	Install New 6 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$58.50	$0.00
21	Repair Existing Irrigation Piping/Sprinkler Head	LS	0	$150.00	$0.00
22	Relocate Existing 2-4 Inch Storm Drain under New Sidewalk and/or Connection to Curb	LS	0	$250.00	$0.00

23	Asphalt Surface Treatment: Single Chip Seal #78 Stone placed at 18 Lbs per Square Yard	SY	0	$2.00	$0.00
24	Emulsion for Asphalt Surface Treatment: Emulsion CRS-2L or CRS-2P placed at 0.30 gallons per Square Yard placed over existing asphalt pavement.	Gallons	0	$2.75	$0.00
TOTAL					**$302,261.75**

Schedule B. Garrison Subdivision (Brandon Dr., Gracie Dr. and Ses Dr.)

No.	Item	Unit	Estimated Quantity	Unit Price	Total
1	Mobilization/Demobilization	LS	1	$11,875.00	$11,875.00
2	Traffic Control	LS	1	$35,500.00	$35,500.00
3	1.5" Asphalt Milling - Street and Driveways/Misc	SY	10,115	$1.50	$15,172.50
4	4" Asphalt Milling	SY	532	$5.50	$2,926.00
5	2.5" I-19C (patching) CONTINGENCY ITEM	Ton	0	$100.00	$0.00
6	1.5" Surface Asphalt (S9.5B)	Ton	950	$92.00	$87,400.00
7	ABC stone - undercut, includes remove and replace of existing asphalt, base and subgrade to a depth of 12 inches or as directed by Engineer. CONTINGENCY ITEM	Ton	30	$35.00	$1,050.00
8	Remove Existing 4-6 inch Concrete Sidewalk/Sidewalk Ramp/Driveway Apron	SY	279	$36.00	$10,044.00
9	Remove Existing Curb and Gutter	L.F.	136	$23.00	$3,128.00
10	Install 24" or 30" Curb and Gutter	L.F.	236	$23.00	$5,428.00
11	Install 6" Thick Handicap Ramp (detectable warning domes paid separately). Note: Remove and Replace The Existing Curb and Gutter if necessary is a separate payment item. Install three single handicap ramps.	SY	60	$71.55	$4,293.00
12	Install detectable Warning Domes for Handicap Ramps 4 feet x 2 feet Placed over 6" Thick Concrete.	ea.	5	$850.00	$4,250.00
13	Install 4 inch Thick Concrete Sidewalk	SY	86	$34.65	$2,979.90
14	Install 6 Inch Thick Concrete Sidewalk/Driveway Apron	SY	169	$58.50	$9,886.50
15	Install 8 Inch Thick Concrete Sidewalk/Driveway Apron	SY	0	$67.05	$0.00
16	Adjust Manhole	ea.	13	$150.00	$1,950.00
17	Adjust Valve Box	ea.	19	$150.00	$2,850.00
18	Backfill Material adjacent new curbs, sidewalks, driveways, etc. - 4 Inch Depth Screened topsoil - free of roots and stones. Excess native dirt shall be hauled off-site. Grass Restoration: Seeding and Straw for all disturbed and topsoil areas are not a separate payment item it is considered incidental to the topsoil work.)	CY	40	$90.00	$3,600.00
19	Install New 4 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$34.65	$0.00
20	Install New 6 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$58.50	$0.00
21	Repair Existing Irrigation Piping/Sprinkler Head	LS	0	$150.00	$0.00
22	Relocate Existing 2-4 Inch Storm Drain under New Sidewalk and/or Connection to Curb	LS	0	$250.00	$0.00

23	Asphalt Surface Treatment: Single Chip Seal #78 Stone placed at 18 Lbs per Square Yard	SY	0	$2.00	$0.00
24	Emulsion for Asphalt Surface Treatment: Emulsion CRS-2L or CRS-2P placed at 0.30 gallons per Square Yard placed over existing asphalt pavement.	Gallons	0	$2.75	$0.00
TOTAL					**$202,332.90**

Schedule C. Pond Area (Pond St., Damon St. and Durham St. - Pond to Holding)

No.	Item	Unit	Estimated Quantity	Unit Price	Total
1	Mobilization/Demobilization	LS	1	$11,875.00	$11,875.00
2	Traffic Control	LS	1	$35,500.00	$35,500.00
3	1.5" Asphalt Milling - Street and Driveways/Misc	SY	9,212	$1.50	$13,818.00
4	4" Asphalt Milling	SY	485	$5.50	$2,667.50
5	2.5" I-19C (patching) CONTINGENCY ITEM	Ton	0	$100.00	$0.00
6	1.5" Surface Asphalt (S9.5B)	Ton	866	$92.00	$79,672.00
7	ABC stone - undercut, includes remove and replace of existing asphalt, base and subgrade to a depth of 12 inches or as directed by Engineer. CONTINGENCY ITEM	Ton	30	$35.00	$1,050.00
8	Remove Existing 4-6 inch Concrete Sidewalk/Sidewalk Ramp/Driveway Apron	SY	294	$36.00	$10,584.00
9	Remove Existing Curb and Gutter	L.F.	783	$23.00	$18,009.00
10	Install 24" or 30" Curb and Gutter	L.F.	1,228	$23.00	$28,244.00
11	Install 6" Thick Handicap Ramp (detectable warning domes paid separately). Note: Remove and Replace The Existing Curb and Gutter if necessary is a separate payment item. Install three single handicap ramps.	SY	60	$71.55	$4,293.00
12	Install detectable Warning Domes for Handicap Ramps 4 feet x 2 feet Placed over 6" Thick Concrete.	ea.	5	$850.00	$4,250.00
13	Install 4 inch Thick Concrete Sidewalk	SY	601	$34.65	$20,824.65
14	Install 6 Inch Thick Concrete Sidewalk/Driveway Apron	SY	278	$58.50	$16,263.00
15	Install 8 Inch Thick Concrete Sidewalk/Driveway Apron	SY	0	$67.05	$0.00
16	Adjust Manhole	ea.	15	$150.00	$2,250.00
17	Adjust Valve Box	ea.	18	$150.00	$2,700.00
18	Backfill Material adjacent new curbs, sidewalks, driveways, etc. - 4 Inch Depth Screened topsoil - free of roots and stones. Excess native dirt shall be hauled off-site. Grass Restoration: Seeding and Straw for all disturbed and topsoil areas are not a separate payment item it is considered incidental to the topsoil work.)	CY	85	$90.00	$7,650.00
19	Install New 4 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$34.65	$0.00
20	Install New 6 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$58.50	$0.00
21	Repair Existing Irrigation Piping/Sprinkler Head	LS	3	$150.00	$450.00
22	Relocate Existing 2-4 Inch Storm Drain under New Sidewalk and/or Connection to Curb	LS	3	$250.00	$750.00

23	Asphalt Surface Treatment: Single Chip Seal #78 Stone placed at 18 Lbs per Square Yard	SY	0	$2.00	$0.00
24	Emulsion for Asphalt Surface Treatment: Emulsion CRS-2L or CRS-2P placed at 0.30 gallons per Square Yard placed over existing asphalt pavement.	Gallons	0	$2.75	$0.00
TOTAL					**$260,850.15**

Schedule D. Black Forest Area (Black Forest Dr. - Glen Laurel to Red Leaf, Trailing Oak Tr. - Culdesac to End of Old Pavement and Red Leaf Tr.)

No.	Item	Unit	Estimated Quantity	Unit Price	Total
1	Mobilization/Demobilization	LS	1	$11,875.00	$11,875.00
2	Traffic Control	LS	1	$35,500.00	$35,500.00
3	1.5" Asphalt Milling - Street and Driveways/Misc	SY	0	$1.50	$0.00
4	4" Asphalt Milling	SY	0	$5.50	$0.00
5	2.5" I-19C (patching) CONTINGENCY ITEM	Ton	0	$100.00	$0.00
6	1.5" Surface Asphalt (S9.5B)	Ton	621	$92.00	$57,132.00
7	ABC stone - undercut, includes remove and replace of existing asphalt, base and subgrade to a depth of 12 inches or as directed by Engineer. CONTINGENCY ITEM	Ton	65	$35.00	$2,275.00
8	Remove Existing 4-6 inch Concrete Sidewalk/Sidewalk Ramp/Driveway Apron	SY	169	$36.00	$6,084.00
9	Remove Existing Curb and Gutter	L.F.	0	$23.00	$0.00
10	Install 24" or 30" Curb and Gutter	L.F.	0	$23.00	$0.00
11	Install 6" Thick Handicap Ramp (detectable warning domes paid separately). Note: Remove and Replace The Existing Curb and Gutter if necessary is a separate payment item. Install three single handicap ramps.	SY	0	$71.55	$0.00
12	Install detectable Warning Domes for Handicap Ramps 4 feet x 2 feet Placed over 6" Thick Concrete.	ea.	0	$850.00	$0.00
13	Install 4 inch Thick Concrete Sidewalk	SY	0	$34.65	$0.00
14	Install 6 Inch Thick Concrete Sidewalk/Driveway Apron	SY	169	$58.50	$9,886.50
15	Install 8 Inch Thick Concrete Sidewalk/Driveway Apron	SY	0	$67.05	$0.00
16	Adjust Manhole	ea.	14	$150.00	$2,100.00
17	Adjust Valve Box	ea.	12	$150.00	$1,800.00
18	Backfill Material adjacent new curbs, sidewalks, driveways, etc. - 4 Inch Depth Screened topsoil - free of roots and stones. Excess native dirt shall be hauled off-site. Grass Restoration: Seeding and Straw for all disturbed and topsoil areas are not a separate payment item it is considered incidental to the topsoil work.)	CY	65	$90.00	$5,850.00
19	Install New 4 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$34.65	$0.00
20	Install New 6 inch Thick Concrete Sidewalk. Unit price include removal of excavated soil material from site.	SY	0	$58.50	$0.00
21	Repair Existing Irrigation Piping/Sprinkler Head	LS	0	$150.00	$0.00
22	Relocate Existing 2-4 Inch Storm Drain under New Sidewalk and/or Connection to Curb	LS	0	$250.00	$0.00

