



Board of Commissioners

Work Session

April 16, 2024

6:00 p.m.

AGENDA

1. Call to Order
2. Continued Legislative Hearing: MA22-08/ANX22-05 – Harris Creek Farms
3. Chamber of Commerce – Memorandum of Understanding (MOU)/Budget Request
 - 3.a. Current MOU
 - 3.b. Proposed MOU
4. Capital Improvement Plan Model - Davenport
5. Noise Ordinance Discussion – Town Attorney Dave Neill
6. Adjourn

FYI

Future Meetings Calendar



Memo

To: Mayor Currin and Town Board of Commissioners
From: Meredith Gruber, Planning Director & Michael Elabarger, Assistant Planning Director
Date: April 16, 2024
Re: Harris Creek Farm Rezoning (MA 22-08) and Annexation (ANX 22-05)

Update

On April 2, 2024, the Town Board of Commissioners voted to continue the rezoning (MA 22-08) and annexation (ANX 22-05) cases for Harris Creek Farm to their April 16, 2024 meeting to allow the applicant time to further investigate and clarify the proposed Conditions of Approval. Topics for further investigation included Universal Drive, dedication of space for a historical monument, street names suggested by the Jonesville community, and blasting considerations.

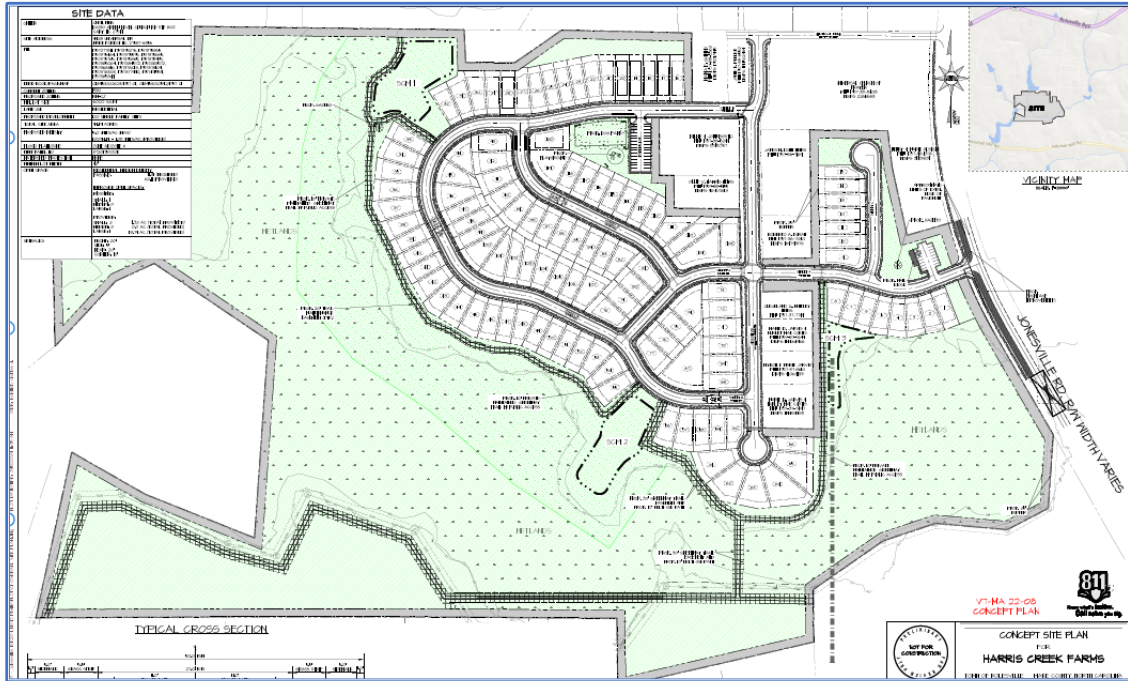
Since the April 2 Town Board meeting, Condition 13 was edited to note if Universal Drive is paved, it will be paved to the NCDOT standard pavement section. In addition, three new conditions are being proposed by the applicant:

- (14) Historical Monument – Dedication of a 10 foot by 10 foot area for a historical marker;
- (15) Naming of Roads – Notes formal request for suggestions from the Jonesville Community;
- (16) Blasting – Details provided about notification and safeguards.

Background

Rezoning – MA 22-08

The Town of Rolesville Planning Department received a Rezoning (Map Amendment) application in August of 2022 for approximately 93 acres consisting of nineteen tracts of land on the western side of Jonesville Road near Universal Drive. After several revisions, the application request is to change the zoning from Wake County's Residential-30 (R-30) Zoning District to the Town's Land Development Ordinance (LDO) Residential Medium Density Conditional Zoning District (RM-CZ). Below is an image from the Concept Site Plan (Attachment 5), which proposes a maximum of 120 single family detached (SFD) lots. The Concept Site Plan also indicates an intent to provide at least a minimum of forty percent (40%) gross acreage preserved as undisturbed open space; this indicates the Applicant seeks to subdivide the project utilizing LDO Section 3.1.B., Cluster Development; based on the timing of this submittal, that entails the lot dimensions that existed in the LDO before TA 23-02 was adopted on 04/04/2023.



The Rezoning application includes a set of Conditions of Approval (see Attachment 8) and a Concept Site Plan (see Attachment 5).

Voluntary Annexation Petition ANX 22-05

A non-contiguous, voluntary Annexation Petition was submitted, reviewed, and processed simultaneously with the Rezoning application request. There will be a combined Legislative hearing at the Town Board of Commissioners' meeting. The Town Clerk investigated the Sufficiency of the request on December 7, 2022. See Attachment 13 for these files.

Neighborhood Meetings

The Applicant conducted a neighborhood meeting on July 12, 2023, at which there were 24 attendees. The Applicant held an additional Meeting on October 24, 2023, at which there were 10 attendees; see Attachment 9.

Comprehensive Plan

Land Use

The 2017 Comprehensive Plan Future Land Use map designates the subject property, and the entire area south of Harris Creek to Mitchell Mill Road, as appropriate for **Medium Density Residential** type of land uses, which it describes / defines as:

Predominantly single-family residential uses with portion of duplex, townhouse, or multifamily residential. These are lots or tracts at a density range of three to five (3-5) dwelling units per gross acre including preserved open space areas along with limited non-residential uses under planned unit development or form base code provisions.

As stated in Land Development Ordinance (LDO) Section 3.1.2.A., Purpose and Intent: “*RM [Residential Medium Density zoning district] implements the Medium Density Residential future land use designation at a density range of three (3) to five (5) dwelling units per acre.*”

Community Transportation Plan

The Town of Rolesville’s Community Transportation Plan (CTP, adopted 2021) includes recommendations for Thoroughfares, Collectors, and intersections. There are no plans for new Collector roadways in the vicinity of the subject property, but there is this Thoroughfare Recommendation (page 79/131):

- Jonesville Road is planned to be a 2-lane (with Two Way Left Turn Lane), curb and gutter, bike lanes, and Sidewalks.

Per the Concept Site Plan, the project is proposing one new primary site access (Street A) to Jonesville Road, located south of where Universal Drive lies and the Harris Creek bridge crossing.

Intersection Recommendations

- There are no intersection recommendations associated with the subject property.
- The closest intersection recommendations are located at Mitchell Mill and Rolesville Roads, for an intersection realignment.

Greenway and Bike Plans

As per the 2022 Greenway and Bike Plans, proposed pedestrian routes are shown in the following locations:

- A ten-foot (10’) private maintained Greenway trail with public access easement, turns into a twenty-foot (20’) trail easement before returning to a ten-foot (10’) private maintained greenway trail with public access easement is shown on the northwest side of the property, along Harris Creek.

Consistency

The Applicant’s rezoning request is consistent with the Town of Rolesville’s Comprehensive Plan for the following reasons:

- The RM district is a direct fulfillment of the Medium Density Residential land use description.
- The proposed 120 Single-family detached lots/units fulfill the core intent of detached dwelling units in the Medium Density Residential land use description.
- The proposed vehicular circulation network is in harmony with / of no conflict with the Town’s Community Transportation Plan.
- The proposed Greenways establish pedestrian connections as recommended by Rolesville’s Greenway Plan.

Traffic

Traffic Impact Analysis

The consulting firm, Ramey Kemp Associates (now DRMP), performed the Traffic Impact Analysis (TIA) for this project on behalf of the Town. The TIA was done at the time that the application was requesting development of 68 Single Family Detached and 81 Single family Attached (townhome) housing units. As noted at the top of this Memo, the project conceived in the application has been scaled back to a maximum of 120 single family detached units, replacing 81 Townhome units with 52 single family detached units.

A trip generation letter (Attachment 12) was prepared by DRMP on March 27, 2024; the contents document the change in land use type and density of the proposed Harris Creek Farm rezoning application. The table below compares the trip generation between the approved TIA Concept Site Plan and the latest Concept Site Plan. The table shows a decrease in the total daily trips and a very small increase in the PM peak hour trips upon entering the site.

Table 1: Trip Generation Comparison

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Approved TIA Site Plan						
Single-Family Detached Housing (210)	68 DU	708	13	39	44	25
Single-Family Attached Housing (215)	81 DU	568	9	27	26	19
TOTAL		1,276	22	66	70	44
Latest Site Plan						
Single-Family Detached Housing (210)	120 DU	1,193	22	66	74	44
Difference		-83	0	0	4	0

Attachment 10 is the Final Sealed Report dated May 08, 2023. Traffic conditions during weekday AM and PM peak hours were looked at in four (4) scenarios: 2022 Existing Traffic Conditions, 2027 No-build Traffic Conditions, 2027 Build Traffic Conditions and 2027 Build-Improved Traffic Conditions. See excerpted Table E-1 from the TIA report:

Table E-1: Site Trip Generation

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Single-Family Home (210)	68 DU	708	13	39	52	44	25	69
Single Family Attached (215)	81 DU	568	9	27	36	26	19	45
Total Primary Trips		1,276	22	66	88	70	44	114

Four intersections were studied for capacity analysis and Level of Service (LOS) impact of this development – US 401 Bypass and Jonesville Road; US 401 Bypass and Eastern U-turn location; Mitchell Mill Road and Jonesville Road / Peebles Road and Jonesville Road and Universal Drive.

TIA Summary – Intersection Improvements	
Recommendations	
<p>Future Traffic Conditions A growth rate of 0% was used due to the number of developments included in the background traffic and the proximity of some of these developments to the proposed development. The following adjacent developments were identified to be considered under future conditions:</p>	<ul style="list-style-type: none"> • Cobblestone Crossing Mixed-Use (Cobblestone) • Young Street PUD (The Point) • Wheeler Tract (Rolesville Crossing) • Louisbury Road Assemblage • Kalas / Watkins Family Property (Kalas Falls) • 5109 Mitchell Mill • Hills at Harris Creek
US 401 Bypass and Jonesville Road	<ul style="list-style-type: none"> • Conduct a full signal warrant analysis prior to Full Build-out of the proposed development and install a traffic signal if warranted and approved by NCDOT and Town.
Mitchell Mill Road and Jonesville Road / Peebles Road	<ul style="list-style-type: none"> • Construct a south-bound (Jonesville Rd) left-turn lane with at least 100 feet of storage and appropriate deceleration and taper. • <i>It should be noted that this improvement was also identified by the 5109 Mitchell Mill Rd and Hills at Harris Creek TIA.</i>
	<ul style="list-style-type: none"> • Construct an eastbound (Mitchell Mill Rd) left-turn lane with at least 100 feet of storage and appropriate deceleration and taper. • <i>It should be noted that this improvement was also identified by the 5109 Mitchell Mill Rd TIA.</i>
	<ul style="list-style-type: none"> • Construct a westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate deceleration and taper. • <i>It should be noted that this improvement was also identified by the Hills at Harris Creek TIA.</i>
	<ul style="list-style-type: none"> • Conduct a full signal warrant analysis prior to Full Build-out of the proposed development and install a traffic signal if warranted and approved by NCDOT and Town.
Jonesville Road and Site Drive	<ul style="list-style-type: none"> • Construct the eastbound approach (Site Drive) with one ingress lane and one egress lane.
	<ul style="list-style-type: none"> • Provide stop control for the eastbound approach (Site Drive).

Development Review

The Technical Review Committee (TRC) reviewed three versions of the Rezoning application, with all comments pertinent to the consideration of the proposed districts and the general development plan being resolved. Note that the TRC review of the Concept Site Plan (Attachment 5) was not an LDO subdivision and/or site development regulation review, as it is only a conceptual plan, and not an engineered and dimensioned layout. Should the proposed Zoning Districts be approved, the project would next process an administratively reviewed/approved Major Preliminary Subdivision Plat (PSP) application, followed by Construction Infrastructure Drawings (CID).

Planning Board Recommendation

At the Planning Board meeting on December 18, 2023, there were eight public speakers in opposition to the rezoning request. One person submitted a letter in support of the rezoning application.

The Planning Board recommended approval of MA 22-08 with a vote of 3 – 1. The dissenting vote was due to the inclusion of townhomes in the proposed Concept Site Plan.

Since the Planning Board meeting in December, the applicant has revised the application to include single family detached lots only.

Staff Analysis and Recommendation

The proposed RM District is committing to far less than the LDO stated maximum densities and far less than the theoretical by-right subdivision yields. Collectively, the gross density of the proposed 120 dwelling units over 93 acres = 1.29 units per acre. The proposed housing type is consistent with the Comprehensive Plan Future Land Use designation of Medium Density Residential, and the proposed density matches the Low Density Future Land Use category.

Staff finds the proposed Rezoning request MA 22-08 is consistent with the Comprehensive Plan and recommends Approval.

Consistency and Reasonableness

As noted above under the Comprehensive Plan section of this report, the rezoning request for the subject parcel is consistent with Rolesville's vision. Map Amendment MA 22-08 is thus consistent with the Comprehensive Plan and other applicable Plans and is therefore reasonable.

Proposed Motions

1. Motion to (approve or deny) rezoning Map Amendment request MA 22-08 – Harris Creek Farms.
2. (Following Approval) Motion to adopt a Plan Consistency Statement and Statement of Reasonableness for MA 22-08.
3. Motion to (approve or deny) the Voluntary Annexation Petition received under G.S. 160A-31 for ANX 22-05 – Harris Creek Farms.

Or

4. Motion to continue the legislative hearing for MA 22-08 and ANX 22-05 to a future Town Board of Commissioners' meeting.

Attachments

- 1 Vicinity Map
- 2 Zoning Map
- 3 Future Land Use Map
- 4 Map Amendment Application
- 5 Concept Site Plan, December 15, 2023
- 6 Zoning District Boundaries
- 7 Proposed Conditions of Approval
- 8 Neighborhood Meeting Package, July 12, 2023 and October 14, 2023
- 9 Traffic Impact Analysis (TIA), sealed dated May 8, 2023
- 10 Traffic Impact Analysis (TIA – NCDOT Congestion Management report, June 5, 2023
- 11 Traffic Impact Analysis (TIA), Trip Generation Letter, March 27, 2024
- 12 Annexation Petition and Attachments
- 13 Applicant Presentation

Attachment #1

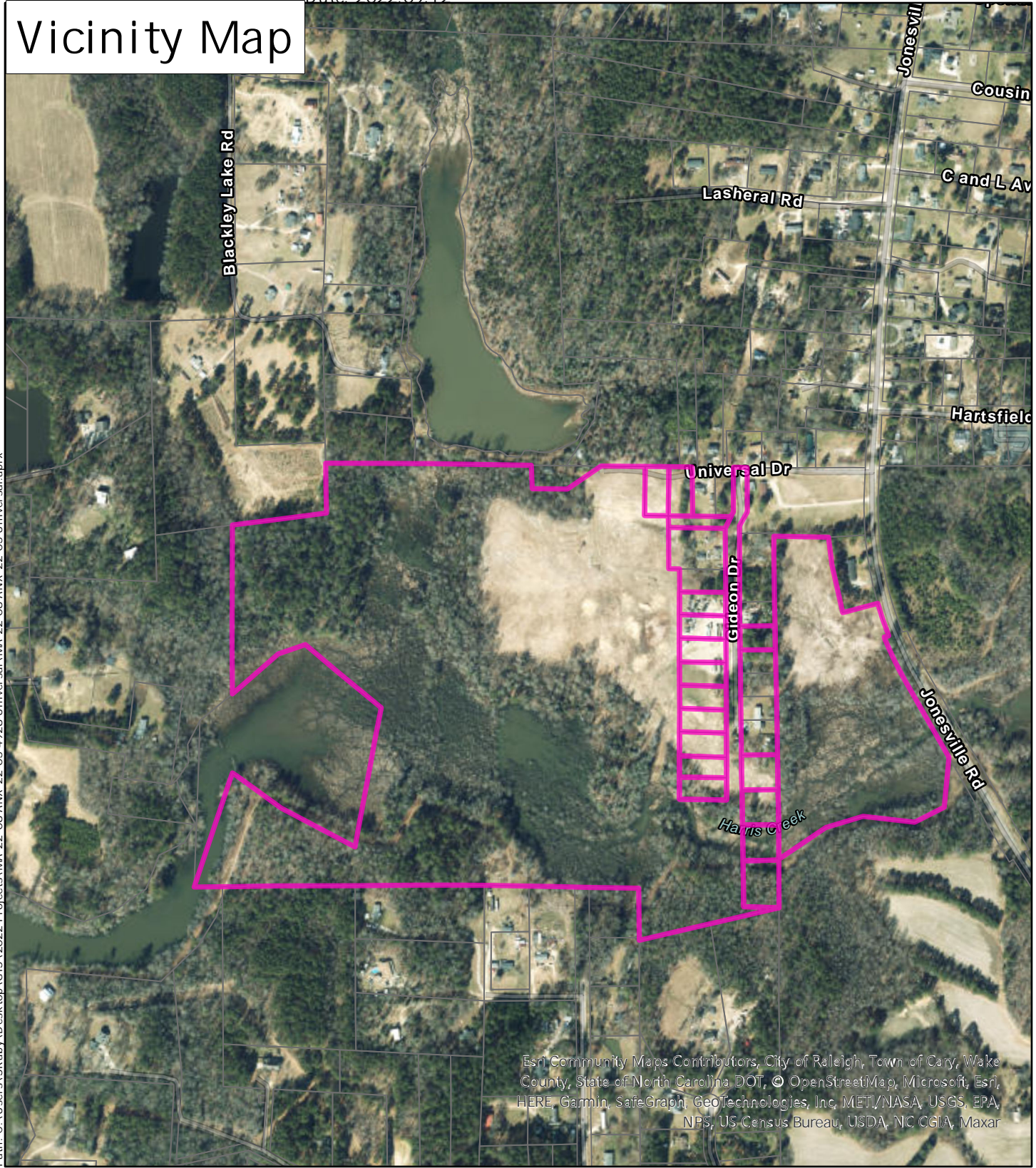


Case: MA 22-08 ANX 22-05 Harris Creek Farms
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1757471559, 1757385349
Date: 2022.09.12

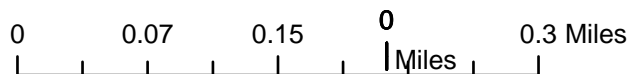
Vicinity Map

Date Saved: 9/12/2022 4:00 PM

Path: C:\Users\Sraby\Desktop\GIS\2022 Projects\MA 22-08 ANX 22-05 4928 Universal\MA 22-08 ANX 22-05 Universal.aprx



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Attachment #2

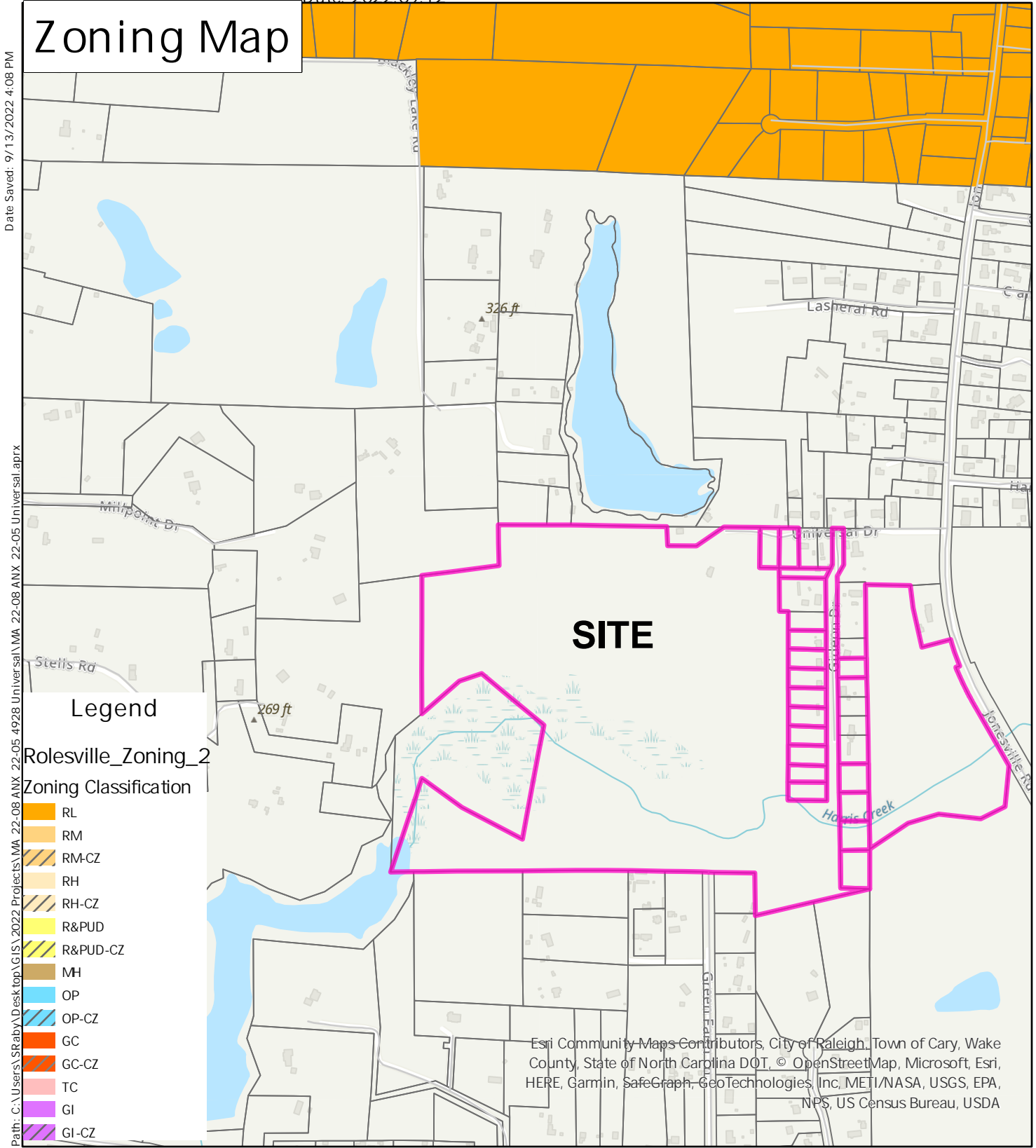


Case: MA 22-08 ANX 22-05 Harris Creek Farms

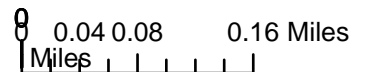
Address: 4928 Universal

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 1757368816, 1757378013, 1757378109, 1757378303, 1757377990, 1757471559,
 1757385349

Date: 2022.09.12



***Site is approximately 1 mile from Carlton Pointe**



Attachment #3



Case: MA 22-08 ANX 22-05 Harris Creek Farms

Address: 4928 Universal

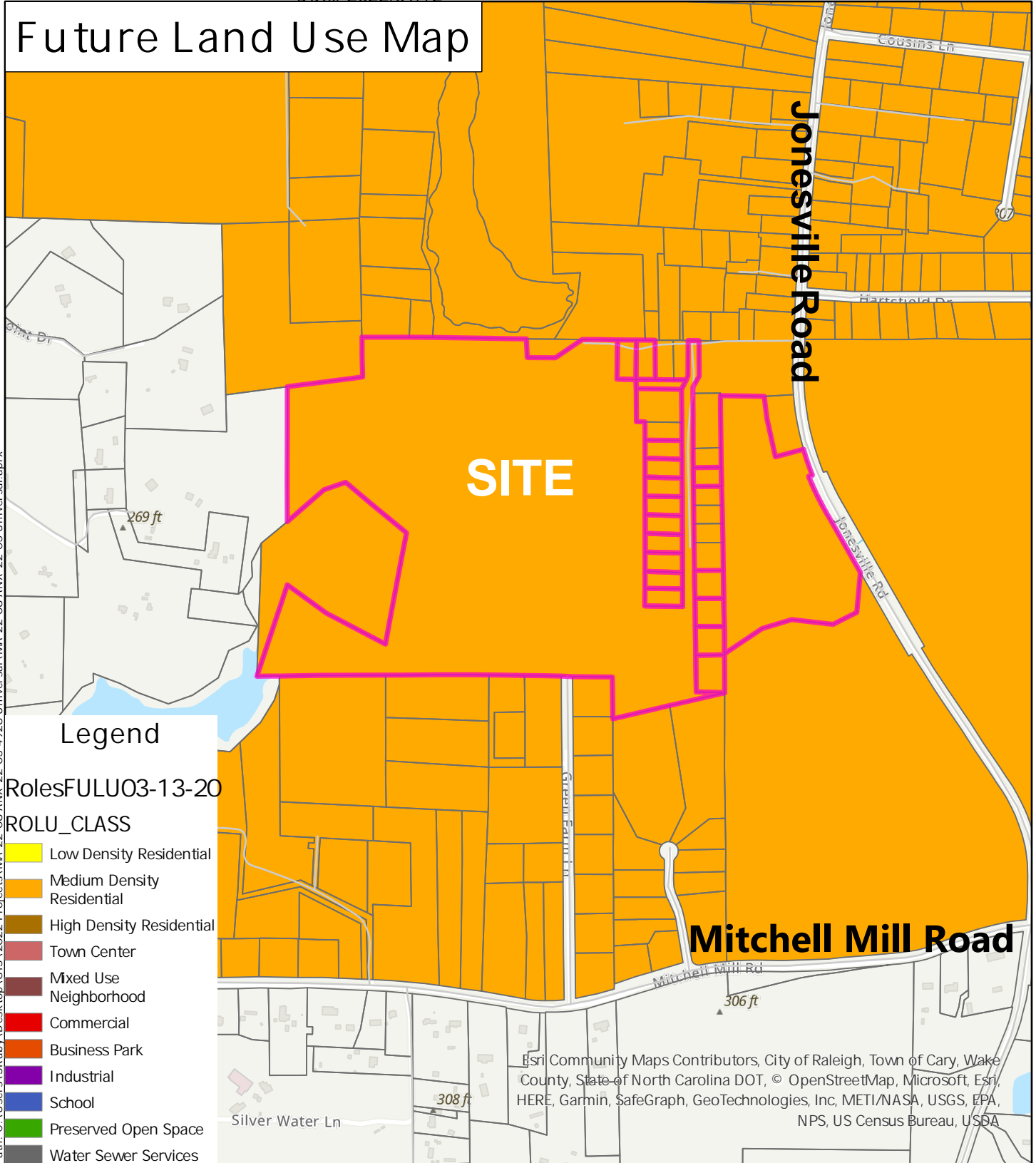
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Date: 2022.09.12

Future Land Use Map

Date Saved: 9/13/2022 4:16 PM

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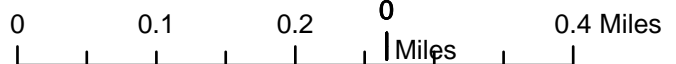
Legend

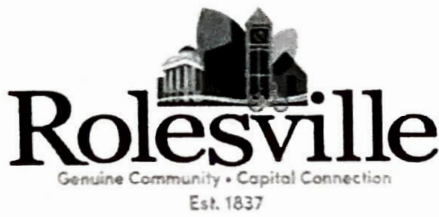
RolesFULU03-13-20

ROLU_CLASS

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Town Center
- Mixed Use Neighborhood
- Commercial
- Business Park
- Industrial
- School
- Preserved Open Space
- Water Sewer Services

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Map Amendment Application

Contact Information

Property Owner CHEN, PING

Address 10030 GREEN LEVEL CHURCH RD STE 802 City/State/Zip CARY NC 27519-8195

Phone 919-798-0429 Email ping@thescgrp.com

Developer The CSC Group, LLC

Contact Name Ping Chen

Address 10030 GREEN LEVEL CHURCH RD STE 802 City/State/Zip CARY NC 27519-8195

Phone 919-798-0429 Email ping@thescgrp.com

Property Information

Address 4928 UNIVERSAL DR.

Wake County PIN(s) 1757277811, 1757375278, 1757375365, 1757375464, 1757375575, 1757375665, 1757375765, 1757375865, 1757375975, 1757385064, 1757384572, 1757383572, 1757386816, 1757378013, 1757378109, 1757378303, 1757377990, 17574715

Current Zoning District R-30 Requested Zoning District RM and RH

Total Acreage 93.22

Owner Signature

I hereby certify that the information contained herein is true and completed. I understand that if any item is found to be otherwise after evidentiary hearing before the Town Board of Commissioners, that the action of the Board may be invalidated.

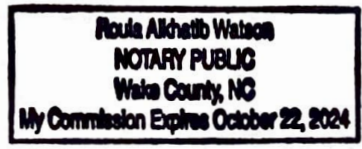
Signature [Handwritten Signature] Date 6/8/2022

STATE OF NORTH CAROLINA
COUNTY OF Wake

I, a Notary Public, do hereby certify that ping chen
personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This
the 8th day of June 2022.

My commission expires 10/22/2024.

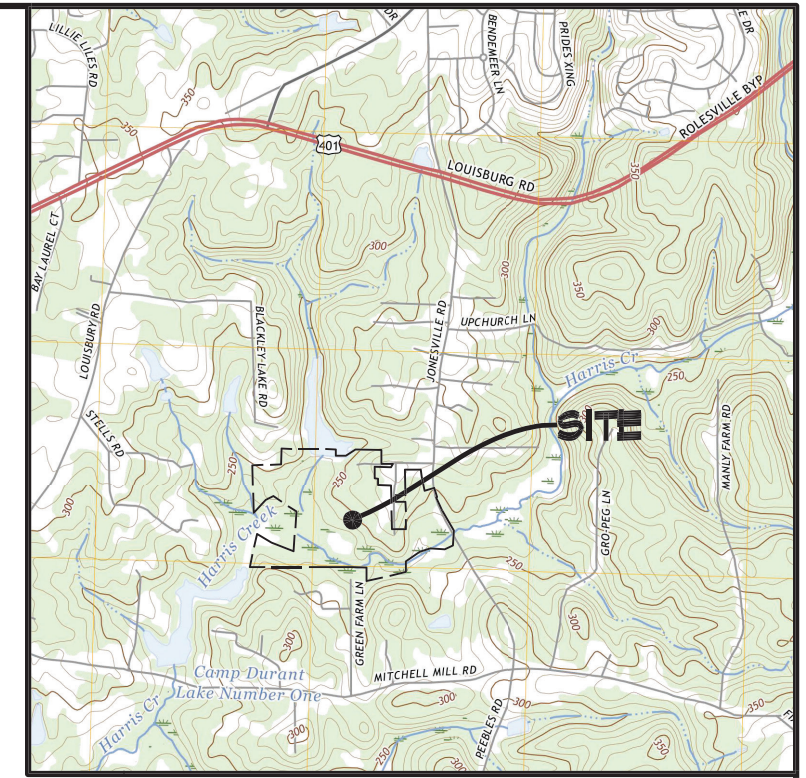
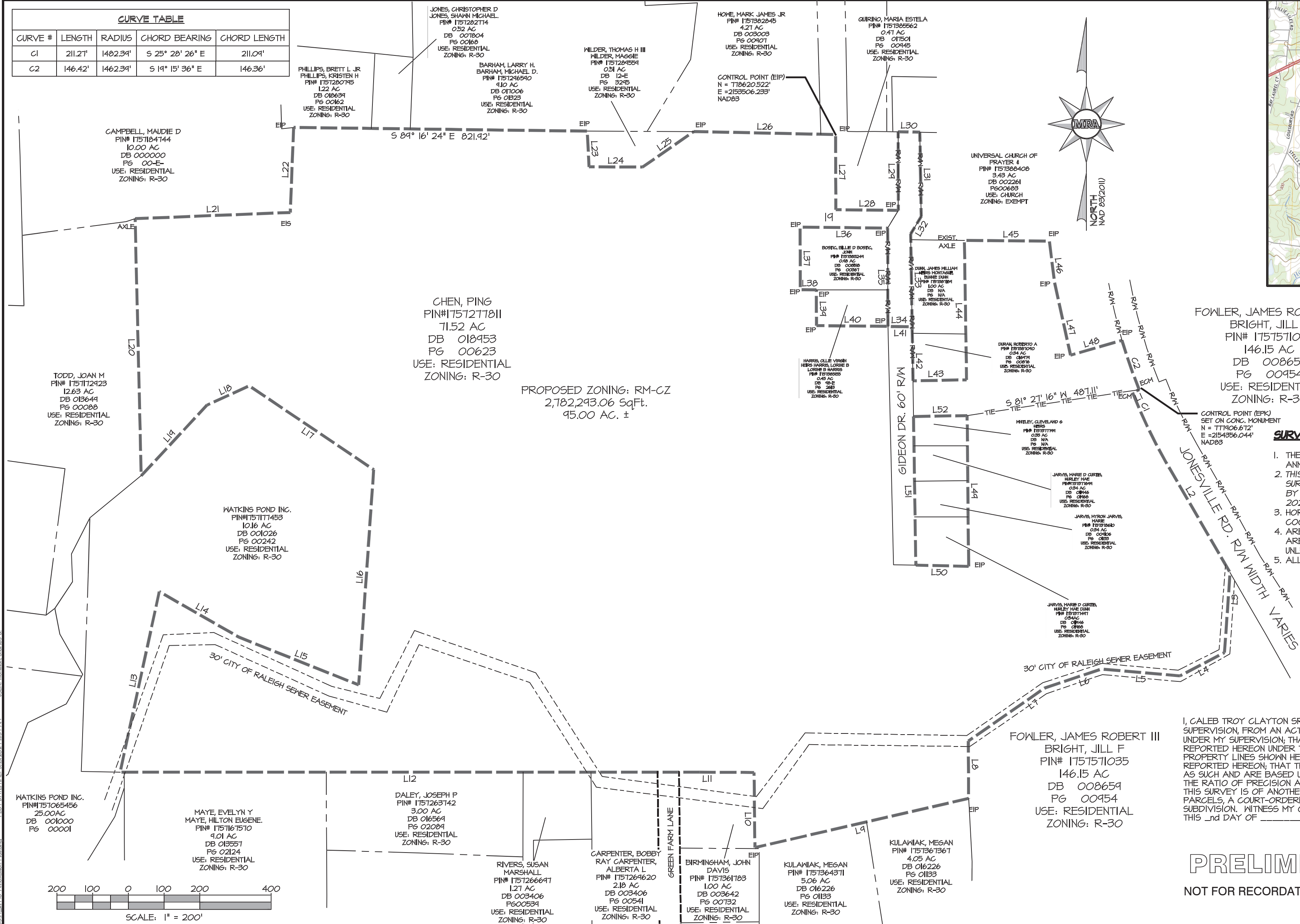
Signature [Handwritten Signature] Seal



Town of Rolesville Planning

ATTACHMENT 6 - REZONING EXHIBIT

CURVE TABLE				
CURVE #	LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	211.27'	1482.34'	S 25° 28' 26" E	211.04'
C2	146.42'	1462.34'	S 19° 15' 36" E	146.36'



VICINITY MAP
SCALE: N.T.S.

FOWLER, JAMES ROBERT III
BRIGHT, JILL F
PIN# 175751035
146.15 AC
DB 008659
PG 00954
USE: RESIDENTIAL
ZONING: R-30

SURVEY NOTES:

1. THE PURPOSE OF THIS PLAT IS TO ILLUSTRATE AREA TO BE ANNEXED INTO THE TOWN OF ROLESVILLE CORPORATE LIMITS.
2. THIS MAP IS NOT THE BENEFIT OF A FIELD SURVEY BY THIS SURVEYOR, BUT A REPRESENTATION OF AN AREA SURVEYED BY GIL CLARK SURVEYING SIGNED AND SEALED ON JULY 26, 2022.
3. HORIZONTAL DATUM IS NAD '83/2011 NC STATE PLANE COORDINATES.
4. AREA COMPUTED BY COORDINATE METHOD. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES IN US SURVEY FEET, UNLESS NOTED OTHERWISE.
5. ALL RIGHT-OF-WAYS ARE PUBLIC, UNLESS NOTED OTHERWISE.

I, CALEB TROY CLAYTON SR., CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GROUND (CONVENTIONAL) AND GPS SURVEY MADE UNDER MY SUPERVISION, THAT THE GPS SURVEY INFORMATION (METADATA) HAS BEEN REPORTED HEREON UNDER THE "SURVEY CONTROL/GRID TIE NOTES", THAT SURVEYED PROPERTY LINES SHOWN HEREON ARE BASED UPON THE DEEDS AND PLATS REPORTED HEREON; THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS SUCH AND ARE BASED UPON THE DEEDS AND PLATS REPORTED HEREON; THAT THE RATIO OF PRECISION AS CALCULATED BEFORE ADJUSTMENT IS 1:10,000 ±; THAT THIS SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 2nd DAY OF _____, A.D., 2023.



PRELIMINARY PLAT
NOT FOR RECORDATION, CONVEYANCES OR SALES

CALEB TROY CLAYTON SR., PLS N.C. REG. NO.: L-5306

LINE TABLE			LINE TABLE			LINE TABLE			LINE TABLE		
LINE #	BEARING	DISTANCE	LINE #	BEARING	DISTANCE	LINE #	BEARING	DISTANCE	LINE #	BEARING	DISTANCE
L1	S 66° 41' 05" W	20.01'	L16	N 03° 54' 25" E	604.00'	L31	S 00° 53' 13" E	236.00'	L46	S 06° 57' 52" E	113.70'
L2	S 30° 07' 41" E	362.37'	L17	N 56° 00' 58" W	420.00'	L32	S 31° 00' 37" W	56.74'	L47	S 12° 21' 20" E	211.32'
L3	S 03° 57' 30" W	224.27'	L18	S 65° 24' 02" W	130.00'	L33	S 00° 53' 13" E	259.68'	L48	N 73° 55' 50" E	144.95'
L4	S 62° 24' 06" W	140.83'	L19	S 42° 57' 43" W	270.40'	L34	N 84° 21' 02" W	67.80'	L49	S 00° 34' 22" E	421.87'
L5	N 85° 00' 48" W	220.34'	L20	N 01° 21' 15" W	714.72'	L35	N 00° 04' 07" W	275.03'	L50	N 88° 46' 16" W	147.71'
L6	S 71° 32' 01" W	167.91'	L21	N 87° 42' 34" E	434.84'	L36	N 84° 21' 02" W	245.02'	L51	N 00° 53' 13" W	416.01'
L7	S 55° 11' 46" W	260.01'	L22	N 02° 13' 13" E	238.07'	L37	S 00° 04' 07" E	175.02'	L52	N 88° 51' 37" E	150.00'
L8	S 00° 14' 06" E	160.50'	L23	S 02° 47' 46" E	100.00'	L38	S 84° 21' 02" E	45.00'			
L9	S 77° 03' 58" W	613.86'	L24	S 84° 47' 46" E	150.00'	L39	S 00° 04' 07" E	60.00'			
L10	N 00° 34' 34" W	210.00'	L25	N 55° 18' 54" E	174.54'	L40	S 84° 21' 02" E	200.02'			
L11	N 84° 34' 42" W	152.54'	L26	S 88° 43' 46" E	346.94'	L41	N 84° 21' 02" W	67.80'			
L12	N 84° 54' 24" W	162.81'	L27	S 00° 04' 07" E	210.02'	L42	S 00° 53' 14" E	151.52'			
L13	N 12° 14' 25" E	516.70'	L28	S 84° 21' 02" E	175.02'	L43	N 88° 51' 37" E	150.00'			
L14	S 60° 15' 35" E	257.50'	L29	N 00° 10' 25" W	214.87'	L44	N 00° 53' 16" W	340.32'			
L15	S 68° 15' 33" E	360.30'	L30	S 88° 58' 52" E	60.90'	L45	S 84° 32' 03" E	237.94'			

JOB NO.: 21704
SCALE: 1"=200'
DATE: 03-14-2024
DRAWN BY: CDM
REVIEW BY: CTC



REZONING EXHIBIT
FOR: HARRIS CREEK FARMS
#4928 UNIVERSAL DRIVE
WAKE FOREST, NC 27587
TOWN OF WAKE FOREST - WAKE COUNTY - NORTH CAROLINA

MORRIS & RITCHIE ASSOCIATES OF NC, PC
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
5605 CHAPEL HILL RD, STE 112
RALEIGH, NC 27607
(984) 200-2103
LICENSE # C-4182
WWW.MRAGTA.COM
© 2021 MORRIS & RITCHIE ASSOCIATES, INC.

HARRIS CREEK FARMS

VOLUNTARY REZONING CONDITIONS

1. The subject property shall be developed in general compliance with the map amendment (conditional rezoning) concept plan, dated 3/1/2024.

2. The development shall consist of maximum of 120 single-family detached dwelling units/lots as detailed in the map amendment (conditional rezoning) concept plan, dated 3/1/2024.

3. Single family detached dwelling unit facade anti-monotony: in order to promote variation in home appearance, no single-family front façade shall be duplicated for three (3) lots in a row, or directly across the street. For corner lots, this shall apply to the lots diagonally across the intersection.

4. All garage doors shall either contain windows or carriage style adornments.

5. Single-family detached dwelling units shall:

A. Be a minimum of 1,500 heated square feet.

B. Have cementitious siding that shall vary in type and color with brick, shakes, board and batten, or stone accents provided as decorative features

C. Have at least two types of finishes on the front: lap siding, masonry, shakes, and board and batten.

7. A homeowners' association (HOA) shall be created, and all open spaces observed in map amendment (conditional rezoning) concept plan, dated 3/1/2024, shall be owned and maintained by the HOA.

8. **Foundations:** All foundations are to be monolithic poured slab foundations. Top of slabs shall be elevated a minimum of 18 inches above finished grade for all dwelling units. All foundations shall be treated with masonry on the front and street-facing sides for a minimum of 10".

9. **Recreational amenities:** the following recreational amenities shall be constructed as observed in map amendment (conditional rezoning) concept plan, dated 3/1/2024. Public greenway (approximately 5,600 linear feet), private multi-use paths (approximately 410 linear feet), gazebos, playgrounds, and a dog park. Amenities shall be built prior to the issuance of the building permit for the 70th lot.

10. **Landscaping.** At least twenty percent (20%) of all landscaping required by the LDO, that does not already qualify under LDO Section 6.2, shall utilize plant materials that are listed as native pollinator plants by the North Carolina Wildlife Federation. Where evergreen plantings or street trees are required by the LDO, native pollinator plantings shall not be required. Such plantings shall be clearly shown in construction drawings and installed as part of subdivision infrastructure. Nothing herein shall be constructed to limit the plant materials permitted on individual residential lots.

11. **Sidewalk Easement**. The development shall attempt to procure an easement from the owners of those properties with PINs 1757-48-1376 (Deed Book 19407, Page 984, Wake County Registry) and 1757-38-8408 (Deed Book 2261, Page 683, Wake County Registry), in order to provide a 5'-wide sidewalk running from the development's proposed access to Jonesville Road to the intersection with Universal Drive. If the development procures easements from both property owners, the sidewalk shall be located within said easements and constructed consistent with the Town of Rolesville Transportation Plan, and shall be completed prior to the issuance of the one hundredth (100th) building permit. If the development is unable to procure an easement from either property owner prior to the issuance of the first (1st) building permit, then the development shall pay a fee-in-lieu for the sidewalk construction to the Town of Rolesville. The fee-in-lieu shall be paid prior to the issuance of the one hundredth (100th) building permit.

12. **Universal Drive**. The development shall attempt to procure a minimum 20'-wide access easement (the "Easement") from the owner of that property with PIN 1757-38-8408 (Deed Book 2261, Page 683, Wake County Registry) for vehicular ingress and egress to and from Gideon Drive and Jonesville Road (the "Easement Area"). This Easement shall be recorded with the Wake County Registry. If the Easement is obtained and recorded, the development shall pave the Easement Area with a 20'-wide asphalt drive to meet NCDOT standard paving section of 8" of ABC base course and 2" of asphalt surface course. The paving shall be completed prior to the issuance of the development's one hundredth (100th) building permits. Following completion of the paving, the development shall be responsible for maintenance of the Easement Area; this maintenance responsibility shall expire if Universal Drive is dedicated as public right-of-way. If the development cannot obtain and record the Easement before the issuance of the first (1st) building permit, then the development shall have no obligation to perform any work described in this Condition.

13. Prior to issuance of the first building permit for a dwelling unit, the development shall donate thirty-five thousand dollars and no cents (\$35,000.00) to Homes for Heroes.

14. **Historical Monument**: The development shall dedicate a 10-foot by 10-foot area located next to the gazebo and greenway parking area along Jonesville Road to allow the Town of Rolesville to place a historical monument related to the Jonesville area.

15. **Naming of Roads**: Prior to the naming of any public roads within the development, the property owner shall formally request suggested road names from Jonesville Community Connect and will submit those suggested names to the Post Office for approval. If the number of those approved names are equal or greater than the number of public streets within the development, the development shall exclusively use those approved road names within the development. If the number of those approved names is less than the number of public roads within the development, the development shall use all of those approved names and the property owner shall be responsible for naming the remaining public roads.

16. **Blasting**: The property owner shall comply with all Wake County and North Carolina regulations related to blasting. See 29 CFR 1926.900-909 & 13 NCAC 07F .0703-.0712.

Any person detonating explosives on the property shall first notify the Town of Rolesville that a blast is planned. Such notification shall be received at least twenty-four (24) hours prior to the planned detonation and shall give the time (within 30 minutes) of the planned detonation and the location where the blasting is to be done. The person detonating the explosives shall give an equivalent notice to each property owner that is located within 1000 feet of the proposed blasting location.

At least 60 days prior to any blasting with explosive materials on the Property, the Property owner will notify the homeowners within 1000 feet of the property of the expected blasting and shall provide an opportunity for a pre-blasting inspection ("PBI") of the homeowner's property (including structures and wells) to establish a baseline condition of the homeowner's property. If a noticed homeowner provides a written election for a PBI and provides reasonable access to its property at reasonable times, Property owner through its consultant ("Blasting Consultant") will cause a PBI with regard to such homeowner's property to be performed prior to blasting activities. Contact information for the purpose of reporting damage caused by blasting shall be provided. If a PBI was performed and the homeowner provides notice of damage caused by blasting within 30 days following blasting, the Property owner shall cause an after blasting inspection ("ABI") to be performed and if a comparison of the PBI to the ABI indicates that damage was caused by Property owner's blasting, in the reasonable opinion of the Blasting Consultant, the Property owner shall make commercially reasonable efforts to repair such damage within 180 days of following completion of blasting activities on the Property.

All blasting operations shall be covered in such manner as to prevent fragments of rock, gravel, earth, trees, or other substances or materials from being thrown against or upon lots, buildings, utility lines, or any street or highway.

Whenever blasting is being conducted in the vicinity of gas, electric, water, fire alarm, telephone, telegraph, or steam utilities, the blaster shall notify the appropriate representative of such utilities at least 24 hours in advance of blasting specifying the location and intended time of such blasting.

Hours of detonation shall be limited as provided by the Rolesville Town Code.

Persons responsible for blasting operations shall maintain a record of each blast. All original blasting records shall be retained by the persons responsible for the blasting operations for at least five years following the cessation of the blasting operations and shall be available for inspection by the Fire Marshal upon request.

Reviewed and Acknowledged by the Property Owner or Applicant:

Printed Name

Signature

Date

REZONING AND ANNEXATION OF PROPERTY CONSISTING OF +/- 93.609 ACRES,
LOCATED SOUTHWEST OF THE JONESVILLE ROAD AND UNIVERSAL DRIVE
INTERSECTION, IN THE TOWN OF ROLESVILLE

REPORT OF MEETING WITH ADJACENT PROPERTY OWNERS AND TENANTS ON
JULY 12, 2022

Pursuant to applicable provisions of the Unified Development Ordinance, a meeting was held with respect to a potential rezoning and annexation with adjacent neighbors on Wednesday, July 12, 2023, at 6:00 p.m. The property considered for this potential rezoning totals approximately 93.609 acres, and is located along southwest of the Jonesville Road and Universal Drive intersection, in the Town of Rolesville. This meeting was held at virtually via a Zoom Meeting. All owners and tenants of property within 500 feet of the subject property were invited to attend the meeting. Attached hereto as **Exhibit A** is a copy of the neighborhood meeting notice. A copy of the required mailing list for the meeting invitations is attached hereto as **Exhibit B**. A summary of the items discussed at the meeting is attached hereto as **Exhibit C**. Attached hereto as **Exhibit D** is a list of individuals who attended the meeting.

EXHIBIT A – NEIGHBORHOOD MEETING NOTICE



To: Neighboring Property Owners and Tenants
From: Samuel Morris
Date: June 23, 2023
Re: Virtual Neighborhood Meeting for Annexation and Rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08)

You are invited to attend a virtual meeting to discuss the proposed annexation and rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08). We have scheduled an informational meeting with surrounding neighbors on Wednesday, July 12, 2023 from 6:00 PM until 7:00 PM. This meeting will be held virtually. You can participate online or by telephone.

To join with video:

<https://zoom.us/>
Meeting ID: 871 7347 4235
Password: 922539

To join by telephone:

+1 646 558 8656
Meeting ID: 871 7347 4235
Password: 922539

The purpose of this meeting is to discuss the proposed annexation and rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08). The property assemblage totals approximately 93.609 acres in size and is located southwest of the Jonesville Road and Universal Drive intersection.

The property is currently zoned Residential-30 (R-30) under Wake County zoning. The proposed rezoning would change the zoning to Residential Medium Density Conditional Zoning and Residential High Density Conditional Zoning (RM-CZ & RH-CZ) under the Town of Rolesville zoning. The purpose of the rezoning is to allow for the development of single family homes and townhomes.

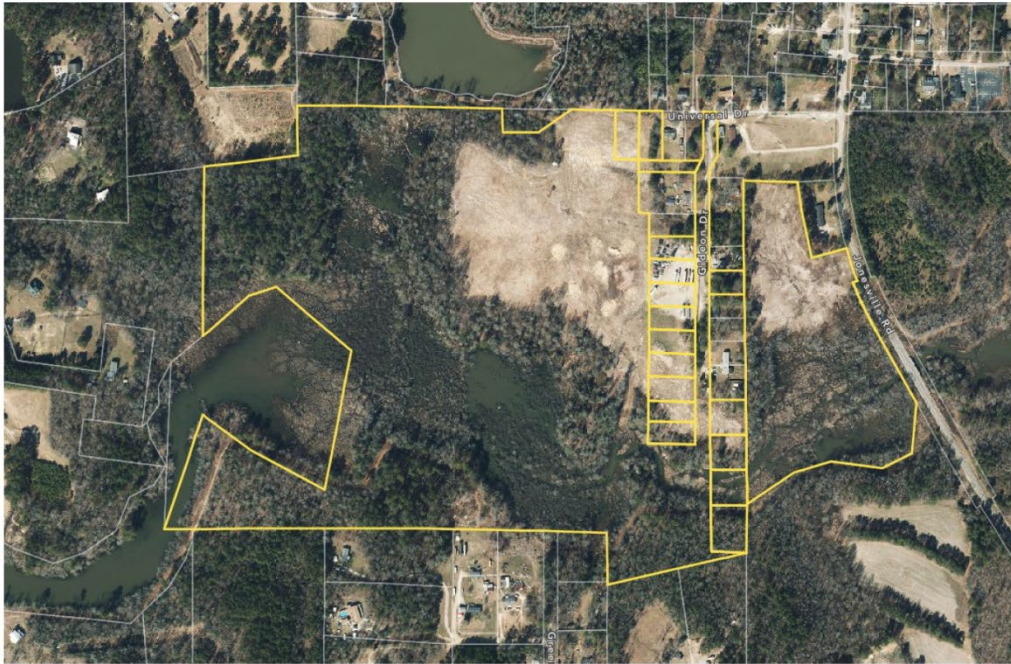
The Town of Rolesville requires a neighborhood meeting involving the owners and tenants of property within 500 feet of the properties during the rezoning process. After the meeting, we will prepare a report for the Planning Department regarding the items discussed at the meeting.

Please do not hesitate to contact me directly if you have any questions or wish to discuss any issues. I can be reached at 919.780.5438 and smorris@longleaflp.com. Also, for more information about the rezoning, you may visit <https://www.rolesvillenc.gov/projects/harris-creek-farm-fka-4928-universal> or contact the Town of Rolesville Planning Department at 919.554.6517.

Attached to this invitation are the following materials:

1. Subject Property Current Aerial
2. Proposed Zoning Map

CURRENT PROPERTY MAP



PROPOSED ZONING

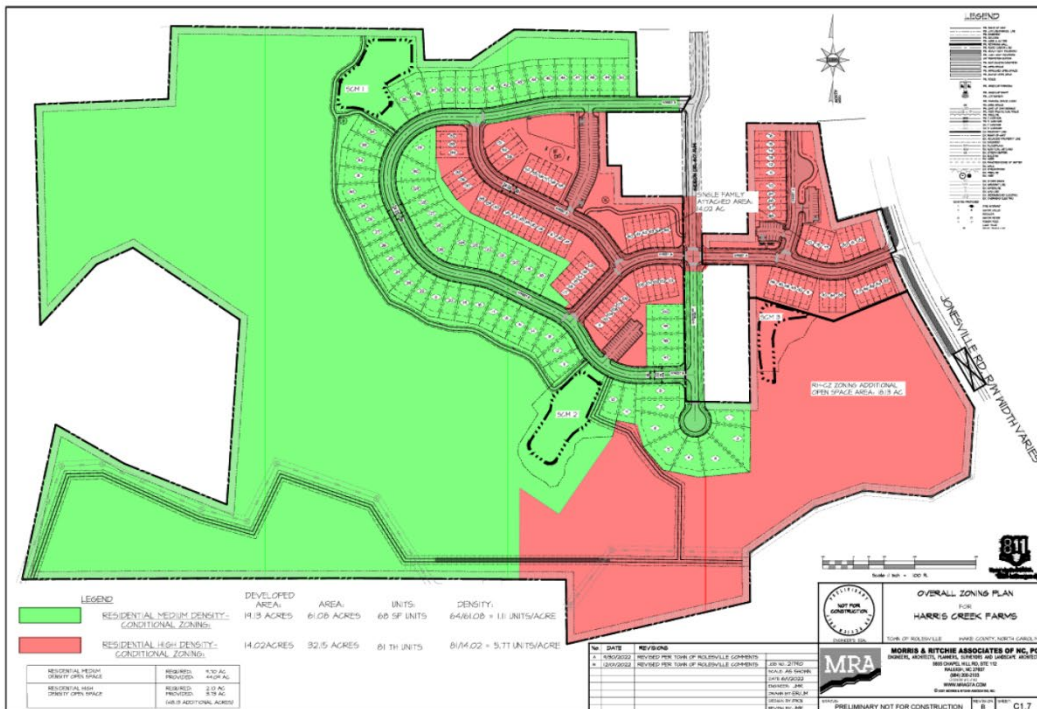


EXHIBIT B – NOTICE LIST

HUNT, FERDINAND V HUNT, LYDIA L
1000 SIMPSON ST APT 6B
BRONX NY 10459-3348

FERRELL, CHARLES E FERRELL, GRETTA L
3805 JONESVILLE RD
WAKE FOREST NC 27587-8181

HOWE, MARK JAMES JR
PO BOX 61122
RALEIGH NC 27661-1122

JARVIS, MARIE D CURTIS, HURLEY MAE
3704 GIDEON DR
WAKE FOREST NC 27587-6360

JARVIS, MARIE D CURTIS, HURLEY MAE
3704 GIDEON DR
WAKE FOREST NC 27587-6360

DONAN, JESUS CORDON, LUCY DONAN
3617 GREEN FARM LN
WAKE FOREST NC 27587-6828

WATKINS POND INC
ANTHONY BRIDGES
98 BERKSHIRE LN
HAMPSTEAD NC 28443-0480

TODD, JOAN M
4180 STELLS RD
WAKE FOREST NC 27587-6306

POWER ELEVEN CONSTRUCTION LLC
4125 DURHAM CHAPEL HILL BLVD STE 8A
DURHAM NC 27707-2666

WILDER, THOMAS H III WILDER, MAGGIE
104 DARTMOUTH RD APT 326
RALEIGH NC 27609-8409

HARTSFIELD, ROZELIA J HEIRS
HATTIE SMITH
2450 MINERAL SPRINGS RD
BOYDTON VA 23917-4404

BOUTAVONG, KIT
3521 WOOD DUCK LN
WAKE FOREST NC 27587-6874

FERRELL, BRIAN L
3807 JONESVILLE RD
WAKE FOREST NC 27587-8181

BIRMINGHAM, JOHN DAVIS
3636 GREEN FARM LN
WAKE FOREST NC 27587-6827

PEELER, JAMIE ELIZABETH
313 SHERWEE DR
RALEIGH NC 27603-3521

BIRMINGHAM, JOHN D
3636 GREEN FARM LN
WAKE FOREST NC 27587-6827

WW OVERTIME LLC
3728 GIDEON DR
WAKE FOREST NC 27587-6360

BOYD, KATHERINE B PAYNE, M TRAVIS
4220 MILLPOINT DR
WAKE FOREST NC 27587-6377

RIVERS, SUSAN MARSHALL
3627 GREEN FARM LN
WAKE FOREST NC 27587-6828

LEE, BRENDA HEIRS
BRENDX MEEKS
3861 JONESVILLE RD
WAKE FOREST NC 27587-8181

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN HOPE
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

MCGEE, LORIE ANN MCGEE, BILLY RAY
3621 GREEN FARM LN
WAKE FOREST NC 27587-6828

ALSTON, HENRY ALSTON, MARIE F
3741 JONESVILLE RD
WAKE FOREST NC 27587-8179

PULLEN, MAGGIE H
C/O SAREN GILMORE
3833 JONESVILLE RD
WAKE FOREST NC 27587-8181

FOWLER, JAMES ROBERT III BRIGHT, JILL F
7400 FOWLER RD
ZEBULON NC 27597-8318

BOSTIC, BILLIE D BOSTIC, JOHN J
9413 WHITE CARRIAGE DR
WAKE FOREST NC 27587-7046

WATKINS POND INC
ANTHONY BRIDGES
98 BERKSHIRE LN
HAMPSTEAD NC 28443-0480

CARTER, LISA CAROL
3604 GREEN FARM LN
WAKE FOREST NC 27587-6827

BIRMINGHAM, JOHN D
3636 GREEN FARM LN
WAKE FOREST NC 27587-6827

JARVIS, MYRON JARVIS, MARIE
3704 GIDEON DR
WAKE FOREST NC 27587-6360

BLACKLEY LAKE FISHING CLUB
C/O GLENN BARHAM
9001 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8110

BURNHAM, ABRAHAM T BURNHAM, KYLA L
3803 JONESVILLE RD
WAKE FOREST NC 27587-8181

WHITLEY, CLEVELAND G HEIRS
DEBRA WHITLEY
3720 GIDEON DR
WAKE FOREST NC 27587-6360

CURTIS, HENDELL HEIRS
4917 UNIVERSAL DR
WAKE FOREST NC 27587-6357

HARRIS, OLLIE VIRGIN HEIRS HARRIS, LORINE B
LORINE B HARRIS
PO BOX 225
FRANKLINTON NC 27525-0225

KULAWIAK, MEGAN
3533 WOOD DUCK LN
WAKE FOREST NC 27587-6874

KULAWIAK, MEGAN
3533 WOOD DUCK LN
WAKE FOREST NC 27587-6874

DALEY, JOSEPH P
3619 GREEN FARM LN
WAKE FOREST NC 27587-6828

BARHAM, LARRY H. BARHAM, MICHAEL D.
5821 WILD ORCHID TRL
RALEIGH NC 27613-8549

PHILLIPS, BRETT LEE JR PHILLIPS, KRISTEN HOPE
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

DUNN, JAMES WILLIAM HEIRS MONTAGUE,
BUNNIE DUNN
2390 W RIVER RD
FRANKLINTON NC 27525-7217

SMARTT, COLLIN
147 ROLLING CREEK CIR
CLAYTON NC 27520-5132

QUIRINO, MARIA ESTELA
4916 UNIVERSAL DR
WAKE FOREST NC 27587-6356

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

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KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

SOUTTER, SUSAN R SOUTTER, ROBERT QUENTIN
3636 BRIDGES POND WAY
WAKE FOREST NC 27587-5611

WILSON, TIMOTHY LEE
5409 KNOLLWOOD RD
RALEIGH NC 27609-4552

JP MORGAN MORTGAGE ACQUISITION CORP
4817 LONG GREEN DR
WAKE FOREST NC 27587-5244

GHOLSON, RYAN PATRICK
7924 MANDREL WAY
RALEIGH NC 27616-9503

SUAREZ, HELENA TRUSTEE THE HELENA SUAREZ
FAMILY TRUST
9660 FALLS OF NEUSE RD # 138-286
RALEIGH NC 27615-2473

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN H
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN H
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

GARCIA, SALVADOR
4901 OLD POOLE RD
RALEIGH NC 27610

HARTSFIELD, ROZELIA J HEIRS
HATTIE SMITH
2450 MINERAL SPRINGS RD
BOYDTON VA 23917-4404

JONES, CHRISTOPHER D JONES, SHAWN
MICHAEL
5108 CHRISTIAN SCHOOL RD
PANTEGO NC 27860-9255

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

FERRELL, BRIAN L
3807 JONESVILLE RD
WAKE FOREST NC 27587-8181

FERRELL, CHARLES E FERRELL, SHARON R
3805 JONESVILLE RD
WAKE FOREST NC 27587-8181

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

CARPENTER, BOBBY RAY CARPENTER, ALBERTA L
3629 GREEN FARM LN
WAKE FOREST NC 27587-6828

RIVERS, SUSAN M
3627 GREEN FARM LN
WAKE FOREST NC 27587-6828

HOLLOWAY, ROY D HOLLOWAY, MARTHA L
3613 GREEN FARM LN
WAKE FOREST NC 27587-6828

HARTSFIELD, ROZELIA J HEIRS
HATTIE SMITH
2450 MINERAL SPRINGS RD
BOYDTON VA 23917-4404

SOUTTER, SUSAN R SOUTTER, ROBERT QUENTIN
3636 BRIDGES POND WAY
WAKE FOREST NC 27587-5611

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

MAYE, EVELYN Y MAYE, HILTON EUGENE
4725 MITCHELL MILL RD
WAKE FOREST NC 27587-7240

NC FARM AND FORAGE LLC
9261 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

UNIVERSAL CHURCH OF PRAYER &
4912 UNIVERSAL DR
WAKE FOREST NC 27587-6356

EXHIBIT C – MEETING MINUTES

- What is proposed timing for construction to start on the development
 - Developer and attorney explained proposed timeline with development plan and permits
- Would you have plans to do with the area that isn't a part of development?
 - Developer explained that wetland and southern land will remain the way it is (no development)
- How do we plan to avoid pollution from construction to the wells.
 - Developer and engineer explained their precautions in the construction process and state level regulations
- What about the blacktop water runoff and drying wells
 - Engineer explains storm drainage system and pond that will be on site – state mandated process that requires permit from town to avoid flooding downstream properties.
- Worried about runoff into Watkins Pond – What guarantee that it won't "get dirtied up".
 - Engineer explains codes and state mandated permits required to help control effects to the pond. Municipality will also come out to inspect site and silt fence.
- Who is the Developer on this project
 - Attorney explained who the client is and their members
- What is the price point of the townhomes and single-family homes
 - Developer explained projections on cost per unit. Do not have final pricing due to market changes and upgrades
- Will there be any fencing on the wooded areas into the private properties to separate the areas. Worried about people passing through to private property with greenways. Worried about "higher quality resident"
 - Developer and attorney explained - Not projecting fencing due to where the wetlands are. Town of Rolesville will have public easement regarding the greenway – it is up to the Town of Rolesville regarding fencing. Unlikely due to natural features.
- What is going to happen to the property that is not accessible from the road and is not in the wetlands? Will this ever be developed?
 - Developer explains it will not be developed and remained untouched. Units will not be added later to the plan.
- Will the land owner that is located along road next to development be able to access the road?
 - Attorney and developer explained that they will have access in and out as it is today. It is a public road
- The buffer at the NE corner of the development, where the words Universal Dr are on the map, appears to back up to the front yard at 4921 (the last home on the right). Will access to that end of Universal Dr beyond Gideon be cut off?
 - Attorney explained that the owners will still have access to their property. We are not allowed to cut off access. The scope of the rezoning should not effect that.

- Does this project have anything to do with the greenway plan?
 - Attorney explained that we do not have control of greenway development – we give easement to the Town of Rolesville.
- Concerned that diesel fuel will get into the Watkins Pond
 - Engineer explained that the control of the fuel tank will be mandated at a state level by the contractor – this is handled at the construction phase.
- Is the town mandating the developer to address the traffic concerns?
 - Attorney and Developer explained that an Impact analysis was done by Ramey Kemp. The NCDOT signed off on this. Based on increased trips and conditions on site they make recommendations on monitoring and approved intersections. The results will be included in the request. The Town of Rolesville contracts that traffic engineer and the developer and are not associated with the developer
- Are there plans to pave Universal Dr as well as Gideon?
 - The town is requiring developer to pave all of Gideon Drive, not Universal
- Concerned about increased traffic load on Universal Drive
 - Developer explained access points to the development and town requirements
- Will Universal not be eligible for paving?
 - Engineer explained it has not been required by the town to be paved for this development. Not anticipate increased traffic to Universal due to it being unpaved. It is not a public road.
- Who sends out the meeting notifications for the City of Rolesville public hearings?
 - Attorney explained the notices will be coming from the Town of Rolesville. Mailed and signs are typical notification types as well as posted on their website.
- Will there be an HOA with this development?
 - Developer explained there will be an HOA that will maintain open areas as well as amenities.
- Where will the amenities be located within the development?
 - Engineer explained what amenities they are expecting to create and location of same.
- What type of barriers do you see with the proposal plan?
 - Developer and attorney explained that they have met with staff and made modification to address any of these concerns. Also explained there is a good path forward considering policies and overall plan for the Town of Rolesville
- If the church gave permission to be paved on Universal, could it be paved? Do we need to request it be paved with the Town of Rolesville?
 - Attorney explained that yes you can pave it if is your private road
- Residents on Jonesville Road – Concerned about safety on this road for children – there are no sidewalks. How do we get sidewalks put in on that road
 - Attorney and engineer explained improvements can only be made on our property. We can not take other people’s property to create sidewalks. We are only required to improve along out frontage. We are building roadway and sidewalk on the property.
- Will school busses be stopping on Jonesville Road or will it go into the development? Will the roads be able to accommodate this?

- Engineer and developer explained the education department will be making that decision later on in the process. We have not control/make on that decision.
- Has any analysis been done regarding any wildlife in the wetlands on the property?
 - Attorney and engineer explained the open space requirements as well as the other preliminary environmental analysis that are required. The development will be predominantly be taking place in the already cleared areas.
- What measure will be taking place for privacy to neighboring properties? Will there be n natural buffers?
 - Attorney, developer and engineer explained the tree preservation areas and that they will keep trees where they can. There will be vegetative buffers and open space around property line.
- Is there a sidewalk plan along the eastern portion of Gideon Drive?
 - The engineer explained the town street requirements will require sidewalk improvements.
- What is the architectural design for the homes in the development?
 - Developer explained that they will be colonial type design that generally matches other developments in the area. This will not be mandated affordable housing but will be market rate but not luxury
- Neighbors are worried that the prices of the homes are not in line with others in the area – they are too inexpensive compared to the “nice homes” in the area. We are worried about property value decreasing based on this development.
 - Developer and attorney explained that the prices will change in the future based on market rate. It depends on what the market will be like in the next 3-5 years. There will be a range depending on the home type (townhomes and single family).
- Is there a date on the next meeting?
 - Attorney and developer explained that there has not been a meeting set yet. More documentation must be submitted. A link for the Town’s portal was shared in the Zoom chat

EXHIBIT D – MEETING ATTENDEES

1. Sam Morris (Attorney with Longleaf Law Partners)
2. Kaline Shelton (Assistant at Longleaf Law Partners)
3. Steven George (Development Team)
4. Jeremy Keeny (Engineer)
5. Joan Todd
6. Natasha Hayes Smart
7. Marie Jarvis
8. Helena Suarez
9. Collin Smartt
10. Bill Harrell
11. Bryan Yaborough
12. Jackie
13. Lorine Harris
14. Steve
15. Brett
16. 919-453-4522
17. 919-602-5532
18. 919-621-1068
19. 984-204-0897
20. 434-265-0618
21. 919-272-1335
22. 919-438-9979
23. 919-491-6535
24. 919-827-5639



To: Neighboring Property Owners and Tenants
From: Samuel Morris
Date: October 13, 2023
Re: Neighborhood Meeting for Annexation and Rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08)

You are invited to attend a meeting to discuss the proposed annexation and rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08). We have scheduled an informational meeting with surrounding neighbors on October 24, 2023 from 5:30 PM until 6:30 PM at the following location:

**Rolesville Community Center
514 Southtown Circle
Rolesville, NC 27571**

The purpose of this meeting is to discuss the proposed annexation and rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08). The property assemblage totals approximately 93 acres in size and is located southwest of the Jonesville Road and Universal Drive intersection.

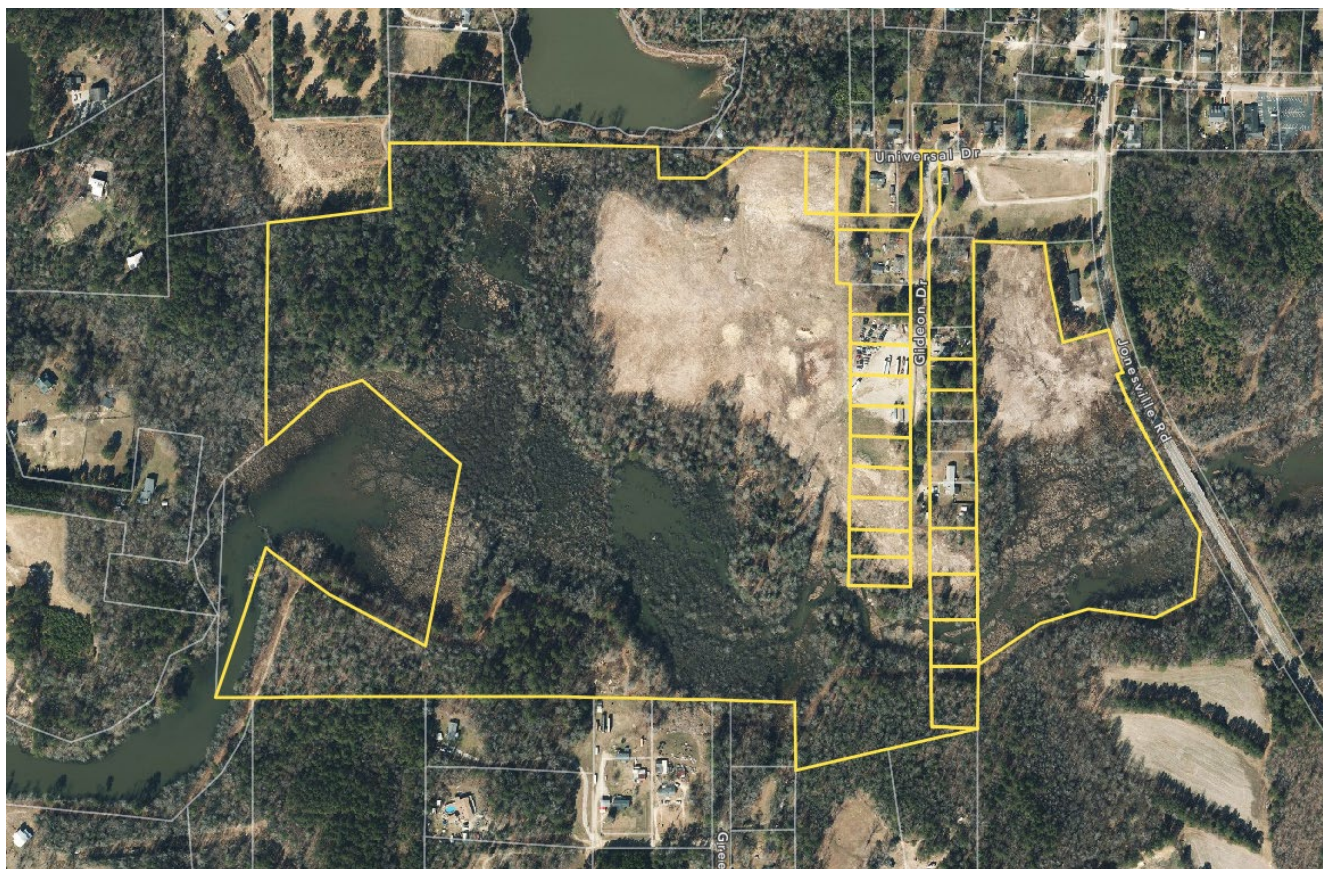
The property is currently zoned Residential-30 (R-30) under Wake County zoning. The proposed rezoning would change the zoning to Residential Medium Density Conditional Zoning and Residential High Density Conditional Zoning (RM-CZ & RH-CZ) under the Town of Rolesville zoning. The purpose of the rezoning is to allow for the development of single family homes and townhomes.

Please do not hesitate to contact me directly if you have any questions or wish to discuss any issues. I can be reached at 919.780.5438 and smorris@longleaflp.com. Also, for more information about the rezoning, you may visit <https://www.rolesvillenc.gov/projects/harris-creek-farm-fka-4928-universal> or contact the Town of Rolesville Planning Department at 919.554.6517.

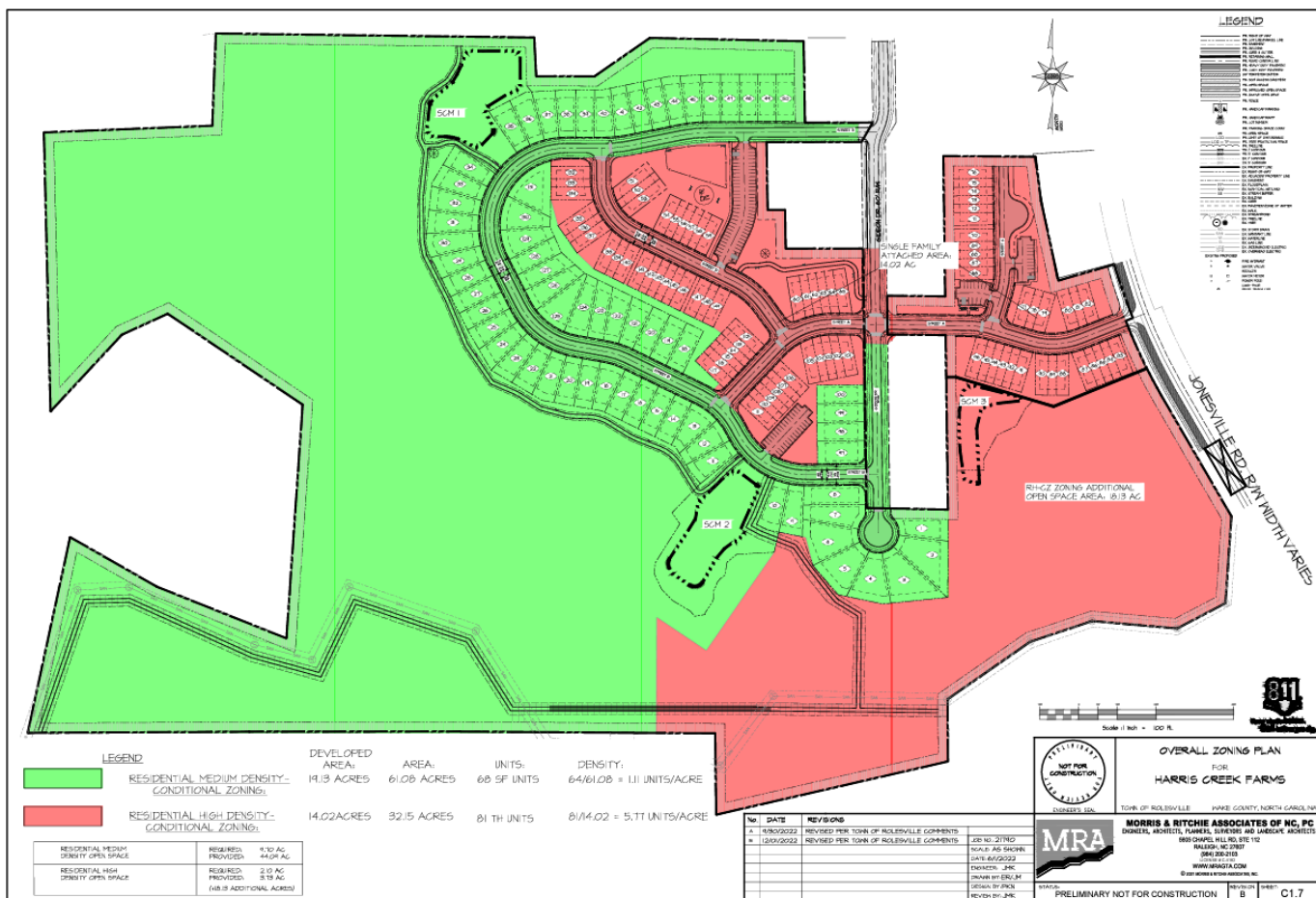
Attached to this invitation are the following materials:

1. Subject Property Current Aerial
2. Proposed Zoning Map

CURRENT PROPERTY MAP



PROPOSED ZONING



JONES, CHARLES ALFONSO JONES, ALLIE V
3800 JONESVILLE RD
WAKE FOREST NC 27587-8180

JONES, CHARLES E JONES, DARLENE C
3816 JONESVILLE RD
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BADGETT, ROBIN D BADGETT, TANA F
4817 MITCHELL MILL RD
WAKE FOREST NC 27587-7242

HUNT, FERDINAND V HUNT, LYDIA L
1000 SIMPSON ST APT 6B
BRONX NY 10459-3348

FERRELL, CHARLES E FERRELL, GRETTA L
3805 JONESVILLE RD
WAKE FOREST NC 27587-8181

WALKER, ALESHIA FERRELL WALKER, AARON
5012 HARTSFIELD DR
WAKE FOREST NC 27587-9638

HOWE, MARK JAMES JR
PO BOX 61122
RALEIGH NC 27661-1122

JARVIS, MARIE D CURTIS, HURLEY MAE
3704 GIDEON DR
WAKE FOREST NC 27587-6360

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ROLESVILLE NC 27571-0581

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BLACKLEY
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104 DARTMOUTH RD APT 326
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BROWN, JAMES A BROWN, SHELBY W
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GILMORE, JOSEPH H GILMORE, SARAH L
3833 JONESVILLE RD
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ASWELL, FREDRICA T
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3816 7TH ST NW
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WAKE FOREST NC 27587-6827

REEVES, LISA CAROL CARTER
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MAYE, HILTON EUGENE MAYE, EVELYN RUTH
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PO BOX 111
WILLOW SPRING NC 27592-0111

BLACKMON, JOE
4805 MITCHELL MILL RD
WAKE FOREST NC 27587-7242

TOUTLOFF, KENNETH S TOUTLOFF, BILLIE ANNE
3512 WOOD DUCK LN
WAKE FOREST NC 27587-6873

DUNN, WILLIE JEAN
4821 MITCHELL MILL RD
WAKE FOREST NC 27587-7242

COVINGTON, LINDA MANNING
3812 JONESVILLE RD
WAKE FOREST NC 27587-8180

CHRIST HOLINESS CHURCH
5016 HARTSFIELD DR
WAKE FOREST NC 27587-9638

FERRELL, BENJAMIN
C/O JESSE FERRELL
248 CALIFORNIA AVE
PROVIDENCE RI 02905-2815

BOYD, KATHERINE B PAYNE, M TRAVIS
4220 MILLPOINT DR
WAKE FOREST NC 27587-6377

RIVERS, SUSAN MARSHALL
3627 GREEN FARM LN
WAKE FOREST NC 27587-6828

RIVERS, SUSAN M
3627 GREEN FARM LN
WAKE FOREST NC 27587-6828

LEE, BRENDA HEIRS
BRENDEX MEEKS
3861 JONESVILLE RD
WAKE FOREST NC 27587-8181

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN HOPE
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

MCGEE, LORIE ANN MCGEE, BILLY RAY
3621 GREEN FARM LN
WAKE FOREST NC 27587-6828

BERGDOLT, BRIAN H
3612 MEDLIN WOODS RD
WAKE FOREST NC 27587-7202

COTTON, DIANE MAYO
5020 MISTLETOE DR
WAKE FOREST NC 27587-6373

LEE, WILLIE O'KELLY LEE, EDITH M
3845 JONESVILLE RD
WAKE FOREST NC 27587-8181

PULLEN, MAGGIE H
C/O SAREN GILMORE
3833 JONESVILLE RD
WAKE FOREST NC 27587-8181

CARPENTER, BOBBY RAY CARPENTER, ALBERTA L
3629 GREEN FARM LN
WAKE FOREST NC 27587-6828

CHRIST HOLINESS CHURCH # 1
C/O WILIAM WHITFIELD
5016 HARTSFIELD DR
WAKE FOREST NC 27587-9638

CARELOCK, TABATHA R
3513 GREEN FARM LN
WAKE FOREST NC 27587-6826

CARELOCK, TABATHA R
3513 GREEN FARM LN
WAKE FOREST NC 27587-6826

FOWLER, JAMES ROBERT III BRIGHT, JILL F
7400 FOWLER RD
ZEBULON NC 27597-8318

JONES, TANYA ELISHA
3517 WOOD DUCK LN
WAKE FOREST NC 27587-6874

PAYNE, JEFFREY
3808 JONESVILLE RD
WAKE FOREST NC 27587-8180

MARTINEZ, ROBERTO ZETINA SANDOVAL,
MARIA DE LOS ANGELES ORTIZ
4916 LASHERAL RD
WAKE FOREST NC 27587-6375

HOLDEN, MARCIE L
3524 WOOD DUCK LN
WAKE FOREST NC 27587-6873

VAN GORDER, JAMES
3200 MAYEVILLE LN
WAKE FOREST NC 27587-5637

JONES, CHRISTOPHER D JONES, SHAWN
MICHAEL
5108 CHRISTIAN SCHOOL RD
PANTEGO NC 27860-9255

HOCUTT, JOHN E
3517 GREEN FARM LN
WAKE FOREST NC 27587-6826

BOSTIC, BILLIE D BOSTIC, JOHN J
9413 WHITE CARRIAGE DR
WAKE FOREST NC 27587-7046

WATKINS POND INC
ANTHONY BRIDGES
98 BERKSHIRE LN
HAMPSTEAD NC 28443-0480

CARTER, LISA CAROL
3604 GREEN FARM LN
WAKE FOREST NC 27587-6827

BIRMINGHAM, JOHN D
3636 GREEN FARM LN
WAKE FOREST NC 27587-6827

JARVIS, MYRON JARVIS, MARIE
3704 GIDEON DR
WAKE FOREST NC 27587-6360

BLACKLEY LAKE FISHING CLUB
C/O GLENN BARHAM
9001 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8110

FERRELL, CHARLES E FERRELL, SHARON R
3805 JONESVILLE RD
WAKE FOREST NC 27587-8181

BURNHAM, ABRAHAM T BURNHAM, KYLA L
3803 JONESVILLE RD
WAKE FOREST NC 27587-8181

JONES, CHARLES E JONES, DARLENE
3816 JONESVILLE RD
WAKE FOREST NC 27587-8180

WHITLEY, CLEVELAND G HEIRS
DEBRA WHITLEY
3720 GIDEON DR
WAKE FOREST NC 27587-6360

CURTIS, HENDELL HEIRS
4917 UNIVERSAL DR
WAKE FOREST NC 27587-6357

HAUFLER, DARREL EUGENE
4340 MILLPOINT DR
WAKE FOREST NC 27587-6384

HARRIS, OLLIE VIRGIN HEIRS HARRIS, LORINE B
LORINE B HARRIS
PO BOX 225
FRANKLINTON NC 27525-0225

CHRIST HOLINESS CHURCH NUMBER 1
5016 HARTSFIELD DR
WAKE FOREST NC 27587-9638

KULAWIAK, MEGAN
3533 WOOD DUCK LN
WAKE FOREST NC 27587-6874

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3533 WOOD DUCK LN
WAKE FOREST NC 27587-6874

GREENE, JOE L
6415 HAWTHORNE ST
HYATTSVILLE MD 20785-1711

DALEY, JOSEPH P
3619 GREEN FARM LN
WAKE FOREST NC 27587-6828

BARHAM, LARRY H. BARHAM, MICHAEL D.
5821 WILD ORCHID TRL
RALEIGH NC 27613-8549

PHILLIPS, BRETT LEE JR PHILLIPS, KRISTEN HOPE
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

DUNN, JAMES WILLIAM HEIRS MONTAGUE,
BUNNIE DUNN
2390 W RIVER RD
FRANKLINTON NC 27525-7217

PERRY, ELWOOD RYAN
2004 TRAWICK RD
RALEIGH NC 27604-3841

ALSTON, CHRISTOPHER
2172 WARRENTON RD
HENDERSON NC 27537-9359

QUIRINO, MARIA ESTELA
4916 UNIVERSAL DR
WAKE FOREST NC 27587-6356

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

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CARY NC 27519-8195

ROUSE, ELLEN CURTIS
4009 TRESKO XING
RALEIGH NC 27616-8473

HOLLOWAY, ROY D HOLLOWAY, MARTHA L
3613 GREEN FARM LN
WAKE FOREST NC 27587-6828

SOUTTER, SUSAN R SOUTTER, ROBERT QUENTIN
3636 BRIDGES POND WAY
WAKE FOREST NC 27587-5611

KELLY, NICOLAS KELLY, PEARLINE L
5025 HARTSFIELD DR
WAKE FOREST NC 27587-9638

WILSON, TIMOTHY LEE
5409 KNOLLWOOD RD
RALEIGH NC 27609-4552

JP MORGAN MORTGAGE ACQUISITION CORP
4817 LONG GREEN DR
WAKE FOREST NC 27587-5244

GHOLSON, RYAN PATRICK
7924 MANDREL WAY
RALEIGH NC 27616-9503

SUAREZ, HELENA TRUSTEE THE HELENA SUAREZ
FAMILY TRUST
9660 FALLS OF NEUSE RD # 138-286
RALEIGH NC 27615-2473

INTROINVEST LLC
4921 UNIVERSAL DR
WAKE FOREST NC 27587-6357

TYNER, BRENDA W TRUSTEE NANCY H WATKINS
IRREVOCABLE TRUST
PO BOX 221
ROLESVILLE NC 27571-0221

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN H
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN H
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

GARCIA, SALVADOR
4901 OLD POOLE RD
RALEIGH NC 27610

SOUTTER, SUSAN R SOUTTER, ROBERT QUENTIN
3636 BRIDGES POND WAY
WAKE FOREST NC 27587-5611

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

BERRY, WILLIAM R BERRY, JULIA D
9241 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

NC FARM AND FORAGE LLC
9261 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

MAYE, EVELYN Y MAYE, HILTON EUGENE
4725 MITCHELL MILL RD
WAKE FOREST NC 27587-7240

UNIVERSAL CHURCH OF PRAYER &
4912 UNIVERSAL DR
WAKE FOREST NC 27587-6356

REZONING AND ANNEXATION OF PROPERTY CONSISTING OF +/- 93 ACRES,
LOCATED SOUTHWEST OF THE JONESVILLE ROAD AND UNIVERSAL DRIVE
INTERSECTION, IN THE TOWN OF ROLESVILLE

REPORT OF MEETING WITH ADJACENT PROPERTY OWNERS AND TENANTS ON
OCTOBER 24, 2022

Pursuant to applicable provisions of the Unified Development Ordinance, a meeting was held with respect to a potential rezoning and annexation with adjacent neighbors on Tuesday, October 24, 2023, at 5:30 p.m. The property considered for this potential rezoning totals approximately 93 acres and is located southwest of the Jonesville Road and Universal Drive intersection, in the Town of Rolesville. This meeting was held at the Rolesville Community Center. All owners and tenants of property within 1000 feet of the subject property were invited to attend the meeting. Attached hereto as **Exhibit A** is a copy of the neighborhood meeting notice. A copy of the required mailing list for the meeting invitations is attached hereto as **Exhibit B**. A summary of the items discussed at the meeting is attached hereto as **Exhibit C**. Attached hereto as **Exhibit D** is a list of individuals who attended the meeting.

