Item 11.a.

Memo

To: Town of Rolesville Mayor Currin and Board of Commissioners
From: Meredith Gruber, Planning Director
Date: May 7, 2024
Re: Hills at Harris Creek - Rezoning Case REZ-24-02 and Voluntary Annexation Petition ANX-24-01

Background

Rezoning – REZ-24-02

The Town of Rolesville Planning Department received this Rezoning application in February 2024, requesting to rezone approximately 116 acres consisting of four (4) tracts of land on the north side of Mitchell Mill Road, between Jonesville and Rolesville Roads, from Wake County's Residential 30 ()R-30 Zoning District to the Town's Land Development Ordinance (LDO) zoning district of Residential Medium as a Conditional Zoning District (RM-CZ). This submittal includes a Concept Site Plan of a proposed residential single family detached subdivision and a set of proposed Conditions of Approval.

Prior to this current Application:

- Map Amendment (Rezoning) application MA 22-01 was processed between January and October 2022. This application requested rezoning the entire property to a Neighborhood Center (NC) as a Conditional Zoning (CZ) District. The specifics of the project were for single family attached and detached housing as well as 150,000 square feet of commercial floorspace.

- In early 2023, the Applicant chose to significantly revise the scope of the application, and REZ-23-03 was submitted to replace MA 22-01, and this application requested a small NC District with the majority of the land area proposed for the Residential High Density (RH) District, both as Conditional Zoning (CZ) Districts. The specifics of the project included maximums of 270 total residential dwellings units (combined single-family detached and attached), with no more than 115 of them being detached units, and a non-residential component in the NC-CZ District meeting the minimum requirements for that District.

- REZ-23-03 was denied by the Town Board of Commissioners on November 8, 2023.

Hills at Harris Creek Concept Site Plan

Voluntary Annexation Petition – ANX-24-01

A voluntary annexation for the same properties noted in the following paragraph was previously considered under case number ANX-22-04 and was associated with rezoning applications MA-22-01 and REZ-23-03. MA-22-01 was withdrawn; REZ-23-03 and ANX-22-04, Hills at Harris Creek, were denied by the Town Board of Commissioners on November 8, 2023.

The Town of Rolesville received a non-contiguous voluntary annexation petition for four parcels totalling 132.66 acres located at 3645 Rock Farm Road and 5333 Mitchell Mill Road, as well as two unaddressed properties on Mitchell Mill Road, with Wake County PINs 1757761273, 1757778982, 1758850520, and 175758529, to be annexed into the Town of Rolesville Town Limits. These same four parcels comprise the subject property of the Hills at Harris Creek rezoning case, REZ-24-02.

The petition was investigated by the Town Clerk as to its sufficiency of meeting G.S. 160A-31.

Applicant Justification

The Applicant provided a brief statement regarding the submittal noting the desire to integrate seamlessly with the surrounding community (see attached application).

Neighborhood Meetings

The Applicant conducted a neighborhood meeting for this current Rezoning request on March 18, 2024; a meeting report follows this staff memo as an attachment. The Applicant conducted several such meetings related to the prior two Rezoning applications during 2022 and 2023.

Comprehensive Plan

Land Use

The 2017 Comprehensive Plan's 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 development. Per the Plan, this is defined as predominantly single-family residential uses with portions of duplex, townhomes, and/or multifamily residential. These are lots or tracts at a density range of three to five dwelling units per gross acre.

Community Transportation Plan

The Town of Rolesville's Community Transportation Plan (CTP, adopted 2021) includes recommendations for Thoroughfares, Collectors, and intersections.

Thoroughfare Recommendations

- Mitchell Mills Road is planned to be a 4-lane, Raised Median-divided section with curb & gutter, bike lanes, and sidewalks.

Collector Recommendations

- At the far northern tip of the subject property, an east/west Collector roadway is identified. As demonstrated in the Concept/Sketch Plan (Attachment 5), the Applicant is proposing a more southern route for this roadway, moving it away from the environmental features (Harris Creek) further to the north, and bringing it closer to Mitchell Mill, where it can serve as a more near-by parallel roadway to the Arterial that Mitchell Mill will eventually function as. This more southern route aligns more so with a similar alignment approved with MA 22-06, 5109 Mitchell Mill Road, which when built will connect to Jonesville Road west of this subject property/project.

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') greenway is shown on the northern end of the property, on the south side of Harris Creek.
- A ten foot (10') side path is illustrated on the north side of Mitchell Mill Road.
- Bicycle lane within Mitchell Mill Road.

Consistency

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

- The proposed single family detached residential housing type fits the Medium Density Residential land use description.

- The proposed vehicular circulation network will enhance or establish Thoroughfare and Collector connections, respectively, as recommended by the Town's Community Transportation Plan.
- The proposed greenways will establish pedestrian connections as recommended by Rolesville's Greenway Plan.

Traffic

Traffic Impact Analysis

The consulting firm, DRMP, performed the Traffic Impact Analysis (TIA) for this project on behalf of the Town; the study analyzed the development of 220 single family detached lots. Site access is proposed via two full movement driveway connections to Mitchell Mill Road. The TIA for this proposed development was originally sealed on May 19, 2022 and approved by NCDOT. The Town of Rolesville requested the TIA be updated to match the rezoning Concept Site Plan changes that resulted in a lower trip generation. The updated TIA was sealed on February 29, 2024, and this TIA updates the analysis using the new trip generation.

Site Trip Generation						
Land Use (ITE Code)	Intensity	Daily Traffic	AM Peak Hour Trips Enter	AM Peak Hour Trips Exit	PM Peak Hour Trips Enter	PM Peak Hour Trips Exit
Single Family Housing (210)	220 Dwelling Units	2,084	38	115	131	78

Three (3) 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.

TIA Summary – Intersection Improvements	
Recommendations	
Required Frontage Improvements per Rolesville Community Transportation Plan (CTP)	• Widen one-half section of Mitchell Mill Road along the site frontage to this roadway's ultimate section (4-lane Median [raised] 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 NCDOT and Town.
Mitchell Mill Road and Jonesville Road / Peebles Road	• Construct a south-bound (Jonesville Rd) left-turn lane with at least 100 feet of storage and appropriate decel and taper. o *It should be noted that this improvement was also identified by the 5109 Mitchell Mill Rd 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 NCDOT and Town.
Mitchell Mill Road and Site Access 1	• Construct the southbound approach (Site Access 1) as a right-in/right-out with one ingress lane and one egress lane.
	• Provide stop control for the southbound approach (Site Access 1).
	• Construct a concrete median on Mitchell Mill Road that restricts access to right-in/right-out.
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 the westbound (Mitchell Mill Road) right-lane with at least 100 feet of storage and appropriate decel and taper.

Development Review

The Technical Review Committee (TRC) reviewed one version of this current Rezoning application (but approximately five full reviews of the two other Applications prior to this), with all comments pertinent to the consideration of the proposed districts and the general development plan being resolved. Note that this does not mean that all LDO subdivision and/or site development regulations have been demonstrated, as the attached Concept Site Plan is only a conceptual plan, and not an engineered and dimensioned layout.

Planning Board Recommendation

The Planning Board met on March 25, 2024 to review and provide a recommendation on the Rezoning application. Following presentations by Staff and the Applicant, Board members asked about ingress and egress into the subdivision, the greenway, and maintenance within the Duke Power Line Easement.

The Planning Board made a recommendation of Approval (to the Town Board of Commissioners) with a 3-2 vote (3 ayes / 2 nays / 2 absent.)

Staff Recommendation

Staff recommends approval of Rezoning request REZ-24-02. The proposed housing type is consistent with the Comprehensive Plan Future Land Use Map, and the Applicant's efforts to revise the Concept Site Plan to better fit the Town of Rolesville's current policy direction of where or where not to locate townhomes is noted. (The proposed Concept Site Plan includes single family detached lots only; prior plans for MA-22-01 and REZ-23-03 included townhome lots as well.)

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. Rezoning application REZ-24-02 is thus consistent with the Comprehensive Plan and other applicable plans and is therefore reasonable.

Proposed Motion

1. Motion to (approve or deny) rezoning REZ-24-02 – Hills at Harris Creek.

2. (Following Approval) Motion to adopt a Plan Consistency Statement and Statement of Reasonableness for REZ-24-02.

3. Motion to (approve or deny) the Voluntary Annexation Petition received under G.S. 160A-31 for ANX-24-01, Hills at Harris Creek.

Or

4. Motion to continue the Legislative Hearing and/or further consideration for REZ-24-02 and ANX-24-01 to a future Town Board of Commissioners' meeting.