23	Saw Cut Edge of Existing Concrete Driveway to Provide a Clean Asphalt Tie in for the 2 Inch Fill/Chip Seal. Cut 6 inches off the edge of the Drivewalk and Remove Concrete Right Before Asphalt Paving.	LF	540	$15.00	$8,100.00
24	Asphalt Surface Treatment: Single Chip Seal #78 Stone placed at 18 Lbs per Square Yard	SY	6,610	$2.00	$13,220.00
25	Emulsion for Asphalt Surface Treatment: Emulsion CRS-2L or CRS-2P placed at 0.30 gallons per Square Yard placed over existing asphalt pavement.	Gallons	1,983	$2.75	$5,453.25
TOTAL					**$159,275.75**

Addendum No.1 Pond Street (Durham St. - Damon St.) Concrete Flume Under the Sidewalk as per the existing concrete flume located on Front Street near O'Neil Street

No.	Item	Unit	Estimated Quantity	Unit Price	Total
1	Install Concrete Flume Under Sidewalk with 6 inch with opening 6 inches high. Concrete Flume to be 3 feet wide and 6 inches thick. Concrete Flume to Extend 2 feet beyond the edge of the sidewalk. Concrete Flume under the sidewalk is 9 feet long x 3 feet wide x 6 inches thick.	LF	9	$125.00	$1,125
2	Diamond Plated Steel Plate with Cut Fee. Steel Plate to extend 2 feet past the edge of sidewalk. Steel Plate is 9 feet long x 3 feet wide.	LS	1	$5,000.00	$5,000
3	Install Rip Rap Channel from Edge of Steel Plate/Concrete Flume to Edge of Creek. Unit Price includes removal from site all excavated soil material.	Tons	50	$100.00	$5,000
	TOTAL				**$11,125**

S.T. Wooten Corporation
Company Name

Blake Jones
Print Name of Company Representative

Signature of Company Representative

10/12/21
Date

Town Council Agenda Cover Sheet

Meeting Date
October 18, 2021

Agenda Location
Consent Agenda

Item Title
Municipal Park Site Improvements - Demo and Early Procurement

Presenter
Joshua Baird – Engineering Director
Scott Barnard – Parks and Recreation Director
Robert McKie – Finance Director

Summary/Description
Staff and Design Build team have made significant progress on design and preparing to provide Council with three options of Guaranteed Maximum Price (GMPs) on November 10th. Prior to the November 10th meeting and formal action on the GMP, staff and team propose an early demo and procurement package. The splashpad, shelter and playground equipment have long lead times and are items that Council (and public) have previously indicated are top priorities. An early demo and procurement package allows the long leads items to be ordered prior to the GMP and allows the project to continue on schedule. The demo and early procurement package will increase the total phase 1 costs by $605,828 to a new contract total of $991,262. The early package will require a budget amendment, but finance staff are prepared to reimburse this money upon sale of bonds. Staff request approval for Town Manager or designee to execute Amendment 1 to the existing Design build contract and proceed with early demo and procurement of items with long lead times.

Requested Action
Approval

Funding Source (If Applicable):
Budget Amendment

Cost: **$605,828** **Yes** ☒ **No** ☐

Additional Documents to be Included in Agenda Packet
Design Build Contract Amendment 1
Early Release Package
Municipal Park Early Release Package Budget Amendment

Meeting Timeline
Click or tap here to enter text.

AMENDMENT NO. 1
TO THE AGREEMENT DATED AUGUST 16, 2021
BETWEEN
TOWN OF CLAYTON, NORTH CAROLINA
AND
BALFOUR BEATTY CONSTRUCTION, LLC
FOR DESIGN-BUILD SERVICES

This **AMENDMENT No. 1** dated 13th day of October, 2021, is hereby made to the Agreement dated August 16, 2021, between Town of Clayton, North Carolina (Owner), and Balfour Beatty Construction, LLC (Design-Builder) for Design-Build services for the Clayton Municipal Park Improvements ("Agreement"). The Parties have agreed to modify the scope of services for the Preconstruction phase and the compensation associated with the Preconstruction Phase as per the following:

In consideration of the mutual promises contained herein, the Parties hereby agree to modify and amend the Agreement as follows:

1. Article 6.1. of the DBIA 530 is revised to add the following provision:

6.1.2: Design and Preconstruction Phase:
The initial Contract Price for the Project Design, Design Management and Preconstruction phase plus Design Builder's Fee shall not exceed $991,262.00. The following definitions apply for purposes of this Section 6.2.1: "Project Design" means all design services that are included as part of the Work under this Agreement; "Design Management" means the services required to complete and to manage the "Project Design", including all applicable work by Design-Builder subconsultants and subconsultant of the Owner; "Preconstruction phase" means additional services by the Design-Builder required to prepare for a prompt start to Construction at the completion of Project Design and permitting limited demolitions services and acquisition of Vortex Splash Pad Procurement and Playground Equipment by Churchich.

Contingency, General Conditions, Insurances, and Fee excluded from this amendment and will be included in final GMP amendment.

Design and Preconstruction - $385,434.00
Amendment 1 Early Package - $605,828.00
Revised Total - $991,262.00

Initial Contract

2. Article 6.2.1 of the DBIA 530 is revised to read as follows:

6.2.1 Design-Builder's Fee shall be:
Five percent (5.0%) of the Cost of the Work as adjusted in accordance with Section 6.2.2 below.

The Agreement and the terms and conditions therein shall remain unchanged an in full force and effect other than as specifically set forth above.

In executing this Amendment, Design-Builder represents that it has the necessary financial resources to fulfill its obligations under the Agreement, including this Amendment, and has the necessary corporate approvals to execute this Amendment and perform the services described herein.

OWNER:	**DESIGN-BUILDER:**
Town of Clayton	Balfour Beatty Construction, LLC
(Name of Owner)	*(Name of Design-Builder)*
_____	_____
(Signature)	(Signature)
Rich Cappola, PE	Tony Stoneking
(Printed Name)	*(Printed Name)*
Deputy Town Manager	Senior Vice President
(Title)	*(Title)*
Date: _____	Date:_____

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Finance Director

Clayton Municipal Park

Amendment 1 - Early Package Release

10/13/2021

Balfour Beatty Construction

BP	Description		Total Budget	Design & Preconstruction	Amendment 1 - Early Release Packages
	Design & Preconstruction Services				
		BBC Preconstruction Services (1% of budget)	$40,000	$40,000	
		Ratio Design Services	$34,462	$34,462	
		McAdams Design Services	$288,580	$288,580	
	by Clayton	Site Survey	$0		
		Professional Renderings	$0		
		Construction Observation	$0		
		Record Drawings & Closeout	$0		
		Pot Holing Service Allowance	$0		
		SUBTOTAL A	$363,042	$363,042	
1.10%		GL Insurance (on DCV)	$4,240	$4,240	
5.00%		Fee On Design Services	$18,152	$18,152	
		Design & Preconstruction Services Total	**$385,434**	$385,434	
	Construction Administration Services		$0		
01G	General Trades and Requirements		$0		
02A	Demolition		$41,600		$41,600
03H	Concrete		$0		
04A	Masonry		$0		
05A	Structural Steel / Misc. Metals		$0		
06A	Wood		$0		
07A	Thermal Insulation		$0		
08A	Doors, Frames, Hardware		$0		
09B	Finishes		$0		
10A	Toilet Accessories		$0		
11A	Playground Equipment		$149,945		$149,945
11B	Splash Pad		$386,046		$386,046
11C	Futsol Court (1)		$0		$0
12A	Furnishings		$0		
13A	Pre-Engineered Structures		$10,500		$10,500
22A	Plumbing		$0		
23A	HVAC		$0		
26A	Electrical		$0		
31E	Earthwork		$0		
32A	Hardscape		$0		
32F	Construction Fencing		$17,737		$17,737
32B	Landscape/Site Improvements		$0		
		SUBTOTAL A	$605,828	$0	$605,828
5.00%		Construction Contingency	$0	$0	In future GMP
		SUBTOTAL B	$605,828	$0	$605,828
		General Conditions (COW)	$0	$0	In future GMP
5.00%		Fee on Construction (on TCV)	$0	$0	In future GMP
1.50%		Subguard Insurance (COW)	$0	$0	In future GMP
1.10%		GL Insurance (on TCV)	$0	$0	In future GMP
0.25%		Estimated Builders Risk (on TPV)	$0	$0	In future GMP
0.84%		P&P Bond (on TPV)	$0	$0	In future GMP
		Construction Total	**$605,828**	$385,434	$605,828
Total Project Cost			**$991,262**		