EXHIBIT A – NEIGHBORHOOD MEETING NOTICE



To: Neighboring Property Owners and Tenants
From: Samuel Morris
Date: October 13, 2023
Re: Neighborhood Meeting for Annexation and Rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08)

You are invited to attend a meeting to discuss the proposed annexation and rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08). We have scheduled an informational meeting with surrounding neighbors on October 24, 2023 from 5:30 PM until 6:30 PM at the following location:

**Rolesville Community Center
514 Southtown Circle
Rolesville, NC 27571**

The purpose of this meeting is to discuss the proposed annexation and rezoning of Harris Creek Farm (f.k.a. 4928 Universal) (ANX 22-05 & MA 22-08). The property assemblage totals approximately 93 acres in size and is located southwest of the Jonesville Road and Universal Drive intersection.

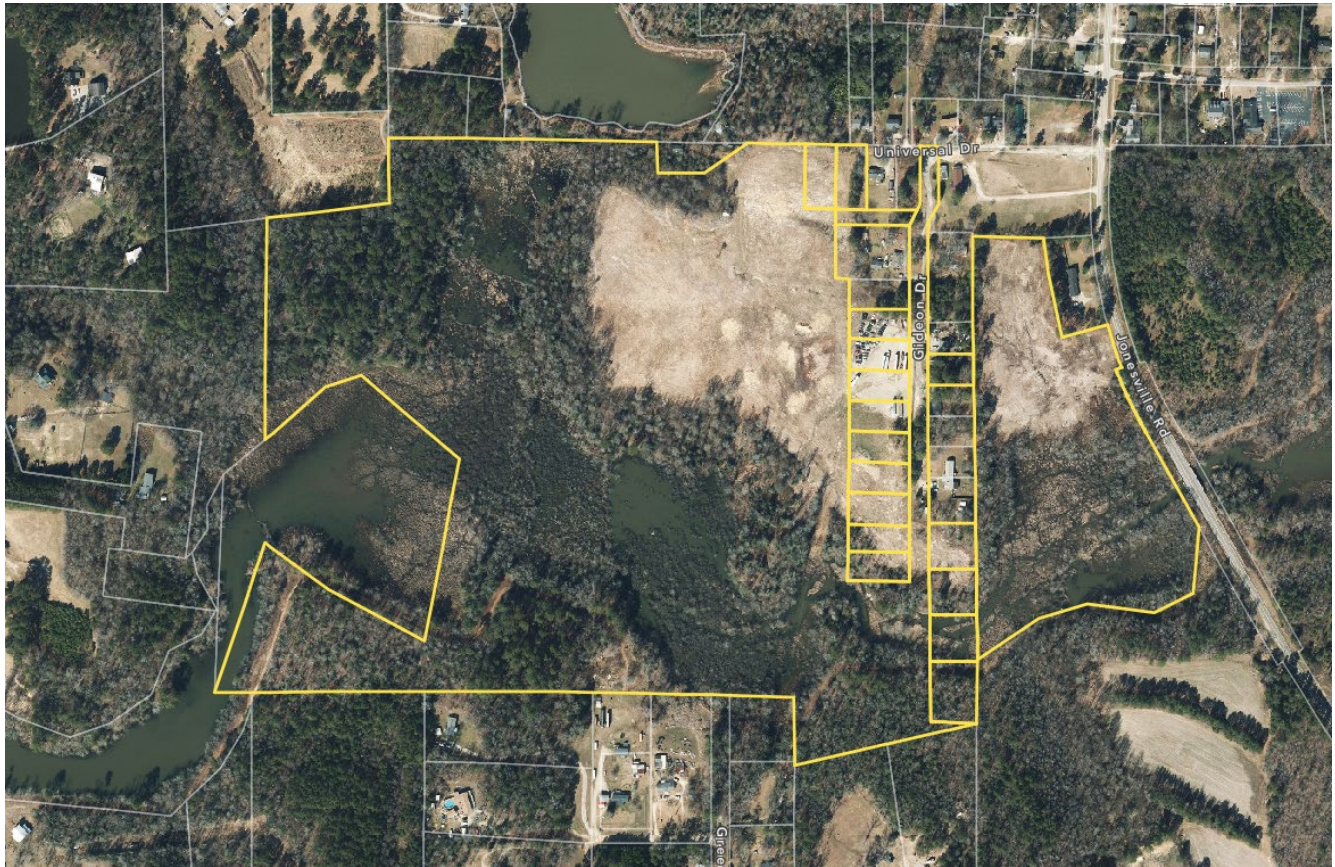
The property is currently zoned Residential-30 (R-30) under Wake County zoning. The proposed rezoning would change the zoning to Residential Medium Density Conditional Zoning and Residential High Density Conditional Zoning (RM-CZ & RH-CZ) under the Town of Rolesville zoning. The purpose of the rezoning is to allow for the development of single family homes and townhomes.

Please do not hesitate to contact me directly if you have any questions or wish to discuss any issues. I can be reached at 919.780.5438 and smorris@longleaflp.com. Also, for more information about the rezoning, you may visit <https://www.rolesvillenc.gov/projects/harris-creek-farm-fka-4928-universal> or contact the Town of Rolesville Planning Department at 919.554.6517.

Attached to this invitation are the following materials:

1. Subject Property Current Aerial
2. Proposed Zoning Map

CURRENT PROPERTY MAP



PROPOSED ZONING

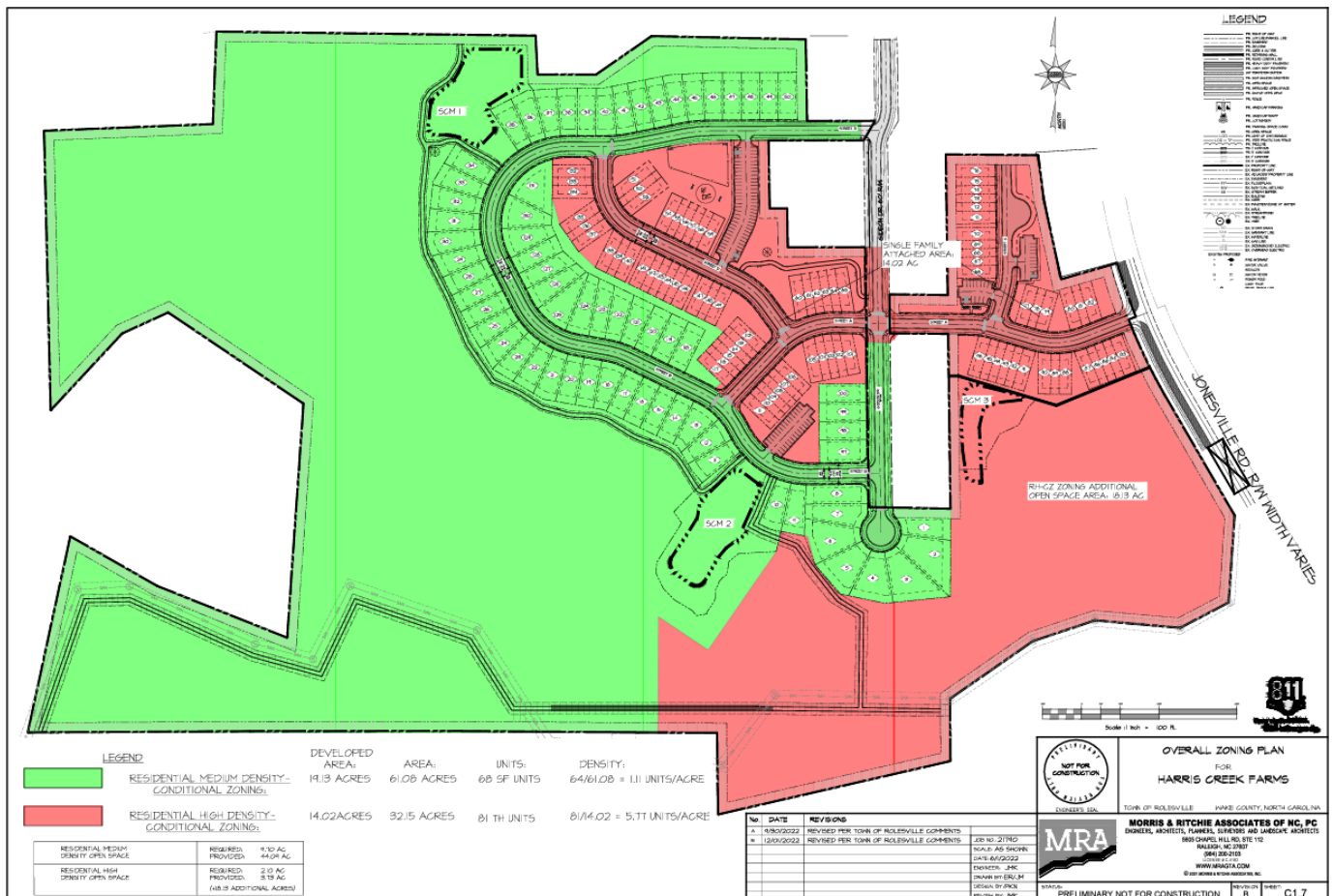


EXHIBIT B – NOTICE LIST

JONES, CHARLES ALFONSO JONES, ALLIE V
3800 JONESVILLE RD
WAKE FOREST NC 27587-8180

JONES, CHARLES E JONES, DARLENE C
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PO BOX 111
WILLOW SPRING NC 27592-0111

BLACKMON, JOE
4805 MITCHELL MILL RD
WAKE FOREST NC 27587-7242

TOUTLOFF, KENNETH S TOUTLOFF, BILLIE ANNE
3512 WOOD DUCK LN
WAKE FOREST NC 27587-6873

DUNN, WILLIE JEAN
4821 MITCHELL MILL RD
WAKE FOREST NC 27587-7242

COVINGTON, LINDA MANNING
3812 JONESVILLE RD
WAKE FOREST NC 27587-8180

CHRIST HOLINESS CHURCH
5016 HARTSFIELD DR
WAKE FOREST NC 27587-9638

FERRELL, BENJAMIN
C/O JESSE FERRELL
248 CALIFORNIA AVE
PROVIDENCE RI 02905-2815

BOYD, KATHERINE B PAYNE, M TRAVIS
4220 MILLPOINT DR
WAKE FOREST NC 27587-6377

RIVERS, SUSAN MARSHALL
3627 GREEN FARM LN
WAKE FOREST NC 27587-6828

RIVERS, SUSAN M
3627 GREEN FARM LN
WAKE FOREST NC 27587-6828

LEE, BRENDA HEIRS
BRENDEX MEEKS
3861 JONESVILLE RD
WAKE FOREST NC 27587-8181

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN HOPE
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

MCGEE, LORIE ANN MCGEE, BILLY RAY
3621 GREEN FARM LN
WAKE FOREST NC 27587-6828

BERGDOLT, BRIAN H
3612 MEDLIN WOODS RD
WAKE FOREST NC 27587-7202

COTTON, DIANE MAYO
5020 MISTLETOE DR
WAKE FOREST NC 27587-6373

LEE, WILLIE O'KELLY LEE, EDITH M
3845 JONESVILLE RD
WAKE FOREST NC 27587-8181

PULLEN, MAGGIE H
C/O SAREN GILMORE
3833 JONESVILLE RD
WAKE FOREST NC 27587-8181

CARPENTER, BOBBY RAY CARPENTER, ALBERTA L
3629 GREEN FARM LN
WAKE FOREST NC 27587-6828

CHRIST HOLINESS CHURCH # 1
C/O WILIAM WHITFIELD
5016 HARTSFIELD DR
WAKE FOREST NC 27587-9638

CARELOCK, TABATHA R
3513 GREEN FARM LN
WAKE FOREST NC 27587-6826

CARELOCK, TABATHA R
3513 GREEN FARM LN
WAKE FOREST NC 27587-6826

FOWLER, JAMES ROBERT III BRIGHT, JILL F
7400 FOWLER RD
ZEBULON NC 27597-8318

JONES, TANYA ELISHA
3517 WOOD DUCK LN
WAKE FOREST NC 27587-6874

PAYNE, JEFFREY
3808 JONESVILLE RD
WAKE FOREST NC 27587-8180

MARTINEZ, ROBERTO ZETINA SANDOVAL,
MARIA DE LOS ANGELES ORTIZ
4916 LASHERAL RD
WAKE FOREST NC 27587-6375

HOLDEN, MARCIE L
3524 WOOD DUCK LN
WAKE FOREST NC 27587-6873

VAN GORDER, JAMES
3200 MAYEVILLE LN
WAKE FOREST NC 27587-5637

JONES, CHRISTOPHER D JONES, SHAWN
MICHAEL
5108 CHRISTIAN SCHOOL RD
PANTEGO NC 27860-9255

HOCUTT, JOHN E
3517 GREEN FARM LN
WAKE FOREST NC 27587-6826

BOSTIC, BILLIE D BOSTIC, JOHN J
9413 WHITE CARRIAGE DR
WAKE FOREST NC 27587-7046

WATKINS POND INC
ANTHONY BRIDGES
98 BERKSHIRE LN
HAMPSTEAD NC 28443-0480

CARTER, LISA CAROL
3604 GREEN FARM LN
WAKE FOREST NC 27587-6827

BIRMINGHAM, JOHN D
3636 GREEN FARM LN
WAKE FOREST NC 27587-6827

JARVIS, MYRON JARVIS, MARIE
3704 GIDEON DR
WAKE FOREST NC 27587-6360

BLACKLEY LAKE FISHING CLUB
C/O GLENN BARHAM
9001 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8110

FERRELL, CHARLES E FERRELL, SHARON R
3805 JONESVILLE RD
WAKE FOREST NC 27587-8181

BURNHAM, ABRAHAM T BURNHAM, KYLA L
3803 JONESVILLE RD
WAKE FOREST NC 27587-8181

JONES, CHARLES E JONES, DARLENE
3816 JONESVILLE RD
WAKE FOREST NC 27587-8180

WHITLEY, CLEVELAND G HEIRS
DEBRA WHITLEY
3720 GIDEON DR
WAKE FOREST NC 27587-6360

CURTIS, HENDELL HEIRS
4917 UNIVERSAL DR
WAKE FOREST NC 27587-6357

HAUFLER, DARREL EUGENE
4340 MILLPOINT DR
WAKE FOREST NC 27587-6384

HARRIS, OLLIE VIRGIN HEIRS HARRIS, LORINE B
LORINE B HARRIS
PO BOX 225
FRANKLINTON NC 27525-0225

CHRIST HOLINESS CHURCH NUMBER 1
5016 HARTSFIELD DR
WAKE FOREST NC 27587-9638

KULAWIAK, MEGAN
3533 WOOD DUCK LN
WAKE FOREST NC 27587-6874

KULAWIAK, MEGAN
3533 WOOD DUCK LN
WAKE FOREST NC 27587-6874

GREENE, JOE L
6415 HAWTHORNE ST
HYATTSVILLE MD 20785-1711

DALEY, JOSEPH P
3619 GREEN FARM LN
WAKE FOREST NC 27587-6828

BARHAM, LARRY H. BARHAM, MICHAEL D.
5821 WILD ORCHID TRL
RALEIGH NC 27613-8549

PHILLIPS, BRETT LEE JR PHILLIPS, KRISTEN HOPE
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

DUNN, JAMES WILLIAM HEIRS MONTAGUE,
BUNNIE DUNN
2390 W RIVER RD
FRANKLINTON NC 27525-7217

PERRY, ELWOOD RYAN
2004 TRAWICK RD
RALEIGH NC 27604-3841

ALSTON, CHRISTOPHER
2172 WARRENTON RD
HENDERSON NC 27537-9359

QUIRINO, MARIA ESTELA
4916 UNIVERSAL DR
WAKE FOREST NC 27587-6356

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
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10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

ROUSE, ELLEN CURTIS
4009 TRESKO XING
RALEIGH NC 27616-8473

HOLLOWAY, ROY D HOLLOWAY, MARTHA L
3613 GREEN FARM LN
WAKE FOREST NC 27587-6828

SOUTTER, SUSAN R SOUTTER, ROBERT QUENTIN
3636 BRIDGES POND WAY
WAKE FOREST NC 27587-5611

KELLY, NICOLAS KELLY, PEARLINE L
5025 HARTSFIELD DR
WAKE FOREST NC 27587-9638

WILSON, TIMOTHY LEE
5409 KNOLLWOOD RD
RALEIGH NC 27609-4552

JP MORGAN MORTGAGE ACQUISITION CORP
4817 LONG GREEN DR
WAKE FOREST NC 27587-5244

GHOLSON, RYAN PATRICK
7924 MANDREL WAY
RALEIGH NC 27616-9503

SUAREZ, HELENA TRUSTEE THE HELENA SUAREZ
FAMILY TRUST
9660 FALLS OF NEUSE RD # 138-286
RALEIGH NC 27615-2473

INTROINVEST LLC
4921 UNIVERSAL DR
WAKE FOREST NC 27587-6357

TYNER, BRENDA W TRUSTEE NANCY H WATKINS
IRREVOCABLE TRUST
PO BOX 221
ROLESVILLE NC 27571-0221

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN H
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

PHILLIPS, BRETT L JR PHILLIPS, KRISTEN H
9237 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

GARCIA, SALVADOR
4901 OLD POOLE RD
RALEIGH NC 27610

SOUTTER, SUSAN R SOUTTER, ROBERT QUENTIN
3636 BRIDGES POND WAY
WAKE FOREST NC 27587-5611

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

KENNETH INVESTMENT LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27519-8195

BERRY, WILLIAM R BERRY, JULIA D
9241 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

NC FARM AND FORAGE LLC
9261 BLACKLEY LAKE RD
WAKE FOREST NC 27587-8196

MAYE, EVELYN Y MAYE, HILTON EUGENE
4725 MITCHELL MILL RD
WAKE FOREST NC 27587-7240

UNIVERSAL CHURCH OF PRAYER &
4912 UNIVERSAL DR
WAKE FOREST NC 27587-6356

EXHIBIT C – MEETING MINUTES

- **Introduction of Development Team:**

- Developer Steve George with The CSC Group, Attorney Samuel Morris with Longleaf Law Partners, and Engineer Jeremy Keeney with Morris & Ritchie Associates.

- **Development Team Presentation:**

- Purpose of this neighborhood meeting and past meetings.
- Discussion regarding rezoning and annexation process in Rolesville.
- Description and location of the Subject Property.
- Discussion regarding current zoning of the property under Wake County.
- Discussion regarding Rolesville Future Land Use Map and Comprehensive Plan guidance
- Description of proposed rezoning and reasons for the request.
- Explanation of proposed building types and densities on the Subject Property.
- Discussion regarding wetlands and open space that will be preserved on the property.
- Forecast future meetings and public hearings.

- **Q & A:**

- What is the name of the development company?
 - The CSC Group, which is a local real estate development group.
- What is the price point and square footage of the townhomes and single-family homes?
 - Developer explained potential projections on cost per unit for townhouses and detached units. They will likely be between 1,800 and 3,000 square feet. Do not have final pricing due to potential market changes.
- Was there a traffic impact analysis?
 - The development team explained that a Traffic Impact Analysis was done by Ramey Kemp, who was retained by the Town. The NCDOT signed off on this. Based on increased trips and conditions on site they make

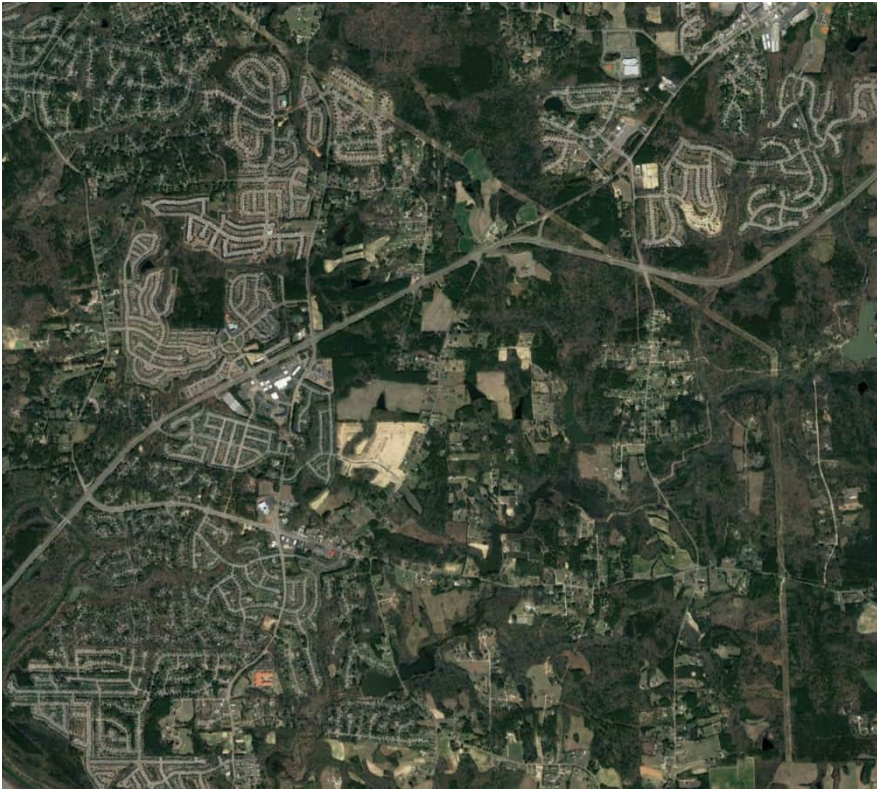
recommendations on monitoring and approved intersections. The results and requirements have been included in the rezoning request.

- Will Universal Dr Gideon Dr be paved/improved?
 - The town is requiring the developer to pave and improve all of Gideon Drive, not Universal, but we are working privately with the Church regarding Universal Drive.
- What measure will be taking place for privacy to neighboring properties? Will there be any natural buffers?
 - The development team explained that there will be 25' vegetative buffers around all adjacent private property.
- Will there be sidewalks Gideon Drive?
 - The engineer explained the town street requirements will require sidewalk improvements along Gideon.
- What is proposed timeline for the development?
 - Development team explained the typical rezoning timeline with development plan and permits, and that construction would not likely occur over a year.
- Inquiry regarding the size, location, and purpose of stormwater ponds.
 - The engineer explained the details and purpose of the proposed stormwater pond.
- Questions regarding density, configuration, and approval process for nearby Mitchell Mill Reserve development.
 - The development team explained the details and nature of the approved Mitchell Mill Reserve case. Engineer explained that background traffic data from that rezoning was considered and used during our TIA.
- Will the homes be built-to-rent, or will they be for sale? What is to stop an owner from renting out a unit that they purchase?
 - The homes will be for sale. NC law limits the ability to prohibit people from leasing their property. Individual owners could buy a unit as an investment.

EXHIBIT D – MEETING ATTENDEES

1. Sam Morris
2. Steven George
3. Jeremy Keeny
4. John Birmingham
5. Guy Jones
6. Myron Jarvis
7. Marie Jarvis
8. Matthew Jarvis
9. Darlene Jones
10. Bryan Harris

RAMEY KEMP ASSOCIATES
TOGETHER WE ARE LIMITLESS



Harris Creek Farm
Traffic Impact Analysis
Rolesville, North Carolina

TRAFFIC IMPACT ANALYSIS

FOR

HARRIS CREEK FARM

LOCATED

IN

ROLESVILLE, NORTH CAROLINA

Prepared For:
Town of Rolesville
502 Southtown Circle
Rolesville, NC 27571

Prepared By:
Infrastructure Consulting Services, Inc.
dba

Ramey Kemp Associates
5808 Faringdon Place
Raleigh, NC 27609
License #F-1489



MAY 2023

RKA Project No. 20498 - 009

Prepared By: DAR

Reviewed By: JAE

TRAFFIC IMPACT ANALYSIS
HARRIS CREEK FARM
ROLESVILLE, NORTH CAROLINA

EXECUTIVE SUMMARY

1. Development Overview

A Traffic Impact Analysis (TIA) was conducted for the proposed Harris Creek Farm development in accordance with the Town of Rolesville (Town) Land Development Ordinance (LDO) and North Carolina Department of Transportation (NCDOT) capacity analysis guidelines. The proposed development, anticipated to be completed in 2027, is to be located on the west side of Jonesville Road near Universal Drive in Rolesville, NC. The proposed development is expected to consist of 68 single-family homes and 81 townhomes. Site access is proposed via two (2) full-movement driveway connections: one on Universal Drive and one on Jonesville Road approximately 700 feet south of Universal Drive.

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

- 2022 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions
- 2027 Build-Improved Traffic Conditions

2. Existing Traffic Conditions

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

- US 401 Bypass and Jonesville Road
- US 401 Bypass and Eastern U-Turn Location
- Mitchell Mill Road and Jonesville Road / Peebles Road
- Jonesville Road and Universal Drive

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed above except for Jonesville Road and Universal Drive, in November of 2021 during typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods, while schools were in session for in-person learning.

Existing peak hour turning movement volumes at the intersection of Jonesville Road and Universal Drive were estimated by generating and assigning trips for the nine (9) homes that are accessed via Universal Drive. It was estimated that there will be 8 AM trips: 2 enter 6 exit and 10 PM trips: 7 enter 3 exit. The trips were distributed to the north and south along Jonesville Road the same as site trips. Through traffic volumes were balanced from the Mitchell Mill Road/Jonesville Road intersection.

Previously collected counts from the year 2021 were projected to the 2022 existing analysis year using a compounded annual growth rate of 2%. Weekday AM and PM traffic volumes were balanced between study intersections, where appropriate.

3. Site Trip Generation

The proposed development is assumed to consist of 68 single-family homes and 81 townhomes,. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the *ITE Trip Generation Manual*, 11th Edition. Table E-1 provides a summary of the trip generation potential for the site.

Table E-1: Site Trip Generation

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Single-Family Home (210)	68 DU	708	13	39	52	44	25	69
Single Family Attached (215)	81 DU	568	9	27	36	26	19	45
Total Primary Trips		1,276	22	66	88	70	44	114

4. Future Traffic Conditions

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 0% would be used to generate 2027 projected weekday AM and PM peak hour traffic volumes. A growth rate of 0% was used due to the number of developments included in the background traffic and the proximity of some of these developments to the proposed development. The following adjacent developments were identified to be considered under future conditions:

- Cobblestone Crossing Mixed-Use (Cobblestone)
- Young Street PUD (The Point)
- Wheeler Tract (Rolesville Crossing)
- Louisbury Road Assemblage
- Kalas / Watkins Family Property (Kalas Falls)
- 5109 Mitchell Mill
- Hills at Harris Creek

5. Capacity Analysis Summary

The analysis considered weekday AM and PM peak hour traffic for 2022 existing, 2027 no-build, 2027 build, and 2027 build-improved conditions. Refer to Section 7 of the TIA for the capacity analysis summary performed at each study intersection.

6. Recommendations

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

Recommended Improvements by Developer

US 401 Bypass and Jonesville Road

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

US 401 Bypass and Eastern U-Turn Location

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Mitchell Mill Road and Jonesville Road / Peebles Road

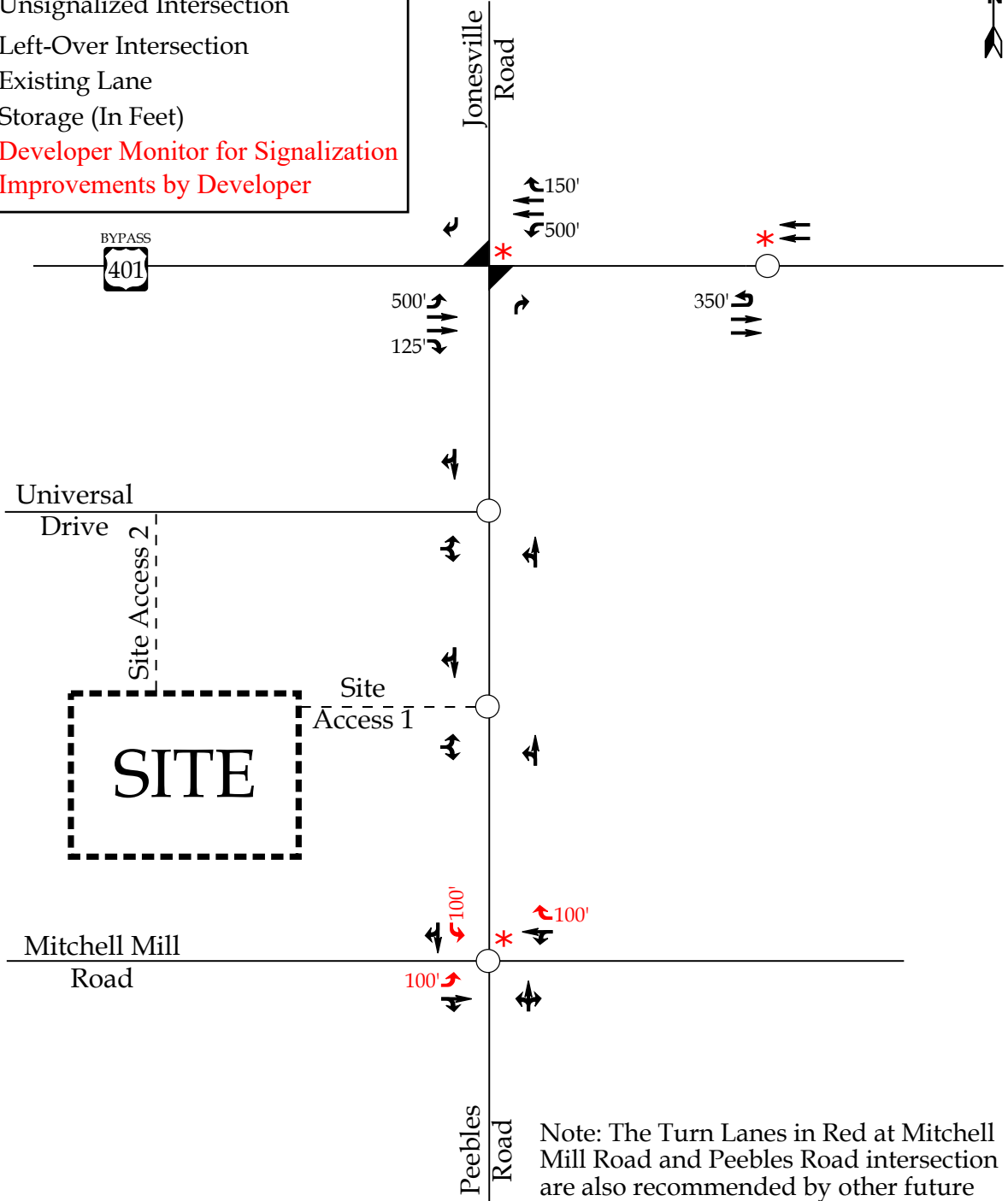
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
 - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA and Hills at Harris Creek TIA
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.
 - It should be noted that this improvement was also identified by the Hills at Harris Creek TIA
- Construct an eastbound (Mitchell Mill Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
 - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA
- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Jonesville Road and Site Drive

- Construct the eastbound approach (Site Drive) with one ingress lane and one egress lane.
- Provide stop-control for the eastbound approach (Site Drive).

LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- Existing Lane
- x' Storage (In Feet)
- * Developer Monitor for Signalization
- Improvements by Developer



Harris Creek Farm
Rolesville, NC

Recommended Lane
Configurations

Scale: Not to Scale Figure E-1

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- Appendix A: Scoping Documentation
- Appendix B: Traffic Counts
- Appendix C: Adjacent Development Information
- Appendix D: Capacity Calculations – US 401 Bypass & Jonesville Road
- Appendix E: Capacity Calculations – US 401 Bypass & Eastern U-Turn Location
- Appendix F: Capacity Calculations – Mitchell Mill Road & Jonesville Road / Peebles Road
- Appendix G: Capacity Calculations – Jonesville Road & Universal Drive
- Appendix H: Capacity Calculations – Jonesville Road & Site Drive
- Appendix I: Turn Lane Warrants
- Appendix J: MUTCD / ITRE Signal Warrant Analysis

TRAFFIC IMPACT ANALYSIS
HARRIS CREEK FARM
ROLESVILLE, NORTH CAROLINA

1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Harris Creek Farm development in Rolesville, North Carolina. The proposed development, anticipated to be completed in 2027, is to be located on the west side of Jonesville Road near Universal Drive in Rolesville, NC. The proposed development is expected to consist of 68 single-family homes and 81 townhomes. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

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

- 2022 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions

1.1. Site Location and Study Area

The proposed development is to be located on the west side of Jonesville Road near Universal Drive in Rolesville, NC. Refer to Figure 1 for the site location map. The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and the Town of Rolesville (Town) and consists of the following existing intersections:

- US 401 Bypass and Jonesville Road
- US 401 Bypass and Eastern U-Turn Location
- Jonesville Road and Universal Drive
- Mitchell Mill Road and Jonesville Road / Peebles Road

Refer to Appendix A for the approved scoping documentation.

1.2. Proposed Land Use and Site Access

The site is to be located on the west side of Jonesville Road near Universal Drive. The proposed development is anticipated to be completed in 2027, and is assumed to consist of the following uses:

- 68 single-family homes
- 81 townhomes

Site access to the proposed development is expected to be provided via two (2) full-movement driveway connections: one on Universal Drive and one on Jonesville Road approximately 700 feet south of Universal Drive. Refer to Figure 2 for a copy of the preliminary site plan.

1.3. Adjacent Land Uses

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

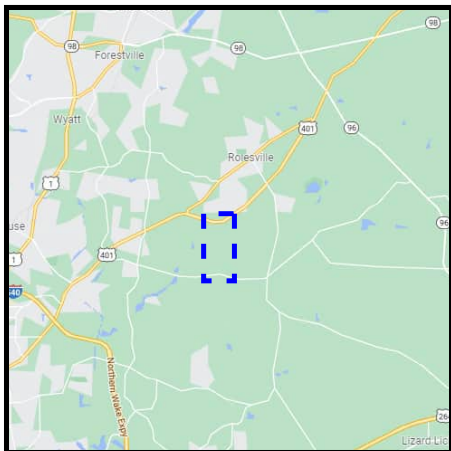
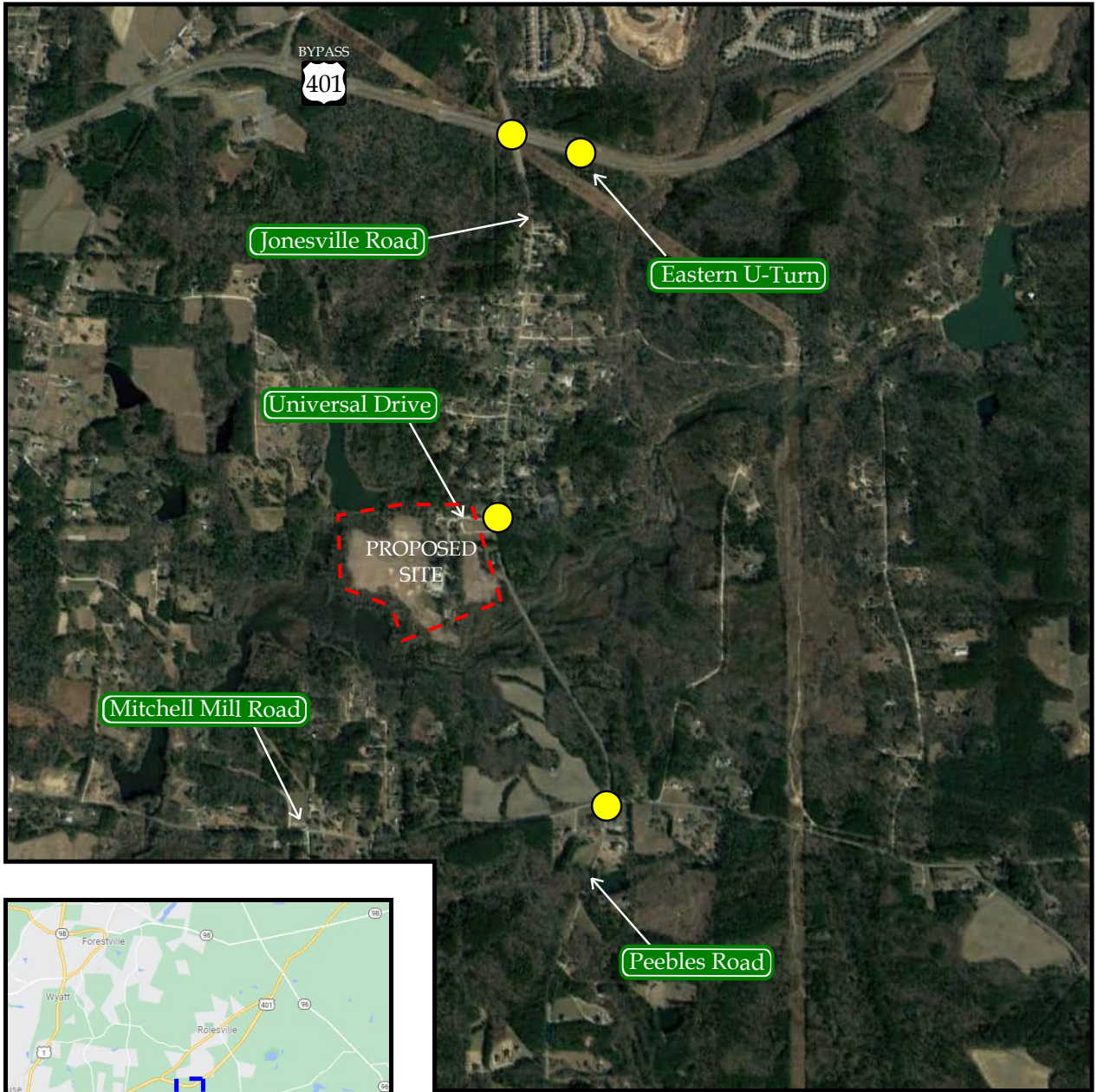
1.4. Existing Roadways

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

Table 1: Existing Roadway Inventory

Road Name	Route Number	Typical Cross-Section	Speed Limit	Maintained By	2019 AADT (vpd)
US 401 Bypass		4-lane divided	55 mph	NCDOT	17,500
Jonesville Road	SR 2226	2-lane undivided	35 mph / 45 mph	NCDOT	2,210*
Mitchell Mill Road	SR 2224	2-lane undivided	45 mph	NCDOT	4,000
Peebles Road	SR 2929	2-lane undivided	45 mph	NCDOT	1,700*

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



LEGEND

- - - Proposed Site Location
- Existing Study Intersection
- - - Study Area




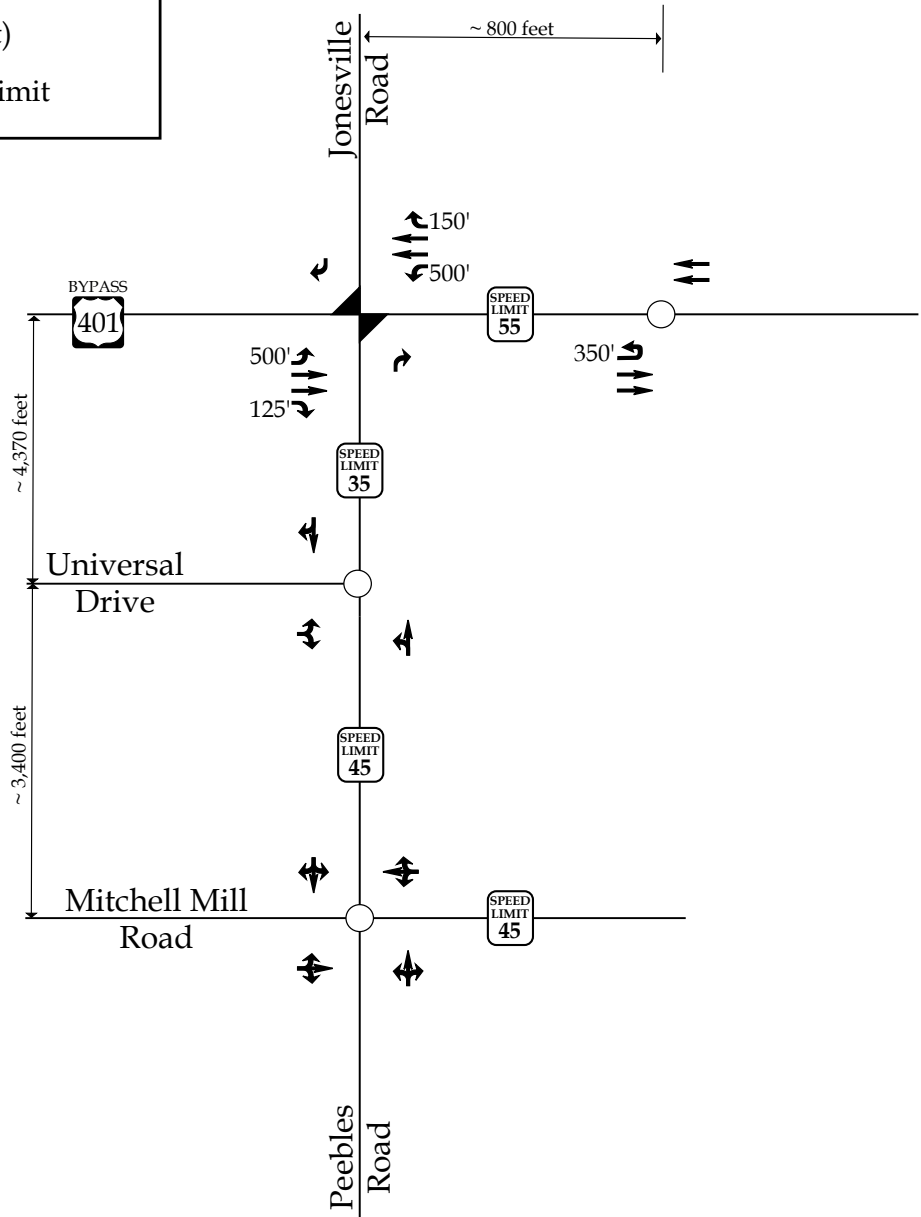
Harris Creek Farm
Rolesville, NC

Site Location Map

Scale: Not to Scale Figure 1

LEGEND

- Unsignalized Intersection
- ◼ Left-Over Intersection
- ➔ Existing Lane
- x' Storage (In Feet)
-  Posted Speed Limit



Harris Creek Farm
Rolesville, NC

2022 Existing
Lane Configurations

Scale: Not to Scale Figure 3

2. 2022 EXISTING PEAK HOUR CONDITIONS

2.1. 2022 Existing Peak Hour Traffic Volumes

Existing peak hour traffic volumes were determined based on previously collected traffic counts conducted at the study intersections listed below, in November of 2021 during typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods, while schools were in session for in-person learning:

- US 401 Bypass and Jonesville Road
- US 401 Bypass and Eastern U-Turn Location
- Mitchell Mill Road and Jonesville Road / Peebles Road

Previously collected counts from the year 2021 were projected to the 2022 existing analysis year using a compounded annual growth rate of 2%.

Existing peak hour turning movement volumes at the intersection of Jonesville Road and Universal Drive were estimated by generating and assigning trips for the nine (9) homes that are accessed via Universal Drive. It was estimated that there will be 8 AM trips: 2 enter 6 exit and 10 PM trips: 7 enter 3 exit. The trips were distributed to the north and south along Jonesville Road the same as site trips. Through traffic volumes were balanced from the Mitchell Mill Road/Jonesville Road intersection.

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

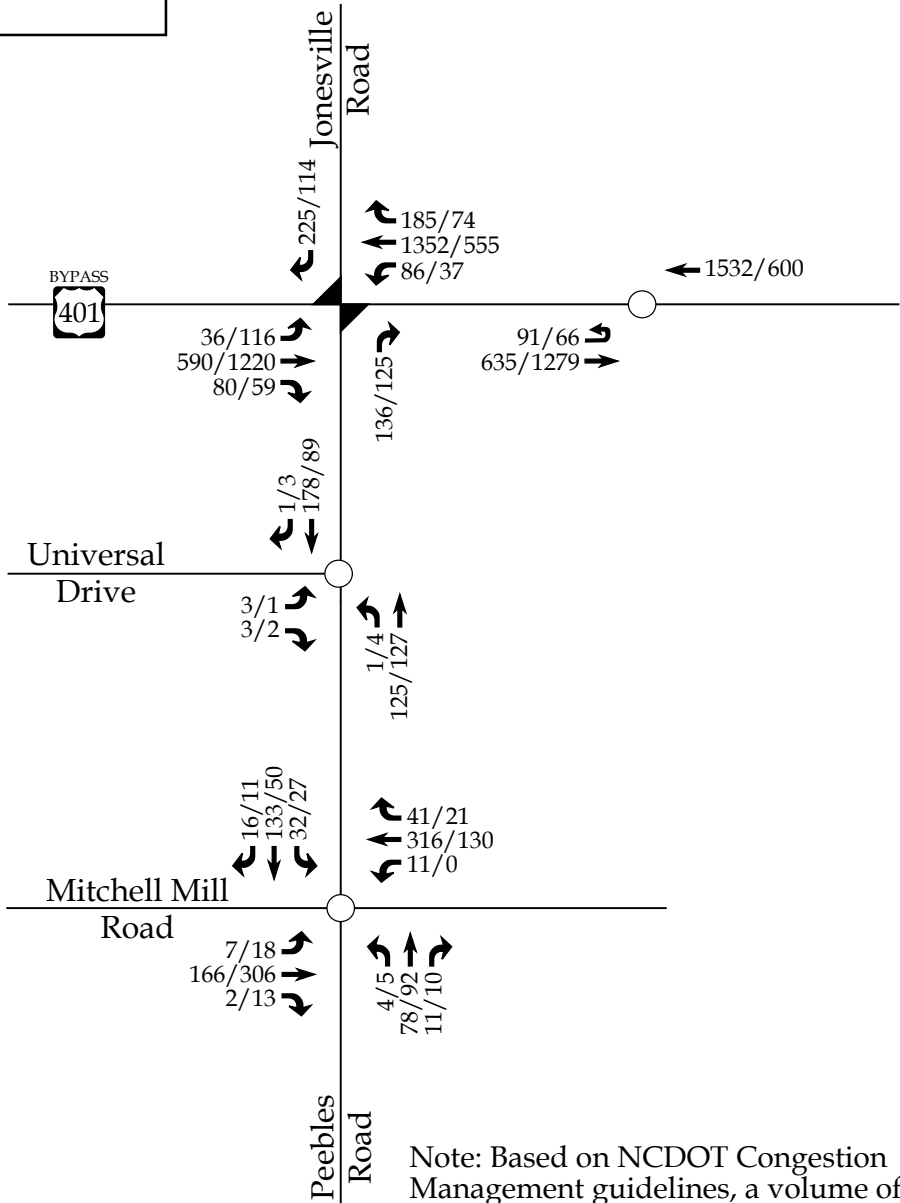
2.2. Analysis of 2022 Existing Peak Hour Traffic Conditions

The 2022 existing weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. The results of the analysis are presented in Section 7 of this report.



LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic



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



Harris Creek Farm
Rolesville, NC

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

3. 2027 NO-BUILD PEAK HOUR CONDITIONS

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

3.1. Ambient Traffic Growth

Through coordination with NCDOT and the Town, it was determined that an annual growth rate of 0% would be used to generate 2027 projected weekday AM and PM peak hour traffic volumes. A growth rate of 0% was used due to the number of developments included in the background traffic and the proximity of some of these developments to the proposed development. Refer to Figure 5 for 2027 projected peak hour traffic.

3.2. Adjacent Development Traffic

Through coordination with NCDOT and the Town, the following adjacent developments were identified to be included in this study:

- Cobblestone Crossing Mixed-Use (Cobblestone)
- Young Street PUD (The Point)
- Wheeler Tract (Rolesville Crossing)
- Louisbury Road Assemblage
- Kalas / Watkins Family Property (Kalas Falls)
- 5109 Mitchell Mill
- Hills at Harris Creek

Table 2, on the following page, provides a summary of the adjacent developments. Adjacent development trips are shown in Figure 6. Adjacent development information can be found in Appendix C.

Table 2: Adjacent Development Information

Development Name	Location	Build-Out Year	Land Use / Intensity	TIA Performed
Cobblestone Crossing Mixed-Use	Northwest quadrant of the intersection of Main Street and Young Street	2023	180 multi-family homes 18,200 sq. ft. municipal flex space 50,000 sq. ft. general retail	March 2021 by RKA
Young Street PUD	Along both sides of US 401 Bypass west of Young Street	2025	96 single-family homes 525 single-family homes 320 multi-family homes 122,800 sq. ft. general retail	June 2019 by Kimley Horn
Wheeler Tract	Northeast quadrant of the intersection of Rolesville Road and Mitchell Mill Road	2026	233 single-family homes 125 multi-family homes	June 2019 by RKA
Louisbury Road Assemblage	West of Louisbury Road and south of Stells Road	2025	152 single-family homes	May 2020 by RKA
Kalas / Watkins Family Property	Along the west side of Rolesville Road, north of Mitchell Mill Road	2025	439 single-family homes 96 multi-family homes	August 2019 by Stantec
5109 Mitchell Mill	Along both sides of Jonesville Road north of Mitchell Mill Road	2028	69 single-family homes 195 single-family homes 129 multi-family homes 50,000 sq. ft. shopping center	August 2022 by RKA
Hills at Harris Creek	North of Mitchell Mill Road, west of Manly Farm Road and east of Gro Peg Lane	2027	211 single-family homes 109 multi-family homes 25,400 sq. ft. general retail	May 2022 by RKA

3.3. Future Roadway Improvements

Based on coordination with NCDOT and the Town, it was determined there were two previously approved TIA's that recommended roadway improvements that were considered under future conditions with this study. Both developments are to construct improvements at the intersection of Jonesville Road and Mitchell Mill Road. An exclusive eastbound left-turn lane was identified in the 5109 Mitchell Mill Road TIA. An exclusive westbound right-turn lane was identified in the Hills at Harris Creek TIA. In both the 5109 Mitchell Mill Road TIA and the Hills at Harris Creek TIA an exclusive southbound left-turn lane improvement was identified. It should be noted that per the Rolesville Community Transportation Plan (dated May 2022), the ultimate cross-section of Jonesville Road is identified as a 2-lane roadway with a center two-way-left-turn-lane (TWLTL) and Mitchell Mill Road is identified as a 4-lane median-divided roadway.

3.4. 2027 No-Build Peak Hour Traffic Volumes

The 2027 no-build traffic volumes were determined by projecting the 2022 existing peak hour traffic to the year 2027 and adding the adjacent development trips. Refer to Figure 7 for an illustration of the 2027 no-build peak hour traffic volumes at the study intersections.

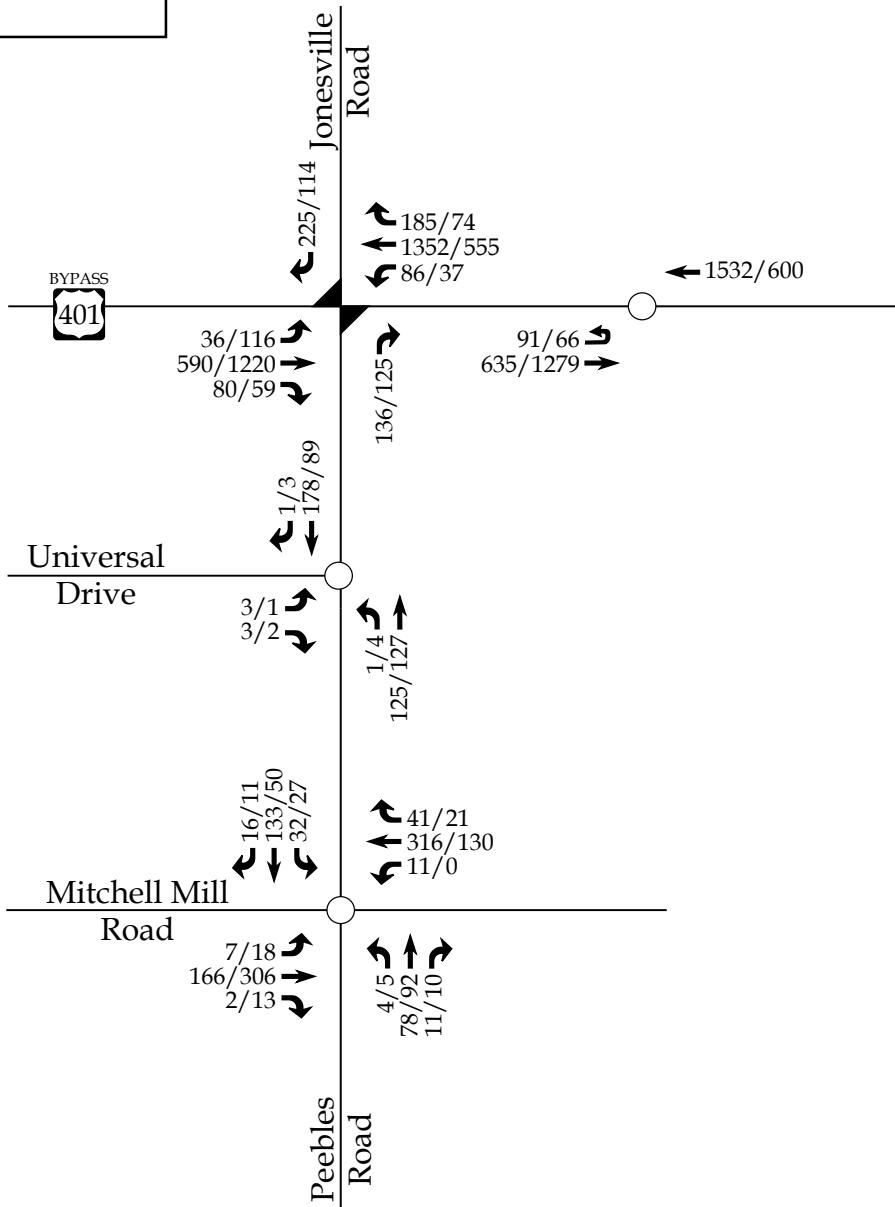
3.5. Analysis of 2027 No-Build Peak Hour Traffic Conditions

The 2027 no-build AM and PM peak hour traffic volumes at the study intersections were analyzed with existing geometric roadway conditions and traffic control. The analysis results are presented in Section 7 of this report.



LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic



Harris Creek Farm
Rolesville, NC

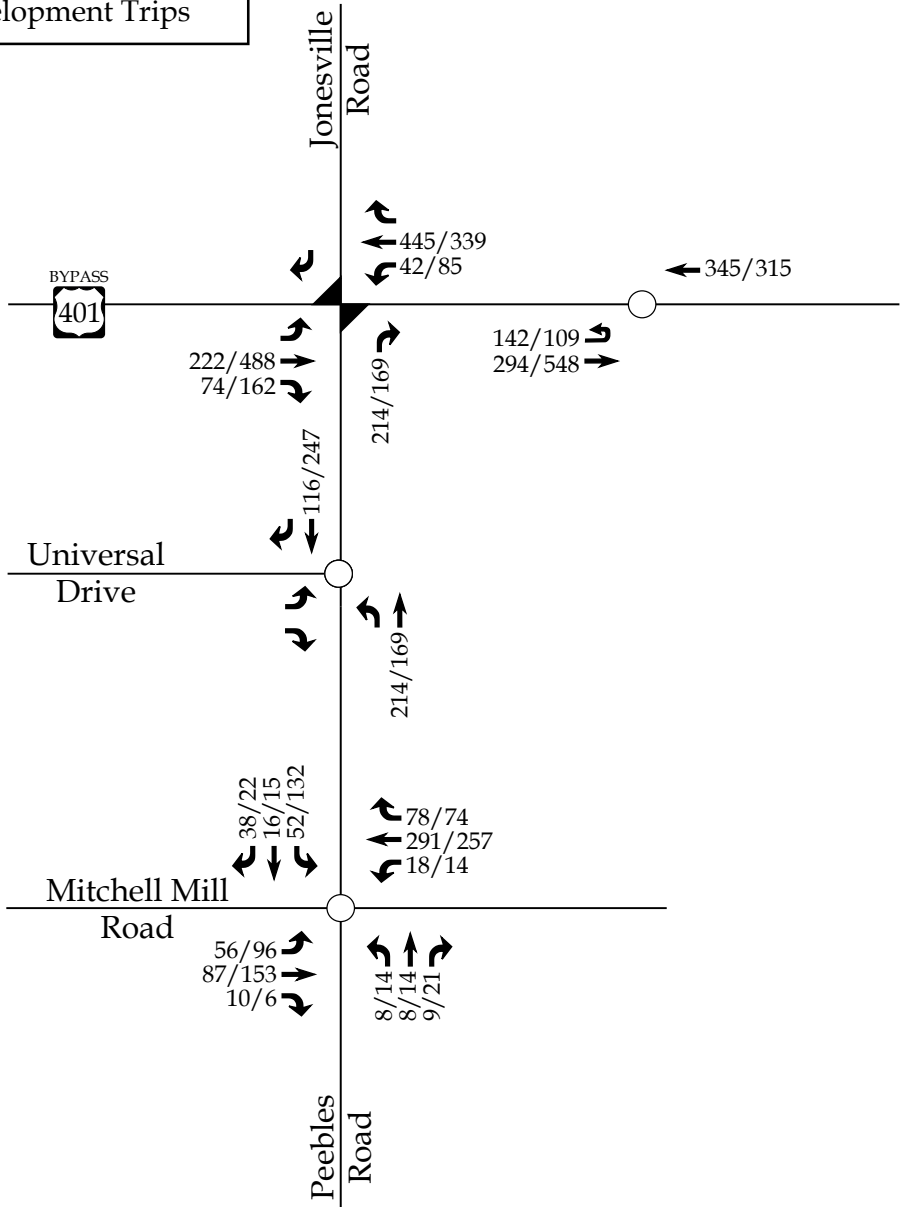
2027 Projected
Peak Hour Traffic

Scale: Not to Scale

Figure 5

LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X / Y → Weekday AM / PM Peak Hour Adjacent Development Trips



Harris Creek Farm
Rolesville, NC

Peak Hour Adjacent
Development Trips

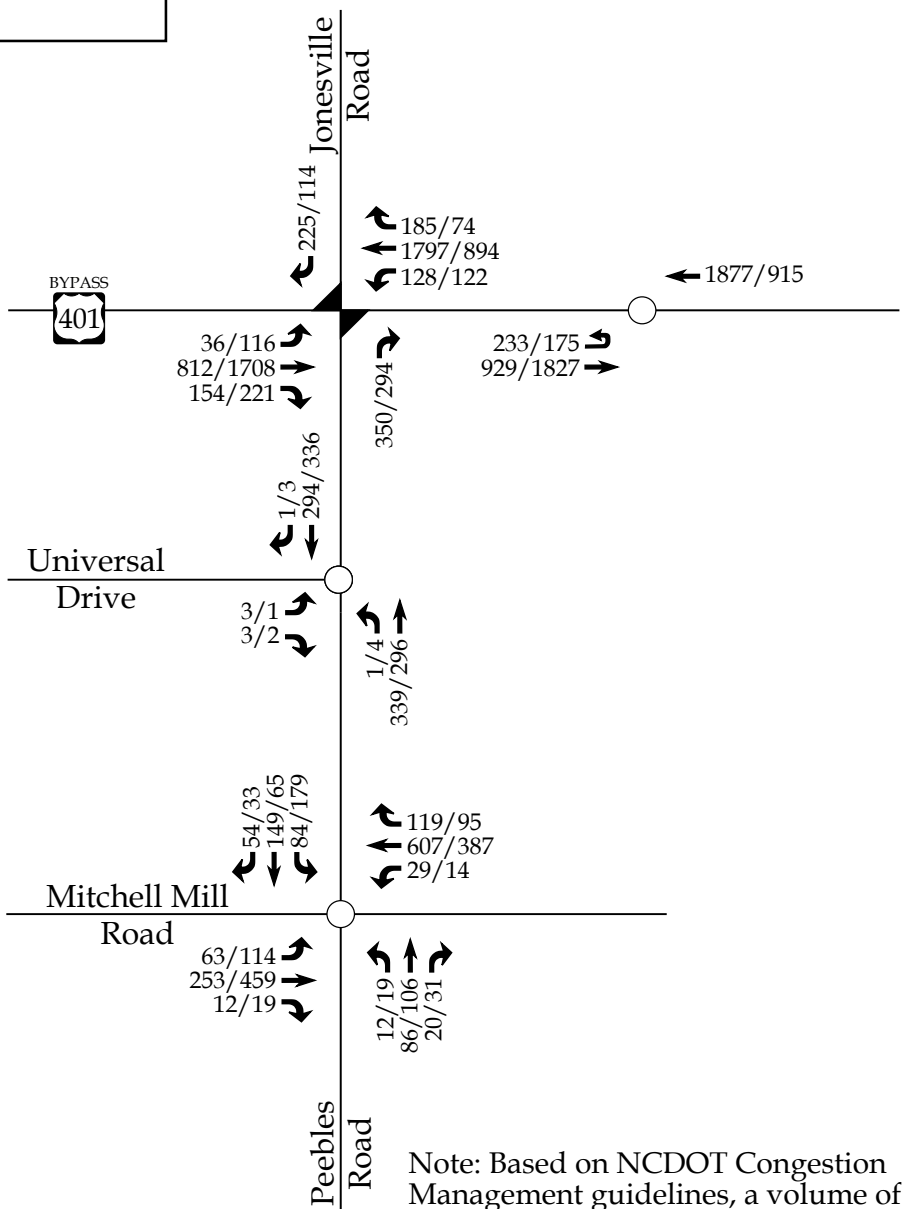
Scale: Not to Scale

Figure 6



LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic



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

	Harris Creek Farm Rolesville, NC	2027 No-Build Peak Hour Traffic	
		Scale: Not to Scale	Figure 7

4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

The proposed development is assumed to consist of 68 single-family homes and 81 townhomes. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 11th Edition. Table 3 provides a summary of the trip generation potential for the site.

Table 3: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Single-Family Home (210)	68 DU	708	13	39	52	44	25	69
Single Family Attached (215)	81 DU	568	9	27	36	26	19	45
Total Primary Trips		1,276	22	66	88	70	44	114

It is estimated that the proposed development will generate approximately 1,276 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 88 trips (22 entering and 66 exiting) will occur during the weekday AM peak hour and 114 trips (70 entering and 44 exiting) will occur during the weekday PM peak hour.

4.2. Site Trip Distribution and Assignment

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

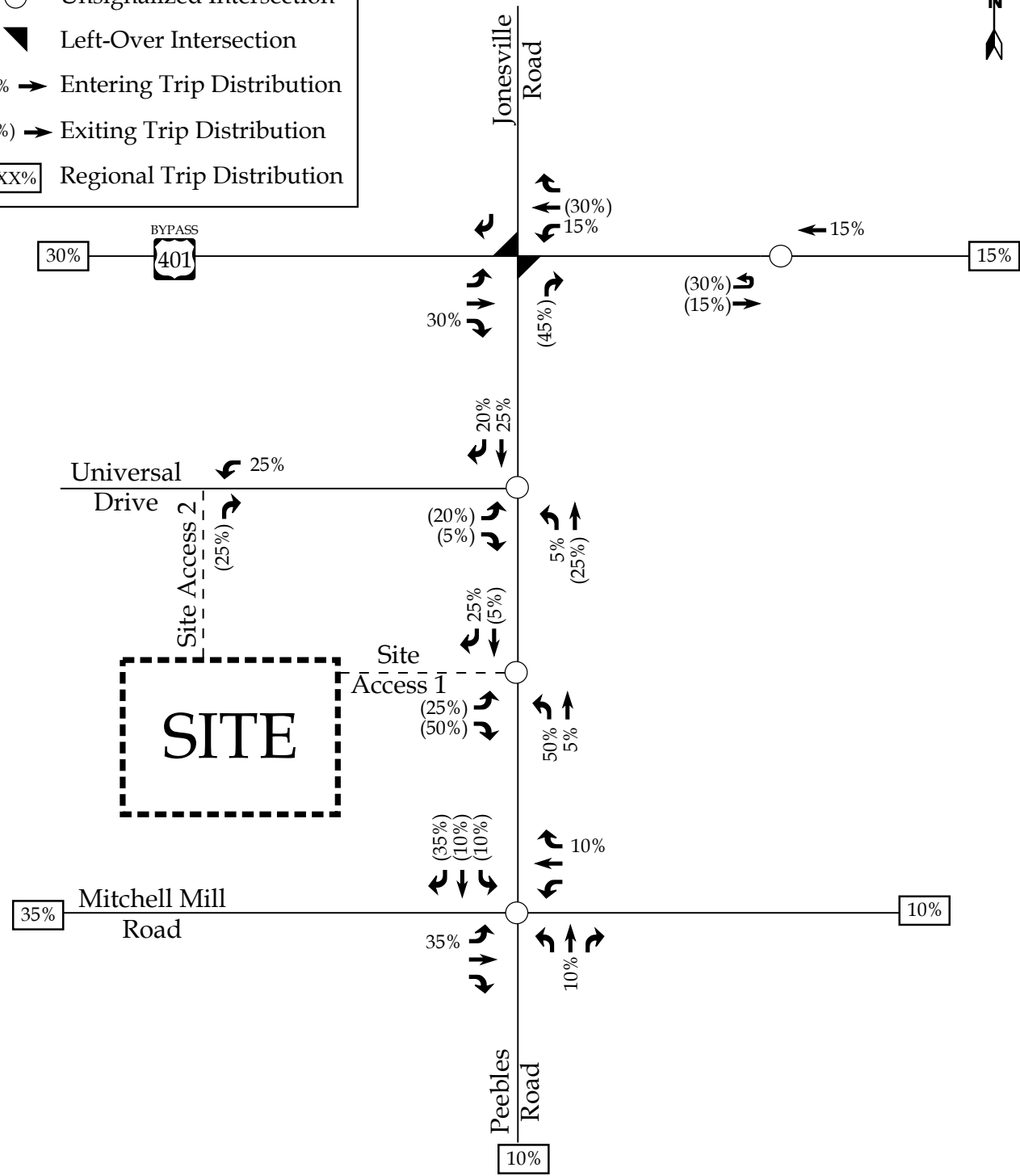
It is estimated that the residential site trips will be regionally distributed as follows:

- 35% to/from the west via Mitchell Mill Road
- 30% to/from the west via US 401 Bypass
- 15% to/from the east via US 401 Bypass
- 10% to/from the south via Peebles Road
- 10% to/from the east via Mitchell Mill Road

The site trip distribution is shown in Figure 8 and the peak hour site trip assignment is shown in Figure 9.

LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X% → Entering Trip Distribution
- (Y%) → Exiting Trip Distribution
- XX% Regional Trip Distribution



Harris Creek Farm
Rolesville, NC

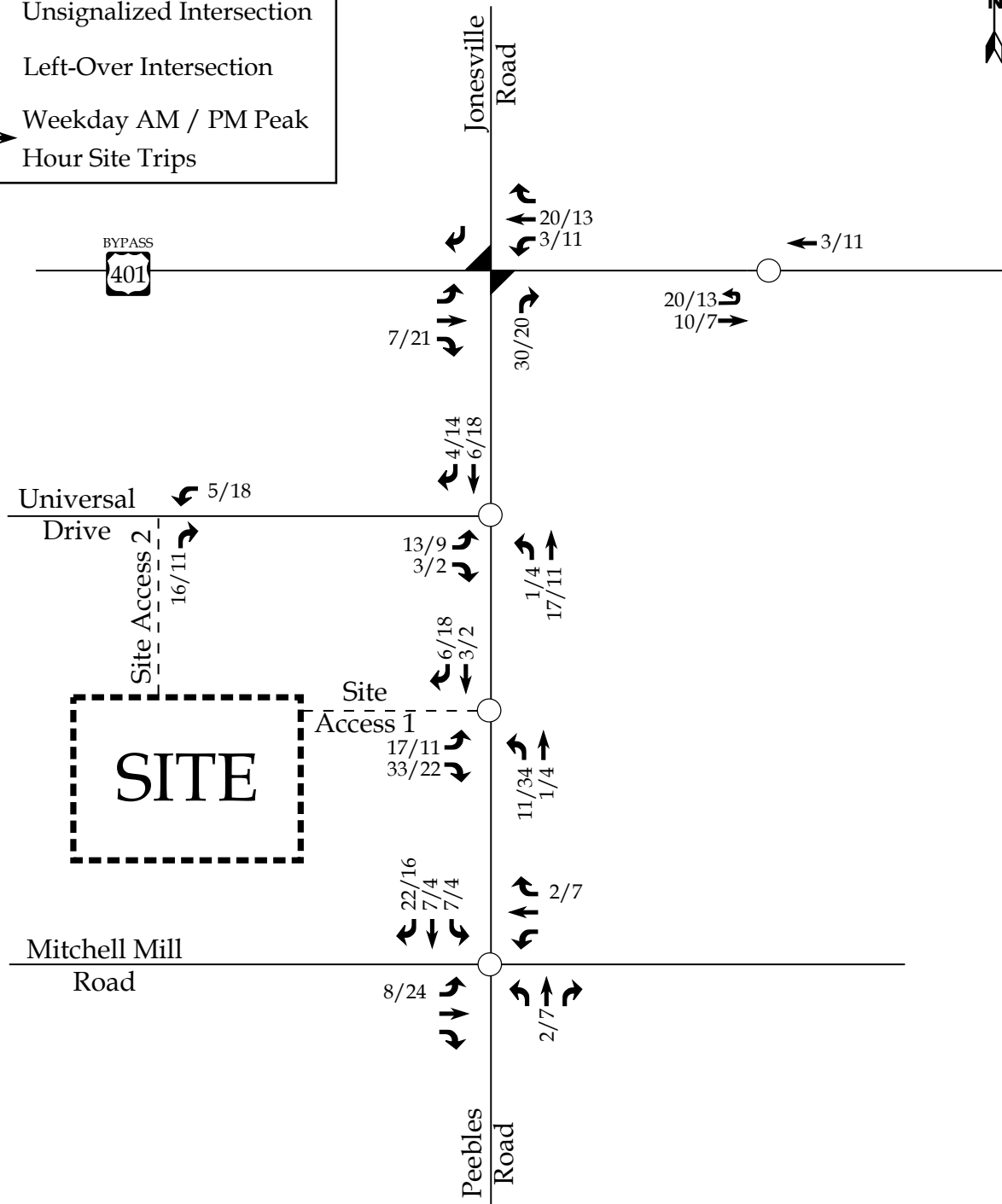
Site Trip Distribution

Scale: Not to Scale

Figure 8

LEGEND

- Unsignalized Intersection
- ▲ Left-Over Intersection
- X / Y → Weekday AM / PM Peak Hour Site Trips



Harris Creek Farm
Rolesville, NC

Site Trip Assignment

Scale: Not to Scale Figure 9

5. 2027 BUILD TRAFFIC CONDITIONS

5.1. 2027 Build Peak Hour Traffic Volumes

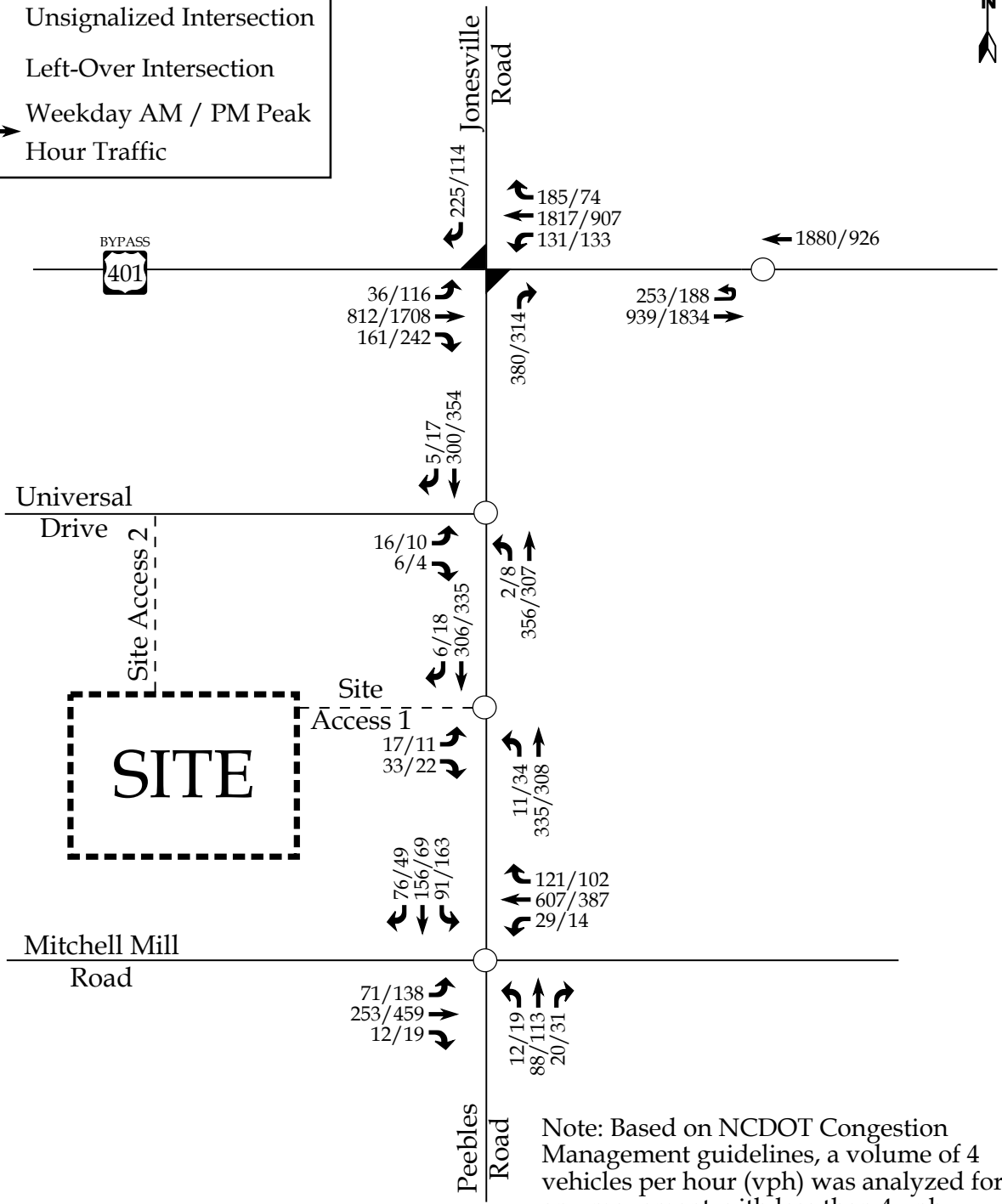
To estimate traffic conditions with the site fully built-out, the total site trips were added to the 2027 no-build traffic volumes to determine the 2027 build traffic volumes. Refer to Figure 10 for an illustration of the 2027 build peak hour traffic volumes with the proposed site fully developed.

5.2. Analysis of 2027 Build Peak Hour Traffic Conditions

Study intersections were analyzed with the 2027 build traffic volumes using the same methodology previously discussed for existing and no-build traffic conditions. Intersections were analyzed with improvements necessary to accommodate future traffic volumes. The results of the capacity analysis for each intersection are presented in Section 7 of this report.

LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X / Y → Weekday AM / PM Peak Hour Traffic



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



Harris Creek Farm
Rolesville, NC

2027 Build
Peak Hour Traffic

Scale: Not to Scale | Figure 10

6. TRAFFIC ANALYSIS PROCEDURE

Study intersections were analyzed using the methodology outlined in the *Highway Capacity Manual* (HCM), 6th Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 11), was used to complete the analyses for most of the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.” Level of service (LOS) is a term used to represent different driving conditions, and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers.” Level of service varies from Level “A” representing free flow, to Level “F” where breakdown conditions are evident. Refer to Table 4 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.” An average control delay of 50 seconds at a signalized intersection results in LOS “D” operation at the intersection.

Table 4: Highway Capacity Manual – Levels-of-Service and Delay

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

6.1. Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to Town LDO and NCDOT Congestions Management Guidelines.

7. CAPACITY ANALYSIS

7.1. US 401 Bypass and Jonesville Road

The existing unsignalized intersection of US 401 Bypass Road and Jonesville Road was analyzed under 2022 existing, 2027 no-build, and 2027 build traffic conditions with the lane configurations and traffic control shown in Table 5. Refer to Table 5 for a summary of the analysis results. Refer to Appendix D for the Synchro capacity analysis reports.

Table 5: Analysis Summary of US 401 Bypass and Jonesville Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB WB* NB	2 TH, 1 RT 1 LT 1 RT	-- C ¹ B ²	N/A	-- E ¹ C ²	N/A
	EB** WB SB	1 LT 2 TH, 1 RT 1 RT	F ¹ -- E ²	N/A	C ¹ -- B ²	N/A
2027 No-Build	EB WB* NB	2 TH, 1 RT 1 LT 1 RT	-- D ¹ D ²	N/A	-- F ¹ F ²	N/A
	EB** WB SB	1 LT 2 TH, 1 RT 1 RT	F ¹ -- F ²	N/A	E ¹ -- B ²	N/A
2027 Build	EB WB* NB	2 TH, 1 RT 1 LT 1 RT	-- D ¹ D ²	N/A	-- F ¹ F ²	N/A
	EB** WB SB	1 LT 2 TH, 1 RT 1 RT	F ¹ -- F ²	N/A	E ¹ -- B ²	N/A
2027 Build-Improved	EB WB* NB	2 TH, 1 RT 1 LT 1 RT	B B B	B (16)	B D C	C (23)
	EB** WB SB	1 LT 2 TH, 1 RT 1 RT	F ¹ -- F ²	N/A	E ¹ -- B ²	N/A

*Synchro analyzed the WB left-turns as SB through movements due to the nature of the superstreet and synchro limitations.

**Synchro analyzed the EB left-turns as NB through movements due to the nature of the superstreet and synchro limitations.

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

Capacity analysis of 2022 existing traffic conditions indicates that the major-street left-turn movements and minor-street approaches are expected to operate at LOS D or better with the exception of the eastbound left-turn movement during the weekday AM peak hour (LOS F), the westbound left-turn movement during the weekday PM peak hour (LOS E), and the southbound minor-street approach during the weekday AM peak hour (LOS E).

Under 2027 no-build and 2027 build traffic conditions, the major-street left-turn movements are expected to operate at LOS E/F during the weekday AM and PM peak hours with the exception of the westbound left-turn movement during the weekday AM peak hour (LOS D) under 2027 no-build and 2027 build traffic conditions. The minor-street approaches are expected to operate at LOS E/F during the weekday AM and PM peak hours with the exception of the northbound approach during the weekday AM peak hour (LOS D) and the southbound approach during the weekday PM peak hour (LOS B) under 2027 no-build and 2027 build traffic conditions. It should be noted that the proposed development is expected to account for approximately 2% of the overall traffic at this intersection during the weekday AM and PM peak hours. The proposed development is expected to account for 8% and 6% of the northbound right movements during the AM and PM peak hours, respectively.