Attachments

1	Vicinity Map
2	Zoning Map
3	Future Land Use Map
4	Map Amendment (Rezoning) Application
5	Concept Site Plan and Recreational Amenities Plan
6	Proposed Conditions of Approval
7	Neighborhood Meeting Package
8	Traffic Impact Analysis (TIA) sealed dated February 29, 2024
9	Voluntary Annexation Petition and Attachments
10	Applicant Presentation

ATTACHMENT 1 - VICINITY MAP

Case: ANX 22-04, REZ 23-03
Address: 0,0,3645 Rock Farm, 5333 Mitchell Mill Road
PIN 1757750520, 1757758529, 1757761273, 1757778982
Date: 2023.07.18

Rolesville
Genuine Community • Capital Connection
Est. 1837

Vicinity Map

N
W E
S

0 0.17 0.35 0.7 Miles

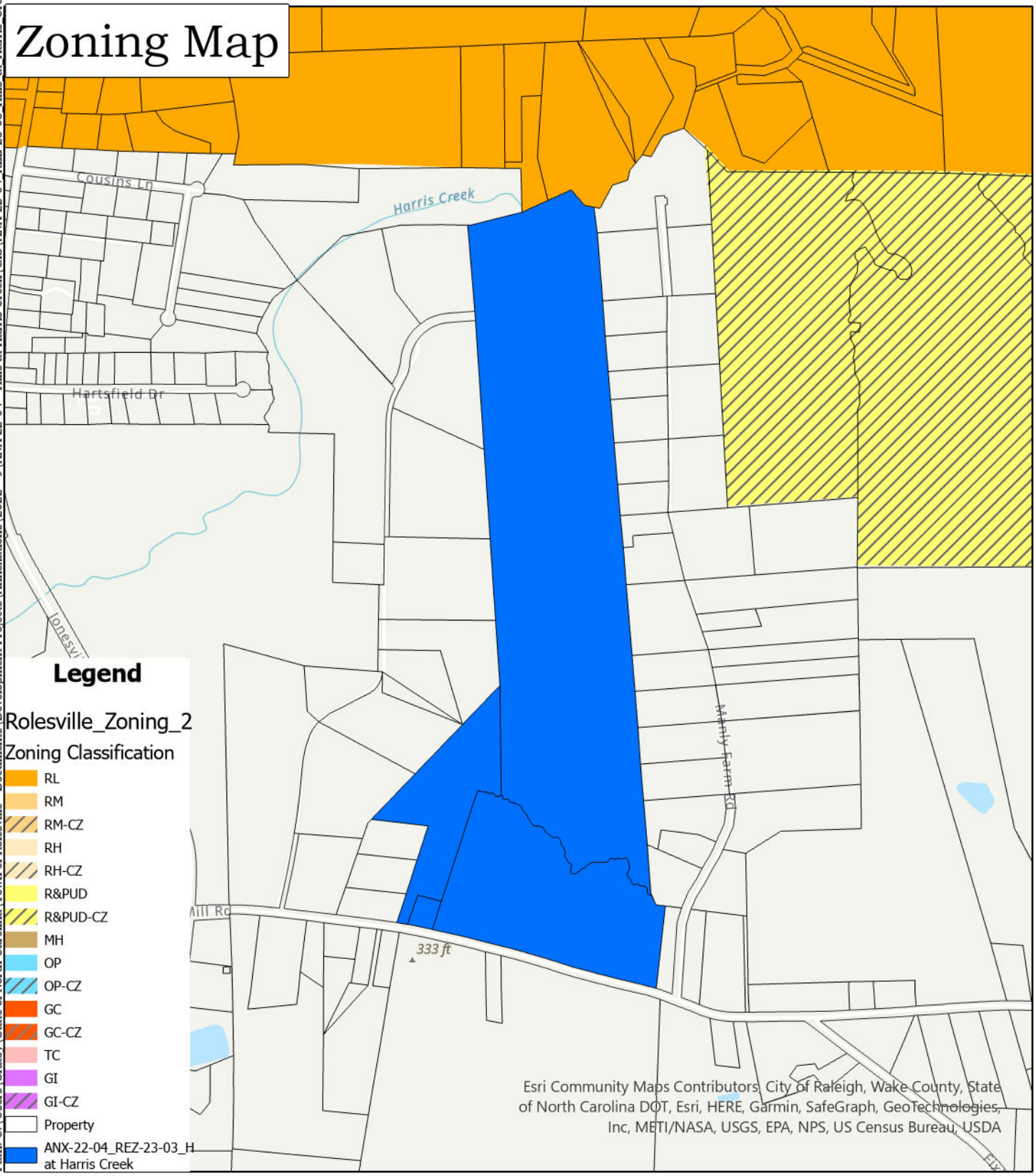
Path: C:\Users\SRaby\State of North Carolina\Town of Rolesville - Documents\Development Projects\Annexations\2022 - 9\ANX 22-04 - Hills at Harris Creek\GIS\ANX-22-04_REZ-23-03_Hills at Harris Creek_Base_Map.aprx
Date Saved: 7/18/2023 10:10 AM

ATTACHMENT 2 - EXISTING ZONING

Rolesville
Genuine Community • Capital Connection
Est. 1837

Case: ANX 22-04, REZ 23-03
Address: 0,0,3645 Rock Farm, 5333 Mitchell Mill Road
PIN 1757750520, 1757758529, 1757761273, 1757778982
Date: 2023.07.18

Zoning Map



Legend

Rolesville_Zoning_2
Zoning Classification

- RL
- RM
- RM-CZ
- RH
- RH-CZ
- R&PUD
- R&PUD-CZ
- MH
- OP
- OP-CZ
- GC
- GC-CZ
- TC
- GI
- GI-CZ
- Property
- ANX-22-04_REZ-23-03_H at Harris Creek

N
W E
S

0 0.13 0.25 0 0.5 Miles
Miles

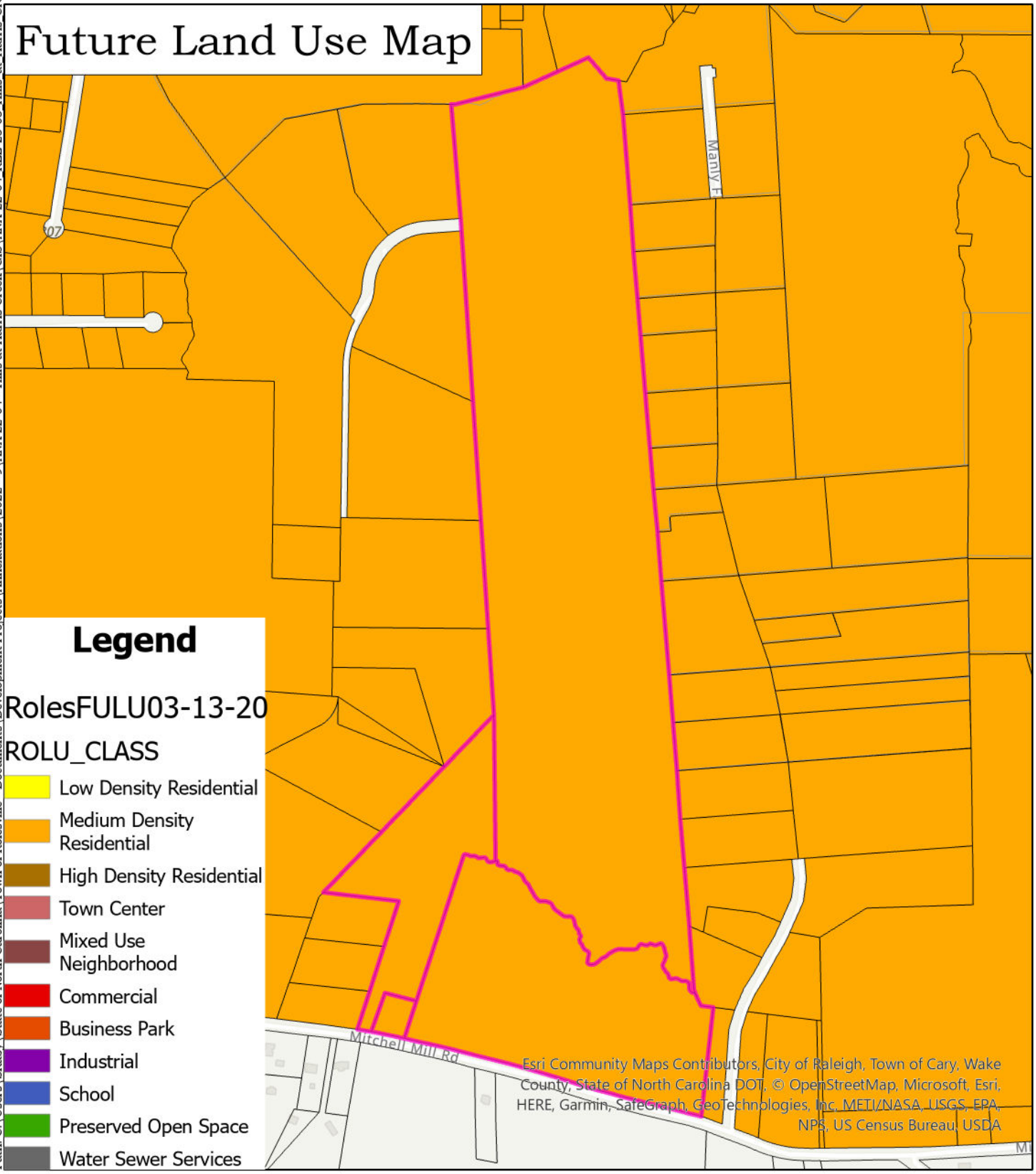
Path: C:\Users\SRaby\State of North Carolina\Town of Rolesville - Documents\Development Projects\Annexations\2022 - 9\ANX 22-04 - Hills at Harris Creek\GIS\ANX-22-04_REZ-23-03_Hills at Harris Creek_Base_Map.aprx
Date Saved: 7/18/2023 10:10 AM

ATTACHMENT 3 - FUTURE LAND USE MAP

Rolesville
Genuine Community • Capital Connection
Est. 1837

Case: ANX 22-04, REZ 23-03
Address: 0,0,3645 Rock Farm, 5333 Mitchell Mill Road
PIN 1757750520, 1757758529, 1757761273, 1757778982
Date: 2023.07.18

Future Land Use Map



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

N
W E
S

0 0.07 0.15 0 0.3 Miles
Miles

Path: C:\Users\SRaby\State of North Carolina\Town of Rolesville - Documents\Development Projects\Annexations\2022 - 9\ANX 22-04 - Hills at Harris Creek\GIS\ANX-22-04_REZ-23-03_Hills at Harris Creek_Base_Map.aprx
Date Saved: 7/18/2023 10:08 AM

Attachment 4

Case No. REZ-24-02

Date rcvd 2-x-2024

Map Amendment Application

Contact Information

Property Owner Alan & Randy Watkins // Laura and Randall Watkins // Ellis Land Investment Company, LLC

Address 305 Church at North Hills Street, Suite 1110 City/State/Zip Raleigh NC 27609

Phone 919-824-6088 Email jason@ellisdevgroup.com

Developer Ellis Developments NC, LLC

Contact Name Jason Pfister

Address 305 Church at North Hills Street, Suite 1110 City/State/Zip Raleigh, NC 27609

Phone 919-824-6088 Email jason@ellisdevgroup.com

Property Information

Address 5326 Mitchell Mill Rd

Wake County PIN(s) 1757758529, 1757750520, 1757761273, 1757778982

Current Zoning District Wake R30 Requested Zoning District RM-CZ

Total Acreage 115.44

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 _____ Date 12th Feb 24

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, a Notary Public, do hereby certify that Stephen Ellis, Manager of Ellis Land Investment Company, LLC *personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the* 12th *day of* February 2024.