Ordinance #2021-10-03
(Amends #2021-08-03)

Town of Clayton
Amendment to the FY 21-22 Budget

BE IT HEREBY ADOPTED BY THE TOWN COUNCIL FOR THE TOWN OF CLAYTON that the following amendments shall be made to the FY 21-22 Budget:

Fund: General Fund

Line Item	Previous Appropriation	Adjustment	Revised Appropriation
Revenue			
100-40-00-48 99	Fund Balance Appropriated $2,230,424	+600,000	$2,830,424
Expenditures			
100-60-95-58 00	Capital Projects $517,730	+600,000	$1,117,730

Explanation:

Amendment to Ordinance 2021-08-03 to appropriate additional fund balance to temporarily fund the early release package related to the design-build contract for Municipal Park. These costs will be reimbursed with proceeds from the upcoming GO Bond sale. This amendment is required for compliance with G.S. 159-15.

Duly adopted this 18th day of October, 2021 while in regular session.

_____
Jody L. McLeod
Mayor

Attest:

_____
Kimberly A. Moffett, CMC, NCCMC
Town Clerk

Town Council Agenda Cover Sheet

Meeting Date
October 18, 2021

Agenda Location
Old Business

Item Title

WRF Funding Package No.1

Presenter

TOC Project Team – Louis Duffie

Summary/Description

Gannett Fleming has presented to the TOC Project Team the first Funding Package in the amount of $6,745,600, which includes General Conditions to June 2022, Construction Administration, Design of Prestressed Concrete Tanks, and Procurement of Ductile Iron Pipe. Gannett Fleming has also included the Performance & Payment Bond in the amount of $125,000,000 for the WRF Project. In addition, The Project Team is incorporating into the Contract, Exhibit G, which will serve as the baseline definition of weather delays for the project duration.

Gannett Fleming advertised two early procurement packages, Ductile Iron Pipe and Prestressed Concrete Tanks, and recommends awarding contracts to two vendors (Core & Main and Crom) after reviewing proposals. These packages are being presented before a final Guaranteed Maximum Price (GMP) to secure long lead materials to meet the project schedule. Town of Clayton's Project Team has reviewed the information provided and is in agreement with the proposed vendors. It has been noted by the Prestressed Concrete Tank vendor that there is an opportunity to Value Engineer the design, which would provide cost savings.

Requested Action
Approval

Funding Source (If Applicable):
CWSRF

Cost: **$6,745,600** **Yes** ☒ **No** ☐

Additional Documents to be Included in Agenda Packet

Proposals for Ductile Iron Pipe
Decision Document for Ductile Iron Pipe provided by Owner's Advisor (HDR)
Proposals for Prestressed Concrete Tanks
Decision Document for Ductile Iron Pipe provided by Owner's Advisor (HDR)
2021-10-14_001LTR_Funding Request 001
ToC Funding Package No.1
Gannett Fleming – Bond Letter
Exhibit G

Meeting Timeline
Click or tap here to enter text.

Exhibit G

WEATHER DELAYS

PART 1 - GENERAL

1.01 EXTENSIONS OF CONTRACT TIME

A. If the basis exists for an extension of time, an extension of time on the basis of weather may be granted only for the number of Weather Delay Days inexcess of the number of days listed as the Standard Baseline for that month.

1.02 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE

A. The Owner has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined a Standard Baseline of average climatic range for the State of North Carolina.

B. Standard Baseline shall be regarded as the normal and anticipatable number of calendar days for each month during which construction activity shall be expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.

C. Standard Baseline is as follows:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6	6	6	6	6	3	3	3	4	4	5	5

1.03 ADVERSE WEATHER and WEATHER DELAY DAYS

A. Adverse Weather is defined as the occurrence of one or more of the following conditions which prevents exterior construction activity or access to the site within twenty-four (24) hours:

1. precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure
2. temperatures which do not rise above 32 degrees F by 10:00 a.m.
3. temperatures which do not rise above that specified for the day's construction activity by 10:00 a.m., if any is specified
4. sustained wind in excess of twenty-five (25) m.p.h.
5. standing snow in excess of one inch (1.00")

B. Adverse Weather may include, if appropriate, "dry-out" or "mud" days:

1. for rain days above the standard baseline;
2. only if there is a hindrance to site access or sitework, such as excavation, backfill, and footings; and,
3. at a rate no greater than 1 make-up day for each day or consecutive days of rain beyond the standard baseline that total 1.0 inch or more, liquid measure, unless specifically recommended otherwise by the Designer.

C. A Weather Delay Day may be counted if adverse weather prevents work on the project for fifty percent (50%) or more of the contractor's scheduled work day, including a weekend day or holiday if Contractor has scheduled construction activity that day.

1.04 DOCUMENTATION and SUBMITTALS

A. WEATHER DELAY REPORT:
Use a Weather Delay Report, indicating for each calendar month the days on which construction activity affecting the critical path of the Work was prevented by weather conditions. Mark the column for the general cause; and, under “Specifics”, indicate corresponding measurement of precipitation, temperature, wind, or other influencing factors, and the construction activity that was scheduled and delayed. At the end of the month, add up the number of days delay, subtract the baseline number, and show the resulting claimable days. Submit a copy of the completedreport with the next application for payment and with subsequent claim for time extension. Claims for time extension based upon weather delays will be denied if a submitted report does not corroborate the claim or if no report was submitted when it was required in accordance with this paragraph.

B. Submit daily jobsite work logs showing which and to what extent construction activities have been affectedby weather on a monthly basis.

C. Submit actual weather data to support claim for time extension obtained from nearest NOAA weather station or other independently verified source approved by Designer at beginning of project.

D. Use Standard Baseline data provided in this Section when documenting actual delays due to weather in excess of the average climatic range.

E. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for Claims, and the applicable General Requirements.

F. If an extension of the Contract Time is appropriate, it shall be implemented in accordance with the provisions of the Contract.

END OF SECTION

September 13, 2021

RE: Gannett Fleming Project Development Corp.

Town of Clayton, NC

New Neuse River Water Reclamation Facility Design-Build Bridging

To Whom It May Concern,

The Hartford, through its various operating entities, will favorably considered projects up to $125,000,000 single project size for Gannett Fleming Project Development Corp. Our experience with Gannett Fleming Project Development Corp. has been excellent, and we highly recommend them to you.

As surety for Gannett Fleming Project Development Corp., The Hartford will favorably consider providing a 100% Performance Bond and a 100% payment Bond for the above captioned project, provided a contract is awarded to, and executed by Gannett Fleming Project Development Corp.

Please understand that any arrangement for any bonds is a matter between Gannett Fleming Project Development Corp. and Hartford Fire Insurance Company and we assume no liability to third parties or you if, for any reason, we do not issue requested bonds.

The Hartford expressly reserves the right to review the terms and conditions of the contract, contract amount and bond form, evaluate pertinent underwriting data, and verify the adequacy of project financing prior to the issuance of bonds for the referenced project.

This letter will expire one hundred and eighty (180) days from the above date.