Due to the poor levels-of-service expected at this intersection, a traffic signal was considered under 2027 build traffic conditions to achieve acceptable levels of service. Weekday AM and PM peak hour traffic volumes were utilized in evaluating the potential need for signalization based on the guidelines contained within the *Manual on Uniform Traffic Control Devices* (MUTCD) and within the *Guidelines for Signalization of Intersections with Two or Three Approaches Final Report*, published by ITRE. Based on a review of the peak hour signal warrant at this intersection, the intersection is expected to meet the peak hour warrant for both the weekday AM and PM peak hours under 2027 no-build and 2027 build traffic conditions. It is not expected that this intersection would satisfy the MUTCD 8-hour (warrant 1) or 4-hour (warrant 2) warrants, which NCDOT favors for installation of a traffic signal. These longer period warrants are not typically met for residential areas due to the distinct peak traffic periods for these types of development. Based on a review of ITRE 95th percentile queue length calculations, the northbound right-turn movement demand is expected to be over 85%

capacity during the weekday AM peak hour and exceed capacity during the weekday PM peak hour under 2027 no-build and 2027 build traffic conditions. Refer to Appendix J for a copy of the MUTCD warrants and the ITRE 95th percentile queue length calculations.

Based on the Town's LDO, improvements must be identified to maintain no-build levels-of-service under build traffic conditions or to limit the degradation to less than a five percent increase in total delay on any approach for those operating at failing levels-of-service under no-build traffic conditions. Therefore, additional turn-lanes were considered for the northbound right-turn and westbound left-turn movements at this intersection to achieve acceptable operation per the Town's LDO. However, additional turn-lanes are not a realistic or practical improvement at an unsignalized intersection operating with superstreet configurations.

Based on the Town's LDO, it is recommended that this intersection be monitored for signalization and a full signal warrant analysis be conducted prior to the full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT. With signalization, it is expected that this intersection will operate at acceptable levels-of-service during the weekday AM and PM peak hours.

7.2. US 401 Bypass and Eastern U-Turn Location

The existing unsignalized intersection of US 401 Bypass and Eastern U-Turn Location was analyzed under 2022 existing, 2027 no-build, and 2027 build traffic conditions with the lane configurations and traffic control shown in Table 6. Refer to Table 6 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports.

Table 6: Analysis Summary of US 401 Bypass and Eastern U-Turn Location

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB* WB	1 UT 2 TH	C ¹ --	N/A	B ¹ --	N/A
2027 No-Build	EB* WB	1 UT 2 TH	F ¹ --	N/A	C ¹ --	N/A
2027 Build	EB* WB	1 UT 2 TH	F ¹ --	N/A	C ¹ --	N/A
2027 Build – Improved	EB* WB	1 UT 2 TH	D B	C (21)	B A	B (11)

*Synchro analyzed the EB u-turn as a NB left-turn movement due to the nature of the superstreet and synchro limitations.

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

Capacity analysis of 2022 existing and 2027 no-build traffic conditions indicates that the major-street u-turn movement is expected to operate at LOS C or better during the weekday AM and PM peak hours, with the exception of the weekday AM peak hour under 2027 no-build conditions (LOS F).

Under 2027 build traffic conditions, the major-street u-turn movement is expected to operate at LOS F during the weekday AM peak hour and at LOS C during the weekday PM peak hour. It should be noted that the proposed development is expected to account for approximately 1% of the overall traffic at this intersection during the weekday AM and PM peak hours. The proposed development is expected to account for approximately 8% and 7%

of the overall eastbound u-turn movements at this intersection during the weekday AM and PM peak hours, respectively.

Due to the poor levels-of-service expected at this intersection, a traffic signal was considered under 2027 build traffic conditions to achieve acceptable levels of service. Weekday AM and PM peak hour traffic volumes were utilized in evaluating the potential need for signalization based on the guidelines contained within the *Manual on Uniform Traffic Control Devices* (MUTCD) and within the *Guidelines for Signalization of Intersections with Two or Three Approaches Final Report*, published by ITRE. Based on a review of signal warrants at this intersection, the peak hour warrant (warrant 3) from the MUTCD is expected to be met for the weekday AM peak hour under 2027 no-build and build traffic conditions. It is not expected that this intersection would satisfy the MUTCD 8-hour (warrant 1) or 4-hour (warrant 2) warrants, which NCDOT favors for installation of a traffic signal. These longer period warrants are not typically met for residential areas due to the distinct peak traffic periods for these types of development. Based on a review of ITRE 95th percentile queue length calculations, the eastbound u-turn movement demand is expected to exceed capacity during the weekday AM peak hour under 2027 no-build and 2027 build traffic conditions. Refer to Appendix J for a copy of the MUTCD warrants and the ITRE 95th percentile queue length calculations.

Based on the Town's LDO, improvements must be identified to maintain no-build levels-of-service under build traffic conditions or to limit the degradation to less than a five percent increase in total delay on any approach for those operating at failing levels-of-service under no-build traffic conditions. Therefore, additional turn-lanes were considered for the eastbound u-turn movement at this intersection to achieve acceptable operation per the Town's LDO. However, additional turn-lanes are not a realistic or practical improvement at an unsignalized intersection operating with superstreet configurations.

Based on the Town's LDO, it is recommended that this intersection be monitored for signalization and a full signal warrant analysis be conducted prior to the full build-out of the proposed development and install a traffic signal if warranted and approved by the Town

and NCDOT. With signalization, it is expected that this intersection will operate at acceptable levels-of-service during the weekday AM and PM peak hours.

7.3. Mitchell Mill Road and Jonesville Road / Peebles Road

The existing unsignalized four-way stop intersection of Mitchell Mill Road and Jonesville Road / Peebles Road was analyzed under 2022 existing, 2027 no-build, and 2027 build traffic conditions with the lane configurations and traffic control shown in Table 7. Refer to Table 7 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports.

Table 7: Analysis Summary of Mitchell Mill Road and Jonesville Road / Peebles Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	B ¹ B ¹ B ¹ B ¹	B (13)	B ¹ A ¹ A ¹ A ¹	B (11)
2027 No-Build	EB WB NB SB	1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT, 1 TH-RT	C ¹ F ¹ C ¹ C ¹	F (95)	F ¹ E ¹ C ¹ C ¹	F (57)
2027 Build	EB WB NB SB	1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT, 1 TH-RT	C ¹ F ¹ C ¹ C ¹	F (104)	F ¹ F ¹ C ¹ C ¹	F (61)
2027 Build - Improved	EB WB NB SB	1 LT, 1 TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT, 1 TH-RT	A B B C	B (14)	B B B B	B (13)

1. Level of service for all-way stop controlled approach.

Capacity analysis of 2022 existing indicates that the intersection is expected to operate at an overall LOS B or better during the weekday AM and PM peak hours. Under 2027 no-build and 2027 build traffic conditions, this intersection is expected to operate at an overall LOS F during the weekday AM and PM peak hours. It should be noted that the proposed development is expected to account for approximately 3% and 4% of the overall traffic at this

intersection during the weekday AM and PM peak hours, respectively. The proposed development is expected to account for approximately 11% and 17% of the eastbound left movement and 17% and 7% of the westbound right movements during the weekday AM and PM peak hours, respectively.

Several turn lanes expected to be constructed by adjacent developments were included in the 2027 no-build and 2027 build scenarios. An exclusive eastbound left-turn lane was identified in the 5109 Mitchell Mill Road TIA. An exclusive westbound right-turn lane was identified in the Hills at Harris Creek TIA. In both the 5109 Mitchell Mill Road TIA and the Hills at Harris Creek TIA an exclusive southbound left-turn lane improvement was identified.

Due to the poor levels-of-service expected at this intersection, a traffic signal was considered under 2027 build traffic conditions to achieve acceptable levels-of-service. The peak hour warrant (warrant 3) from the *Manual on Uniform Traffic Control Devices* (MUTCD) was considered. Based on a review of the peak hour signal warrant at this intersection, the intersection is expected to meet the peak hour warrant for both the weekday AM and PM peak hours under 2027 no-build and 2027 build traffic conditions. It is not expected that this intersection would satisfy the MUTCD 8-hour (warrant 1) or 4-hour (warrant 2) warrants, which NCDOT favors for installation of a traffic signal. These longer period warrants are not typically met for residential areas due to the distinct peak traffic periods for these types of development. Refer to Appendix J for a copy of the MUTCD warrants.

Based on the Town's LDO, it is recommended that this intersection be monitored for signalization and a full signal warrant analysis be conducted prior to the full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT. With signalization, it is expected that this intersection will operate at acceptable levels-of-service during the weekday AM and PM peak hours.

7.4. Jonesville Road and Universal Drive

The existing unsignalized intersection of Jonesville Road and Universal Drive was analyzed under 2027 build traffic conditions with the lane configurations and traffic control shown in Table 8. Refer to Table 8 for a summary of the analysis results. Refer to Appendix G for the synchro capacity analysis reports.

Table 8: Analysis Summary of Jonesville Road and Universal Drive

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	A ² A ¹ --	N/A	A ² A ¹ --	N/A
2027 No-Build	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	B ² A ¹ --	N/A	B ² A ¹ --	N/A
2027 Build	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	B ² A ¹ --	N/A	B ² A ¹ --	N/A

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

Capacity analysis of 2027 build traffic conditions indicates that the major-street left-turn movement is expected to operate at LOS A during the weekday AM and PM peak hours. The minor-street approach is expected to operate at LOS B or better during the weekday AM and PM peak hours.

Right and left-turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. Based on the estimated low volume of right-turn and left-turn movements into the proposed development at this intersection, exclusive right-turn and left-turn lanes are not recommended. Refer to Appendix I for a copy of the turn lane warrants. No improvements are recommended by the developer.

7.5. Jonesville Road and Site Drive

The proposed intersection of Jonesville Road and Site Drive was analyzed under 2027 build traffic conditions with the lane configurations and traffic control shown in Table 9. Refer to Table 9 for a summary of the analysis results. Refer to Appendix H for the synchro capacity analysis reports.

Table 9: Analysis Summary of Jonesville Road and Site Drive

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2027 Build	EB NB SB	1 LT-RT 1 LT-TH 1 TH-RT	B ² A ¹ --	N/A	B ² A ¹ --	N/A

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

Capacity analysis of 2027 build traffic conditions indicates that the major-street left-turn movement is expected to operate at LOS A during the weekday AM and PM peak hours. The minor-street approach is expected to operate at LOS B or better during the weekday AM and PM peak hours.

Right and left-turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. Based on the estimated low volume of right-turn and left-turn movements into the proposed development at this intersection, exclusive right-turn and left-turn lanes are not recommended. Refer to Appendix I for a copy of the turn lane warrants. No improvements are recommended by the developer.

8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed Harris Creek Farm development to be located on the west side of Jonesville Road near Universal Drive in Rolesville, North Carolina. The development is expected to consist of 68 single-family homes and 81 townhomes and to be built-out in 2027. Site access is proposed via two (2) full-movement driveway connections: one on Universal Drive and one on Jonesville Road approximately 700 feet south of Universal Drive.

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

- 2022 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions

Trip Generation

It is estimated that the proposed development will generate approximately 1,276 site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 88 trips (22 entering and 66 exiting) will occur during the weekday AM peak hour and 114 trips (70 entering and 44 exiting) will occur during the weekday PM peak hour.

Adjustments to Analysis Guidelines

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

Intersection Capacity Analysis Summary

All the study area intersections (including the proposed site driveways) are expected to operate at acceptable levels-of-service under existing and future year conditions with the exception of those identified in Section 7 of this report.

9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 11 for an illustration of the recommended lane configurations for the proposed development.

Recommended Improvements by Developer

US 401 Bypass and Jonesville Road

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

US 401 Bypass and Eastern U-Turn Location

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Mitchell Mill Road and Jonesville Road / Peebles Road

- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
 - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA and Hills at Harris Creek TIA
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.
 - It should be noted that this improvement was also identified by the Hills at Harris Creek TIA
- Construct an eastbound (Mitchell Mill Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
 - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA

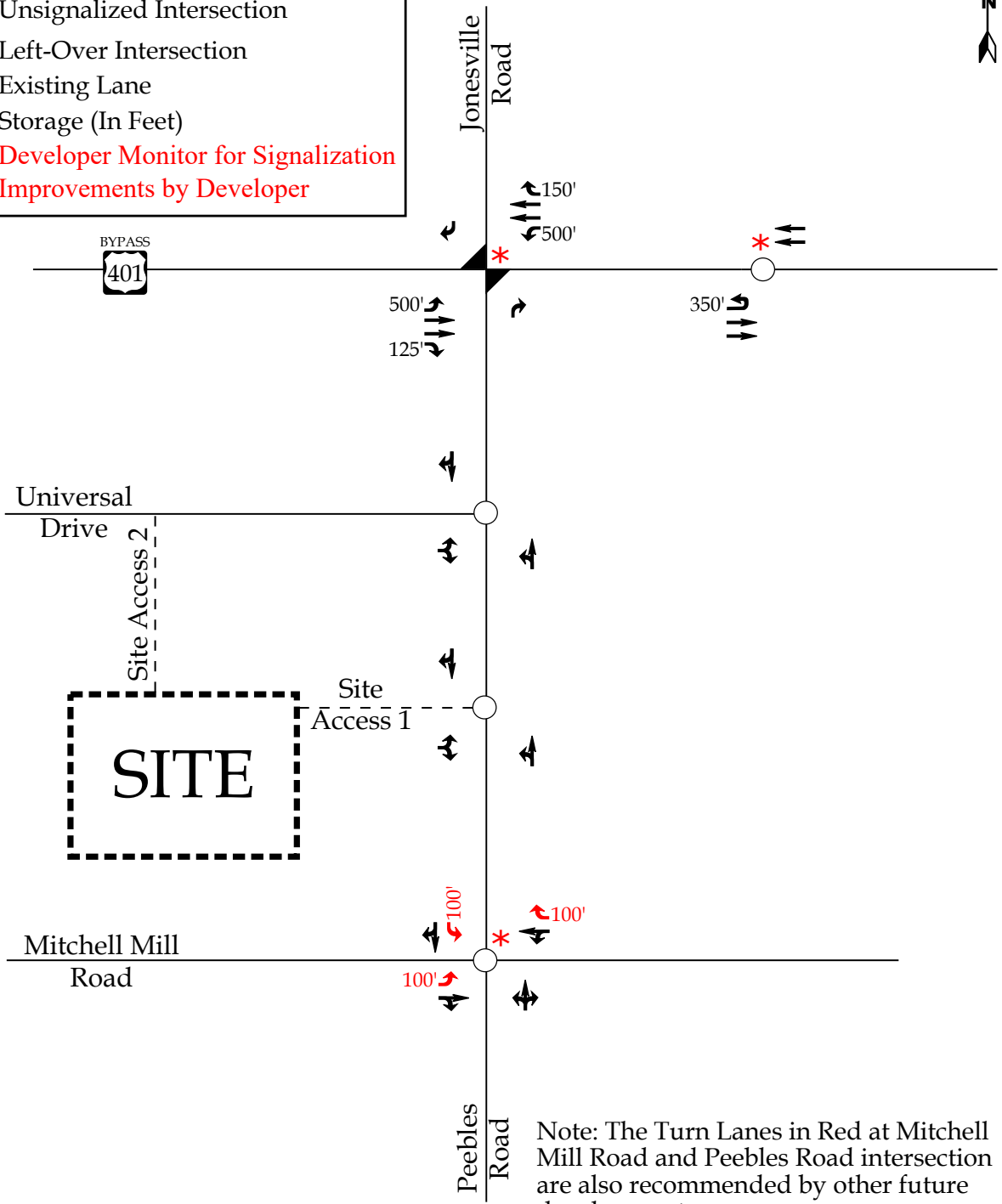
- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Jonesville Road and Site Drive

- Construct the eastbound approach (Site Drive) with one ingress lane and one egress lane.
- Provide stop-control for the eastbound approach (Site Drive).

LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- Existing Lane
- x' Storage (In Feet)
- * Developer Monitor for Signalization
- Improvements by Developer



Note: The Turn Lanes in Red at Mitchell Mill Road and Peebles Road intersection are also recommended by other future developments



Harris Creek Farm
Rolesville, NC

Recommended Lane
Configurations

Scale: Not to Scale | Figure 11

TECHNICAL APPENDIX

APPENDIX A

SCOPING DOCUMENTATION

RAMEY KEMP ASSOCIATES

TOGETHER WE ARE LIMITLESS

T 919 872 5115

5808 Faringdon Pl,
Raleigh, NC 27609

March 17, 2023

Jeremy L. Warren, PE
NCDOT District 1 Engineer
4009 District Drive
Raleigh, NC 27507
jlwarren@ncdot.gov
[Sent via Email]

Reference: Harris Creek Farm
Rolesville, North Carolina

Subject: Memorandum of Understanding for TIA Report

Dear Mr. Warren:

The following is a Memorandum of Understanding (MOU) outlining the proposed scope of work and assumptions related to the Traffic Impact Analysis (TIA) for the proposed Harris Creek Farm development in Rolesville, North Carolina. The proposed development is to be located on the west side of Jonesville Road near Universal Drive in Rolesville, NC. The development is expected to consist of 68 single-family homes and 81 townhomes and is anticipated to be built out by 2027. Refer to the attached site location map. Site access to the proposed development is expected to be provided via two (2) full-movement driveway connections: one on Jonesville Road and one on Universal Drive. Refer to the attachments for a copy of the preliminary site plan.

Study Area

The study area is proposed to consist of the following intersections:

- Mitchell Mill Road & Jonesville Road / Peebles Road (unsignalized)
- US 401 Bypass and Jonesville Road (unsignalized)
- US 401 Bypass and Eastern U-Turn Location (unsignalized)
- Jonesville Road and Universal Drive (unsignalized)
- Jonesville Road and Site Driveway (unsignalized)

Existing Traffic Volumes

Existing peak hour traffic volumes will be determined based on previously collected traffic counts at the study intersections below, in November 2021 during typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods, while schools were in session for in-person learning:

- Mitchell Mill Road & Jonesville Road / Peebles Road
- US 401 Bypass and Jonesville Road
- US 401 Bypass and Eastern U-Turn Location

These previously collected counts will be projected to the year 2022 using a compounded annual growth rate of 2%.

Existing peak hour turning movement volumes at the intersection of Jonesville Road and Universal Drive will be estimated by generating and assigning trips for the nine (9) homes that are accessed via Universal Drive (AM trips: 2 enter 6 exit and PM trips: 7 enter 3 exit, distributed to the north and south along Jonesville Road the same as site trips). Through traffic volumes will be balanced from the Mitchell Mill Road/Jonesville Road intersection.

Refer to the attachments for an illustration of 2022 existing peak hour traffic volumes.

Background Traffic Volumes

Background traffic volumes will be determined by projecting 2022 existing traffic volumes to the year 2027 using a 0% annual growth rate. A growth rate of 0% will be used due to the number of developments included in the background traffic and the proximity of some of these developments to the proposed development. It is assumed that the following adjacent developments are to be included in this study:

- Cobblestone Crossing Mixed-Use (Cobblestone)
- Young Street PUD (The Point)
- Wheeler Tract (Rolesville Crossing)
- Louisbury Road Assemblage
- Kalas / Watkins Family Property (Kalas Falls)
- 5109 Mitchell Mill
- Hills at Harris Creek

Future Roadway Improvements

There are no future roadway improvements within the study area to consider under future traffic conditions.

Trip Generation

Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 11th Edition. Refer to Table 1, on the following page, for a summary of the proposed site trip generation for full buildout of the proposed development.

Table 1: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Single-Family Home (210)	68 DU	710	13	39	52	44	25	69
Multi-Family Home (Low-Rise) (220)	81 DU	568	9	27	36	26	19	45
Total Trips		1,268	22	66	88	70	44	114

It is estimated that the proposed development will generate approximately 1,268 site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 88 trips (22 entering and 66 exiting) will occur during the weekday AM peak hour and 114 trips (70 entering and 44 exiting) will occur during the weekday PM peak hour.

Trip Distribution and Assignment

Site trips are distributed based on the locations of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. A summary of the overall distributions is below.

Residential

- 30% to/from the west via US 401 Bypass
- 15% to/from the east via US 401 Bypass
- 10% to/from the south via Peebles Road
- 35% to/from the west via Mitchell Mill Road
- 10% to/from the east via Mitchell Mill Road

Refer to the attached site trip distribution figure.



Analysis Scenarios

All capacity analyses will be performed utilizing Synchro (Version 11). All study intersections will be analyzed during the weekday AM and PM peak hours under the following proposed traffic scenarios:

- 2022 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions

Report

The TIA report will be prepared based on the Town and NCDOT requirements.

If you find this memorandum of understanding acceptable, please let me know so that we may include it in the TIA report. If you have any questions or concerns, please do not hesitate to contact me.

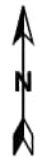
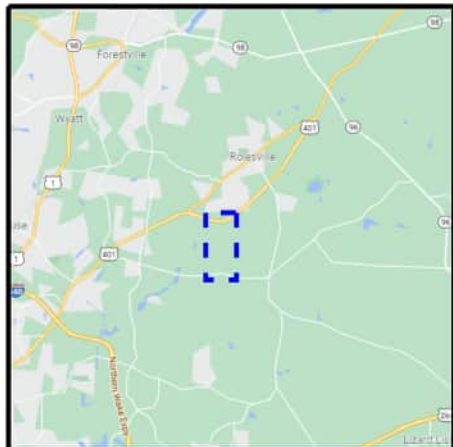
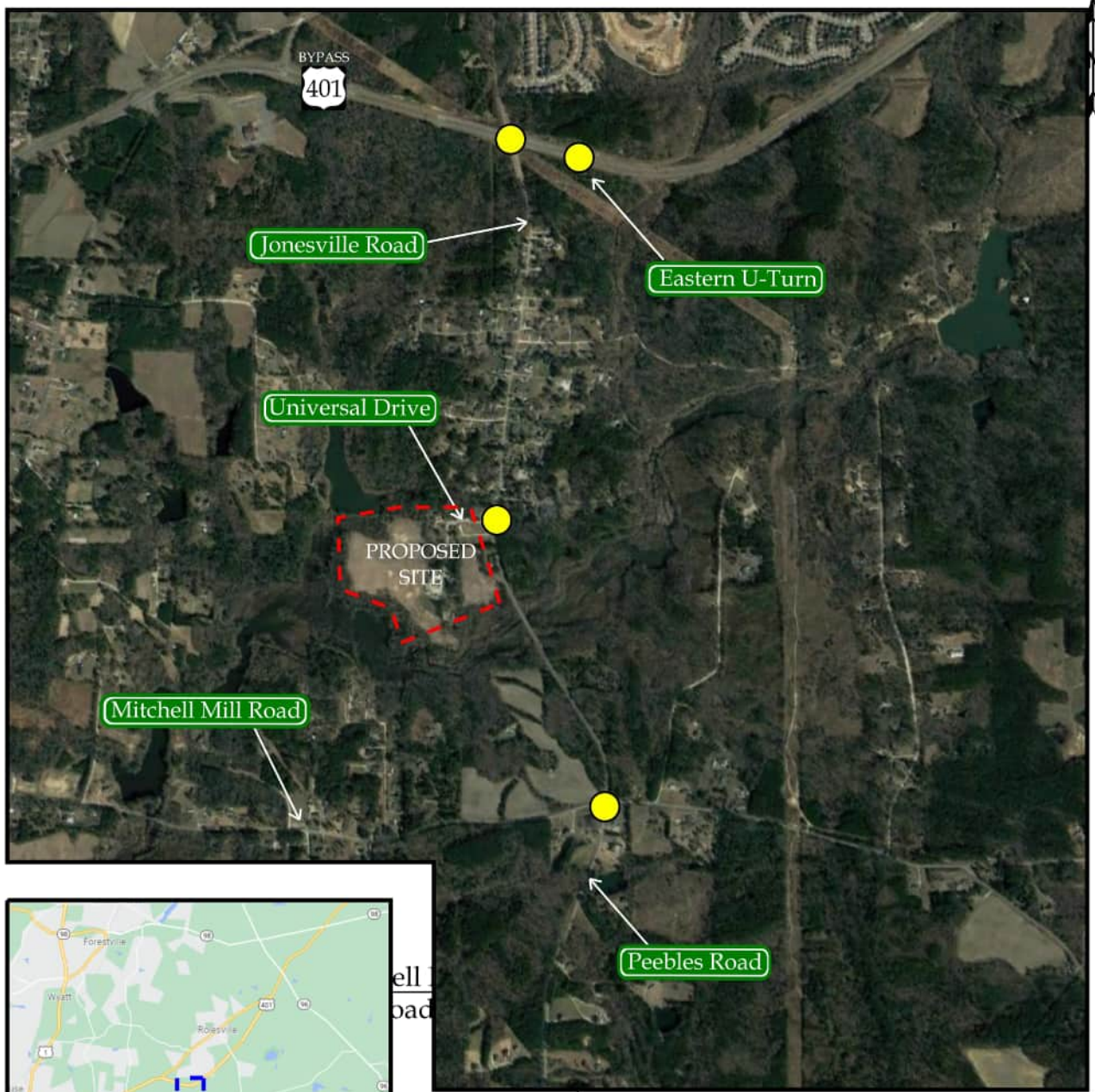
Sincerely,
Ramey Kemp Associates,



J. Andrew Eagle, PE, PTOE
Senior Traffic Engineering Project Manager




Attachments: Site Location Map
 Site Plan
 2022 Existing Traffic Volumes Figure
 Proposed Site Trip Distribution Figure

cc: Matthew J. Nolfo, NCDOT
 Holt Willis, NCDOT
 Clarence Bunting, NCDOT
 Nicholas Lineberger, NCDOT
 Daniel Collins, NCDOT
 Meredith Gruber, Town of Rolesville
 Michael Elabarger, Town of Rolesville



Peebles
Road

LEGEND

-  Proposed Site Location
-  Existing Study Intersection
-  Study Area



Harris Creek Farm
Rolesville, NC

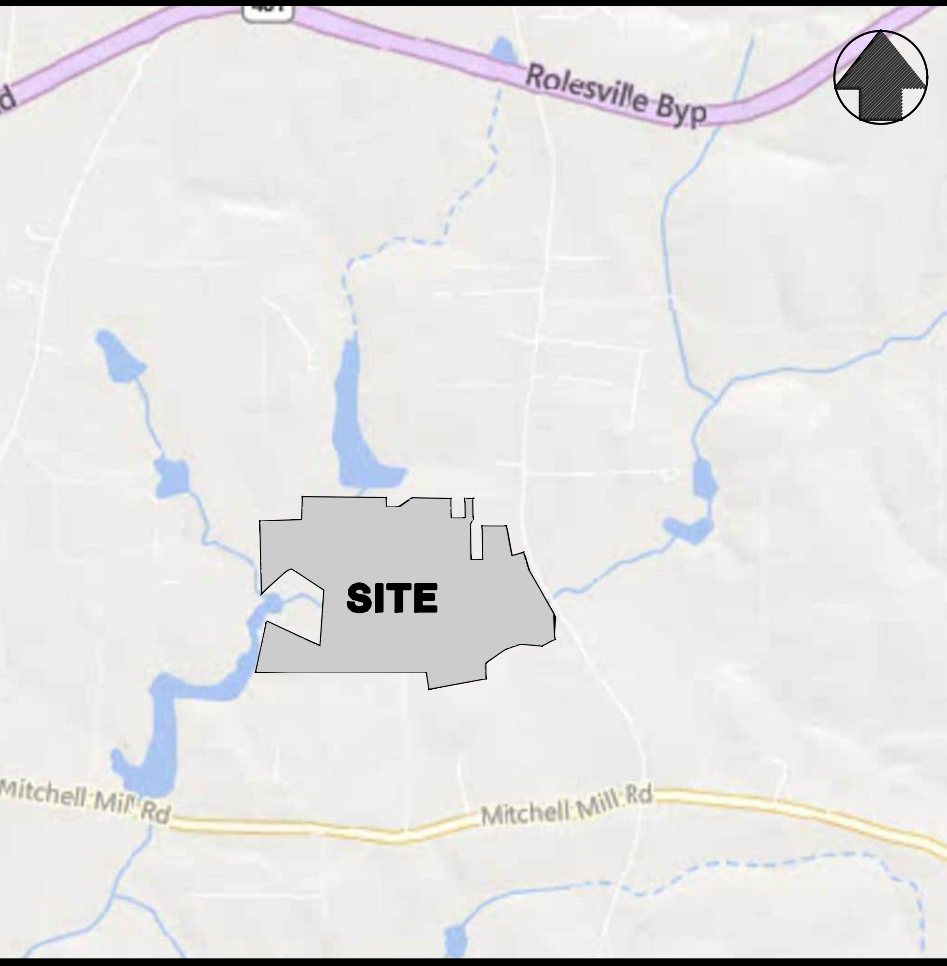
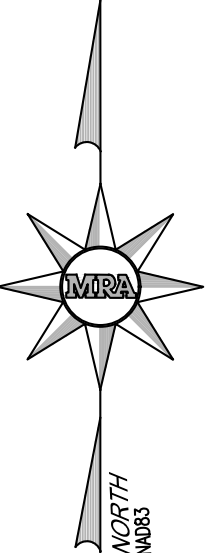
Site Location Map

Scale: Not to Scale Figure 1

REZONING AND ANNEXATION FOR JONESVILLE ROAD

ROLESVILLE, NORTH CAROLINA

CASE NUMBER:
MA 22-08

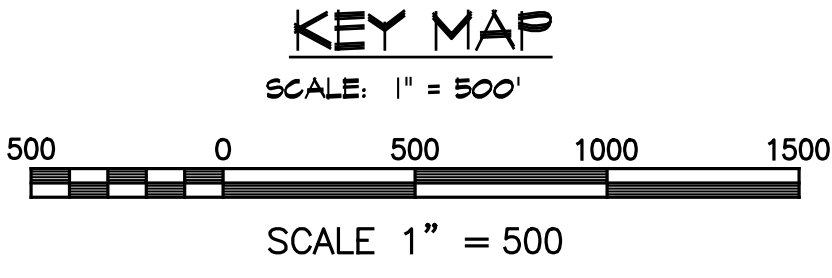
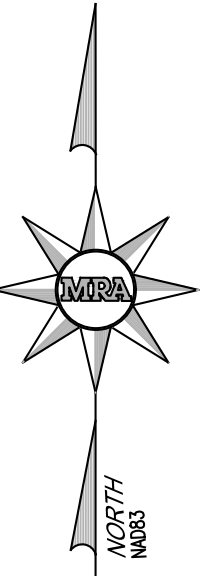
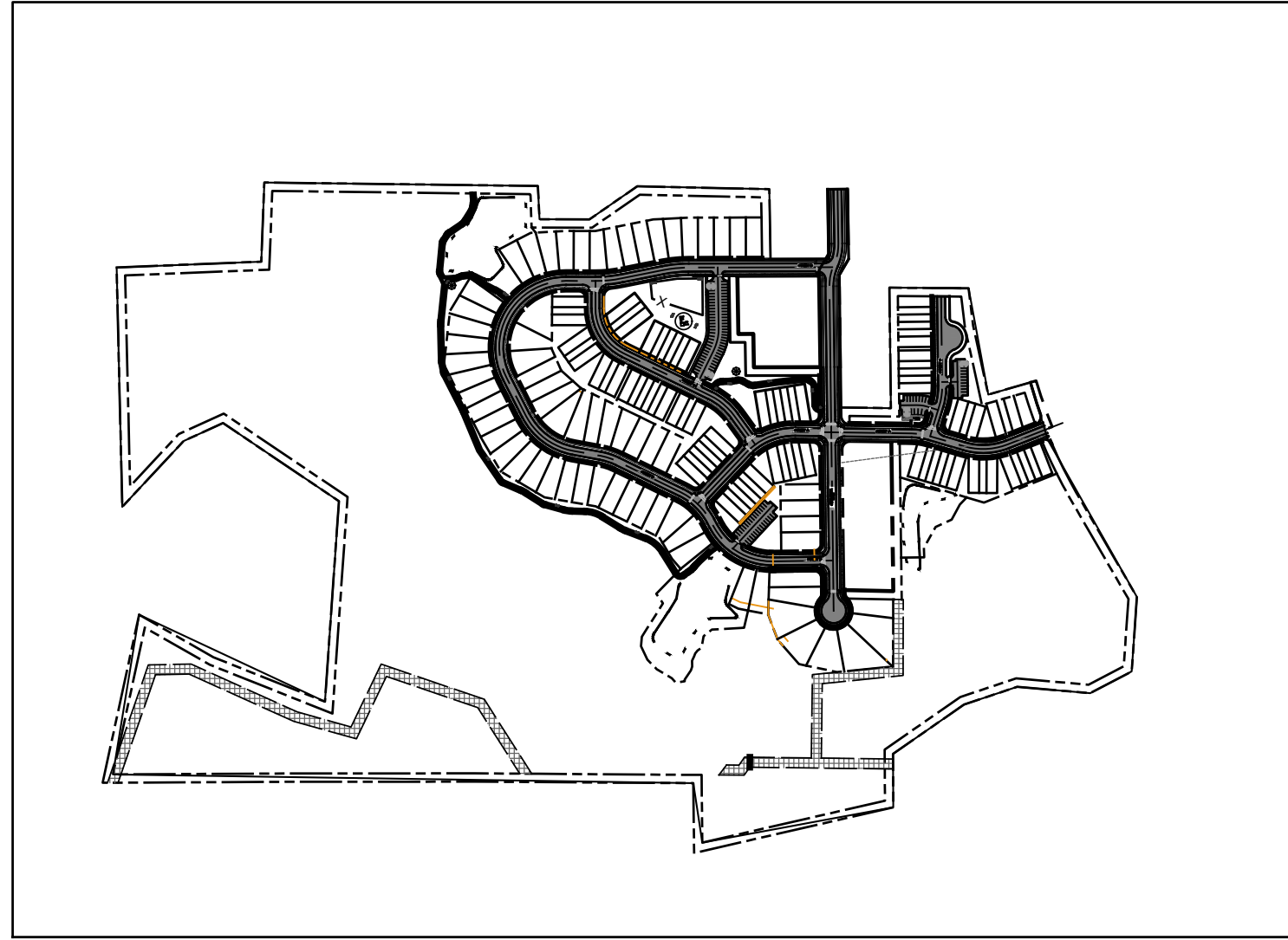


VICINITY MAP
SCALE: 1" = 2000'

AGENCY CONTACTS

- A. Town of Rolesville
Planning Department
502 Southtown Circle
Rolesville, NC 27571
- B. Wake County
Watershed Management
Waverly F. Akins Building
337 S. Salisbury St
Raleigh, NC 27601
Contact: Karyn Pageau
Phone: (919)-796-8769
Email: karyn.pageau@wakegov.com
- C. City of Raleigh Public Utilities Department
One Exchange Plaza
Suite 620
Raleigh, NC 27601
P.O. Box 590
Raleigh, NC 27602
Phone: 919-996-3245
Email: publicutilityinfo@raleighnc.gov
- D. NCDOT
Division 5, District 1 Office
4009 District Drive
Raleigh, NC 27607
Contact: Amy Neldringhaus, District Engineer
Phone: 919-733-3213
Email: anneldringhaus@ncdot.gov

Sheet List Table			
Sheet Number	Sheet Title	Date	Revised Date
C0.0	COVER - REZONING	8/1/2022	9/30/2022
C0.1	EXISTING CONDITIONS	8/1/2022	9/30/2022
C1.0	OVERALL SITE PLAN	8/1/2022	9/30/2022
C1.1	SITE PLAN - SHEET 1 OF 6	8/01/2022	9/30/2022
C1.2	SITE PLAN - SHEET 2 OF 6	8/1/2022	9/30/2022
C1.3	SITE PLAN - SHEET 3 OF 6	8/1/2022	9/30/2022
C1.4	SITE PLAN - SHEET 4 OF 6	8/1/2022	9/30/2022
C1.5	SITE PLAN - SHEET 5 OF 6	8/1/2022	9/30/2022
C1.6	SITE PLAN - SHEET 6 OF 6	8/1/2022	9/30/2022
C1.7	OVERALL ZONING PLAN	8/1/2022	9/30/2022



STREET DATA	
STREET A	1,200 LF
STREET B	2,360 LF
STREET C	450 LF
STREET D	743 LF

SITE DATA	
OWNER	CHEN, PING 10030 GREEN LEVEL CHURCH RD STE 802 CARY NC 27594
SITE ADDRESS	4128 UNIVERSAL DR WAKE FOREST NC 27587-6356
PIN	175121181, 1751315216, 1751315865, 1751315464, 1751315575, 1751315665, 1751315765, 1751315865, 1751315945, 1751385064, 1751384912, 1751383572, 1751368816, 1751318013, 1751318104, 1751318303, 1751311990, 1751411554, 1751385344
DEED BOOK/PAGE/MAP	018453/00623/1751 01, 018453/00542/1751 01
CURRENT ZONING	R30
PROPOSED ZONING	RM, RH
MIN. LOT SIZE	5000 SQ FT (SINGLE FAMILY CLUSTER) 2000 SQ FT (TOWNHOMES)
LAND USE	RESIDENTIAL
PROPOSED DEVELOPMENT	144 UNITS 68 SINGLE FAMILY UNITS 81 TOWNHOUSE UNITS
TOTAL SITE AREA	43.23 ACRES
RESIDENTIAL HIGH DENSITY	32.15 ACRES (14.02 AC. + 18.12 AC (ADDITIONAL OPEN SPACE))
RESIDENTIAL MEDIUM DENSITY	61.08 ACRES
PROPOSED DENSITY	TOWNHOMES (RH) 4.0 UNITS/AC (MAX) 81/4.02 = 5.11 UNITS/AC (PROVIDED) SINGLE FAMILY (RM) 5.0 UNITS/AC (MAX) 68/61.08 = 1.11 UNITS/AC (PROVIDED)
FLOOD PLAIN/ZONE	ZONE AE/ZONE X 5120175100J
FIRM PANEL NO	NONE
WATERSHED PROTECTION	20' TOWNHOMES 40' SINGLE FAMILY (CLUSTER)
MINIMUM LOT WIDTH	
OPEN SPACE	RESIDENTIAL HIGH DENSITY PASSIVE: 2.10 (REQUIRED) 14.95 (PROVIDED) RESIDENTIAL MEDIUM DENSITY PASSIVE: 4.70 (REQUIRED) 44.09 (PROVIDED) IMPROVED OPEN SPACES: REQUIRED: SMALL: 1 MEDIUM: 2 LARGE: 0 SMALL: 1 0.73 AC (TOTAL PROVIDED) MEDIUM: 1 1.01 AC (TOTAL PROVIDED) LARGE: 1 13.74 AC (TOTAL PROVIDED)
PARKING	REQUIRED: 2.0/DWELLING UNIT PLUS 0.25 GUEST SPACES/DWELLING UNIT 81 UNITS X 2.25 = 183 SPOTS PROVIDED: 81 UNITS X 1 (DRIVEWAY) = 81 SPOTS PARKING LOTS = 116 SPOTS TOTAL PROVIDED = 197 SPOTS
SETBACKS	TOWNHOMES: FRONT: 20' SIDE: 10' REAR: 15' CORNER: 15' MIN. WIDTH BETWEEN STRUCTURES: 30' SINGLE FAMILY (CLUSTER): FRONT: 20' SIDE: 5' REAR: 20' CORNER: 10' (CLUSTER)

PROJECT TEAM

- DEVELOPER/ OWNER: THE CSC GROUP LLC
10030 GREEN LEVEL CHURCH RD STE 802
CARY NC 27594
ATTN: PING CHENG
919-748-0424
- LAND PLANNERS, CIVIL ENGINEERS: MORRIS & RITCHIE ASSOCIATES OF NC, PC
5605 CHAPEL HILL ROAD, SUITE 112
RALEIGH, NC 27607
ATTN: MR. JEREMY M KEENEY, PE, PLS
- SURVEYOR: MORRIS & RITCHIE ASSOCIATES OF NC, PC
5605 CHAPEL HILL ROAD, SUITE 112
RALEIGH, NC 27607
ATTN: MR. JEREMY M KEENEY, PE, PLS
- ENVIRON. CONSULTANT: MORRIS & RITCHIE ASSOCIATES OF NC, PC
5605 CHAPEL HILL ROAD, SUITE 112
RALEIGH, NC 27607
ATTN: MR. JAMIE B. GUERRERO, PE, CPSWQ

FOR SITE PLAN REVIEW ONLY
NOT FOR CONSTRUCTION
PLAN IS SUBJECT TO REVISIONS
DURING THE CONSTRUCTION
APPROVAL PROCESS



COVER - REZONING
FOR
JONESVILLE ROAD

TOWN OF ROLESVILLE WAKE COUNTY, NORTH CAROLINA

No.	DATE	REVISIONS
A	9/30/2022	REVISED PER TOWN OF ROLESVILLE COMMENTS
		JOB NO. 21790
		SCALE: AS SHOWN
		DATE: 6/1/2022
		ENGINEER: JMK
		DRAWN BY: ER/JJM
		DESIGN BY: DC
		REVIEW BY: JMK



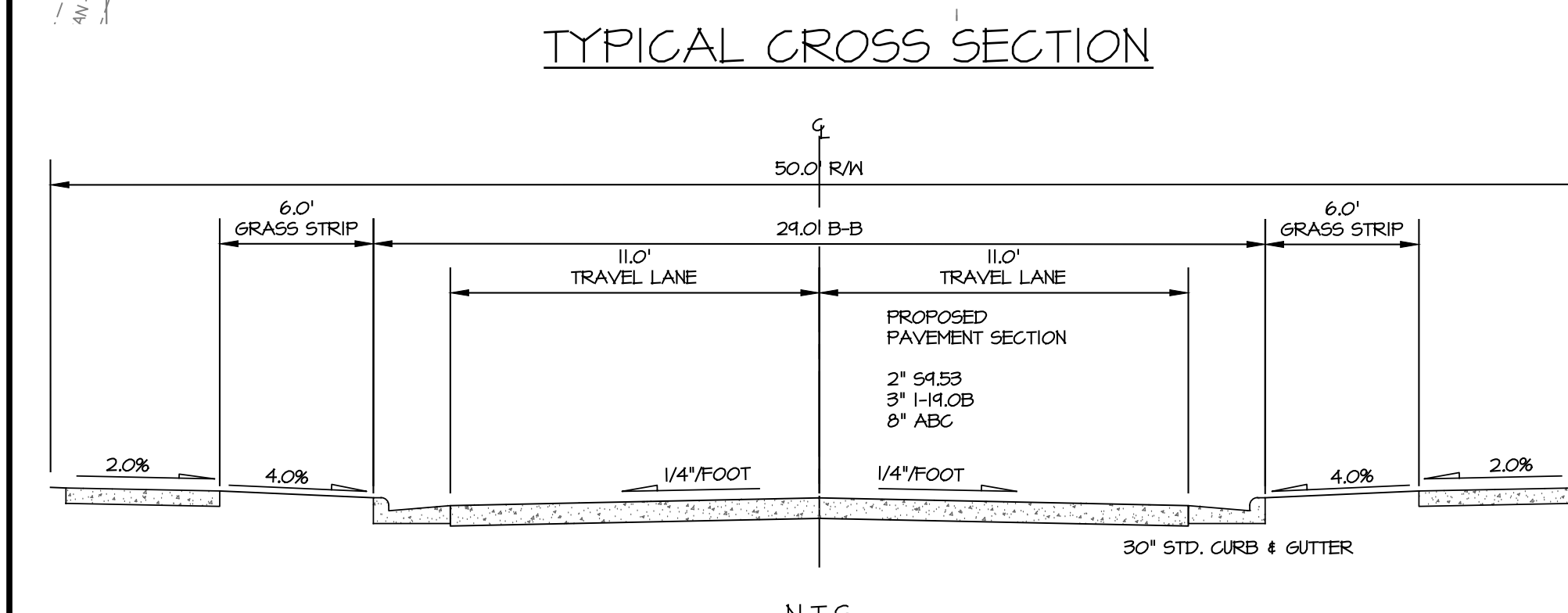
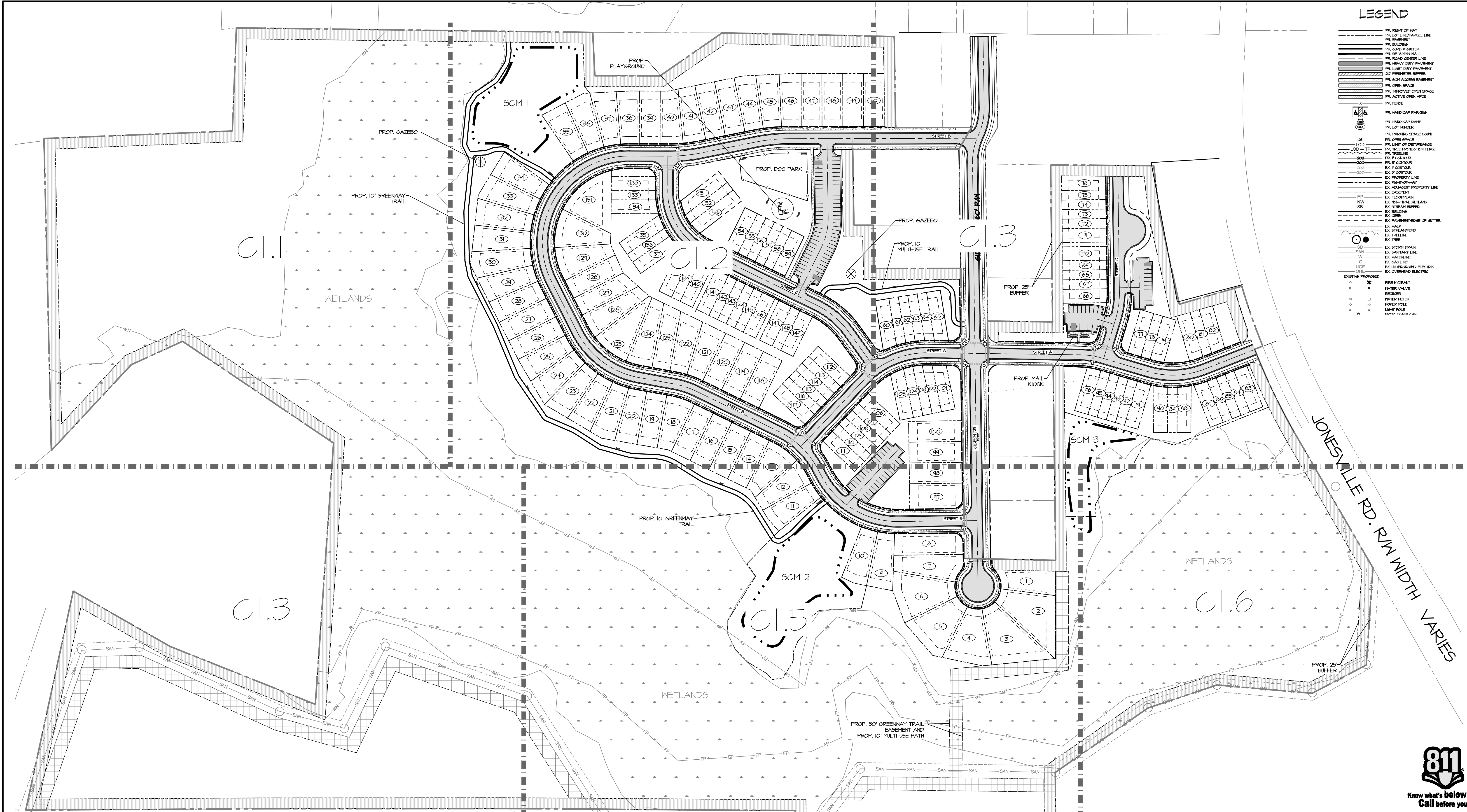
MORRIS & RITCHIE ASSOCIATES OF NC, PC
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
5605 CHAPEL HILL RD. STE 112
RALEIGH, NC 27607
(984) 200-2103
LICENSE # C-4182
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STATUS: PRELIMINARY NOT FOR CONSTRUCTION	REVISION A	SHEET: C0.0
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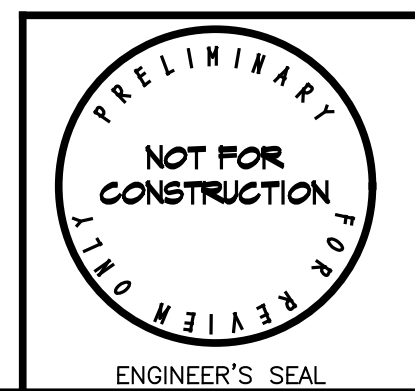
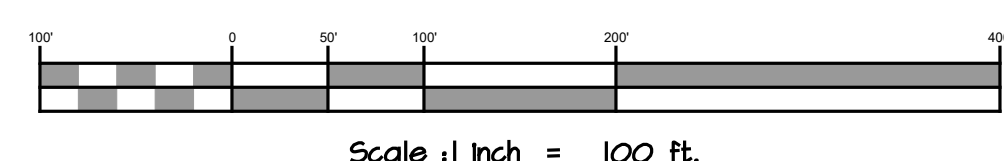
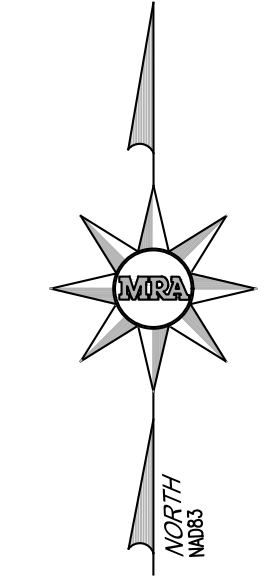
LEGEND

- PR. RIGHT OF WAY
PR. LOT LINE/PARCEL LINE
PR. EASEMENT
PR. BUILDING
PR. CURB & GUTTER
PR. RETAINING WALL
PR. ROW CENTER LINE
PR. HEAVY DUTY PAVEMENT
PR. LIGHT DUTY PAVEMENT
20' PERIMETER BUFFER
PR. SCM ACCESS EASEMENT
PR. OPEN SPACE
PR. IMPROVED OPEN SPACE
PR. ACTIVE OPEN SPACE
PR. FENCE
PR. HANDICAP PARKING
PR. HANDICAP RAMP
PR. LOT NUMBER
PR. PARKING SPACE COUNT
PR. OPEN SPACE
PR. LIMIT OF DISTURBANCE
PR. TREE PROTECTION FENCE
PR. TREE LINE
PR. 1' GROUND
PR. 2' GROUND
PR. 3' GROUND
EX. PROPERTY LINE
EX. RIGHT-OF-WAY
EX. ADJACENT PROPERTY LINE
EX. EASEMENT
EX. FLOODPLAIN
EX. NON-TIDAL WETLAND
EX. STREAM BUFFER
EX. BUILDING
EX. GARDEN
EX. PAVEMENT/EDGE OF GUTTER
EX. WALL
EX. OPEN/SPOND
EX. TREE LINE
EX. TREE
EX. STORM DRAIN
EX. SANITARY LINE
EX. WASTEWATER
EX. GAS LINE
EX. UNDERGROUND ELECTRIC
EX. OVERHEAD ELECTRIC
EXISTING PROPOSED
FIRE HYDRANT
WATER VALVE
REDUCER
WATER METER
POWER POLE
LIGHT POLE
WETLAND VEGETATION



REQUIRED PARKING

REQUIRED:	2.0/DWELLING UNIT PLUS 0.25 GUEST SPACES/DWELLING UNIT 81 UNITS X 2.25 = 183 SPOTS REQUIRED
PROVIDED:	81 UNITS X 1 (DRIVEWAY) = 81 SPOTS PARKING LOTS = 116 SPOTS (1 HANDICAP) TOTAL PROVIDED = 191 SPOTS



OVERALL SITE PLAN FOR JONESVILLE ROAD
TOWN OF ROLESVILLE WAKE COUNTY, NORTH CAROLINA

No.	DATE	REVISIONS
A	9/30/2022	REVISED PER TOWN OF ROLESVILLE COMMENTS

JOB NO. 21790
SCALE: AS SHOWN
DATE: 6/1/2022
ENGINEER: JMK
DRAWN BY: ER/JM
DESIGN BY: DC
REVIEW BY: JMK

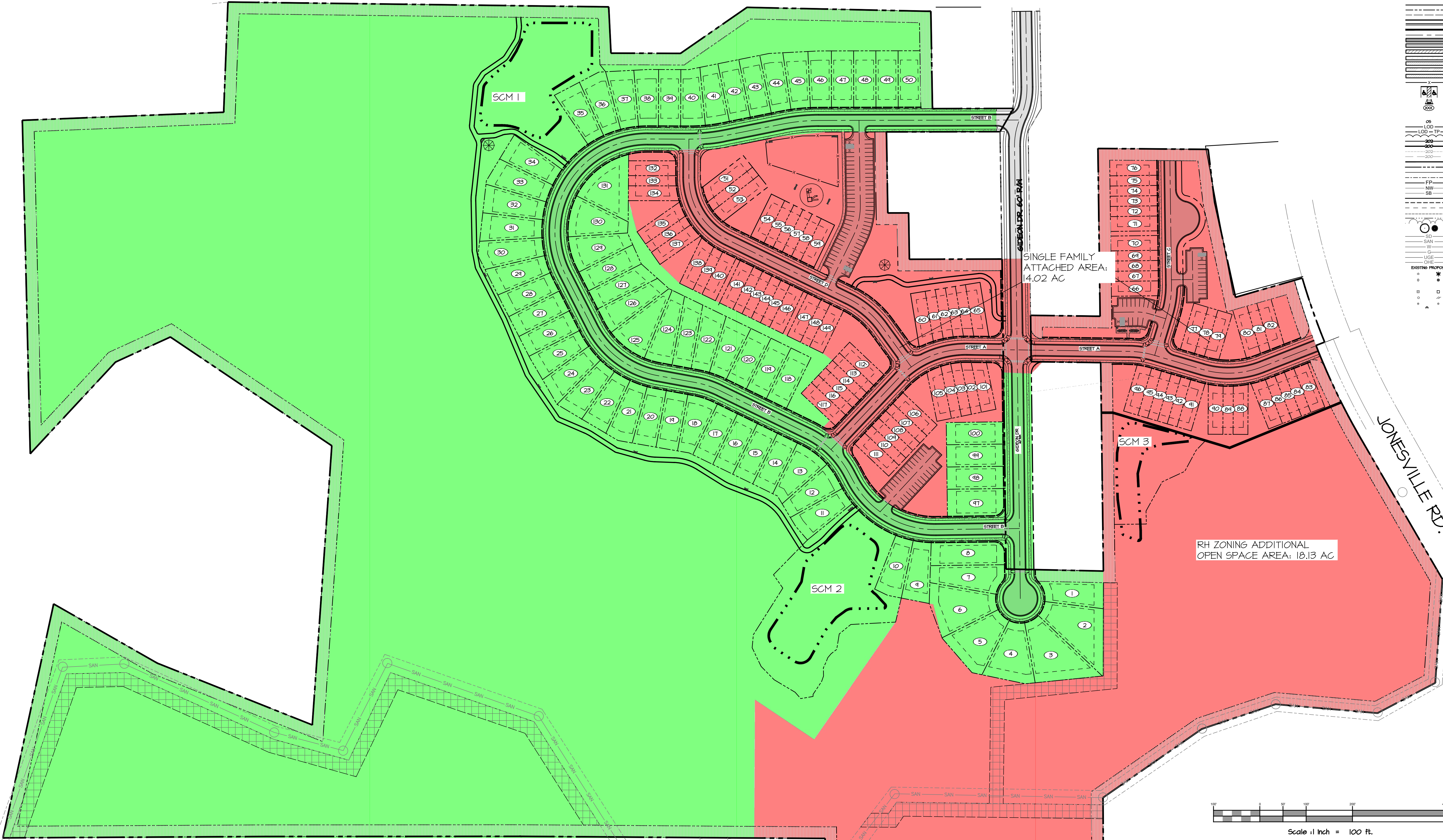


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5605 CHAPEL HILL RD. STE 112
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(984) 200-2103
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LEGEND

- PR. RIGHT OF WAY
- PR. LOT LINE/PARCEL LINE
- PR. EASEMENT
- PR. BUILDING
- PR. CURB & GUTTER
- PR. RETAINING WALL
- PR. ROW CENTER LINE
- PR. HEAVY DUTY PAVEMENT
- PR. LIGHT DUTY PAVEMENT
- 20' PERIMETER BUFFER
- PR. SCH ACCESS EASEMENT
- PR. OPEN SPACE
- PR. IMPROVED OPEN SPACE
- PR. ACTIVE OPEN SPACE
- PR. FENCE
- PR. HANDICAP PARKING
- PR. HANDICAP RAMP
- PR. LOT NUMBER
- PR. PARKING SPACE COUNT
- PR. OPEN SPACE
- PR. LIMIT OF DISTURBANCE
- PR. TREE PROTECTION FENCE
- PR. TREE LINE
- PR. T CONTOUR
- PR. S CONTOUR
- EX. T CONTOUR
- EX. S CONTOUR
- EX. PROPERTY LINE
- EX. RIGHT-OF-WAY
- EX. ADJACENT PROPERTY LINE
- EX. EASEMENT
- EX. FLOODPLAIN
- EX. NON-TIDAL WETLAND
- EX. STREAM BUFFER
- EX. BUILDING
- EX. CURB
- EX. PAVEMENT/EDGE OF GUTTER
- EX. WALL
- EX. DRIVEWAY/POOD
- EX. TREE LINE
- EX. TREE
- EX. STORM DRAIN
- EX. SANITARY LINE
- EX. WATER LINE
- EX. GAS LINE
- EX. UNDERGROUND ELECTRIC
- EX. OVERHEAD ELECTRIC
- EXISTING PROPOSED
- FIRE HYDRANT
- WATER VALVE
- REDUCER
- WATER METER
- POWER POLE
- LIGHT POLE
- DEAD END SIGN / A/D



SINGLE FAMILY ATTACHED AREA: 14.02 AC

RH ZONING ADDITIONAL OPEN SPACE AREA: 18.13 AC

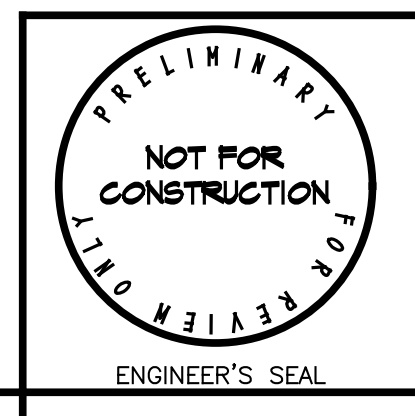
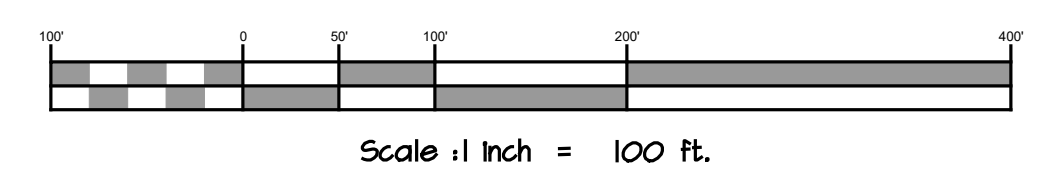
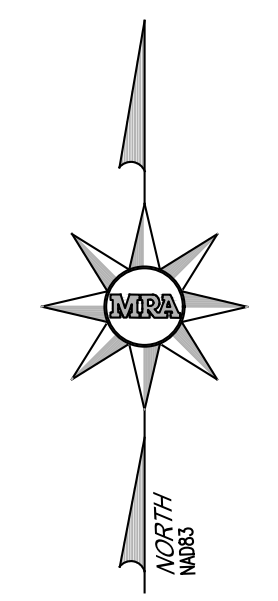
JONESVILLE RD. RW WIDTH VARIES

LEGEND



RESIDENTIAL MEDIUM DENSITY:
RESIDENTIAL HIGH DENSITY:

AREA:	UNITS:	DENSITY:
61.08 ACRES	68 SF UNITS	64/61.08 = 1.11 UNITS/ACRE
14.02 ACRES (32.15 ACRES TOTAL)	81 TH UNITS	81/14.02 = 5.77 UNITS/ACRE



OVERALL ZONING PLAN
FOR JONESVILLE ROAD

TOWN OF ROLESVILLE WAKE COUNTY, NORTH CAROLINA



MORRIS & RITCHIE ASSOCIATES OF NC, PC
 ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 5605 CHAPEL HILL RD. STE 112
 RALEIGH, NC 27607
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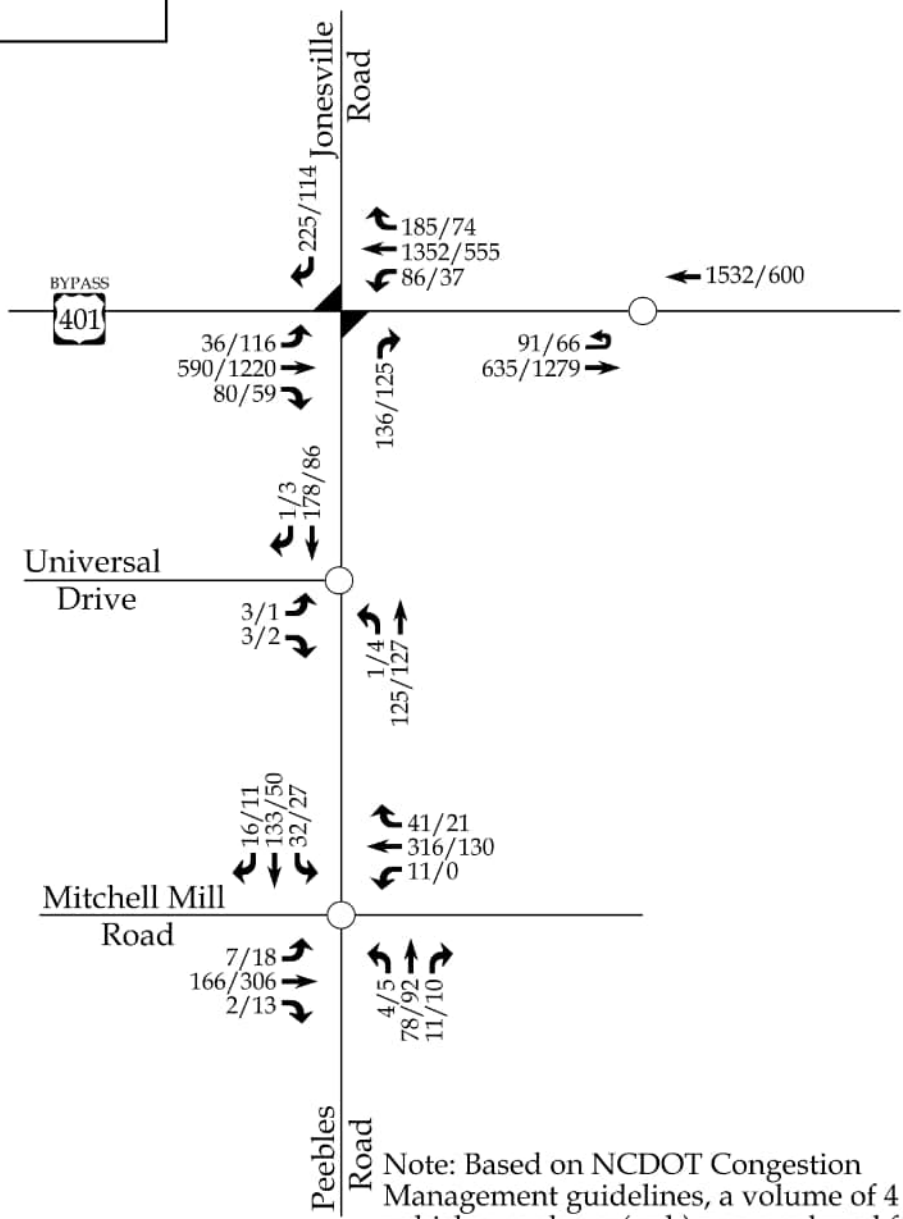
No.	DATE	REVISIONS	
A	9/30/2022	REVISED PER TOWN OF ROLESVILLE COMMENTS	JOB NO. 21790
			SCALE: AS SHOWN
			DATE: 6/1/2022
			ENGINEER: JMK
			DRAWN BY: ER/JM
			DESIGN BY: DC
			REVIEW BY: JMK

STATUS: PRELIMINARY NOT FOR CONSTRUCTION REVISION: A SHEET: C1.7


S:\PROJECTS\NC\2021\21790 - Jonesville RD\20-10E\10 Prelim\PILOT\1 - OVERALL SITE PLAN.dwg, 9/30/2022, 2:47:34 PM, Copyright 2022 Morris & Ritchie Associates, Inc.

LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X/Y → Weekday AM / PM Peak Hour Traffic

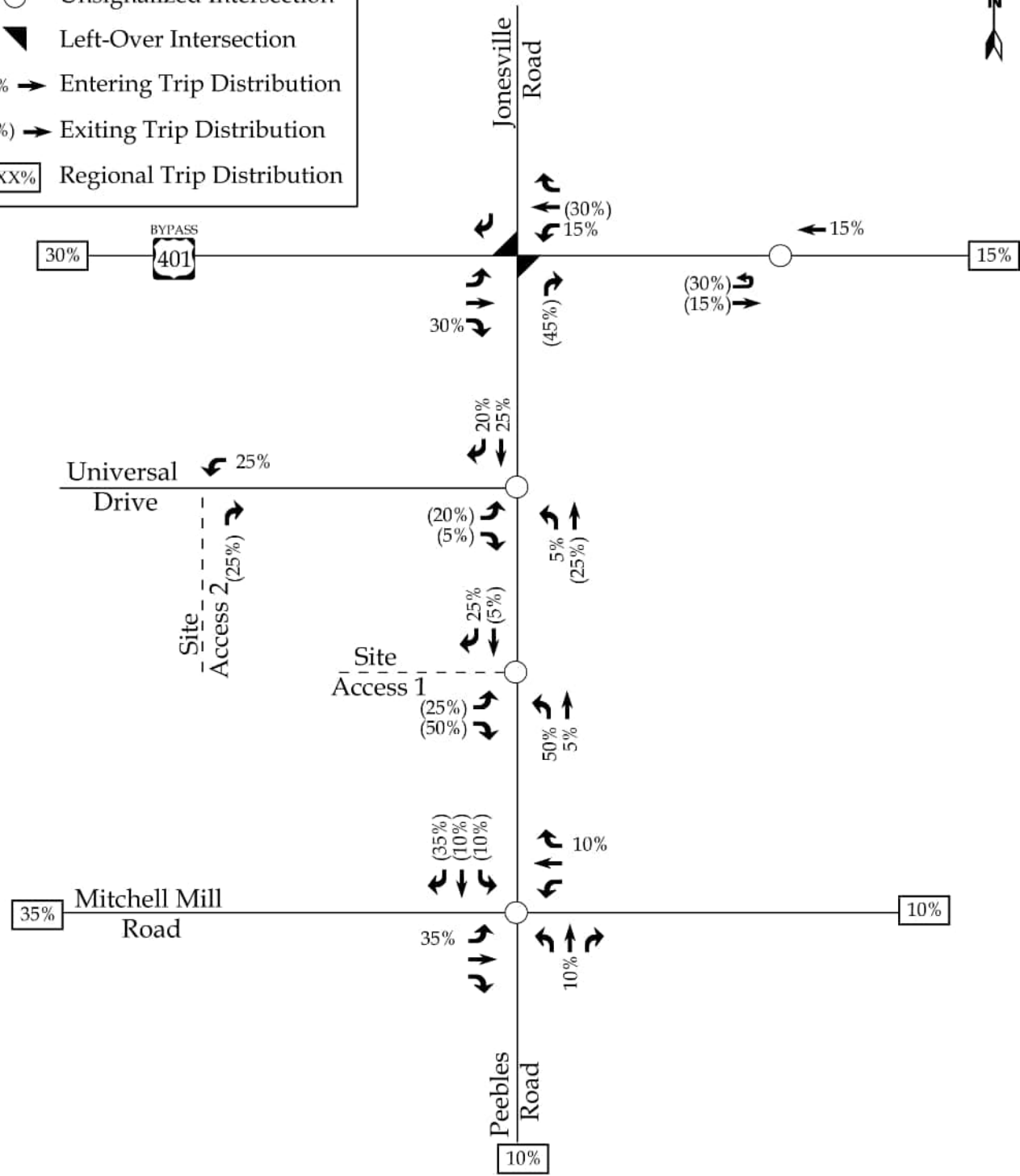


Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

	Harris Creek Farm Rolesville, NC	2022 Existing Peak Hour Traffic	
		Scale: Not to Scale	Figure 4

LEGEND

- Unsignalized Intersection
- ◼ Left-Over Intersection
- x% → Entering Trip Distribution
- (Y%) → Exiting Trip Distribution
- ▭ XX% Regional Trip Distribution



Harris Creek Farm
Rolesville, NC

Site Trip Distribution

Scale: Not to Scale | Figure 8

APPENDIX B

TRAFFIC COUNTS



TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Jonesville)AM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 1

Groups Printed- Cars + - Trucks

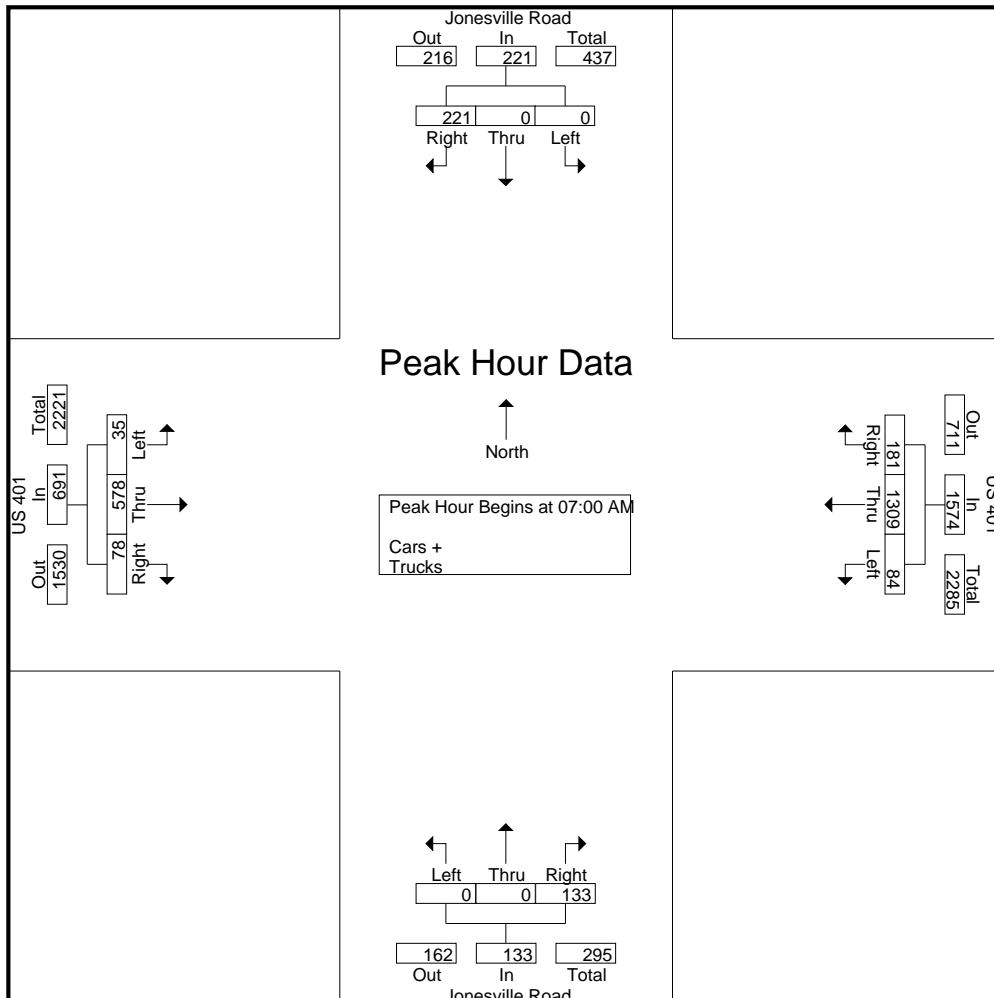
Start Time	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
07:00 AM	63	0	0	63	24	380	21	425	23	0	0	23	18	182	3	203	714
07:15 AM	42	0	0	42	39	362	24	425	37	0	0	37	11	125	7	143	647
07:30 AM	51	0	0	51	80	318	23	421	48	0	0	48	24	136	15	175	695
07:45 AM	65	0	0	65	38	249	16	303	25	0	0	25	25	135	10	170	563
Total	221	0	0	221	181	1309	84	1574	133	0	0	133	78	578	35	691	2619
08:00 AM	61	0	0	61	26	236	13	275	23	0	0	23	30	120	10	160	519
08:15 AM	36	0	0	36	12	233	9	254	16	0	0	16	13	94	9	116	422
08:30 AM	24	0	0	24	10	213	5	228	9	0	0	9	6	91	3	100	361
08:45 AM	28	0	0	28	9	145	5	159	10	0	0	10	11	85	2	98	295
Total	149	0	0	149	57	827	32	916	58	0	0	58	60	390	24	474	1597
Grand Total	370	0	0	370	238	2136	116	2490	191	0	0	191	138	968	59	1165	4216
Apprch %	100	0	0		9.6	85.8	4.7		100	0	0		11.8	83.1	5.1		
Total %	8.8	0	0	8.8	5.6	50.7	2.8	59.1	4.5	0	0	4.5	3.3	23	1.4	27.6	
Cars +	366	0	0	366	233	2094	114	2441	188	0	0	188	135	916	57	1108	4103
% Cars +	98.9	0	0	98.9	97.9	98	98.3	98	98.4	0	0	98.4	97.8	94.6	96.6	95.1	97.3
Trucks	4	0	0	4	5	42	2	49	3	0	0	3	3	52	2	57	113
% Trucks	1.1	0	0	1.1	2.1	2	1.7	2	1.6	0	0	1.6	2.2	5.4	3.4	4.9	2.7



TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Jonesville)AM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 2

Start Time	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	63	0	0	63	24	380	21	425	23	0	0	23	18	182	3	203	714
07:15 AM	42	0	0	42	39	362	24	425	37	0	0	37	11	125	7	143	647
07:30 AM	51	0	0	51	80	318	23	421	48	0	0	48	24	136	15	175	695
07:45 AM	65	0	0	65	38	249	16	303	25	0	0	25	25	135	10	170	563
Total Volume	221	0	0	221	181	1309	84	1574	133	0	0	133	78	578	35	691	2619
% App. Total	100	0	0		11.5	83.2	5.3		100	0	0		11.3	83.6	5.1		
PHF	.850	.000	.000	.850	.566	.861	.875	.926	.693	.000	.000	.693	.780	.794	.583	.851	.917





TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Jonesville)PM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 1

Groups Printed- Cars + - Trucks

Start Time	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	47	0	0	47	13	124	6	143	21	0	0	21	37	217	22	276	487
04:15 PM	34	0	0	34	13	119	6	138	26	0	0	26	15	231	20	266	464
04:30 PM	30	0	0	30	19	118	12	149	32	0	0	32	12	291	28	331	542
04:45 PM	15	0	0	15	22	137	6	165	32	0	0	32	8	303	30	341	553
Total	126	0	0	126	67	498	30	595	111	0	0	111	72	1042	100	1214	2046
05:00 PM	37	0	0	37	10	143	7	160	23	0	0	23	23	322	30	375	595
05:15 PM	30	0	0	30	22	146	11	179	36	0	0	36	15	257	26	298	543
05:30 PM	39	0	0	39	20	145	3	168	34	0	0	34	23	262	14	299	540
05:45 PM	24	0	0	24	10	112	9	131	22	0	0	22	11	227	21	259	436
Total	130	0	0	130	62	546	30	638	115	0	0	115	72	1068	91	1231	2114
Grand Total	256	0	0	256	129	1044	60	1233	226	0	0	226	144	2110	191	2445	4160
Apprch %	100	0	0		10.5	84.7	4.9		100	0	0		5.9	86.3	7.8		
Total %	6.2	0	0	6.2	3.1	25.1	1.4	29.6	5.4	0	0	5.4	3.5	50.7	4.6	58.8	
Cars +	252	0	0	252	127	1020	60	1207	223	0	0	223	142	2051	191	2384	4066
% Cars +	98.4	0	0	98.4	98.4	97.7	100	97.9	98.7	0	0	98.7	98.6	97.2	100	97.5	97.7
Trucks	4	0	0	4	2	24	0	26	3	0	0	3	2	59	0	61	94
% Trucks	1.6	0	0	1.6	1.6	2.3	0	2.1	1.3	0	0	1.3	1.4	2.8	0	2.5	2.3

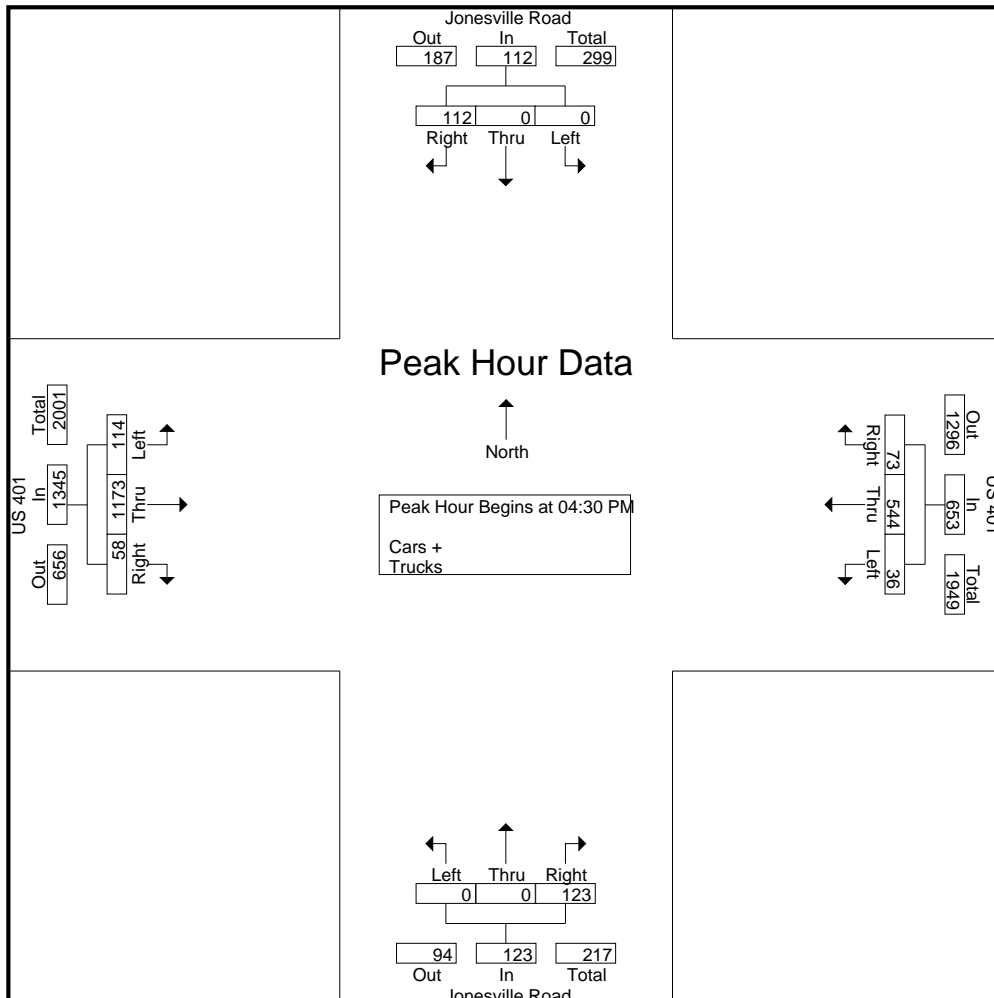


TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Jonesville)PM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 2

Start Time	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:30 PM	30	0	0	30	19	118	12	149	32	0	0	32	12	291	28	331	542
04:45 PM	15	0	0	15	22	137	6	165	32	0	0	32	8	303	30	341	553
05:00 PM	37	0	0	37	10	143	7	160	23	0	0	23	23	322	30	375	595
05:15 PM	30	0	0	30	22	146	11	179	36	0	0	36	15	257	26	298	543
Total Volume	112	0	0	112	73	544	36	653	123	0	0	123	58	1173	114	1345	2233
% App. Total	100	0	0		11.2	83.3	5.5		100	0	0		4.3	87.2	8.5		
PHF	.757	.000	.000	.757	.830	.932	.750	.912	.854	.000	.000	.854	.630	.911	.950	.897	.938

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:30 PM





TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Eastern U Turn)AM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 1

Groups Printed- Cars + - Trucks

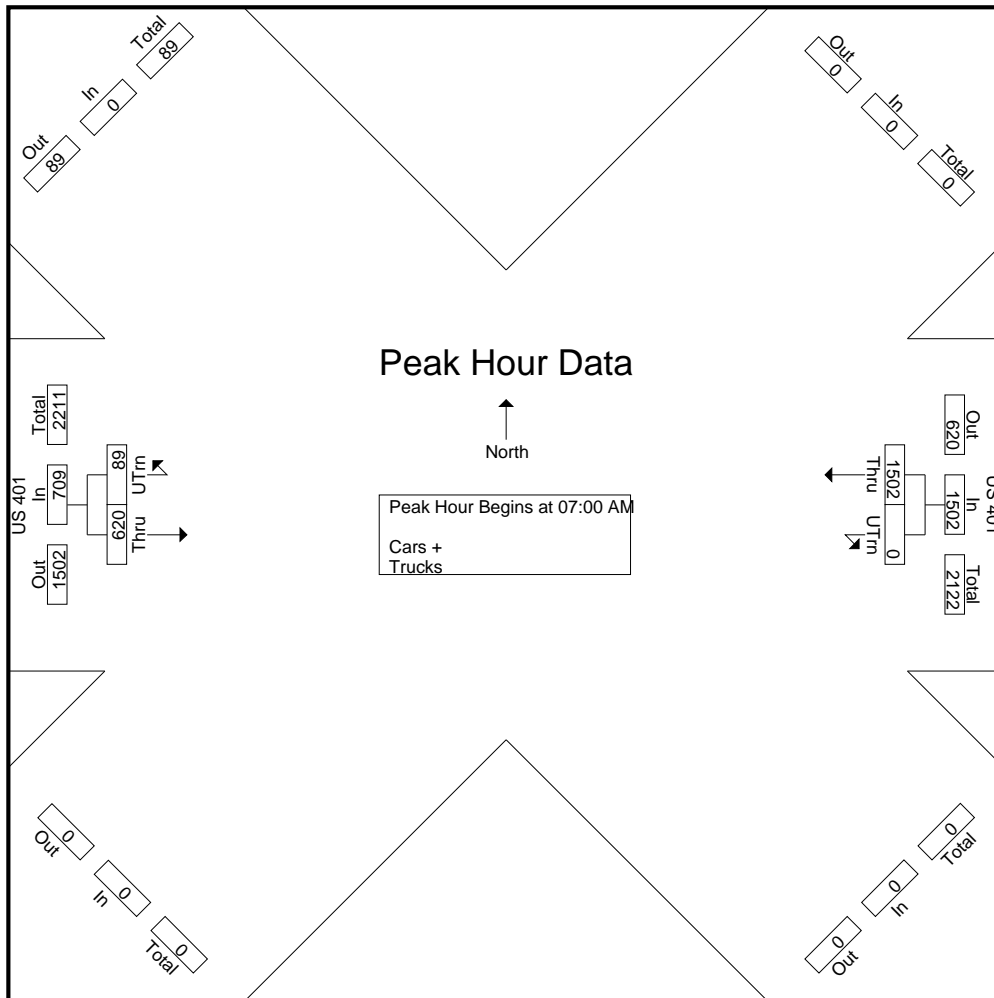
Start Time	US 401 Westbound			US 401 Eastbound			Int. Total
	Thru	UTrn	App. Total	Thru	UTrn	App. Total	
07:00 AM	421	0	421	198	12	210	631
07:15 AM	410	0	410	136	24	160	570
07:30 AM	392	0	392	149	36	185	577
07:45 AM	279	0	279	137	17	154	433
Total	1502	0	1502	620	89	709	2211
08:00 AM	253	0	253	130	20	150	403
08:15 AM	243	0	243	98	13	111	354
08:30 AM	223	0	223	94	7	101	324
08:45 AM	147	0	147	85	9	94	241
Total	866	0	866	407	49	456	1322
Grand Total	2368	0	2368	1027	138	1165	3533
Apprch %	100	0		88.2	11.8		
Total %	67	0	67	29.1	3.9	33	
Cars +	2318	0	2318	973	136	1109	3427
% Cars +	97.9	0	97.9	94.7	98.6	95.2	97
Trucks	50	0	50	54	2	56	106
% Trucks	2.1	0	2.1	5.3	1.4	4.8	3



TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Eastern U Turn)AM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 2

Start Time	US 401 Westbound			US 401 Eastbound			Int. Total
	Thru	UTrn	App. Total	Thru	UTrn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 07:00 AM							
07:00 AM	421	0	421	198	12	210	631
07:15 AM	410	0	410	136	24	160	570
07:30 AM	392	0	392	149	36	185	577
07:45 AM	279	0	279	137	17	154	433
Total Volume	1502	0	1502	620	89	709	2211
% App. Total	100	0		87.4	12.6		
PHF	.892	.000	.892	.783	.618	.844	.876





TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Eastern U Turn)PM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 1

Groups Printed- Cars + - Trucks

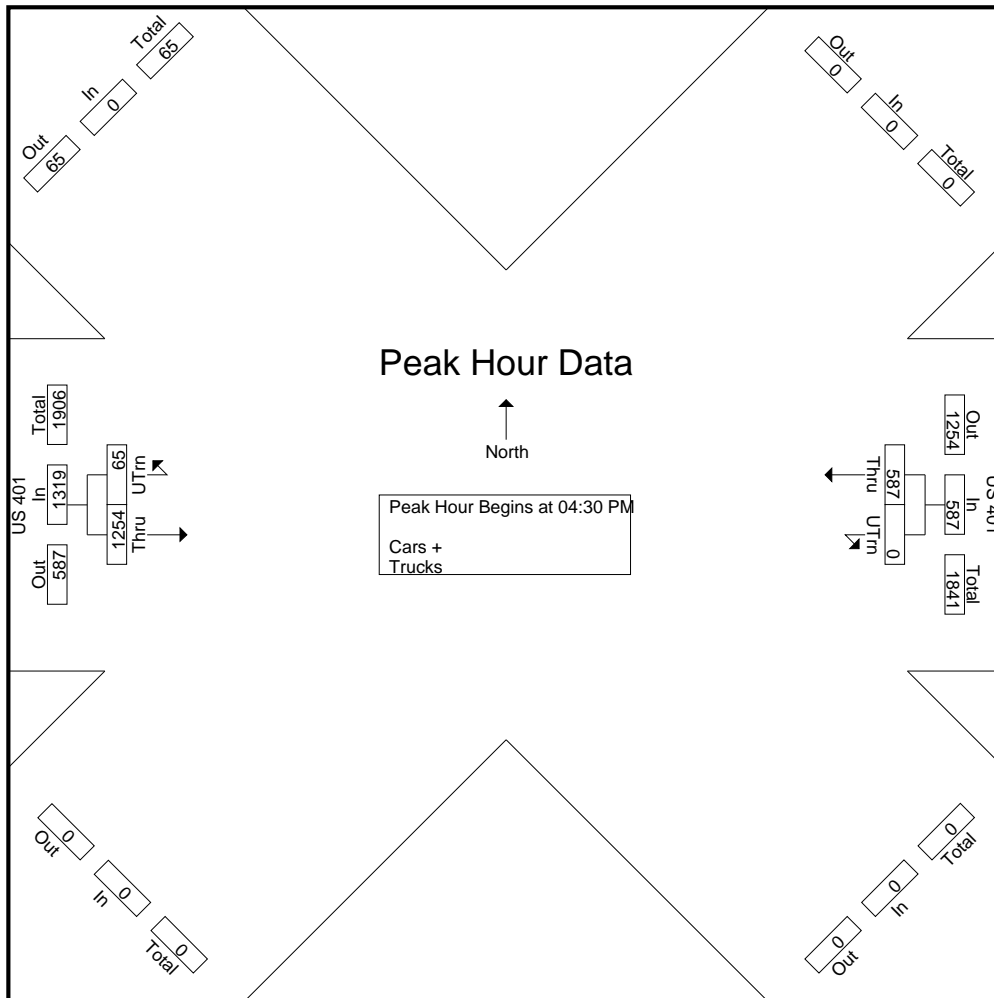
Start Time	US 401 Westbound			US 401 Eastbound			Int. Total
	Thru	UTrn	App. Total	Thru	UTrn	App. Total	
04:00 PM	130	0	130	240	12	252	382
04:15 PM	128	0	128	237	15	252	380
04:30 PM	129	0	129	311	19	330	459
04:45 PM	149	0	149	317	19	336	485
Total	536	0	536	1105	65	1170	1706
05:00 PM	149	0	149	342	8	350	499
05:15 PM	160	0	160	284	19	303	463
05:30 PM	161	0	161	273	22	295	456
05:45 PM	120	0	120	235	12	247	367
Total	590	0	590	1134	61	1195	1785
Grand Total	1126	0	1126	2239	126	2365	3491
Apprch %	100	0		94.7	5.3		
Total %	32.3	0	32.3	64.1	3.6	67.7	
Cars +	1101	0	1101	2175	125	2300	3401
% Cars +	97.8	0	97.8	97.1	99.2	97.3	97.4
Trucks	25	0	25	64	1	65	90
% Trucks	2.2	0	2.2	2.9	0.8	2.7	2.6



TRAFFIC DATA COLLECTION

File Name : Rolesville(US 401 and Eastern U Turn)PM Peak
 Site Code :
 Start Date : 11/9/2021
 Page No : 2

Start Time	US 401 Westbound			US 401 Eastbound			Int. Total
	Thru	UTrn	App. Total	Thru	UTrn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1							
Peak Hour for Entire Intersection Begins at 04:30 PM							
04:30 PM	129	0	129	311	19	330	459
04:45 PM	149	0	149	317	19	336	485
05:00 PM	149	0	149	342	8	350	499
05:15 PM	160	0	160	284	19	303	463
Total Volume	587	0	587	1254	65	1319	1906
% App. Total	100	0		95.1	4.9		
PHF	.917	.000	.917	.917	.855	.942	.955





TRAFFIC DATA COLLECTION

File Name : Rolesville(Jonesville and Mitchell Mill)AM Peak
 Site Code :
 Start Date : 11/30/2021
 Page No : 1

Groups Printed- Cars + - Trucks

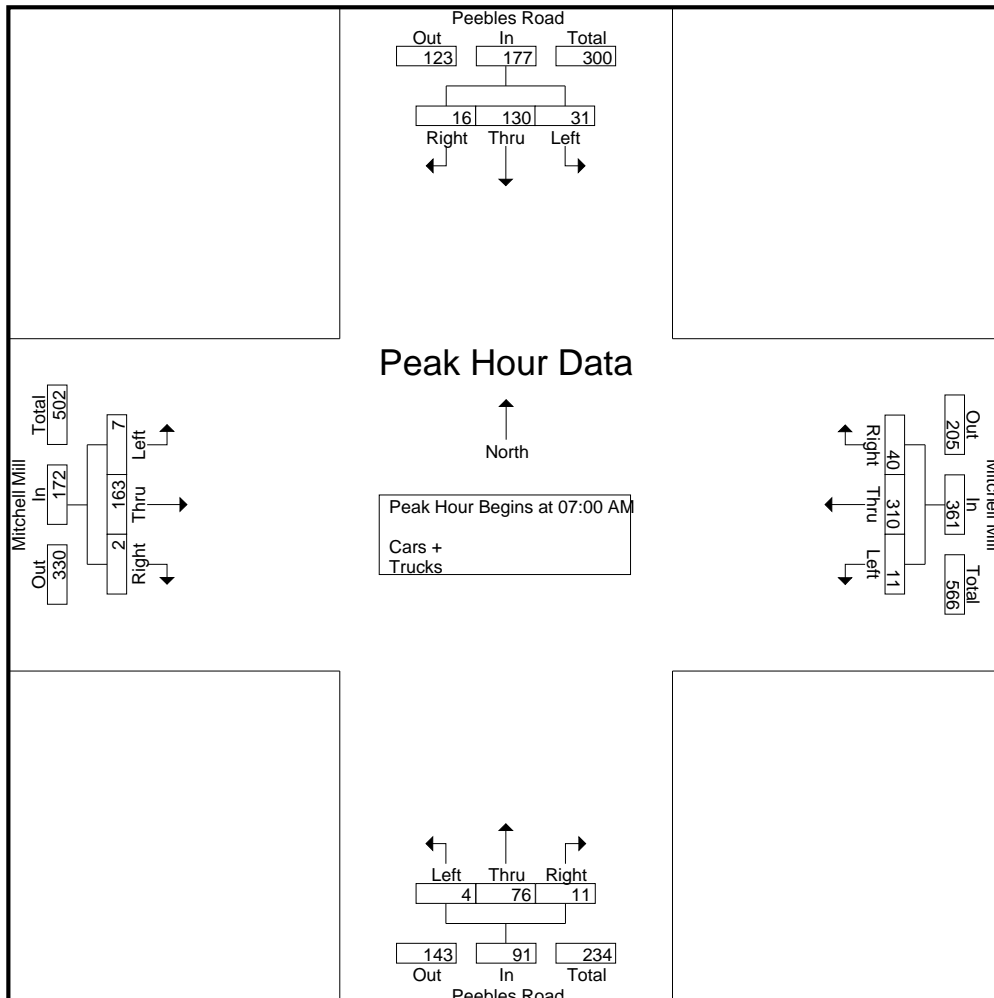
Start Time	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
07:00 AM	4	17	13	34	8	73	5	86	6	11	3	20	0	74	1	75	215
07:15 AM	4	36	7	47	8	101	2	111	3	26	1	30	0	32	1	33	221
07:30 AM	6	34	5	45	16	87	3	106	0	24	0	24	1	33	1	35	210
07:45 AM	2	43	6	51	8	49	1	58	2	15	0	17	1	24	4	29	155
Total	16	130	31	177	40	310	11	361	11	76	4	91	2	163	7	172	801
08:00 AM	7	31	12	50	4	53	1	58	1	8	2	11	0	28	3	31	150
08:15 AM	12	17	3	32	1	37	1	39	1	7	0	8	1	24	1	26	105
08:30 AM	6	4	2	12	3	49	2	54	1	4	2	7	0	19	0	19	92
08:45 AM	1	13	3	17	4	32	1	37	1	3	1	5	1	18	2	21	80
Total	26	65	20	111	12	171	5	188	4	22	5	31	2	89	6	97	427
Grand Total	42	195	51	288	52	481	16	549	15	98	9	122	4	252	13	269	1228
Apprch %	14.6	67.7	17.7		9.5	87.6	2.9		12.3	80.3	7.4		1.5	93.7	4.8		
Total %	3.4	15.9	4.2	23.5	4.2	39.2	1.3	44.7	1.2	8	0.7	9.9	0.3	20.5	1.1	21.9	
Cars +	42	195	50	287	52	479	16	547	15	98	9	122	4	249	13	266	1222
% Cars +	100	100	98	99.7	100	99.6	100	99.6	100	100	100	100	100	98.8	100	98.9	99.5
Trucks	0	0	1	1	0	2	0	2	0	0	0	0	0	3	0	3	6
% Trucks	0	0	2	0.3	0	0.4	0	0.4	0	0	0	0	0	1.2	0	1.1	0.5



TRAFFIC DATA COLLECTION

File Name : Rolesville(Jonesville and Mitchell Mill)AM Peak
 Site Code :
 Start Date : 11/30/2021
 Page No : 2

Start Time	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	17	13	34	8	73	5	86	6	11	3	20	0	74	1	75	215
07:15 AM	4	36	7	47	8	101	2	111	3	26	1	30	0	32	1	33	221
07:30 AM	6	34	5	45	16	87	3	106	0	24	0	24	1	33	1	35	210
07:45 AM	2	43	6	51	8	49	1	58	2	15	0	17	1	24	4	29	155
Total Volume	16	130	31	177	40	310	11	361	11	76	4	91	2	163	7	172	801
% App. Total	9	73.4	17.5		11.1	85.9	3		12.1	83.5	4.4		1.2	94.8	4.1		
PHF	.667	.756	.596	.868	.625	.767	.550	.813	.458	.731	.333	.758	.500	.551	.438	.573	.906





TRAFFIC DATA COLLECTION

File Name : Rolesville(Jonesville and Mitchell Mill)PM Peak
 Site Code :
 Start Date : 11/30/2021
 Page No : 1

Groups Printed- Cars + - Trucks

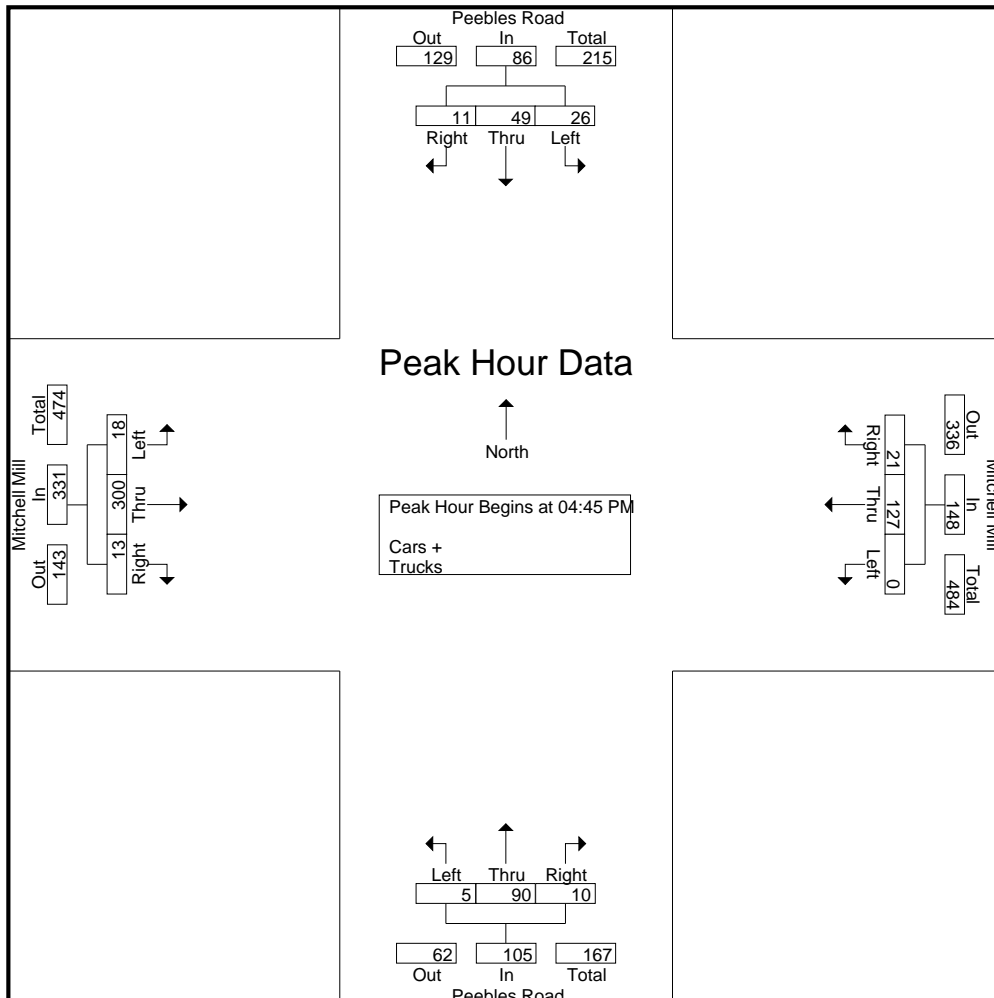
Start Time	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
04:00 PM	7	11	13	31	6	25	1	32	1	14	1	16	2	44	6	52	131
04:15 PM	6	11	4	21	2	27	2	31	1	17	3	21	1	62	4	67	140
04:30 PM	3	13	3	19	4	30	2	36	0	27	1	28	3	64	3	70	153
04:45 PM	2	8	5	15	4	37	0	41	3	18	0	21	3	71	3	77	154
Total	18	43	25	86	16	119	5	140	5	76	5	86	9	241	16	266	578
05:00 PM	1	15	6	22	5	31	0	36	3	19	2	24	1	78	5	84	166
05:15 PM	3	15	6	24	4	23	0	27	3	26	1	30	4	89	7	100	181
05:30 PM	5	11	9	25	8	36	0	44	1	27	2	30	5	62	3	70	169
05:45 PM	1	7	4	12	2	21	1	24	2	13	2	17	4	55	6	65	118
Total	10	48	25	83	19	111	1	131	9	85	7	101	14	284	21	319	634
Grand Total	28	91	50	169	35	230	6	271	14	161	12	187	23	525	37	585	1212
Apprch %	16.6	53.8	29.6		12.9	84.9	2.2		7.5	86.1	6.4		3.9	89.7	6.3		
Total %	2.3	7.5	4.1	13.9	2.9	19	0.5	22.4	1.2	13.3	1	15.4	1.9	43.3	3.1	48.3	
Cars +	28	91	50	169	35	229	6	270	14	161	12	187	23	524	37	584	1210
% Cars +	100	100	100	100	100	99.6	100	99.6	100	100	100	100	100	99.8	100	99.8	99.8
Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
% Trucks	0	0	0	0	0	0.4	0	0.4	0	0	0	0	0	0.2	0	0.2	0.2



TRAFFIC DATA COLLECTION

File Name : Rolesville(Jonesville and Mitchell Mill)PM Peak
 Site Code :
 Start Date : 11/30/2021
 Page No : 2

Start Time	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	8	5	15	4	37	0	41	3	18	0	21	3	71	3	77	154
05:00 PM	1	15	6	22	5	31	0	36	3	19	2	24	1	78	5	84	166
05:15 PM	3	15	6	24	4	23	0	27	3	26	1	30	4	89	7	100	181
05:30 PM	5	11	9	25	8	36	0	44	1	27	2	30	5	62	3	70	169
Total Volume	11	49	26	86	21	127	0	148	10	90	5	105	13	300	18	331	670
% App. Total	12.8	57	30.2		14.2	85.8	0		9.5	85.7	4.8		3.9	90.6	5.4		
PHF	.550	.817	.722	.860	.656	.858	.000	.841	.833	.833	.625	.875	.650	.843	.643	.828	.925



APPENDIX C

ADJACENT DEVELOPMENT INFORMATION

TRAFFIC IMPACT ANALYSIS

FOR

COBBLESTONE CROSSING MIXED-USE

LOCATED

IN

ROLESVILLE, NORTH CAROLINA

Prepared For:
Town of Rolesville
502 Southtown Circle
Rolesville, NC 27571

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910



MARCH 2021

RKA Project No. 20498

Prepared By: TF

Reviewed By: MK



LEGEND

- - - Proposed Site Location
- Study Intersection
- - - Study Area



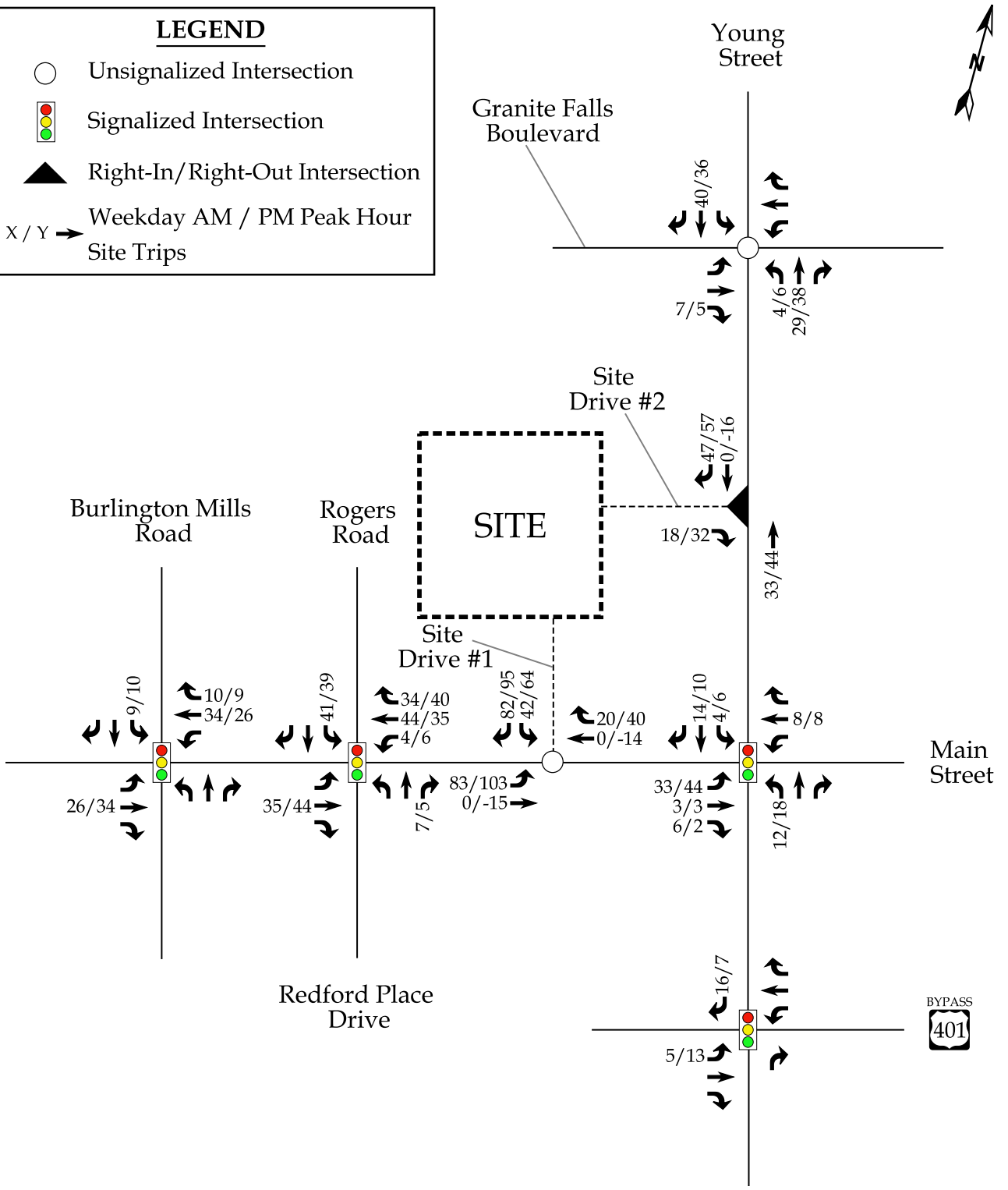
Cobblestone Crossing
Mixed-Use
Rolesville, NC

Site Location Map

Scale: Not to Scale	Figure 1
---------------------	----------

LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- ▲ Right-In/Right-Out Intersection
- X / Y → Weekday AM / PM Peak Hour Site Trips



Moving forward.



RAMEY KEMP ASSOCIATES

Cobblestone Crossing
Mixed-Use
Rolesville, NC

Total Site Trip
Assignment

Scale: Not to Scale

Figure 12

9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 14 for an illustration of the recommended lane configuration for the proposed development.

Improvements by STIP U-6241

STIP U-6241 is expected to realign Burlington Mills Road and install a traffic signal at the relocated intersection on Main Street. STIP U-6241 is also expected to provide improvements to the pedestrian and bike facilities along Main Street and add a concrete median island along Main Street west of Rogers Road. These improvements associated with STIP U-6241 will alter the existing lane configurations at the study intersections along Main Street.

Recommended Improvements by Developer

Main Street and Site Drive 1

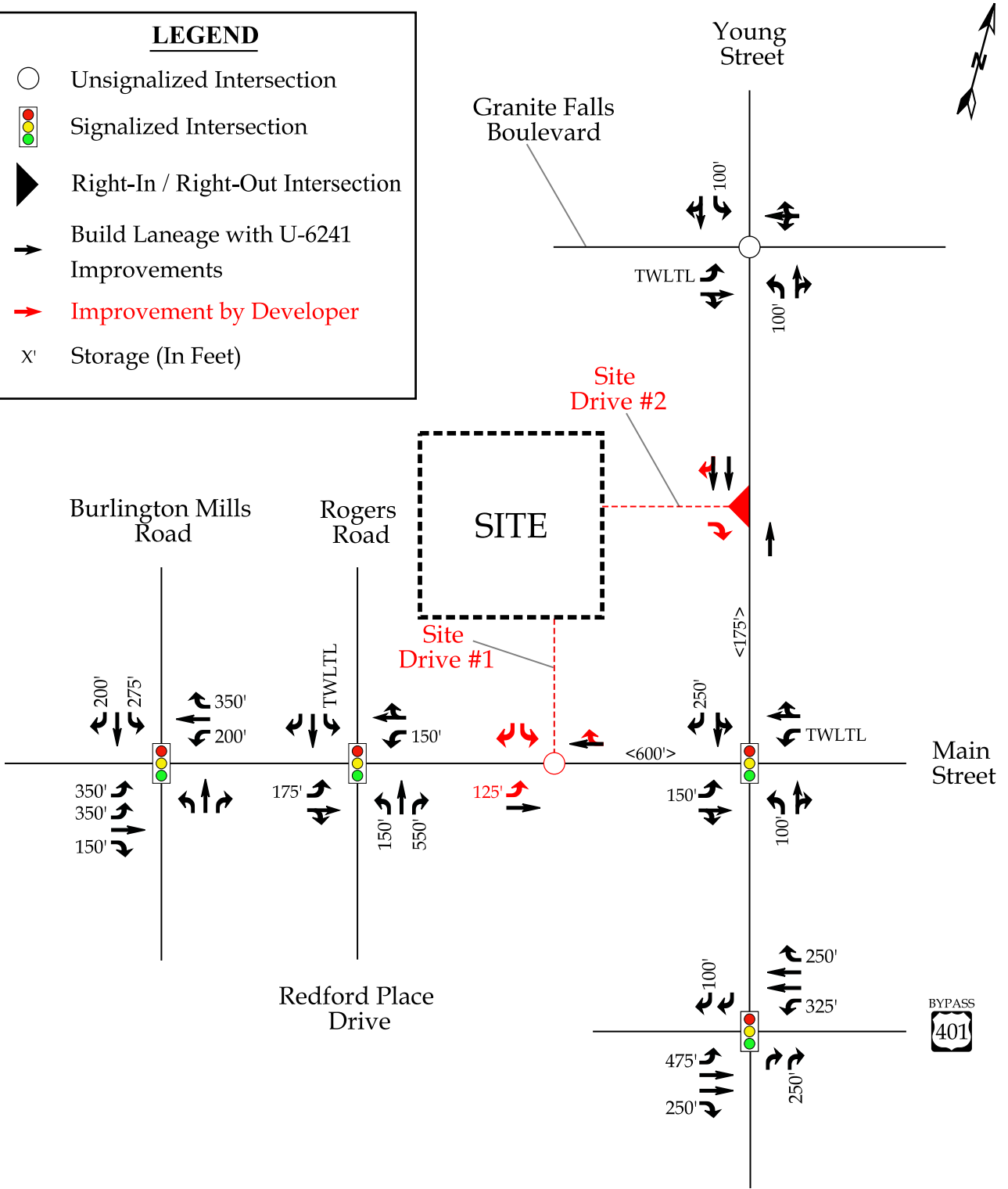
- Construct the southbound approach with one ingress and two egress lanes.
- Provide stop control for the southbound approach.
- Install an eastbound left-turn lane with at least 125 feet of storage and appropriate decel and taper.

Young Street and Site Drive 2

- Construct the eastbound approach with one ingress and egress lane.
- Provide stop control for the eastbound approach.

LEGEND

- Unsignalized Intersection
- ⬆️⬆️⬆️ Signalized Intersection
- ▶️▶️▶️ Right-In / Right-Out Intersection
- ➡️ Build Laneage with U-6241 Improvements
- ➡️ Improvement by Developer
- X' Storage (In Feet)



Cobblestone Crossing
Mixed-Use
Rolesville, NC

Recommended Lane Configurations

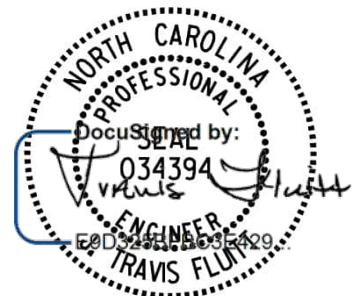
Scale: Not to Scale	Figure 14
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Revised Traffic Impact Analysis for
Young Street PUD
Rolesville, North Carolina

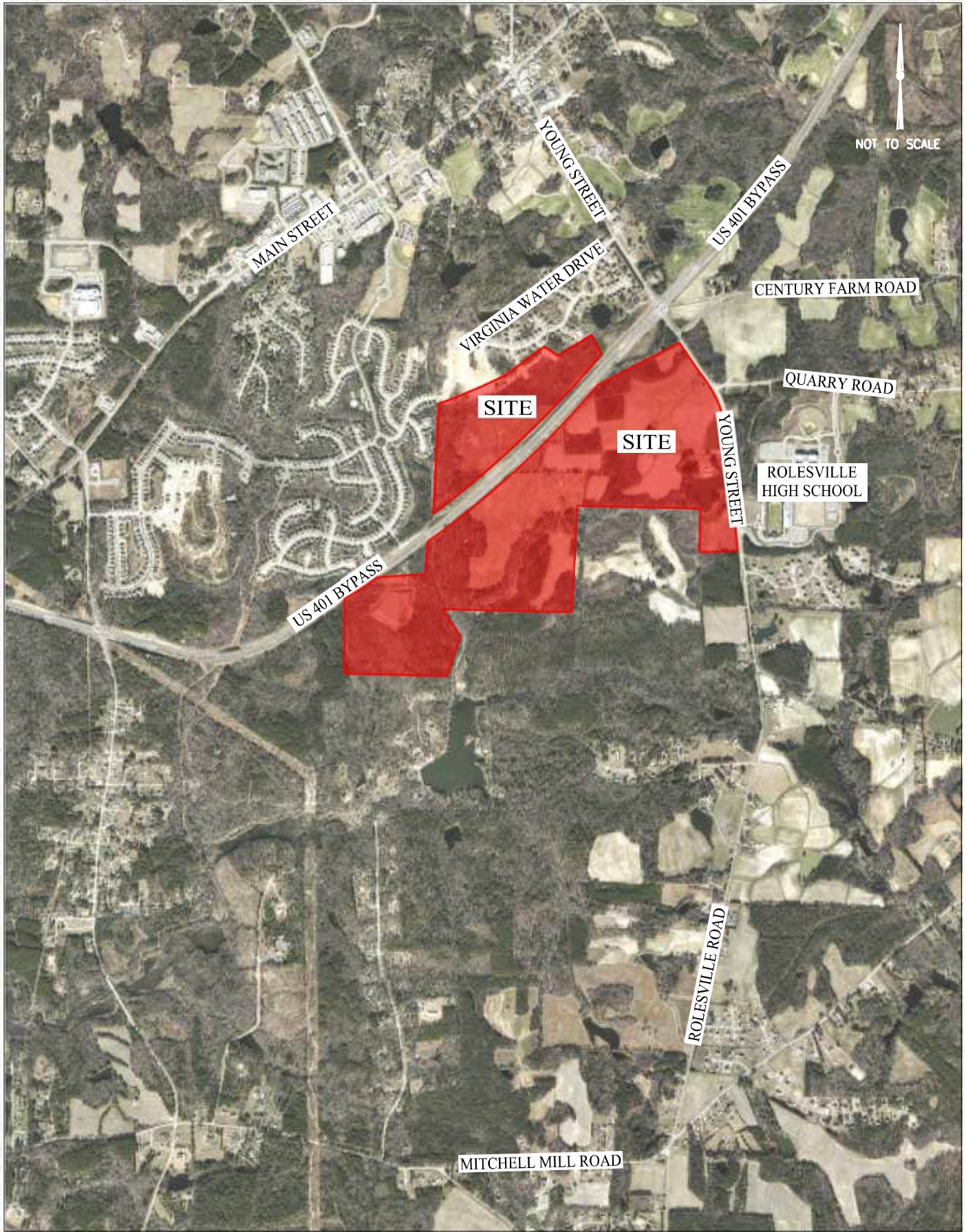
Prepared for:
Ashton Woods
Raleigh, North Carolina

Prepared by:
Kimley-Horn and Associates, Inc.
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

June 2019
015956012



6/13/2019

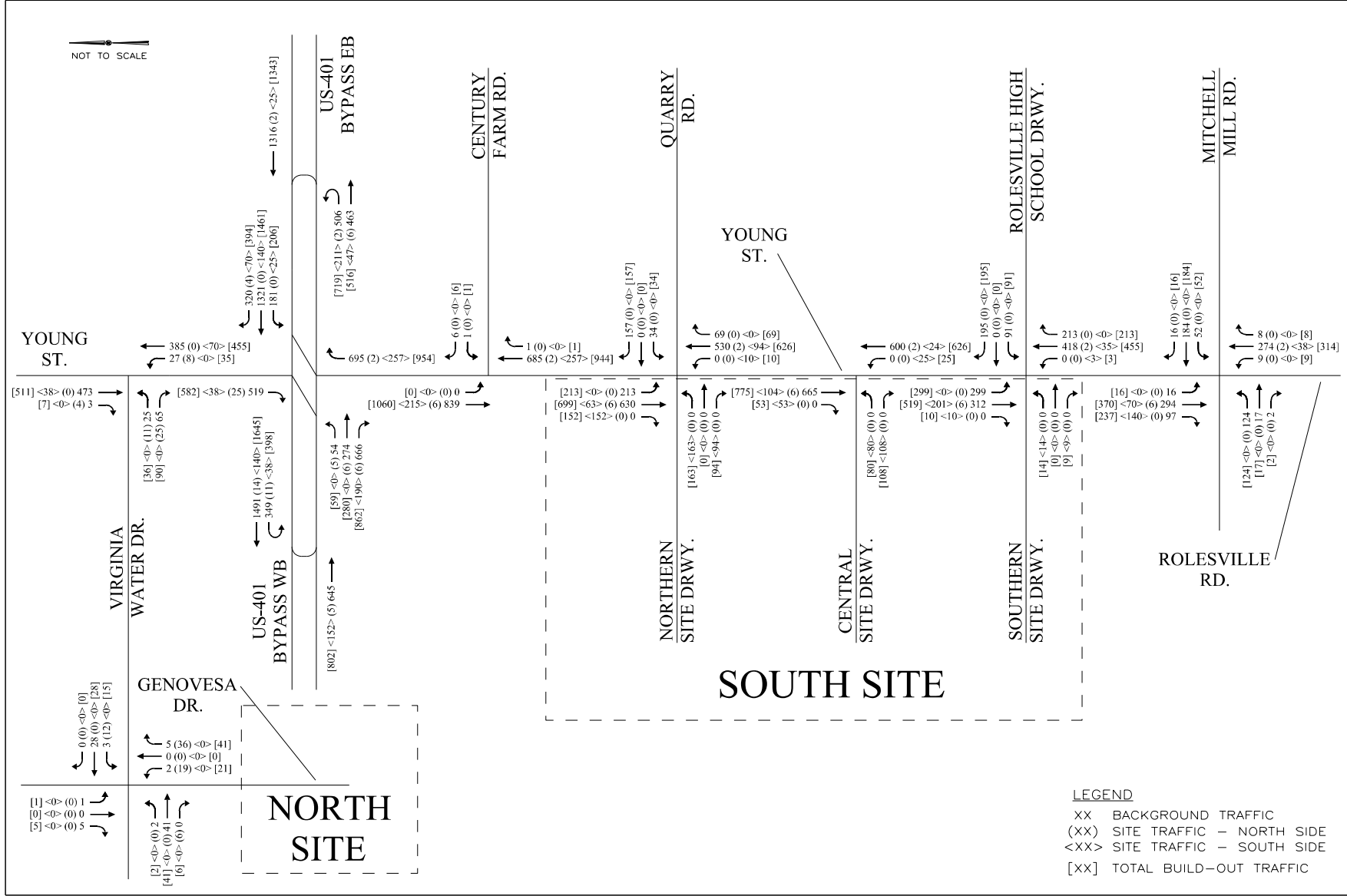
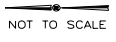


YOUNG STREET PUD
 ROLESVILLE, NC
 TRAFFIC IMPACT ANALYSIS

SITE LOCATION

FIGURE
 1

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.



LEGEND

- XX BACKGROUND TRAFFIC
- (XX) SITE TRAFFIC - NORTH SIDE
- <XX> SITE TRAFFIC - SOUTH SIDE
- [XX] TOTAL BUILD-OUT TRAFFIC

FIGURE 14

PROJECTED (2025) BUILD-OUT AM PEAK HOUR TRAFFIC VOLUMES - COMMERCIAL BUILD-OUT

YOUNG STREET PUD ROLESVILLE, NC TRAFFIC IMPACT ANALYSIS



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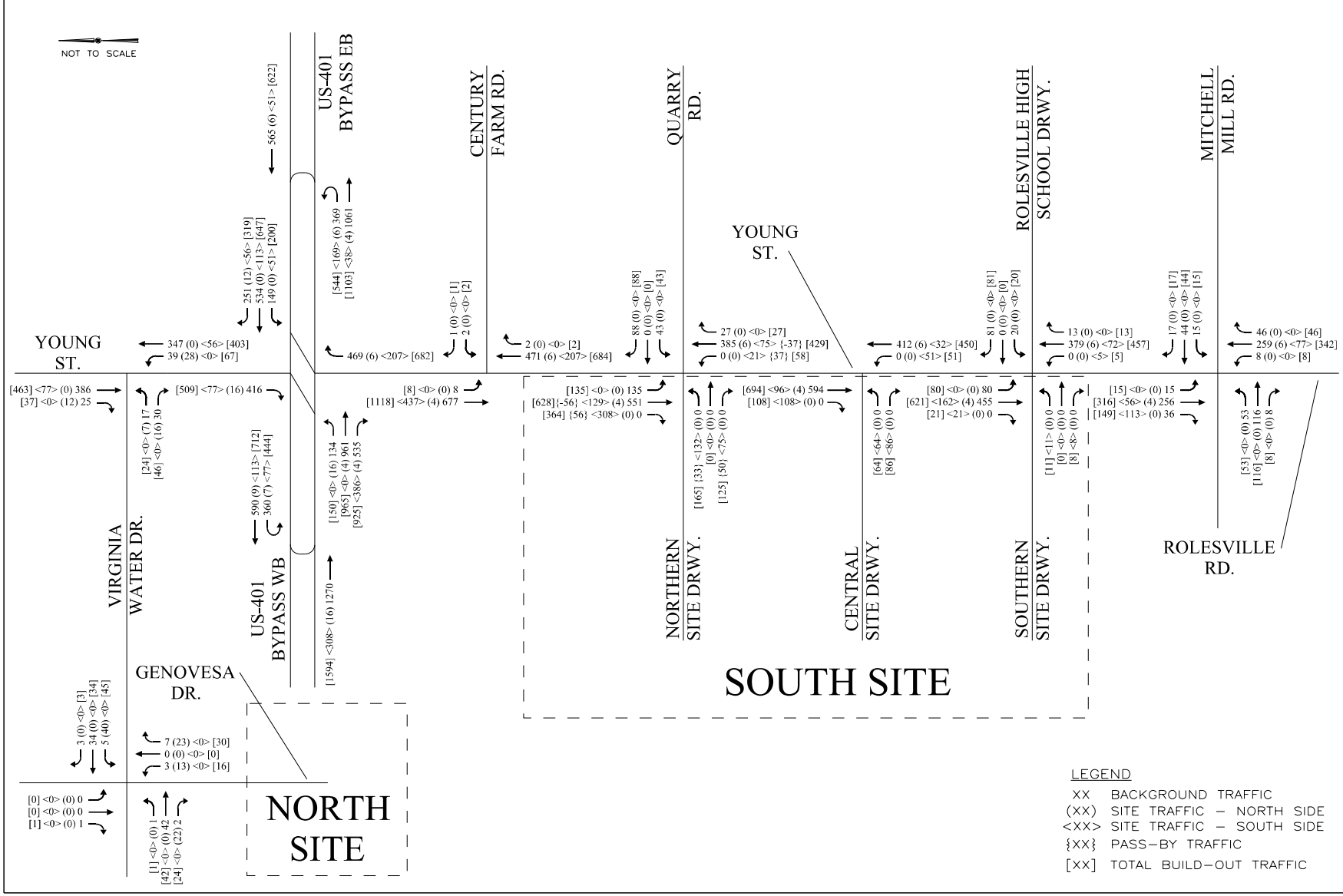
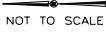


FIGURE 16

PROJECTED (2025) BUILD-OUT PM PEAK HOUR TRAFFIC VOLUMES - COMMERCIAL BUILD-OUT

YOUNG STREET PUD ROLESVILLE, NC TRAFFIC IMPACT ANALYSIS



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.

7.0 Recommendations

Residential Build-out

The following improvements are recommended to be performed to accommodate projected site traffic volumes at build-out of the residential portion of the development:

US 401 Bypass:

- Coordinate the traffic signals at the intersections of US 401 at Young Street and the Superstreet U-turns

Young Street at Quarry Road/North Site Driveway:

- Construct a northbound left-turn lane on Young Street with 100 feet of storage and appropriate tapers
- Construct a southbound right-turn lane on Young Street with 100 feet of storage and appropriate tapers
- Restripe the existing westbound left-turn lane on Quarry Road to a shared left/through lane
- Provide an exclusive left-turn lane with 275 feet of storage and appropriate tapers and a shared through/right lane on the North Site Driveway
- Install a traffic signal when warranted

Young Street at Central Site Driveway:

- Construct a northbound left-turn lane on Young Street with 100 feet of storage and appropriate tapers
- Construct a southbound right-turn lane on Young Street with 100 feet of storage and appropriate tapers
- Provide exclusive left and right-turn lanes on the Central Site Driveway with 125 feet of storage and appropriate tapers for the left-turn lane

Young Street at Rolesville High School Driveway/South Site Driveway:

- Construct a northbound left-turn lane on Young Street with 50 feet of storage and appropriate tapers
- Provide one egress lane on the South Site Driveway

Rolesville Road at Mitchell Mill Road:

- Install a traffic signal when warranted

Analyses indicate that with the recommended improvements in place, all of the study intersections except for Young Street at Century Farm Road and Young Street at Rolesville High School Driveway/South Site Driveway are expected to operate at an acceptable LOS at build-out of the residential-only phase of the development.

Analyses indicate that the intersection of Young Street at Century Farm Road is expected to operate with long delays on the minor street approach (Century Farm Road) in the AM peak hour at project build-out. However, 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. SimTraffic traffic simulations indicate that no queuing issues are expected at this intersection.

Analyses indicate that the intersection of Young Street at the Rolesville High School Driveway/South Site Driveway is expected to operate with long delays on the minor street approach (Rolesville High School Driveway) in the AM peak hour and school PM peak hour with or without the proposed project in place in the study year 2025. SimTraffic traffic simulations also indicate the possibility of long queues on the westbound left-turn movement at this intersection in the AM peak hour and school PM peak hour. However, 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. This intersection is not expected to meet 4-hour or 8-hour MUTCD traffic signal warrants.

Commercial Build-out

The following additional improvements are recommended to be performed in addition to those recommended above for the residential phase to accommodate projected site traffic volumes when the retail portion of the site is developed:

US 401 Bypass Eastbound at Young Street:

- Extend the storage of the existing eastbound right-turn lane on US 401 Bypass by approximately 175 feet to provide 400 feet of storage and appropriate tapers

Young Street at Quarry Road/North Site Driveway:

- Construct a northbound right-turn lane on Young Street with 100 feet of storage and appropriate tapers
- Modify the traffic signal to accommodate the additional laneage

Analyses indicate that with the recommended improvements in place, all of the study intersections except for Young Street at Century Farm Road, Young Street at the Central Site Driveway, and Young Street at Rolesville High School Driveway/South Site Driveway are expected to operate at acceptable LOS at commercial build-out of the development.

Analyses indicate that the intersection of Young Street at Century Farm Road is expected to operate with long delays on the minor street approach (Century Farm Road) in the AM peak hour at project build-out. 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. SimTraffic

traffic simulations indicate that short queues are likely on the minor street approach in the AM peak hour at commercial build-out.

Analyses indicate that the intersection of Young Street at the Central Site Driveway is expected to operate with long delays on the minor street approach (Central Site Driveway) in the AM peak hour in the commercial build-out traffic condition. 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. SimTraffic traffic simulations indicate the possibility of long queues on the eastbound left-turn movement at this intersection in the AM peak hour in the commercial build-out condition.

Analyses indicate that the intersection of Young Street at the Rolesville High School Driveway/South Site Driveway is expected to operate with long delays on the minor street approach (Rolesville High School Driveway) in the AM peak hour and school PM peak hour with or without the proposed project in place in the study year 2025. SimTraffic traffic simulations also indicate the possibility of long queues on the westbound left-turn movement at this intersection in the AM peak hour and school PM peak hour. However, 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. This intersection is not expected to meet 4-hour or 8-hour MUTCD traffic signal warrants.

As shown in the analysis, the impact of site traffic associated with the commercial build-out of this proposed PUD is generally consistent with the currently-approved PUD for the site. The proposed PUD is expected to generate no more than 50 additional peak hour trips in each of the studied peak hours compared to the approved PUD, and delays at commercial build-out of both plans are generally consistent at each of the study intersections.

The recommended laneage for the development is shown on **Figure 17**.

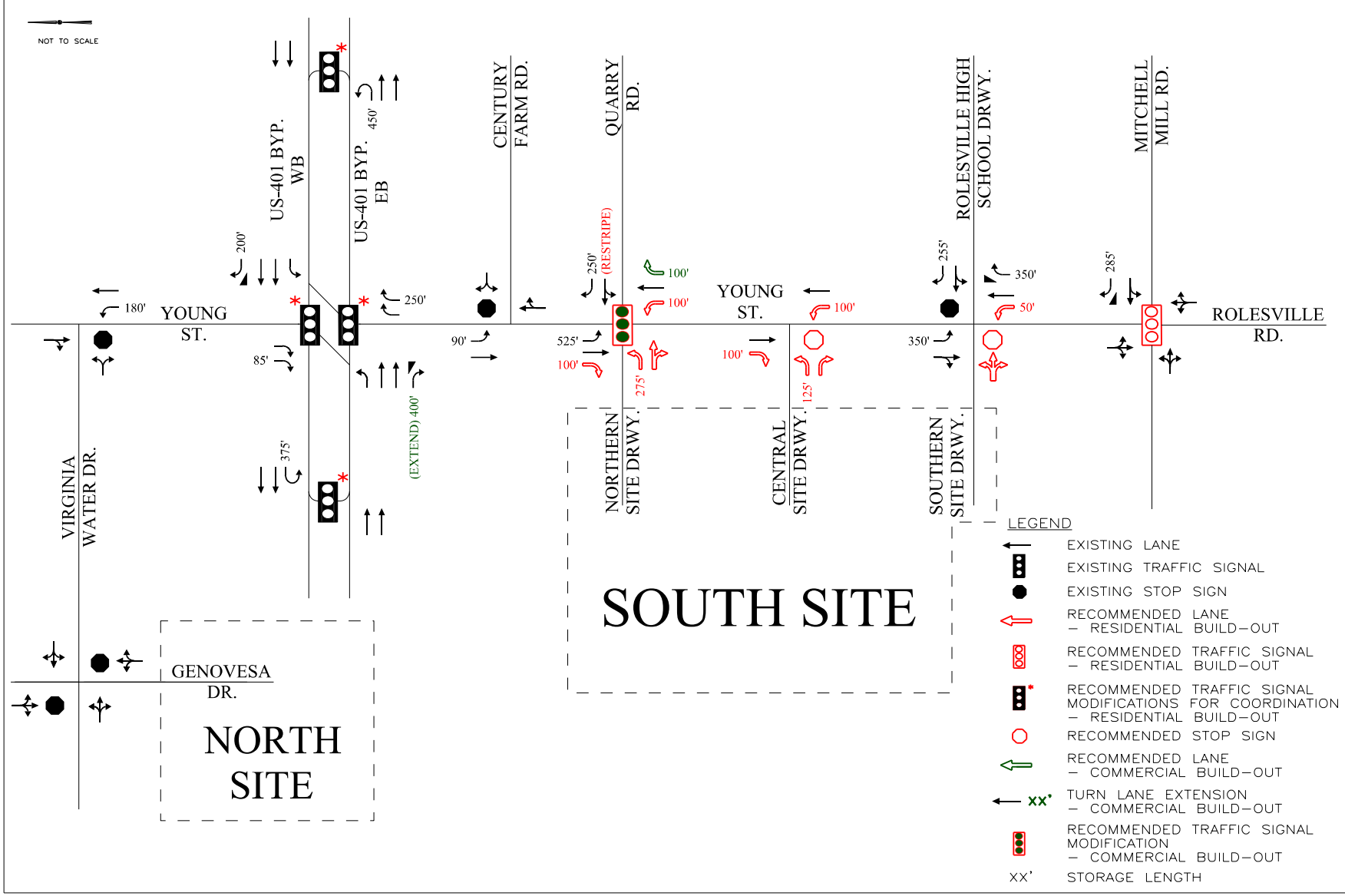


FIGURE 17

RECOMMENDED ROADWAY LANEAGE

YOUNG STREET PUD
ROLESVILLE, NC
TRAFFIC IMPACT ANALYSIS



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TRAFFIC IMPACT ANALYSIS

FOR

WHEELER TRACT

LOCATED

IN

ROLESVILLE, NC

Prepared For:
Hopper Communities
173 Paraggi Court
Clayton, NC 27527

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

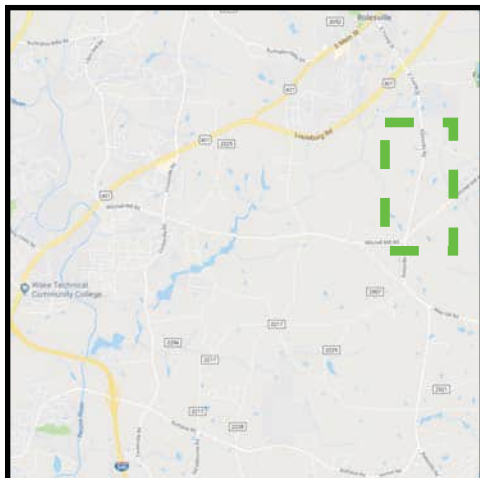
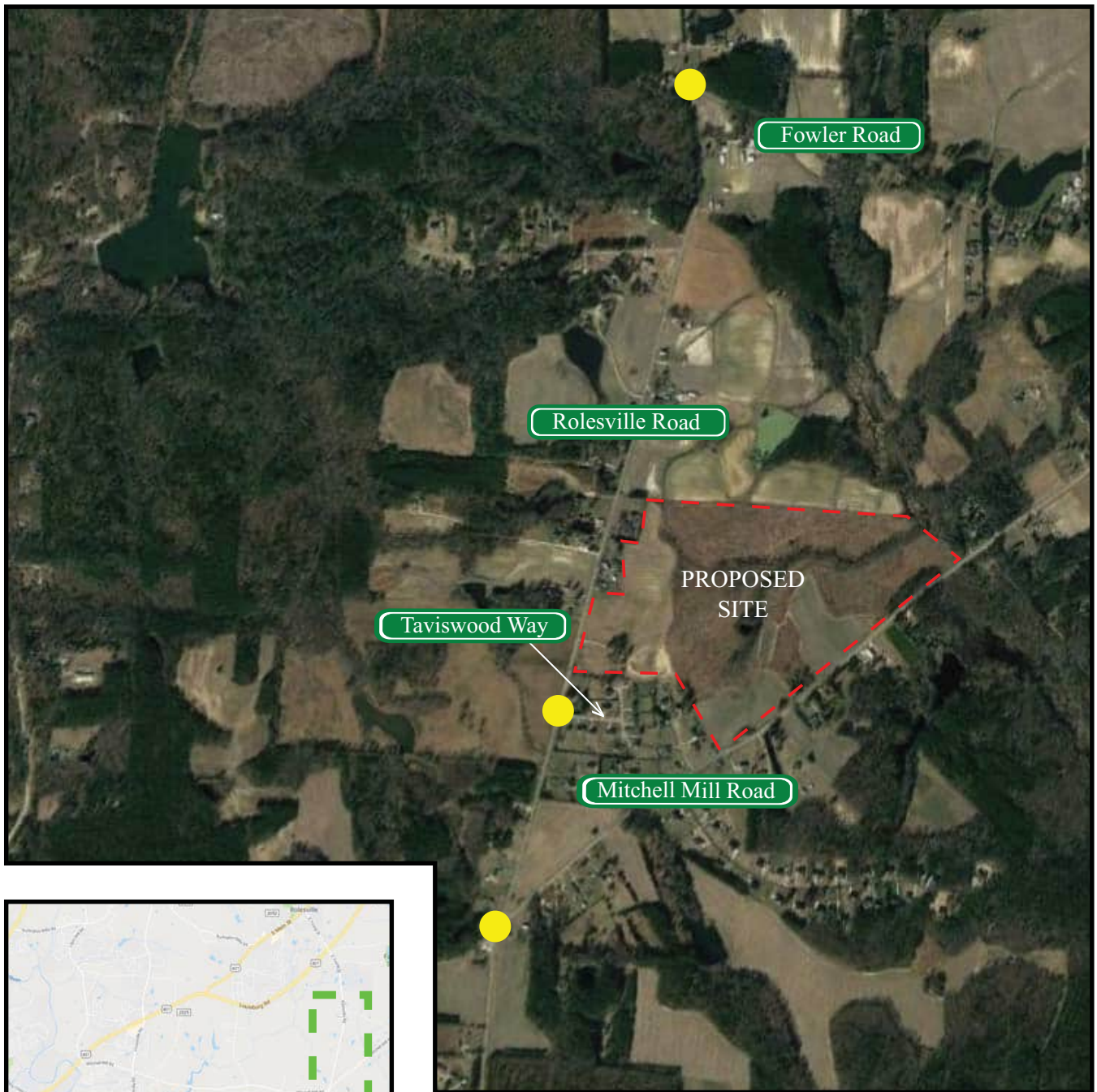
June 2019






RKA Project No. 19045

Prepared By: CAB

Reviewed By: JTR



LEGEND

-  Proposed Site Location
-  Study Intersection
-  Study Area



Wheeler Tract
Rolesville, NC

Site Location Map

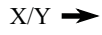
Scale: Not to Scale

Figure 1

LEGEND



Unsignalized Intersection



Weekday AM / PM
Peak Hour Site Trips

Mitchell
Mill Road

Rolesville
Road

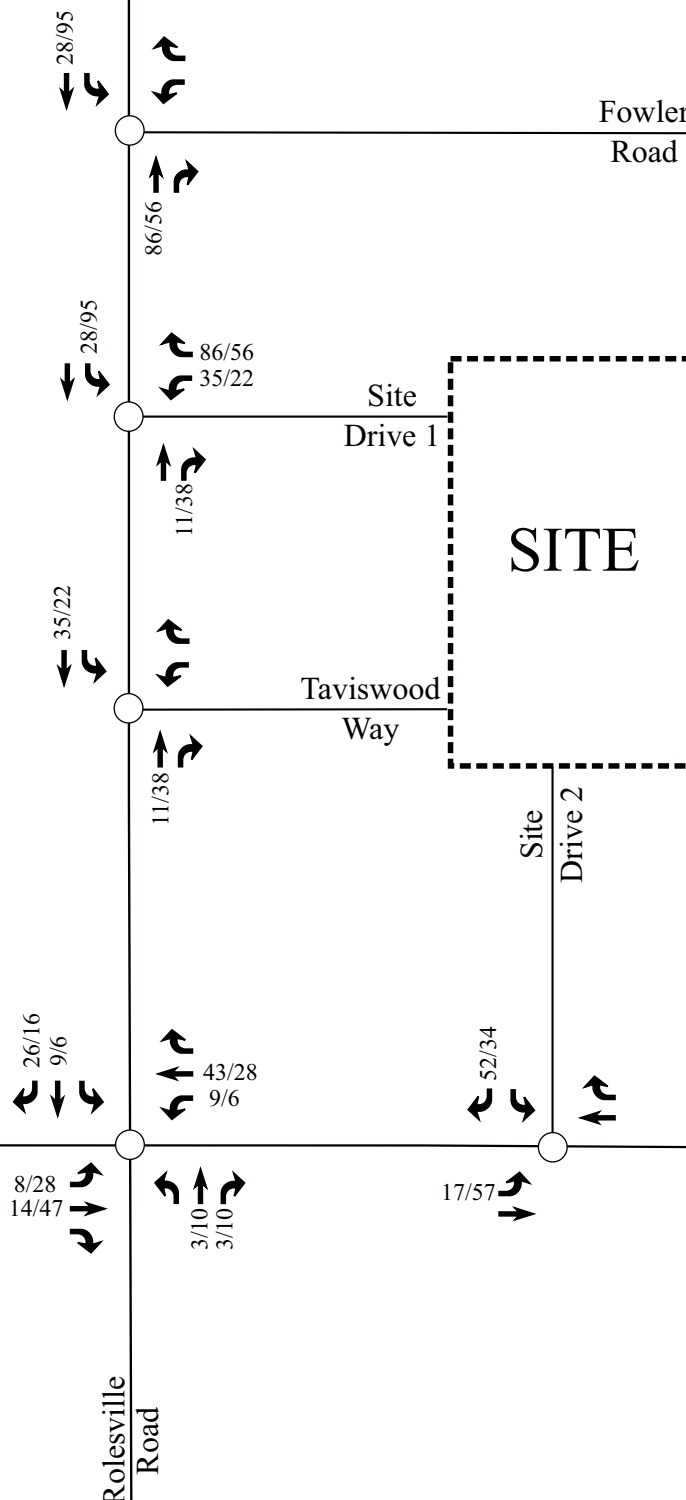
Fowler
Road

Site
Drive 1

Taviswood
Way

SITE

Site
Drive 2



Wheeler Tract
Rolesville, NC

Site
Trip Assignment

Scale: Not to Scale

Figure 9

9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 11 for an illustration of the recommended lane configuration for the proposed development.

Recommended Improvements by Developer

Rolesville Road and Mitchell Mill Road

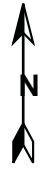
- Monitor intersection for signalization.

Rolesville Road and Site Drive 1

- Provide site access via a full movement intersection with one ingress lane and one egress lane.
- Provide stop control for westbound Site Drive 1 approach.
- Provide a designated southbound left-turn lane with at least 100 feet of storage and appropriate deceleration and taper.

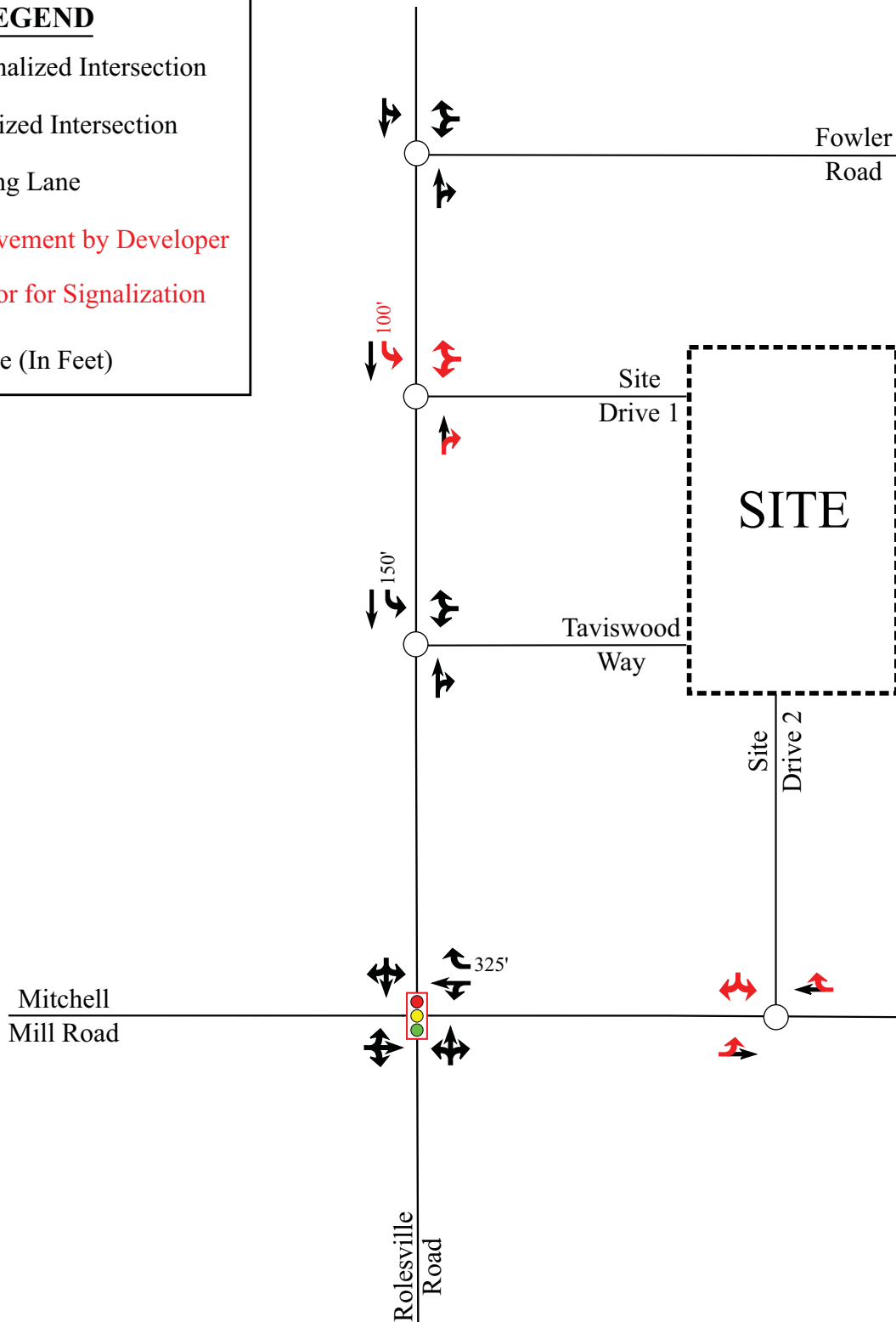
Mitchell Mill Road and Site Drive 2

- Provide site access via a full movement intersection with one ingress lane and one egress lane.
- Provide stop control for southbound Site Drive 2 approach.



LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- ➡ Existing Lane
- ➡ Improvement by Developer
- 🚦 Monitor for Signalization
- X' Storage (In Feet)



Wheeler Tract
Rolesville, NC

Recommended
Lane Configurations

Scale: Not to Scale

Figure 11

TRAFFIC IMPACT ANALYSIS

FOR

LOUISBURY ROAD ASSEMBLAGE

LOCATED

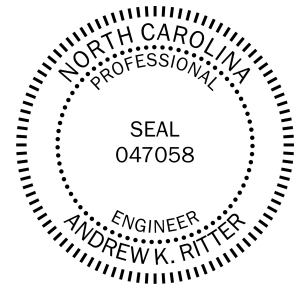
IN

RALEIGH, NC

Prepared For:
McAdams Company
2905 Meridian Parkway
Durham, NC 27713

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

Andrew Kyle Ritter



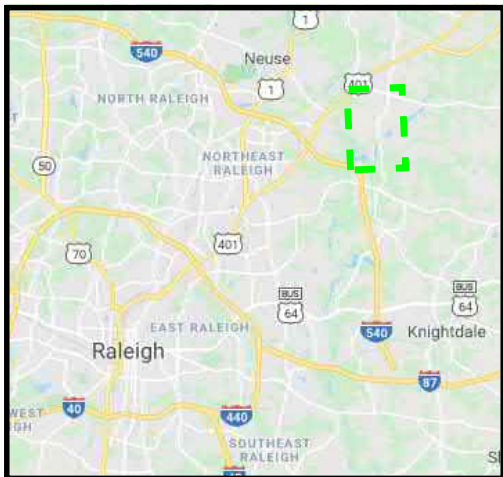
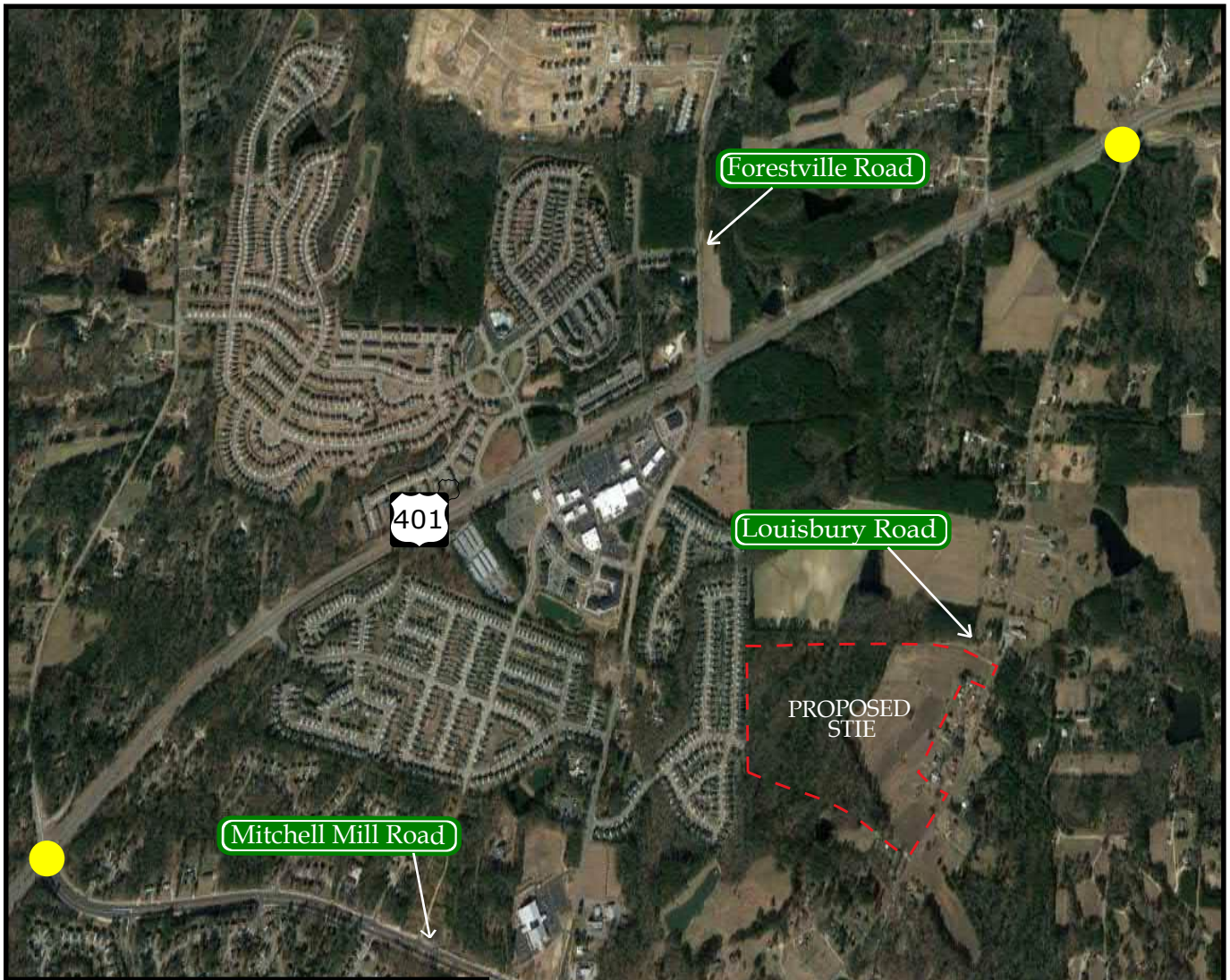
5/8/2020

May 2020

RKA Project No. 19418

Prepared By: DT

Reviewed By: DR



LEGEND

- - - Proposed Site Location
- Study Intersection
- - - Study Area

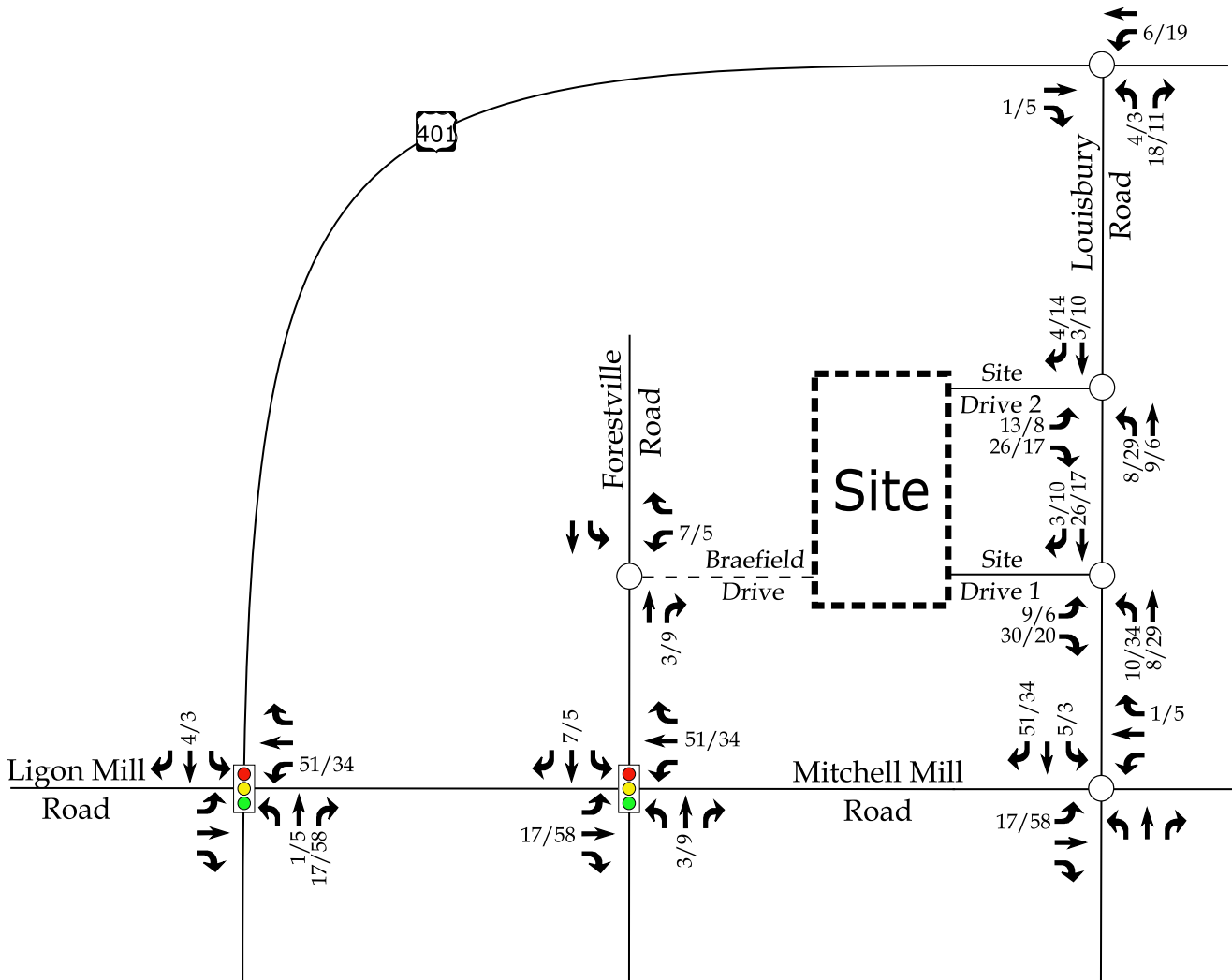


Louisbury Road Assemblage
Raleigh, NC

Site Location Map	
Scale: Not to Scale	Figure 1

LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- X / Y → Weekday AM / PM Peak Hour Site Trips



Louisbury Road Assemblage
Raleigh, NC

Site Trip Assignment

Scale: Not to Scale	Figure 7
---------------------	----------

12. RECOMMENDATIONS

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

Recommended Improvements by Developer

Mitchell Mill Road and Louisbury Road

- Monitor for signalization after site is constructed.

US 401 and Louisbury Road

- Per NCDOT, extend northbound left turn lane to 175' of storage.
- Monitor for signalization after site is constructed.

Louisbury Road and Site Drive 1

- Provide site access via full movement intersection with one (1) ingress lane and one (1) egress lane.
- Per NCDOT, provide northbound left turn lane with 100' of storage.
- Provide stop control for eastbound approach.

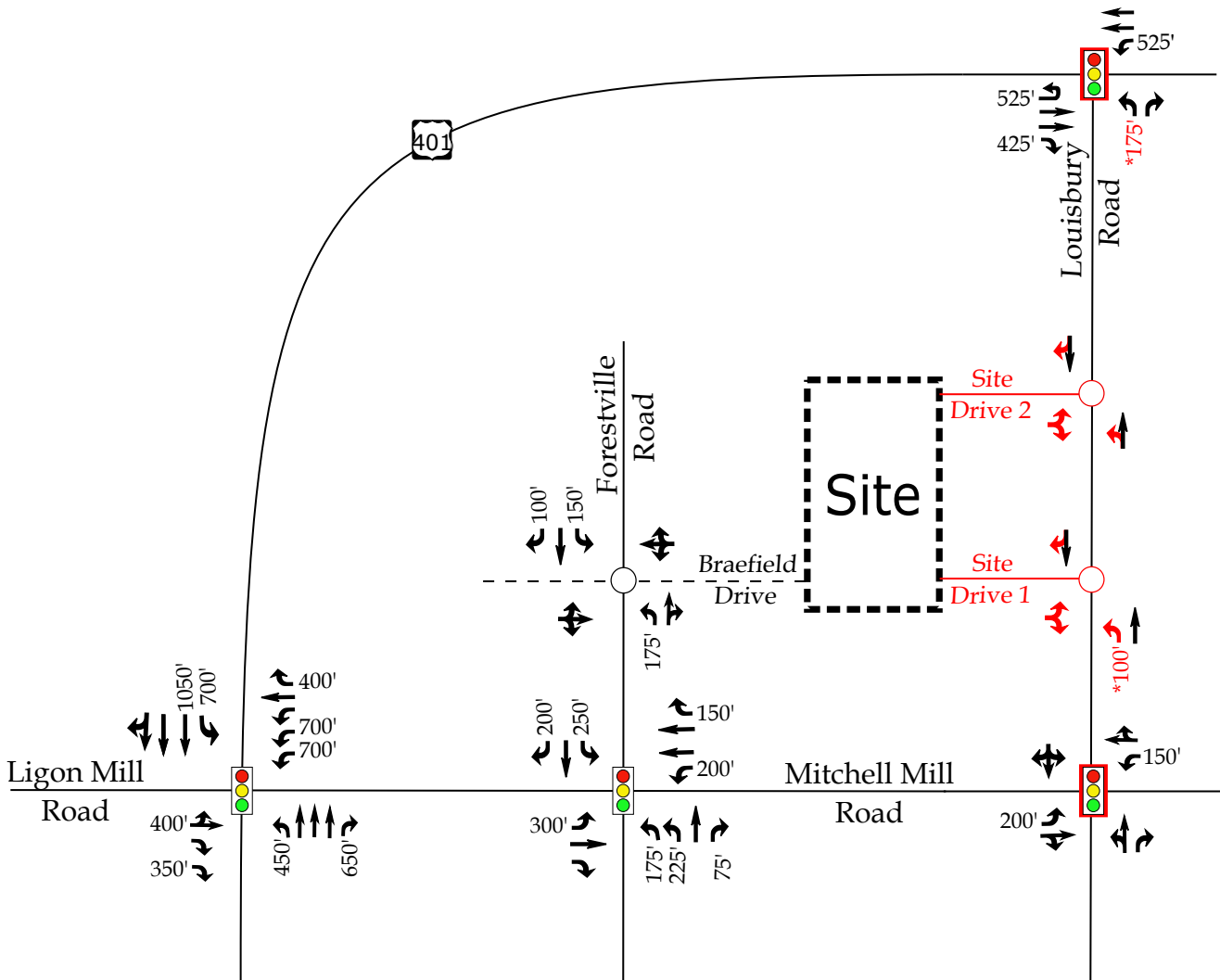
Louisbury Road and Site Drive 2

- Provide site access via full movement intersection with one (1) ingress lane and one (1) egress lane.
- Provide stop control for eastbound approach.

LEGEND

- Unsignalized Intersection
- 🚦 Signalized Intersection
- 🚦 (Red Box) Monitor for Signalization at Full Build-Out
- ➡ Existing Lane
- ➡ (Red) Improvement by Developer
- X' Storage (In Feet)

*Based on NCDOT Review



Louisbury Road Assemblage
Raleigh, NC

Recommended
Lane Configurations

Scale: Not to Scale | Figure 9



**Kalas / Watkins Family Property
Traffic Impact Analysis**

Rolesville Road, Rolesville, North Carolina

August 24, 2019

Prepared for:

Mitchell Mill Road Investors LLC
PO Box 3557
Cary, NC 27519

Prepared by:

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606

Sign-off Sheet

This document entitled Kalas / Watkins Family Property Traffic Impact Analysis was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Mitchell Mill Road Investors LLC (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by Maggie J Rogers
(signature)

Maggie Rogers
Reviewed by [Signature]
(signature)

Matt Peach, PE, PTOE
Approved by Christa Greene
(signature)

Christa Greene, PE



8/24/2017

1.0 INTRODUCTION

The purpose of this report is to evaluate the transportation impacts of the proposed Kalas / Watkins Family Property development located on the west side of Rolesville Road just north of Mitchell Mill Road in Rolesville, NC. The project location is shown below in Figure 1.

Figure 1: Site Location

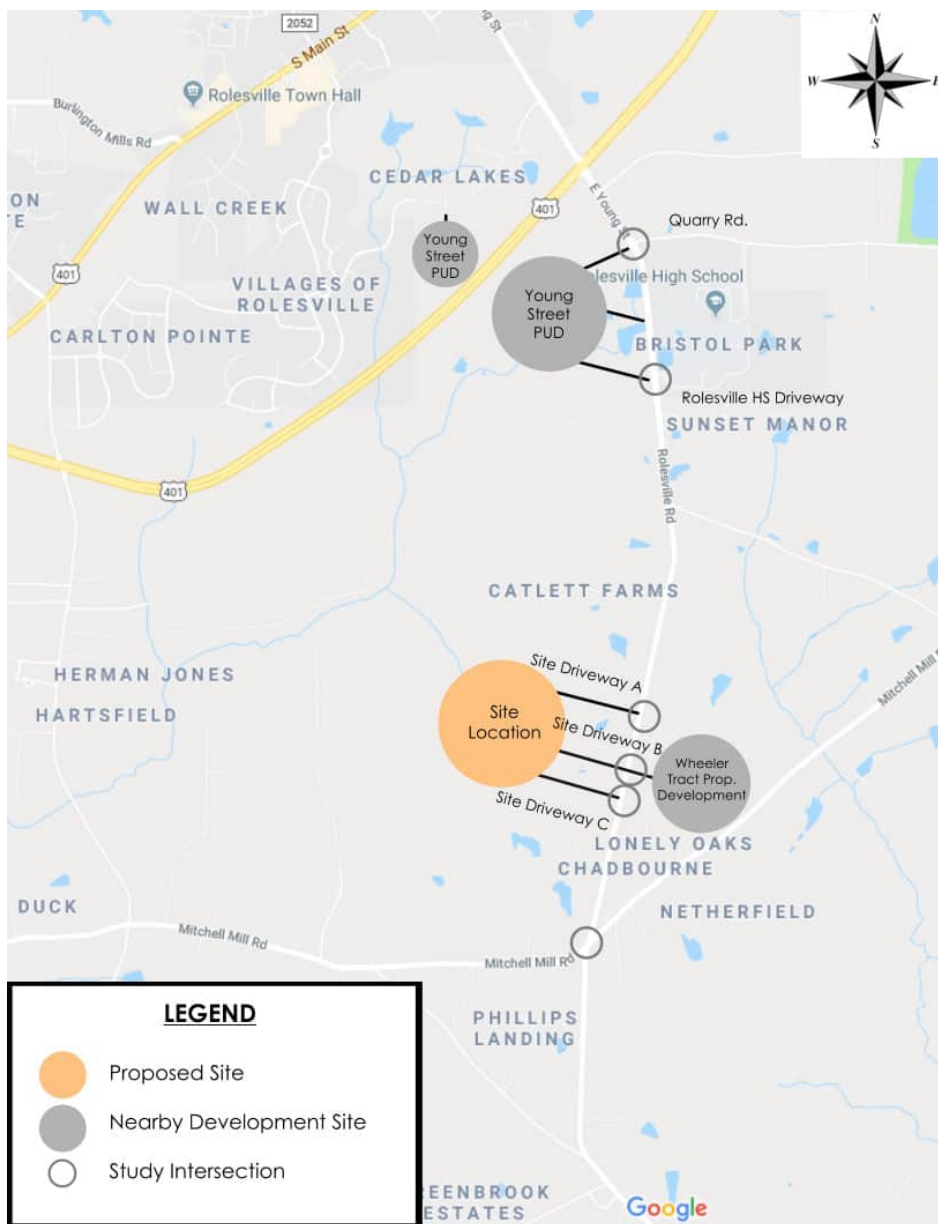
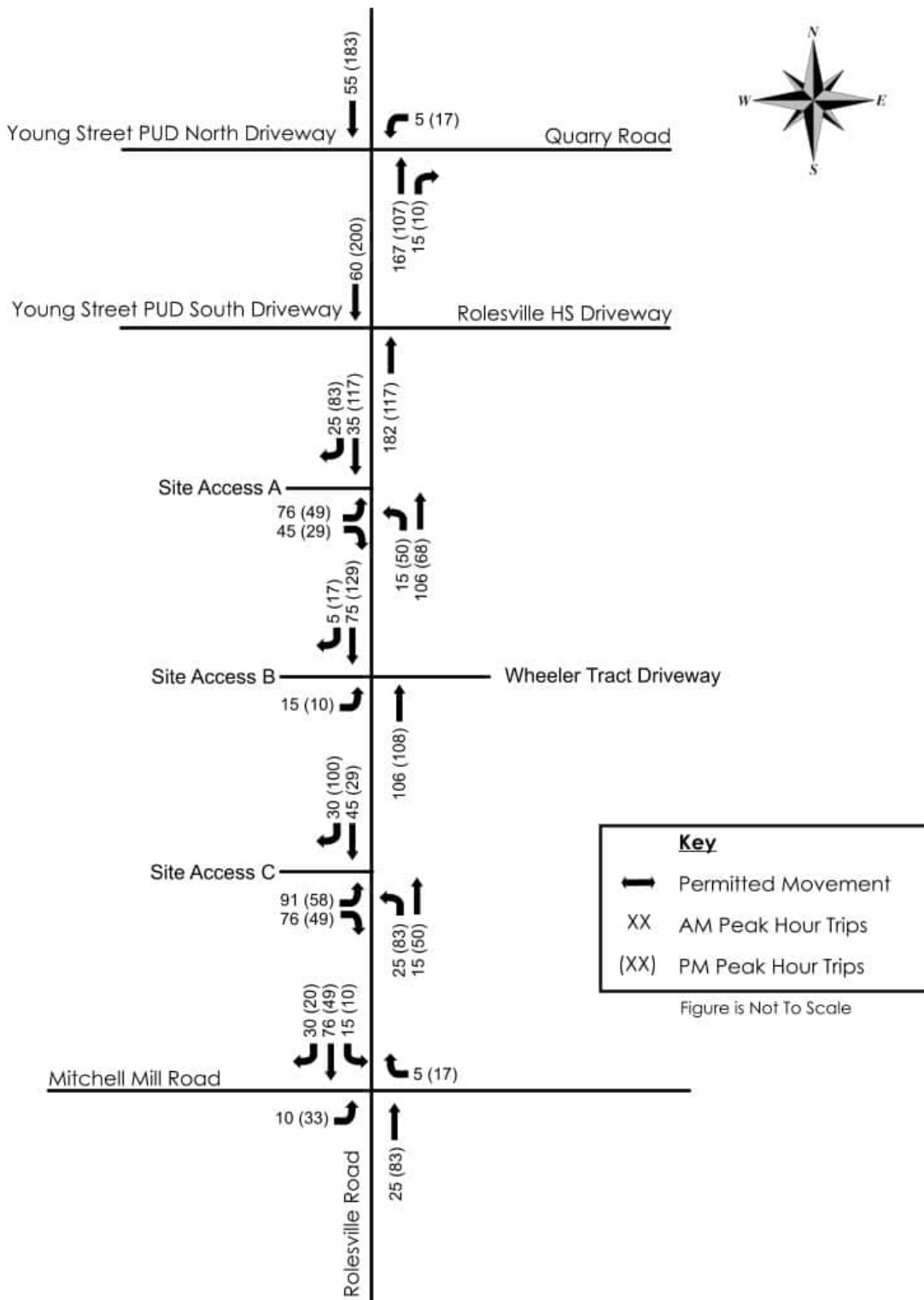


Figure 6: Site Trip Assignment



5.4 2025 BUILD WITH IMPROVEMENTS

Geometric improvements such as the installation of turn-lanes are recommended and therefore analyzed in this scenario. These items are listed below as well as in the recommendations section.