My commission expires 1/7/2028.

Signature _____ Seal

JASON C. PFISTER Notary Public Wake County NORTH CAROLINA

Rolesville
Genuine Community • Capital Connection
Est. 1837

Case No. _____

Date _____

Map Amendment Application

Contact Information

Property Owner: Alan & Randy Watkins // Laura and Randall Watkins // Ellis Land Investment Company, LLC

Address: 305 Church at North Hills Street, Suite 1110 City/State/Zip: Raleigh NC 27609

Phone: 919-824-6088 Email: jason@ellisdevgroup.com

Developer: Ellis Developments NC, LLC

Contact Name: Jason Pfister

Address: 305 Church at North Hills Street, Suite 1110 City/State/Zip: Raleigh, NC 27609

Phone: 919-824-6088 Email: jason@ellisdevgroup.com

Property Information

Address: 5326 Mitchell Mill Rd

Wake County PIN(s): 1757758529, 1757750520, 1757761273, 1757778982

Current Zoning District: Wake R30 Requested Zoning District: RM-CZ

Total Acreage: 115.44

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 _____ Date 13Feb2024

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, a Notary Public, do hereby certify that Laura Watkins + Randall Watkins *personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the* 13th *day of* February 20 24 .

My commission expires 1-7-28 .

Signature _____ Seal

JASON C. PFISTER
Notary Public
Wake
County
NORTH CAROLINA

Rolesville
Genuine Community • Capital Connection
Est. 1837

Case No. _____

Date _____

Map Amendment Application

Contact Information

Property Owner: Alan & Randy Watkins // Laura and Randall Watkins // Ellis Land Investment Company, LLC

Address: 305 Church at North Hills Street, Suite 1110 City/State/Zip: Raleigh NC 27609

Phone: 919-824-6088 Email: jason@ellisdevgroup.com

Developer: Ellis Developments NC, LLC

Contact Name: Jason Pfister

Address: 305 Church at North Hills Street, Suite 1110 City/State/Zip: Raleigh, NC 27609

Phone: 919-824-6088 Email: jason@ellisdevgroup.com

Property Information

Address: 5326 Mitchell Mill Rd

Wake County PIN(s): 1757758529, 1757750520, 1757761273, 1757778982

Current Zoning District: Wake R30 Requested Zoning District: RM-CZ

Total Acreage: 115.44

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: Alan Watkins Randy Watkins Date: 02/09/2024

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, a Notary Public, do hereby certify that Alan Watkins and Randy Watkins *personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the* 9th *day of* February *20* 24 .

My commission expires 1-7-28 .

Signature _____ Seal

JASON C. PFISTER
Notary Public
Wake
County
NORTH CAROLINA

Map Amendment Application

Metes and Bounds Description of Property

see attached

Map Amendment Application

Rezoning Justification

The proposed rezoning, of the parcels described above, is made in concert with careful consideration of the Rolesville Comprehensive Plan 2017. The Future Land Use Map designates these parcels as Medium Density Residential, and we believe the Residential Medium Density Conditional Zoning (RM-CZ) zone would allow the best variety of housing types to meet this objective while integrating seamlessly with the surrounding community. The varied housing types appeal to a various income levels while still maintaining the appeal and quality that is inconsistent with the planned development of the surrounding areas. In total, we feel this proposal provides the correct balance to meet the Future Land Use map and goals set forth in the Rolesville Comprehensive Plan 2017. The proposed rezoning is in accordance with the Comprehensive Plan and reasonable and in the public interest. We request your support for the proposed zoning.

Rolesville
Genuine Community • Capital Connection
Est. 1837

Map Amendment Application

Property Owner Information

Wake County PIN	Property Owner	Mailing Address	Zip Code
1757758529	Ellis Land Investment Company, LLC	305 Church at North Hills Street, Suite 1110, Rlaeigh, NC 27609	27587
1757750520	Watkins, Alan Watkins, Randy	3609 Rock Farm Rd, Wake Forest, NC 27587	27587
1757761273	Watkins, Randall Watkins, Laura	3544 Donlin Rd, Wake Forest, NC 27587	27587
1757778982	Watkins, Alan Watkins, Randy	3609 Rock Farm Rd, Wake Forest, NC 27587	27587

Metes and Bounds report for Hills at Harris Creek Parcel

Beginning at an iron pipe, with North Carolina Grid Coordinates using NAD83 (2011) of Northing 775,443.03' and an Easting 2,156,848.70', the true point of beginning, thence,

N19°37'29"E for a distance of 190.11' to a point, thence

N18°40'39"E for a distance of 227.11' to a point, thence

N19°31'15"E for a distance of 230.79' to a point, thence

N83°06'35"W for a distance of 376.14' to a point, thence

N43°56'42"E for a distance of 1,191.02' to a point, thence

N03°44'09"W for a distance of 2,728.43' to a point, thence

N03°44'09"W for a distance of 235.15' to a point, thence

N75°53'40"E for a distance of 340.47' to a point, thence

N65°27'07"E for a distance of 350.10' to a point, thence

S40°38'56"E for a distance of 133.25' to a point, thence

S80°06'11"E for a distance of 62.70' to a point, thence

S04°46'37"E for a distance of 4,426.22' to a point, thence

S24°08'12"E for a distance of 83.90' to a point, thence

S00°25'56"E for a distance of 530.78' to a point, thence

N71°34'19"W for a distance of 6.89' to a point, thence

Around a curve to the left with a radius of 730.00', a length of 54.41', a chord bearing of N73°42'26"W and chord distance of 54.39' to a point, thence

Around a curve to the right with a radius of 12,981.80', a length of 667.56', a chord bearing of N75°02'09"W, and a chord distance of 667.49' to a point, thence

Around a curve to the left with a radius of 11,030.00', a length of 753.92', a chord bearing of N75°25'44"W, and a chord distance of 753.77' to a point, thence

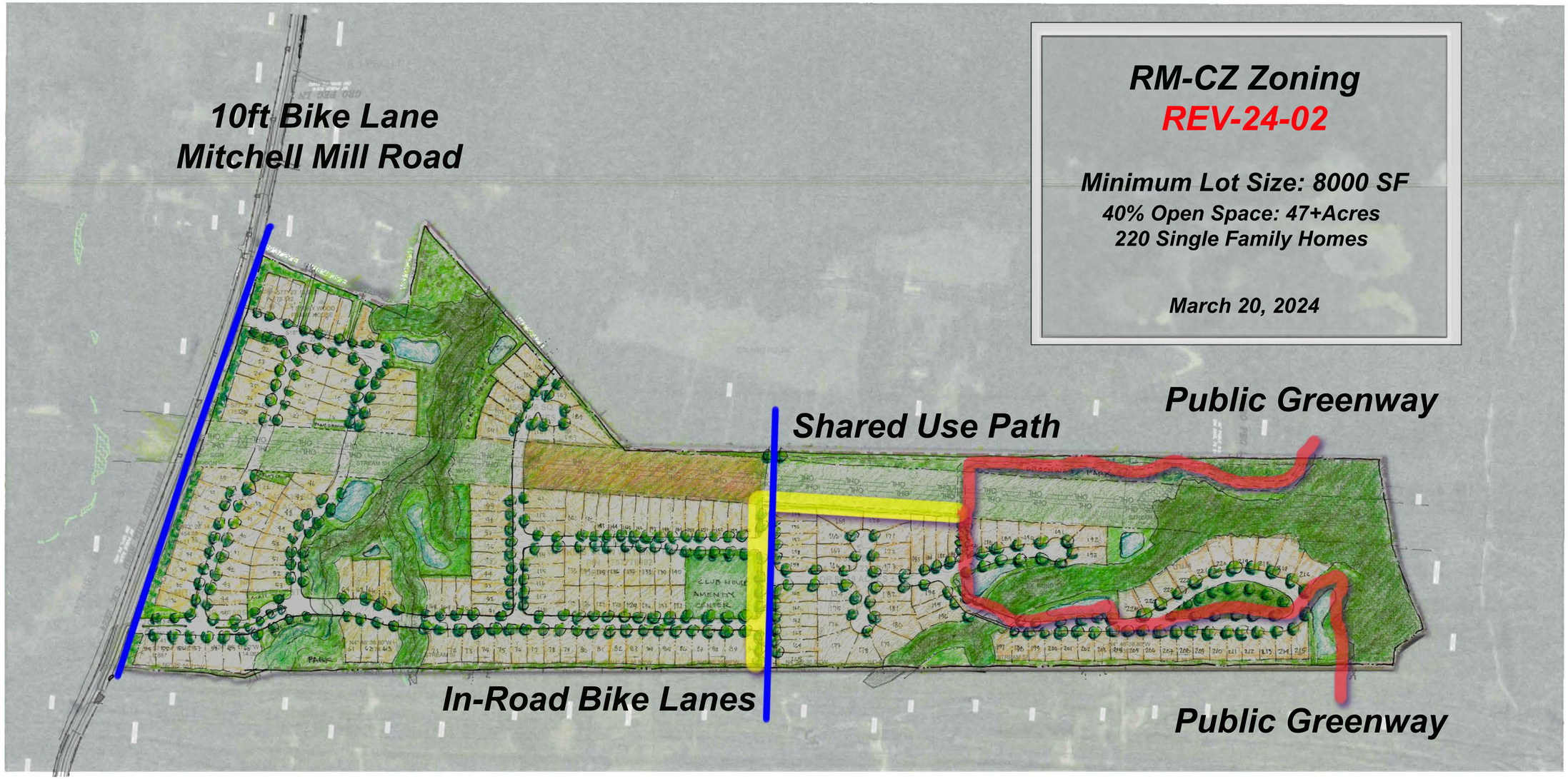
N77°23'13"W for a distance of 103.54' to a point, thence