Very Truly Yours,

Crystal Bennis

Crystal Bennis

The Hartford

1000 Continental Drive, STE 350

King of Prussia, PA 19046

A+ financial strength by A.M. Best, class size $2 B or greater

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FUNDING REQUEST #001

Project : **Water Reclamation Facility**

Location : **Clayton, NC**

Owner : **Town of Clayton**

Engineer : **Gannett Fleming**

Estimator : **GFPDC**

Due Date : **10/14/21**

Size : **0** **SQFT**

Type Estimate : **Funding**

Schedule : **30** **wks**

Cost : **$6,745,600**
(Refer to Summary Tab for Breakdown)

Estimate No. : **001**

Revision: ***0***
Note 1: **This estimate does not represent the GMP.**
Note 2: **Duration: (12/1/2021) to (7/1/2022).**

Planning | Engineering | Procurement | Construction Management | Commissioning

ESTIMATE SUMMARY

Project :	**Water Reclamation Facility**	**Issue Date :**	**10/14/21**	**Budget Type :**	**Funding**
Location :	**Clayton, NC**	**Floor Area (SF) :**	**0**	**Estimate No. :**	**001**
Owner :	**Town of Clayton**	**Estimator :**	**GFPDC**	**Revision :**	**0**

Item Description			Amount
ESTIMATE SUMMARY BREAKDOWN			
DIVISIONS		(% of Directs)	
General Requirements		19.5%	$534,862
Site Work		13.3%	$364,284
Concrete and Foundations		0.0%	$0
Masonry		0.0%	$0
Structural Steel and Misc Metals		0.0%	$0
Carpentry		0.0%	$0
Moisture Protection		0.0%	$0
Doors and Windows		0.0%	$0
Finishes		0.0%	$0
Equipment		10.6%	$291,934
Furnishings-Building		0.0%	$0
Specialties		0.0%	$0
Fire Protection		0.0%	$0
Plumbing		0.0%	$0
H V A C		0.0%	$0
Piping		56.6%	$1,551,093
Electrical		0.0%	$0
Instrumentation and Controls		0.0%	$0
SUBTOTAL		100.0%	$2,742,173
General Conditions			$2,477,489
SUBTOTAL			$5,219,662
Insurance Builders Risk	0.10 Per $100 value	Allowance	$2,742
General Liability-Directs-Paid to GFPDC	$4.29 Per $1,000 payroll	Allowance	$6,327
GFPDC Payment and Performance Bond	Note: Confirmed for $125M	Allowance	$631,362
SUBTOTAL			$5,860,093
Erosion Control		Allowance	$5,000
General Building Permit (On Directs)		Allowance	$9,714
ATC		Not Req'D	$0
NPDES-Major Impact Fee (Does not include express fee)		NIC	$570
Nationwide Permit #7-Application/Labor		By ToC	$0
Nationwide Permit #7		NIC	$0
General Plan Reviews/Inspections		Allowance	$5,000
SUBTOTAL			$5,880,377
Management Fee-Dir Costs, Insur, Bonds, Permits, GCs	2.0%		$117,608
Phase 1 Services-60% Design, Precon and Geotech		NIC	$0
Phase 1 Services-Change Orders		NIC	$0
Design Labor-GF Phase 2		NIC	$0
Const Admin-Design Team (Time and Material)	(For Shop Dwgs, RFI's, Record Dwgs, Startup Supt)	Allowance	$350,000
SUBTOTAL			$6,347,985
GFPDC Contingency On Direct Cost	10.0%	Allowance	$274,217
SUBTOTAL			$6,622,202
Special Inspections-Structural, Masonry, Concrete, Sitework		Incl W/Trades	$0
Escalation	4.5%	Allowance	$123,398
TOTAL ESTIMATE SUMMARY BREAKDOWN			**$6,745,600**

Project : Water Reclamation Facility **Issue Date :** 10/14/21 **Budget Type :** Funding
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** 001
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** 0

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
GENERAL REQUIREMENTS							
On Site Duration - Weeks	30	wks					
Project							**$534,862**
Project Utilities							
Power							
Distribution Power for GF Trailers	1	ea	65,000.00	65,000	**Allowance**	65,000	
Distribution Power for Trailers-Owner/HDR	1	ea	0.00	0	**Above**	0	
Conex Trailer Hookup	1	ea	0.00	0	**Above**	0	
100 Amp Panel-Contractors Break Area	1	ea	4,200.00	4,200	**Allowance**	4,200	
Demo Temporary Power to Trailers when we demobillize from site-GF Trailer	0	ea	0.00	0	**NIC**	0	
Demo Temporary Power to Trailers when we demobillize from site-Owner/HDR Trailer	0	ea	0.00	0	**NIC**	0	
Power Consumption-Trailers	7.0	mo	800.00	5,600	**Allowance**	5,600	
Plumbing							
Install Plumbing for GF Trailers	1	ea	28,270.00	28,270	**Allowance**	28,270	
Install Plumbing for Trailers-Owner/HDR	1	ea	5,300.00	5,300	**Allowance**	5,300	
Demo Plumbing to Trailers when project demobilizes-GF Trailer	0	ea	0.00	0	**NIC**	0	
Demo Plumbing to Trailers when project demobilizes-Owner/HDR	0	ea	0.00	0	**NIC**	0	
Water Meter-Trailer W/RPZ	1	ea	0.00	0	**Above**	0	
Water Consumption-Trailers	7	mo	400.00	2,800	**Allowance**	2,800	
Temporary Water to Site	1	ea	10,395.00	10,395	**Allowance**	10,395	
Water Consumption-Site	23	mo	300.00	6,900	**Allowance**	6,900	
Sanitary Facilities-Site (4 toilets and hand wash)	7	mo	1,596.00	11,172	**Allowance**	11,172	
Sanitary Facilities-Site (4 toilets and hand wash)	7	mo	1,596.00	11,172	**Allowance**	11,172	
Sanitary Facilities-Site (4 toilets and hand wash)	0	mo	0.00	0	**NIC**	0	
Sanitary Facilities-Site (4 toilets and hand wash)	0	mo	0.00	0	**NIC**	0	
Toilet Pumping-Trailers	30	wk	300.00	9,093	**Allowance**	9,093	
Toilet Pumping-For when the holding tank overflows	1	al	4,800.00	4,800	**Allowance**	4,800	
Portable Eyewash Stations	4	al	350.00	1,400	**Allowance**	1,400	
Temporary Heat	0	ea	0.00	0	**W/HVAC**	0	
Internet							
Internet Monthly-GF	7	mo	450.00	3,150	**Allowance**	3,150	
Internet Set-up-GF	1	ea	1,095.00	1,095	**Allowance**	1,095	
Internet Monthly-Owner/HDR	7	mo	450.00	3,150	**Allowance**	3,150	
Internet Set-up-Owner/HDR	1	ea	1,095.00	1,095	**Allowance**	1,095	

Project : Water Reclamation Facility **Issue Date :** 10/14/21 **Budget Type :** Funding
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** 001
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** 0

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
Site							
Project Sign	1	ea	2,400.00	2,400	**Allowance**	2,400	
O'Neil St Construction Entrance Signage	1	ea	3,800.00	3,800	**Allowance**	3,800	
Site Signage-General	1	al	4,800.00	4,800	**Allowance**	4,800	
Survey-Site Layout	0	ea	0.00	0	**W/ Trades**	0	
Security Guard	0	ea	0.00	0	**NIC**	0	
Site Video Recording. (Equipment and Setup)	1	ea	41,060.00	41,060	**Allowance**	41,060	
Site Video Recording Installation	1	ea	4,000.00	4,000	**Allowance**	4,000	
Temporary Logistic Protection	1	ea	2,500.00	2,500	**Allowance**	2,500	
Wheeled Trash Cans-96 gallon	20	ea	146.38	2,928	**Allowance**	2,928	
GFPDC Laydown Area, 1400 SY, 6" ABC with FF	1	al	21,470.00	21,470	**Allowance**	21,470	
Concrete Washpit	0	al	0.00	0	**W/ Sitework**	0	
Contractor Canteen-Mtl Cover, Tables	2	al	9,860.00	19,720	**Allowance**	19,720	
Contractor Canteen-Stone	2	al	2,600.00	5,200	**Allowance**	5,200	
Temporary Lights	1	al	15,000.00	15,000	**Allowance**	15,000	
Miscellaneous Expenses							
Procore-Document Management	7	mo	450.00	3,150	**GF**	3,150	
Site Security Fence	0	al	0.00	0	**W/ Sitework**	0	
Temporary Protection	1	al	18,000.00	18,000	**Allowance**	18,000	
Safety Harness and Lanyards/Retractable	1	al	6,000.00	6,000	**Allowance**	6,000	
Safety Budget Supplies Allowance-Year	30	wk	200.00	6,062	**Allowance**	6,062	
Site/Road Maintenance-Cleaning Dirt from O'Neil St (Reduced with addition of wheel cleaning station)	45	wk	1,155.00	51,975	**Allowance**	51,975	
Site Water Truck (3000 gal)-Dust Maintenance Onsite	6	mo	4,610.75	27,665	**Allowance**	27,665	
Brush Truck-Road Maintenance	6	mo	3,433.15	20,599	**Allowance**	20,599	
Truck Mat Allowance	0	al	0.00	0	**W/ Sitework**	0	
Lull-Equipment Moving-Site Unload	5	mo	3,429.25	17,146	**Allowance**	17,146	
Drive Repair and Truck Mats-Site Repair	1	al	28,724.00	28,724	**Allowance**	28,724	
Removal and Disposal of Construction Debris							
Progressive Site Clean Up-Prorated	10	wk	800.00	8,248	**Allowance**	8,248	
Dumpster Rental-2 Units	7	mo	500.00	3,500	**Waste Manage**	3,500	
Dumpster Pulls-2 Units	45.5	ea	285.00	12,958	**Waste Manage**	12,958	
Dumpster Rental-1 Unit	0.0	mo	0.00	0	**NIC**	0	
Dumpster Pulls-1 Unit	0.0	ea	0.00	0	**NIC**	0	
Dumpster Landfill Charges (8 tons/pull)	363.7	tons	50.00	18,186	**Waste Manage**	18,186	
Environmental/Fuel Fees	1.0	al	7,275	7,275	**Waste Manage**	7,275	
Hurricane Prep/Storm Damage Removal (2 storms/yr)	0.0	al	0	0	**NIC**	0	
Variation	526,958	al	0%	0	**NIC**	0	
Bond On Subcontractor	526,958	$$	1.50%	7,904	**Allowance**	7,904	
TOTAL GENERAL REQUIREMENTS	**17,646.39**	**/wk**		**534,862**		**534,862**	**534,862**