Rolesville Road at Site Driveway A

- Construct Driveway A as a full-movement access point onto Rolesville Road with one ingress lane and one egress lane.
- Construct an exclusive eastbound right-turn lane with 100 feet of full-width storage and appropriate taper on Driveway A.
- Construct an exclusive northbound left-turn lane with 100 feet of full-width storage and appropriate taper on Rolesville Road.
- Construct an exclusive southbound right-turn lane with 100 feet of full-width storage and appropriate taper on Rolesville Road.

Rolesville Road at Site Driveway B / Wheeler Tract Driveway

- Construct Driveway B as a full-movement access point onto Rolesville Road with one ingress lane and one egress lane.
- Construct an exclusive northbound left-turn lane with 100 feet of full-width storage and appropriate taper on Rolesville Road.
- Construct an exclusive southbound right-turn lane with 50 feet of full-width storage and appropriate taper on Rolesville Road.

Rolesville Road at Site Driveway C

- Construct Driveway C as a full-movement access point onto Rolesville Road with one ingress lane and one egress lane.
- Construct an exclusive eastbound right-turn lane with 100 feet of full-width storage and appropriate taper on Driveway C.
- Construct an exclusive northbound left-turn lane with 100 feet of full-width storage and appropriate taper on Rolesville Road.
- Construct an exclusive southbound right-turn lane with 100 feet of full-width storage and appropriate taper on Rolesville Road.

Accordingly, all study area intersections and approaches operate at acceptable levels of service with the following exceptions:

- The east and westbound approaches to the intersection of Rolesville Road at Rolesville High School Driveway / Young Street PUD Southern Driveway operates at LOS F in the AM peak hour. This causes high overall delays at the intersection. Furthermore, the eastbound approach operates at LOS F and westbound approach operates at LOS E in the PM peak hour.
- The east and westbound approaches at the intersection of Rolesville Road at Site Driveway B / Wheeler Tract Driveway operate at LOS E in the AM peak hour.

The east and westbound approaches to the intersection of Rolesville Road at Rolesville High School Driveway / Young Street PUD Southern Driveway performs unacceptably across analysis scenarios. These delays can be



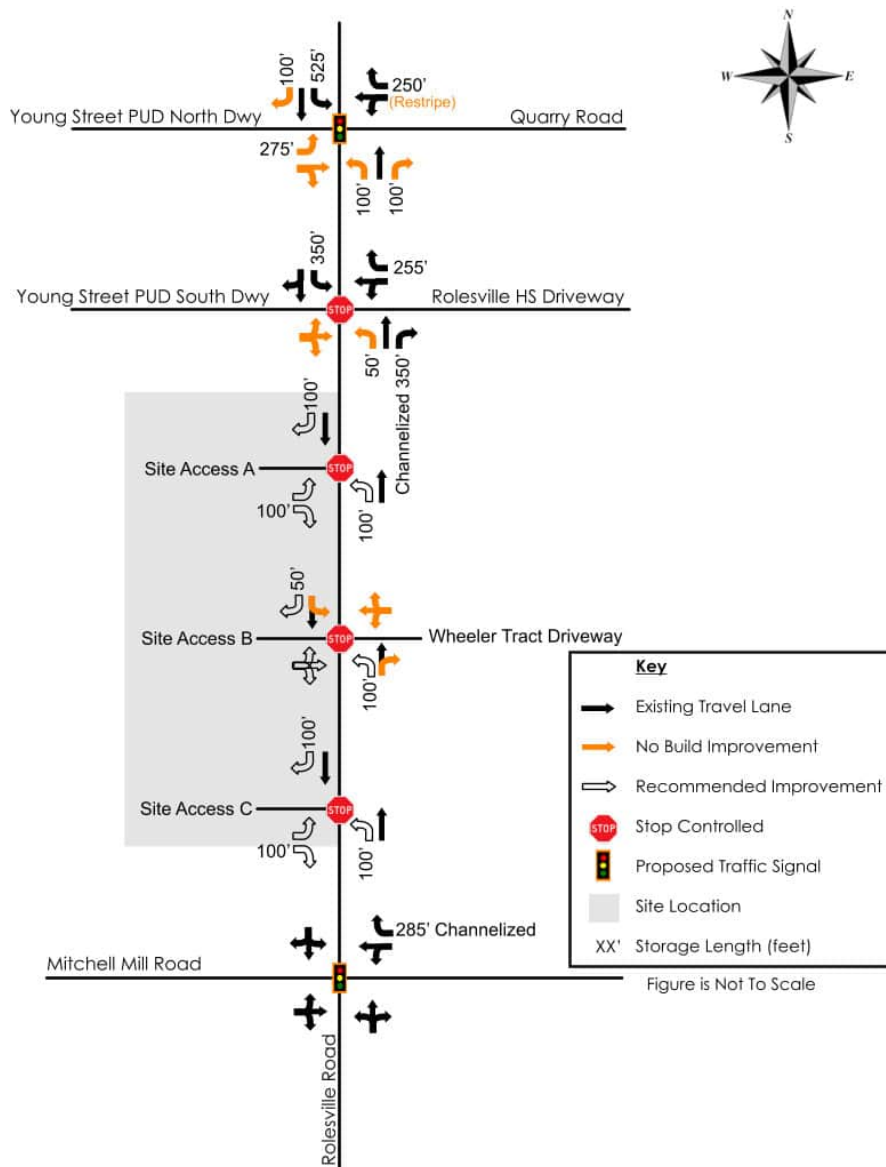
KALAS / WATKINS FAMILY PROPERTY TRAFFIC IMPACT ANALYSIS

Traffic Analysis
August 24, 2019

attributed to both the Young Street PUD and High School traffic on the side street approaches. The Kalas / Watkins development is projected to only add through volumes to the intersection and are anticipated to have a minimal impact on overall delays at this intersection.

Delays on the eastbound approach of Site Driveway B at Rolesville Road can be attributed to high thru volumes on Rolesville Road during the AM peak hour. Traffic volumes using this approach are anticipated to be minor (i.e. 15 vehicles in the AM peak hour and 10 vehicles in the PM peak hour) and side street delays should dissipate after High School Traffic passes through the network. Table 8 lists the results of the capacity analysis under the 2025 build-improved traffic conditions. The recommended improvements are illustrated in figure 14.

Figure 14: Recommended Improvements



TRAFFIC IMPACT ANALYSIS

FOR

5109 MITCHELL MILL ROAD

LOCATED

IN

ROLESVILLE, NORTH CAROLINA

Prepared For:
Town of Rolesville
502 Southtown Circle
Rolesville, NC 27571

Prepared By:
Infrastructure Consulting Services, Inc.
dba

Ramey Kemp Associates
5808 Faringdon Place
Raleigh, NC 27609
License #F-1489

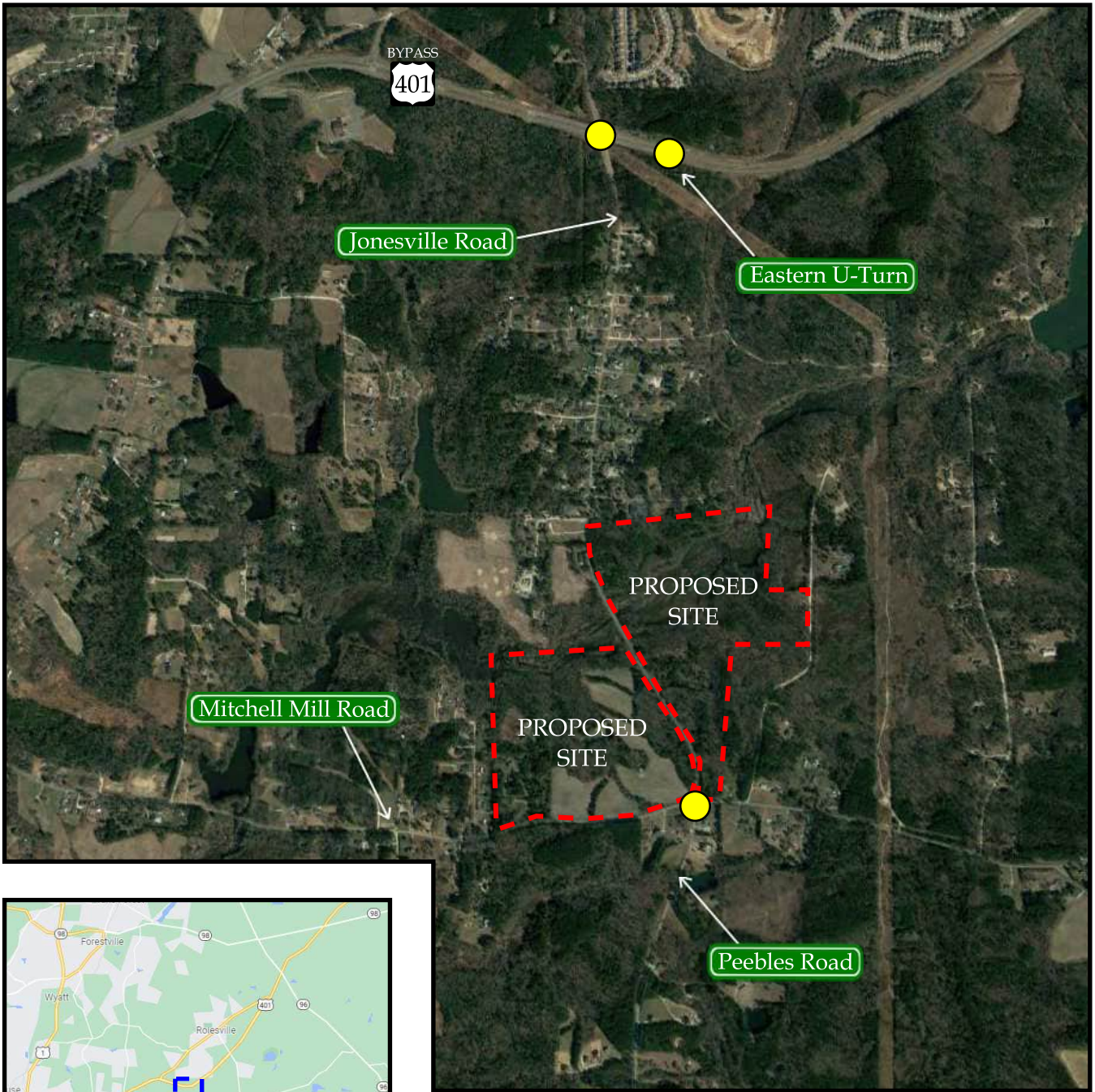


AUGUST 2022

RKA Project No. 20498 - 004

Prepared By: TF

Reviewed By: CH



LEGEND

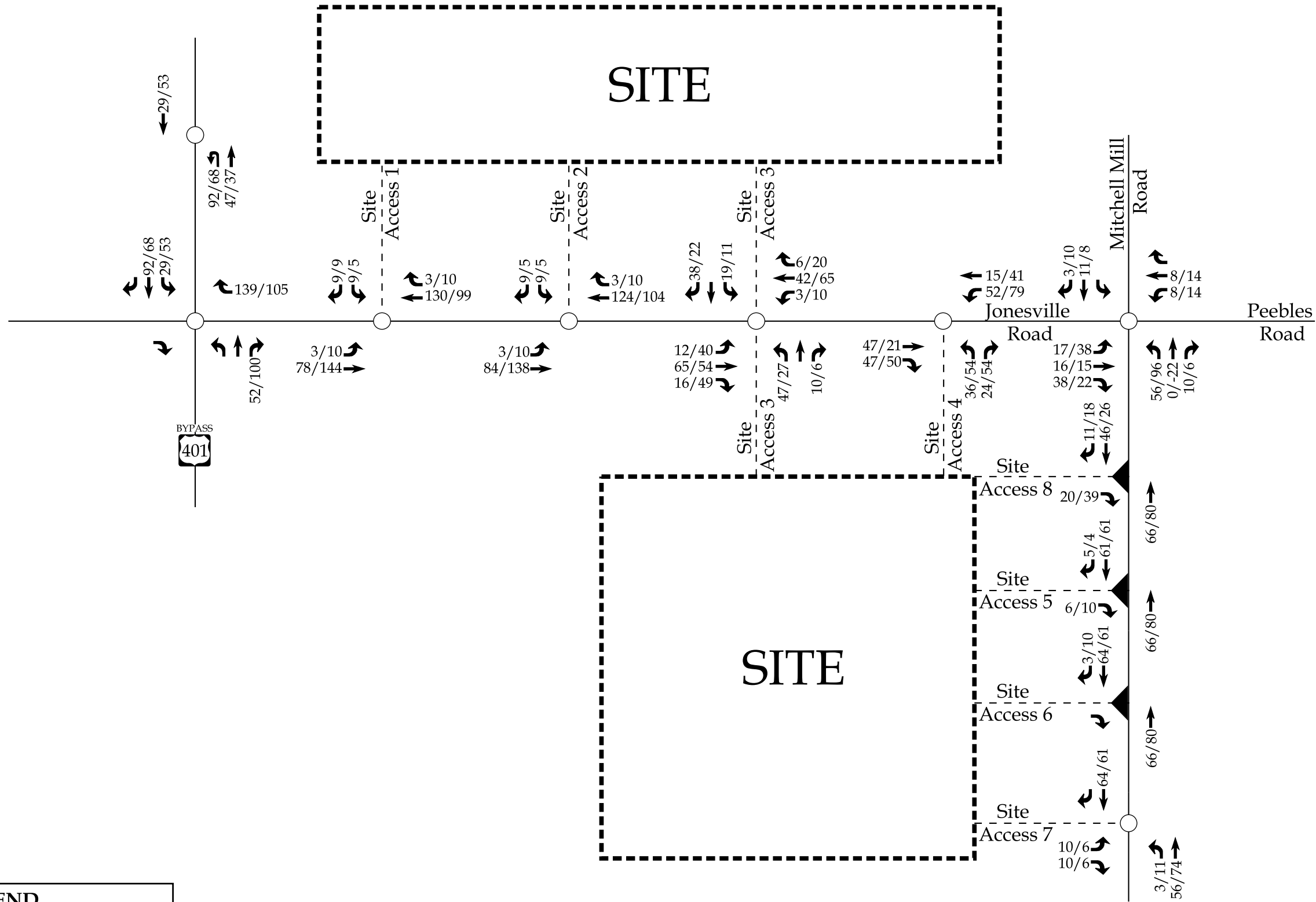
- Proposed Site Location
- Study Intersection
- Study Area



5109 Mitchell Mill Road
Rolesville, NC

Site Location Map

Scale: Not to Scale Figure 1



LEGEND

- Unsignalized Intersection
- ▲ Right-In/Right-Out Intersection
- X / Y → Weekday AM / PM Peak Hour Site Trips



5109 Mitchell Mill Road
Rolesville, NC

Total Site Trip Assignment	
Scale: Not to Scale	Figure 12

9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 14 for an illustration of the recommended lane configurations for the proposed development.

Recommended Improvements by Developer

Required Frontage Improvements per Rolesville Community Transportation Plan

- Widen Jonesville Road along the site frontage between Site Access 1 and Mitchell Mill Road to this roadway's ultimate section (2-lane w/ TWLTL).
- Widen one-half section of Mitchell Mill Road along the site frontage to this roadway's ultimate section (4-lane median divided).

US 401 Bypass and Jonesville Road

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

US 401 Bypass and Eastern U-Turn Location

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Mitchell Mill Road and Jonesville Road / Peebles Road

- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Construct an eastbound (Mitchell Mill Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Jonesville Road and Site Access 1

- Construct the westbound approach (Site Access 1) with one ingress lane and one egress lane.
- Provide stop-control for the westbound approach (Site Access 1).
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.

Jonesville Road and Site Access 2

- Construct the westbound approach (Site Access 2) with one ingress lane and one egress lane.
- Provide stop-control for the westbound approach (Site Access 2).
- Construct a northbound (Jonesville Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.

Jonesville Road and Site Access 3

- Construct the eastbound and westbound approaches (Site Access 3) with one ingress lane and one egress lane.
- Provide stop-control for the eastbound and westbound approaches (Site Access 3).
- Construct a northbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Construct a northbound (Jonesville Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Construct a southbound (Jonesville Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.

Jonesville Road and Site Access 4

- Construct the eastbound approach (Site Access 4) with one ingress lane and one egress lane.
- Provide stop-control for the eastbound approach (Site Access 4).
- Construct a northbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Construct a southbound (Jonesville Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.

Mitchell Mill Road and Site Access 5

- Construct the southbound approach (Site Access 5) with one ingress lane and one egress lane striped as an exclusive right-turn lane.
- Provide stop-control for the southbound approach (Site Access 5). This proposed intersection will be restricted to right-in/right-out operations.
- Construct an exclusive westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.

Mitchell Mill Road and Site Access 6

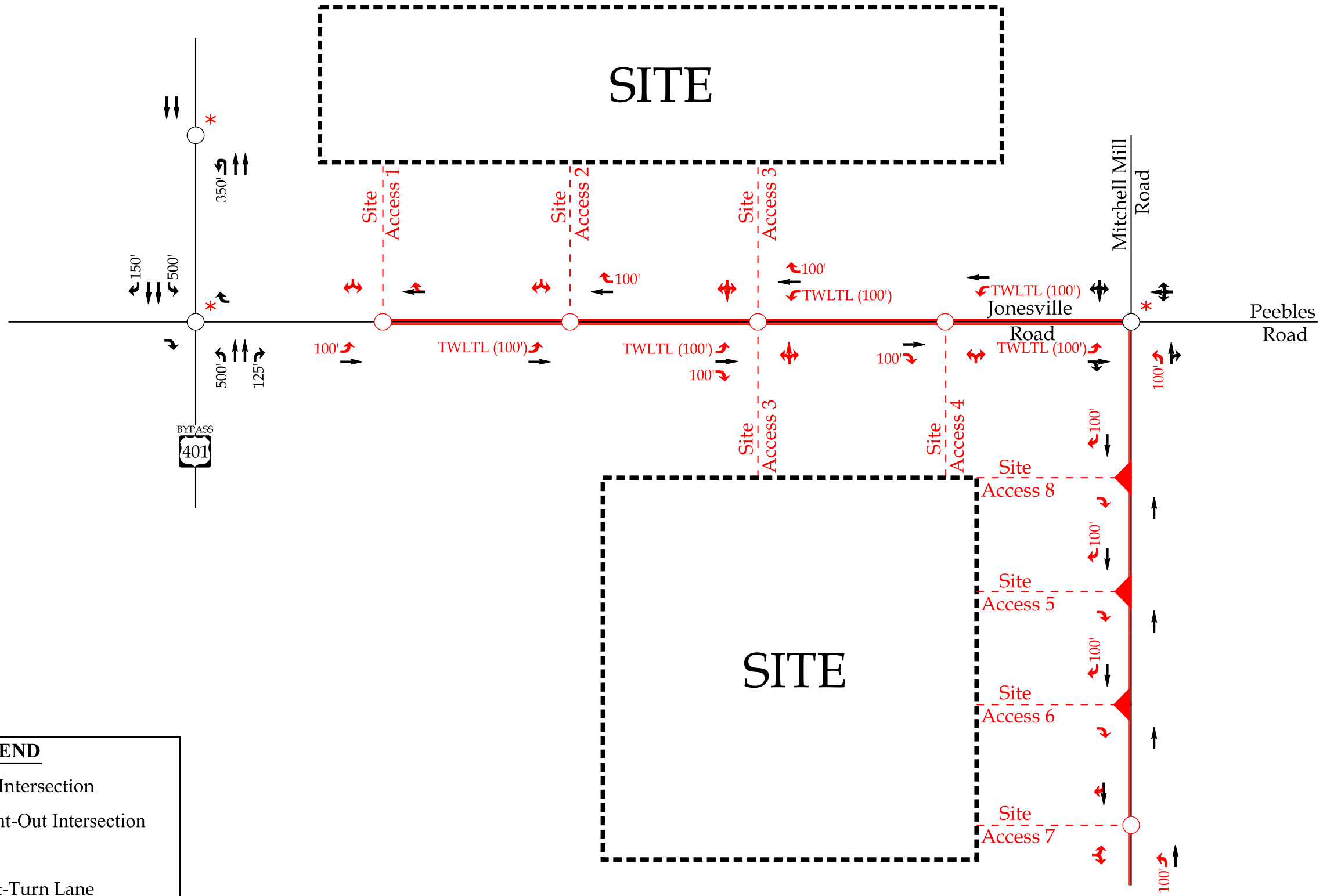
- Construct the southbound approach (Site Access 6) with one ingress lane and one egress lane striped as an exclusive right-turn lane.
- Provide stop-control for the southbound approach (Site Access 6). This proposed intersection will be restricted to right-in/right-out operations.
- Construct an exclusive westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.

Mitchell Mill Road and Site Access 7

- Construct the southbound approach (Site Access 7) with one ingress lane and one egress lane.
- Provide stop-control for the southbound approach (Site Access 7)
- Construct an exclusive eastbound (Mitchell Mill Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.

Mitchell Mill Road and Site Access 8

- Construct the southbound approach (Site Access 8) with one ingress lane and one egress lane striped as an exclusive right-turn lane.
- Provide stop-control for the southbound approach (Site Access 8). This proposed intersection will be restricted to right-in/right-out operations.
- Construct an exclusive westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.



LEGEND

- Unsignalized Intersection
- ▲ Right-In / Right-Out Intersection
- ➔ Existing Lane
- TWLTL Two-Way Left-Turn Lane
- * Developer Monitor for Signalization
- ➔ Improvement by Developer
- Frontage Widening Requirement**
- x' Storage (In Feet)

**Refer to Section 9 of the report for more information



5109 Mitchell Mill Road
Rolesville, NC

Recommended Lane Configurations

Scale: Not to Scale | Figure E-1

TRAFFIC IMPACT ANALYSIS

FOR

HILLS AT HARIS CREEK

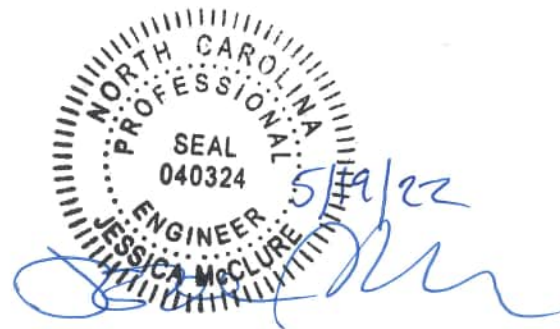
LOCATED

IN

ROLESVILLE, NORTH CAROLINA

Prepared For:
Town of Rolesville
502 Southtown Circle
Rolesville, NC 27571

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

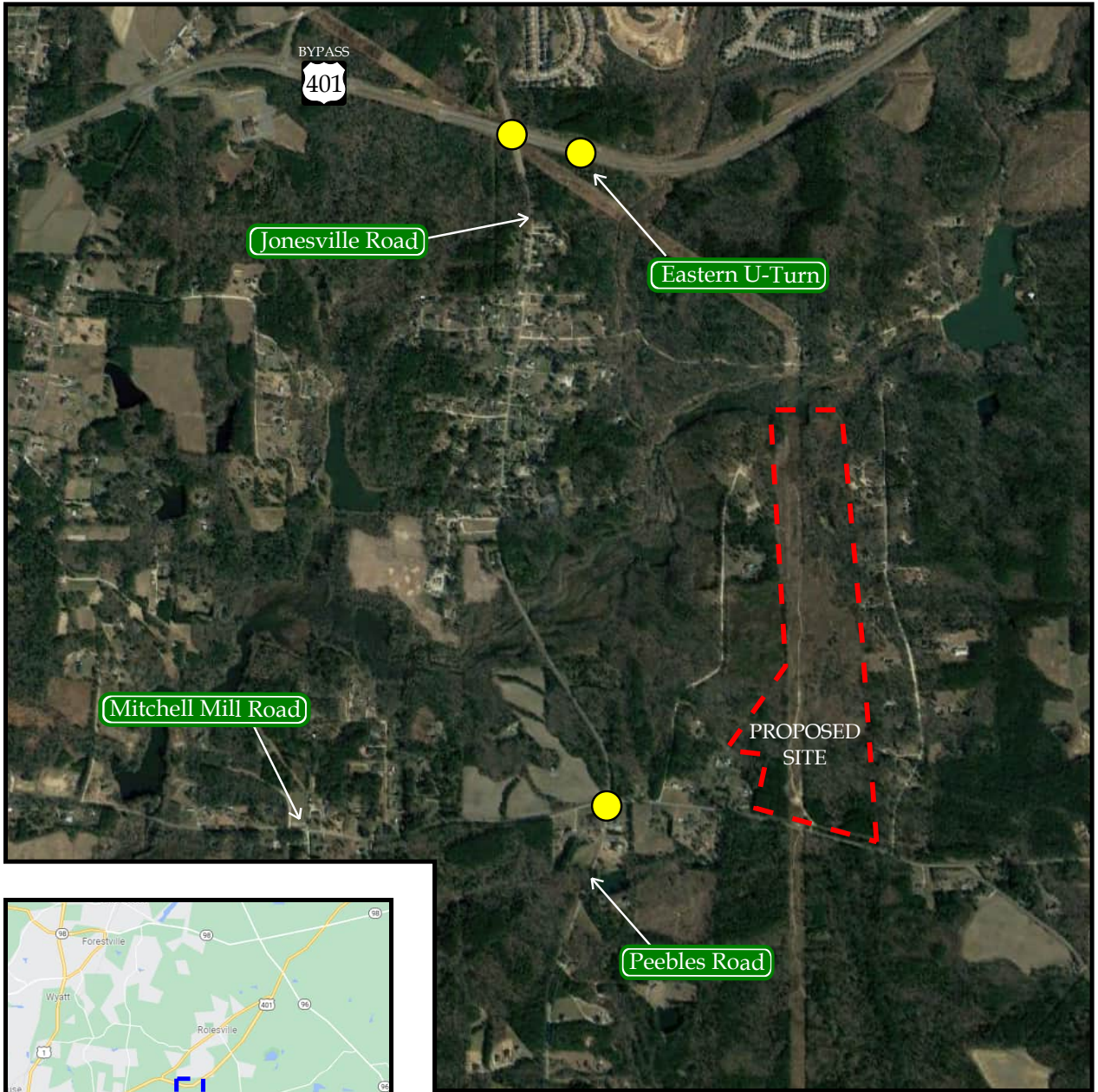


MAY 2022

RKA Project No. 20498 - 005

Prepared By: TF

Reviewed By: JMC



LEGEND

- - - Proposed Site Location
- Study Intersection
- - - Study Area



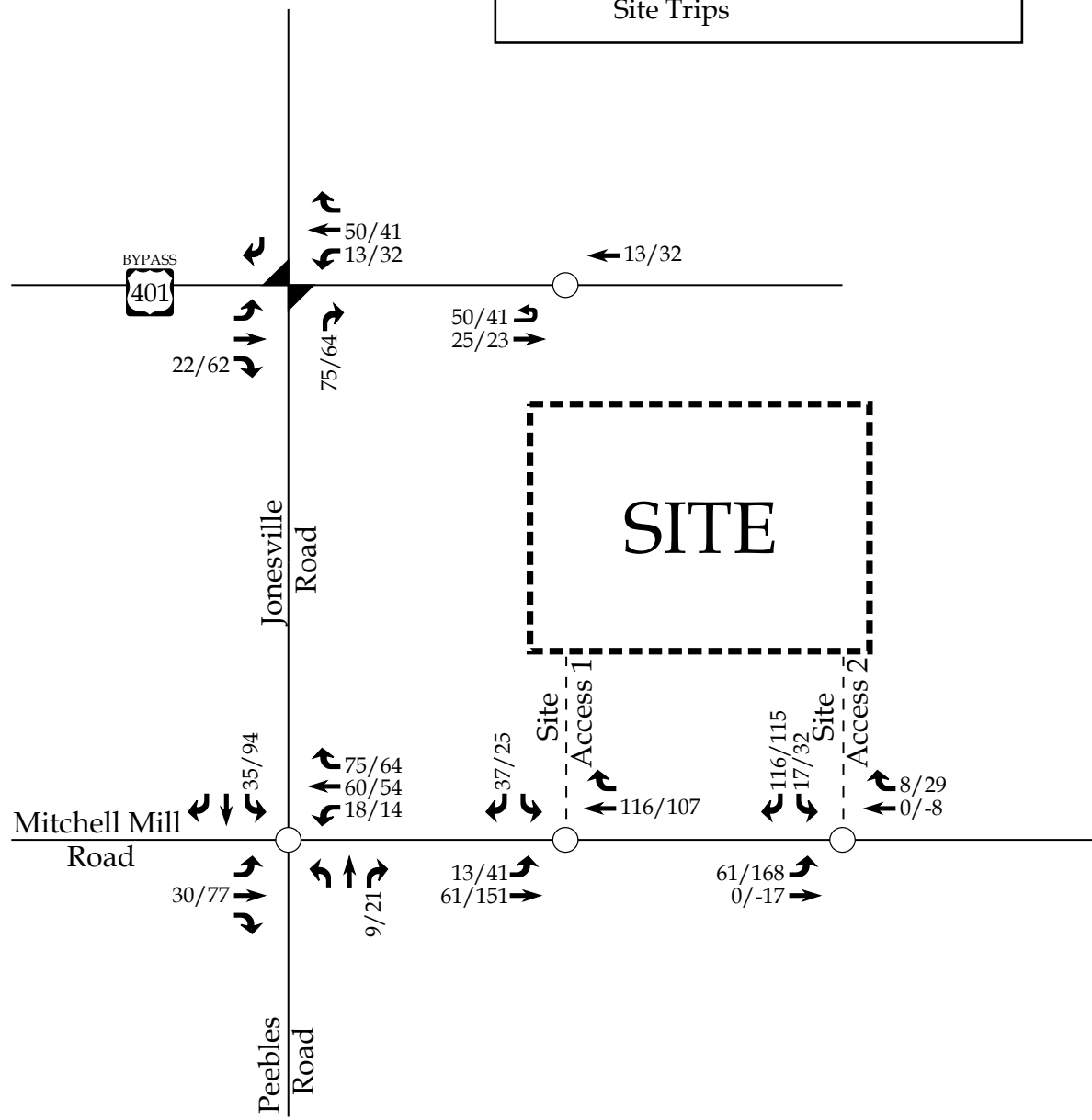
Hills at Harris Creek
Rolesville, NC


Site Location Map

Scale: Not to Scale Figure 1

LEGEND

- Unsignalized Intersection
- ◄ Left-Over Intersection
- X / Y → Weekday AM / PM Peak Hour Site Trips



	Hills at Harris Creek Rolesville, NC	Total Site Trip Assignment	
			Scale: Not to Scale Figure 12

9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 14 for an illustration of the recommended lane configurations for the proposed development.

Recommended Improvements by Developer

Required Frontage Improvements per Rolesville Community Transportation Plan

- Widen one-half section of Mitchell Mill Road along the site frontage to this roadway's ultimate section (4-lane median divided).

US 401 Bypass and Jonesville Road

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

US 401 Bypass and Eastern U-Turn Location

- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Mitchell Mill Road and Jonesville Road / Peebles Road

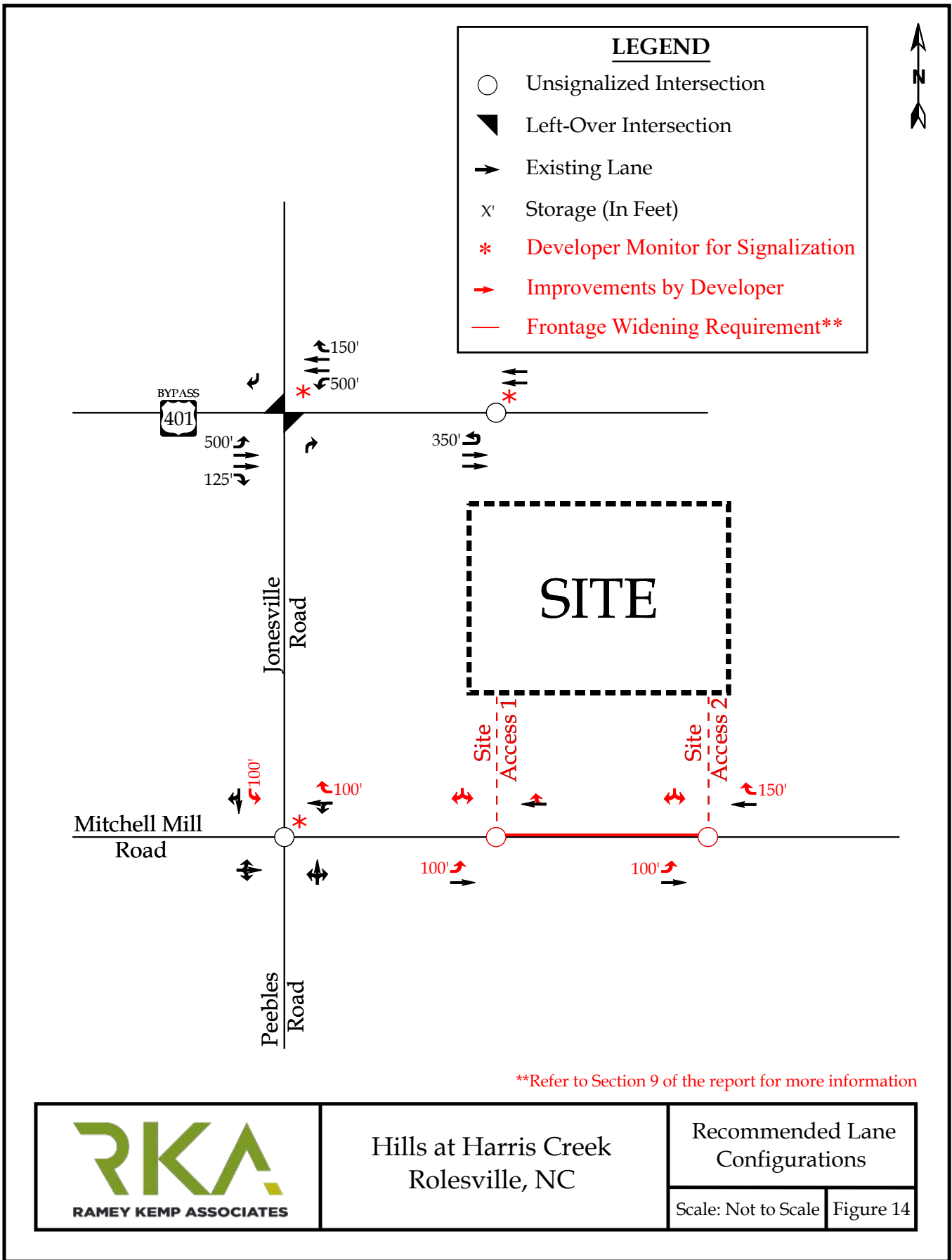
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
 - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA.
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.
- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by the Town and NCDOT.

Mitchell Mill Road and Site Access 1

- Construct the southbound approach (Site Access 1) with one ingress lane and one egress lane.
- Provide stop-control for the southbound approach (Site Access 1).
- Construct an eastbound (Mitchell Mill Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.

Mitchell Mill Road and Site Access 2

- Construct the southbound approach (Site Access 2) with one ingress lane and one egress lane.
- Provide stop-control for the southbound approach (Site Access 2).
- Construct an eastbound (Mitchell Mill Road) left-turn lane with at least 150 feet of storage and appropriate decel and taper.
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.



**Refer to Section 9 of the report for more information

	Hills at Harris Creek Rolesville, NC	Recommended Lane Configurations	
		Scale: Not to Scale	Figure 14

APPENDIX D

CAPACITY ANALYSIS CALCULATIONS

US 401 BYPASS

&

JONESVILLE ROAD

HCM 6th TWSC
 1: Jonesville Road/WB Left-Over & US 401 Bypass EB

2022 Existing
 Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Vol, veh/h	0	590	80	0	0	0	0	0	136	0	86	0
Future Vol, veh/h	0	590	80	0	0	0	0	0	136	0	86	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	125	-	-	-	-	-	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	656	89	0	0	0	0	0	151	0	96	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	328	-	656	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	656	-
Critical Hdwy	-	-	-	-	-	6.94	-	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	-	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	668	0	384	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	460	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	668	-	384	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	384	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	460	-

Approach	EB	NB	SB
HCM Control Delay, s	0	12	17.5
HCM LOS		B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	668	-	-	384
HCM Lane V/C Ratio	0.226	-	-	0.249
HCM Control Delay (s)	12	-	-	17.5
HCM Lane LOS	B	-	-	C
HCM 95th %tile Q(veh)	0.9	-	-	1

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Vol, veh/h	0	1220	59	0	0	0	0	0	125	0	37	0
Future Vol, veh/h	0	1220	59	0	0	0	0	0	125	0	37	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	125	-	-	-	-	-	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	1356	66	0	0	0	0	0	139	0	41	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	678	-	1356	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	1356	-
Critical Hdwy	-	-	-	-	-	6.94	-	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	-	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	395	0	148	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	216	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	395	-	148	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	148	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	216	-

Approach	EB	NB	SB
HCM Control Delay, s	0	19	38.4
HCM LOS		C	E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	395	-	-	148
HCM Lane V/C Ratio	0.352	-	-	0.278
HCM Control Delay (s)	19	-	-	38.4
HCM Lane LOS	C	-	-	E
HCM 95th %tile Q(veh)	1.6	-	-	1.1

Intersection												
Int Delay, s/veh	8.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Vol, veh/h	0	812	154	0	0	0	0	0	350	0	128	0
Future Vol, veh/h	0	812	154	0	0	0	0	0	350	0	128	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	125	-	-	-	-	-	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	902	171	0	0	0	0	0	389	0	142	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	451	-	902	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	902	-
Critical Hdwy	-	-	-	-	-	6.94	-	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	-	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	556	0	276	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	355	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	556	-	276	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	276	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	355	-

Approach	EB	NB	SB
HCM Control Delay, s	0	25.2	31.1
HCM LOS		D	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	556	-	-	276
HCM Lane V/C Ratio	0.699	-	-	0.515
HCM Control Delay (s)	25.2	-	-	31.1
HCM Lane LOS	D	-	-	D
HCM 95th %tile Q(veh)	5.5	-	-	2.7

Intersection												
Int Delay, s/veh	52.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Vol, veh/h	0	1708	221	0	0	0	0	0	294	0	122	0
Future Vol, veh/h	0	1708	221	0	0	0	0	0	294	0	122	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	125	-	-	-	-	-	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	1898	246	0	0	0	0	0	327	0	136	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	949	-	1898	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	1898	-
Critical Hdwy	-	-	-	-	-	6.94	-	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	-	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	~ 261	0	~ 69	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	~ 116	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	~ 261	-	~ 69	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 69	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	~ 116	-

Approach	EB	NB	SB
HCM Control Delay, s	0	180.2	\$ 579.5
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	261	-	-	69
HCM Lane V/C Ratio	1.252	-	-	1.965
HCM Control Delay (s)	180.2	-	-	\$ 579.5
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	15.9	-	-	12.4

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

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Vol, veh/h	0	812	161	0	0	0	0	0	380	0	131	0
Future Vol, veh/h	0	812	161	0	0	0	0	0	380	0	131	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	125	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	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	902	179	0	0	0	0	0	422	0	146	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	451	-	902	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	902	-
Critical Hdwy	-	-	-	-	-	6.94	-	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	-	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	556	0	276	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	355	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	556	-	276	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	276	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	355	-

Approach	EB	NB	SB
HCM Control Delay, s	0	29.1	31.7
HCM LOS		D	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	556	-	-	276
HCM Lane V/C Ratio	0.759	-	-	0.527
HCM Control Delay (s)	29.1	-	-	31.7
HCM Lane LOS	D	-	-	D
HCM 95th %tile Q(veh)	6.7	-	-	2.9

Intersection												
Int Delay, s/veh	64.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Vol, veh/h	0	1708	242	0	0	0	0	0	314	0	133	0
Future Vol, veh/h	0	1708	242	0	0	0	0	0	314	0	133	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	125	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	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	1898	269	0	0	0	0	0	349	0	148	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	949	-	1898	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	1898	-
Critical Hdwy	-	-	-	-	-	6.94	-	6.54	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.54	-
Follow-up Hdwy	-	-	-	-	-	3.32	-	4.02	-
Pot Cap-1 Maneuver	0	-	-	0	0	~ 261	0	~ 69	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	~ 116	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	~ 261	-	~ 69	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 69	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	~ 116	-













Approach	EB	NB	SB
HCM Control Delay, s	0	213	\$ 655
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	261	-	-	69
HCM Lane V/C Ratio	1.337	-	-	2.142
HCM Control Delay (s)	213	-	-	\$ 655
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	18.2	-	-	13.8

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

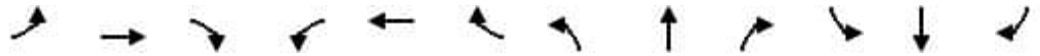
Lanes, Volumes, Timings
 1: Jonesville Road/WB Left-Over & US 401 Bypass EB

2027 Build - Improved
 Timing Plan: AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Volume (vph)	0	812	161	0	0	0	0	0	380	0	131	0
Future Volume (vph)	0	812	161	0	0	0	0	0	380	0	131	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.865			
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	0	0	0	0	1611	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	0	0	0	0	1611	0	1863	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35			45	
Link Distance (ft)		278			727			1295			275	
Travel Time (s)		3.4			9.0			25.2			4.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	902	179	0	0	0	0	0	422	0	146	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	902	179	0	0	0	0	0	422	0	146	0
Turn Type		NA	Perm						Prot		NA	
Protected Phases		2							4		4	
Permitted Phases			2									
Detector Phase		2	2						4		4	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0		7.0	
Minimum Split (s)		21.0	21.0						14.0		14.0	
Total Split (s)		28.0	28.0						32.0		32.0	
Total Split (%)		46.7%	46.7%						53.3%		53.3%	
Maximum Green (s)		21.0	21.0						25.0		25.0	
Yellow Time (s)		5.0	5.0						5.0		5.0	
All-Red Time (s)		2.0	2.0						2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0						-2.0		-2.0	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0						3.0		3.0	
Recall Mode		None	None						Min		Min	
Act Effct Green (s)		20.8	20.8						20.4		20.4	
Actuated g/C Ratio		0.40	0.40						0.40		0.40	
v/c Ratio		0.63	0.28						0.66		0.20	
Control Delay		15.5	13.2						18.6		11.0	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		15.5	13.2						18.6		11.0	
LOS		B	B						B		B	
Approach Delay		15.1						18.6			11.0	
Approach LOS		B						B			B	

Lanes, Volumes, Timings
 1: Jonesville Road/WB Left-Over & US 401 Bypass EB

2027 Build - Improved
 Timing Plan: AM Peak Hour

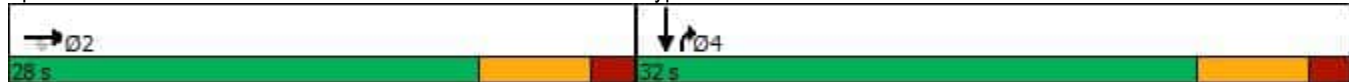


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		114	36						107		30	
Queue Length 95th (ft)		194	84						187		59	
Internal Link Dist (ft)		198			647			1215			195	
Turn Bay Length (ft)			125									
Base Capacity (vph)		1629	728						870		1006	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.55	0.25						0.49		0.15	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	51.4
Natural Cycle:	40
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	15.6
Intersection LOS:	B
Intersection Capacity Utilization	58.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 1: Jonesville Road/WB Left-Over & US 401 Bypass EB



Lanes, Volumes, Timings
 1: Jonesville Road/WB Left-Over & US 401 Bypass EB

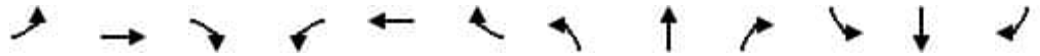
2027 Build - Improved
 Timing Plan: PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑						↑		↑	
Traffic Volume (vph)	0	1708	242	0	0	0	0	0	314	0	133	0
Future Volume (vph)	0	1708	242	0	0	0	0	0	314	0	133	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.865			
Flt Protected												
Satd. Flow (prot)	0	3539	1583	0	0	0	0	0	1611	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	3539	1583	0	0	0	0	0	1611	0	1863	0
Right Turn on Red			No			No			No	No		No
Satd. Flow (RTOR)												
Link Speed (mph)		55			55			35				45
Link Distance (ft)		278			727			1295				275
Travel Time (s)		3.4			9.0			25.2				4.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1898	269	0	0	0	0	0	349	0	148	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1898	269	0	0	0	0	0	349	0	148	0
Turn Type		NA	Perm						Prot		NA	
Protected Phases		2							4		4	
Permitted Phases			2									
Detector Phase		2	2						4		4	
Switch Phase												
Minimum Initial (s)		14.0	14.0						7.0		7.0	
Minimum Split (s)		21.0	21.0						14.0		14.0	
Total Split (s)		40.0	40.0						20.0		20.0	
Total Split (%)		66.7%	66.7%						33.3%		33.3%	
Maximum Green (s)		33.0	33.0						13.0		13.0	
Yellow Time (s)		5.0	5.0						5.0		5.0	
All-Red Time (s)		2.0	2.0						2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0						-2.0		-2.0	
Total Lost Time (s)		5.0	5.0						5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0	3.0						3.0		3.0	
Recall Mode		None	None						Min		Min	
Act Effct Green (s)		35.0	35.0						15.0		15.0	
Actuated g/C Ratio		0.58	0.58						0.25		0.25	
v/c Ratio		0.92	0.29						0.87		0.32	
Control Delay		20.8	7.3						46.6		20.6	
Queue Delay		0.0	0.0						0.0		0.0	
Total Delay		20.8	7.3						46.6		20.6	
LOS		C	A						D		C	
Approach Delay		19.1							46.6		20.6	
Approach LOS		B							D		C	

Lanes, Volumes, Timings
 1: Jonesville Road/WB Left-Over & US 401 Bypass EB

2027 Build - Improved
 Timing Plan: PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		285	43						121		44	
Queue Length 95th (ft)		#481	78						#254		87	
Internal Link Dist (ft)		198			647			1215			195	
Turn Bay Length (ft)			125									
Base Capacity (vph)		2064	923						402		465	
Starvation Cap Reductn		0	0						0		0	
Spillback Cap Reductn		0	0						0		0	
Storage Cap Reductn		0	0						0		0	
Reduced v/c Ratio		0.92	0.29						0.87		0.32	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 22.8 Intersection LOS: C

Intersection Capacity Utilization 75.0% 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: 1: Jonesville Road/WB Left-Over & US 401 Bypass EB



HCM 6th TWSC
 7: EB Left-Over/Jonesville Road & US 401 Bypass WB

2022 Existing
 Timing Plan: AM Peak Hour

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑
Traffic Vol, veh/h	0	0	0	0	1352	185	0	36	0	0	0	225
Future Vol, veh/h	0	0	0	0	1352	185	0	36	0	0	0	225
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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	0	0	0	1502	206	0	40	0	0	0	250

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0
Stage 1	-	-	0
Stage 2	-	-	1708
Critical Hdwy	-	-	6.54
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	-	-	4.02
Pot Cap-1 Maneuver	0	-	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	90
Mov Cap-2 Maneuver	-	-	90
Stage 1	-	-	-
Stage 2	-	-	145

Approach	WB	NB	SB
HCM Control Delay, s	0	73.7	36.5
HCM LOS		F	E

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	90	-	-	353
HCM Lane V/C Ratio	0.444	-	-	0.708
HCM Control Delay (s)	73.7	-	-	36.5
HCM Lane LOS	F	-	-	E
HCM 95th %tile Q(veh)	1.9	-	-	5.2

HCM 6th TWSC
 7: EB Left-Over/Jonesville Road & US 401 Bypass WB

2022 Existing
 Timing Plan: PM Peak Hour

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑
Traffic Vol, veh/h	0	0	0	0	555	74	0	116	0	0	0	114
Future Vol, veh/h	0	0	0	0	555	74	0	116	0	0	0	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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	0	0	0	617	82	0	129	0	0	0	127

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0
Stage 1	-	-	0
Stage 2	-	-	699
Critical Hdwy	-	-	6.54
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	-	-	4.02
Pot Cap-1 Maneuver	0	-	0
Stage 1	0	-	0
Stage 2	0	-	440
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	362
Mov Cap-2 Maneuver	-	-	362
Stage 1	-	-	-
Stage 2	-	-	440

Approach	WB	NB	SB
HCM Control Delay, s	0	20.3	11.4
HCM LOS		C	B

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	362	-	-	687
HCM Lane V/C Ratio	0.356	-	-	0.184
HCM Control Delay (s)	20.3	-	-	11.4
HCM Lane LOS	C	-	-	B
HCM 95th %tile Q(veh)	1.6	-	-	0.7

Intersection												
Int Delay, s/veh	15.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑
Traffic Vol, veh/h	0	0	0	0	1797	185	0	36	0	0	0	225
Future Vol, veh/h	0	0	0	0	1797	185	0	36	0	0	0	225
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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	0	0	0	1997	206	0	40	0	0	0	250

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0
Stage 1	-	-	0
Stage 2	-	-	2203
Critical Hdwy	-	-	6.54
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	-	-	4.02
Pot Cap-1 Maneuver	0	-	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	44
Mov Cap-2 Maneuver	-	-	44
Stage 1	-	-	-
Stage 2	-	-	81

Approach	WB	NB	SB
HCM Control Delay, s	0	250.5	110.8
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	44	-	-	242
HCM Lane V/C Ratio	0.909	-	-	1.033
HCM Control Delay (s)	250.5	-	-	110.8
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	3.6	-	-	10.2

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

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑
Traffic Vol, veh/h	0	0	0	0	894	74	0	116	0	0	0	114
Future Vol, veh/h	0	0	0	0	894	74	0	116	0	0	0	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	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	0	0	0	993	82	0	129	0	0	0	127

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0
Stage 1	-	-	0
Stage 2	-	-	1075
Critical Hdwy	-	-	6.54
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	-	-	4.02
Pot Cap-1 Maneuver	0	-	0
Stage 1	0	-	0
Stage 2	0	-	294
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	218
Mov Cap-2 Maneuver	-	-	218
Stage 1	-	-	-
Stage 2	-	-	294

Approach	WB	NB	SB
HCM Control Delay, s	0	42.9	14.2
HCM LOS		E	B

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	218	-	-	519
HCM Lane V/C Ratio	0.591	-	-	0.244
HCM Control Delay (s)	42.9	-	-	14.2
HCM Lane LOS	E	-	-	B
HCM 95th %tile Q(veh)	3.3	-	-	0.9

Intersection												
Int Delay, s/veh	15.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑
Traffic Vol, veh/h	0	0	0	0	1817	185	0	36	0	0	0	225
Future Vol, veh/h	0	0	0	0	1817	185	0	36	0	0	0	225
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	14745600	-	-	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	0	0	0	2019	206	0	40	0	0	0	250

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	-	0
Stage 1	-	-	0
Stage 2	-	-	2225
Critical Hdwy	-	-	6.54
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	-	-	4.02
Pot Cap-1 Maneuver	0	-	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	43
Mov Cap-2 Maneuver	-	-	43
Stage 1	-	-	-
Stage 2	-	-	79

Approach	WB	NB	SB
HCM Control Delay, s	0	260.9	116.8
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	43	-	-	238
HCM Lane V/C Ratio	0.93	-	-	1.05
HCM Control Delay (s)	260.9	-	-	116.8
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	3.7	-	-	10.5

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

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑				↑
Traffic Vol, veh/h	0	0	0	0	907	74	0	116	0	0	0	114
Future Vol, veh/h	0	0	0	0	907	74	0	116	0	0	0	114
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	-	-	-	-	-	0
Veh in Median Storage, #	747	1104	-	-	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	0	0	0	1008	82	0	129	0	0	0	127

Major/Minor	Major2	Minor1	Minor2
Conflicting Flow All	-	0	1090
Stage 1	-	-	0
Stage 2	-	-	1090
Critical Hdwy	-	-	6.54
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	5.54
Follow-up Hdwy	-	-	4.02
Pot Cap-1 Maneuver	0	0	214
Stage 1	0	0	0
Stage 2	0	0	289
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	214
Mov Cap-2 Maneuver	-	-	214
Stage 1	-	-	-
Stage 2	-	-	289

Approach	WB	NB	SB
HCM Control Delay, s	0	44.4	14.3
HCM LOS		E	B

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	214	-	-	513
HCM Lane V/C Ratio	0.602	-	-	0.247
HCM Control Delay (s)	44.4	-	-	14.3
HCM Lane LOS	E	-	-	B
HCM 95th %tile Q(veh)	3.4	-	-	1

APPENDIX E

CAPACITY ANALYSIS CALCULATIONS

US 401 BYPASS

&

EASTERN U-TURN LOCATION

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↗	
Traffic Vol, veh/h	0	0	0	1532	91	0
Future Vol, veh/h	0	0	0	1532	91	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	2	-	-	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	0	0	1702	101	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	851
Stage 1	-	0
Stage 2	-	851
Critical Hdwy	-	6.84
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	5.84
Follow-up Hdwy	-	3.52
Pot Cap-1 Maneuver	0	299
Stage 1	0	0
Stage 2	0	379
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	299
Mov Cap-2 Maneuver	-	299
Stage 1	-	-
Stage 2	-	379

Approach	WB	NB
HCM Control Delay, s	0	23.1
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	299	-
HCM Lane V/C Ratio	0.338	-
HCM Control Delay (s)	23.1	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	1.4	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↗	
Traffic Vol, veh/h	0	0	0	600	66	0
Future Vol, veh/h	0	0	0	600	66	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	2	-	-	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	0	0	667	73	0
Major/Minor		Major2		Minor1		
Conflicting Flow All		-	-	334	-	
Stage 1		-	-	0	-	
Stage 2		-	-	334	-	
Critical Hdwy		-	-	6.84	-	
Critical Hdwy Stg 1		-	-	-	-	
Critical Hdwy Stg 2		-	-	5.84	-	
Follow-up Hdwy		-	-	3.52	-	
Pot Cap-1 Maneuver		0	-	636	0	
Stage 1		0	-	-	0	
Stage 2		0	-	697	0	
Platoon blocked, %				-		
Mov Cap-1 Maneuver		-	-	636	-	
Mov Cap-2 Maneuver		-	-	636	-	
Stage 1		-	-	-	-	
Stage 2		-	-	697	-	
Approach		WB		NB		
HCM Control Delay, s		0		11.4		
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	WBT				
Capacity (veh/h)	636	-				
HCM Lane V/C Ratio	0.115	-				
HCM Control Delay (s)	11.4	-				
HCM Lane LOS	B	-				
HCM 95th %tile Q(veh)	0.4	-				

Intersection						
Int Delay, s/veh	16.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑	
Traffic Vol, veh/h	0	0	0	1877	233	0
Future Vol, veh/h	0	0	0	1877	233	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	2	-	-	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	0	0	2086	259	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	- 1043
Stage 1	-	- 0
Stage 2	-	- 1043
Critical Hdwy	-	- 6.84
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- 5.84
Follow-up Hdwy	-	- 3.52
Pot Cap-1 Maneuver	0	- ~ 225
Stage 1	0	- - 0
Stage 2	0	- 300
Platoon blocked, %		-
Mov Cap-1 Maneuver	-	- ~ 225
Mov Cap-2 Maneuver	-	- ~ 225
Stage 1	-	- -
Stage 2	-	- 300

Approach	WB	NB
HCM Control Delay, s	0	152
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	225	-
HCM Lane V/C Ratio	1.151	-
HCM Control Delay (s)	152	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	12.2	-

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

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑	
Traffic Vol, veh/h	0	0	0	915	175	0
Future Vol, veh/h	0	0	0	915	175	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	2	-	-	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	0	0	1017	194	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	- 509
Stage 1	-	- 0
Stage 2	-	- 509
Critical Hdwy	-	- 6.84
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- 5.84
Follow-up Hdwy	-	- 3.52
Pot Cap-1 Maneuver	0	- 494
Stage 1	0	- - 0
Stage 2	0	- 569
Platoon blocked, %		-
Mov Cap-1 Maneuver	-	- 494
Mov Cap-2 Maneuver	-	- 494
Stage 1	-	- -
Stage 2	-	- 569

Approach	WB	NB
HCM Control Delay, s	0	16.9
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	494	-
HCM Lane V/C Ratio	0.394	-
HCM Control Delay (s)	16.9	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	1.9	-

Intersection						
Int Delay, s/veh	22.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑	
Traffic Vol, veh/h	0	0	0	1880	253	0
Future Vol, veh/h	0	0	0	1880	253	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	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	0	0	2089	281	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	- 1045
Stage 1	-	- 0
Stage 2	-	- 1045
Critical Hdwy	-	- 6.84
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- 5.84
Follow-up Hdwy	-	- 3.52
Pot Cap-1 Maneuver	0	- ~ 224
Stage 1	0	- - 0
Stage 2	0	- 300
Platoon blocked, %		-
Mov Cap-1 Maneuver	-	- ~ 224
Mov Cap-2 Maneuver	-	- ~ 224
Stage 1	-	- -
Stage 2	-	- 300

Approach	WB	NB
HCM Control Delay, s	0	189.6
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	224	-
HCM Lane V/C Ratio	1.255	-
HCM Control Delay (s)	189.6	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	14.4	-

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

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↗	
Traffic Vol, veh/h	0	0	0	926	188	0
Future Vol, veh/h	0	0	0	926	188	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	-	-	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	0	0	1029	209	0

Major/Minor	Major2	Minor1
Conflicting Flow All	-	- 515
Stage 1	-	- 0
Stage 2	-	- 515
Critical Hdwy	-	- 6.84
Critical Hdwy Stg 1	-	- -
Critical Hdwy Stg 2	-	- 5.84
Follow-up Hdwy	-	- 3.52
Pot Cap-1 Maneuver	0	- 489
Stage 1	0	- - 0
Stage 2	0	- 565
Platoon blocked, %		-
Mov Cap-1 Maneuver	-	- 489
Mov Cap-2 Maneuver	-	- 489
Stage 1	-	- -
Stage 2	-	- 565

Approach	WB	NB
HCM Control Delay, s	0	17.7
HCM LOS		C

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	489	-
HCM Lane V/C Ratio	0.427	-
HCM Control Delay (s)	17.7	-
HCM Lane LOS	C	-
HCM 95th %tile Q(veh)	2.1	-

Lanes, Volumes, Timings
 2: Eastern U-Turn & US 401 Bypass WB

2027 Build - Improved
 Timing Plan: AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↑	
Traffic Volume (vph)	0	0	0	1880	253	0
Future Volume (vph)	0	0	0	1880	253	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Fr						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	1770	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	520			1076	100	
Travel Time (s)	6.4			13.3	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	2089	281	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2089	281	0
Turn Type				NA	Prot	
Protected Phases				6	8	
Permitted Phases						
Detector Phase				6	8	
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				21.0	14.0	
Total Split (s)				44.0	16.0	
Total Split (%)				73.3%	26.7%	
Maximum Green (s)				37.0	9.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				None	Min	
Act Effct Green (s)				39.0	11.0	
Actuated g/C Ratio				0.65	0.18	
v/c Ratio				0.91	0.87	
Control Delay				16.9	53.0	
Queue Delay				0.0	0.0	
Total Delay				16.9	53.0	
LOS				B	D	
Approach Delay				16.9	53.0	
Approach LOS				B	D	
Queue Length 50th (ft)				280	100	
Queue Length 95th (ft)				#513	#221	
Internal Link Dist (ft)	440			996	20	

Lanes, Volumes, Timings
 2: Eastern U-Turn & US 401 Bypass WB

2027 Build - Improved
 Timing Plan: AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Bay Length (ft)						
Base Capacity (vph)				2300	324	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.91	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 60

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

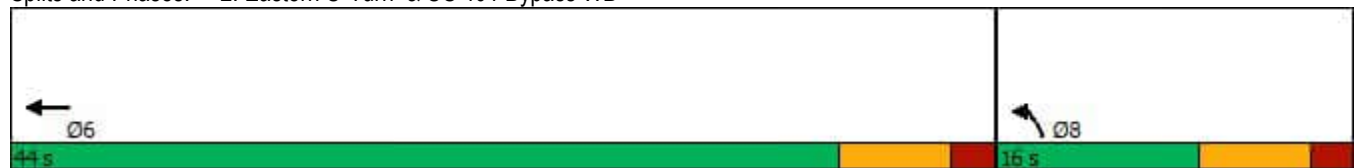
Intersection Signal Delay: 21.2 Intersection LOS: C

Intersection Capacity Utilization 74.3% ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Eastern U-Turn & US 401 Bypass WB



Lanes, Volumes, Timings
 2: Eastern U-Turn & US 401 Bypass WB

2027 Build - Improved
 Timing Plan: PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↗	
Traffic Volume (vph)	0	0	0	926	188	0
Future Volume (vph)	0	0	0	926	188	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	1.00	1.00
Fr						
Flt Protected					0.950	
Satd. Flow (prot)	0	0	0	3539	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	0	0	3539	1770	0
Right Turn on Red		No			No	No
Satd. Flow (RTOR)						
Link Speed (mph)	55			55	45	
Link Distance (ft)	520			1076	100	
Travel Time (s)	6.4			13.3	1.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	1029	209	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1029	209	0
Turn Type				NA	Prot	
Protected Phases				6	8	
Permitted Phases						
Detector Phase				6	8	
Switch Phase						
Minimum Initial (s)				14.0	7.0	
Minimum Split (s)				21.0	14.0	
Total Split (s)				38.0	22.0	
Total Split (%)				63.3%	36.7%	
Maximum Green (s)				31.0	15.0	
Yellow Time (s)				5.0	5.0	
All-Red Time (s)				2.0	2.0	
Lost Time Adjust (s)				-2.0	-2.0	
Total Lost Time (s)				5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)				3.0	3.0	
Recall Mode				None	Min	
Act Effct Green (s)				22.7	12.7	
Actuated g/C Ratio				0.50	0.28	
v/c Ratio				0.59	0.42	
Control Delay				9.9	17.9	
Queue Delay				0.0	0.0	
Total Delay				9.9	17.9	
LOS				A	B	
Approach Delay				9.9	17.9	
Approach LOS				A	B	
Queue Length 50th (ft)				87	43	
Queue Length 95th (ft)				157	111	
Internal Link Dist (ft)	440			996	20	

Lanes, Volumes, Timings
 2: Eastern U-Turn & US 401 Bypass WB

2027 Build - Improved
 Timing Plan: PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Bay Length (ft)						
Base Capacity (vph)				2642	680	
Starvation Cap Reductn				0	0	
Spillback Cap Reductn				0	0	
Storage Cap Reductn				0	0	
Reduced v/c Ratio				0.39	0.31	

Intersection Summary	
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	45.7
Natural Cycle:	40
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	11.2
Intersection LOS:	B
Intersection Capacity Utilization	44.3%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 2: Eastern U-Turn & US 401 Bypass WB



APPENDIX F

CAPACITY ANALYSIS CALCULATIONS

MITCHELL MILL ROAD

&

JONESVILLE ROAD / PEEBLES ROAD

HCM 6th AWSC
3: Peebles Road/Jonesville Road & Mitchell Mill Road

2022 Existing
Timing Plan: AM Peak Hour

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	166	2	11	316	41	4	78	11	32	133	16
Future Vol, veh/h	7	166	2	11	316	41	4	78	11	32	133	16
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	184	2	12	351	46	4	87	12	36	148	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.8	14.8	10.1	11.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	4%	3%	18%
Vol Thru, %	84%	95%	86%	73%
Vol Right, %	12%	1%	11%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	93	175	368	181
LT Vol	4	7	11	32
Through Vol	78	166	316	133
RT Vol	11	2	41	16
Lane Flow Rate	103	194	409	201
Geometry Grp	1	1	1	1
Degree of Util (X)	0.168	0.294	0.576	0.318
Departure Headway (Hd)	5.843	5.438	5.074	5.691
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	612	659	711	631
Service Time	3.897	3.483	3.111	3.736
HCM Lane V/C Ratio	0.168	0.294	0.575	0.319
HCM Control Delay	10.1	10.8	14.8	11.4
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.6	1.2	3.7	1.4

HCM 6th AWSC
 3: Peebles Road/Jonesville Road & Mitchell Mill Road

2022 Existing
 Timing Plan: PM Peak Hour

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	306	13	0	130	21	5	92	10	27	50	11
Future Vol, veh/h	18	306	13	0	130	21	5	92	10	27	50	11
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	340	14	0	144	23	6	102	11	30	56	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.2	9.4	9.5	9.4
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	5%	0%	31%
Vol Thru, %	86%	91%	86%	57%
Vol Right, %	9%	4%	14%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	107	337	151	88
LT Vol	5	18	0	27
Through Vol	92	306	130	50
RT Vol	10	13	21	11
Lane Flow Rate	119	374	168	98
Geometry Grp	1	1	1	1
Degree of Util (X)	0.175	0.488	0.227	0.146
Departure Headway (Hd)	5.3	4.694	4.868	5.368
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	669	760	730	660
Service Time	3.395	2.76	2.948	3.464
HCM Lane V/C Ratio	0.178	0.492	0.23	0.148
HCM Control Delay	9.5	12.2	9.4	9.4
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.6	2.7	0.9	0.5

Intersection	
Intersection Delay, s/veh	95.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↔		↖	↗	
Traffic Vol, veh/h	63	253	12	29	607	119	12	86	20	84	149	54
Future Vol, veh/h	63	253	12	29	607	119	12	86	20	84	149	54
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	281	13	32	674	132	13	96	22	93	166	60
Number of Lanes	1	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	19.9	170.3	16.1	17.2
HCM LOS	C	F	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	10%	100%	0%	5%	0%	100%	0%
Vol Thru, %	73%	0%	95%	95%	0%	0%	73%
Vol Right, %	17%	0%	5%	0%	100%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	118	63	265	636	119	84	203
LT Vol	12	63	0	29	0	84	0
Through Vol	86	0	253	607	0	0	149
RT Vol	20	0	12	0	119	0	54
Lane Flow Rate	131	70	294	707	132	93	226
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.302	0.152	0.597	1.372	0.229	0.215	0.476
Departure Headway (Hd)	9.162	8.438	7.887	6.988	6.248	9.036	8.326
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	395	428	462	516	570	399	435
Service Time	7.162	6.138	5.587	4.777	4.036	6.736	6.026
HCM Lane V/C Ratio	0.332	0.164	0.636	1.37	0.232	0.233	0.52
HCM Control Delay	16.1	12.6	21.6	200.1	10.9	14.2	18.4
HCM Lane LOS	C	B	C	F	B	B	C
HCM 95th-tile Q	1.3	0.5	3.8	31.9	0.9	0.8	2.5

Intersection	
Intersection Delay, s/veh	57.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↔		↖	↗	
Traffic Vol, veh/h	114	459	19	14	387	95	19	106	31	159	65	33
Future Vol, veh/h	114	459	19	14	387	95	19	106	31	159	65	33
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	127	510	21	16	430	106	21	118	34	177	72	37
Number of Lanes	1	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	90.6	50	19.2	17.4
HCM LOS	F	E	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	12%	100%	0%	3%	0%	100%	0%
Vol Thru, %	68%	0%	96%	97%	0%	0%	66%
Vol Right, %	20%	0%	4%	0%	100%	0%	34%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	156	114	478	401	95	159	98
LT Vol	19	114	0	14	0	159	0
Through Vol	106	0	459	387	0	0	65
RT Vol	31	0	19	0	95	0	33
Lane Flow Rate	173	127	531	446	106	177	109
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.429	0.289	1.13	0.95	0.204	0.443	0.251
Departure Headway (Hd)	9.353	8.206	7.661	7.994	7.251	9.428	8.662
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	388	438	473	459	498	385	417
Service Time	7.353	5.959	5.414	5.694	4.951	7.128	6.362
HCM Lane V/C Ratio	0.446	0.29	1.123	0.972	0.213	0.46	0.261
HCM Control Delay	19.2	14.3	108.8	59	11.8	19.4	14.2
HCM Lane LOS	C	B	F	F	B	C	B
HCM 95th-tile Q	2.1	1.2	18.4	11.3	0.8	2.2	1

Intersection	
Intersection Delay, s/veh	104
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↶	↷		↷		↶	↷	
Traffic Vol, veh/h	71	253	12	29	607	121	12	88	20	91	156	76
Future Vol, veh/h	71	253	12	29	607	121	12	88	20	91	156	76
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	79	281	13	32	674	134	13	98	22	101	173	84
Number of Lanes	1	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	20.8	191.1	16.7	19
HCM LOS	C	F	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	10%	100%	0%	5%	0%	100%	0%
Vol Thru, %	73%	0%	95%	95%	0%	0%	67%
Vol Right, %	17%	0%	5%	0%	100%	0%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	71	265	636	121	91	232
LT Vol	12	71	0	29	0	91	0
Through Vol	88	0	253	607	0	0	156
RT Vol	20	0	12	0	121	0	76
Lane Flow Rate	133	79	294	707	134	101	258
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.313	0.176	0.611	1.43	0.244	0.234	0.545
Departure Headway (Hd)	9.455	8.699	8.147	7.283	6.541	9.17	8.414
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	383	415	448	502	553	394	430
Service Time	7.455	6.399	5.847	4.983	4.241	6.87	6.114
HCM Lane V/C Ratio	0.347	0.19	0.656	1.408	0.242	0.256	0.6
HCM Control Delay	16.7	13.2	22.8	225.3	11.3	14.6	20.7
HCM Lane LOS	C	B	C	F	B	B	C
HCM 95th-tile Q	1.3	0.6	4	34.3	1	0.9	3.2

Intersection	
Intersection Delay, s/veh	60.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↔		↖	↗	
Traffic Vol, veh/h	138	459	19	14	387	102	19	113	31	163	69	49
Future Vol, veh/h	138	459	19	14	387	102	19	113	31	163	69	49
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	153	510	21	16	430	113	21	126	34	181	77	54
Number of Lanes	1	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	96.6	54.4	20.2	18
HCM LOS	F	F	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	12%	100%	0%	3%	0%	100%	0%
Vol Thru, %	69%	0%	96%	97%	0%	0%	58%
Vol Right, %	19%	0%	4%	0%	100%	0%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	163	138	478	401	102	163	118
LT Vol	19	138	0	14	0	163	0
Through Vol	113	0	459	387	0	0	69
RT Vol	31	0	19	0	102	0	49
Lane Flow Rate	181	153	531	446	113	181	131
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.455	0.358	1.159	0.973	0.225	0.459	0.304
Departure Headway (Hd)	9.533	8.403	7.857	8.211	7.466	9.559	8.735
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	428	462	446	484	379	414
Service Time	7.533	6.158	5.612	5.911	5.166	7.259	6.435
HCM Lane V/C Ratio	0.476	0.357	1.149	1	0.233	0.478	0.316
HCM Control Delay	20.2	15.8	119.9	65.1	12.3	20.1	15.2
HCM Lane LOS	C	C	F	F	B	C	C
HCM 95th-tile Q	2.3	1.6	19.3	11.9	0.9	2.3	1.3

Lanes, Volumes, Timings
3: Peebles Road/Jonesville Road & Mitchell Mill Road

2027 Build - Improved
Timing Plan: AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	253	12	29	607	121	12	88	20	91	156	76
Future Volume (vph)	71	253	12	29	607	121	12	88	20	91	156	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		100	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.978			0.951	
Flt Protected	0.950				0.998			0.995		0.950		
Satd. Flow (prot)	1770	1850	0	0	1859	1583	0	1813	0	1770	1771	0
Flt Permitted	0.247				0.976			0.946		0.785		
Satd. Flow (perm)	460	1850	0	0	1818	1583	0	1723	0	1462	1771	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1536			1126			1017			1092	
Travel Time (s)		23.3			17.1			15.4			16.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	79	281	13	32	674	134	13	98	22	101	173	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	294	0	0	706	134	0	133	0	101	257	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	40.0	40.0		40.0	40.0	40.0	20.0	20.0		20.0	20.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%	66.7%	33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	33.0	33.0		33.0	33.0	33.0	13.0	13.0		13.0	13.0	
Yellow Time (s)	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	
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 Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)	26.5	26.5		26.5	26.5	26.5		13.3		13.3	13.3	
Actuated g/C Ratio	0.53	0.53		0.53	0.53	0.53		0.26		0.26	0.26	
v/c Ratio	0.33	0.30		0.74	0.16	0.16		0.29		0.26	0.55	
Control Delay	10.9	7.4		14.4	6.5	6.5		19.1		19.1	23.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	10.9	7.4		14.4	6.5	6.5		19.1		19.1	23.0	
LOS	B	A		B	A	A		B		B	C	
Approach Delay		8.2			13.2			19.1			21.9	
Approach LOS		A			B			B			C	

Lanes, Volumes, Timings
 3: Peebles Road/Jonesville Road & Mitchell Mill Road

2027 Build - Improved
 Timing Plan: AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	12	45			150	19		32		24	67	
Queue Length 95th (ft)	37	81			258	40		80		65	147	
Internal Link Dist (ft)		1456			1046			937			1012	
Turn Bay Length (ft)	100					100				100		
Base Capacity (vph)	333	1342			1319	1148		536		455	552	
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	0.24	0.22			0.54	0.12		0.25		0.22	0.47	

Intersection Summary

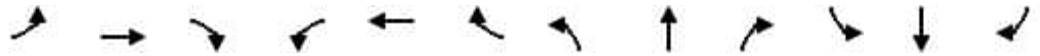
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	50.2
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	14.4
Intersection LOS:	B
Intersection Capacity Utilization	76.2%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 3: Peebles Road/Jonesville Road & Mitchell Mill Road



Lanes, Volumes, Timings
 3: Peebles Road/Jonesville Road & Mitchell Mill Road

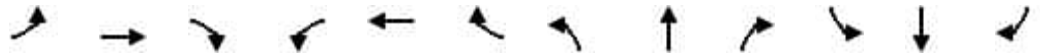
2027 Build - Improved
 Timing Plan: PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	459	19	14	387	102	19	113	31	163	69	49
Future Volume (vph)	138	459	19	14	387	102	19	113	31	163	69	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		100	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994				0.850		0.975			0.938	
Flt Protected	0.950				0.998			0.994		0.950		
Satd. Flow (prot)	1770	1852	0	0	1859	1583	0	1805	0	1770	1747	0
Flt Permitted	0.436				0.973			0.951		0.728		
Satd. Flow (perm)	812	1852	0	0	1812	1583	0	1727	0	1356	1747	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1536			1126			1017			1092	
Travel Time (s)		23.3			17.1			15.4			16.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	153	510	21	16	430	113	21	126	34	181	77	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	531	0	0	446	113	0	181	0	181	131	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	7.0	7.0		7.0	7.0	
Minimum Split (s)	19.0	19.0		19.0	19.0	19.0	14.0	14.0		14.0	14.0	
Total Split (s)	36.0	36.0		36.0	36.0	36.0	24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%	60.0%	40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	17.0	17.0		17.0	17.0	
Yellow Time (s)	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	
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 Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Act Effct Green (s)	21.1	21.1			21.1	21.1		13.9		13.9	13.9	
Actuated g/C Ratio	0.46	0.46			0.46	0.46		0.31		0.31	0.31	
v/c Ratio	0.41	0.62			0.53	0.15		0.34		0.44	0.25	
Control Delay	12.4	13.1			11.6	8.0		15.8		18.1	14.8	
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay	12.4	13.1			11.6	8.0		15.8		18.1	14.8	
LOS	B	B			B	A		B		B	B	
Approach Delay		12.9			10.9			15.8			16.7	
Approach LOS		B			B			B			B	

Lanes, Volumes, Timings
 3: Peebles Road/Jonesville Road & Mitchell Mill Road

2027 Build - Improved
 Timing Plan: PM Peak Hour

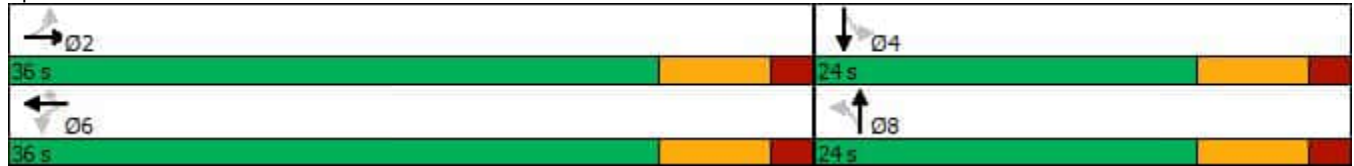


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	23	92			73	15		34		35	24	
Queue Length 95th (ft)	68	198			160	41		95		101	71	
Internal Link Dist (ft)		1456			1046			937			1012	
Turn Bay Length (ft)	100					100				100		
Base Capacity (vph)	581	1326			1297	1133		758		595	766	
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	0.26	0.40			0.34	0.10		0.24		0.30	0.17	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	45.5
Natural Cycle:	40
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.62
Intersection Signal Delay:	13.2
Intersection LOS:	B
Intersection Capacity Utilization	81.0%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 3: Peebles Road/Jonesville Road & Mitchell Mill Road



APPENDIX G

CAPACITY ANALYSIS CALCULATIONS

Jonesville Road

&

Universal Drive

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	3	3	1	125	178	1
Future Vol, veh/h	3	3	1	125	178	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
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	3	3	1	139	198	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	340	199	199	0	0
Stage 1	199	-	-	-	-
Stage 2	141	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	656	842	1373	-	-
Stage 1	835	-	-	-	-
Stage 2	886	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	655	842	1373	-	-
Mov Cap-2 Maneuver	655	-	-	-	-
Stage 1	834	-	-	-	-
Stage 2	886	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1373	-	737	-	-
HCM Lane V/C Ratio	0.001	-	0.009	-	-
HCM Control Delay (s)	7.6	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

HCM 6th TWSC
8: Jonesville Road & Universal Drive

2022 Existing
Timing Plan: PM Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	1	2	4	127	89	3
Future Vol, veh/h	1	2	4	127	89	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	2	4	141	99	3

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	250	101	102	0	0
Stage 1	101	-	-	-	-
Stage 2	149	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	739	954	1490	-	-
Stage 1	923	-	-	-	-
Stage 2	879	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	737	954	1490	-	-
Mov Cap-2 Maneuver	737	-	-	-	-
Stage 1	920	-	-	-	-
Stage 2	879	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1490	-	869	-	-
HCM Lane V/C Ratio	0.003	-	0.004	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	3	3	1	339	294	1
Future Vol, veh/h	3	3	1	339	294	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
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	3	3	1	377	327	1

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	707	328	328	0	0
Stage 1	328	-	-	-	-
Stage 2	379	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	402	713	1232	-	-
Stage 1	730	-	-	-	-
Stage 2	692	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	402	713	1232	-	-
Mov Cap-2 Maneuver	402	-	-	-	-
Stage 1	729	-	-	-	-
Stage 2	692	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1232	-	514	-	-
HCM Lane V/C Ratio	0.001	-	0.013	-	-
HCM Control Delay (s)	7.9	0	12.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	1	2	4	296	336	3
Future Vol, veh/h	1	2	4	296	336	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	2	4	329	373	3

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	712	375	376	0	-	0
Stage 1	375	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	399	671	1182	-	-	-
Stage 1	695	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	397	671	1182	-	-	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	723	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1182	-	546	-	-
HCM Lane V/C Ratio	0.004	-	0.006	-	-
HCM Control Delay (s)	8.1	0	11.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	16	6	2	356	300	5
Future Vol, veh/h	16	6	2	356	300	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	7	2	396	333	6

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	736	336	339	0	-	0
Stage 1	336	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	386	706	1220	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	677	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	385	706	1220	-	-	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	677	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1220	-	439	-	-
HCM Lane V/C Ratio	0.002	-	0.056	-	-
HCM Control Delay (s)	8	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	10	4	8	307	354	17
Future Vol, veh/h	10	4	8	307	354	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	4	9	341	393	19

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	762	403	412	0	-	0
Stage 1	403	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	373	647	1147	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	369	647	1147	-	-	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1147	-	421	-	-
HCM Lane V/C Ratio	0.008	-	0.037	-	-
HCM Control Delay (s)	8.2	0	13.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

APPENDIX H

CAPACITY ANALYSIS CALCULATIONS

Jonesville Road

&

Site Drive

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	33	11	335	306	6
Future Vol, veh/h	17	33	11	335	306	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
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	19	37	12	372	340	7

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	740	344	347	0	-	0
Stage 1	344	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	384	699	1212	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	380	699	1212	-	-	-
Mov Cap-2 Maneuver	380	-	-	-	-	-
Stage 1	711	-	-	-	-	-
Stage 2	680	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1212	-	544	-	-
HCM Lane V/C Ratio	0.01	-	0.102	-	-
HCM Control Delay (s)	8	-	12.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	22	34	308	335	18
Future Vol, veh/h	11	22	34	308	335	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
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	12	24	38	342	372	20

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	800	382	392	0	-	0
Stage 1	382	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	354	665	1167	-	-	-
Stage 1	690	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	342	665	1167	-	-	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	664	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.8	0
HCM LOS	B		