Around a curve to the left with a radius of 1,229.93', a length of 86.32', a chord bearing of N79°23'51"W, and a chord distance of 86.30' to a point, thence

N78°33'23"W for a distance of 60.60' to the point and place of beginning. For a total of 5,029,708.11 square feet or 115.466 acres.

V2 - REZ-24-02

EXHIBIT ONE
CONCEPT SKETCH PLAN



Hills at Harris Creek

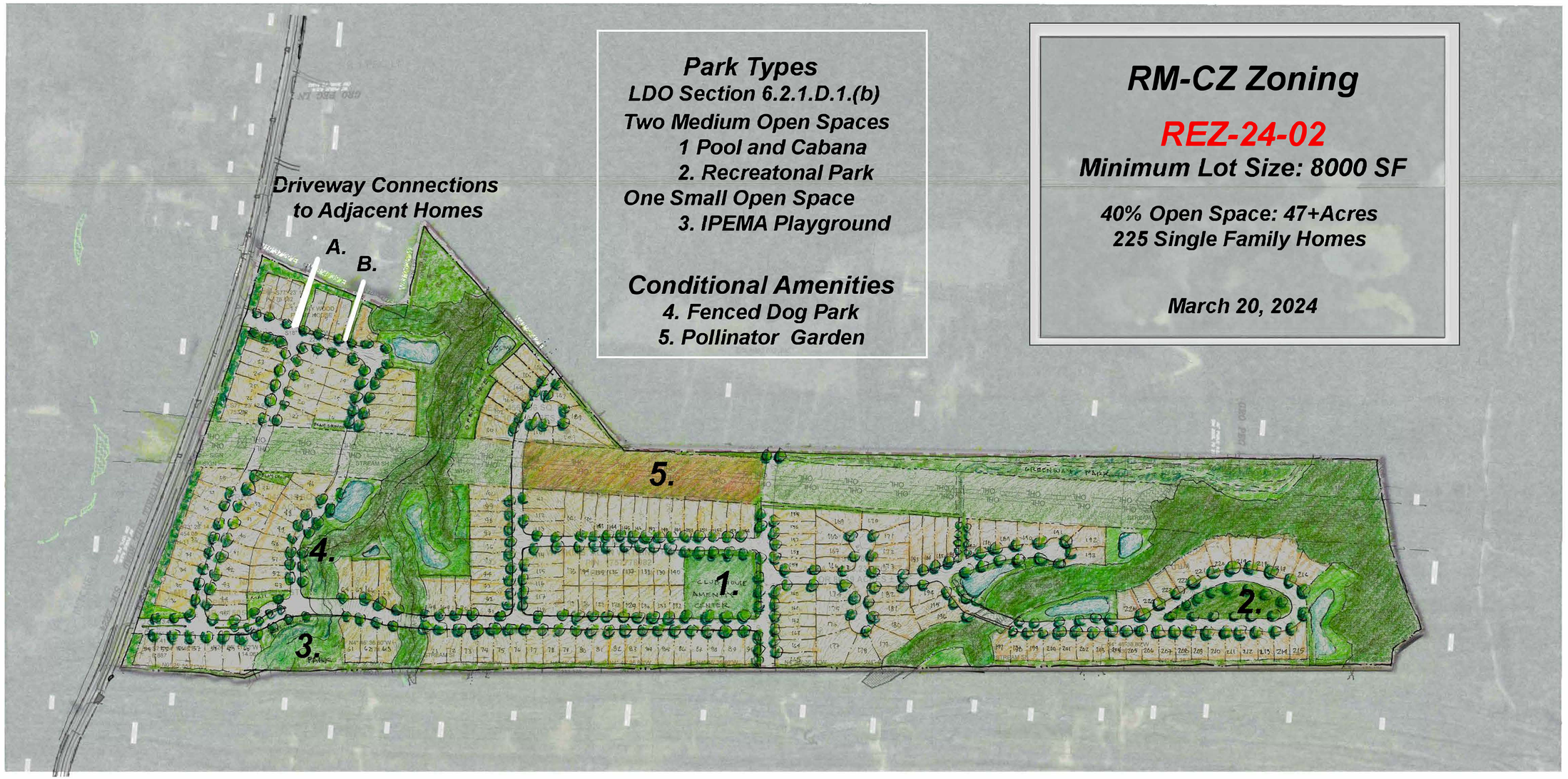
ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

V2-REZ-24-02

EXHIBIT TWO
RECREATIONAL AMENITIES PLAN



Park Types
LDO Section 6.2.1.D.1.(b)
Two Medium Open Spaces
1 Pool and Cabana
2. Recreatonal Park
One Small Open Space
3. IPEMA Playground

Conditional Amenities
4. Fenced Dog Park
5. Pollinator Garden

RM-CZ Zoning

REZ-24-02

Minimum Lot Size: 8000 SF

40% Open Space: 47+Acres
225 Single Family Homes

March 20, 2024

Hills at Harris Creek

ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

Attachment 6

Exhibit Three

REZ-24-02/Hills at Harris Creek

Conditions of Approval
Date: April 30, 2024

1. The subject property shall be developed generally in accordance with the Concept Sketch Plan attached hereto as Exhibit One and incorporated herein as if fully set out. Locations shown for committed elements including, but not limited to Greenways, streets, and open space areas shown on the Concept Sketch Plan, are conceptual and provided for illustration and context only. Final locations of elements shall be determined at subsequent stages through the Town's development review approval processes.
2. Density: The property may be developed with up to a maximum of 225 single family detached dwelling units.
3. Affordable Housing: Prior to the issuance of the first building permit, Twenty Thousand Dollars and No Cents ($20,000.00} shall be donated to Homes for Heroes (or another non-profit organization with a substantially similar mission statement). A signed and notarized affidavit from the benefitted charity shall be provided as evidence of performance of this commitment.
4. Pollinator Plantings: At least four acres of the landscaping planted within the Duke Energy power line easement on the subject property shall utilize plant materials that are listed as Native Pollinator Plants on North Carolina Wildlife Federation ("NCWF") or other resources for native plants recommended by the NCWF. This landscape element shall be identified as a "feature" in the appropriate proposed Lot within the Preliminary Subdivision Plat drawings, and then again identified and fully detailed on landscape plan drawings included in the Construction Infrastructure Drawings, and this shall be considered infrastructure that is inspected for (installation) compliance by/at the time of subdivision close-out. Applicant may provide this feature earlier in the development process by evidence of photo documentation and inspection report by the Town infrastructure inspector or other staff.
5. Recreational Amenities: The following recreational amenities shall be provided generally as shown on the Recreational Amenities Plan attached hereto as Exhibit Two as a part of the development of the subject property and shall be dedicated to the subdivision's homeowner's association (HOA). These amenities shall be identified as a "feature" in the appropriate proposed Lot within the Preliminary Subdivision Plat drawings, and then again identified and detailed in the Construction Infrastructure Drawings, and this shall be considered infrastructure that is inspected for (installation) compliance by/at the time of subdivision close-out. Applicant may provide this feature earlier in the development process by evidence of photo documentation and inspection report by the Town infrastructure inspector or other staff.

    i. A swimming pool and cabana, including changing rooms and restrooms shall be constructed prior to the issuance of the 150th residential dwelling unit building permit;
    ii. At least one fenced playground shall be constructed prior to the issuance of the 150th residential dwelling unit building permit;
    iii. At least one fenced dog park shall be constructed prior to the issuance of

the 150th residential dwelling unit building permit;

iv. At least one (1) garden park shall be provided prior to the issuance of the 200th residential dwelling unit building permit.