Gannett Fleming

ESTIMATE

Project :	**Water Reclamation Facility**	**Issue Date :**	**10/14/21**	**Budget Type :**	**Funding**
Location :	**Clayton, NC**	**Floor Area (SF) :**	**0**	**Estimate No. :**	**001**
Owner :	**Town of Clayton**	**Estimator :**	**GFPDC**	**Revision :**	**0**

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
SITE WORK							**$364,284**
Survey							
Initial Layout Surveying-Allowance (Will be Bid)	1	ls	116,000.00	116,000	**Stantec**	116,000	
Surveying Allowance-During Construction	1	al	37,700.00	37,700	**Allowance**	37,700	
Soil Borings/Geotech Design Neuse River	1	al	30,000.00	30,000	**Allowance**	30,000	
Site Demolition/Prep							
Temp Site Security Fence-Install	4,750	ft	18.11	86,000	**Seegars**	86,000	
Temp Site Security Fence-Demo	1	ls	13,000.00	13,000	**Seegars**	13,000	
Fence Screen-Black	38,000	sf	0.61	23,200	**Seegars**	23,200	
Temporary Swing Gate (Entrance)-Allowance	1	al	3,800.00	3,800	**Allowance**	3,800	
Temporary Swing Gate (Rear)-Allowance	1	al	2,600.00	2,600	**Allowance**	2,600	
Temporary Fence Gates (Large)-Allowance	4	al	1,600.00	6,400	**Seegars**	6,400	
Temporary Fence Gates (Small)-Allowance	3	al	400.00	1,200	**Seegars**	1,200	
Misc							
Tree Protection Inspection	1	al	1,000.00	1,000	**Allowance**	1,000	
Third Party Testing							
3rd Party Inspections-Road	1	ea	18,000.00	18,000	**Allowance**	18,000	
3rd Party Inspections-Bad Soils	1	ea	20,000.00	20,000	**Allowance**	20,000	
Liquidatded Damages	0	days	0.00	0	**NIC**	0	
Variation	358,900	al	0%	0	**NIC**	0	
Bond On Grading Subcontractor	358,900	$$	1.50%	5,384	**Allowance**	5,384	
TOTAL SITE WORK				364,284		364,284	364,284

Gannett Fleming

Project : WWTP **Issue Date :** TBD **Budget Type :** Screening
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** TBD
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** A

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
EQUIPMENT							**$291,934**
Prestressed Concrete Tanks							
Tank Engineering-EQ, Sludge, Clarifier	1	ea	287,620.00	287,620	**CROM**	287,620	
Note: Tank construction costs to be presented in Funding Request 002 per ToC.							
Variation	287,620	al	0.00%	0	**NIC**	0	
Bond on Subcontractor	287,620	$$	1.50%	4,314	**Allowance**	4,314	
TOTAL EQUIPMENT				291,934		291,934	291,934

Project : WWTP **Issue Date :** TBD **Budget Type :** Screening
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** TBD
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** A

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
PIPING							**$1,551,093**
Piping							
DIP Under Slab-EQ, Sludge and Clarrifier Tanks, DIP EQ Tank Interior, DIP EQ Pump Pad Under Slab	1	ea	1,167,569.00	1,167,569	**Core & Main**	1,167,569	
Additional Piping-DIP Tank Exterior and Drain Piping Between Aerobic Sludge Tanks	1	ea	366,010.00	366,010	**Allowance**	366,010	
Shop Drawing Allowance (30 dwgs @ $600 each)	0	ea	0.00	0	**Incuded Above**	0	
Variation	1,167,569	al	0.00%	0	**NIC**	0	
Bond on Subcontractor	1,167,569	$$	1.50%	17,514	**Allowance**	17,514	
TOTAL PIPING				1,551,093		1,551,093	1,551,093

Project : Water Reclamation Facility **Issue Date :** 10/14/21 **Budget Type :** Funding
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** 001
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** 0

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
GENERAL CONDITIONS							$2,477,489
Personnel **Weeks on Site**	30						$1,474,784
EPC Director					**Crowther**		
Billable Rate-2021	87	hrs	235.00	20,351		20,351	
Billable Rate-2022	831	hrs	242.05	201,231		201,231	
Billable Rate-2023	0	hrs	249.31	0		0	
Billable Rate-2024	0	hrs	256.79	0		0	
Travel - Office To Jobsite (46 miles RT)	6164	mi	0.58	3,575		3,575	
Sr. Project Manager-(Office/Site)					**TBD**		
Billable Rate-2021	0	hrs	195.00	0		0	
Billable Rate-2022	0	hrs	200.85	0		0	
Billable Rate-2023	0	hrs	206.88	0		0	
Billable Rate-2024	0	hrs	213.08	0		0	
Travel - Office To Jobsite (46 miles RT)	0	mi	0.58	0		0	
Sr. Project Manager-(Site)					**Mullinax**		
Billable Rate-2021	0	hrs	189.00	0		0	
Billable Rate-2022	1169	hrs	194.67	227,589		227,589	
Billable Rate-2023	0	hrs	200.51	0		0	
Billable Rate-2024	0	hrs	206.53	0		0	
Travel - Office To Jobsite (46 miles RT)	5975	mi	0.58	3,466		3,466	
Senior Site Manager-(Supervising Coordinator On Site)					**Verley**		
Billable Rate-2021	346	hrs	148.00	51,267		51,267	
Billable Rate-2022	1494	hrs	152.44	227,722		227,722	
Billable Rate-2023	0	hrs	157.01	0		0	
Billable Rate-2024	0	hrs	161.72	0		0	
Travel - Office To Jobsite (Local)	0	mi	0.58	0	**NIC**	0	
Senior Site Manager-(Supervising Coordinator On Site)					**TBD**		
Billable Rate-2021	0	hrs	148.00	0		0	
Billable Rate-2022	1083	hrs	152.44	165,016		165,016	
Billable Rate-2023	0	hrs	157.01	0		0	
Billable Rate-2024	0	hrs	161.72	0		0	
Travel - Office To Jobsite (Local)	4980	mi	0.58	2,888		2,888	
Sr. Construction Manager-(Instrumentation/Process)					**NIC**		
Billable Rate-2021	0	hrs	179.00	0		0	
Billable Rate-2022	0	hrs	184.37	0		0	
Billable Rate-2023	0	hrs	189.90	0		0	
Billable Rate-2024	0	hrs	195.60	0		0	
Travel - Office To Jobsite (46 miles RT)	0	mi	0.58	0		0	
Site Safety Manager					**Full Time**		
Billable Rate-2021	213	hrs	138.00	29,422		29,422	
Billable Rate-2022	1277	hrs	142.14	181,563		181,563	
Billable Rate-2023	0	hrs	146.40	0		0	
Billable Rate-2024	0	hrs	150.80	0		0	
Travel - Office To Jobsite (46 miles RT)	6971	mi	0.58	4,043		4,043	
Scheduler					**GFPDC**		
Billable Rate-2021	69	hrs	139.00	9,630	**Office**	9,630	
Billable Rate-2022	624	hrs	143.17	89,269	**Site**	89,269	
Billable Rate-2023	0	hrs	147.47	0		0	
Billable Rate-2024	0	hrs	151.89	0		0	
Travel - Office To Jobsite (46 miles RT)	3585	mi	0.58	2,079		2,079	
Project Engineer					**Full Time**		
Billable Rate-2021	173	hrs	89.00	15,415		15,415	
Billable Rate-2022	1277	hrs	91.67	117,095		117,095	
Billable Rate-2023	0	hrs	94.42	0		0	
Billable Rate-2024	0	hrs	97.25	0		0	
Travel - Office To Jobsite (46 miles RT)	6971	mi	0.58	4,043		4,043	
Document Controls/Admin					**Full Time**		
Billable Rate-2021	173	hrs	93.00	16,108	**Office**	16,108	
Billable Rate-2022	1039	hrs	95.79	99,545	**Site**	99,545	
Billable Rate-2023	0	hrs	98.66	0		0	
Billable Rate-2024	0	hrs	101.62	0		0	
Travel - Office To Jobsite (46 miles RT)	5975	mi	0.58	3,466		3,466	

Project : Water Reclamation Facility **Issue Date :** 10/14/21 **Budget Type :** Funding
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** 001
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** 0