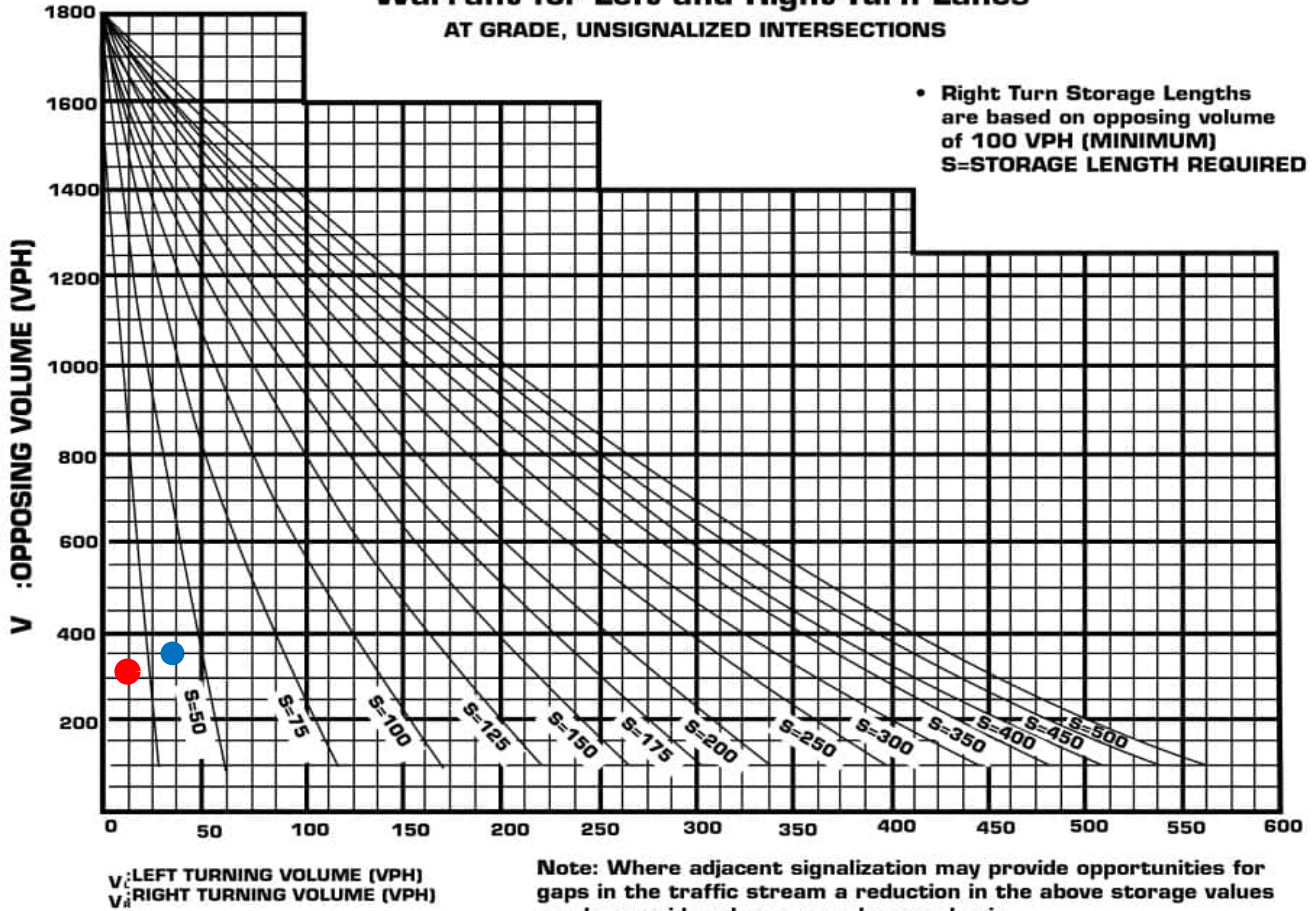
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1167	-	506	-	-
HCM Lane V/C Ratio	0.032	-	0.072	-	-
HCM Control Delay (s)	8.2	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

APPENDIX I

TURN LANE WARRANTS

HARRIS CREEK FARM
TURN LANE STORAGE WARRANTS

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



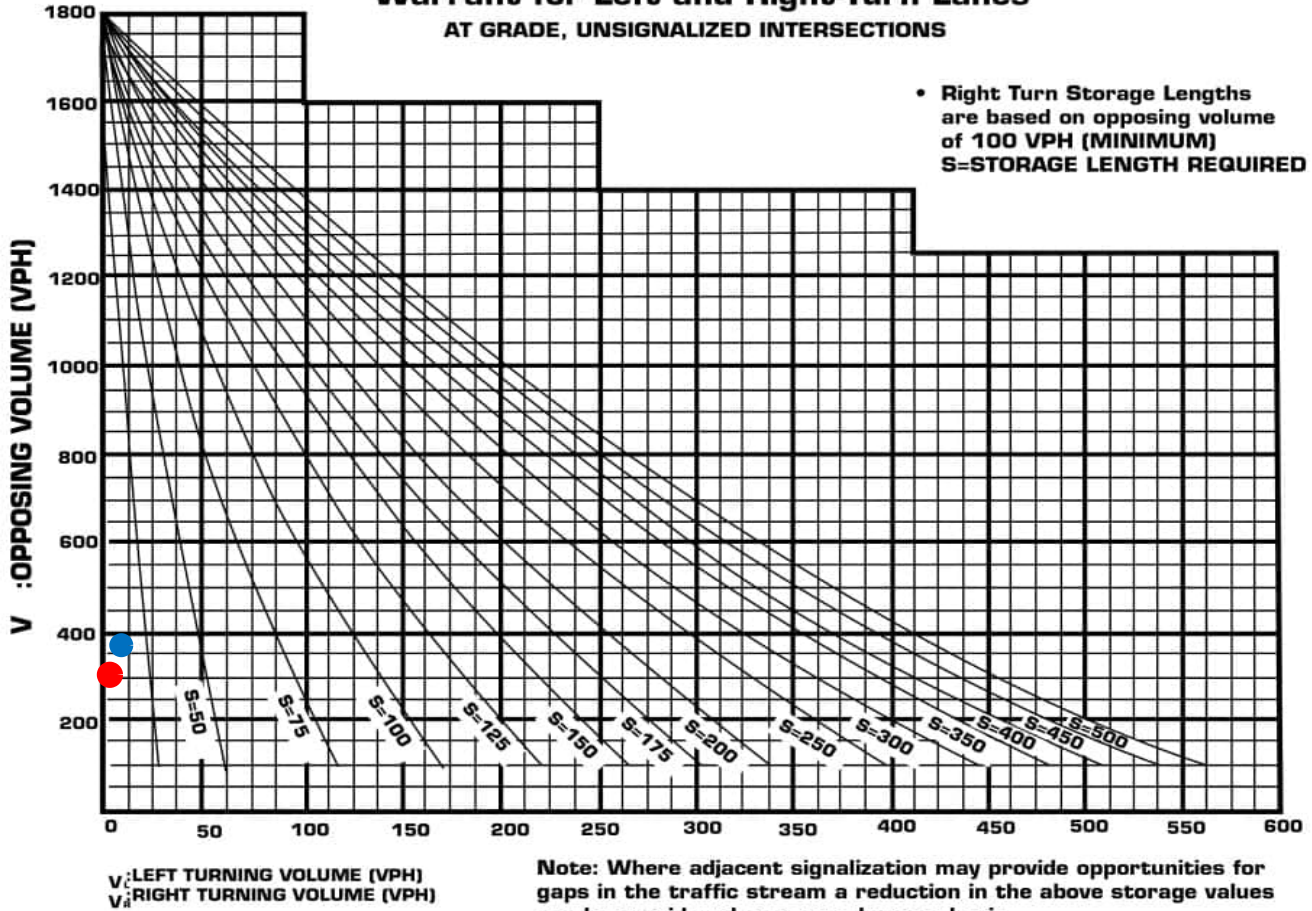
Policy On Street And Driveway Access to North Carolina Highways

INTERSECTION: Jonesville Road & Site Drive

SCENARIO	Movement	Turn Lane	Turning Volume (V _R /V _L)	Approach / Opposing Volume (V _A /V _O)	Symbol
AM Build	NBL	Left	11	312	●
PM Build	NBL	Left	34	353	●
					●
					●

HARRIS CREEK FARM
TURN LANE STORAGE WARRANTS

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



Policy On Street And Driveway Access to North Carolina Highways

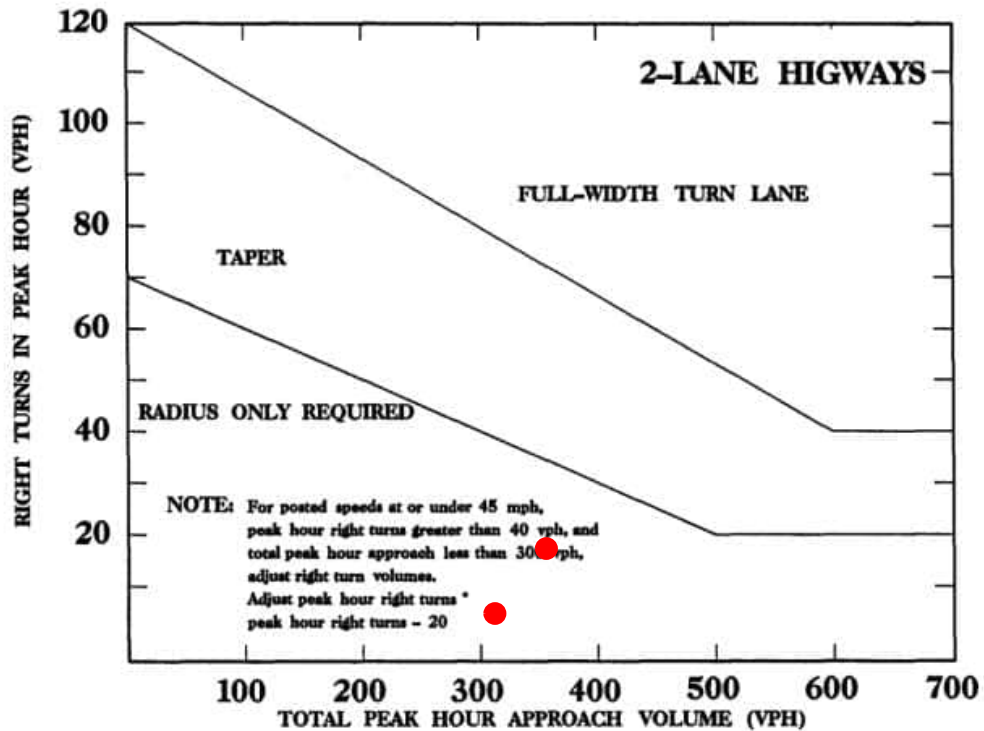
INTERSECTION: Jonesville Road & Univeral Drive

SCENARIO	Movement	Turn Lane	Turning Volume (V _R /V _L)	Approach / Opposing Volume (V _A /V _O)	Symbol
AM Build	NBL	Left	2	305	●
PM Build	NBL	Left	8	371	●
					●
					●

Jonesville Road and Site Drive

2027 Build				
Peak Hour	Approach	Right Turn Volume	Approach Volume	Warranted?
AM	Southbound	6	312	No
PM	Southbound	18	353	No

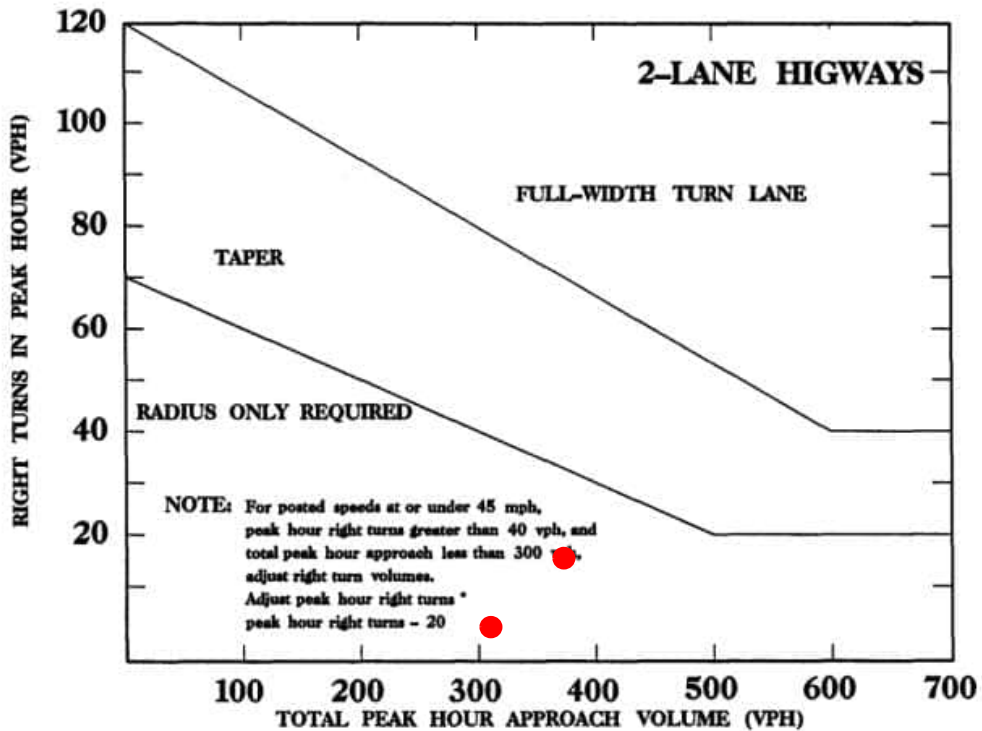
RIGHT TURN LANE WARRANTS



Jonesville Road and Universal Drive

2027 Build				
Peak Hour	Approach	Right Turn Volume	Approach Volume	Warranted?
AM	Southbound	5	305	No
PM	Southbound	17	371	No

RIGHT TURN LANE WARRANTS



APPENDIX J

MUTCD / ITRE SIGNAL WARRANT ANALYSIS

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2027 No-Build

Intersection Information			
Major Street (E/W Road)	US 401 Bypass	Minor Street (N/S Road)	Jonesville Road / WB Left-Over
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	2895 vehicles	Total Approach Volume	894 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	100 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

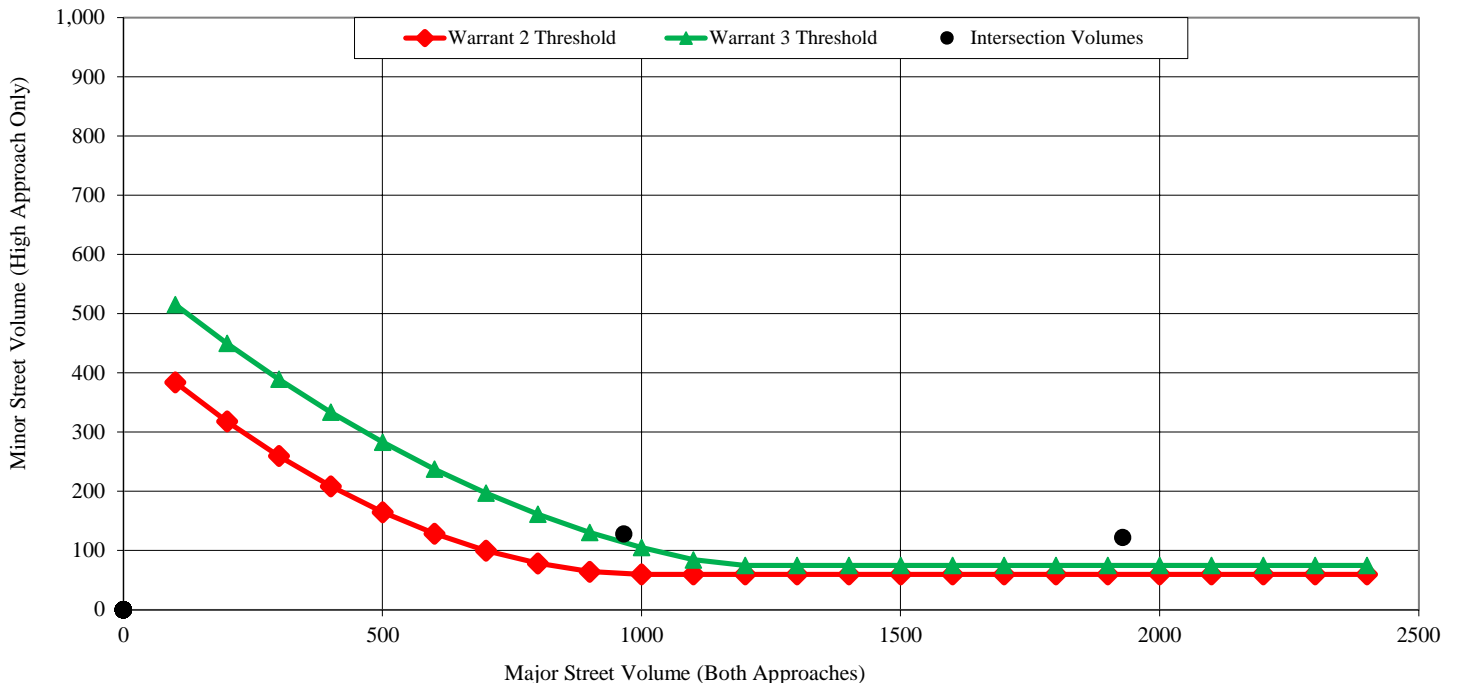
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	2051 total, 122 minor, 0 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2027 Build

Intersection Information			
Major Street (E/W Road)	US 401 Bypass	Minor Street (N/S Road)	Jonesville Road / WB Left-Over
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	2923 vehicles	Total Approach Volume	958 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	100 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

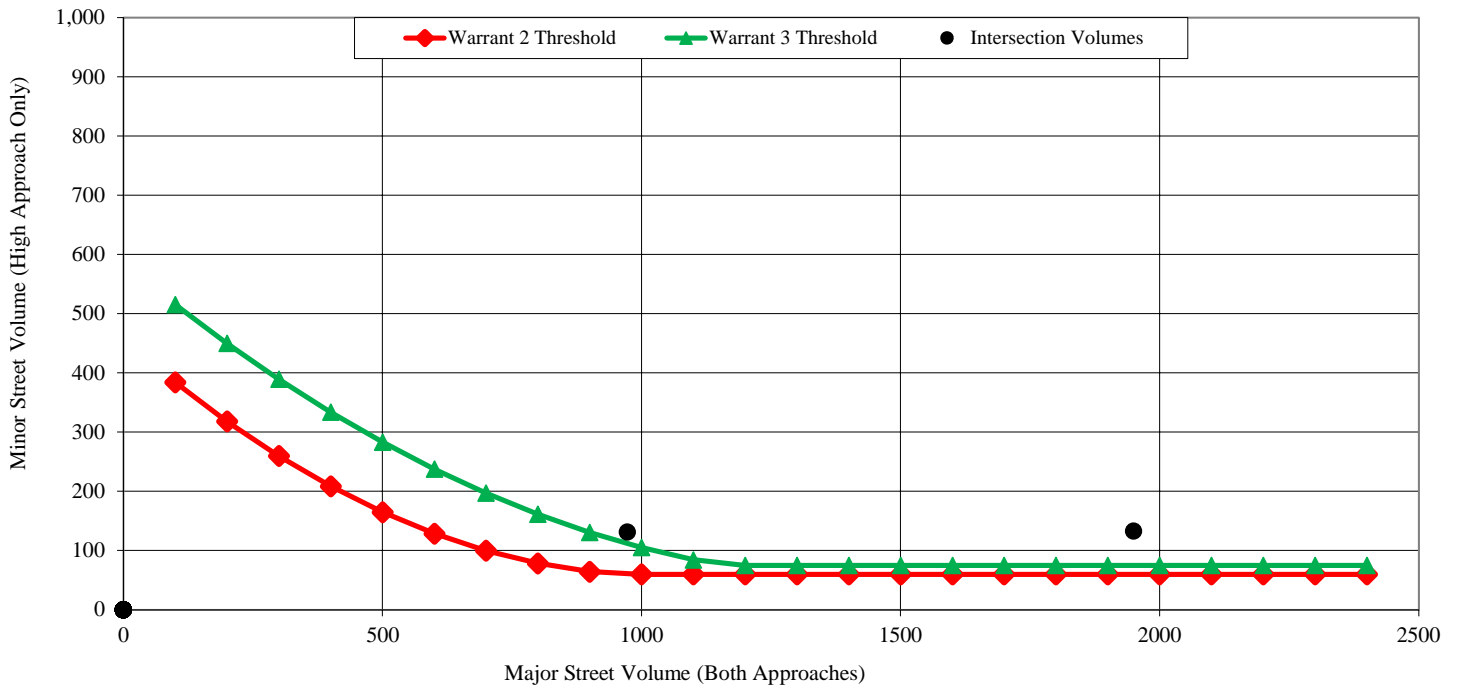
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	2083 total, 133 minor, 0 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2022 Existing

Intersection Information			
Major Street (E/W Road)	US 401 Bypass	Minor Street (N/S Road)	Eastern U-Turn Location
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	2132 vehicles	Total Approach Volume	157 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

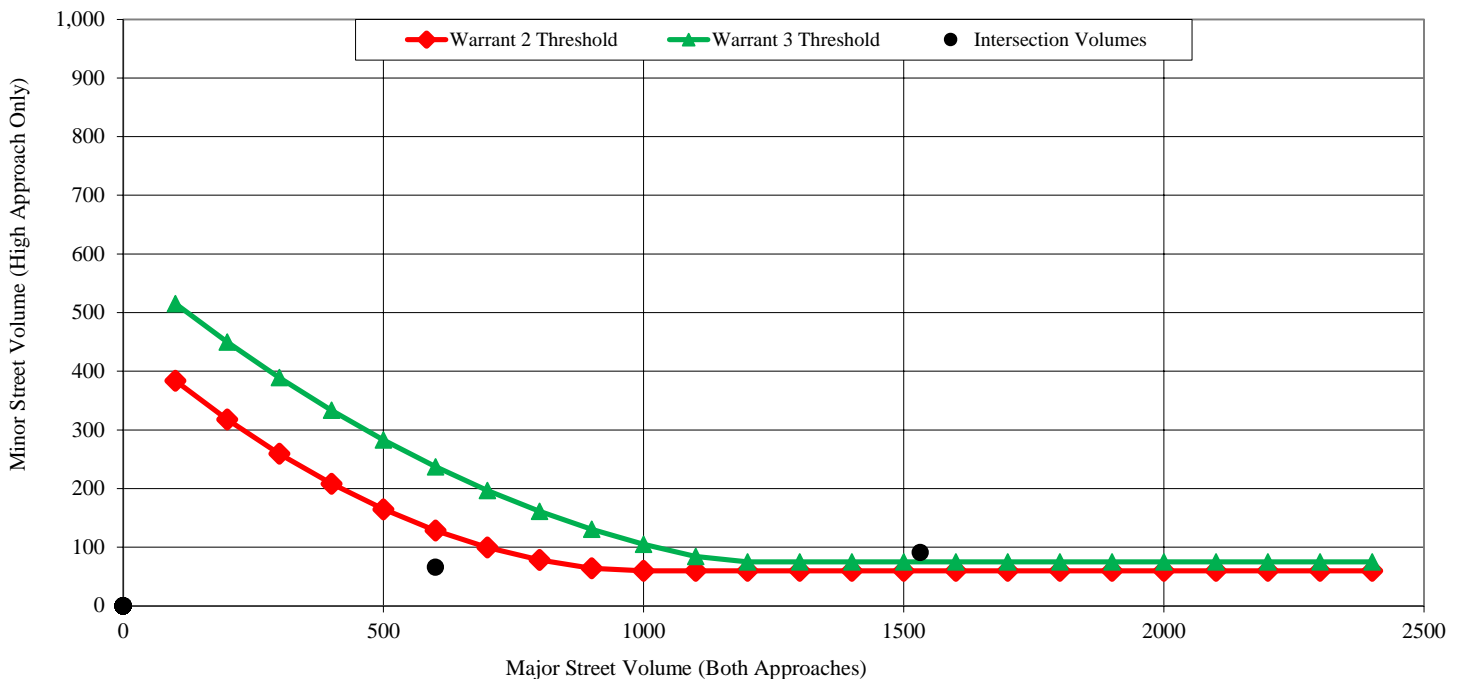
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	0 hours	1 hour	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	1623 total, 91 minor, 0 delay	1 hour
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2027 No-Build

Intersection Information			
Major Street (E/W Road)	US 401 Bypass	Minor Street (N/S Road)	Eastern U-Turn Location
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	2792 vehicles	Total Approach Volume	408 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

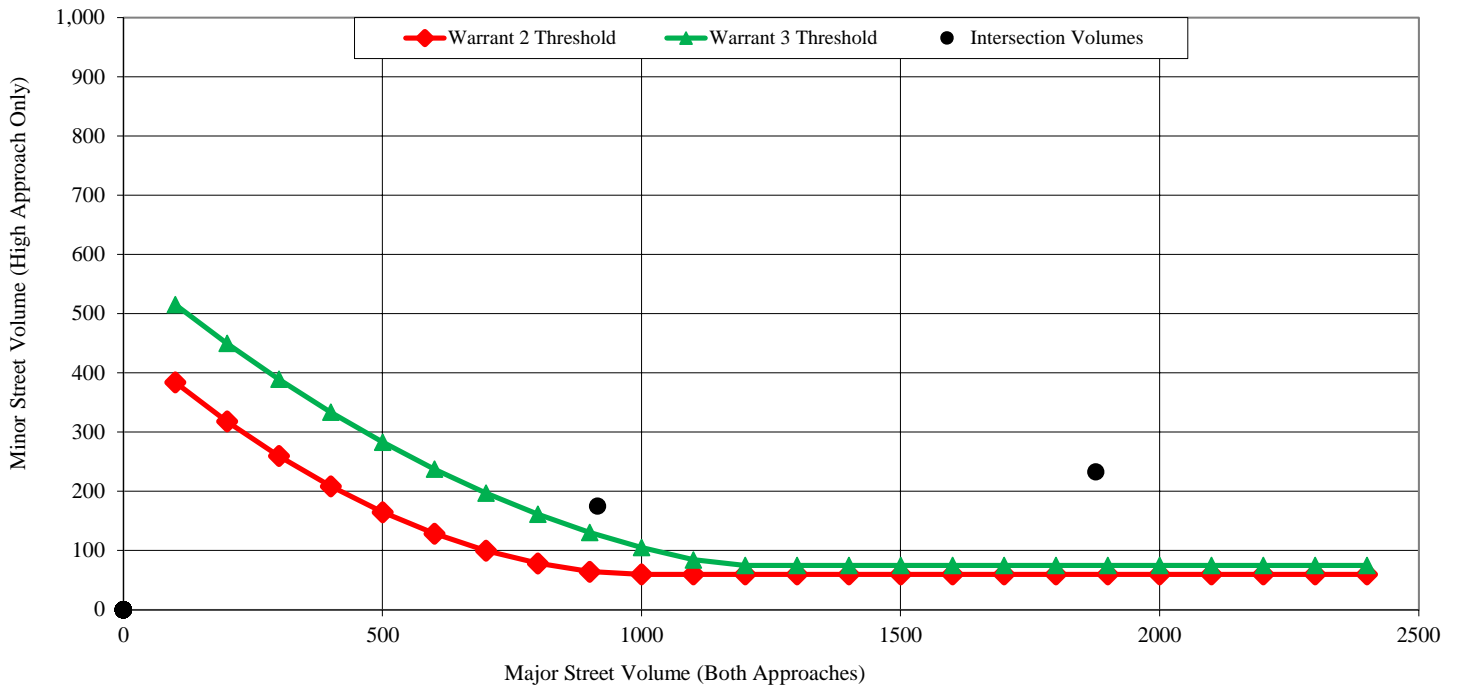
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	2110 total, 233 minor, 0 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2027 Build

Intersection Information			
Major Street (E/W Road)	US 401 Bypass	Minor Street (N/S Road)	Eastern U-Turn Location
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	2806 vehicles	Total Approach Volume	441 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

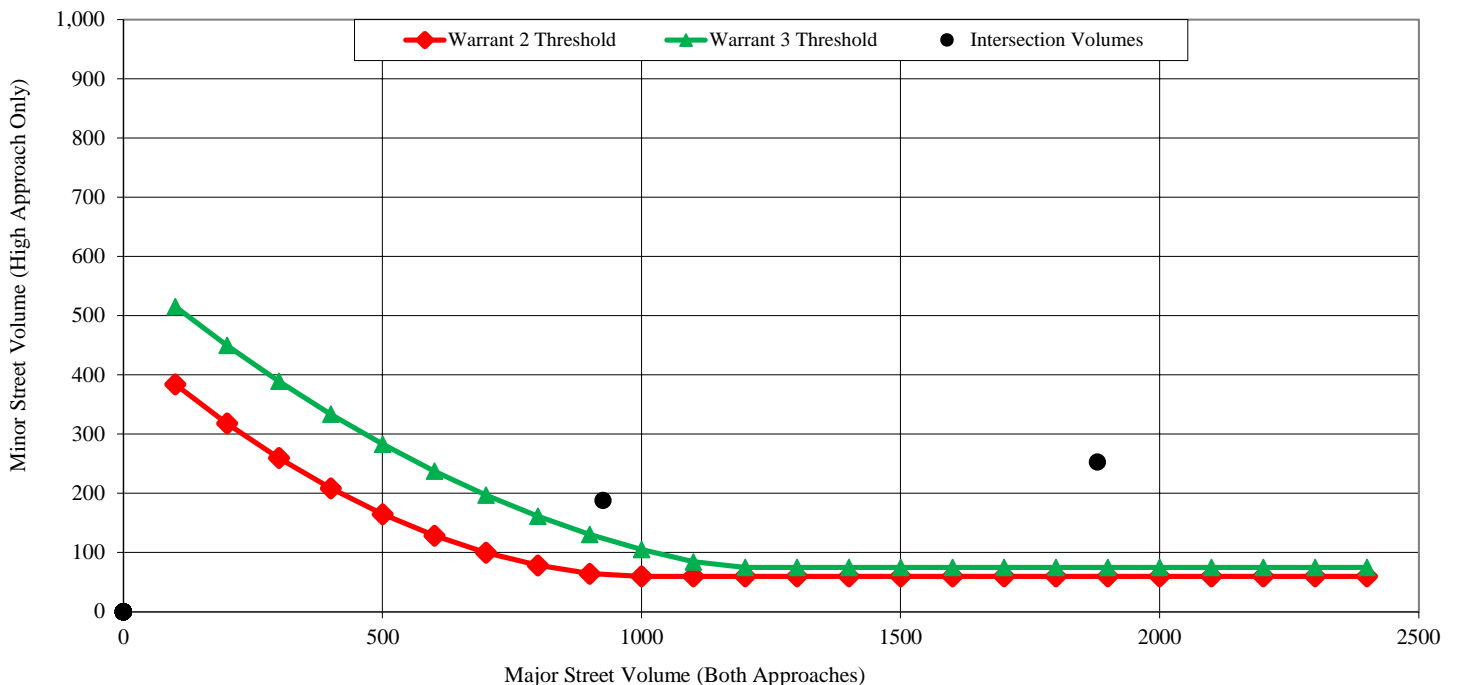
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	2133 total, 253 minor, 0 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	650	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2022 Existing

Intersection Information			
Major Street (E/W Road)	Mitchell Mill Road	Minor Street (N/S Road)	Jonesville Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	1031 vehicles	Total Approach Volume	469 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

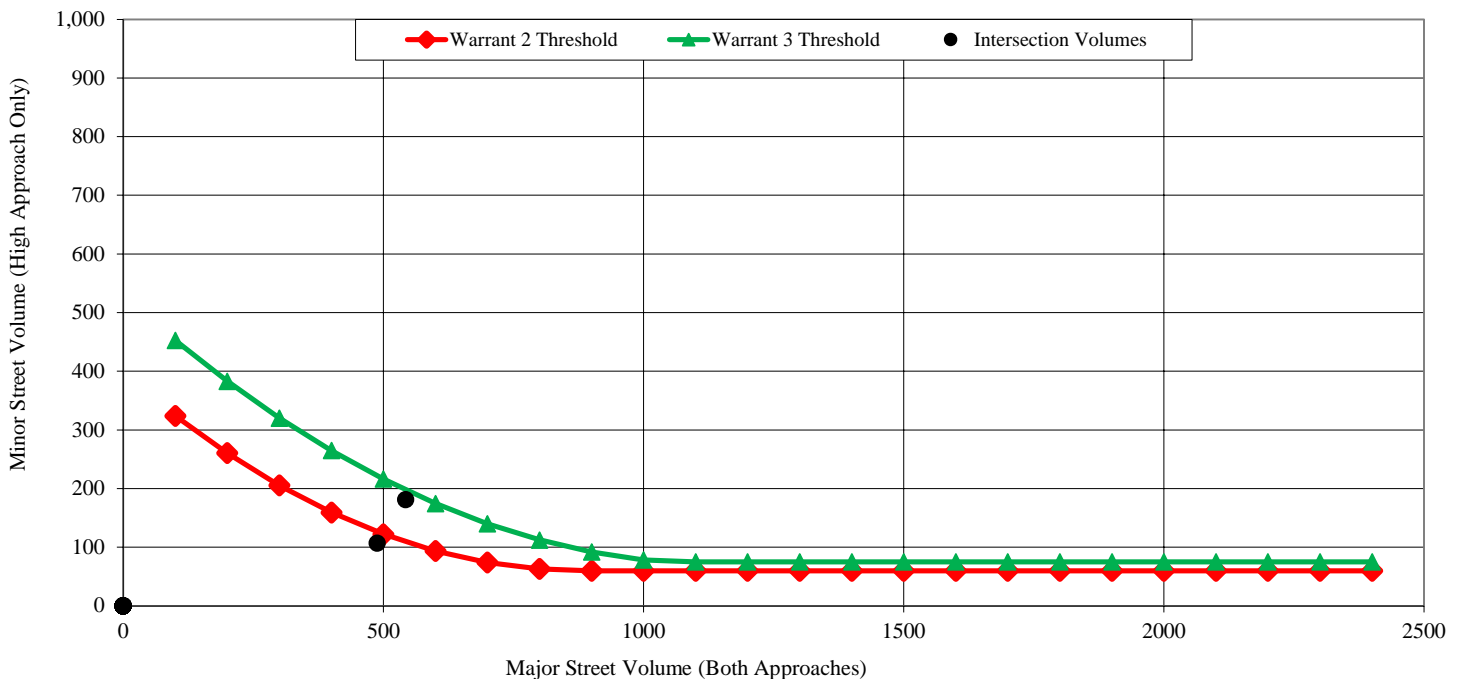
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	1 hour	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Not Satisfied
Required values reached for	817 total, 181 minor, 0 delay	0 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2027 No-Build

Intersection Information			
Major Street (E/W Road)	Mitchell Mill Road	Minor Street (N/S Road)	Jonesville Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2171 vehicles	Total Approach Volume	818 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

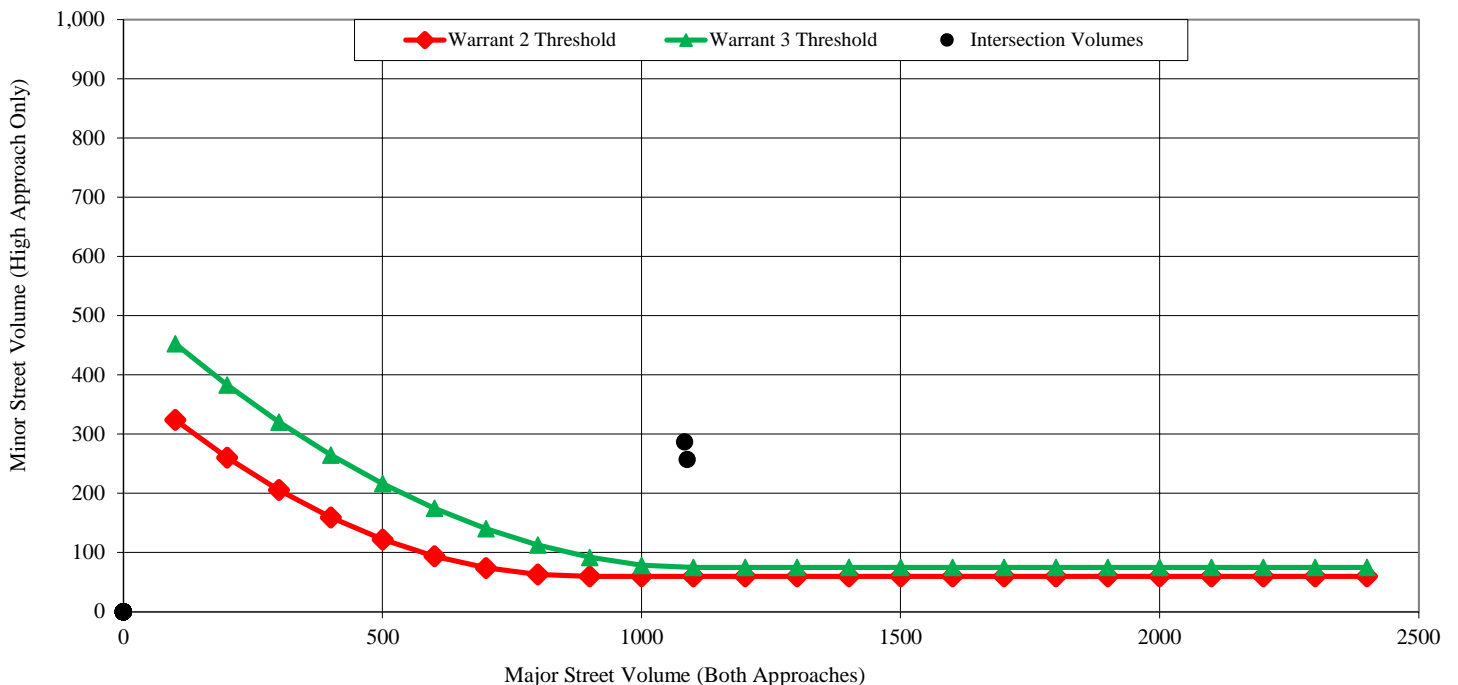
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	1488 total, 287 minor, 0 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Harris Creek Farm
Project/File #	20498 - 09
Scenario	2027 Build

Intersection Information			
Major Street (E/W Road)	Mitchell Mill Road	Minor Street (N/S Road)	Jonesville Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	2212 vehicles	Total Approach Volume	887 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

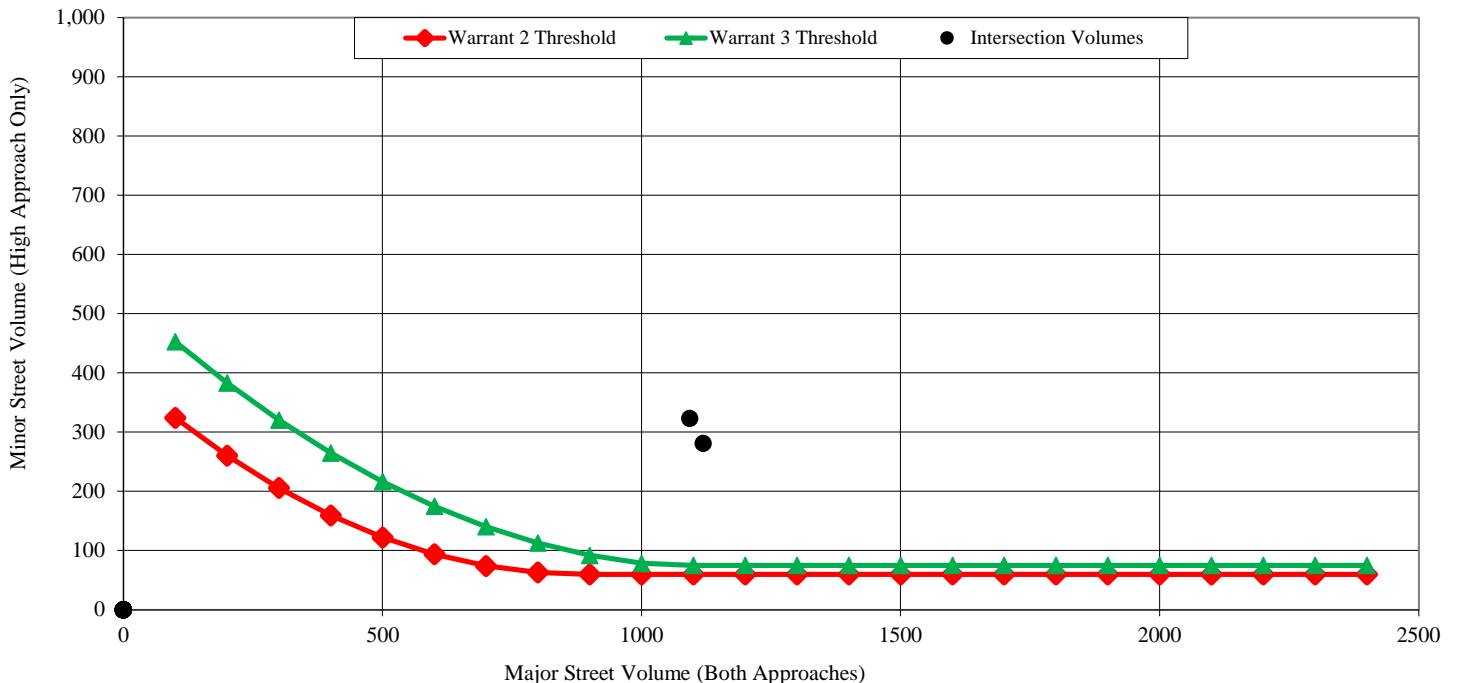
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	1536 total, 323 minor, 0 delay	2 hours
Criteria - Total Approach Volume (veh in one hour)	800	See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)	100	
Criteria - Minor Street High Side Delay (veh-hrs)	4	

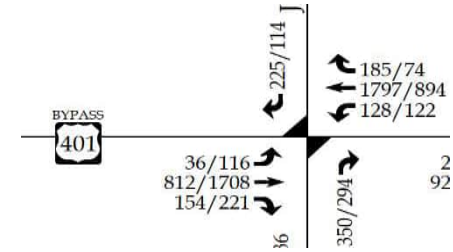
Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



US 401 Bypass & Jonesville Road [Minor-Street Right-Turn] [No-Build]

AM Peak Hour				
vph	g/c	a	b	c
720	0.7	0.00004	0.0108	0.2587
812	0.7	3.5E-05	0.010033	0.310936
900	0.7	0.00003	0.0093	0.3609

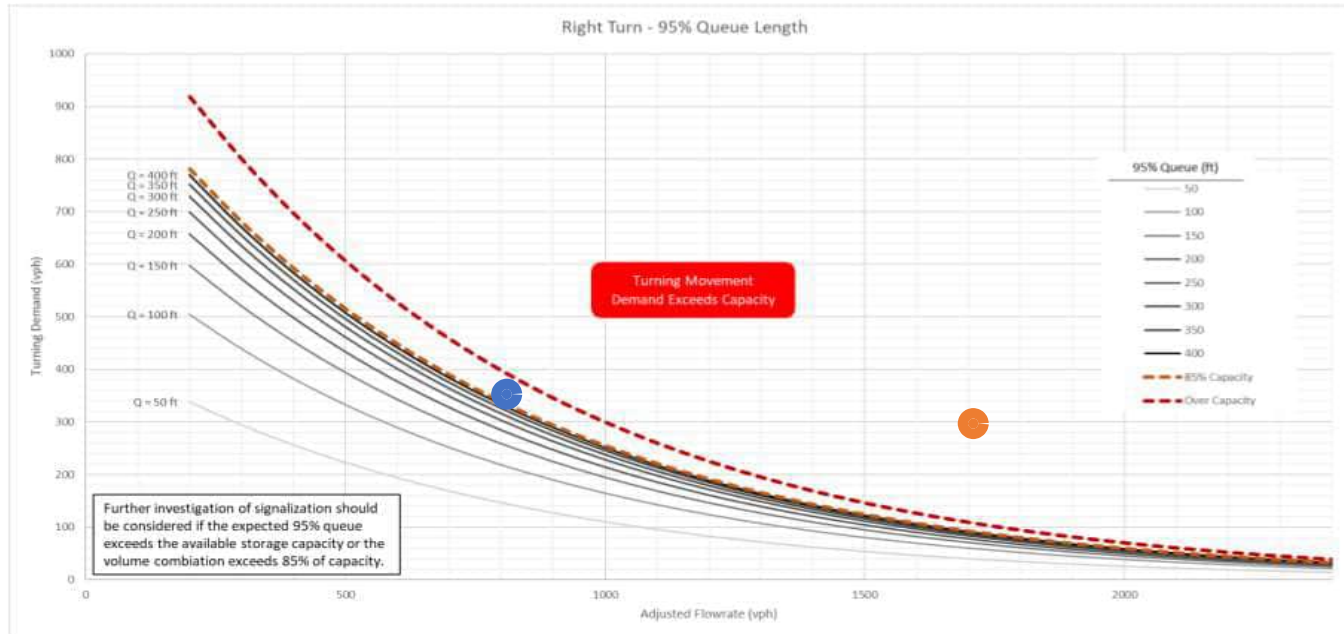
CVAF	1
Conflicting Volume (vph)	812
Adjusted Conflicting (vph)	812
Turning Volume (vph)	350



PM Peak Hour				
vph	g/c	a	b	c
1620	0.7	0.00004	0.0108	0.2587
1708	0.7	3.5E-05	0.010067	0.308664
1800	0.7	0.00003	0.0093	0.3609

CVAF	1
Conflicting Volume (vph)	1708
Adjusted Conflicting (vph)	1708
Turning Volume (vph)	294

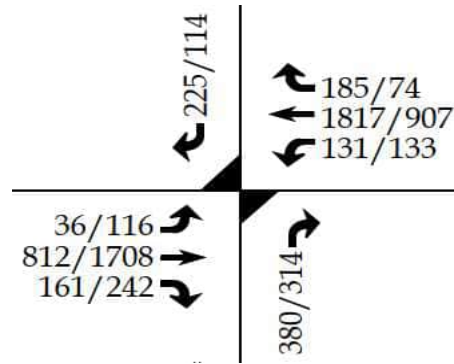
Distance to Upstream Signal	8800	ft
Posted Speed Limit	55	mph
Travel Time	109.09	s



US 401 Bypass & Jonesville Road [Minor-Street Right-Turn] [Build]

AM Peak Hour				
vph	g/c	a	b	c
720	0.7	0.00004	0.0108	0.2587
812	0.7	3.5E-05	0.010033	0.310936
900	0.7	0.00003	0.0093	0.3609

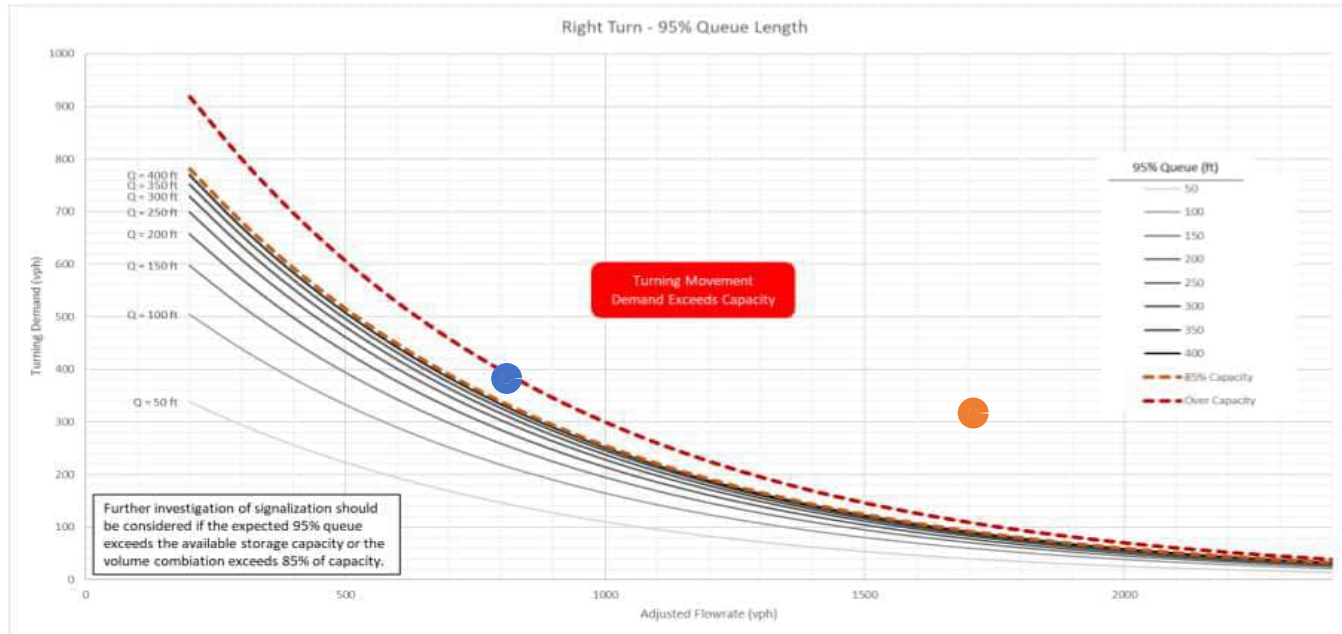
CVAF	
CVAF	1
Conflicting Volume (vph)	812
Adjusted Conflicting (vph)	812
Turning Volume (vph)	380



PM Peak Hour				
vph	g/c	a	b	c
1620	0.7	0.00004	0.0108	0.2587
1708	0.7	3.5E-05	0.010067	0.308664
1800	0.7	0.00003	0.0093	0.3609

CVAF	
CVAF	1
Conflicting Volume (vph)	1708
Adjusted Conflicting (vph)	1708
Turning Volume (vph)	314

Distance to Upstream Signal	8800	ft
Posted Speed Limit	55	mph
Travel Time	109.09	s



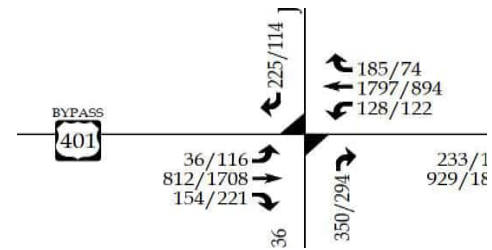
US 401 Bypass & Jonesville Road [Major-Street Left-Turn] [No-Build]

AM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00004	0.0097	0.4284
966	0.7	4.0E-05	0.00915	0.46261
1080	0.7	0.00004	0.0082	0.5217

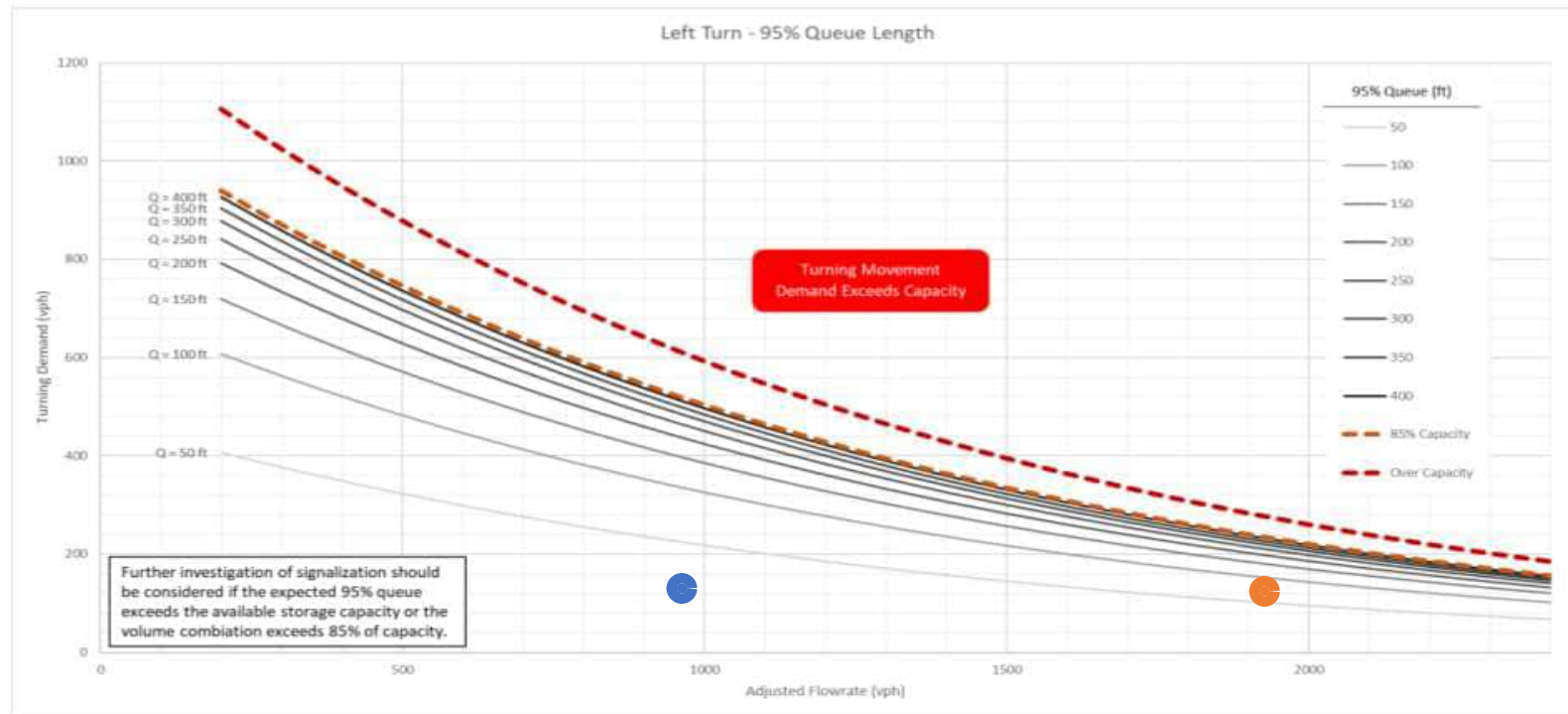
CVAF	1
Conflicting Volume (vph)	966
Adjusted Conflicting (vph)	966
Turning Volume (vph)	128

PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0097	0.4284
1929	0.7	4.0E-05	0.008625	0.495265
1980	0.7	0.00004	0.0082	0.5217

CVAF	1
Conflicting Volume (vph)	1929
Adjusted Conflicting (vph)	1929
Turning Volume (vph)	122



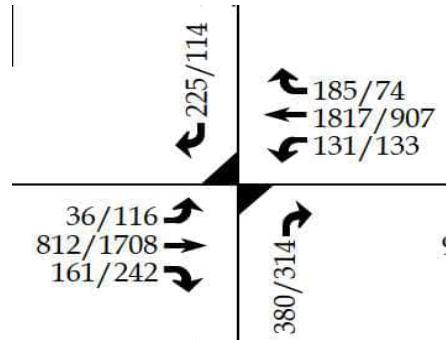
Distance to Upstream Signal	8800	ft
Posted Speed Limit	55	mph
Travel Time	109.09	s



US 401 Bypass & Jonesville Road [Major-Street Left-Turn] [Build]

AM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00004	0.0097	0.4284
973	0.7	4.0E-05	0.009092	0.466238
1080	0.7	0.00004	0.0082	0.5217

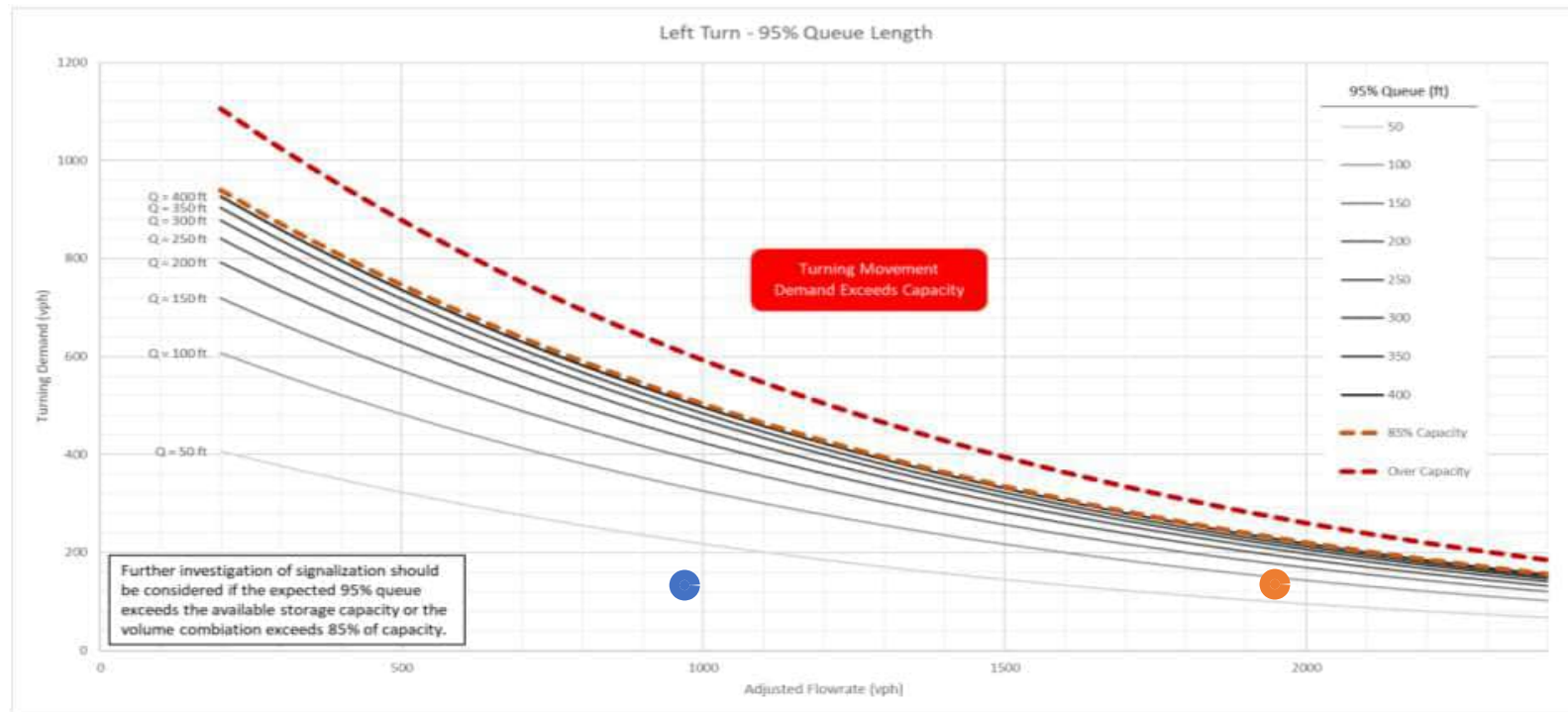
CVAF	1
Conflicting Volume (vph)	973
Adjusted Conflicting (vph)	973
Turning Volume (vph)	131



PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0097	0.4284
1950	0.7	4.0E-05	0.00845	0.50615
1980	0.7	0.00004	0.0082	0.5217

CVAF	1
Conflicting Volume (vph)	1950
Adjusted Conflicting (vph)	1950
Turning Volume (vph)	133

Distance to Upstream Signal	8800	ft
Posted Speed Limit	55	mph
Travel Time	109.09	s



US 401 Bypass & Eastern U-Turn Location [Major-Street U-Turn] [No-Build]

AM Peak Hour

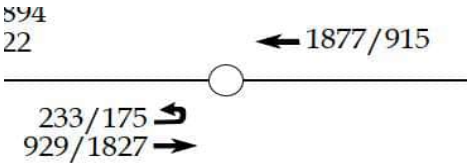
vph	g/c	a	b	c
1800	0.7	0.00003	0.0072	0.5106
1877	0.7	3.0E-05	0.007114	0.522064
1980	0.7	0.00003	0.007	0.5374

PM Peak Hour

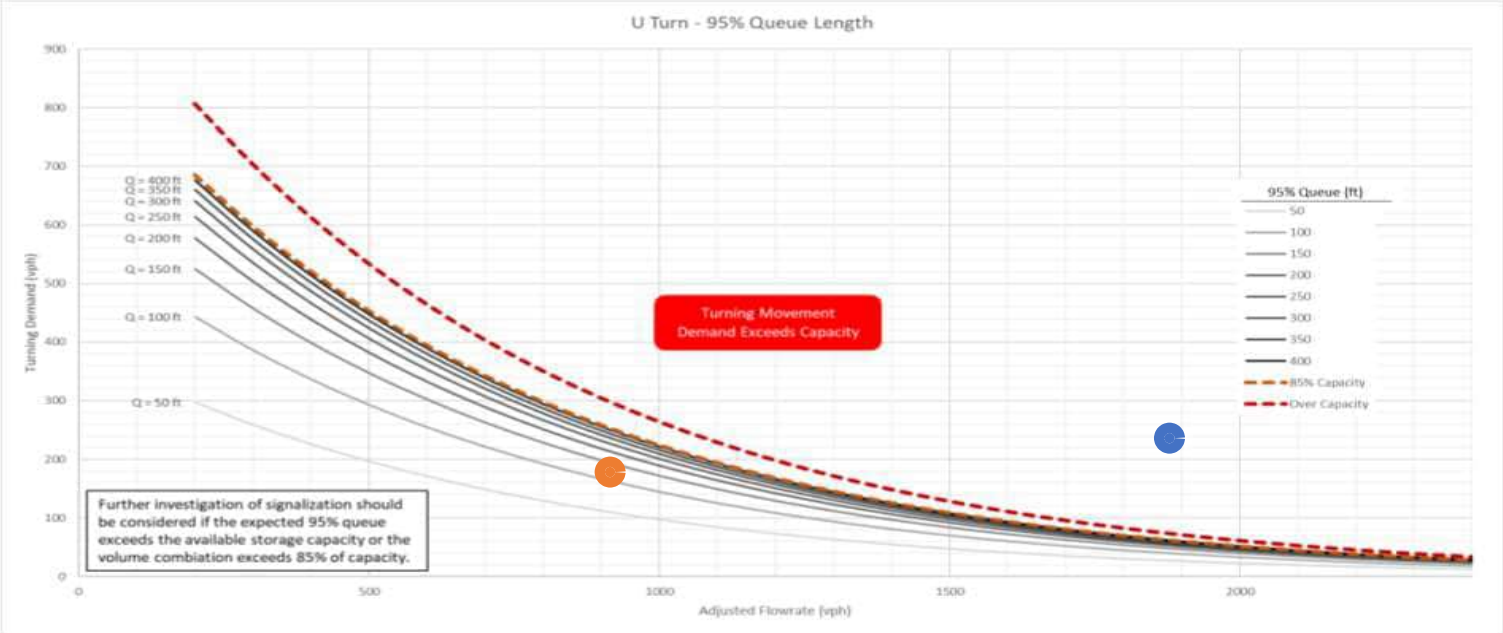
vph	g/c	a	b	c
900	0.7	0.00003	0.0072	0.5106
915	0.7	3.0E-05	0.007183	0.512833
1080	0.7	0.00003	0.007	0.5374

CVAF	1
Conflicting Volume (vph)	1877
Adjusted Conflicting (vph)	1877
Turning Volume (vph)	233

CVAF	1
Conflicting Volume (vph)	915
Adjusted Conflicting (vph)	915
Turning Volume (vph)	175



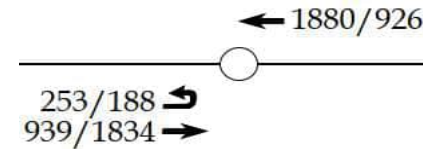
Distance to Upstream Signal	10000	ft
Posted Speed Limit	55	mph
Travel Time	123.97	s



US 401 Bypass & Eastern U-Turn Location [Major-Street U-Turn] [Build]

AM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00003	0.0072	0.5106
1880	0.7	3.0E-05	0.007111	0.522511
1980	0.7	0.00003	0.007	0.5374

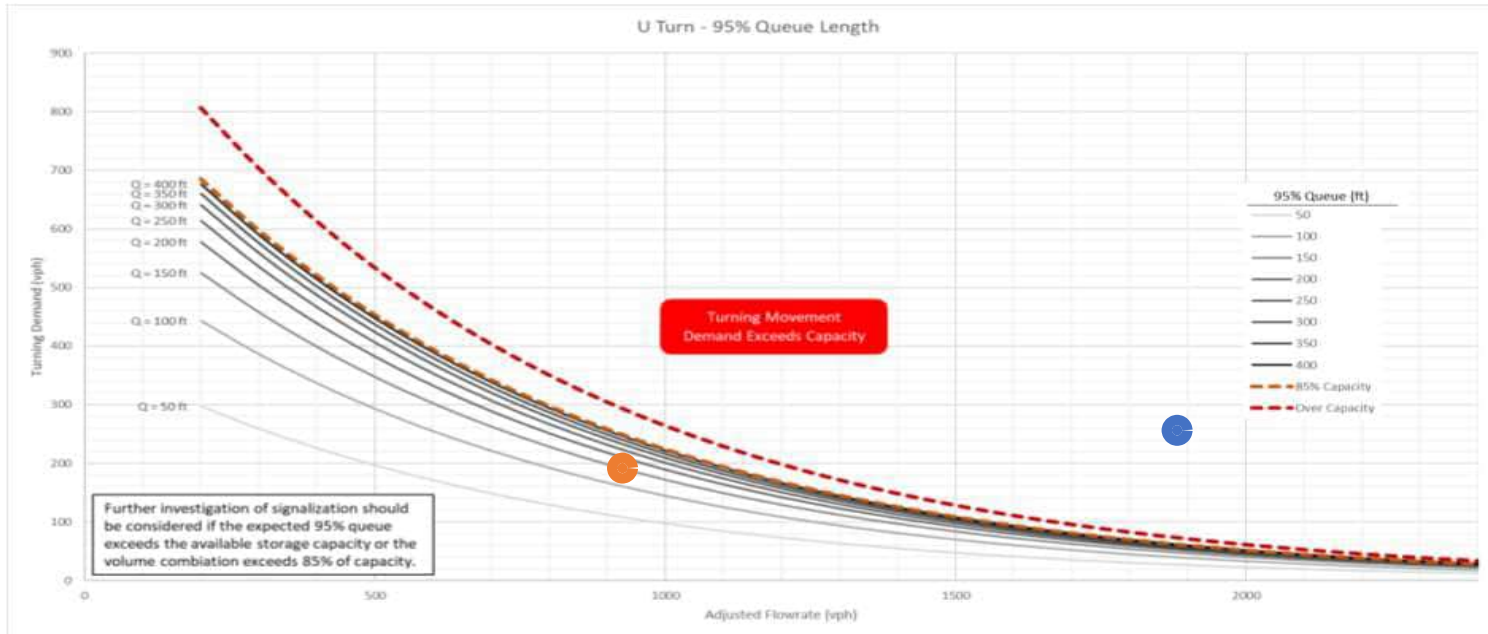
CVAF	1
Conflicting Volume (vph)	1880
Adjusted Conflicting (vph)	1880
Turning Volume (vph)	253



PM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00003	0.0072	0.5106
926	0.7	3.0E-05	0.007171	0.514471
1080	0.7	0.00003	0.007	0.5374

CVAF	1
Conflicting Volume (vph)	926
Adjusted Conflicting (vph)	926
Turning Volume (vph)	188

Distance to Upstream Signal	10000	ft
Posted Speed Limit	55	mph
Travel Time	123.97	s





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Roy Cooper
Governor

J. Eric Boyette
Secretary

June 5, 2023

Harris Creek Farm Development

Traffic Impact Analysis Review Report Congestion Management Section

TIA Project: SC-2023-115
Division: 5
County: Wake



Nicholas C. Lineberger, P.E. Regional Engineer
Charles V. Sorrell, Project Engineer
Daniel W. Collins, Project Design Engineer

Harris Creek Farm Development

SC-2023-115

Rolesville

Wake County

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

Date Initially Received by CMS	05/08/23	Date of Site Plan	09/30/22
Date of Complete Information	05/08/23	Date of Sealed TIA	05/08/23

Proposed Development

The TIA assumes the development is completed by 2027 and consists of the following:

Land Use	Land Use Code	Size
Single-Family Detached Housing	210	68 d.u.
Single-Family Attached Housing	215	81 d.u.

Trip Generation - Unadjusted Volumes During a Typical Weekday

	IN	OUT	TOTAL
AM Peak Hour	22	66	88
PM Peak Hour	70	44	114
Daily Trips			1,276

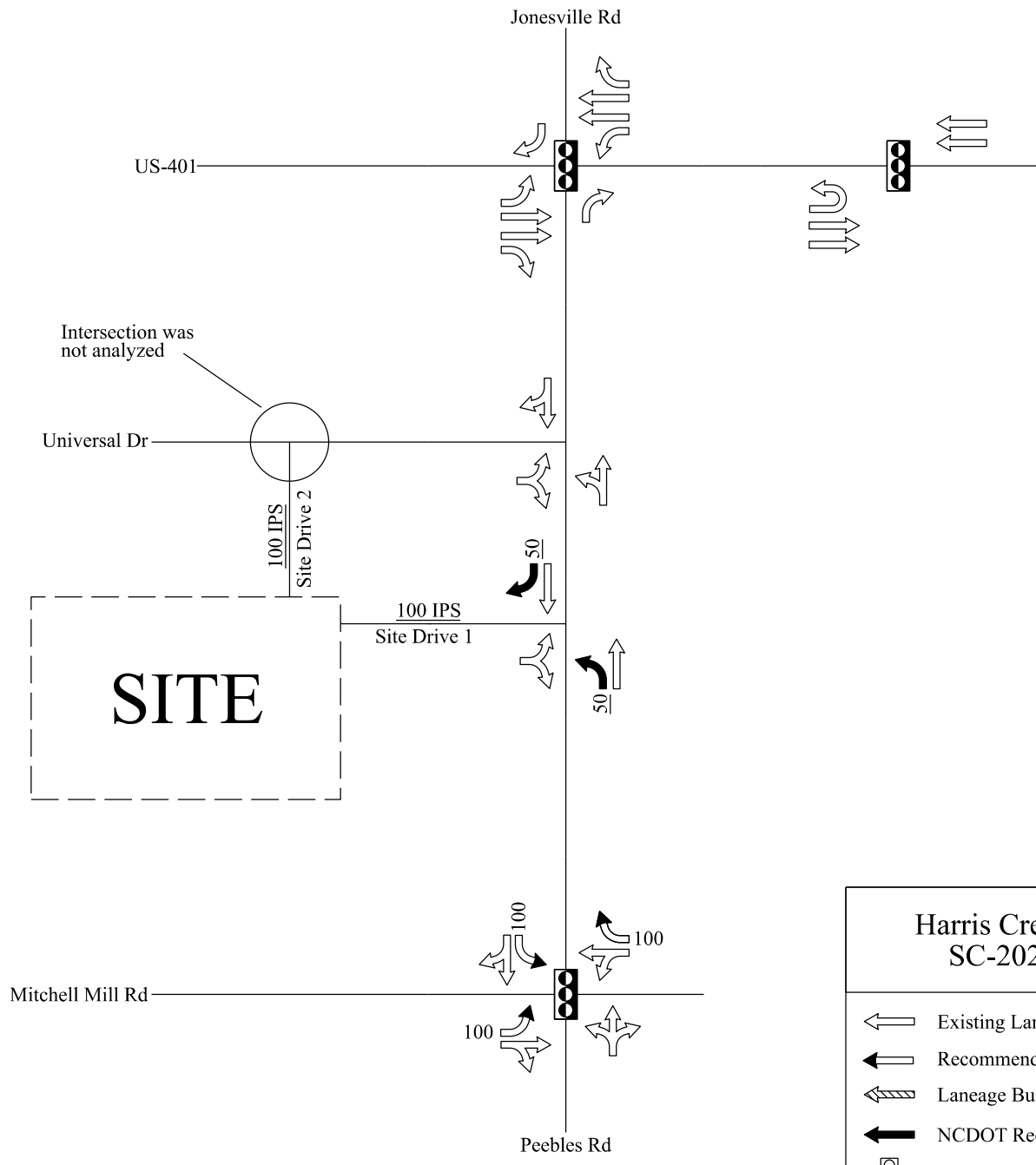
General Reference

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

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

Signalization

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



**Harris Creek Farm
SC-2023-115**

	Existing Laneage
	Recommended Laneage
	Laneage Built By Others
	NCDOT Recommendation
	Existing Signal
	Signal Proposed By Others
	Developer Proposed Signal
	Monitor for Signal
XXX	Storage
<u>XXX</u>	NCDOT Recommended Storage
<XXX>	Distance Between Intersections
IPS	Internal Protected Stem
All Distances in Feet	
Drawing Not to Scale	



March 27, 2024

Meredith Gruber, PLA, AICP
Town of Rolesville
502 Southtown Circle
Rolesville, NC 27571
P: 919-554-6517
E: Meredith.gruber@rolesville.nc.gov

Reference: Harris Creek Farm – Rolesville, NC

Subject: Trip Generation

Dear Ms. Gruber:

The contents of this letter document the change in land use type and density of the proposed Harris Creek Farm development. A traffic impact analysis (TIA) for this development was sealed on May 8, 2023 and subsequently approved by the North Carolina Department of Transportation (NCDOT). The TIA assumed the development would consist of 68 single-family detached homes, and 81 townhomes. The site plan has changed, and now proposes 120 single-family detached homes. This letter compares the trip generation used in the TIA with new calculations based on the latest site plan.

Site Location and Development Plan

The site is located on the west side of Jonesville Road near Universal Drive. Two driveways are proposed: one on Jonesville Road, and one on Universal Drive. Both are full access intersections with stop control on the driveway. The development proposes 120 single-family detached homes. The latest site plan is attached.

Trip Generation Comparison

The trip generation used in the approved TIA was compared with new calculations based on the latest site plan. The approved TIA assumed the development would consist of 68 single-family detached homes, and 81 townhomes. The site plan has changed, and now proposes 120 single-family detached homes.

Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 11.1 Edition. Table 1 provides a trip generation comparison between the approved TIA site plan and the latest site plan.

Table 1: Trip Generation Comparison

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Approved TIA Site Plan						
Single-Family Detached Housing (210)	68 DU	708	13	39	44	25
Single-Family Attached Housing (215)	81 DU	568	9	27	26	19
TOTAL		1,276	22	66	70	44
Latest Site Plan						
Single-Family Detached Housing (210)	120 DU	1,193	22	66	74	44
Difference		-83	0	0	4	0

The trip generation based on the latest site plan is nearly the same as that used in the approved TIA. Daily trips are 83 vehicles lower. The number of trips entering during the PM peak hour are 4 vehicles higher. This increase is not enough to change the recommendations of the approved TIA. All other values are the same.

Conclusion

A TIA for this development was sealed on May 8, 2023 and subsequently approved by NCDOT. The TIA assumed the development would consist of 68 single-family detached homes, and 81 townhomes. The site plan has changed, and now proposes 120 single-family detached homes. The trip generation used in the approved TIA was compared with new calculations based on the latest site plan. The latest site plan is expected to generate 83 fewer daily trips. The number of trips entering during the PM peak hour are expected to be 4 vehicles higher. This increase is not enough to change the recommendations of the approved TIA. All other trip generation values are equal.

If you should have any questions regarding this analysis, please contact me at (704) 549-4260.

Sincerely,

A handwritten signature in black ink that reads "J. Andrew Eagle".

J. Andrew Eagle, PE, PTOE

Senior Traffic Engineering Project Manager

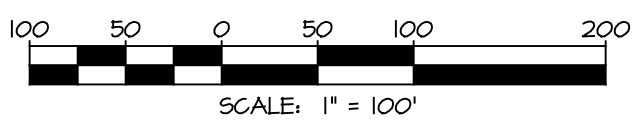
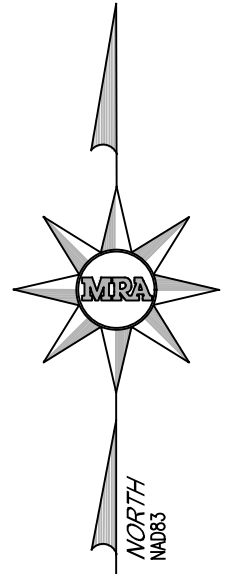
DRMP, Inc.

License #F-1489

Attachments

- Latest Site Plan





COPYRIGHT: THE LAYOUT SHOWN ON THIS PLAN, THE DRAWING, THE DESIGN CONCEPT AND THE INTELLECTUAL PROPERTY USED TO DEVELOP THE SAME, ARE PROPRIETARY TO MORRIS & RITCHIE ASSOCIATES, INC. AND SHALL NOT BE USED, ALTERED, OR COPIED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN PERMISSION FROM MORRIS & RITCHIE ASSOCIATES, INC.

REVISIONS

DATE

MORRIS & RITCHIE ASSOCIATES OF NC, PC
 ENGINEERS, PLANNERS, SURVEYORS AND LANDSCAPE ARCHITECTS
 5605 CHAPEL HILL RD, STE 112
 RALEIGH, NC 27607
 (984) 200-2103
 MIRAGTA.COM
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PRELIMINARY
 NOT FOR CONSTRUCTION

CONCEPT SKETCH
 JONESVILLE ROAD SUBDIVISION
 CONCEPT

JOB NO.:
 SCALE: 1" = 100'
 DATE: 05/03/2022
 DRAWN BY:
 DESIGN BY:
 REVIEW BY:
 SHEET: 1 OF 1



TOWN OF ROLESVILLE PETITION FOR ANNEXATION

The items below are required in order to complete your application and shall be submitted when the application is filed.

1. A complete copy of the last deed of record for proof of ownership
2. An annexation boundary plat/map for recordation at the Wake County Register of Deeds Office (mylar plat) prepared by a professional land surveyor showing the boundaries of the area or property for annexation into the Town of Rolesville.
3. A complete copy of the written metes and bounds description based on the annexation boundary plat/map.

SECTION 1 -

Is the area contiguous with the existing primary corporate limits? Satellite corporate limits is not primary. Yes or No

Note: If the land is contiguous to any existing corporate limits, the proposed annexation boundary will include all intervening right-of-ways for streets, easements, and other areas as stated in North Carolina General Statute §160-131(1).

SECTION 2 - VESTED

NC General Statutes require petitioners of both contiguous and non-contiguous annexations to file a signed statement declaring whether vested rights have been established in accordance with G.S. 160A-385.1 or 153A-344.1 for properties subject to the petition. Do you

declare vested rights for the property subject to this petition? Yes or No

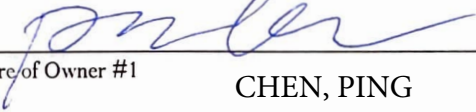
SECTION 3 - PROPERTY

PIN Number	Real Estate ID Number	Deed Book Number	Page Number	Acreage To Be Annexed	Wake County Assessed Value
1757277811	0057413	DB 018953	PG 00623	71.52	\$1,061,940
1757375276	0057448	DB 018953	PG 00623	0.44	\$8,000
1757375365	0057447	DB 018953	PG 00623	0.41	\$8,000
1757375464	0057446	DB 018953	PG 00623	0.48	\$8,000
1757375575	0057445	DB 018953	PG 00623	0.45	\$19,200
1757375665	0057444	DB 018953	PG 00623	0.46	\$19,200
1757375765	0057443	DB 018953	PG 00623	0.46	\$19,200
1757375865	0057442	DB 018953	PG 00623	0.46	\$19,200
1757375975	0057441	DB 018953	PG 00623	0.46	\$19,200
1757385064	0057440	DB 018953	PG 00623	0.45	\$19,200
1757384572	0057429	DB 018953	PG 00623	0.49	\$19,200
1757383572	0057430	DB 018953	PG 00623	0.48	\$19,200
1757368816	0057438	DB 018953	PG 00623	0.69	\$8,000
1757378013	0057437	DB 018953	PG 00623	0.54	\$8,000
1757378109	0057436	DB 018953	PG 00623	0.53	\$8,000
1757378303	0057435	DB 018953	PG 00623	0.53	\$8,000
1757377990	0057431	DB 018953	PG 00623	0.35	\$19,200
1757471559	0345866	DB 018963	PG 00592	14.90	\$187,099
1757385349	0057439	DB 018953	PG 00623	0.28	\$19,200

SECTION 4 - SIGNATURES AND VERIFICATION

We, the undersigned owners of the real properties contained in the metes and bounds description and plat/map attached hereto, respectfully request that the area described above be annexed and made part of the Town of Rolesville, North Carolina. By signing below, we acknowledge that all information is correct.

- If property owned by INDIVIDUALS (NOTE: All legal owners must sign including both husband and wife)

		<u>6/8/2022</u>
Signature of Owner #1	CHEN, PING	Date Signed
	10030 GREEN LEVEL CHURCH RD STE 802	
Signature of Owner #2	CARY NC 27519-8195	Date Signed

- If property owned by a COMPANY OR CORPORATION (NOTE: The company or corporation must be legally registered with the State of North Carolina – Office of the Secretary of State)

Name of Corporation

Printed Name of Registered Agent

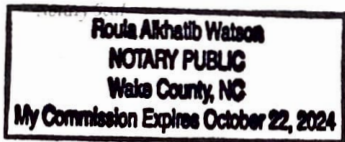
Signature of Registered Agent

Address, State, Zip of Registered Office:

North Carolina, Wake County

I, Paula Alkhatib Watson Notary Public for said County and State, do hereby certify that the above signed individual(s) appeared before me this day and signed the foregoing instrument.
Witness my hand and official seal, this 8th day of June, 2022.