6. Foundations: All homes shall include either crawl space foundations or stem wall foundation (as they are generally defined in the home building industry). Any stem wall foundations shall have an average of at least eighteen inches (18") in height of reveal above the finished ground surface across the front facade of the home. There shall be no exposed concrete on any portion of the stem wall foundation on any side of the home facing and directly parallel to a public street. Compliance with this condition shall be demonstrated by noting the following on the plans submitted with the residential building permit application: i) the average stem wall height for the front façade of the stem wall foundation, and ii) the building materials to be used (stone veneer or brick) on the stem wall foundation façade on any side of the home facing a public street.
7. Minimum Dwelling Size: Each single family detached dwelling unit shall contain a minimum gross building square footage of 2,000 square feet.
8. Driveway Access to Neighboring Properties: Two private driveways (shown as Driveway A and Driveway B on the attached Exhibit One) shall be constructed to connect the property to the two adjacent properties (identified as Wake County PIN's 1757657746 & 1757658917) that currently access Mitchell Mill Road via the private road known as Rock Farm Road (the "Rock Farm Road Properties"). Rock Farm Road will be abandoned and removed in connection with the development of the property. Access easements shall be provided to the Rock Farm Road Properties to provide ingress/egress to the Rock Farm Road Properties through Driveway A and Driveway B prior to the abandonment and removal of Rock Farm Road.
9. Greenway and Shared Use Path: A 10' wide public shared use path (labeled as "Shared Use Path" on the attached Exhibit One) shall be constructed and dedicated to the Town to connect to the 10' wide public greenway (labeled as the Public Greenway on the attached Exhibit One).
10. Future Greenway Expansion: The 50' wide "Greenway Easement" as shown on Exhibit One, shall be dedicated to the Town as a future public greenway.

Attachment 7

ELLIS
DEVELOPMENTS GROUP

305 Church at North Hills Street, Suite 1110
Raleigh, NC 27609

Notification of Neighborhood Meeting for Pending Rezoning

You have received this notice because you own property near where an application to rezone or subdivide property has been filed. This notice is to inform you of an upcoming public meeting on this proposed rezoning.

Dear Property Owner:

Please be advised that a formal application has been submitted to amend the zoning classification for four properties (Wake County Property Identification Numbers 1757750520, 1757758529, 1757761273, and 1757778982) located at 5326 Mitchell Mill Road in Rolesville. The project consists of approximately 115.94 acres which is currently zoned R-30: Residential. The parcels are currently zoned under the development jurisdiction of Wake County. However, Ellis Developments Group has also filed a pending annexation application (ANX 24-01) to annex the parcels into the town limits of Rolesville.

Ellis Developments Group has applied to rezone the parcels to RM-CZ (Residential Medium Density Conditional Zoning) to allow for the construction of up to 225 single family detached homes. We believe the proposed rezoning at this location is consistent with the Town of Rolesville Future Land Use Map which calls for medium density residential in this area.

In compliance with the requirements of the Town of Rolesville's Land Development Ordinance Code, a Neighborhood Meeting will be held to provide you with an opportunity to review a conceptual plan for the project and to give you an opportunity to ask any questions you may have about the project.

The Neighborhood Meeting will be held on Monday, March 18, 2024 from 6:30-7:30 p.m. at the Rolesville Community Center located at 514 Southtown Circle, Rolesville, NC 27571. Should you have questions prior to the meeting, please feel free to contact me via telephone at 919-824-6088 or email at jason@ellisdevgroup.com.

Sincerely,

Jason Pfister
Vice President of Development

COMMUNITY MEETING SIGN-IN SHEET

Project:	Hills at Harris Creek REZ-24-02	**Meeting Date:**	March 18, 2024
Applicant:	Ellis Developments Group	**Location:**	Rolesville Community Center

Name	Address	Phone	E-Mail
Mike LeFrancois	3717 Manly Farm Rd Wake Forest NC 27587	919 812-6799	MikeLeFrancois@BellSouth.net
Lee Beattie	3733 Manly Farm Road Wake Forest NC 27587	919-266 3071	LeeBeattie@aol.com
Steve LeFrancois	3737 MANLY FARM RD Wake Forest 27587	919-369-1617	———

Hills at Harris Creek: Neighborhood Meeting

March 18, 2024
Rolesville Community Center

Rolesville
Genuine Community • Capital Connection
Est. 1837

ELLIS
DEVELOPMENTS GROUP

About Us

ELLIS
DEVELOPMENTS GROUP

- **Who are We?**
  - Ellis Developments Group – Land Acquisition and Development Company
- **Where are We?**
  - Headquarters in Raleigh with an office in Charlotte
  - Projects throughout the Carolinas
- **What is our Role?**
  - Develop and deliver high-quality residential development projects that meet demand for growth
  - Foster relationships with landowners, municipalities, and community members to develop projects that enhance communities Develop and deliver high quality residential development projects that enhance communities and meet demand for growth

Proposed Rezoning

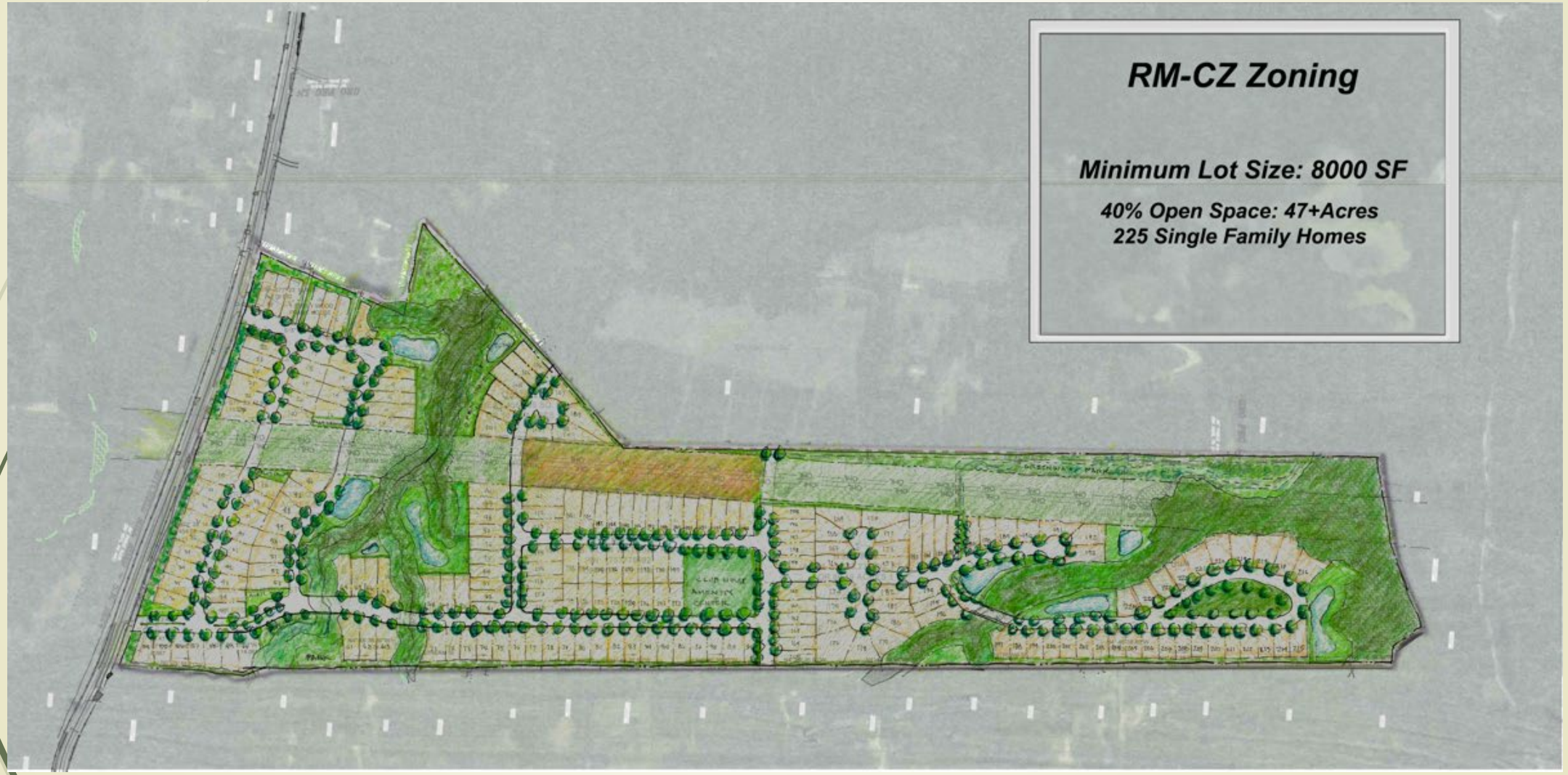
Current Status

- Rural residential land
- Acreage: 115.94 acres
- Current Zoning: Wake County R-30 (allows approximately 75 lots)

Proposed Changes

- Zoning Change to Residential Medium Density Conditional Zoning
- Proposed construction of 225 single family homes with minimum 8000 sf lots(Under 2 units/acre)

Site Plan


RM-CZ Zoning
Minimum Lot Size: 8000 SF
40% Open Space: 47+Acres
225 Single Family Homes