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
Site Office							$619,645
Jobsite Office Trailer (64x36)-GFPDC Only							
Monthly Rental-Includes Options	7.0	mo	3,601.00	25,207	**Willscot**	25,207	
Trailer Upfit	1	ea	15,524.00	15,524	**Willscot**	15,524	
Delivery and Installation	1	ea	14,499.00	14,499	**Willscot**	14,499	
Trailer Return	0	ea	17,901.00	0	**NIC**	0	
Jobsite Office Trailer (64x36)-GFPDC/ToC/HDR							
Monthly Rental-Includes Options	0.0	mo	3,601.00	0	**Willscot**	0	
Trailer Upfit	0	ea	15,524.00	0	**Willscot**	0	
Trailer Delivery	0	ea	14,499.00	0	**Willscot**	0	
Trailer Return	0	ea	17,901.00	0	**NIC**	0	
Jobsite Office Trailer (64x36)-GFPDC/ToC/HDR							
Purchase	1.0	ea	198,603.00	198,603	**Willscot**	198,603	
Monthly Misc Costs	7.0	mo	444.00	3,108	**Allowance**	3,108	
Trailer Upfit	0	ea	0.00	0	**Willscot**	0	
Trailer Delivery	1	ea	25,580.00	25,580	**Willscot**	25,580	
Trailer Relocate	0	ea	0.00	0	**NIC**	0	
Jobsite Office Trailer (56x12)-GFPDC Safety Trailer							
Monthly Rental	7.0	mo	1,263.00	8,841	**Willscot**	8,841	
Trailer Upfit	1	ea	0.00	0	**Willscot**	0	
Trailer Delivery	1	ea	4,046.00	4,046	**Willscot**	4,046	
Trailer Return	0	ea	1,986.00	0	**NIC**	0	
Toilet Trailer (40x12)-GFPDC/ToC/HDR							
Monthly Rental (Includes Pumping)	7.0	mo	2,925.00	20,475	**Willscot**	20,475	
Trailer Upfit	0	ea	0.00	0	**Willscot**	0	
Trailer Delivery & Installation	1	ea	3,530.00	3,530	**Willscot**	3,530	
Trailer Return	0	ea	1,870.00	0	**NIC**	0	
Connex Field Trailer							
Monthly Rental	7.0	mo	350.00	2,450	**Allowance**	2,450	
Trailer Delivery	1	ea	200.00	200	**Allowance**	200	
Trailer Return	0	ea	200.00	0	**NIC**	0	
Misc							
Trailer Deck/Stairs/Access-Field Construct	1.0	al	84,000.00	84,000	**Cardinal**	84,000	
F&F and Electronics-GFPDC Trailer							
Copier/Printer-GF	7.0	mo	650.00	4,550	**Allowance**	4,550	
Supplies-Paper, Pens, etc for GF	30	wk	150.00	4,547	**Allowance**	4,547	
Microwave	1	ea	200.00	200	**Allowance**	200	
Coffee Maker	1	ea	80.00	80	**Allowance**	80	
Refrigerator	1	ea	750.00	750	**Allowance**	750	
65" Screen-Meetings	1	ea	650.00	650	**Allowance**	650	
40" Screen-Safety Orientations	1	ea	400.00	400	**Allowance**	400	
Furniture Allowance	1	ls	8,000.00	8,000	**Allowance**	8,000	
F&F and Electronics-GFPDC/ToC/HDR Trailer							
Copier/Printer-GF	7.0	mo	650.00	4,550	**Allowance**	4,550	
Supplies-Paper, Pens, etc for GF	30	wk	150.00	4,547	**Allowance**	4,547	
Microwave	1	ea	200.00	200	**Allowance**	200	
Coffee Maker	1	ea	80.00	80	**Allowance**	80	
Refrigerator	1	ea	750.00	750	**Allowance**	750	
65" Screen-Meetings	1	ea	650.00	650	**Allowance**	650	
40" Screen-Safety Orientations	1	ea	400.00	400	**Allowance**	400	
Furniture Allowance	1	ls	8,000.00	8,000	**Allowance**	8,000	
F&F and Electronics-GFPDC Safety Trailer							
Copier/Printer-GF	7.0	mo	650.00	4,550	**Allowance**	4,550	
Supplies-Paper, Pens, etc for GF	30	wk	150.00	4,547	**Allowance**	4,547	
Microwave	1	ea	200.00	200	**Allowance**	200	
Coffee Maker	1	ea	80.00	80	**Allowance**	80	
Refrigerator	1	ea	750.00	750	**Allowance**	750	
65" Screen-Meetings	1	ea	650.00	650	**Allowance**	650	
40" Screen-Safety Orientations	1	ea	400.00	400	**Allowance**	400	
Furniture Allowance	1	ls	3,000.00	3,000	**Allowance**	3,000	

Project : Water Reclamation Facility **Issue Date :** 10/14/21 **Budget Type :** Funding
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** 001
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** 0

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
Consumables							
Postage (Fed Ex)	30	wk	60.00	1,819	**Allowance**	1,819	
Clean Up-Trailers and Toilet Supplies-at 3 days/week	30	wk	575.00	17,428	**Allowance**	17,428	
Bottle Water, Coffee, Etc.	30	wk	300.00	9,093	**Allowance**	9,093	
Safety							
Glasses, Vest, Hard Hats, Masks, Harness	1	al	5,500.00	5,500	**Allowance**	5,500	
Safety Supplies-General, Tape, Horn	1	al	4,000.00	4,000	**Allowance**	4,000	
Safety Lanards	1	al	0.00	0	**W/GRs**	0	
Site Radios	1	al	3,600.00	3,600	**Allowance**	3,600	
First Aid Kits-Trucks/Kubotas	6	al	250.00	1,500	**Allowance**	1,500	
First Aid Kits-Trailer	3	al	350.00	1,050	**Allowance**	1,050	
AED-Trailer	3	al	1,500.00	4,500	**GF**	4,500	
Site Transportation							
1500 Series Silverado-(1) @ Site (2021-$800/mo, adjusted 3% per year after)	7	mo	820.57	5,744		5,744	
Fuel	30	wk	400.00	12,124	**As Consumed**	12,124	
1500 Series Silverado-(1) @ Site (2021-$800/mo, adjusted 3% per year after)	6	mo	824.00	4,944		4,944	
Fuel	26	wk	400.00	10,392	**As Consumed**	10,392	
1500 Series Silverado-(1) @ Site (2021-$800/mo, adjusted 3% per year after)	3	mo	824.00	2,472		2,472	
Fuel	13	wk	200.00	2,598	**As Consumed**	2,598	
JD-4 seater-Purchase New	1	ea	22,432.55	22,433	**Turn Over ToC**	22,433	
Fuel	30	wk	100.00	3,031	**As Consumed**	3,031	
JD-4 seater-Purchase New	1	ea	22,432.55	22,433	**Turn Over ToC**	22,433	
Fuel	25	wk	100.00	2,531	**As Consumed**	2,531	
JD-2 seater-Purchase New	1	ea	21,828.00	21,828	**Turn Over ToC**	21,828	
Fuel	20	wk	100.00	2,031	**As Consumed**	2,031	
Project							$42,700
Project Utilities							
Utility Meter and Tap-Water	0	ea	0.00	0	**W/ Sitework**	0	
Utility Hookup-Water	0	ea	0.00	0	**W/ Sitework**	0	
Water Consumption-Site	0	mo	0.00	0	**W/GRs**	0	
Elec Utility Hookup-to Site	0	al	0.00	0	**W/GRs**	0	
Power Consumption	0	mo	0.00	0	**W/ GRs**	0	
Temporary Lights-Site	0	al	0.00	0	**W/GRs**	0	
Temporary Power	0	sf	0.00	0	**W/ Elec**	0	
Temporary Heat	0	ls	0.00	0	**W/ HVAC**	0	
Miscellaneous Expenses							
Drawing Reproduction-Construction Site Start	1	al	20,000.00	20,000	**Allowance**	20,000	
Drawing Reproduction-Site Closeout-Record Drawings	0	al	0.00	0	**NIC**	0	
Ipads-Field Use (Project Start)	5	ea	1,868.93	9,345	**Allowance**	9,345	
Computer Screens (Project Start)	12	ea	275.00	3,300	**Allowance**	3,300	
Progress Photos-Air/Site	0	ls	0.00	0	**NIC**	0	
Independent Safety Audits	0	ea	0.00	0	**NIC**	0	
Drug Test-Admin and GFPDC	6	ea	150.00	900	**Allowance**	900	
Site Tool Allowance	1	al	2,500.00	2,500	**Allowance**	2,500	
Site Generator-Wheeled (8500 Watt)	3	al	985.00	2,955	**Allowance**	2,955	
Diesel Fuel Storage-Truck Bed-For JD/Light Towers	2	al	1,850.00	3,700		3,700	
Training Sessions	0	ea	0.00	0	**W/Equip**	0	

Project : Water Reclamation Facility **Issue Date :** 10/14/21 **Budget Type :** Funding
Location : Clayton, NC **Floor Area (SF) :** 0 **Estimate No. :** 001
Owner : Town of Clayton **Estimator :** GFPDC **Revision :** 0