Notary Public
My commission expires: 10/22/2024



MORRIS & RITCHIE ASSOCIATES OF NC, PC

AN AFFILIATE OF MORRIS & RITCHIE ASSOCIATES, INC. WHICH PROVIDES ENGINEERING, ARCHITECTURE, PLANNING, SURVEYING & LANDSCAPE ARCHITECTURE THROUGHOUT THE MID-ATLANTIC REGION AND LANDSCAPE ARCHITECTS



Legal Description - New Parcel

93.609 Acres

Portion of Lands of Ping Chen

Wake Forest Township – Wake County, North Carolina

All that certain parcel of land lying generally easterly of Jonesville Road, being located in Wake Forest Township, Wake County, North Carolina and being a portion of those lands described in deed dated March 11, 2022 from Jerri Jo Miller, Tammy Gower Batts, Clifton Edward Blackley and spouse Joetta May Blackley, Grantor to Ping Chen and recorded in the Land Records of Wake County, North Carolina in Deed Book 18953, page 592 and page 623, being more particularly described as follows, to wit:

Beginning at a PK nail set in an existing concrete monument on the Southwestern right-of-way of Jonesville Road, having North Carolina state plane coordinates N: 777,906.672 E: 2,154,356.044. Thence, with said right-of way, South 68°36'32" West 20 feet to a concrete monument on the Southwestern right-of-way line of Jonesville Road; thence, with said right-of-way and along a curve with a cord bearing distance South 25°28'26" East 211.09 feet and a radius of 1,482.39 feet to an iron pipe; thence along said right-of-way, South 30°07'39" East 362.89 feet to an iron pipe; thence leaving said right-of-way, South 03°57'31" West 224.45 feet to a point; thence, South 62°24'06" West 140.83 feet to a point; thence, North 85°00'48" West 220.39 feet to a point; thence, South 71°32'01" West 167.97 feet to a point; thence, South 55°11'46" West 260.01 feet to a point; thence South 00°19'06" East to an iron pipe; thence, South 77°03'58" West 613.86 feet to an iron pipe; thence, North 00°39'34" West 210.00 feet to an iron pipe; thence, North 89°39'42" West 210.07 feet to an iron pipe; thence, North 89°33'15" West 60.01 feet to an iron pipe; thence, North 89°33'15" West 194.65 feet to an iron pipe; thence, North 89°37'28" West 192.36 feet to an iron pipe; thence, South 89°58'04" West 545.58 feet to an iron pipe; thence, South 89°41'47" West 571.90 feet to an iron pipe; thence, North 12°14'25" East 513.70 feet to an iron pipe; thence, South 60°15'35" East 257.50 feet to an iron pipe; thence, South 68°15'35" East 360.30 feet to an iron pipe; thence, North 03°35'25" East 604.00 feet to an iron pipe; thence, North 56°00'58" West 420.00 feet to an iron pipe; thence, South 65°29'02" West 130.00 feet to an iron pipe; thence, South 42°57'43" West 270.40 feet to an iron pipe; thence, North 01°21'15" West 719.72 feet to an axle; thence, North 87°42'39" East 434.84 feet to an iron pipe; thence, North 02°13'13" East 238.07 feet to an iron pipe; thence, South 89°16'24" East 821.92 feet to an iron pipe; thence, South 02°47'46" East 100.00 feet to an iron pipe; thence, South 89°47'46" East 150.00 feet to an iron pipe; thence, North 55°18'54" East 174.59 feet to an iron pipe; thence, South 88°45'46" East 396.99 feet to an iron pipe; thence, South 00°09'07" East 210.02 feet to an iron pipe; thence, South 89°21'02" East 175.02 feet to an iron pipe on the Western right-of-way of Gideon Drive; thence with said right-of-way, South 31°00'37" West 57.95 feet to an iron pipe; thence leaving said right of way, North 89°21'02" West 245.02 feet to an iron pipe; thence, South 00°09'07" East 175.02 feet to an iron pipe; thence, South 89°21'02" East 45.00 feet to an iron pipe; thence, South 00°09'07" East 100.01 feet to an iron pipe; thence, South 89°21'02" East 200.02 feet to an iron pipe on the Western right-of-way of Gideon Drive; thence with said right-of-way, South 01°21'41" East

5605 Chapel Hill Road, Suite 112, Raleigh, NC 27607 (984) 200-2103 www.mragta.com

Abingdon, MD ♦ Baltimore, MD ♦ Laurel, MD ♦ Towson, MD ♦ Georgetown, DE ♦ New Castle, DE ♦ Leesburg, VA ♦ Raleigh, NC
(410) 515-9000 (443) 490-7201 (410) 792-9792 (410) 821-1690 (302) 855-5734 (302) 326-2200 (703) 994-4047 (984) 200-2103

MORRIS & RITCHIE ASSOCIATES OF NC, PC

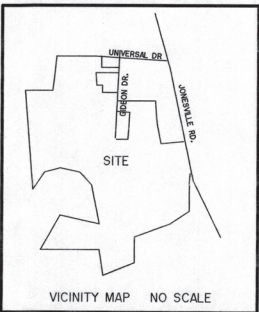
AN AFFILIATE OF MORRIS & RITCHIE ASSOCIATES, INC. WHICH PROVIDES ENGINEERING, ARCHITECTURE, PLANNING, SURVEYING & LANDSCAPE ARCHITECTURE THROUGHOUT THE MID-ATLANTIC REGION AND LANDSCAPE ARCHITECTS



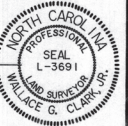
667.14 feet to a point; thence crossing and leaving said right of way, South 88°47'24" East 210.08 feet to an iron pipe; thence North 00°34'22" West 421.87 feet to a point; thence, South 88°57'37" West 150.00 feet to a point on the Eastern right-of-way of Gideon Drive; thence with said right-of-way, North 00°53'13" West 100.00 feet to a point; thence leaving said right-of-way, North 88°57'37" East 150.00 feet to a point; thence, North 00°53'16" West 390.32 feet to an axle; thence, South 89°32'03" East 237.94 feet to a point; thence, South 06°57'52" East 113.70 feet to a point; thence, South 12°21'20" East 211.32 feet to an iron pipe; thence, North 73°55'50" East 149.95 feet to an iron pipe on the Southwestern right-of-way of Jonesville Road; thence, with said right-of-way and along a curve with a bearing and distance of South 19°15'36" East 146.36 feet and a radius of 1,462.39 feet to the point of beginning. Containing **93.609 AC.±**.

The total area of the **New Parcel 1** herein described being a portion of Tract 1 as described in deed dated March 11, 2022 from Jerri Jo Miller, Tammy Gower Batts, Clifton Edward Blackley and spouse Joetta May Blackley, Grantor to Ping Chen and recorded in the Land Records of Wake County, North Carolina in Deed Book 18953, page 592 and page 623, and containing a total area of **93.609 AC.±** and being subject to any and all matters of which a current title package would disclose.

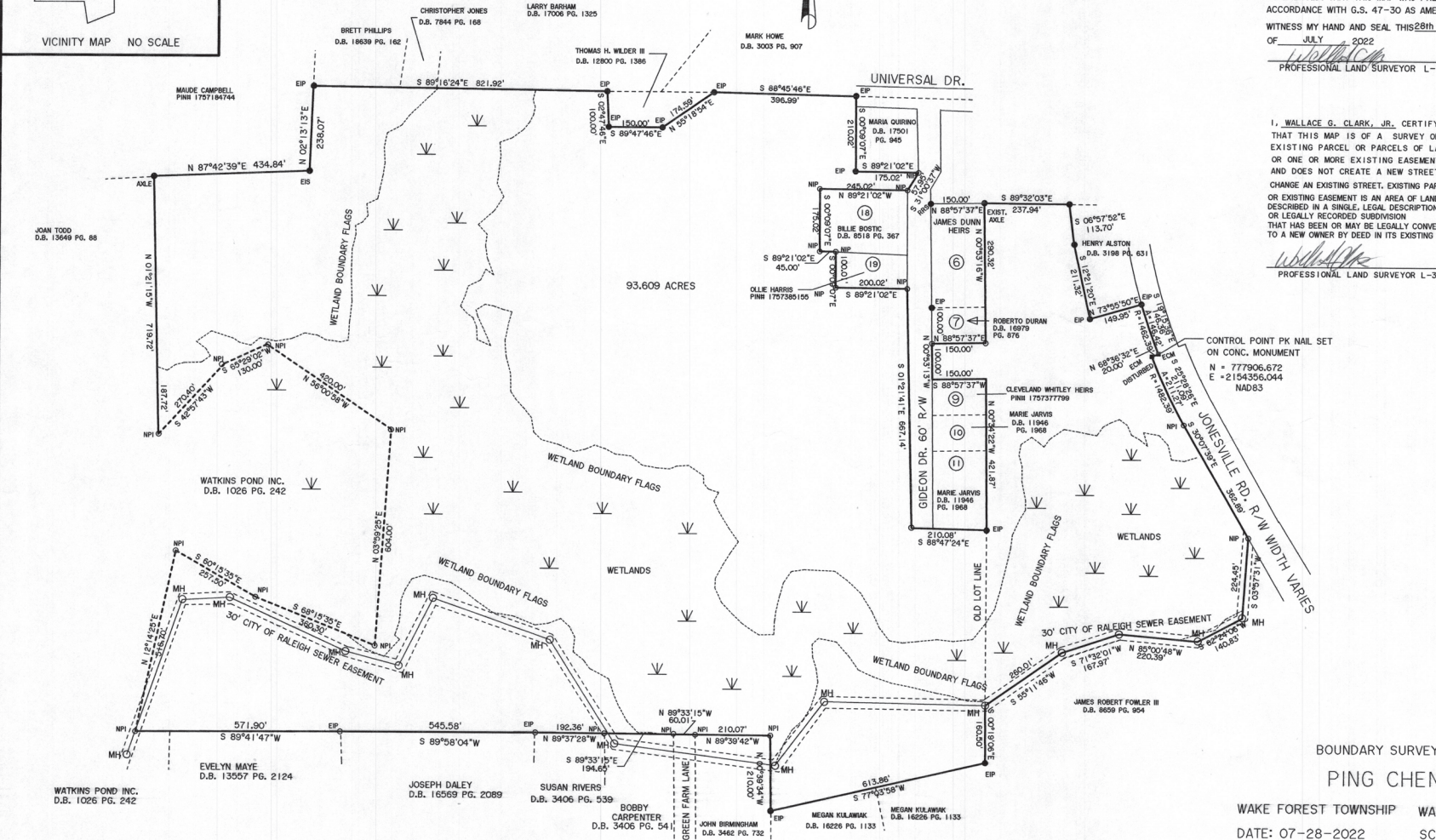




I, WALLACE G. CLARK, JR., CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION OF AN ACTUAL SURVEY MADE UNDER MY SUPERVISION. THAT THE RATIO OF PRECISION AS CALCULATED IS 1:10,000. THAT THE BOUNDARIES NOT SURVEYED ARE SHOWN AS BROKEN LINES PLOTTED FROM INFORMATION FOUND IN BOOKS REFERENCED. THAT THIS MAP WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY HAND AND SEAL THIS 28th DAY OF JULY, 2022



I, WALLACE G. CLARK, JR., CERTIFY THAT THIS MAP IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND OR ONE OR MORE EXISTING EASEMENTS AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET, EXISTING PARCEL OR EXISTING EASEMENT IS AN AREA OF LAND DESCRIBED IN A SINGLE, LEGAL DESCRIPTION OR LEGALLY RECORDED SUBDIVISION THAT HAS BEEN OR MAY BE LEGALLY CONVEYED TO A NEW OWNER BY DEED IN ITS EXISTING CONFIGURATION.

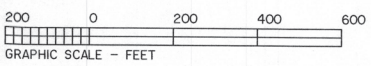


THIS MAP IS A COMPOSITE BOUNDARY OF THE FOLLOWING PARCELS.
 PID# 0057413, 0057429, 0057430, 0057440, 0057441, 0057442, 0057443, 0057444, 0057445, 0057446, 0057447, 0057448, 0057435, 0057436, 0057437, 0057438, 0057439, 0345886, 0057431

BOUNDARY SURVEY FOR
PING CHEN

WAKE FOREST TOWNSHIP WAKE COUNTY, N.C.
DATE: 07-28-2022 SCALE: 1" = 200'

GIL CLARK SURVEYING L.I.C. F-0739
P.O. BOX 1243
KNIGHTDALE, NORTH CAROLINA 27545
TEL (919) 266-9711 FAX (919) 266-9732



NOTE: ALL WETLANDS FLAGS WERE DELINEATED BY ECOTEX

**NORTH CAROLINA
GENERAL WARRANTY DEED**

Excise Tax: **\$ 0.00**

Recording Time, Book and Page

Account No. Parcel Identifier No. 0057413, 0057429, 0057430, 0057431, 0057435, 0057436, 0057437, 0057438, 0057439, 0057440, 057441, 0057442, 057443, 0057444, 0057445, 0057446, 0057447, 0057448, 0345866 and 0122598

Mail after recording to: GRANTEES @ 10030 Green Level Church Road Suite 802, #149, Cary, NC 27519

This instrument was prepared by: Ewing Law Center, P.C. (Carey L. Ewing, Esq.) without benefit of a title examination.

THIS DEED made this 24th day of January, 2023 by and between

GRANTOR

**Ping Chen and Fanxing Li, a Married Couple
10030 Green Level Church Road Suite 802, #149, Cary, NC 27519**

GRANTEE

**Kenneth Investment, LLC, a North Carolina Limited Liability Company
10030 Green Level Church Road Suite 802, #149, Cary, NC 27519**

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantors, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land and more particularly described as follows:

submitted electronically by "Ewing Law Center, PC"
in compliance with North Carolina statutes governing recordable documents
and the terms of the submitter agreement with the Wake County Register of Deeds.

SEE ATTACHED EXHIBIT A

The described property is more commonly known as:

TRACT 1: All or a portion of the property hereinabove described was acquired by Grantors by instrument recorded in Book 18953, Page 623, Wake County Registry. A map showing the above described property is recorded in Book of Maps 1971, Volume II, Page 127, Wake County Registry.

TRACT 2: All or a portion of the property hereinabove described was acquired by Grantors by instrument recorded in Book 18953, Page 592, Wake County Registry. A map showing the above described property is recorded in Book of Maps 2007, Page 1224, Wake County Registry.

TRACT 3: All or a portion of the property hereinabove described was acquired by Grantors by instrument recorded in Book 18943, Page 2656, Wake County Registry. A map showing the above described property is recorded in Book of Maps 1982, Page 473, Wake County Registry.


The above described property does does not include the primary residence of the Grantors.

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.


And the Grantors covenants with the Grantee, that Grantors are seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantors will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

Title to the property hereinabove described is subject to the following exceptions: NONE KNOWN.

IN WITNESS WHEREOF, the Grantors has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officer(s), the day and year first above written.



Ping Chen



Fanxing Li

STATE OF NORTH CAROLINA
COUNTY OF DURHAM

I, CAREY L. EWING, a Notary Public for DURHAM County, State of NORTH CAROLINA, certify that Ping Chen and Fanxing Li, personally appeared before me this day, acknowledging to me that he/she/they signed the foregoing document: NORTH CAROLINA GENERAL WARRANTY DEED. Witness my hand and official stamp or seal, this the 24th day of January, 2023.

My Commission Expires: 06/13/2027



NOTARY PUBLIC: CAREY L. EWING

Carey L. Ewing
NOTARY PUBLIC
Durham County, N.C.

Exhibit "A"**TRACT 1:**

BEGINNING at a new iron pipe located in a gravel private road known as "Universal Road", which iron pipe is located South 85° 36' 09" East 766.15 feet from the intersection of the center lines of Jonesville Road and Universal Road; thence South 4° 41' 55" West 210.02 feet to a new iron pipe; thence South 84° 30' 00" East 175.02 feet to a new iron pipe; then South 35° 51' 39" West 57.95 feet to a new iron pipe; thence 84° 30' 00" East 175.02 feet to a new iron pipe; thence North 84° 30' 00" West 245.02 feet to a new iron pipe; thence South 04° 41' 55" West 175.03 feet to a new iron pipe; thence South 84° 30' 00" East 45.00 feet to a new iron pipe; thence South 04° 41' 55" West 100.01 feet to a new iron pipe; thence South 84° 30' 00" East 200.02 feet to a new iron pipe; thence 04° 41' 55" West 669.02 feet to a new iron pipe; thence South 84° 30' 00" East 200.00 feet to a new iron pipe; thence South 04° 41' 55" West 649.26 feet to an existing iron pipe; thence South 80° 50' 51" West 613.86 feet to an existing iron pipe; thence North 04° 00' 42" East 221.14 feet to a new iron pipe; thence North 84° 47' 09" West 656.86 feet to an existing iron pipe; thence North 85° 13' 27" West 545.51 feet to an existing iron pipe; thence North 85° 27' 18" West 571.35 feet to an existing iron pipe; thence North 16° 54' 52" East 516.50 feet to a new iron pipe; thence South 55° 35' 08" East 257.50 feet to a new iron pipe; then South 63° 35' 08" East 360.30 feet to a new iron pipe; thence North 08° 39' 52" East 604.00 feet to appoint; thence North 51° 35' 08" West 420.00 to a point; thence South 69° 54' 52" West 130.00 feet to a point; thence South 47° 24' 52" West 270.50 feet to a point; thence North 03° 24' 52" East 719.72 to an existing iron bar; thence South 87° 31' 14" East 434.72 to an existing iron pipe; thence North 06° 54' 46" East 238.00 feet to a new iron pipe; thence South 84° 30' 00" East 850.00 feet to a new iron pipe; thence South 02° 30' 00" West 100.00 feet to a new iron pipe; thence South 84° 30' 00" East 150.00 feet to a new iron pipe; thence North 02° 30' 00" East 100.00 feet to a new iron pipe; thence South 84° 30' 00" East 542.15 feet to a new iron pipe, the point and place of beginning, and being that tract of 78.289 acres in size, more or less, as shown on that map entitled "Survey for June M. Privette Heirs", prepared by W. Graham Cawthorne, Jr., R.L.S., and dated April 28, 1993.

In addition, being all of that real property described as Lot 8 according to that map entitled "Plot of farm belonging to June M. and Mary C. Privette", prepared by Pittman Estelle on February 6, 1947, and revised by T.M. Arrington, Jr., R.L.S., on March 18, 1964, and March 26, 1969, a copy of which is recorded in Wake County Book of Maps 1971, Volume II, Page 127.

Parcel ID #: 0057413, 0057429, 0057430, 0057431, 0057435, 0057436, 0057437, 0057438, 0057439, 0057440, 057441, 0057442, 057443, 0057444, 0057445, 0057446, 0057447, 0057448.

TRACT 2:

BEING all of that certain tract of land containing 14.90 acres and being designated as Lot No. 1, according to map recorded in Book of Maps 2007, Page 1224, Wake County Registry.

Parcel ID #: 0345866

TRACT 3:

BEING all of Tract 4, as depicted on a map entitled "Property Surveyed for Leonard Dean Estate", dated February 16, 1982, prepared by Mullen, Williamss, & Pearce, P.A., Registered Land Surveyors, and recorded in Book of Maps 1982, Page 473, Wake County Registry.

Parcel # 0122598

CERTIFICATE OF SUFFICIENCY

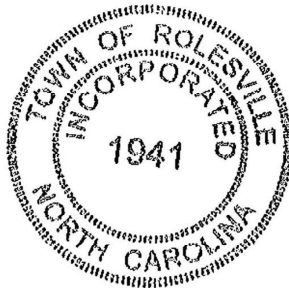
ANX22-05 - Harris Creek Farm

To the Board of Commissioners of the Town of Rolesville, North Carolina:

I, Robin E. Peyton, Town Clerk, do hereby certify that I have investigated the attached petition and hereby make the following findings:

- a. The petition contains an adequate property description of the area(s) proposed for annexation.
- b. The area described in the petition is contiguous to the Town of Rolesville primary corporate limits as required by G.S. 160A-31.
- c. The petition is signed by all owners of real property lying in the area described therein.

In witness whereof, I have hereunto set my hand and affixed the seal of the Town of Rolesville, this 7th day of December, 2022



Robin E. Peyton

Robin E. Peyton
Town Clerk



Memo

To: Mayor Currin and Rolesville Town Board
From: Mical McFarland, Community & Economic Development Manager
Date: April 16, 2024
Re: Agenda Item #3 Rolesville Chamber of Commerce Proposed Memorandum of Understanding (MOU) for FY2024-2025

Background

Each year, the Town of Rolesville and Chamber of Commerce enter into a Memorandum of Understanding (MOU) highlighting the partnership and coordination of activities and events between the two entities. The MOU also states the agreed upon financial contribution from the Town to the Chamber to support small businesses, entrepreneurship, and economic development.

Attached herein is the Chamber's new request for support, as well as the current 2023-2024 MOU.

Update

Changes from last year's MOU include:

- A \$1,000 decrease overall in the request for funds.
- Differing amounts/expenses for some of the events and programs (see attached chart)

Recommended Action

Staff recommends approval of the MOU to continue partnering with and supporting the Chamber of Commerce and programs that promote economic development and a good business climate in Rolesville.

Attachments

1. Cover Email from the Chamber Director
2. Current MOU and Budget Request for 2023-2024
3. New MOU and Budget Request for 2024-2025

From: [Ken Adrian](#)
To: [McFarland, Mical](#)
Subject: [External] MOU Request Document for Inclusion in April 16 Meeting
Date: Wednesday, April 10, 2024 3:46:30 PM
Attachments: [2024-2025 MOU Rolesville Chamber of Commerce - Final.pdf](#)

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Dear Mayor Currin, Town Staff, and the Town Board of Commissioners:

The Rolesville Chamber of Commerce is excited to present our proposal for the 2024-2025 MOU recommendation (attached). We are dedicated to continuing our partnership with the Town of Rolesville to offer valuable support to our local businesses and citizens.

The Rolesville Chamber acts as a vital bridge between businesses and the community, and we are pleased to note the ongoing participation and engagement from Rolesville's Town leadership, including Town staff and Commissioners. Our focus remains on enriching member engagement and benefits.

We've recently undergone significant changes at the Chamber: Barbara Timmons, our Membership Coordinator, will be leaving us at the end of April. Our new Chamber Executive, Philip Carter, has brought a fresh energy to our events and initiatives since joining four months ago. Additionally, under my leadership, a newly revamped Board of Directors is swiftly executing a new strategy and vision for the Rolesville Chamber. We're also excited to welcome Tammie Johnson-Blount this month as our new Membership Coordinator. Stay tuned for the public re-launch of the New Rolesville Chamber in May!

We are requesting a budget of \$28,000 for the current year's MOU. Our aim for 2024-2025 is to provide even better support and services to our members, leading to increased satisfaction and loyalty. Satisfied members are more likely to actively engage in community events, volunteering, and other activities, benefiting both the chamber and the town.

We sincerely appreciate the ongoing support from the Town of Rolesville. If you have any questions or need further information about our proposal, please don't hesitate to reach out to me.

Sincerely,

Ken Adrian

Chairperson

Memorandum of Understanding (MOU)
Between the Town of Rolesville and the Rolesville Chamber of Commerce
Fiscal Year 2023-2024

This memorandum of understanding, made between the Town of Rolesville (hereinafter referred to as “the Town”) and the Rolesville Chamber of Commerce (hereinafter referred to as “the Chamber”), hereinafter referred to as the “agreement”.

WHEREAS, the Town and the Chamber both value and support the businesses in the Rolesville community; and

WHEREAS, the Town realizes the importance of the Rolesville Chamber of Commerce in supporting, networking, and promoting businesses in the Rolesville community; and

WHEREAS, the Town desires to support the efforts of the Chamber of Commerce in bringing the business community together by organizing and holding events.

NOW, THEREFORE, in consideration of the mutual obligations and promises set forth below, the parties hereto agree as follows:

The Town agrees to:

1. Remain a member of the Chamber of Commerce and pay annual dues for the Visionary Partner level in the amount of \$400.
2. Contribute to the Chamber \$29,000 throughout the fiscal year. Attached is a chart showing the fiscal participation by the Town per line item.
3. Provide the use of Council Chamber space at Town Hall for a total of 48 hours at no cost. Reservation and use can be any date and time when no prior reservations or scheduled use exist.
4. Provide the use of the Community Center space at Town Hall for a total of 40 hours at no cost. A “Facility Use Request” should be submitted at least two (2) months in advance, and the Chamber must use the Town’s standard rental form and abide by the conditions for the rental including cleaning. Scheduling for this will need to work around any classes or paying reservations established prior to the Chamber’s Facility Use Request application.
5. Make available four (4) off-duty police officers throughout nine (9) hours for the annual BBQ event.
6. Provide at least fifteen (15) police officers throughout four (4) hours for the Christmas Parade. This will be an in-kind donation by the Town absorbing the cost.
7. Provide the use of Town facilities for existing members of the Rolesville Chamber of Commerce at the resident rate of \$45 per hour (2 hour minimum) when no prior reservations or scheduled use exists. For rentals after office hours, weekends, and/or holidays, an additional \$15 per hour will be charged for staffing. The maximum opportunities for the reduced reservation shall not exceed six (6) events within the term of this agreement. Facility use reservations shall be submitted by the Chamber of Commerce staff at least two (2) months prior to the requested date.
8. Share use of/access to EastWakeTV to support and promote the Town and Rolesville businesses.

The Chamber agrees to:

1. Complement the Town’s economic development efforts through:

- a. Launch Rolesville, a program which supports and promotes entrepreneurship and small business development in Rolesville.
 - b. The Youth Leadership Program, helping to educate the community's youth learn more about our community, assume leadership roles in our schools, and to become more involved in Rolesville's civic, cultural, economic development, and philanthropic organizations and groups.
 - c. Local Business Retention and Expansion (BRE) in partnership with the Town's Community & Economic Development Manager to engage and support the local business community and promote economic development.
 - d. Participation with the Town to communicate and organize activities and events that market Rolesville as a great place to do business, promote tourism, help recruit new business, and create a good business climate in Rolesville. Events include Rolesville Business Saturday, Women's Leadership Brunch, and a Military Appreciation Luncheon.
 - e. Development of resources to promote the Town, such as a Rolesville Community Guide and a "Welcome Wagon" packet of information for new residents.
2. Provide the Town of Rolesville twelve (12) tickets to their annual dinner.
 3. Provide the Town of Rolesville six (6) tickets to the Women's Leadership Brunch
 4. Provide the Town of Rolesville premium advertisement on all marketing material produced. This includes banners, programs, and printed ads for the annual BBQ event, Business Expo, Christmas Parade, Evenings with Santa, Golf outing, Military Appreciation Event, Women's Leadership Brunch, Rolesville Business Saturday, and the Annual Dinner.
 5. Provide the Town a booth at the Business Expo.
 6. Provide the Town space in the Christmas parade and one parade float free of charge.
 7. Pay the off-duty rate of \$35 per hour directly to the four (4) police officers (to be determined) for the nine (9) hours service at the annual BBQ event. This cost will be an estimated \$1,260.
 8. Provide premium sponsorship advertising and one foursome team registration at the annual Chamber Golf Event.

As part of this agreement, the Chamber is required to present a financial statement to the Town upon request per the provisions of N.C. General Statute 55A-16-24, highlighting Chamber activities and showing how the funds received from the Town of Rolesville are being used. The Town may request a report from the Chamber quarterly or bi-annually, depending on the desire of the Town Board.

This agreement is effective from the date of execution until June 30, 2024. At any point in time, either party may request that the responsibilities be amended. This agreement can be cancelled at any time throughout the term by either party with 30 days prior written notice to the other party.

Agreed upon this 2nd day of May by the Town of Rolesville Board of Commissioners



Town of Rolesville
Mayor

Terri A. Simmons, CPA

Rolesville Chamber of Commerce
Chair

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control

 5/3/23

Finance Officer

Date

**Town of Rolesville Contribution to the Rolesville Chamber of Commerce
Fiscal Year 2023-24**

Programs	Allocation
• Launch Rolesville	\$4,500
• Business After Hours	\$1,500
• Lunch and Learn Series	\$1,500
• Ambassador Program	\$500
• Youth Leadership	\$1,500
Events	
• Annual Dinner	\$1,750
• Rolesville Business Saturday	\$500
• BBQ & Bands	\$6,000
• Christmas Parade	\$1,500
• Golf	\$2,000
• Military Appreciation Event/Luncheon	\$500
• Women's Leadership Brunch	\$1,250
• Business Expo	\$750
Organizational Expenses	
• Website, Technology & Branding	\$2,250
• Welcome Wagon	\$1,500
• Insurance (for events)	\$1,500
Total Allocation	\$29,000

Memorandum of Understanding (MOU)
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Fiscal Year 2024-2025

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The Town agrees to:

1. Remain a member of the Chamber of Commerce and pay annual dues for the Visionary Partner level in the amount of \$400.
2. Contribute to the Chamber \$28,000 throughout the fiscal year. Attached is a chart showing the fiscal participation by the Town per line item.
3. Provide the use of Council Chamber space at Town Hall for a total of 48 hours at no cost. Reservation and use can be any date and time when no prior reservations or scheduled use exist.
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 - d. Participation with the Town to communicate and organize activities and events that market Rolesville as a great place to do business, promote tourism, help recruit new business, and create a good business climate in Rolesville. Events include Rolesville Business Saturday, Women's Leadership Brunch, and a Military Appreciation Luncheon.
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 5. Provide the Town space in the Christmas parade and one parade float free of charge.
 6. Pay the off-duty rate of \$35 per hour directly to the four (4) police officers (to be determined) for the nine (9) hours service at the annual BBQ event. This cost will be an estimated \$1,260.
 7. Provide premium sponsorship advertising and one foursome team registration at the annual Chamber Golf Event.
 8. Rollover \$4000 paid to RCC from MOU 2023-2024 for 2023 BBQ event and allocate to 2024 BBQ event.

As part of this agreement, the Chamber is required to present a financial statement to the Town upon request per the provisions of N.C. General Statute 55A-16-24, highlighting Chamber activities and showing how the funds received from the Town of Rolesville are being used. The Town may request a report from the Chamber quarterly or bi-annually, depending on the desire of the Town Board.

This agreement is effective from the date of execution until June 30, 2025. At any point in time, either party may request that the responsibilities be amended. This agreement can be cancelled at any time throughout the term by either party with 30 days prior written notice to the other party.

Agreed upon this ____ day of _____ by the Town of Rolesville Board of Commissioners

Town of Rolesville
Mayor

Rolesville Chamber of Commerce
Chair

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Finance Officer

Date

**Town of Rolesville Contribution to the Rolesville Chamber of Commerce
Fiscal Year 2024-25**

Programs	Allocation
• Launch Rolesville	\$4,550
• Business After Hours	\$1,500
• Lunch and Learn Series	\$1,500
• Ambassador Program	\$500
• Youth Leadership	\$2,200
Events	
• Annual Dinner	\$2,350
• Rolesville Business Saturday	\$500
• BBQ & Bands	\$2,600
• Christmas Parade	\$2,100
• Golf	\$2,600
• Military Appreciation Event/Luncheon	\$500
• Women’s Leadership Brunch	\$1,850
Organizational Expenses	
• Website, Technology & Branding	\$2,250
• Welcome Wagon	\$1,500
• Insurance (for events)	\$1,500
Total Allocation	\$28,000



Memorandum

To: Mayor and Town Board
From: Amy Stevens, Finance Director
Date: April 11, 2024
Re: Capital Improvement Plan Financial Model Update

At your February 20 budget work session, you were presented with an updated Capital Improvement Plan (CIP) financial model. During the discussion, the Board expressed interest in seeing some revisions to that model.

Staff have reached out to ADW Architects to obtain cost estimates for slightly smaller buildings on the Town Campus. In addition, staff have spent time charting out the expected scheduling of projects given the Board's expressed priorities.

Staff from the Town's financial advisor, Davenport Public Finance, will attend the April 16 meeting to present the updated model, which includes the effects on the tax rate and debt affordability indicators.

Our goals for this work session are to obtain the Board's comfort with:

Long-term cost of the CIP and the tax rate impact for FY24-25

Expenditures in FY24-25 to support the CIP (i.e. does the plan reflect your immediate priorities?)

Discussion Materials

Town of Rolesville, North Carolina



April 16, 2024

Contents / Agenda

3 Property Tax Base Overview

6 Existing Tax Supported Debt Profile

11 Capital Funding Analysis

17 Financing Options and Considerations

Appendix

A Appendix A: Existing Tax Supported Debt

B Appendix B: Detailed Tax Base Assumptions

C Appendix C: Rolesville Town Center Project Cost Estimates

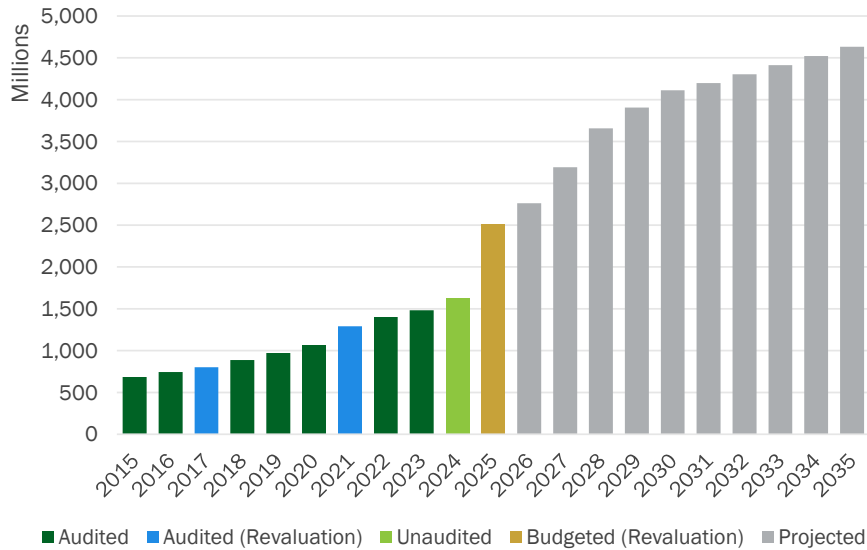
D Appendix D: Financial Policies

Property Tax Base Overview

Property Tax Base Overview

Historical and Projected Results

Historical Assessed Value



Historical Growth

FY	Total AV	% Growth
2015	684,166,185	-
2016	746,630,862	9.13%
2017	802,702,348	7.51%
2018	887,700,322	10.59%
2019	973,574,176	9.67%
2020	1,064,973,965	9.39%
2021	1,289,556,636	21.09%
2022	1,403,213,453	8.81%
2023	1,484,246,491	5.77%
2024	1,627,001,714	9.62%
2025	2,506,042,266	54.03%

Observations

- Overall tax base has grown by **266.29%** in total or **12.53%** per year since FY 2015 (CAGR).
- Excluding revaluation years, the average annual growth rate from FY 2015 to FY 2024 has been **9.00%**.
- Given the significant levels of growth historically and anticipated continued future growth, the following assumptions have been utilized for future natural growth in assessed value:
 - Real Property (Residential and Commercial):
 - FY 2026 – 2031: Projected development based on permits and developer information provided by Town Staff
 - FY 2032 and Beyond: 2.5% annual growth
 - Personal Property / Public Utilities / Vehicles:
 - FY 2026 – 2029: 5.0% annual growth
 - FY 2030 and Beyond: 2.5% annual growth
- These projections do not factor in future changes due to revaluation after FY 2025.

Tax Base Assumptions

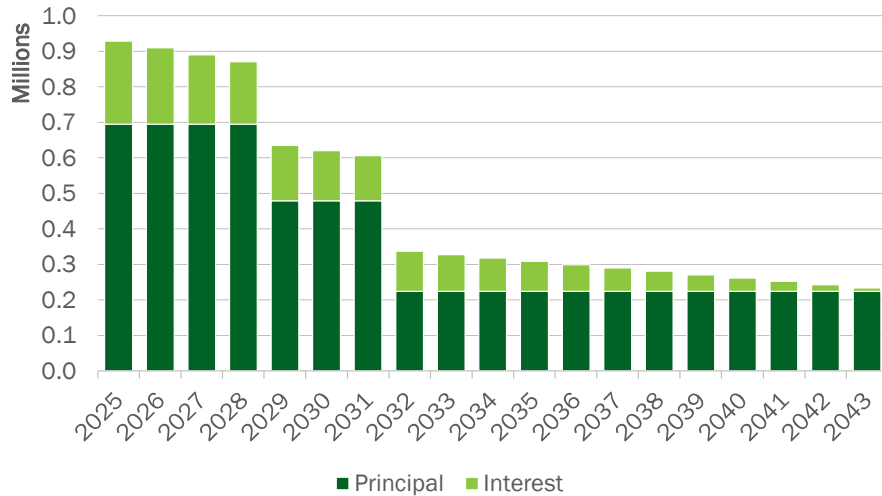


A		B		C		D		E		F		G		H		I		J		K		L	
Property Valuation		Real Estate		Personal Property		Public Utility		Vehicles		Total Property Valuation													
FY	Source	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth	Amount	% Growth
2015	Audited	603,053,754	20.63%	17,773,619	34.23%	5,149,975	30.73%	58,188,837	3.56%	684,166,185	-												
2016	Audited	661,493,285	9.69%	12,897,717	-27.43%	5,751,152	11.67%	66,488,708	14.26%	746,630,862	9.13%												
2017	Audited	706,996,098	6.88%	12,884,645	-0.10%	6,783,887	17.96%	76,037,718	14.36%	802,702,348	7.51%												
2018	Audited	786,209,289	11.20%	12,462,717	-3.27%	6,307,883	-7.02%	82,720,433	8.79%	887,700,322	10.59%												
2019	Audited	859,279,836	9.29%	14,787,373	18.65%	6,947,018	10.13%	92,559,949	11.89%	973,574,176	9.67%												
2020	Audited	943,479,258	9.80%	14,936,872	1.01%	7,495,795	7.90%	99,062,040	7.02%	1,064,973,965	9.39%												
2021	Audited	1,135,089,597	20.31%	16,764,884	12.24%	7,823,397	4.37%	129,878,758	31.11%	1,289,556,636	21.09%												
2022	Audited	1,241,610,447	9.38%	17,253,897	2.92%	7,847,348	0.31%	136,501,761	5.10%	1,403,213,453	8.81%												
2023	Audited	1,303,515,778	4.99%	15,850,884	-8.13%	7,974,669	1.62%	156,905,160	14.95%	1,484,246,491	5.77%												
2024	Unaudited	1,435,911,016	10.16%	18,133,582	14.40%	10,700,133	34.18%	162,256,983	3.41%	1,627,001,714	9.62%												
2025	Estimated	2,311,103,540	60.95%	18,677,589	3.00%	11,021,137	3.00%	165,240,000	1.84%	2,506,042,266	54.03%												
2026	Projected	2,558,603,540	10.71%	19,611,468	5.00%	11,572,194	5.00%	173,502,000	5.00%	2,763,289,202	10.27%												
2027	Projected	2,978,247,290	16.40%	20,592,042	5.00%	12,150,804	5.00%	182,177,100	5.00%	3,193,167,235	15.56%												
2028	Projected	3,432,745,821	15.26%	21,621,644	5.00%	12,758,344	5.00%	191,285,955	5.00%	3,658,411,764	14.57%												
2029	Projected	3,667,723,567	6.85%	22,702,726	5.00%	13,396,261	5.00%	200,850,253	5.00%	3,904,672,806	6.73%												
2030	Projected	3,868,946,013	5.49%	23,270,294	2.50%	13,731,167	2.50%	205,871,509	2.50%	4,111,818,984	5.31%												
2031	Projected	3,948,880,003	2.07%	23,852,052	2.50%	14,074,447	2.50%	211,018,297	2.50%	4,197,824,798	2.09%												
2032	Est. Future Growth	4,047,602,003	2.50%	24,448,353	2.50%	14,426,308	2.50%	216,293,754	2.50%	4,302,770,418	2.50%												
2033	Est. Future Growth	4,148,792,053	2.50%	25,059,562	2.50%	14,786,965	2.50%	221,701,098	2.50%	4,410,339,679	2.50%												
2034	Est. Future Growth	4,252,511,855	2.50%	25,686,051	2.50%	15,156,640	2.50%	227,243,626	2.50%	4,520,598,171	2.50%												
2035	Est. Future Growth	4,358,824,651	2.50%	26,328,202	2.50%	15,535,556	2.50%	232,924,716	2.50%	4,633,613,125	2.50%												
2036	Est. Future Growth	4,467,795,267	2.50%	26,986,407	2.50%	15,923,944	2.50%	238,747,834	2.50%	4,749,453,453	2.50%												
2037	Est. Future Growth	4,579,490,149	2.50%	27,661,067	2.50%	16,322,043	2.50%	244,716,530	2.50%	4,868,189,790	2.50%												
2038	Est. Future Growth	4,693,977,403	2.50%	28,352,594	2.50%	16,730,094	2.50%	250,834,443	2.50%	4,989,894,534	2.50%												
2039	Est. Future Growth	4,811,326,838	2.50%	29,061,409	2.50%	17,148,347	2.50%	257,105,304	2.50%	5,114,641,898	2.50%												
2040	Est. Future Growth	4,931,610,009	2.50%	29,787,944	2.50%	17,577,055	2.50%	263,532,937	2.50%	5,242,507,945	2.50%												
2041	Est. Future Growth	5,054,900,259	2.50%	30,532,643	2.50%	18,016,482	2.50%	270,121,260	2.50%	5,373,570,644	2.50%												
2042	Est. Future Growth	5,181,272,766	2.50%	31,295,959	2.50%	18,466,894	2.50%	276,874,292	2.50%	5,507,909,910	2.50%												
2043	Est. Future Growth	5,310,804,585	2.50%	32,078,358	2.50%	18,928,566	2.50%	283,796,149	2.50%	5,645,607,658	2.50%												
2044	Est. Future Growth	5,443,574,699	2.50%	32,880,317	2.50%	19,401,780	2.50%	290,891,053	2.50%	5,786,747,849	2.50%												
2045	Est. Future Growth	5,579,664,067	2.50%	33,702,325	2.50%	19,886,825	2.50%	298,163,329	2.50%	5,931,416,545	2.50%												
2046	Est. Future Growth	5,719,155,669	2.50%	34,544,883	2.50%	20,383,995	2.50%	305,617,412	2.50%	6,079,701,959	2.50%												
2047	Est. Future Growth	5,862,134,560	2.50%	35,408,505	2.50%	20,893,595	2.50%	313,257,848	2.50%	6,231,694,508	2.50%												
2048	Est. Future Growth	6,008,687,924	2.50%	36,293,717	2.50%	21,415,935	2.50%	321,089,294	2.50%	6,387,486,870	2.50%												
2049	Est. Future Growth	6,158,905,122	2.50%	37,201,060	2.50%	21,951,333	2.50%	329,116,526	2.50%	6,547,174,042	2.50%												

Existing Tax Supported Debt Profile

Existing Tax Supported Debt Overview

Tax Supported Debt Service



Tax Supported Debt Service

FY	Principal	Interest	Total	10-yr Payout
Total	6,905,000	1,978,064	8,883,064	
2025	695,000	234,124	929,124	70.8%
2026	695,000	214,640	909,640	71.1%
2027	695,000	195,156	890,156	71.6%
2028	695,000	175,697	870,697	72.1%
2029	479,000	156,188	635,188	72.8%
2030	479,000	141,541	620,541	75.4%
2031	479,000	126,893	605,893	78.8%
2032	224,000	112,896	336,896	83.3%
2033	224,000	103,488	327,488	90.9%
2034	224,000	94,080	318,080	100.0%
2035	224,000	84,672	308,672	100.0%
2036	224,000	75,264	299,264	100.0%
2037	224,000	65,856	289,856	100.0%
2038	224,000	56,448	280,448	100.0%
2039	224,000	47,040	271,040	100.0%
2040	224,000	37,632	261,632	100.0%
2041	224,000	28,224	252,224	100.0%
2042	224,000	18,816	242,816	100.0%
2043	224,000	9,408	233,408	100.0%

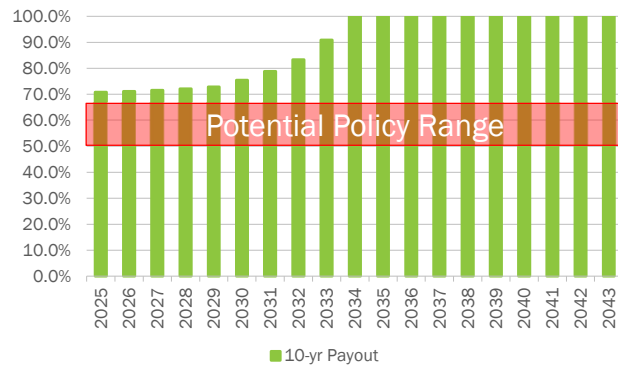
Par Outstanding – Estimated as of 6/30/2024

Type	Par Amount
General Obligation Bonds	\$0
IPCs / COPs / LOBs	\$6,905,000
Total	\$6,905,000

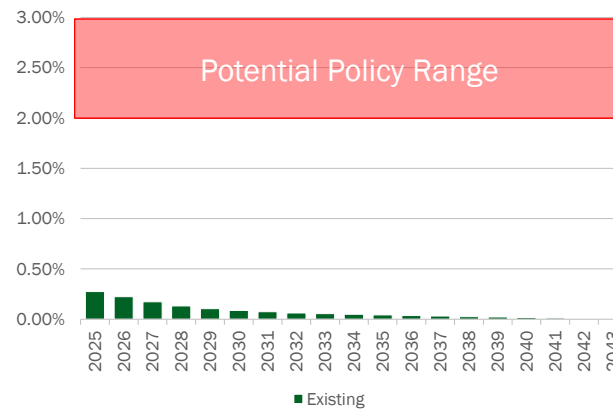
Note: Excludes Operating Leases for Copier / Town Hall / Police Department Space.

Key Tax Supported Debt Ratios

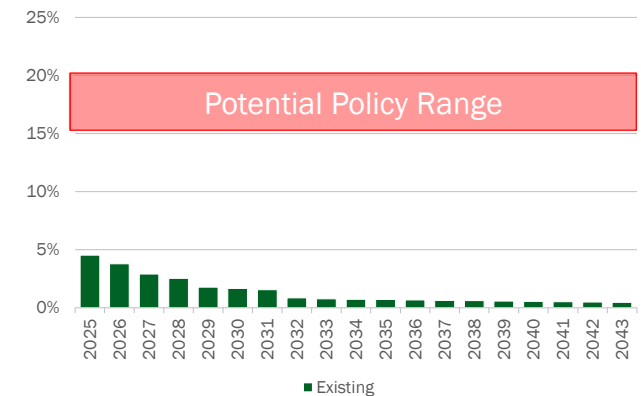
10-Year Payout Ratio



Debt to Assessed Value



Debt Service to Expenditures



■ Credit Considerations:

- S&P: A payout ratio greater than 65% results in a one point positive qualitative adjustment to the Debt & Contingent Liabilities section of S&P's General Obligation rating methodology.

■ Credit Considerations:

- S&P: A positive qualitative adjustment is made to the Debt and Contingent Liabilities score for a debt to market value ratio below 3.00%, while a negative adjustment is made for a ratio above 10.00%.

■ Credit Considerations:

- S&P: The Debt and Contingent Liabilities section defines categories of Net Direct Debt as a % of Total Governmental Funds Expenditures as follows:

– Very Strong:	<8%
– Strong:	8% to 15%
– Adequate:	15% - 25%
– Weak:	25% - 35%
– Very Weak:	> 35%

The Town may want to consider adopting / amending a series of debt related financial policies, including a Minimum 10-Year Payout Ratio Policy, Maximum Debt to Assessed Value Policy, and Maximum Debt Service to Expenditures Policy.

Note: Ratios based upon FY25 Estimated AV of \$2,506,042,266 and FY23 adjusted governmental expenditures of \$11,567,994. Future growth assumed to be equal to growth in assessed value as discussed on pages 4 and 5.

Debt Affordability Revenues Sources

■ Existing Revenue Sources

- **General Fund Budgeted Debt Service:** General Fund Budgeted Debt Service is assumed to be equal to the FY 2024 Debt Service on the Town's 2015 IPC with BB&T, 2021 IPC with Southern Bank and 2022 IPC with Truist Bank.
 - Fixed Annual Revenue: \$705,600
- **Capital Savings Fund**
 - Fund Balance (6/30/2024 estimate): \$1,832,500 (Per Town Staff)
 - Annual Revenue: 3.50¢ on the tax rate (Prior to FY 2025); reduced to 2.40¢ in FY 2025 due to Revaluation
- **Park Impact Fee Revenues:** Restricted for Parks & Recreation Projects (including 2017 IPC debt service)
 - Fund Balance (6/30/2024 estimate): \$3,255,360 (Per Town Staff)
 - Annual Revenue: \$500,000 in FY 2025 and beyond
- **Streets Fee Fund Balance:** Restricted for Streets & Sidewalk Projects
 - Fund Balance (6/30/2024 estimate): \$2,090,667 (Per Town Staff)
 - Annual Revenue: \$500,000 in FY 2025 and beyond

Note: Some Revenue Sources are subject to continued development and may be adjusted in the future.

■ Other Revenues

- **ARPA Funds:** The Town has \$819,035 of ARPA Funds as of 6/30/2024, which is available to fund capital projects and is assumed to be transferred to the Capital Savings Fund in FY 2024 for purposes of this analysis.
 - FY 2024 Revenue: \$819,035
- **Excess General Fund Balance:** The Town estimates \$2,000,000 of excess General Fund Balance over policy as of 6/30/2024. This excess fund balance is assumed to be transferred to the Capital Savings Fund in FY 2025 for purposes of this analysis.
 - FY 2025 Revenue: \$2,000,000

Debt Affordability Analysis

Existing Debt Only



CIP Requirements						Revenue Available for CIP							Capital Savings Cash Flow Surplus (Deficit)							
FY	Existing GF Debt Service	Proposed Debt Service	CIP Pay-Go	CIP Operating Impact ¹	Total	General Fund Budgeted DS ²	Existing Capital Savings Fund Tax Rate (2.40 cents)	Park Impact Fees ³	Streets Fee Fund Balance ⁴	Police Department Lease Savings ⁵	Wake County Cost Share of Fire Station Debt Service ⁶	Other Revenues ⁷	Total Revenues Available	Surplus/(Deficit)	Revenue From Prior Tax Impact	Capital Savings Utilized	Adjusted Surplus/(Deficit)	Estimated Incremental Tax Equivalent	Capital Savings Fund Balance ⁸	
2025	929,124	-	-	-	929,124	705,600	576,000	234,178	-	-	-	2,819,035	4,334,813	3,405,689	-	-	3,405,689	-	1,832,500	
2026	909,640	-	-	-	909,640	705,600	604,800	229,384	-	-	-	-	1,539,784	630,143	-	-	630,143	-	5,238,189	
2027	890,156	-	-	-	890,156	705,600	635,040	224,589	-	-	-	-	1,565,229	675,073	-	-	675,073	-	5,868,332	
2028	870,697	-	-	-	870,697	705,600	666,792	219,795	-	-	-	-	1,592,187	721,489	-	-	721,489	-	6,543,405	
2029	635,188	-	-	-	635,188	705,600	700,132	-	-	-	-	-	1,405,732	770,543	-	-	770,543	-	7,264,894	
2030	620,541	-	-	-	620,541	705,600	717,635	-	-	-	-	-	1,423,235	802,694	-	-	802,694	-	8,035,437	
2031	605,893	-	-	-	605,893	705,600	735,576	-	-	-	-	-	1,441,176	835,283	-	-	835,283	-	8,838,131	
2032	336,896	-	-	-	336,896	705,600	753,965	-	-	-	-	-	1,459,565	1,122,669	-	-	1,122,669	-	9,673,414	
2033	327,488	-	-	-	327,488	705,600	772,814	-	-	-	-	-	1,478,414	1,150,926	-	-	1,150,926	-	10,796,083	
2034	318,080	-	-	-	318,080	705,600	792,135	-	-	-	-	-	1,497,735	1,179,655	-	-	1,179,655	-	11,947,009	
2035	308,672	-	-	-	308,672	705,600	811,938	-	-	-	-	-	1,517,538	1,208,866	-	-	1,208,866	-	13,126,664	
2036	299,264	-	-	-	299,264	705,600	832,236	-	-	-	-	-	1,537,836	1,238,572	-	-	1,238,572	-	14,335,530	
2037	289,856	-	-	-	289,856	705,600	853,042	-	-	-	-	-	1,558,642	1,268,786	-	-	1,268,786	-	15,574,103	
2038	280,448	-	-	-	280,448	705,600	874,368	-	-	-	-	-	1,579,968	1,299,520	-	-	1,299,520	-	16,842,889	
2039	271,040	-	-	-	271,040	705,600	896,228	-	-	-	-	-	1,601,828	1,330,788	-	-	1,330,788	-	18,142,409	
2040	261,632	-	-	-	261,632	705,600	918,633	-	-	-	-	-	1,624,233	1,362,601	-	-	1,362,601	-	19,473,197	
2041	252,224	-	-	-	252,224	705,600	941,599	-	-	-	-	-	1,647,199	1,394,975	-	-	1,394,975	-	20,835,798	
2042	242,816	-	-	-	242,816	705,600	965,139	-	-	-	-	-	1,670,739	1,427,923	-	-	1,427,923	-	22,230,773	
2043	233,408	-	-	-	233,408	705,600	989,268	-	-	-	-	-	1,694,868	1,461,460	-	-	1,461,460	-	23,658,697	
2044	-	-	-	-	-	705,600	1,013,999	-	-	-	-	-	1,719,599	1,719,599	-	-	1,719,599	-	25,120,156	
2045	-	-	-	-	-	705,600	1,039,349	-	-	-	-	-	1,744,949	1,744,949	-	-	1,744,949	-	26,839,756	
2046	-	-	-	-	-	705,600	1,065,333	-	-	-	-	-	1,770,933	1,770,933	-	-	1,770,933	-	28,584,705	
2047	-	-	-	-	-	705,600	1,091,966	-	-	-	-	-	1,797,566	1,797,566	-	-	1,797,566	-	30,355,638	
2048	-	-	-	-	-	705,600	1,119,266	-	-	-	-	-	1,824,866	1,824,866	-	-	1,824,866	-	32,153,204	
2049	-	-	-	-	-	705,600	1,147,247	-	-	-	-	-	1,852,847	1,852,847	-	-	1,852,847	-	33,978,070	
2050	-	-	-	-	-	705,600	1,175,928	-	-	-	-	-	1,881,528	1,881,528	-	-	1,881,528	-	35,830,917	
2051	-	-	-	-	-	705,600	1,205,327	-	-	-	-	-	1,910,927	1,910,927	-	-	1,910,927	-	37,712,445	
2052	-	-	-	-	-	705,600	1,235,460	-	-	-	-	-	1,941,060	1,941,060	-	-	1,941,060	-	39,623,372	
2053	-	-	-	-	-	705,600	1,266,346	-	-	-	-	-	1,971,946	1,971,946	-	-	1,971,946	-	41,564,431	
																	Total Tax Effect		0.00¢	
Total	8,883,064	-	-	-	8,883,064			907,945	-	-	-	2,819,035		Total	-	-	-			

¹ Per Town Staff, the following projects are anticipated to have Operating impacts, starting two years following project funding equal to 0.5% - 1% of the project costs: Town Campus Site Construction, Police Station, New Town Hall, Main Fire Station, Community Center, Farm Park Turf Fields and Town Hall Renovations. The Main Fire Station Operating Costs are shown net of Wake County share (assumed 40% beginning in FY 2026, with the allocation declining by 2% each year).

² General Fund Budgeted Debt Service is assumed to be equal to the FY 2024 Debt Service on the Town's 2015 IPC with BB&T, 2021 IPC with Southern Bank and 2022 IPC with Trust Bank.

³ The Town's 2017 IPC with BB&T is assumed to be paid from Park Impact Fee Revenues. Additional Revenues equal to annual revenues of \$500,000 and excess fund balance from prior year. Restricted for proposed Parks debt service and Parks CIP Pay-Go.

⁴ Street Fee Revenues equal to annual revenues of \$500,000 and excess fund balance from prior year. Restricted for proposed Street debt service and Streets CIP Pay-Go.

⁵ It is assumed that when the new Police Department is funded the Town will have savings on the existing lease in the amount of \$82,000 two years after funding, per Town Staff.

⁶ Per Town Staff, the Town is assumed to issue debt for the full amount needed to fund the Fire Station and Wake County will pay 40% of the Debt Service.

⁷ The Town is assumed to transfer its available ARPA revenue replacement funds (\$819,035) into the Capital Savings Fund in FY 2025. An additional \$2 million of excess general fund balance over policy is assumed to be transferred to the Capital Savings Fund in FY 2025.

⁸ Per Town Staff, the Capital Savings Fund Balance is estimated to be \$1,832,500 as of 6/30/2024.

- FY 2025 Value of a Penny¹: \$240,000
- Assumed Growth Rate: Equal to growth in assessed value shown on page 5

¹Per Town Staff.



Capital Funding Analysis



Capital Improvement Plan Summary

A	B	C	D
Summary		CIP Funding	
Projects Funded	Funding Source	Year Funded	Amount
1 Town Hall HVAC Replacement	General Fund Pay-Go	FY 2026	\$60,000
2 Town Campus Site Construction*	Debt Funded	FY 2026	\$9,445,755
3 Police Station*	Debt Funded	FY 2026	\$12,600,819
4 New Town Hall*	Debt Funded	FY 2028	\$15,902,150
5 Main Fire Station ¹	Debt Funded	FY 2026	\$12,632,378
6 Economic Development Site (Phase I)	Debt Funded	FY 2025	\$300,000
7 Economic Development Site (Phase II)	Debt Funded	FY 2027	\$500,000
8 Economic Development Site (Phase III)	Debt Funded	FY 2029	\$700,000
9 Rogers Road Pedestrian Impro. (Town Match)	Streets Pay-Go/Grants	FY 2028	\$750,000
10 Granite Falls Blvd @ Thales	Streets Pay-Go	FY 2027	\$2,700,000
11 Granite Falls Blvd @ BMR	Streets Pay-Go	FY 2027	\$1,500,000
12 Community Center*	Debt Funded	FY 2030	\$12,488,238
13 Mill Bridge Amphitheater	Parks Pay-Go	FY 2025	\$340,000
15 The Farm Entrance	Parks Pay-Go	FY 2025	\$1,000,000
14 The Farm Activation	Debt Funded	FY 2026	\$12,000,000
16 Park Expansions	Debt Funded	FY 2032	\$12,000,000
17			
18 FY 25 - FY 28 Projects Funded		\$69,731,102	
19 FY 29 - FY 32 Projects Funded		\$25,188,238	
20 Total Projects Funded		\$94,919,340	
21 Total Pay-Go		\$5,750,000	
22 Grants/Other Funding		\$600,000	
23 New Debt Issued		\$88,569,340	
24 New Debt Service		\$135,068,244	
25 Assessed Value Growth Assumptions		Base Case	Sensitivity Case
26 <i>FY 2026 - FY 2031 (Average)²</i>		9.09%	4.17%
27 <i>FY 2032 and Beyond</i>		2.50%	2.50%
28 Debt Ratios (Worst Shown)	Potential Policy Range		
29 10-Year Payout Ratio	50.0% - 65.0%	48.08%	48.08%
30 Debt to Assessed Value	2.00% - 3.00%	1.92%	2.33%
31 Debt Service to Expenditures	15.0% - 20.0%	19.35%	23.94%
32 Tax Equivalent Impact - Revaluation Years			
44 FY 2025 (Funds FY 25 - FY 28 Projects)		7.16¢	9.61¢
45 FY 2029 (Funds FY 29 - FY 32 Projects)		4.41¢	5.87¢
46 Total		11.57¢	15.48¢

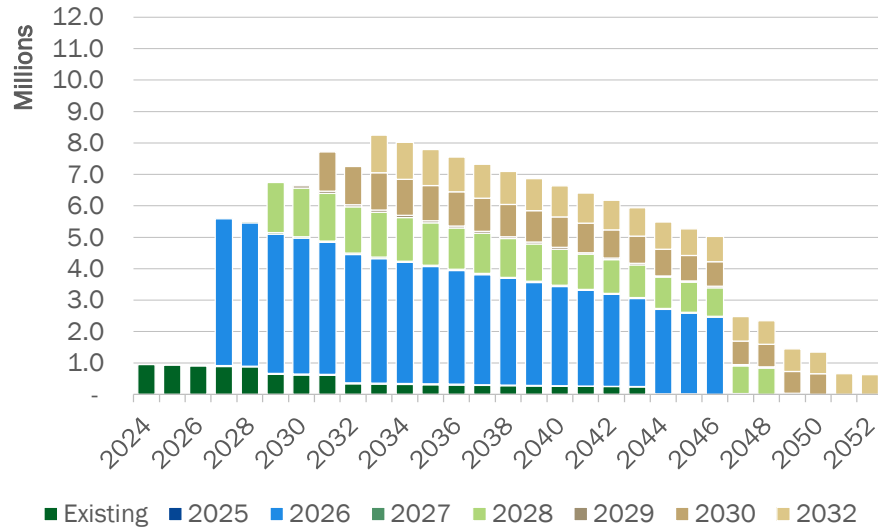
* Town Center Project cost estimates are as of 3/14/2024 for FY 2025. Projects include a 4.50% escalation factor if funded beyond FY 2025.

¹ The Main Fire Station cost estimate is \$12,088,400 as of FY 25. Project includes a 4.5% escalation if funded beyond FY 25. Project assumes 40% of debt service will be paid by Wake County.

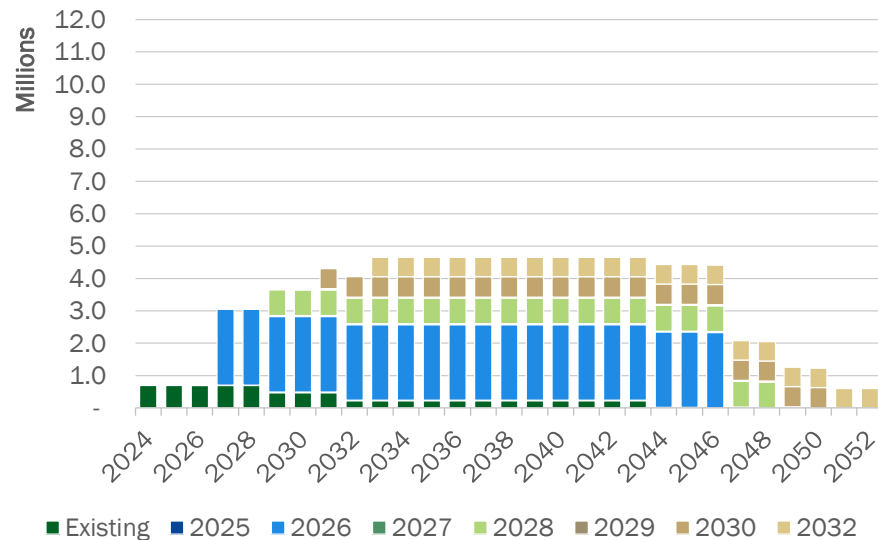
² See page 5 for more detail on Assessed Value Assumptions.

Base Case: Existing and Proposed Tax Supported Debt Service

Proposed Debt Service



Proposed Principal

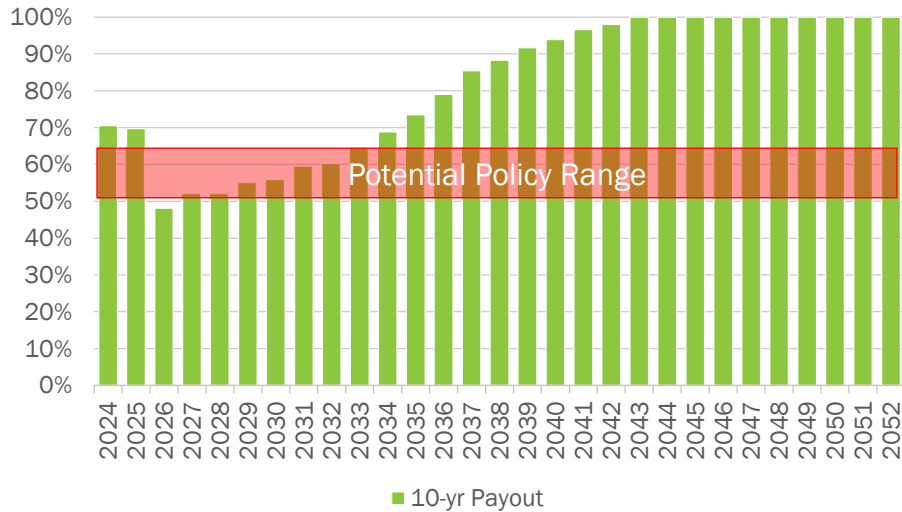


Assumptions

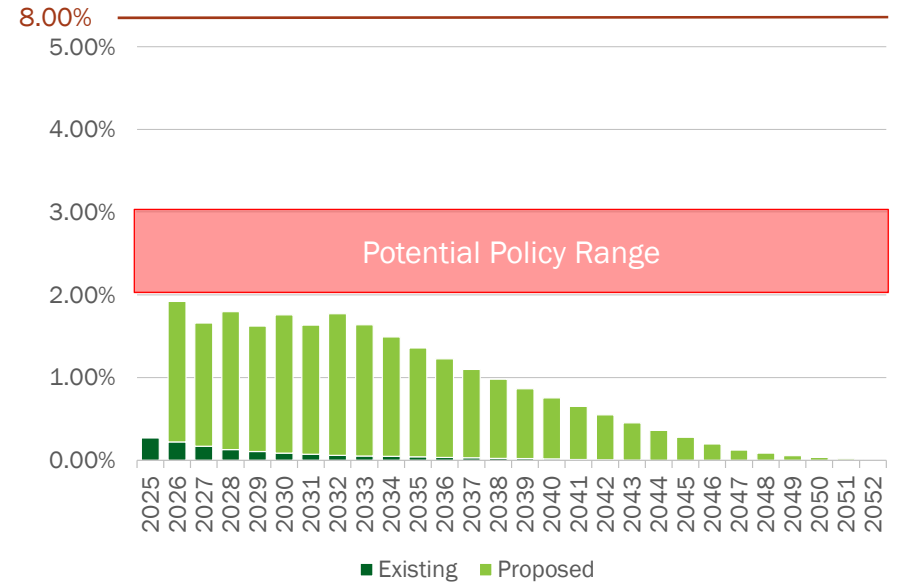
■ Financing Assumptions:	
— Term:	20 Years
— Interest Rate:	5.00%
— Amortization:	Level Principal
— First Principal and Interest:	FY Following Issuance
■ Debt Issued:	
— FY 2025:	\$300,000
— FY 2026:	\$46,678,952
— FY 2027:	\$500,000
— FY 2028:	\$15,902,150
— FY 2029:	\$700,000
— FY 2030:	\$12,488,238
— FY 2031:	\$0
— FY 2032:	\$12,000,000
— Total:	\$88,569,340
■ Debt Service:	
— FY 2025:	\$457,500
— FY 2026:	\$71,185,402
— FY 2027:	\$762,500
— FY 2028:	\$24,250,779
— FY 2029:	\$1,067,500
— FY 2030:	\$19,044,564
— FY 2031:	\$0
— FY 2032:	\$18,300,000
— Total:	\$135,068,244

Base Case: Key Tax Supported Debt Ratios

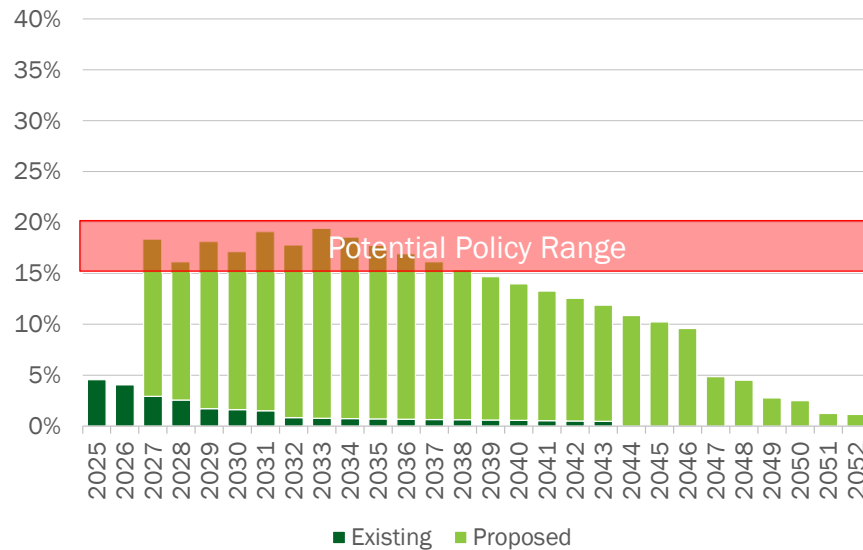
10-Year Payout



Debt to Assessed Value



Debt Service to Expenditures



Base Case: Debt Affordability Analysis

Existing and Proposed Tax-Supported Debt



Earlier CIP Projects Only (FY 2025 – FY 2028) - FY 2025 Upfront Equivalent Tax Increase

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	
CIP Requirements						Revenue Available for CIP								Capital Savings Cash Flow Surplus (Deficit)						
FY	Existing GF Debt Service	Proposed Debt Service	CIP Pay-Go	CIP Operating Impact ¹	Total	General Fund Budgeted DS ²	Existing Capital Savings Fund Tax Rate (2.40 cents)	Park Impact Fees ³	Streets Fee Fund Balance ⁴	Police Department Lease Savings ⁵	Wake County Cost Share of Fire Station Debt Service ⁶	Other Revenues ⁷	Total Revenues Available	Surplus/(Deficit)	Revenue From Prior Tax Impact	Capital Savings Utilized	Adjusted Surplus/(Deficit)	Estimated Incremental Tax Equivalent	Capital Savings Fund Balance ⁸	
2025	929,124	-	1,340,000	-	2,269,124	705,600	576,000	1,574,178	-	-	-	2,819,035	5,674,813	3,405,689	1,718,400	-	5,124,089	7.16¢	1,832,500	
2026	909,640	30,000	60,000	-	999,640	705,600	635,127	229,384	-	-	-	-	1,570,110	570,470	1,894,795	-	2,465,265	-	9,421,854	
2027	890,156	4,697,145	4,200,000	-	9,787,301	705,600	733,932	1,424,589	3,090,667	-	505,295	-	6,460,083	(3,327,218)	2,189,563	(1,137,655)	-	-	8,284,199	
2028	870,697	4,629,698	150,000	674,084	6,324,479	705,600	840,866	1,389,795	150,000	82,000	492,663	-	3,660,923	(2,663,556)	2,508,583	(154,973)	-	-	8,129,225	
2029	635,188	6,101,215	-	676,611	7,413,014	705,600	897,468	1,137,415	-	82,000	480,030	-	3,302,513	(4,110,502)	2,677,445	(1,433,057)	-	-	6,696,169	
2030	620,541	5,942,763	-	838,159	7,401,462	705,600	945,079	500,000	-	82,000	467,398	-	2,700,077	(4,701,385)	2,819,485	(1,881,900)	-	-	4,814,269	
2031	605,893	5,784,310	-	840,685	7,230,888	705,600	964,847	500,000	-	82,000	454,766	-	2,707,212	(4,523,676)	2,878,460	(1,645,216)	-	-	3,169,053	
2032	336,896	5,625,857	-	843,212	6,805,965	705,600	988,968	500,000	-	82,000	442,133	-	2,718,701	(4,087,263)	2,950,421	(1,136,842)	-	-	2,032,211	
2033	327,488	5,467,404	-	845,738	6,640,630	705,600	1,013,692	500,000	-	82,000	429,501	-	2,730,793	(3,909,837)	3,024,182	(885,655)	-	-	1,146,556	
2034	318,080	5,308,952	-	848,265	6,475,296	705,600	1,039,035	500,000	-	82,000	416,868	-	2,743,503	(3,731,793)	3,099,786	(632,007)	-	-	514,549	
2035	308,672	5,150,499	-	850,791	6,309,962	705,600	1,065,010	500,000	-	82,000	404,236	-	2,756,847	(3,553,115)	3,177,281	(375,834)	-	-	138,715	
2036	299,264	4,992,046	-	853,317	6,144,628	705,600	1,091,636	500,000	-	82,000	391,604	-	2,770,839	(3,373,788)	3,256,713	(117,075)	-	-	21,640	
2037	289,856	4,833,593	-	855,844	5,979,293	705,600	1,118,927	500,000	-	82,000	378,971	-	2,785,498	(3,193,795)	3,338,131	-	144,336	-	165,975	
2038	280,448	4,675,141	-	858,370	5,813,959	705,600	1,146,900	500,000	-	82,000	366,339	-	2,800,839	(3,013,120)	3,421,584	-	408,464	-	574,439	
2039	271,040	4,516,688	-	860,897	5,648,625	705,600	1,175,572	500,000	-	82,000	353,707	-	2,816,879	(2,831,746)	3,507,124	-	675,378	-	1,249,817	
2040	261,632	4,358,235	-	863,423	5,483,291	705,600	1,204,962	500,000	-	82,000	341,074	-	2,833,636	(2,649,655)	3,594,802	-	945,147	-	2,194,964	
2041	252,224	4,199,782	-	865,950	5,317,956	705,600	1,235,086	500,000	-	82,000	328,442	-	2,851,127	(2,466,829)	3,684,672	-	1,217,843	-	3,412,807	
2042	242,816	4,041,330	-	868,476	5,152,622	705,600	1,265,963	500,000	-	82,000	315,809	-	2,869,372	(2,283,250)	3,776,789	-	1,493,539	-	4,906,346	
2043	233,408	3,882,877	-	871,003	4,987,288	705,600	1,297,612	500,000	-	82,000	303,177	-	2,888,389	(2,098,899)	3,871,209	-	1,772,310	-	6,678,656	
2044	-	3,724,424	-	873,529	4,597,953	705,600	1,330,052	500,000	-	82,000	290,545	-	2,908,197	(1,689,757)	3,967,989	-	2,278,232	-	8,956,888	
2045	-	3,565,971	-	876,056	4,442,027	705,600	1,363,303	500,000	-	82,000	277,912	-	2,928,816	(1,513,211)	4,067,188	-	2,553,977	-	11,510,865	
2046	-	3,392,519	-	878,582	4,271,101	705,600	1,397,386	500,000	-	82,000	265,280	-	2,950,266	(1,320,835)	4,168,868	-	2,848,033	-	14,358,898	
2047	-	900,868	-	878,582	1,779,450	705,600	1,432,321	-	-	82,000	-	-	2,219,921	440,470	4,273,090	-	4,713,560	-	19,072,458	
2048	-	834,863	-	878,582	1,713,445	705,600	1,468,129	-	-	82,000	-	-	2,255,729	542,284	4,379,917	-	4,922,201	-	23,994,659	
2049	-	-	-	878,582	878,582	705,600	1,504,832	-	-	82,000	-	-	2,292,432	1,413,850	4,489,415	-	5,903,265	-	29,897,924	
2050	-	-	-	878,582	878,582	705,600	1,542,453	-	-	82,000	-	-	2,330,053	1,451,470	4,601,650	-	6,053,121	-	35,951,045	
2051	-	-	-	878,582	878,582	705,600	1,581,014	-	-	82,000	-	-	2,368,614	1,490,032	4,716,692	-	6,206,723	-	42,157,768	
2052	-	-	-	878,582	878,582	705,600	1,620,539	-	-	82,000	-	-	2,408,139	1,529,557	4,834,609	-	6,364,166	-	48,521,934	
2053	-	-	-	878,582	878,582	705,600	1,661,053	-	-	82,000	-	-	2,448,653	1,570,071	4,955,474	-	6,525,545	-	55,047,479	
																	Total Tax Effect		7.16¢	
Total	8,883,064	96,656,180	5,750,000		157,104,033			14,255,360	3,240,667		7,705,751	2,819,035								

¹ Per Town Staff, the following projects are anticipated to have Operating impacts, starting two years following project funding equal to 0.5% - 1% of the project costs: Town Campus Site Construction, Police Station, New Town Hall, Main Fire Station, Community Center, Farm Park Turf Fields and Town Hall Renovations. The Main Fire Station Operating Costs are shown net of Wake County share (assumed 40% beginning in FY 2026, with the allocation declining by 2% each year).

² General Fund Budgeted Debt Service is assumed to be equal to the FY 2024 Debt Service on the Town's 2015 IPC with BB&T, 2021 IPC with Southern Bank and 2022 IPC with Truist Bank.

³ The Town's 2017 IPC with BB&T is assumed to be paid from Park Impact Fee Revenues. Additional Revenues equal to annual revenues of \$500,000 and excess fund balance from prior year. Restricted for proposed Parks debt service and Parks CIP Pay-Go.

⁴ Street Fee Revenues equal to annual revenues of \$500,000 and excess fund balance from prior year. Restricted for proposed Street debt service and Streets CIP Pay-Go.

⁵ It is assumed that when the new Police Department is funded the Town will have savings on the existing lease in the amount of \$82,000 two years after funding, per Town Staff.

⁶ Per Town Staff, the Town is assumed to issue debt for the full amount needed to fund the Fire Station and Wake County will pay 40% of the Debt Service.

⁷ The Town is assumed to transfer its available ARPA revenue replacement funds (\$819,035) into the Capital Savings Fund in FY 2025. An additional \$2 million of excess general fund balance over policy is assumed to be transferred to the Capital Savings Fund in FY 2025.

⁸ Per Town Staff, the Capital Savings Fund Balance is estimated to be \$1,832,500 as of 6/30/2024.

- FY 2025 Value of a Penny¹: \$240,000
- Assumed Growth Rate: Equal to growth in assessed value shown on page 5

¹Per Town Staff.



Base Case: Debt Affordability Analysis

Existing and Proposed Tax-Supported Debt



All CIP Projects (FY 2025 – FY 2032) - FY 2025 & FY 2029 Upfront Equivalent Tax Increases

FY	CIP Requirements					Revenue Available for CIP							Capital Savings Cash Flow Surplus (Deficit)					Estimated Incremental Tax Equivalent	Capital Savings Fund Balance ⁸		
	Existing GF Debt Service	Proposed Debt Service	CIP Pay-Go	CIP Operating Impact ¹	Total	General Fund Budgeted DS ²	Existing Capital Savings Fund Tax Rate (2.40 cents)	Park Impact Fees ³	Streets Fee Fund Balance ⁴	Police Department Lease Savings ⁵	Wake County Cost Share of Fire Station Debt Service ⁶	Other Revenues ⁷	Total Revenues Available	Surplus/ (Deficit)	Revenue From Prior Tax Impact	Capital Savings Utilized	Adjusted Surplus/ (Deficit)				
2025	929,124	-	1,340,000	-	2,269,124	705,600	576,000	1,574,178	-	-	-	2,819,035	5,674,813	3,405,689	1,718,400	-	5,124,089	7.16¢	1,832,500		
2026	909,640	30,000	60,000	-	999,640	705,600	635,127	229,384	-	-	-	-	1,570,110	570,470	1,894,795	-	2,465,265	-	6,956,589		
2027	890,156	4,697,145	4,200,000	-	9,787,301	705,600	733,932	1,424,589	3,090,667	-	505,295	-	6,460,083	(3,327,218)	2,189,563	(1,137,655)	-	-	8,284,199		
2028	870,697	4,629,698	150,000	674,084	6,324,479	705,600	840,866	1,389,795	150,000	82,000	492,663	-	3,660,923	(2,663,556)	2,508,583	(154,973)	-	-	8,129,225		
2029	635,188	6,101,215	-	676,611	7,413,014	705,600	897,468	1,137,415	-	82,000	480,030	-	3,302,513	(4,110,502)	4,326,541	-	216,040	4.41¢	8,345,265		
2030	620,541	6,012,763	-	838,159	7,471,462	705,600	945,079	500,000	-	82,000	467,398	-	2,700,077	(4,771,385)	4,556,068	(215,317)	-	-	8,129,948		
2031	605,893	7,101,384	-	840,685	8,547,962	705,600	964,847	500,000	-	82,000	454,766	-	2,707,212	(5,840,749)	4,651,366	(1,189,383)	-	-	6,940,564		
2032	336,896	6,909,960	-	1,268,094	8,514,950	705,600	988,968	500,000	-	82,000	442,133	-	2,718,701	(5,796,249)	4,767,650	(1,028,599)	-	-	5,911,966		
2033	327,488	7,918,537	-	1,270,620	9,516,646	705,600	1,013,692	500,000	-	82,000	429,501	-	2,730,793	(6,785,852)	4,886,841	(1,899,011)	-	-	4,012,955		
2034	318,080	7,697,114	-	1,273,147	9,288,341	705,600	1,039,035	500,000	-	82,000	416,868	-	2,743,503	(6,544,838)	5,009,012	(1,535,825)	-	-	2,477,130		
2035	308,672	7,475,690	-	1,275,673	9,060,036	705,600	1,065,010	500,000	-	82,000	404,236	-	2,756,847	(6,303,189)	5,134,238	(1,168,951)	-	-	1,308,178		
2036	299,264	7,254,267	-	1,278,200	8,831,731	705,600	1,091,636	500,000	-	82,000	391,604	-	2,770,839	(6,060,891)	5,262,594	(798,298)	-	-	509,880		
2037	289,856	7,032,844	-	1,280,726	8,603,426	705,600	1,118,927	500,000	-	82,000	378,971	-	2,785,498	(5,817,928)	5,394,159	(423,769)	-	-	86,111		
2038	280,448	6,811,420	-	1,283,253	8,375,121	705,600	1,146,900	500,000	-	82,000	366,339	-	2,800,839	(5,574,282)	5,529,013	(45,270)	-	-	40,841		
2039	271,040	6,589,997	-	1,285,779	8,146,816	705,600	1,175,572	500,000	-	82,000	353,707	-	2,816,879	(5,329,937)	5,667,238	-	337,300	-	378,141		
2040	261,632	6,368,574	-	1,288,306	7,918,511	705,600	1,204,962	500,000	-	82,000	341,074	-	2,833,636	(5,084,876)	5,808,919	-	724,043	-	1,102,185		
2041	252,224	6,147,150	-	1,290,832	7,690,207	705,600	1,235,086	500,000	-	82,000	328,442	-	2,851,127	(4,839,079)	5,954,142	-	1,115,063	-	2,217,247		
2042	242,816	5,925,727	-	1,293,359	7,461,902	705,600	1,265,963	500,000	-	82,000	315,809	-	2,869,372	(4,592,529)	6,102,995	-	1,510,466	-	3,727,713		
2043	233,408	5,704,304	-	1,295,885	7,233,597	705,600	1,297,612	500,000	-	82,000	303,177	-	2,888,389	(4,345,208)	6,255,570	-	1,910,362	-	5,638,075		
2044	-	5,482,880	-	1,298,412	6,781,292	705,600	1,330,052	500,000	-	82,000	290,545	-	2,908,197	(3,873,095)	6,411,959	-	2,538,864	-	8,176,940		
2045	-	5,261,457	-	1,300,938	6,562,395	705,600	1,363,303	500,000	-	82,000	277,912	-	2,928,816	(3,633,579)	6,572,258	-	2,938,679	-	11,115,619		
2046	-	5,025,034	-	1,303,465	6,328,498	705,600	1,397,386	500,000	-	82,000	265,280	-	2,950,266	(3,378,232)	6,736,565	-	3,358,333	-	14,473,952		
2047	-	2,470,413	-	1,303,465	3,773,877	705,600	1,432,321	500,000	-	82,000	-	-	2,719,921	(1,053,957)	6,904,979	-	5,851,022	-	20,324,974		
2048	-	2,341,437	-	1,303,465	3,644,901	705,600	1,468,129	500,000	-	82,000	-	-	2,755,729	(889,173)	7,077,604	-	6,188,431	-	26,513,405		
2049	-	1,443,603	-	1,303,465	2,747,068	705,600	1,504,832	500,000	-	82,000	-	-	2,792,432	45,364	7,254,544	-	7,299,908	-	33,813,313		
2050	-	1,345,633	-	1,303,465	2,649,097	705,600	1,542,453	500,000	-	82,000	-	-	2,830,053	180,956	7,435,907	-	7,616,863	-	41,430,176		
2051	-	660,000	-	1,303,465	1,963,465	705,600	1,581,014	500,000	-	82,000	-	-	2,868,614	905,149	7,621,805	-	8,526,954	-	49,957,130		
2052	-	630,000	-	1,303,465	1,933,465	705,600	1,620,539	500,000	-	82,000	-	-	2,908,139	974,675	7,812,350	-	8,787,025	-	58,744,154		
2053	-	-	-	1,303,465	1,303,465	705,600	1,661,053	-	-	82,000	-	-	2,448,653	1,145,188	8,007,659	-	9,152,847	-	67,897,001		
																	Total Tax Effect		11.57¢		
Total	8,883,064	135,068,244	5,750,000		216,335,334			17,255,360	3,240,667		7,705,751	2,819,035		Total							

¹ Per Town Staff, the following projects are anticipated to have Operating impacts, starting two years following project funding equal to 0.5% - 1% of the project costs: Town Campus Site Construction, Police Station, New Town Hall, Main Fire Station, Community Center, Farm Park Turf Fields and Town Hall Renovations. The Main Fire Station Operating Costs are shown net of Wake County share (assumed 40% beginning in FY 2026, with the allocation declining by 2% each year).

² General Fund Budgeted Debt Service is assumed to be equal to the FY 2024 Debt Service on the Town's 2015 IPC with BB&T, 2021 IPC with Southern Bank and 2022 IPC with Truist Bank.

³ The Town's 2017 IPC with BB&T is assumed to be paid from Park Impact Fee Revenues. Additional Revenues equal to annual revenues of \$500,000 and excess fund balance from prior year. Restricted for proposed Parks debt service and Parks CIP Pay-Go.

⁴ Street Fee Revenues equal to annual revenues of \$500,000 and excess fund balance from prior year. Restricted for proposed Street debt service and Streets CIP Pay-Go.

⁵ It is assumed that when the new Police Department is funded the Town will have savings on the existing lease in the amount of \$82,000 two years after funding, per Town Staff.

⁶ Per Town Staff, the Town is assumed to issue debt for the full amount needed to fund the Fire Station and Wake County will pay 40% of the Debt Service.

⁷ The Town is assumed to transfer its available ARPA revenue replacement funds (\$819,035) into the Capital Savings Fund in FY 2025. An additional \$2 million of excess general fund balance over policy is assumed to be transferred to the Capital Savings Fund in FY 2025.

⁸ Per Town Staff, the Capital Savings Fund Balance is estimated to be \$1,832,500 as of 6/30/2024.