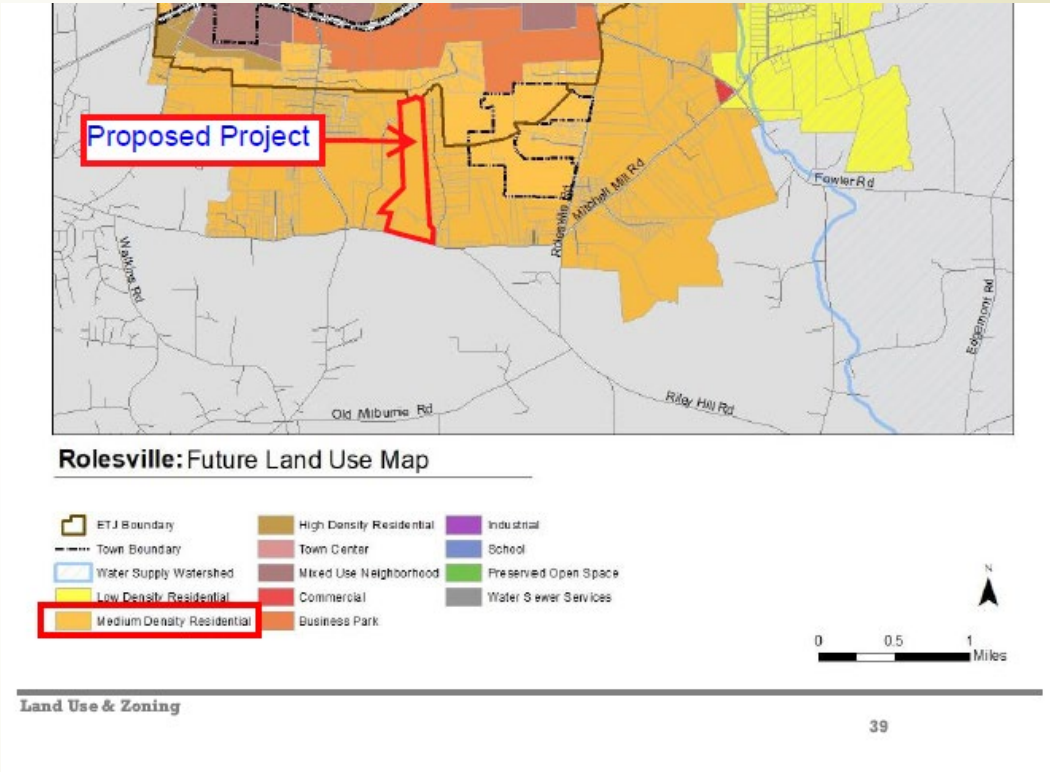
Updates Since Prior Meeting

- Reduced units from 267 total homes to 225 homes
- Removed townhomes and commercial parcel
- Maintains all prior traffic improvements to minimize impacts and improve traffic flows
- Greenway trail expanded and integrated into amenity center
- Reduced density and higher price point for tax base

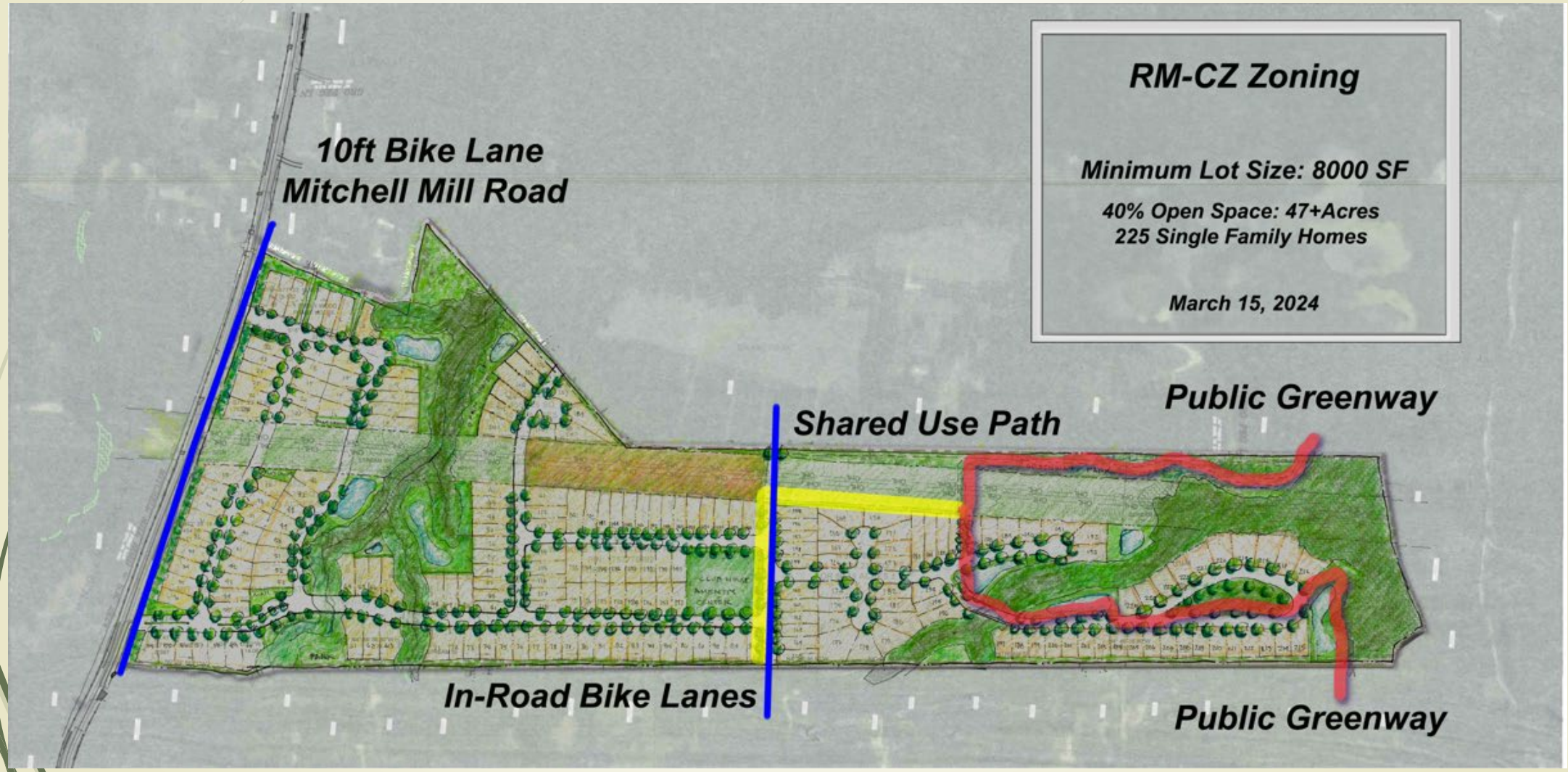
Comprehensive Plan 2017

Rezoning Proposal:

- Consistent with Comprehensive Plan
  - Future Land Use Map designates these parcels at Medium Density Residential
  - Consistent with residential character of adjacent properties