Item Description	Est. Qty	U/M	Unit Price	Subcontract Cost	Name	Total Cost	Subtotal
Home Office							$340,360
Corporate Safety-Set Up, HASP, Investigations-2021 Bill Rate	200	hrs	159.00	31,800	**Razziano**	31,800	
Corporate Safety-Set Up, HASP, Investigations-2022 Bill Rate	234	hrs	163.77	38,293		38,293	
Corporate Safety-Set Up, HASP, Investigations-2023 Bill Rate	0	hrs	168.68	0		0	
Corporate Safety-Set Up, HASP, Investigations-2024 Bill Rate	0	hrs	173.74	0		0	
Accounting/Invoicing-2021 Bill Rate	25	hrs	119.00	2,975	**Avg Dept Rate**	2,975	
Accounting/Invoicing-2022 Bill Rate	150	hrs	122.57	18,386		18,386	
Accounting/Invoicing-2023 Bill Rate	0	hrs	126.25	0		0	
Accounting/Invoicing-2024 Bill Rate	0	hrs	130.03	0		0	
Administrative-2021 Bill Rate	52	hrs	69.00	3,585	**Avg Dept Rate**	3,585	
Administrative-2022 Bill Rate	390	hrs	71.07	27,696		27,696	
Administrative-2023 Bill Rate	0	hrs	73.20	0		0	
Administrative-2024 Bill Rate	0	hrs	75.40	0		0	
Project Cost Controls-2021 Bill Rate	65	hrs	148.00	9,613	**Avg Dept Rate**	9,613	
Project Cost Controls-2022 Bill Rate	390	hrs	152.44	59,406		59,406	
Project Cost Controls-2023 Bill Rate	0	hrs	157.01	0		0	
Project Cost Controls-2024 Bill Rate	0	hrs	161.72	0		0	
Procurement/Contracts (2 Equip Packages)-2021 Bill Rate	44	hrs	148.00	6,512	**Avg Dept Rate**	6,512	
Procurement/Contracts (15 Equip Packages)-2022 Bill Rate	330	hrs	152.44	50,305		50,305	
Procurement/Contracts (4 Sub Major Packages)-2021 Bill Rate	160	hrs	148.00	23,680		23,680	
Procurement/Contracts (3 Sub Major Packages)-2022 Bill Rate	120	hrs	152.44	18,293		18,293	
Procurement/Contracts (1 Subs Minor Packages)-2021 Bill Rate	30	hrs	148.00	4,440		4,440	
Procurement/Contracts (2 Sub Minor Packages)-2022 Bill Rate	60	hrs	152.44	9,146		9,146	
Procurement/Contracts (4 Vendor-Misc)-2021 Bill Rate	80	hrs	148.00	11,840		11,840	
Procurement/Contracts (8 Vendor-Misc)-2022 Bill Rate	160	hrs	152.44	24,390		24,390	
TOTAL GENERAL CONDITIONS	**81,738.33**	**/wk**		**2,477,489**		**2,477,489**	**2,477,489**

DECISION REQUEST			
Project Name	Neuse River WRF (NRWR) – Ductile Iron Pipe Bid Award		
Decision Request Number	WRF-0065	**Request Date:** **Decision by Date:**	October 11, 2021 October 13, 2021
Description of Request	Award Core & Main the contract to provide ductile iron pipe based on bids received		
Options Considered	Two companies (Core & Main and Ferguson Waterworks) submitted bids for a ductile iron pipe package that was advertised by the Town's Design-Builder, Gannett Fleming.		

REQUESTED ACTION

Award ductile iron pipe package to Core & Main.

DECISION RECOMMENDATION

To select Core & Main.

Basis of Decision: Gannett Fleming reviewed the bids and supporting documents submitted by Core & Main and Ferguson Waterworks. After evaluating the prices and schedules presented by the two vendors, it was determined that Core & Main was the better partner for the Town to deliver the project under budget and on schedule. The recommendation letter from Gannett Fleming is attached.

SUBMITTED BY	FORM DEVELOPED BY
Lee White/Gannett Fleming	**Louis Duffie/Town of Clayton**
(name/firm)	(name/firm)

REVIEWED BY: Owner's Advisor

Adam Sharpe/HDR, Pgm. Director	Sharpe, Adam Digitally signed by Sharpe, Adam Date: 2021.10.13 17:43:12 -04'00'	
(name)	(signature)	(date)

APPROVED BY: Town of Clayton

Rich Cappola, Interim Town Mgr.	RICHARD D. CAPPOLA JR. RICHARD D. CAPPOLA JR. (Oct 14, 2021 13:13 EDT)	
(name)	(signature)	(date)

Reference Details:

Gannett Fleming. October 2021. TOC_AwardRecommendation_DIP. Prepared for the Town of Clayton.

Gannett Fleming

Excellence Delivered ***As Promised***

October 11, 2021

Town of Clayton
PO Box 879
111 East Second Street
Clayton, NC 27528

Attn: Mr. Louis Duffie

Re: Ductile Iron Pipe Supply Award Recommendation

Dear Mr. Duffie:

The purpose of this letter is to summarize our award recommendation for the supply of Ductile Iron Pipe associated with the tanks and structures being constructed for the ToC WRF Project. This recommendation takes into account qualifications, lead times, and pricing.

1. The bid package was publicly advertised and we received requests to receive the bid packages by 3 bidders: Consolidated Pipe, Ferguson Waterworks, and Core & Main. All 3 are reputable, qualified pipe supply distributors.
2. Upon opening of bids after bid due date, we received 1 "no bid" from Consolidated Pipe. We received bids from Ferguson Waterworks and Core & Main.
3. Lead times comparison between the 2 received bids are below:

Vendor	Core & Main	Ferguson Waterworks
# Weeks for Approval Dwgs.	3-4 weeks	6 weeks
# Weeks for Delivery after Release for Manufacturing	16-20 weeks	20 weeks

GANNETT FLEMING PROJECT DEVELOPMENT CORP.
Suite 900, One Glenwood Avenue
Raleigh, NC 27603
Office: (919) 420-7660 Fax: (919) 999-3632
www.**gannettfleming**.com
F.E.I.N #23-2947721

4. Overall Pricing breakdown is listed below:

Vendor	**Core & Main**	**Ferguson Waterworks**
Base Total	$1,186,074	$1,785,512
Comparison Adjustment	($92,333)	($366,010)
Sales Tax (6.75 % Johnston County Rate)	$73,828	$95,816
Grand Total	**$1,167,569**	**$1,515,318**

5. GFPDC estimate breakdown is listed below:

	GFPDC Estimate
Supply Estimate	$1,651,074
Labor Estimate	$783,053
Grand Total	**$2,434,127**

Recommendation:

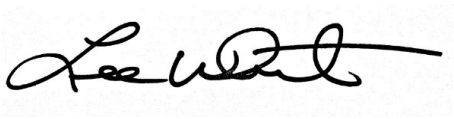
Considering the fact that both bidders are qualified and reputable suppliers, our recommendation is to award to Core & Main for the following reasons:

- Shop drawing development is 2-3 weeks shorter.
- Manufacturing times have the potential to be 4 weeks shorter.
- Total cost is $347,749 less expensive vs competitive bid.
- Total cost is $483,505 less expensive than GFPDC estimate.

Please let know if additional information is needed. Bid documents and proposals are attached. We are requesting formal approval from the ToC on October 12th, 2021 to award to Core & Main. This approval is to secure the pricing and release the shop drawing preparation of the ductile iron pipe. Should the ToC not release the order at the time of shop drawing approval, Core & Main costs will be assessed at $600 per drawing and the job will be repriced on current market conditions at that time.

Sincerely,

GANNETT FLEMING PROJECT DEVELOPMENT CORP.



Lee White
Procurement Manager

ToC_Decision_DIPaward_Signed

Final Audit Report 2021-10-14

Created:	2021-10-14
By:	H. Louis Duffie (lduffie@townofclaytonnc.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAAyJ2xkqb7y1Iow2M5pznEx6T4znEBBDY_

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DECISION REQUEST			
Project Name	Neuse River WRF (NRWRF) – Prestressed Concrete Tank Bid Award		
Decision Request Number	WRF-0066	**Request Date:** **Decision by Date:**	October 14, 2021 October 19, 2021
Description of Request	Award Crom the contract to build seven (7) prestressed concrete tanks at the NRWRF		
Options Considered	Two companies (Crom and Precon) submitted bids for a prestressed concrete tank package that was advertised by the Town's Design-Builder, Gannett Fleming.		

REQUESTED ACTION

Award the prestressed concrete tank package to Crom.

DECISION RECOMMENDATION

To select Crom

Basis of Decision: Gannett Fleming reviewed proposals submitted by Crom and Precon and recommends Crom. It was determined that Precon could not meet the schedule outlined in the bid documents and therefore deemed a non responsive bidder. Schedule is crucial to the NRWRF Project due to future flows from future development and the Town of Clayton cannot risk delaying substantial completion. Crom has assured that crews can be dedicated to the Town once approval from Council. Crom also proposed to Value Engineer some aspects to the prestressed concrete tank design to save money on time and materials. The recommendation letter from Gannett Fleming is attached.