- FY 2025 Value of a Penny¹: \$240,000
- Assumed Growth Rate: Equal to growth in assessed value shown on page 5

¹Per Town Staff.

Financing Options and Considerations

Local Government Commission Overview

North Carolina
Department of State Treasurer

Local Government Commission



- The Local Government Commission (“LGC”) oversees and approves debt issuance for North Carolina localities. As part of their approval process, the LGC must find that:
 - The proposed bond issue is necessary or expedient.
 - The amount proposed is adequate and not excessive for the proposed purpose of the issue.
 - The unit’s debt management procedures and policies are good, or that reasonable assurances have been given that its debt will henceforth be managed in strict compliance with the law.
 - The increase in taxes, if any, necessary to service the proposed debt will not be excessive.
 - The proposed bonds can be marketed at reasonable rates of interest.

- In order to support these findings, the LGC traditionally requires:
 - Construction bids and major permits in hand by the application deadline.
 - Conservative amortization structures – Level Principal is preferred and no longer than 20 year terms for governmental projects.
 - A demonstrated ability to repay the debt obligation.
 - The Audit for the most recently completed Fiscal Year submitted to the LGC for any debt related approvals after October.




- To assist in achieving the necessary approvals in a timely fashion, the LGC requests that:
 - A Pre-application meeting typically occurs at least 2-3 months prior to approval. This informs the LGC of the City’s desire to move forward with a Financing or Referendum and also provides the LGC with preliminary information on the project(s) being considered.
 - Responses to Financial Performance Indicators of Concern by Fiscal Management (if applicable) are received approximately 2 months prior to Requested LGC Meeting.
 - A complete application is submitted by the published deadline, typically 4 weeks prior to the Requested LGC Meeting.

Upcoming LGC Meeting Schedules	Mar. Meeting*	Jun. Meeting*
FY 2023 Audit Due:	1/9/2024	4/2/2024
JLC Letter Due:	1/19/2024	4/19/2024
Application Due:	2/6/2024	5/7/2024
Commission Meeting	3/5/2024	6/4/2024

*Note: LGC Meeting Deadlines subject to change pending Calendar Year 2024 Published Schedule.






Financing Considerations

Methods of Sale

Issuance Approach	Overview	Potential Advantages	Potential Disadvantages
<p>Direct Bank Loan</p> 	<p>Direct Loan through and held by one or more Financial Institutions.</p>	<ul style="list-style-type: none"> – Streamlined financing process. – Lower Cost of Issuance. – Flexible Prepayment Terms. – Interest Rate established at beginning of financing process. 	<ul style="list-style-type: none"> – Limitations on borrowing amount, term and structure. – Typically higher interest rates, subject to market conditions.
<p>Public Sale</p> 	<p>Issuance of Securities through a Broker Dealer.</p>	<ul style="list-style-type: none"> – Flexible terms of borrowing (amount and term). – Typically lower interest rates, subject to market conditions. 	<ul style="list-style-type: none"> – Higher cost of issuance. – Ratings generally required. – More stringent financing requirements / documentation. – Interest Rate established late in the financing process.
<p>State / Federal Programs (e.g. USDA, SRF, WIFIA)</p> 	<p>Direct Loan through and held by a State or Federal Agency / Department.</p>	<ul style="list-style-type: none"> – Potential for longer term amortization (30-40 years) and/or alternative structuring, depending upon program. – Low / subsidized interest rates may be available. – Maximum Interest rate established upon approval and can be reduced at project completion under certain programs. – Potential grant funding / principal forgiveness. 	<ul style="list-style-type: none"> – Application process with limited funds available. – Minimum eligibility qualifications may apply. – Limited structuring flexibility, depending upon program. – Detailed application requirements can result in longer process. – May require a construction loan or Interim Financing. – May Require a Debt Service Reserve Fund.

Capital Funding Options

Credit Options

Credit Option	Security Overview	Considerations
 Pay-Go	N/A	<ul style="list-style-type: none"> - No Interest Cost. - Requires upfront funding of whole project. - Could be utilized in conjunction with a reimbursement resolution.
 General Obligation Bonds	Pledge of the taxing power and full faith and credit of the Issuer.	<ul style="list-style-type: none"> - Lowest Cost of Funds. - No pledge of assets required. - Failed referendum can hinder project funding. - Timing for referenda.
 Installment Financing, LOBs, COPs	Pledge of an asset and subject to annual appropriation by the Governing Body.	<ul style="list-style-type: none"> - Does not require referendum. - Collateral Requirements - Ability to utilize a master indenture.
 Revenue Bonds	Pledge of a specific enterprise revenue stream.	<ul style="list-style-type: none"> - Does not require referendum. - No collateral requirements. - Requires financial covenants.
 Special Obligation Bonds	Pledge of any available sources of revenues, to the extent the generation of the revenues does not constitute a pledge of taxing power.	<ul style="list-style-type: none"> - Does not require referendum. - Limitations on revenue sources and project eligibility.

General Obligation Bond Referendum Process

November 2025 Referendum Timeframe	Task
~Fall 2024 – Spring 2025	<ul style="list-style-type: none"> ▪ Capital Planning Process – Debt Capacity and Debt Affordability.
~By May 2025	<ul style="list-style-type: none"> ▪ Finalize GO Bond Referendum Amounts / Questions.
~Summer 2025	<ul style="list-style-type: none"> ▪ Legal Filings and City Council Approvals for GO Bond Referendum.
November 5, 2025	<ul style="list-style-type: none"> ▪ Referendum
After November 5, 2025	<ul style="list-style-type: none"> ▪ Post Referendum Legal Filings and Approvals (Town Board / LGC).
November 2032	<ul style="list-style-type: none"> ▪ Initial GO Bond Authorization expires: option to request up to 3-year extension.

Note: Specific referendum legal requirements and timing deadlines should be confirmed with the Town Attorney and Bond Counsel.

General Obligation Bond Issuance Process

- If the referendum is approved, the timing of one or more General Obligation Bond issuances will be determined by the timing of project design, permitting, and bid dates. Per LGC guidelines, project permits and bids must be in hand prior to a debt issuance.

Approximate Date	Task
Week 1	<ul style="list-style-type: none">■ Information submitted to LGC for Preliminary Official Statement.
Week 6	<ul style="list-style-type: none">■ LGC forwards first draft of Preliminary Official Statement and Notice of Sale to Working Group.
Week 8	<ul style="list-style-type: none">■ Conference Call to review Preliminary Official Statement.■ Rating Agency Meetings / Calls.
Week 9	<ul style="list-style-type: none">■ Council considers approval of an Issuance Resolution.■ Deadline to receive project bids.
Week 10	<ul style="list-style-type: none">■ Credit Ratings due.■ Post Preliminary Official Statement.
Week 12	<ul style="list-style-type: none">■ General Obligation Bond Sale Date.
Week 15	<ul style="list-style-type: none">■ General Obligation Bond Closing.

Appendix A

Existing Tax Supported Debt Detail

Tax Supported Debt Summary



Total Debt Service

Year (6/30)	Principal	Interest	Total
2025	\$ 695,000	\$ 234,124	\$ 929,124
2026	695,000	214,640	909,640
2027	695,000	195,156	890,156
2028	695,000	175,697	870,697
2029	479,000	156,188	635,188
2030	479,000	141,541	620,541
2031	479,000	126,893	605,893
2032	224,000	112,896	336,896
2033	224,000	103,488	327,488
2034	224,000	94,080	318,080
2035	224,000	84,672	308,672
2036	224,000	75,264	299,264
2037	224,000	65,856	289,856
2038	224,000	56,448	280,448
2039	224,000	47,040	271,040
2040	224,000	37,632	261,632
2041	224,000	28,224	252,224
2042	224,000	18,816	242,816
2043	224,000	9,408	233,408
Total	\$ 6,905,000	\$ 1,978,064	\$ 8,883,064

IPCs / LOBs / COPs

Year (6/30)	Principal	Interest	Total
2025	\$ 695,000	\$ 234,124	\$ 929,124
2026	695,000	214,640	909,640
2027	695,000	195,156	890,156
2028	695,000	175,697	870,697
2029	479,000	156,188	635,188
2030	479,000	141,541	620,541
2031	479,000	126,893	605,893
2032	224,000	112,896	336,896
2033	224,000	103,488	327,488
2034	224,000	94,080	318,080
2035	224,000	84,672	308,672
2036	224,000	75,264	299,264
2037	224,000	65,856	289,856
2038	224,000	56,448	280,448
2039	224,000	47,040	271,040
2040	224,000	37,632	261,632
2041	224,000	28,224	252,224
2042	224,000	18,816	242,816
2043	224,000	9,408	233,408
Total	\$ 6,905,000	\$ 1,978,064	\$ 8,883,064

Series	Par Outstanding	Credit Type	Call Date	Call Price	Coupon Range	Tax Status	General Fund
2015 IPC	665,000	IPCs / LOBs / COPs	Current	100%	2.770%	Tax-Exempt	665,000
2017 IPC	860,000	IPCs / LOBs / COPs	Current	101%	2.230%	Tax-Exempt	860,000
2021 IPC	1,120,000	IPCs / LOBs / COPs	Unknown	Unknown	1.630%	Tax-Exempt	1,120,000
2022 IPC	4,260,000	IPCs / LOBs / COPs	Current	101%	4.200%	Tax-Exempt	4,260,000
Total	\$ 6,905,000						\$ 6,905,000

Note: Excludes Operating Leases.



IPCs / LOBs / COPs



\$1,425,000

2015 Installment Purchase Contract

Paid from: General Fund

Year (6/30)	Coupon	Principal	Interest	Total
2024	2.770%	\$ 95,000	\$ 18,421	\$ 113,421
2025	2.770%	95,000	15,789	110,789
2026	2.770%	95,000	13,158	108,158
2027	2.770%	95,000	10,526	105,526
2028	2.770%	95,000	7,895	102,895
2029	2.770%	95,000	5,263	100,263
2030	2.770%	95,000	2,632	97,632
2031	-	-	-	-
2032	-	-	-	-
2033	-	-	-	-
2034	-	-	-	-
2035	-	-	-	-
2036	-	-	-	-
2037	-	-	-	-
2038	-	-	-	-
2039	-	-	-	-
2040	-	-	-	-
2041	-	-	-	-
2042	-	-	-	-
Total		\$ 665,000	\$ 73,682	\$ 738,682

Series Detail

Original Issue Amount	\$1,425,000
Detailed Series Name	2015 Installment Purchase Contract
Underwriter/Bank	BB&T now Truist
Dated Date	December 28, 2015
Principal Payment Date	December 28
Interest Payment Date(s)	December 28
Call Date	Current
Call Price	100%
Tax Status	Tax-Exempt
Purpose	Town Hall
Credit Type	IPCs / LOBs / COPs
Purpose	Town Hall

\$2,408,963

2017 Installment Purchase Contract

Paid from: Park Fees

Year (6/30)	Coupon	Principal	Interest	Total
2024	2.230%	\$ 215,000	\$ 19,178	\$ 234,178
2025	2.230%	215,000	14,384	229,384
2026	2.230%	215,000	9,589	224,589
2027	2.230%	215,000	4,795	219,795
2028	-	-	-	-
2029	-	-	-	-
2030	-	-	-	-
2031	-	-	-	-
2032	-	-	-	-
2033	-	-	-	-
2034	-	-	-	-
2035	-	-	-	-
2036	-	-	-	-
2037	-	-	-	-
2038	-	-	-	-
2039	-	-	-	-
2040	-	-	-	-
2041	-	-	-	-
2042	-	-	-	-
Total		\$ 860,000	\$ 47,945	\$ 907,945

Series Detail

Original Issue Amount	\$2,408,963
Detailed Series Name	2017 Installment Purchase Contract
Underwriter/Bank	Truist
Dated Date	October 31, 2017
Principal Payment Date	September 1
Interest Payment Date(s)	September 1
Call Date	Current
Call Price	101%
Tax Status	Tax-Exempt
Purpose	Town Park and Athletic Complex
Credit Type	IPCs / LOBs / COPs
Purpose	Town Park and Athletic Complex

IPCs / LOBs / COPs



\$1,600,000

2021 Installment Purchase Contract

Paid from: **General Fund**

Year (6/30)	Coupon	Principal	Interest	Total
2024	1.630%	\$ 160,000	\$ 17,606	\$ 177,606
2025	1.630%	160,000	14,998	174,998
2026	1.630%	160,000	12,390	172,390
2027	1.630%	160,000	9,807	169,807
2028	1.630%	160,000	7,174	167,174
2029	1.630%	160,000	4,566	164,566
2030	1.630%	160,000	1,958	161,958
2031		-	-	-
2032		-	-	-
2033		-	-	-
2034		-	-	-
2035		-	-	-
2036		-	-	-
2037		-	-	-
2038		-	-	-
2039		-	-	-
2040		-	-	-
2041		-	-	-
2042		-	-	-
Total		\$ 1,120,000	\$ 68,497	\$ 1,188,497

Series Detail

Original Issue Amount	\$1,600,000
Detailed Series Name	2021 Installment Purchase Contract
Underwriter/Bank	Southern Bank
Dated Date	June 24, 2021
Principal Payment Date	June 24
Interest Payment Date(s)	June 24, December 24
Call Date	Unknown
Call Price	Unknown
Tax Status	Tax-Exempt
Purpose	Land Purchase for Muni Complex
Credit Type	IPCs / LOBs / COPs
Purpose	Land Purchase for Muni Complex

\$4,485,000

2022 Installment Purchase Contract

Paid from: **General Fund**

Year (6/30)	Coupon	Principal	Interest	Total
2024	4.200%	\$ 225,000	\$ 178,920	\$ 403,920
2025	4.200%	225,000	169,470	394,470
2026	4.200%	225,000	160,020	385,020
2027	4.200%	225,000	150,570	375,570
2028	4.200%	224,000	141,120	365,120
2029	4.200%	224,000	131,712	355,712
2030	4.200%	224,000	122,304	346,304
2031	4.200%	224,000	112,896	336,896
2032	4.200%	224,000	103,488	327,488
2033	4.200%	224,000	94,080	318,080
2034	4.200%	224,000	84,672	308,672
2035	4.200%	224,000	75,264	299,264
2036	4.200%	224,000	65,856	289,856
2037	4.200%	224,000	56,448	280,448
2038	4.200%	224,000	47,040	271,040
2039	4.200%	224,000	37,632	261,632
2040	4.200%	224,000	28,224	252,224
2041	4.200%	224,000	18,816	242,816
2042	4.200%	224,000	9,408	233,408
Total		\$ 4,260,000	\$ 1,787,940	\$ 6,047,940

Series Detail

Original Issue Amount	\$4,485,000
Detailed Series Name	2022 Installment Purchase Contract
Underwriter/Bank	Truist
Dated Date	December 14, 2022
Principal Payment Date	December 1
Interest Payment Date(s)	December 1
Call Date	Current
Call Price	101%
Tax Status	Tax-Exempt
Purpose	Public Works Facility
Credit Type	IPCs / LOBs / COPs
Purpose	Public Works Facility

Appendix B

Detailed Tax Base Assumptions

Detailed Tax Base Assumptions



Fiscal Year		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031						
	Notes	Actual	Actual	Actual	Estimated	Projected	Projected	Projected	Projected	Projected	Projected						
1	Property Valuation	1,403,213,453	1,484,246,491	1,627,001,714	2,506,042,266	2,763,289,202	3,193,167,235	3,658,411,764	3,904,672,806	4,111,818,984	4,197,824,798						
2	Real Estate	1,241,610,447	1,303,515,778	1,435,911,016	2,311,103,540	2,558,603,540	2,978,247,290	3,432,745,821	3,667,723,567	3,868,946,013	3,948,880,003						
3	Personal Property	5% y1-4 / 2.5%	17,253,897	15,850,884	18,133,582	18,677,589	19,611,468	20,592,042	22,702,726	23,270,294	23,852,052						
4	Public Utility	5% y1-4 / 2.5%	7,847,348	7,974,669	10,700,133	11,021,137	11,572,194	12,150,804	13,396,261	13,731,167	14,074,447						
5	Tax & Tag	5% y1-4 / 2.5%	136,501,761	156,905,160	162,256,983	165,240,000	173,502,000	182,177,100	191,285,955	205,871,509	211,018,297						
7	% Change over Prev Year	8.81%	5.77%	9.62%	54.03%	10.27%	15.56%	14.57%	6.73%	5.31%	2.09%						
9	REAL ESTATE VALUATION PROJECTIONS																
10	New Commercial	Comps	Activity	Valuation	Activity	Valuation	Activity	Valuation	Activity	Valuation	Activity	Valuation					
11	Cobblestone Village, 176 apts included	(6 Foxwoods Apts are \$28m, Lafayette Village total value is \$16.7m)	\$10m change	10,000,000	\$12m change	22,000,000		22,000,000		22,000,000		22,000,000					
12	Wallbrook, 140 Townhomes not included	(Public in WF, incl. Chick Fil A, Rudinos, Wells Fargo, Wallgreens, others is \$21.5m building value on 21 acres)	-	-	\$10m change	10,000,000	\$6m change	16,000,000	\$6m change	22,000,000	\$6m change	28,000,000					
13	Jones Dairy Storage		-	-	\$2m change	2,000,000	\$2m change	4,000,000		4,000,000		4,000,000					
14	6000 Rogers Road		-	-	\$1.55m chge	1,550,000		1,550,000		1,550,000		1,550,000					
15	Glo on Main St. (Pine Glo)	(Granite Falls Swim Club is \$6m valuation)	-	-		-	\$1m change	1,000,000	\$1m change	2,000,000	\$1m change	3,000,000					
16	503 Main St.		-	-	\$2m change	2,000,000		2,000,000		2,000,000		2,000,000					
17	Carolina Legacy Volleyball		\$1.5m change	1,500,000		1,500,000		1,500,000		1,500,000		1,500,000					
18	Arden	The Grande's Apts total value \$4.5m		-	\$1.5m change	1,500,000	\$1.5m change	3,000,000		3,000,000		3,000,000					
19	Vineyard Pines		-	-		-	\$2m change	2,000,000		2,000,000		2,000,000					
20	North Wake Eye		-	-	\$1m change	1,000,000		1,000,000		1,000,000		1,000,000					
21	Crossfit		-	-		-		-		\$1m change	1,000,000						
22	Heartland Dental		\$0.8m change	800,000	\$0.7m change	1,500,000		-		-	-						
23	Scooters Coffee		\$0.3m change	300,000	\$0.5m change	800,000		-		-	-						
24	Day Care		\$0.5m change	500,000	\$0.5m change	1,000,000		-		-	-						
25	Total Wave Car Wash		\$1.2m change	1,200,000	\$0.7m change	1,900,000		-		-	-						
26	Subtotal Commercial					14,300,000	46,750,000	54,050,000	61,050,000	69,050,000	69,050,000						
28	New Residential - Single Family	# Buildable Lots	Total Projected (through Jan 1, 2028)	Permits Issued thru Dec 2023	Additional Permits	450,000	Additional Permits	461,250	Additional Permits	472,781	Additional Permits	484,601	Additional Permits	496,716	Additional Permits	509,134	
29	Chandler's Ridge	95	95	95	-	-	-	-	-	-	-	-	-	-	-		
30	Elizabeth Springs	100	99	86	13	5,850,000	5,850,000	5,850,000	5,850,000	5,850,000	5,850,000	5,850,000	5,850,000	5,850,000			
31	Granite Crest Ph 3	19	19	5	14	6,300,000	6,300,000	6,300,000	6,300,000	6,300,000	6,300,000	6,300,000	6,300,000	6,300,000			
32	Perry Farms	113	115	113	2	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000			
33	Regency at Heritage Ph 3	27	27	27	-	-	-	-	-	-	-	-	-	-			
34	Preserve at JD South	215	251	101	150	67,500,000	67,500,000	67,500,000	67,500,000	67,500,000	67,500,000	67,500,000	67,500,000	67,500,000			
35	Meadows at Jones Dairy	134	136	7	57	25,650,000	58,860,000	58,860,000	58,860,000	58,860,000	58,860,000	58,860,000	58,860,000	58,860,000			
36	Preserve at JD Central	255	255	-	57	25,650,000	100	71,775,000	98	118,107,563	118,107,563	118,107,563	118,107,563	118,107,563			
37	Kalas Falls	445	445	-	25	11,250,000	100	57,375,000	100	104,653,125	153,113,203	120	212,719,099	212,719,099			
38	The Point South Pkg 1	266	266	-	100	45,000,000	100	91,125,000	66	122,328,563	122,328,563	122,328,563	122,328,563	122,328,563			
39	The Point South Pkg 2	150	150	-	50	22,500,000	50	45,562,500	50	69,201,563	69,201,563	69,201,563	69,201,563	69,201,563			
40	Rolesville Crossing	177	177	-	100	46,125,000	77	82,529,156	77	82,529,156	82,529,156	82,529,156	82,529,156	82,529,156			
41	Preserve at Moody Farms	82	82	-	30	13,837,500	52	38,422,125	52	38,422,125	38,422,125	38,422,125	38,422,125	38,422,125			
42	Tucker Wilkins	27	27	-	-	-	27	12,765,094	27	12,765,094	12,765,094	12,765,094	12,765,094	12,765,094			
43	The Point North	94	94	-	30	13,837,500	50	37,476,563	14	44,260,973	44,260,973	44,260,973	44,260,973	44,260,973			
44	Parker Ridge	162	162	-	25	11,531,250	75	46,989,844	62	77,035,092	77,035,092	77,035,092	77,035,092	77,035,092			
45	Pearce Farm	557	557	-	100	47,278,125	100	119,968,242	150	119,968,242	150	194,475,612	157	274,409,603			
46	Reserve @ Mitchell Mill	269	269	-	50	23,639,063	100	72,099,141	100	72,099,141	119	131,208,321	131,208,321	131,208,321			
47	Subtotal Residential - Single Family				468	210,600,000	607	490,578,750	745	842,800,781	426	1,049,240,714	389	1,242,463,161	157	1,322,397,151	
49	New Residential - Townhomes	# Buildable Lots	Total Projected	Permits Issued thru Dec 2023	Additional Permits	200,000	Additional Permits	205,000	Additional Permits	210,125	Additional Permits	215,378	Additional Permits	220,763	Additional Permits	226,282	
50	Elizabeth Springs TH	105	92	40	2	400,000	50	10,650,000		10,650,000		10,650,000		10,650,000			
51	A Master Team TH	47	47	16	31	6,200,000		6,200,000		6,200,000		6,200,000		6,200,000			
52	Townes at Carlton Pointe	53	53	43	10	2,000,000		2,000,000		2,000,000		2,000,000		2,000,000			
53	Parker Ridge TH	114	114	-	75	15,375,000	39	23,569,875		23,569,875		23,569,875		23,569,875			
54	Wallbrook TH	140	140	-	70	14,350,000	70	29,058,750		29,058,750		29,058,750		29,058,750			
55	Preserve at JD Central TH	179	179	-	30	6,000,000	70	20,350,000	29	37,102,216		37,102,216		37,102,216			
56	Meadows at Jones Dairy TH	63	63	-	63	12,915,000		12,915,000		12,915,000		12,915,000		12,915,000			
57	The Point South Pkg 2 TH	203	203	-	40	8,000,000	83	41,840,375		41,840,375		41,840,375		41,840,375			
58	Kalas Falls TH	95	95	-	45	9,225,000	50	19,731,250		19,731,250		19,731,250		19,731,250			
59	Rolesville Crossing TH	120	120	-	50	10,250,000	50	20,756,250	20	25,063,813		25,063,813		25,063,813			
60	Tucker Wilkins TH	71	71	-	20	4,100,000	30	10,403,750	21	14,926,691		14,926,691		14,926,691			
61	Reserve @ Mitchell Mill	110	110	-	80	16,810,000	30	23,271,344	30	23,271,344		23,271,344		23,271,344			
62	Subtotal Residential - Townhomes				113	22,600,000	523	129,815,000	452	224,791,500	100	246,329,313	-	246,329,313	-	246,329,313	
64	Subtotal Residential					581	233,200,000	1,130	620,393,750	1,197	1,067,592,281	526	1,295,570,027	389	1,488,792,473	157	1,568,726,463
66	Grant Total Real Estate Valuation					247,500,000	667,143,750	1,121,642,281	1,356,620,027	1,557,842,473	1,637,776,463						

Note: Real Estate growth assumed at 2.5% in FY 2032 and beyond.

Appendix C

Rolesville Town Center Project Cost Estimates

Rolesville Town Center PRELIMINARY Cost Estimate V2

Revised 03/14/2024

Construction Cost (2025 Costs)

Item	Cost/SF	Square footage	Cost
Town Hall Building			
2-Story 20,000 sf building	\$500	20,000	\$10,000,000
All Contingencies 10%			\$1,000,000
CMAR Allowance (not included)	\$600,000		0
Construction Subtotal	\$550		\$11,000,000
Owner Soft Costs 20%			\$2,200,000
Town Hall Building Total			\$13,200,000

Police Station

2-Story 16,000 sf building	\$540	16,000	\$8,640,000
All Contingencies 10%			\$864,000
CMAR Allowance (not included)	\$518,400		0
Construction Subtotal	\$594		\$9,504,000
Owner Soft Costs 20%			\$1,900,800
Town Hall Building Total			\$11,404,800

Fire Station

2-Story 16,000 sf building	\$550	16,000	\$8,800,000
All Contingencies 10%			\$880,000
CMAR Allowance (not included)	\$528,000		0
Construction Subtotal	\$605		\$9,680,000
Owner Soft Costs 18%			\$1,742,400
Town Hall Building Total			\$11,422,400

Community Center Building (NOTE THIS IS THE SMALLER VERSION)

2-Story 16,000 sf building	\$455	16,000	\$7,280,000
All Contingencies 10%			\$728,000
CMAR Allowance (not included)	\$436,800		0
Construction Subtotal	\$501		\$8,008,000
Owner Soft Costs 18%			\$1,441,440
Town Hall Building Total			\$9,449,440

General Site Construction Costs (outside of building specific sites)

Developer road if left alone			\$0
Revisions to developer road			\$400,000
Grading separate from buildings			\$1,100,000

Wetland mitigation		\$500,000
Utilities separate from buildings		\$700,000
Storm water BMP's separate from buildings		\$500,000
Paving separate from buildings (asphalt with curb and gutter and sidewalks)		\$800,000
Retaining walls separate from buildings		\$150,000
Site Lighting (verify owner does not want to lease from utility)		\$350,000
Landscaping/common areas/buffers/wetlands/greens/bridges/walkways		\$1,800,000
Veterans memorial		\$700,000
General Site Construction subtotal		\$7,000,000
All Contingencies 15% (including bad soil / rock / etc.)		\$1,050,000
CMAR Allowance (not included)	\$420,000	0
Owner Soft Costs		\$400,000
General Site Construction Total		\$8,450,000

Escalation

4-5% per year beyond 2025

Appendix D

Financial Policies

Fiscal Policies

BUDGETARY POLICY

- In accordance with state statutes, the Town will adopt a balanced budget ordinance each year. A budget is balanced when the sum of net revenues and appropriated fund balance equal expenditure appropriations.
- The tax rate will be set each year based on the cost of providing general governmental services and paying debt service. Consideration will be given to future net revenue requirements due to the impacts of capital improvement projects and programmed debt service.
- The Town sets fees that will maximize user charges in lieu of ad valorem taxes for services that can be individually identified and where the costs are directly related to the level of service.
- Expenditure budgets are reviewed by staff, the Town Manager, and Town Board prior to adoption and are continually monitored throughout the budget year. Budgeted funds will only be spent for the purposes for which they are intended.
- For continuing contracts, funds will be appropriated in the annual budget ordinance to meet current year obligations arising under the contract, in accordance with North Carolina General Statutes.

FUND BALANCE POLICY

- Unassigned fund balance refers to funds that remain available for appropriation after all state statutes, previous designations, and expenditure commitments have been calculated.
- At the close of each fiscal year, the Town will strive to maintain a level of unrestricted fund balance of no less than 33%, which translates to a minimum of 4 months, of general fund expenditures. Any excess funds may be utilized for other municipal purposes, such as but not limited to additional capital improvement needs, debt reduction, and emergency situations.

CAPITAL IMPROVEMENT POLICY

- The Town will update an annual five year capital improvements program which details each capital project, the estimated cost, description, funding source, and effect on the Town's operating budget.
- The capital improvements program will generally address those capital assets with a value exceeding \$5,000 and a useful life of over five years.
- Restricted revenue sources will be utilized whenever possible before unrestricted sources.

DEBT POLICY

- The Town will utilize a balanced approach to capital funding using debt financing, fund balance, capital reserves, and pay-as-you-go appropriations.
- No appropriations of the proceeds of a debt instrument will be made except for the purpose for which such debt instrument was intended. Debt financing will not be used to finance current operating expenditures.
- Capital projects financed through the issuance of bonds will be financed for a period not to exceed the expected useful life of the project.
- The sum of general obligation debt and installment purchase debt of the Town will not exceed the North Carolina statutory limit.
- The Town will strive to maintain debt funding flexibility to maximize capacity for both identified and unanticipated capital needs and opportunities.

Adopted by the Town Board on June 6, 2016.



Richmond Office

One James Center
901 East Cary Street
11th Floor
Richmond, VA 23219

Charlotte Office

Independence Center
101 N. Tryon Street
Suite 1220
Charlotte, NC 28246

Ted Cole

Senior Vice President
804-697-2907

tcole@investdavenport.com

Mitch Brigulio

Senior Vice President
704-644-5414

mbrigulio@investdavenport.com

Tanner Smoak

Associate Vice President
704-390-7259

tsmoak@investdavenport.com

Municipal Advisor Disclosure

The enclosed information relates to an existing or potential municipal advisor engagement.

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
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Five Year Capital Improvement Plan

Fiscal Year	24-25 Construction	25-26 Construction	26-27 Construction	27-28 Construction	28-29 Construction	Future Construction
 Facilities		 Campus Site \$9,445,755  Police Station \$12,600,819  Main Fire Station \$12,632,378	 Library \$ Wake Co	 Town Hall \$15,902,150		 Community Ctr \$12,488,238
 Streets & Sidewalks			 Granite Falls Blvd \$4,200,000	 Rogers Rd Pedestrian Improv \$750,000		
 Parks & Recreation	 Farm Entrance \$1,000,000  Amphitheater \$340,000	 Farm Activation \$12,000,000				 Park Expansions \$12,000,000
 Other	 Econ Dev Site \$300,000		 Econ Dev Site \$500,000		 Econ Dev Site \$700,000	

 Tax Impact	Tax Rate Impact of FY25 to F28 Projects \$0.0716				Tax Rate Impact of FY29 to F32 Projects \$0.0441	
 10-Year Payout Ratio	In compliance	Out of compliance	In compliance	In compliance	In compliance	
Debt to Assessed Value	In compliance	In compliance	In compliance	In compliance	In compliance	
Debt Service to Expenditures	In compliance	In compliance	In compliance	In compliance	In compliance	

M E M O R A N D U M

TO: Mayor and Town Commissioners

FROM: David J. Neill, Town Attorney

DATE: April 10, 2024

RE: **AN ORDINANCE TO AMEND THE TOWN OF ROLESVILLE NOISE REGULATIONS**

Summary.

In response to noise complaints filed by Rolesville citizens with Rolesville Police Department over the past year, our office was asked to review the Town’s existing noise ordinances as contained in the Rolesville Town Code. Enclosed with this memorandum is a proposed update to the existing noise ordinance (hereinafter, the “**Ordinance**”). The Ordinance is intended to be more practical for enforcement by law enforcement officers in the field while remaining compliant with legal limits to noise regulation.

Background.

The Town’s existing “Unnecessary Noise” ordinance appearing in Chapter 130 is believed to have been an original component of the Town Code of 1989 when the Code was last comprehensively rewritten. The existing noise ordinance was last amended in 2019 to expressly identify “blasting” as a regulated noise.

Local governments have long struggled with noise regulation. Constitutional protections of speech and expression are pitted against the known negative health effects of noise pollution and disruptions of the peace. Over the past twenty years, concerns regarding fairness and clarity in noise ordinance enforcement led many communities to invest in sound pressure level (SPL) meters for law enforcement officers only to find that these meters were difficult to use and their readings difficult to interpret.

At the local level, Rolesville Police Department has found the existing language sometimes difficult to enforce because the standards for identifying a violation are often too vague in application.

Police Chief Simmons and I have discussed the strengths and weaknesses of the existing noise ordinance as well as possible changes that could be made. Of particular concern is the Department’s reluctance to being drawn into the trap of SPL meters. Fortunately, there is another path. A growing body of caselaw has looked with favor upon a new way of enforcing noise

ordinances – the “reasonable person standard.” Rather than either the subjective judgment of the particular responding officer or a decibel reading from a meter held at a particular place at a particular height to determine compliance, unlawful noises are defined as those plainly audible noises that would be deemed unreasonable to a reasonable person of ordinary sensitivities. This reasonable person standard underpins hundreds of years of legal tradition and reduces the need for special training or special equipment for police officers.

The City of Raleigh adopted a new noise ordinance in February of this year incorporating the reasonable person standard. The Ordinance enclosed with this memorandum takes cues from the language in Raleigh’s new noise ordinance while also remaining true to important community differences between Raleigh and Rolesville.

The Proposed Ordinance.

The Ordinance would eliminate the current ordinance and be adopted as new chapter to the Town Code. An outline of the Ordinance is as follows:

- **RECITALS.** The preliminary recitals to the Ordinance identify the legislative authority for regulating noise and announce the legislative intent of the Board.
- **SECTION 1.** Eliminates the Town’s existing noise ordinance.
- **SECTION 2.** Provides the text of the Ordinance.
 - **132.01. DEFINITIONS.** To improve clarity, the Ordinance makes use of defined terms contained within a single location for easy reference. Defined terms are capitalized throughout the Ordinance.
 - **132.02. SCOPE.** Drawing upon the Recitals, this Section incorporates a simplified description of the legislative intent of the Board.
 - **132.03. GENERAL PROHIBITIONS.** This Section sets the general rule and adopts the reasonable person standard for identifying impermissible noise.
 - **132.04. EXCEPTIONS.** As this Section’s name implies, here the Town sets out those particular activities and circumstances that are categorically exempt from general rule of Section 132.03. (Here you will notice some highlighted provisions for which Staff will request Board discussion and guidance.)
 - **132.05. SPECIFIC PROHIBITIONS.** As the flip side to Exceptions, the noises identified here are categorically prohibited. Many of these activities are taken verbatim from the existing noise ordinance. (Here you will notice additional highlighted provisions for discussion.)
 - **132.06. PUBLIC PARKS.** The proposed prohibition of amplified noise in Town parks is given its own Section as regulation and scope here may require additional discussion by the Board and additional qualifications for regulation. If no special guidance is provided as to public parks, this may be included in Section 132.05.

- **132.07. PENALTIES.** This Section identifies the sanctions for violating the Ordinance. (Here you will notice highlighted provisions for the amount of civil penalties. State law limits these penalties to a maximum of \$500.00. The Board may wish to discuss these levels.)

Next Steps:

- It is anticipated that Commissioners will need time to consider this Ordinance and discuss its terms, particularly those items highlighted.
- Our office, working together with the Police Department, Planning Department, and the Parks & Recreation Department will incorporate the Board's worksession feedback to craft a noise ordinance suitable for adoption.

Proposed Action:

As an amendment to the Town Code (rather than the LDO), action can be taken by the Board at any regular meeting or properly noticed special meeting. No public hearing is required.

While it is not expected that the Board will act at our April worksession, a proper motion could take the following form:

- "I move adoption of the proposed 'ORDINANCE TO AMEND THE TOWN OF ROLESVILLE NOISE REGULATIONS.'"

ORDINANCE #2024 - _____

**AN ORDINANCE TO AMEND THE TOWN OF ROLESVILLE
NOISE REGULATIONS**

WHEREAS, N.C. Gen. Stat. § 160A-174 grants to the Town the authority to define, prohibit, regulate, or abate acts, omissions, or conditions detrimental to the health, safety, or welfare of its citizens and the peace and dignity of the Town, and may define and abate nuisances consistent with the laws of the State of North Carolina and the protections of the United States Constitution and North Carolina Constitution; and

WHEREAS, N.C. Gen. Stat. § 160A-184 grants to the Town the authority to regulate, restrict, or prohibit the production or emission of noises or amplified speech, music, or other sounds that tend to annoy, disturb, or frighten its citizens; and

WHEREAS, the Town Board of Commissioners finds that loud and raucous noise is harmful to the health, safety, and welfare of its residents and visitors; interferes with the comfortable enjoyment of life and property; interferes with the wellbeing, tranquility, and privacy of the home; and causes and aggravates certain health problems; and

WHEREAS, the Town Board of Commissioners finds that both the effective control and the elimination of loud and raucous noise are essential to the health and welfare of the Town's residents and visitors, and to the conduct of the normal pursuits of life, including recreation, work and communication; and

WHEREAS, the Town Board of Commissioners finds that the use of amplification equipment may, in a particular manner and at a particular time and place, substantially and unreasonably invade the privacy, peace, and freedom of the Town's residents and visitors; and

WHEREAS, the Town Board of Commissioners finds that short-term easing of noise restrictions is essential to allow the construction and maintenance of structures, infrastructure, and other elements necessary for the physical and commercial vitality of the Town; and

WHEREAS, the obligation to draft regulations that affect speech in a content-neutral fashion is of paramount importance to protect the freedom of expression guaranteed by the First Amendment to the United States Constitution and by Article I, Sections 12, 13, and 14 of the North Carolina Constitution, such that this ordinance enacts narrowly drawn, content-neutral regulations that are to be interpreted as such so as not to infringe upon constitutionally protected rights; and

WHEREAS, the Town Board of Commissioners endeavors to find a balance between the activity that has become an integral part of the Town's culture and the continuing promise of comfortable enjoyment of life and property.

NOW THEREFORE, BE IT ORDAINED BY THE TOWN BOARD OF COMMISSIONERS OF THE TOWN OF ROLESVILLE, NORTH CAROLINA that:

SECTION 1. Section 130.04 of the Rolesville Town Code, titled “Unnecessary Noise” is hereby repealed in its entirety.

SECTION 2. The following language is hereby adopted as a new “Chapter 132. – Noise” to the Rolesville Town Code:

CHAPTER 132. – NOISE

§ 132.01. DEFINITIONS.

In addition to the common meanings of words, for the purpose of this Chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

Blasting. Activity involving the use of any explosive for the purpose of demolishing a structure or blasting out rock, gravel, earth, trees, or any other substance or material.

Construction. On-site erection, fabrication, installation, alteration, demolition, or removal of any structure, facility, or addition thereto, including all related activities, including, but not restricted to, clearing of land, earth moving (not to include Blasting activity), and landscaping.

Daytime Hours. 7:00 a.m. to 11:00 p.m., local time.

Emergency. Any occurrence or set of circumstances demanding immediate attention to engage in Emergency Work.

Emergency Work. Work made necessary to restore property to a safe condition, work required to protect, provide, or prevent Persons or property from danger or potential danger; or work by private or public utilities when restoring utility service.

Nighttime Hours. 11:00 p.m. to 7:00 a.m., local time.

Noise Sensitive Area. Areas that include, but are not limited to, real property normally used for sleeping or normally used as a school, church, healthcare facility providing treatment requiring patient recovery, or public library.

Plainly Audible. Any sound or vibration caused by sound that can be detected by a Reasonable Person using his or her unaided hearing faculties.

Person. Any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, agency, political subdivision of this State, any other state or political subdivision or agency thereof or any legal successor, representative, agent, or agency of the foregoing.

Public Place. All walks, alleys, streets, boulevards, avenues, lanes, roads, highways, or other ways or thoroughfares dedicated to public use or owned or maintained by public authority; all grounds and buildings owned or leased by, maintained or operated by public authority.

Reasonable Person. A Person of normal and ordinary sensitivities who is within the area of the audibility or perceptibility of the noise or vibration that transmits sounds that disrupt the reasonable conduct of basic human activities, such as conversation, sleep, work, and other such activities.

Sound Source. Any Person, animal, device, operation, process, activity, or phenomenon that emits or causes sound.

Special Event. Activity operating pursuant to and in accordance with Chapter 113 of this Code.

Unreasonable Noise. The unreasonable making of, or knowingly and unreasonably permitting to be made, any sound that is an unreasonably loud, boisterous, or unusual noise, disturbance, commotion, or vibration due to bass levels or other sources from any dwelling, building, other structure, or privately-owned outdoor property, or upon any public street, park or other place or building. Any sound that is ordinary and normal to the operation of these places when conducted in accordance with the usual standards of practice, including standards for noise mitigation, and in a manner that will not unreasonably interfere with the peace and comfort of neighbors or their guest, or operators or customers in places of business, or detrimentally or adversely affect such residences or places of business, shall not be enforced as an Unreasonable Noise.

§ 132.02. SCOPE

This Chapter applies to the enforcement and control of all sound originating within the jurisdictional limits of the Town. It is of paramount importance that the enforcement of this Chapter be content-neutral to protect the freedom of expression guaranteed by the First Amendment to the United States Constitution and by Article I, Sections 12, 13, and 14 of the North Carolina Constitution, such that this Chapter enacts narrowly drawn, content-neutral regulations that are to be interpreted as such so as not to infringe upon constitutionally protected rights.

§ 132.03. GENERAL PROHIBITIONS.

- (a) No Person shall make or continue to make:
- (1) Any Plainly Audible Unreasonable Noise as would be determined by a Reasonable Person;
 - (2) Any Plainly Audible noise that unreasonably disturbs, injures, or endangers the comfort, repose, health, peace, or safety of Reasonable Persons;
 - (3) Any Plainly Audible noise that is so harsh, prolonged, unnatural, or unusual in time or place as to occasion unreasonable discomfort to any Reasonable Persons within the vicinity of the location from which that noise emanates, or as to unreasonably interfere with the peace and comfort of neighbors or their guests, or operators or customers in places of

business, or as to detrimentally or adversely affect such residences or places of business.

(b) Factors for determining whether a sound is an Unreasonable Noise include, but are not limited to:

- (1) The proximity of the sound to sleeping facilities, whether residential or commercial;
- (2) The land use, nature, and zoning of the area from which the sound emanates and the area where it is received;
- (3) The time of day or night the sounds occurs;
- (4) The duration of the sound; and
- (5) Whether the sound is recurrent, intermittent, or constant.

(c) Violation of this subsection is a misdemeanor. Any subsection may also be enforced pursuant to Section 132.07 or a combination of remedies.

§ 132.04. EXCEPTIONS.

The general prohibitions as defined in Section 132.03 shall not apply to the following sources:

- (a) Emergency warning devices or safety signals;
- (b) Lawn care equipment and agricultural field equipment used during the Daytime Hours;
- (c) Equipment being used for Construction, provided that all equipment is operated with all standard equipment manufacturer's mufflers and noise-reducing equipment in use and in proper operating condition during Daytime Hours;
- (d) Fairs, circuses, other similar public entertainment events, sanctioned sporting events, sporting activities taking place in areas set aside for such activities, or any activities normally associated with any of the above;
- (e) Bells, chimes and similar devices that operate during Daytime Hours for a duration of no longer than five (5) minutes in any given period;
- (f) Emergency Work;
- (g) Properly installed and operating sixty-cycle electric transformers;
- (h) Except as provided by Sections 132.05(d) or (f), motor vehicles operating at legal speeds on traffic ways of the Town;
- (i) Properly installed and operating residential heating, ventilating, and air conditioning systems;

(j) Repairs or excavations of bridges, streets, or highways by or on behalf of the Town, the county, the state or the federal government, during Nighttime Hours when the public welfare and convenience renders it impractical to perform the work during Daytime Hours;

(k) Stadiums, arenas, and outdoor sports or entertainment facilities;

(l) Parades permitted as Special Events and spectators and participants in those parades;

(m) Outdoor events, races, festivals, or concerts on public property or public vehicular areas that are permitted as Special Events;

(n) Sound associated with the delivery of public services by the Town, county, state or the federal government; and

(o) Outdoor school and playground activities, including, but not limited to, school athletic and school entertainment events during Daytime Hours.

(p) This section establishes exceptions only to Section 132.04. The exceptions set out herein do not apply to Section 132.05 and do not authorize any Prohibited Noises regulated by Section 132.05.

§ 132.05. SPECIFIC PROHIBITIONS.

Except when specifically allowed as a part of a permitted Special Event, in addition to any other violations of this Code, the following acts are specifically declared to be prohibited noises, the emission of which shall be unlawful. Such enumeration shall not be deemed to be exclusive of other prohibited Plainly Audible Unreasonable Noises:

(a) The sounding of any horn or signal device including compression release engine or transmission braking system or any device on any automobile, truck, bus, or other vehicle while not in motion, except as a danger signal if another vehicle is approaching apparently out of control, or if in motion, only as a danger signal after or as brakes are applied and deceleration of the vehicle is intended; the creation by means of such device of any unreasonable loud or harsh sound; or the sounding of such a device for an unnecessary and unreasonable period of time.

(b) The use of any gong or siren upon any vehicle other than police, fire, ambulance, or other Emergency vehicle.

(c) The playing of any radio, phonograph, amplifier, AV receiver, stereo, tape deck, tape recorder, phone, streaming device, television, musical instrument, or similar device in such a manner or with such volume during the Nighttime Hours as to annoy or disturb the quiet, comfort or repose of any Reasonable Person in any dwelling, hotel, motel, or other type of residence.

(d) The use of any automobile, motorcycle, or other vehicle so out of repair, so loaded, so modified, or so driven as to be Plainly Audible at fifty (50) feet from any Reasonable Person so as to create unreasonably loud, grating, grinding, or rattling noise.

- (e) The blowing of any steam whistle attached to any stationary boiler, except to give notice of the time to begin or stop work or as warning of danger.
- (f) The discharge into the open air of the exhaust of any stationary internal combustion engine or motor vehicle, except through a muffler or other device that will effectively prevent unreasonably loud or explosive noises therefrom.
- (g) Construction activity in a residential or business zoning district other than between the hours of 8:00 a.m. and 6:00 p.m. except as Emergency Work.
- (h) Blasting activity other than between the hours of 10:00 a.m. and 6:00 p.m. except as Emergency Work.
- (i) The creation of any Plainly Audible Unreasonable Noise within one hundred and fifty (150) feet of a Noise Sensitive Area. This section is only to be applied when an institution or sleeping area in a Noise Sensitive Area is in session or in active use.
- (j) The creation of Plainly Audible Unreasonable Noise in connection with loading or unloading any vehicles, equipment, or the opening and destruction of bales, boxes, crates and containers.
- (k) The creation of Plainly Audible Unreasonable Noise in connection with the shouting and crying of peddlers, barkers, hawkers, or vendors that would disturb the quiet and peace of Reasonable Persons within a residential zoning district. This section is to be applied only to those situations where the disturbance is not a result of the content of the communication, but due to the volume, location, timing, or other factors not based on content.
- (l) The use of any drum, loudspeaker, or other instrument or device for the purpose of attracting attention by creation of Plainly Audible Unreasonable Noise to any performance, show or sale or display of merchandise.
- (m) The conducting, operating, or maintaining of any garage or filling station, or the repair, rebuilding or testing of any motor vehicle in any residential zoning district, so as to cause Plainly Audible Unreasonable Noise to be emitted therefrom during the Nighttime Hours.
- (n) The firing or discharging of firearms in a Public Place or elsewhere for the purpose of making noise or disturbance.
- (o) The keeping of any animal otherwise permitted to be kept that, by habitual or frequent sound, cry, howling, barking, squawking, meowing, or other Plainly Audible Unreasonable Noise, shall disturb the quiet, comfort or repose of a Reasonable Person.
- (p) The use or operation on Public Places, Town rights-of- way, or on public vehicular areas of any sound amplifier, bullhorn, loudspeaker, public address system, or other similar device when operated in such a manner as to be Plainly Audible by a Reasonable Person during Nighttime Hours at a distance of fifty feet (50') from such a Reasonable Person, and during Daytime Hours, at a distance of three hundred feet (300') from such a Reasonable Person.

(q) The operation of any commercial establishment, including any outdoor area that is part of or under the control of the establishment, during Nighttime Hours that creates Plainly Audible noise at a distance of one hundred and fifty (150) feet from the property line of the Sound Source, and during Daytime Hours, that is Plainly Audible at a distance of three hundred (300) feet from the property line of the Sound Source.

Violation of this subsection is a misdemeanor. Any subsection may also be enforced pursuant to Section 132.07 or a combination of remedies.

§ 132.06. PUBLIC PARKS.

It shall be unlawful for any Person or organization to use any Plainly Audible electronic sound amplification or engage in the playing of any Plainly Audible electronically amplified musical instrument within [Town parks/Main Street Park]. This section shall not apply to permitted Special Events or to Emergency vehicles or other service vehicles or equipment operated in response to an Emergency.

Violation of this subsection is a misdemeanor. Any subsection may also be enforced pursuant to Section 132.07 or a combination of remedies.

§ 132.07. PENALTIES FOR VIOLATION OF NOISE RESTRICTIONS.

(a) Civil Penalties:

(1) Any Person violating any of the provisions of Chapter 132 shall be subject to a civil penalty of two hundred fifty dollars (\$250.00) for an initial violation. Each calendar day on which a continuing violation occurs shall constitute a separate violation under this subsection. For each subsequent violation occurring within twelve (12) months of any other violation, the violator shall be subject to a civil penalty of five hundred dollars (\$500.00) per violation.

(2) If a Person fails to pay any civil penalty within thirty (30) days after it is assessed, the Town may recover the penalty, together with all costs allowed by law, by filing a civil action in the General Court of Justice in the nature of a suit to collect a debt. The Police Department is authorized to issue civil penalty citations to enforce this section.

(b) Injunctive and Equitable Relief:

As an additional remedy, this chapter may be enforced, either before or after the institution of any other action or proceeding authorized by this subsection, by an action for injunctive relief to restrain the violation or to obtain other equitable relief as allowed by law. The action shall be brought in the appropriate division of the General Court of Justice. The institution of an action for injunctive relief shall not relieve any party to such proceeding from any civil or criminal penalty prescribed for violations of this chapter. This chapter may also be enforced through any appropriate equitable remedy.

(c) Criminal Penalties:

Any Person who violates any provision of this chapter shall be deemed guilty of a misdemeanor punishable by imprisonment not to exceed thirty (30) days or by fine not to exceed five hundred dollars (\$500.00). Each day of a continuing violation shall constitute a separate violation under this subsection.

(d) Enforcement:

In addition to other remedies, this chapter may be enforced by any one, all, or a combination of the remedies set out herein.

SECTION 3. All laws and clauses of laws in conflict herewith are hereby repealed to the extent of said conflict.

SECTION 4. If this Ordinance or application thereof to any Person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this Ordinance that can be given separate effect and to this end the provisions of this ordinance are declared to be severable.

SECTION 5. The provisions of this Ordinance shall not affect any act heretofore done, any liability incurred, any right accrued or vested, or any suit or prosecution begun or cause of action accrued prior to the effective date of this Ordinance.

SECTION 6. This ordinance shall be enforced as provided in N.C. Gen. Stat. § 160A-175 and as may otherwise be provided by the Rolesville Town Code. All criminal sanctions shall be the maximum allowed by law notwithstanding the fifty-dollar limit set forth by N.C. Gen. Stat. § 14-4(a) or similar limitations.

SECTION 7. This Ordinance shall become effective upon its adoption.

ADOPTED & EFFECTIVE: _____, 2024

Your
FOR Info
FYI

Town of Rolesville
Board of Commissioners
Work Session

April 11, 2024

FOR YOUR INFORMATION (FYI) SECTION

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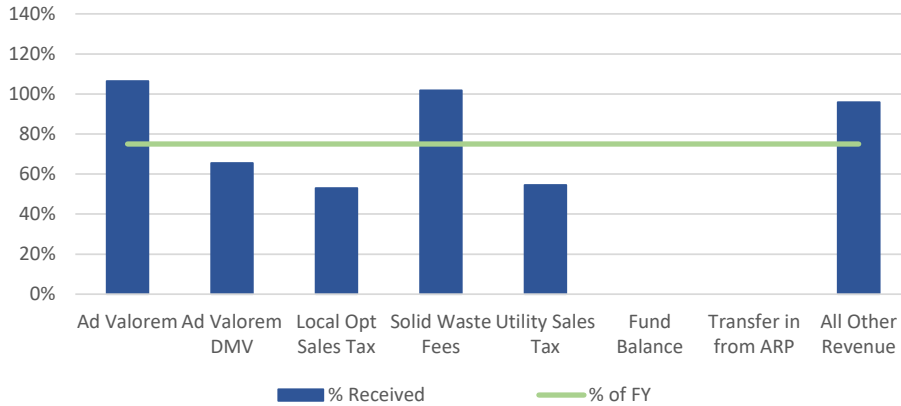


For month ending March 31, 2024

General Fund

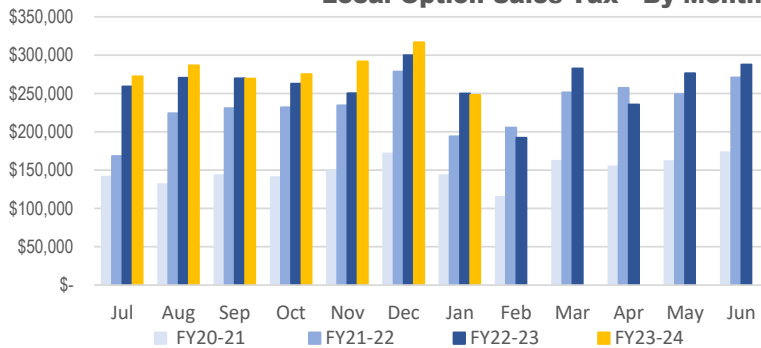
REVENUES

All Revenues YTD

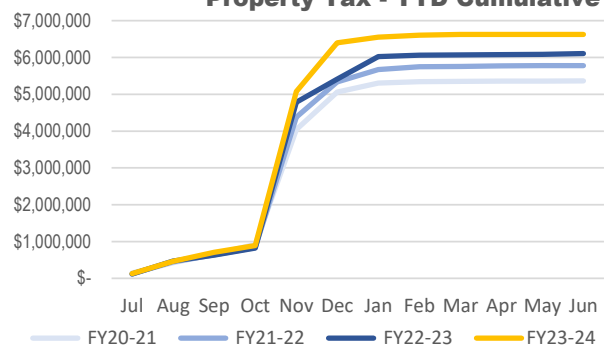


- Local Option Sales Tax has a 3 month delay in receipt.
- Sales tax revenues continue to decline due to lower inflation.
- Utility Sales Tax has a 3 month delay in receipt

Local Option Sales Tax - By Month

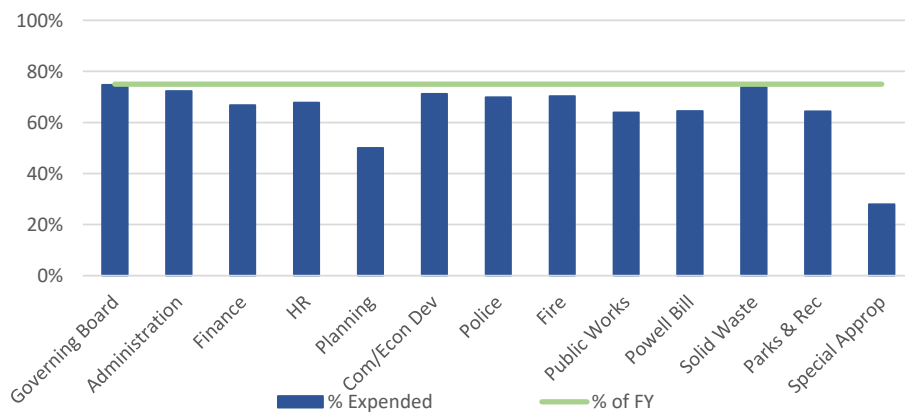


Property Tax - YTD Cumulative



EXPENDITURES

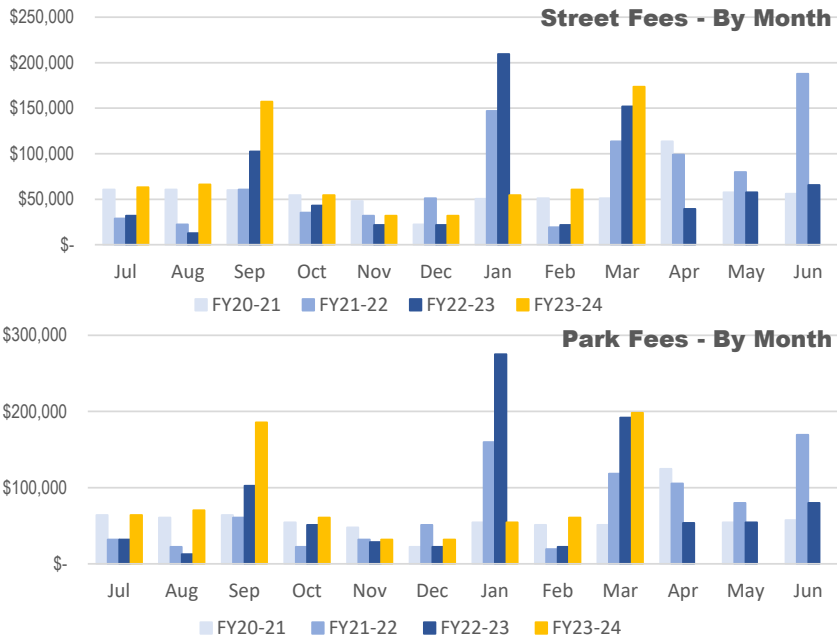
All Expenditures YTD



- Department expenditures are generally within appropriations
- Year-end debt payments and transfers explain why Special Appropriations is below benchmark
- Planning is below benchmark due to salary lapse from position vacancies

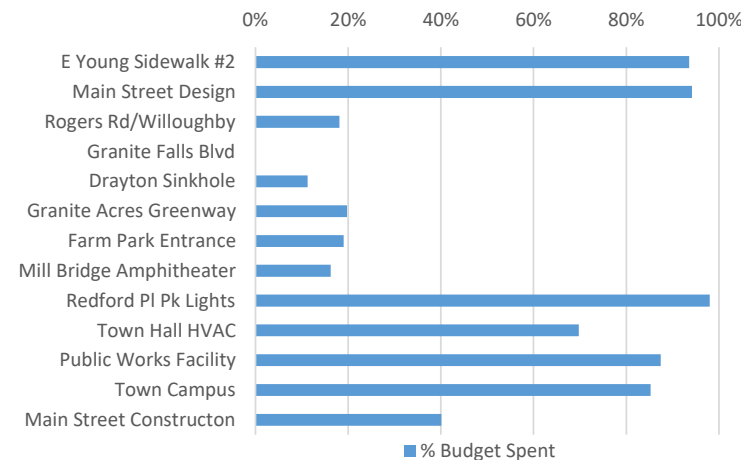
Capital Funds

REVENUES



- Street Fees and Park Fees revenue varies widely from month to month, depending on local development activity
- January 2024 saw significantly lower fee revenue than the same month in previous years.

EXPENDITURES

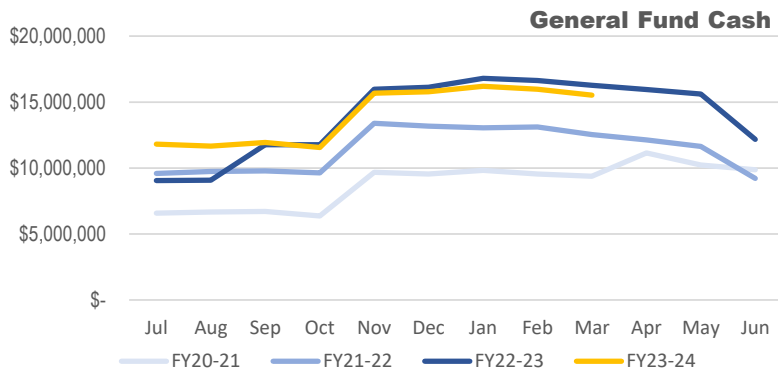


Capital Project Ordinances - Project to Date

Project	Budget	Actual	% Spent
E Young Sidewalk #2	875,000	818,957	94%
Main Street Design	2,372,756	2,235,363	94%
Rogers Rd/Willoughby	420,000	76,156	18%
Granite Falls Blvd	200,000	-	0%
Drayton Sinkhole	70,000	7,857	11%
Granite Acres Greenway	323,500	64,000	20%
Farm Park Entrance	550,000	104,739	19%
Mill Bridge Amphitheater	130,000	21,071	16%
Redford Pl Pk Lights	550,000	539,227	98%
Town Hall HVAC	80,000	55,825	70%
Public Works Facility	4,620,000	4,041,089	87%
Town Campus	2,117,000	1,804,981	85%
Main Street Constructon	21,153,339	8,483,947	40%

Cash & Investments

General Fund	\$15,517,397
Capital Projects Fund	\$8,155,280
LAPP Grants Fund	\$2,565,648
Utility Projects Fund	\$1,970,710
	<hr/>
	\$28,209,034
Checking	\$686,485
PW Facility Loan	\$834,070
Investment	\$26,688,480
	<hr/>
	\$28,209,034



Budget vs Actual Detail

GENERAL FUND

Revenues	FY22-23	FY23-24	FY23-24	YTD %
	Actual	Budget	YTD	
Ad Valorem	6,105,870	6,220,000	6,620,559	106%
Ad Valorem DMV	700,291	740,000	485,011	66%
Local Opt Sales Tax	3,137,798	3,234,400	1,712,082	53%
Solid Waste Fees	875,616	1,034,120	1,052,975	102%
Utility Sales Tax	546,649	530,000	288,901	55%
Fund Balance		1,531,065		0%
Transfer in from ARP	2,719,094			
All Other Revenue	4,892,231	1,898,455	1,820,874	96%
Total	16,258,455	15,188,040	11,980,403	79%

Expenditures

Governing Board	161,385	173,520	129,747	75%
Administration	864,629	1,016,600	734,832	72%
Finance	592,329	741,810	495,525	67%
HR	285,658	343,090	232,406	68%
Planning	981,554	1,527,390	763,736	50%
Com/Econ Dev	168,271	212,870	151,480	71%
Police	3,134,900	4,198,395	2,934,685	70%
Fire	1,310,275	1,208,000	849,114	70%
Public Works	734,665	940,735	601,469	64%
Powell Bill	26,754	320,000	206,503	65%
Solid Waste	847,315	989,000	730,009	74%
Parks & Rec	1,023,512	1,322,400	851,229	64%
Special Approp	3,317,904	2,194,230	613,066	28%
Total	13,449,150	15,188,040	9,293,802	61%
<i>Fund Balance Change</i>	<i>2,809,305</i>		<i>2,686,601</i>	

AMERICAN RESCUE PLAN FUND

Revenues	FY22-23	FY23-24	FY23-24	YTD %
	Actual	Budget	YTD	
Grants - Federal	2,709,247			
Investment Income	7,439			
Total	2,716,686	-	-	

Expenditures

Transfer Out	2,719,094			
Total	2,719,094	-	-	
<i>Fund Balance Change</i>	<i>(2,408)</i>		<i>-</i>	

75% = % of Fiscal Year

CAPITAL PROJECTS FUND

Revenues	FY22-23	FY23-24	FY23-24	YTD %
	Actual	Budget	YTD	
Streets-related	1,569,991	1,161,188	625,292	54%
Parks-related	1,047,442	492,734	797,882	162%
Fund Balance Approp		3,383,660		0%
All Other Revenues	4,485,229		32,236	
Transfer In	709,500	730,000		0%
Total	7,812,163	5,767,582	1,455,410	25%

Expenditures

Streets & Sidewalks	682,988	1,301,169	68,889	5%
Parks & Greenways	567,159	1,523,734	675,183	44%
General	2,138,184	2,942,679	1,965,430	67%
Transfer Out	500,000			
Total	3,888,330	5,767,582	2,709,502	47%
<i>Fund Balance Change</i>	<i>3,923,832</i>		<i>(1,254,092)</i>	

LAPP GRANTS FUND

Revenues	FY22-23	FY23-24	FY23-24	YTD %
	Actual	Budget	YTD	
All Other Revenues	83,557		164,904	
Grants - Federal	2,768,113	9,272,326	1,887,843	20%
Transfer In (LAPP)	1,478,919	3,870,485		0%
Reimbursements	523,891	3,808,082	944,535	25%
Transfer In (Wallbr)	1,296,868	518,194		0%
Grants - State		118,000		0%
Transfer In (ADA)	31,140	61,140		0%
Total	6,182,488	17,648,227	2,997,282	17%

Expenditures

LAPP Project	2,196,759	13,142,811	3,355,266	26%
Wallbrook	1,302,564	4,326,276	1,609,743	37%
ADA Curb Ramps	-	179,140		0%
Total	3,499,323	17,648,227	4,965,009	28%
<i>Fund Balance Change</i>	<i>2,683,165</i>		<i>(1,967,727)</i>	

UTILITY PROJECTS FUND

Revenues	FY22-23	FY23-24	FY23-24	YTD %
	Actual	Budget	YTD	
Investment Income	86,067		84,590	
All Other Revenues				
Total	86,067	-	84,590	

Expenditures

Water				
Wastewater				
Total	-	-	-	
<i>Fund Balance Change</i>	<i>86,067</i>		<i>84,590</i>	

Budget Transfers & Amendments

ADMINISTRATIVE ADMENDMENTS - unfulfilled purchase orders from previous fiscal year

Date	Revenue		Expenditure		Amount	Explanation
7/1/23	100-4410	Consultants	100-210-5268	Development Review Svs	\$60,875	Developer TIAs in progress
7/1/23	100-6900	Fund Balance Approp	100-410-5262	Contracted Services	\$7,545	Standards and specifications manual
7/1/23	100-6900	Fund Balance Approp	100-210-5262	Contracted Services	\$59,595	Averette/Young/Rville corridor study
7/1/23	100-6900	Fund Balance Approp	100-130-5264	Computer Software/Svs	\$29,580	Town Hall server replacement
7/1/23	100-6900	Fund Balance Approp	100-230-5262	Contracted Services	\$7,000	Mural project
7/1/23	100-6900	Fund Balance Approp	100-310-5415	Equipment/Furniture	\$1,145	Equipment on order

ADMINISTRATIVE TRANSFERS

Date	From		To		Amount	Explanation
9/25/23	100-610-5272	Advertising/Marketing	100-610-5415	Equipment/Furniture	\$3,500	furniture for new staff
11/7/23	100-210-5262	Contracted Services	100-120-5262	Contracted Services	\$17,500	strategic plan
12/11/23	100-410-5210	Maint&Repair - Bldg/Grnds	100-410-5420	Vehicles	\$2,500	dump trailer overage
1/5/24	100-610-5120	Maint&Repair - Bldg/Grnds	100-610-5280	Training/Travel	\$1,500	P&R conference
1/5/24	100-140-5282	Tuition Reimbursement	100-610-5280	Training/Travel	\$3,000	P&R conference
1/8/24	100-310-5244	Departmental Supplies	100-310-5262	Contracted Services	\$1,000	new hire testing
12/18/23	100-610-5332	Programs	100-610-5232	Facility Lease	\$10,000	basketball program expansion
12/18/23	100-610-5330	Youth Baseball	100-610-5330	Youth Basketball	\$15,000	basketball program expansion
1/11/24	100-310-5230	Equipment Lease	100-310-5262	Contracted Services	\$650	GASB correction
1/16/24	100-310-5212	Maint&Repair - Equip	100-310-5232	Facility Lease	\$2,000	additional storage space
1/18/24	100-230-5260	Professional Services	100-410-5210	Maint&Repair - Bldg/Grnds	\$3,130	Cobblestone flag pole removal
2/14/24	100-610-5274	Postage	100-610-5246	Uniforms	\$100	additional staff FT and PT
3/28/24	100-410-5210	Maint&Repair - Bldg/Grnds	100-410-5230	Equipment Lease	\$7,320	GPS field painter lease
4/8/24	100-310-5415	Equipment/Furniture	100-310-5210	Maint&Repair - Bldg/Grnds	\$1,000	hot water heaters

TOWN BOARD AMENDMENTS & TRANSFERS

Date	Revenue		Expenditure		Amount	Explanation
6/6/23	100-6900	Fund Balance Approp	100-610-51xx	Salaries & Benefits	\$86,700	(1) Program Coordinator position
7/6/23	400-6900	Park Fee Fd Balance	400-766-5410	Infrastructure	\$12,000	Greenway Gaps project
8/1/23	100-6900	Fund Balance Approp	100-210-5262	Contracted Services	\$25,000	reapprop Comp Land Use Plan update
8/1/23	100-6900	Fund Balance Approp	100-230-5290	Community	\$5,000	reapprop DDA funds
8/1/23	100-6900	Powell Bill Fund Balance	100-480-5410	Contracted Services	\$240,000	reapprop 22-23 street maint program
11/8/23	100-6900	Fund Balance Approp	100-510-5262	Contracted Services	\$45,000	yard waste contract amendment
1/4/24	100-190-5399	Contingency	100-310-5266	Public Safety Services	\$19,200	CAD budgeting mistake
1/4/24	100-6900	Fund Balance Approp	100-140-5244	Departmental Supplies	\$2,500	wellness grant
1/4/24	100-190-5399	Contingency	100-320-5262	Contracted Services	\$7,100	RRFD concrete repair
1/4/24	100-4530	Sponsorships	100-610-5425	Other Improvements	\$15,000	Outdoor Museum donations
1/4/24	100-4320	Grants - Federal	100-310-xxxx	Various	\$66,000	COPS Grant acceptance
1/4/24	100-190-5399	Contingency	100-310-xxxx	Various	\$228,000	COPS Grant acceptance
1/4/24	100-6900	Fund Balance Approp	100-120-5262	Contracted Services	\$50,000	Town Manager transition
2/20/24	400-6900-7200	Fund Balance - Streets	400-726-xxxx	Various	\$495,000	Wiloughby project bids received
4/2/24	100-190-5399	Contingency	100-210-5262	Contracted Services	\$110,000	Comprehensive Land Use Plan expansion
4/2/24	100-6900	Fund Balance Approp	100-210-5262	Contracted Services	\$55,000	Comprehensive Land Use Plan expansion

Parks and Recreation Director: June Greene
Administrative Support Specialist: Nara Stevens
Athletic Program Coordinator: Mark Pittman
Athletic Program Coordinator: Orlando Jones
Cultural Program Coordinator: Tina White
Project & Facilities Coordinator: Eddie Henderson
Special Event Coordinator: Kristen Stafford



Athletic Programs Update

- **2024 Spring Athletic Numbers (as of 4/1/2024):**

Sport	Residents	Non-Residents	Total
Spring Softball	23 (46.94%)	18 (36.7%)	49
Spring Baseball	72 (54.14%)	61(45%)	133
Spring T-Ball-Advance T-Ball	56 (51.85%)	52 (48.15)	108
Spring Soccer	168 (53.50%)	146 (46.49)	314
TOTAL	319 (52.81)	277 (45.86)	604

- **Upcoming:**

- Spring Baseball/Softball Games begins April 20th, 2024.
- Spring Soccer games begins April 22nd, 2024.

- **Spring Baseball/Softball:**

- Total 275 registered
- Little League, Junior League, 8U Softball, 10U Softball and 12U Softball will play in the East Wake Youth Baseball League, due to the number of in-house teams.
- 24 total teams.

- **Spring Soccer**

- Currently 314 registered.
- 29 total teams.

- **2023 Winter Athletic Numbers Registered (as of 12/1/23):**

Sport	Residents	Non-Residents	Total
Youth Basketball	228 (56.4%)	179 (43.5%)	407
TOTAL	228 (56.4%)	179 (43.5%)	407

- Practice started: Nov. 10th.
- Last practice for the year December 2nd
- Basketball games start December 4th.
-

Special Events & Rentals Update

- Facility & Shelter Rentals (January-March 2024)**

Space	Residents	Non-Residents	Total Rentals	Gross Profit
Amphitheater	0	0	0	\$ 0
Community Center	4	3	7	\$ 1516
Gazebo	0	0	0	\$ 0
Shelter A	2	1	3	\$ 135
Shelter B	3	2	5	\$ 190
Shelter C	0	2	2	\$ 150
Shelter D	0	0	0	\$ 0
Redford Place Park Shelter	0	0	0	\$ 0
TOTAL	9 (53%)	8 (47%)	17	\$ 1991

- January-March 2024**

Events	Date/Time	Residents	Non-Residents	Attendance
Shred Event	Saturday, January 27, 2023 10:00 AM – 2:00 PM	Shred Truck ¾ full		
Litter Sweep	Saturday, February 10, 2024 9:00 AM	25 volunteers and 18 bags of trash picked up		
Blood Drive	Friday, March 8, 2024 AM	43 Donors & 40 Units of Blood donated		
Egg Rush	Monday, March 15, 2024 6:30 PM	Estimated Attendance 1100		
TOTAL ATTENDANCE		-	-	1168

- 2024 Special Event Sponsors**

- Platinum Level
- Gold Level
- Silver Level
- Bronze Level
- Rolesville 4th
- Juneteenth Celebration

- 2nd Quarter 2024 Special Events**



April 2024

- Litter Sweep
- April 13th
- Music at Mill Bridge
- April 20th
- Arbor Day Celebration
- April 27th



May 2024

- Blood Drive
- May 3th
- Music at Mill Bridge
- May 4th
- Music at Mill Bridge
- May 18th
- Memorial Mile
- May 27th



June 2024

- Trail Art
- June 1st - June 30th
- Music at Mill Bridge
- June 1st
- Rolesville Freedom at the Park, Juneteenth Celebration
- June 15th

Cultural Programs Update

- **Enrollment (January-March 2024):**

Program	Residents	Non-Residents	Total
The Senior Networks "Rolling in Rolesville" – January 8 th	7	5	12
Senior Bingo - January 10 th	4	3	7
Krav Maga Self Defense –January 10 th -February 14 th	0	4	4
Senior Bingo - January 24 th	3	5	8
Dance - January 4 th -January 25 th	18	0	18
Painting with Pizzazz – January 20 th	2	0	2
The Senior Networks "Rolling in Rolesville" – February 12 th	7	5	12
Senior Bingo – February 7 th	3	3	6
Painting with Pizzazz – February 10 th	1	0	1
Senior Bingo – February 21 st	2	3	5
Dance – February 29 th -8 th	1	0	1
Dance – March 7 th – March 28 th	13	3	16
Zumba – February 21 st – March 13 th	11	4	15
Painting with Pizzazz – March 9 th	3	0	3
Schools Out(side)! - March 11 th	5	2	7
The Senior Networks "Rolling in Rolesville" – March 18 th	8	6	14
Senior Bingo – March 20 th	1	5	6
Schools Out(side)! - March 25 th	4	2	6
TOTAL	93(65%)	50 (35%)	143

- **Upcoming Offerings in April-June 2024:**

- The Senior Network
- Bingo
- School Out(side)!
- Zumba
- Art & Soul Sisters Art Class
- Yoga
- Krav Maga Self Defense
- The Young at Heart
- Barn Quilt
- Stained Glass

- Summer Camp (Weeks 1-2)

- Hip Hop TOTs
- Ballet
- Tumbling
- Jr. Hip Hop
- Rolling in Rolesville
- Bingo

- Painting with Pizzazz
- The Senior Network
- Scholarship Program

Project & Facilities Updates

- A new water fountain/bottle filler and bulletin board were installed at the concession stand at Redford Place Park. The scorers' stands were also painted.
- 7 new park grills were installed at Redford Place Park and Main Street Park. These grills are 3 times the size of the previous grills.
- All Town owned AEDs were inspected and updated.
- Invasive removal efforts continued at Main Street Park with our company working two days in January on the privet between Main Street Park and Sanford Creek Elementary.
- With the help of a volunteer group, the Town's pollinator gardens had their spring clean up and were mulched; setting up the gardens for success this year.
- The Town will be receiving over \$400,000 in grant money from the federal government for a renovation and repair work project at Main Street Park. Staff have been busy working to gather quotes and schedule out the smaller projects that make up this larger project.
- Preparation work for the Town's first Outdoor Museum Station is nearly complete. Staff have ordered the furniture for the site and hired a company to pour the concrete pad which will take place in mid April. The monument will be installed soon afterwards and everything will be completed by May.
- The Town and McAdams are still waiting on NCDOT for final approval of The Farm construction documents and driveway permits. We are looking to put this project out to bid as soon as it is approved. Once we have selected a company, the notice to proceed will occur in early summer and construction can start later this summer.
- Continued working with Withers Ravenel to bring the Granite Acres greenway plans closer to completion. The final plans and bid documents have been sent over to the Town for our review and we are currently working to get the easement given to us from one of the property owners.
- Work has continued with Bolton and Menk to continue to develop the concept plan for the Mill Bridge Nature Park amphitheater renovations. Parks staff have been working on applying for the Accessibility for Parks Grant to help fund this project and will apply before the May 1st deadline.
- Staff have updated the Parks CIP for the coming budget year



ROLESVILLE POLICE DEPARTMENT

FYI Report **March 2024**

Chief: David R. Simmons II
Captain: Richard Haynes



MESSAGE FROM THE CHIEF

“The mission of the Rolesville Police Department is to enhance the quality of life by protecting and serving our community through a partnership with our citizens and businesses to create a community that is safe to live, work and play.”

Chief of Police David R. Simmons II
919-556-7226 or David.Simmons@Rolesville.NC.gov

TIP OF THE MONTH

April is National Child Abuse Prevention Month. Signs of child abuse or neglect can include (but are not limited to): unusual bruising patterns, burn marks, missing hair, withdrawn or fearful behavior, poor hygiene, insufficient clothing for the weather, learning or behavioral difficulties, extreme changes in weight, and low self-esteem or confidence. For more information and resources regarding this serious issue, please visit ChildWelfare.gov.

COMMUNITY EVENT

Our very first Picnic with Police was Monday, March 11th at Main Street Park. We estimate between 70-80 people were served, and we ran out of food about 45 minutes into the event. It was a great chance for park visitors to chat with our officers, enjoy a free lunch, and take home some swag like stickers, coloring books, and magnets. The event was so successful that we have planned another one for Monday, April 29th at noon.



INCIDENT REPORTING

Field Incidents

Category	2023	2024	Change
Traffic Stops	352	350	-2
Written Warnings	26	45	+19
Verbal Warnings	192	269	-77
Citations	124	199	+75
Arrests	43	22	-21
Accidents	41	33	-8
Foot Patrols	436	450	+14
Security Checks	18	6	-12
Residential Checks	601	637	+36
Non-Residential Checks	520	538	+18
Reports Filed	87	69	-18
Totals	2387	2567	+180

Uniform Crime Reporting (UCR) Offenses

UCR offenses are crimes can be violent in nature or committed against property.

Type	2023	2024	Change
Assault	1	0	-1
Burglary	1	0	-1
Larceny	6	1	-5
Stolen Property	0	1	+1
Drugs	7	7	0
Fraud	0	2	+2
Vandalism	2	1	-1
Weapons	1	3	+2
DWI	2	2	0
All Other Offenses	6	5	-1
Total	29	23	-6

Crash Reports

2023	2024	Change
33	25	-8

OTHER HIGHLIGHTS

Retirement

Lieutenant R. Holloway retired March 29th after decades of dedicated law enforcement service. An employee of Rolesville Police Dept. since 2013, Lt. Holloway was most recently responsible for the supervision of our 20 and 30 patrol squads, firearm instruction, backup evidence management, surplus property management, and more. Prior to serving our community, Lt. Holloway was employed by Wendell Police Department, where he started his career in 1991.



Employee Accomplishments

Officer G. Broad completed patrol rifle school, giving him extra skills to use a more specialized firearm if required.

Detective D. Horton completed Credible Leadership I, a 100-hour course that helps participants advance their leadership skills.

Chief D. Simmons completed the Police Chief's Institute, a 40-hour course that covered everything from employment law to budgeting considerations.

Officer M. Pietras completed the 3-day Spanish for Law Enforcement course to help her better serve native Spanish speakers.

Swearing In Ceremony and BLET Graduation

Officer C. Philbeck and Officer D. Bolin (right) were sworn in March 4th with their families and friends present. Officer Philbeck graduated BLET in December and is continuing his family's tradition of public service, while Officer Bolin comes to us from Raleigh Police Department.



Cadet T. Kenion (left) graduated from BLET March 13th. Some of our support and command staff were able to attend, in addition to his family.

All three of these gentlemen are great additions to our department and will serve the community well!

Planning Department Update

April 2, 2024

Planning Department Update

2023 Development Review Applications

- Annexations – **6**; 2 in review
- Rezoning – **7**; 3 in review
- Preliminary Subdivision Plats – **4**; 3 in review
- Construction Infrastructure Drawings – **8**; 5 in review
- Final Subdivision Plats – **18**; 5 in review
- Site Development Plans – **10**; 6 in review
- Variances – **2**

Planning Department Update

2023 Development Review Applications

- 2,411 residential units
 - 1,658 single family detached lots
 - 513 townhome lots
 - 240 multifamily units
- Commercial/nonresidential development
 - Retail
 - Restaurant
 - Daycare
 - Storage

Planning Department Update



Planning Department Update



Coming Soon...

- Heartland Dental
- Publix and Cobblestone Building 5 going vertical
- Comprehensive Plan Consultant Selection – April or May 2024
- Affordable Housing Plan Draft – August 2024



Planning Department Update

April 2, 2024



Memo

To: Mayor and Board of Commissioners
From: Lisa Alston, Human Resources Director
Date: April 10, 2024
Re: Human Resources FYI for April 2024

Below is a list of activities completed in April 2024:

- Participated in the initial screening of applications for the Town Manager position;
- Participated in webinars introducing the new health insurance vendor, AETNA and partner organization, Vimly;
- Attended a workshop called "Cultivate a Great Workplace Culture" at the School of Government;
- Offboarded three departing employees: Police Lieutenant, Communications & Engagement Specialist, and Program Coordinator;
- Entered into a partnership with Leonard & Associates to provide AFLAC benefits to staff;
- Purchased massage chairs and other wellness items for the Police Department and the Public Works Department with funds received from a wellness grant.

Upcoming activities in May:

- Employee benefits open enrollment



FUTURE TOWN BOARD MEETINGS
(Please note this schedule is subject to change)

- May 7, 2024 Town Board Regular Meeting – 7:00 p.m. (Staff Reporting: PR/PW)
- Proclamation: National Small Business Week
 - Proclamation: Clerks Week
 - Consent: Minutes of April 2nd and April 16th
 - Legislative Hearings - Hills at Harris Creek – ANX-24-01 and REZ-24-02
 - Legislative Hearing - 111/113/115 W. Young Street – REZ-23-07
 - Rolesville Rural Fire Department Resolution
- May 21, 2024 Town Board Work Session – 6:00 p.m.
- Present FY24/25 Budget
- June 4, 2024, Town Board Regular Meeting – 7:00 p.m. (Staff Reporting: PD)
- Proclamation: Juneteenth
 - Consent: Minutes of May 7th and May 21st.
 - Consent: Powell Bill Adoption.
 - Budget Public Hearing
 - Budget Amendment
- June 18, 2024 Town Board Work Session – 6:00 p.m.
- July 9, 2024 Town Board Regular Meeting – 7:00 p.m. (Staff Reporting: FI/HR)
- Proclamation: Parks & Recreation Month
 - Consent: Minutes of June 4th and June 18th.
 -
- July 16, 2024 Town Board Work Session – 6:00 p.m.
- Planning Items to be Scheduled by Planning Director:
- REZ23-01 - Averette and Jones Dairy Mixed Use – Legislative Hearing.
 - REZ-23-05/ANX23-04 – Scarboro Apartments/201 S. Main Street – Legislative Hearing
 - REZ-24-01 / ANX-24-02 – Merritt Property Rezoning & Annexation
 - TA-24-01 – Residential Urban District Text Amendment
 - LDO Text Amendments – Next Round TBD