SUBMITTED BY	FORM DEVELOPED BY
Lee White/Gannett Fleming	**Louis Duffie/ Town of Clayton**
(name/firm)	(name/firm)

REVIEWED BY: Owner's Advisor		
Adam Sharpe/HDR, Pgm. Director	Sharpe, Adam Digitally signed by Sharpe, Adam Date: 2021.10.14 09:33:25 -04'00'	
(name)	(signature)	(date)

APPROVED BY: Town of Clayton		
Rich Cappola, Interim Town Manager	RICHARD D. CAPPOLA JR. RICHARD D. CAPPOLA JR. (Oct 14, 2021 13:12 EDT)	
(name)	(signature)	(date)

Referenced Additional Details:

Gannett Fleming. October 2021. TOC_AwardRecommendation_PrestressedConcreteTanks. Prepared for the Town of Clayton.

Gannett Fleming

Excellence Delivered ***As Promised***

October 14, 2021

Town of Clayton
PO Box 879
111 East Second Street
Clayton, NC 27528

Attn: Mr. Louis Duffie

Re: Precast Concrete Tanks Award Recommendation

Dear Mr. Duffie:

The purpose of this letter is to summarize our award recommendation for the supply of seven precast concrete tanks, tank access structures, and EQ under slab piping installation being constructed for the ToC WRF Project. This recommendation considers qualifications, construction durations, and pricing.

1. The bid package was publicly advertised, and we received requests to bid by 4 bidders: Precon Corp, Crom Corp, DN Tanks, and Preload.
2. Upon opening of bids after the due date, we received 2 "no bids" from DN Tanks and Preload. We received bids from Precon Corp and Crom Corp.
3. Construction duration comparison between the 2 received bids are below.

Vendor	Bid Basis	Precon	Crom
Mobilization Date Clarifiers	5/24/22	5/1/22	5/23/22
Substantial Complete (foundation and walls, exterior coating to follow)	11/10/22	11/28/22(Clarifiers 1&2) 1/16/23(Clarifier 3)	10/21/22
Mobilization Date EQ/Sludge	5/24/22	8/8/22 (EQ) 8/29/22 (Sludge)	7/4/22 (EQ) 8/1/22 (Sludge)
Substantial Complete (foundation and walls)	1/10/23	7/21/23 (EQ) 10/1/23 (Sludge)	11/18/22 (EQ) 10/21/22 (Sludge)
Tank Balance Complete	3/10/23	1/19/24	1/27/23

It is concluded after meeting with both vendors independently, Crom is the only vendor that was in compliance with bid schedule requirements. Precon's schedule is unacceptable and thus their bid is considered non-responsive.

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F.E.I.N #23-2947721

4. Overall Pricing breakdown is listed below.

Vendor	**GFPDC**	**Precon**	**Crom**
Base Total (including bond)	$8,787,532 (includes stone, coatings, tanks, geodesic domes, EQ pipe labor, and additional clarifier ballast concrete.)	$8,288,715	$8,815,750
Base Schedule Working Hours	4X10	5X10	4X10
GFPDC OT Cost (based on 45 weeks, 2 FTE, 20 hours/week, average bill rate $168.41	$0.00	$151,569	$0.00
Grand Total	**$8,787,532**	**$8,440,284**	**$8,815,750**
Potential VE's			
Clarifier Concrete Reduction (remove 8" slab plus ballast and replace with 6" slab with PRV's.		($261,300)	($342,850)
Stone Sub Foundation Stone Reduction 12" to 6"		($60,100)	Not recommended by Crom
EQ & Sludge Concrete Reduction from 8"		($112,300) this is to 4"	($85,000) this is to 6"

5. Prequalification Data

Vendor	Precon	Crom
EMR	0.78	0.85
2018 TRIR	0	1.06
2019 TRIR	0	3.45
2020 TRIR	0	1.43
2020 Hours Works	364,273	840,793

Recommendation:

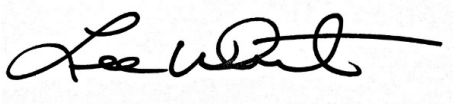
Considering the above, our recommendation is to award to Crom for the following reasons:

- Schedule: Crom is the only vendor who was responsive to the project schedule as outlined clearly in the RFP process.
- Base Price: We evaluated both vendors commercial offerings, but due to the fact Precon was non responsive to the schedule requirements, pricing is not applicable in this evaluation.
- Potential VE's: VE pricing was not considered for our recommendation. ToC will need to approve any VE's in the future.

Please let me know if additional information is needed. Bid documents and proposals are attached. We are requesting formal approval from the ToC, by 10/19/21, to award to Crom the detailed design cost of $287,620 from their bid breakdown. This approval is required to begin detailed design services. We will require authorization to issue a letter of intent to Crom for the remainder of their bid value no later than 11/12/21. After this date, pricing and schedule are subject to be adjusted by Crom.

Sincerely,

GANNETT FLEMING PROJECT DEVELOPMENT CORP.



Lee White – Procurement Manager

ToC_Decision_PrestressedConcreteTankAward_Signed

Final Audit Report 2021-10-14

Created:	2021-10-14
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Gannett Fleming

Excellence Delivered ***As Promised***

October 14, 2021

Town of Clayton
111 E. Second Street, PO Box 879
Clayton, North Carolina 27528

Attn: Mr. Louis Duffie
Asst. Program Manager

RE: Funding Request 001, Rev. 0
ToC New Neuse River Water Reclamation Facility

Dear Louis,

Gannett Fleming Project Development Corp (GFPDC) is formally submitting Funding Request 001 for your review and approval. The details of this request have been included for your review. Additional details for each funding package referenced below are available in Procore and can be made available at your request.

The funding approval that is being requested is for the following:

- **General Conditions and General Requirement Costs.** General Conditions and General Requirement costs for the project have been estimated and will cover costs from December 2021 to the end of June 2022. June 2022 has been selected since the GMP is due to be approved the first week of June 2022. Additional General Conditions and General Requirements costs will be presented in subsequent estimates. Rates for GFPDC personnel have been identified in the estimate and will be added to an Appendix as outlined in DBIA 545, Section 7.4.1.1. The rates account for annual increases of 3%.
- **Payment and Performance Bond** for $125,000,000. (Refer to included letter for reference.)
- **Construction Administration** costs associated with Gannett Fleming Design reviewing the equipment and concrete shop drawings.
- **Design of the Prestressed Concrete Tanks** (Funding Package 068658-SOW001). This package includes detailed design services for the tanks and associated access platforms/stairs, construction of the tanks, coatings, domes, and installation of respective under slab pipe. In addition, installation of the under slab ductile iron pipe has been included for the EQ pump pad. At the request of the ToC, the detailed design services will be funded with this funding request and the balance deferred to funding request 002. CROM will require a letter of intent within 30 days of this letter to move forward with securing staff and materials for the project. After 30 days, pricing and schedule may be adjusted.

Gannett Flemng Project Development Corporation
Suite 900• One Glenwood Avenue Raleigh, NC 27603
t: 919-420-7660 • f: 919-999-3632
www.**gannettfleming**.com

- **Procurement of the Under Slab Ductile Iron Pipe and Fittings-Material** (Funding Package 068658-SOW002). The piping material is for the following:
    - Under Slab DIP-EQ Tanks, Sludge Holding Tanks, and Clarifiers
    - Interior DIP-EQ Tanks
    - Under Slab DIP-EQ Pump Pad
    - An allowance has been made for additional piping material to be installed on the tank exteriors and between the Sludge Holding Tanks. Pricing for the allowance will be confirmed during the shop drawing development.
    - GFPDC requested formal approval from the ToC on October 12th, 2021 to award to Core & Main. We are still in need of this formal approval by the ToC. This approval is required to release the shop drawing preparation of the ductile iron pipe. Should the ToC not release the order at the time of shop drawing approval, Core & Main costs will be assessed at $600 per drawing and the job will be repriced on current market conditions at that time, which may also impact the schedule.

Additional funding for this work may be needed and will be presented in subsequent funding requests if required.

GFPDC recommends approval and award of this request for funding in the amount of **$6,745,600** (six million, seven hundred forty-five thousand, six hundred dollars and 00/100). This is not a lump sum offer and is an estimate of costs. A 10% contingency and 4.5% escalation allowance was used for this funding request. Approval of the funding request is required no later than **October 26, 2021**. Authorization after this date may cause project delays.

We respectfully request authorization for GFPDC to proceed with the award of this Scope of Work by having both Mr. Rich Cappola and the Finance Officer or Designee sign and date in the provided space below and returning an executed copy to GFPDC procurement (Lee White; lwhite@gfnet.com). Please let me know if you have any questions or require additional detail.

Sincerely,

Craig E. Crowther, PE
EPC Director, Senior Vice President

Town of Clayton

This instrument has been preaudited in the Manner required by Local Government Budget and Fiscal Control Act.

Rich Cappola	**Date**	**FINANCE OFFICER OR DESIGNEE**	**Date**

C: GFPDC Project Team