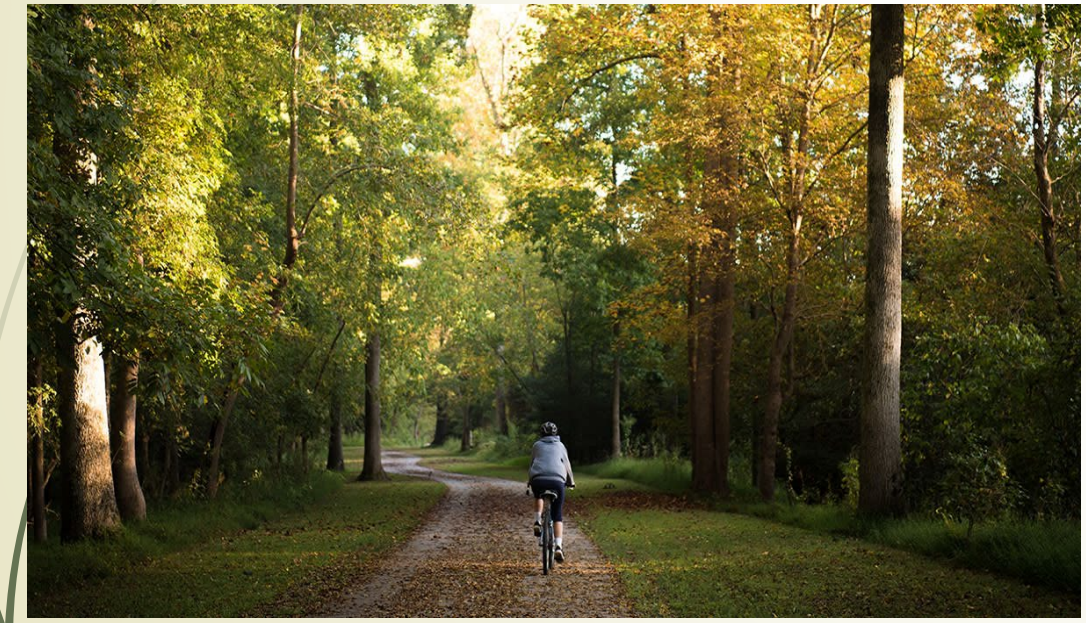


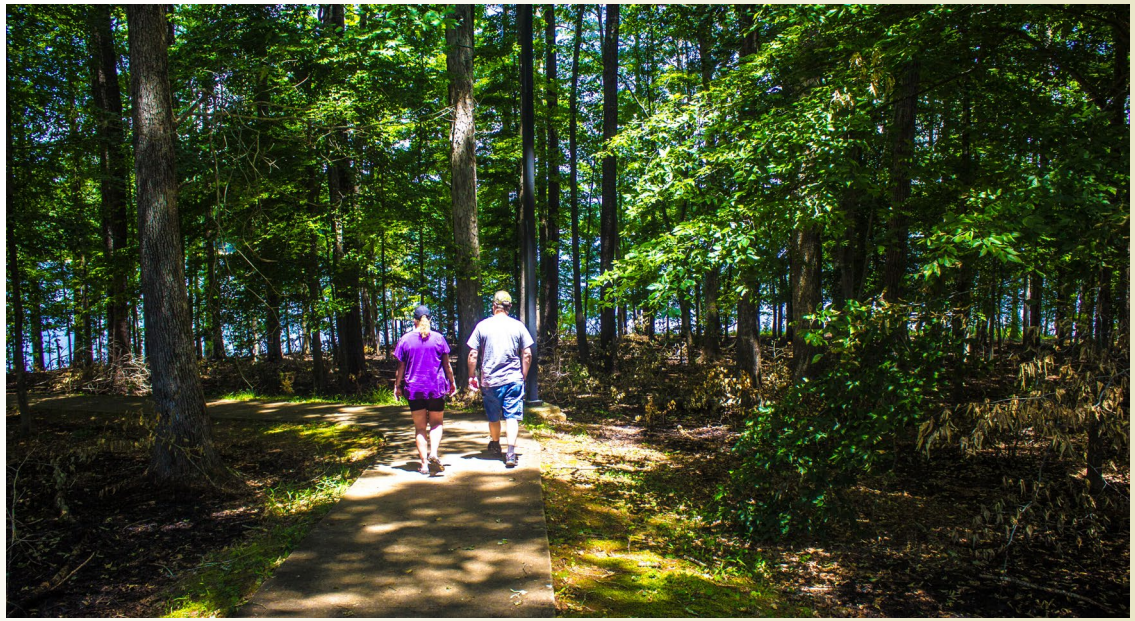
Greenway Plan



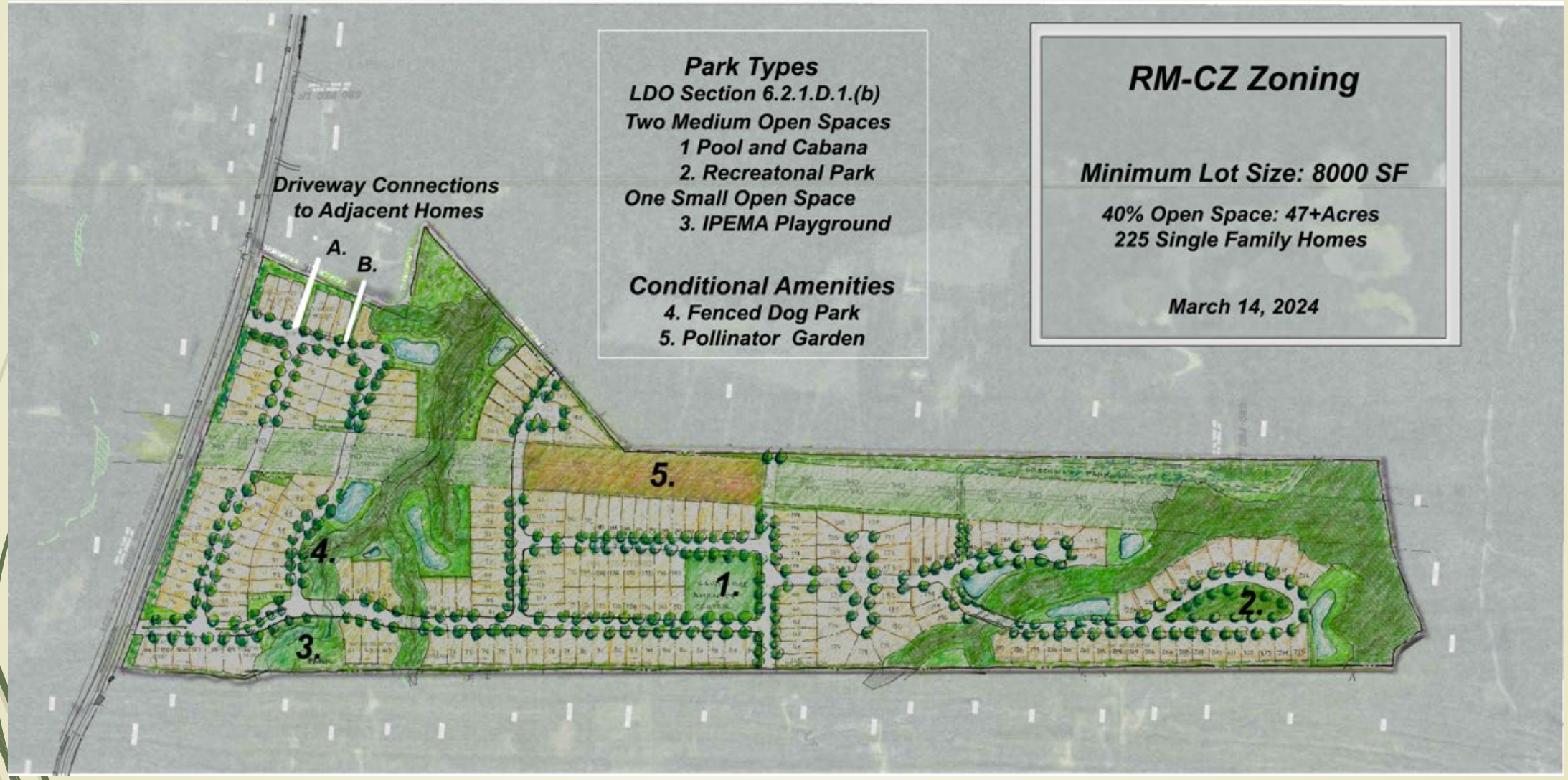
Amenities

Greenway Trails





Recreational Amenities Plan



Amenities

Community Pool and Cabana

Amenities

Dog Park

Amenities

Pollinator/Wildflower Garden

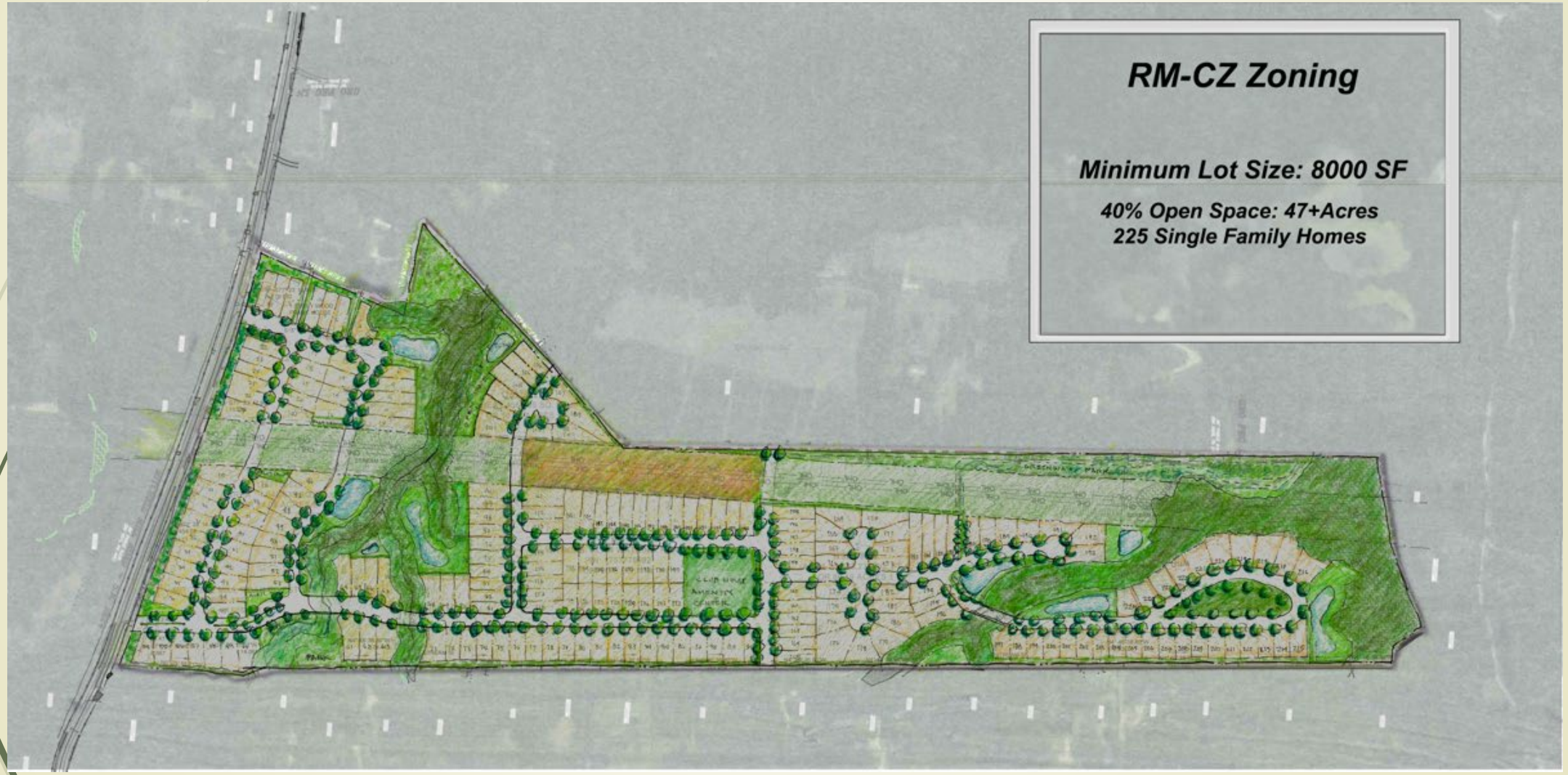
Amenities

Landscaped Boulevard Streetscapes

Benefits of Proposed Rezoning

- Preserves and maximizes open space (40%)
  - Multiple parks; pollinator garden
- Variety of housing types and price points
- Improved connectivity and traffic flow
- Increased tax base for town

Site Plan


RM-CZ Zoning
Minimum Lot Size: 8000 SF
40% Open Space: 47+Acres
225 Single Family Homes

Hills at Harris Creek Neighborhood Meeting Report

Ellis Developments Group (EDG) hosted an informational meeting for the proposed project on March 18, 2024 at the Rolesville Community Center. Three neighboring residents attended the meeting, all of which had attended the neighborhood meetings for the prior rezoning (attendance sheet attached). During the meeting, EDG presented an overview of the updates to the proposed project compared to the prior rezoning request and provided the attendees with an opportunity to ask questions and express any concerns about the project. More specifically, the following topics were discussed in detail:

- Process and timeline
    - Overview of the rezoning process and upcoming hearings, as well as overall anticipated construction timeline.
- Future Land Use Map
    - Explained goals and rationale behind Future Land Use Map and specifically what is allowed in Medium Density Residential
    - Explained how this project is consistent with FLUM designation for this area of Town

- Overview of project
    - Unit mix, overall goal for neighborhood look and feel
        - 225 SF homes
        - Density: less than units/acre
    - Buffers/preservation of existing trees or natural areas
        - 25' landscaped buffer
    - Described amenities green space design/walkability of community

- Well integrity/blasting
    - Residents raised concerns about rock blasting near their homes and potential damage to wells servicing their homes
    - EDG committed to ensuring that blasting contractor is sufficiently insured/bonded and steps will be taken to ensure that wells will be protected
        - Any damage caused by blasting would be liability of EDG or its subcontractors

- Traffic
    - EDG responsible for all traffic improvements called for in the TIA
    - Measures to control traffic including traffic calming boulevard entrance

Attachment 8

DRMP

TRAFFIC IMPACT ANALYSIS

FOR

HILLS AT HARRIS CREEK

LOCATED

IN

ROLESVILLE, NORTH CAROLINA

Prepared For:

TOWN OF ROLESVILLE
502 Southtown Circle
Rolesville, NC 27571

FEBRUARY 2024

DRMP Project No. 20498 - 005

Prepared By: MW

Reviewed By: AE

DRMP

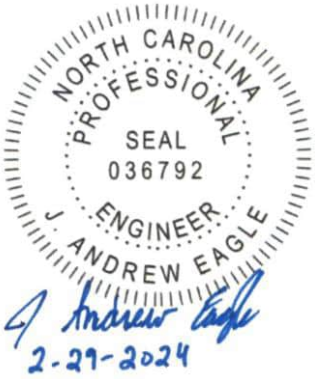
TRAFFIC IMPACT ANALYSIS

FOR

HILLS AT HARRIS CREEK

LOCATED IN

ROLESVILLE, NORTH CAROLINA



Prepared For:

Town of Rolesville

502 Southtown Circle

Rolesville, NC 27571

Prepared By:

DRMP, Inc.

License #F-1524

TRAFFIC IMPACT ANALYSIS
HILLS AT HARRIS CREEK

Rolesville, North Carolina

EXECUTIVE SUMMARY

1. Development Overview

A Traffic Impact Analysis (TIA) was conducted for the proposed Hills at Harris Creek development in accordance with the Town of Rolesville (Town) Unified Development Ordinance (UDO) and North Carolina Department of Transportation (NCDOT) capacity analysis guidelines. The proposed development is to be located north of Mitchell Mill Road, west of Manly Farm Road, and east of Gro Peg Lane in Rolesville, North Carolina. The proposed development, anticipated to be completed in 2027, is assumed to consist of 220 single-family homes. Site access is proposed via two (2) full-movement driveway connections to Mitchell Mill Road. A TIA for this development was sealed on May 19, 2022 and approved by NCDOT. The Town requested the TIA be updated to match site plan changes that resulted in lower trip generation. This TIA updates the analysis using the new trip generation. No other scope changes were made from the previous TIA.

2. Existing Traffic Conditions

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
- Mitchell Mill Road and Jonesville Road / Peebles Road

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersection listed above, 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.

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. Future Traffic Conditions

Through coordination with the NCDOT and the Town, it was determined that an annual growth rate of 2% would be used to generate 2027 projected weekday AM and PM peak hour traffic volumes. the following adjacent developments were identified to be included as an approved adjacent development in this study:

- Cobblestone Crossing Mixed-Use
- Young Street PUD
- Wheeler Tract
- Louisbury Road Assemblage
- Kalas / Watkins Family Property

4. Site 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, 11.1th 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	Enter	Exit
Single-Family Housing (210)	**220 DU**	**2,084**	**38**	**115**	**131**	**78**

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

- 2023 Existing Traffic Conditions
- 2027 No-Build Traffic Conditions
- 2027 Build Traffic Conditions

5. Capacity Analysis Summary

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

6. Recommendations

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

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 NCDOT and the Town.

US 401 Bypass and Easten 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 NCDOT and the Town.

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.

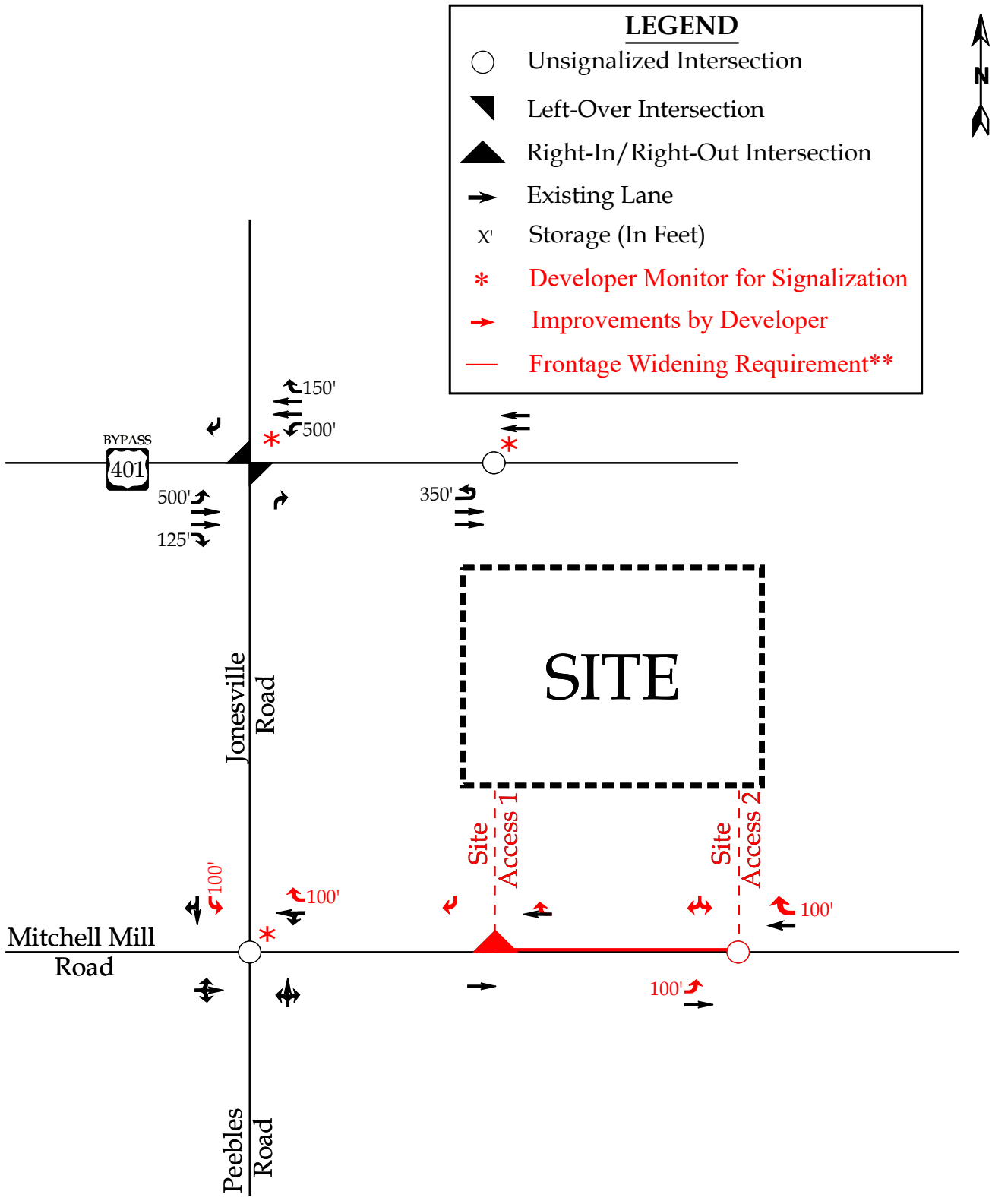
- Conduct a full signal warrant analysis prior to full build-out of the proposed development and install a traffic signal if warranted and approved by NCDOT and the Town.

Mitchell Mills Road and Site Access 1

- Construct the southbound approach (Site Access 1) as a right-in/right-out with one ingress lane and one egress lane.
- Provide stop-control for the southbound approach (Site Access 1).
- Construct a concrete median on Mitchell Mill Road that restricts access to right-in/right-out.

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 100 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

DRMP	Hills at Harris Creek Rolesville, NC	Recommended Lane Configurations Scale: Not to Scale | Figure E-1

TABLE OF CONTENTS

DRMP

LIST OF FIGURES

DRMP

LIST OF TABLES

TECHNICAL APPENDIX

DRMP

TRAFFIC IMPACT ANALYSIS

HILLS AT HARRIS CREEK

Rolesville, North Carolina

1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Hills at Harris Creek development in Rolesville, North Carolina. The proposed development, anticipated to be completed in 2027, is located north of Mitchell Mill Road, west of Manly Farm Road, and east of Gro Peg Lane in Rolesville, North Carolina. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

The proposed development, anticipated to be completed in 2027, is assumed to consist of 220 single-family housing units.

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 development is proposed to be located north of Mitchell Mill Road, west of Manly Farm Road, and east of Gro Peg Lane in Rolesville, North Carolina. Refer to Figure 1 for the site location map.

The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and the Town of Rolesville (Town) 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

1.2. Proposed Land Use and Site Access

The proposed development, anticipated to be completed in 2027, is assumed to consist of 220 single-family homes.

Site access is proposed via one (1) full-movement and one (1) right-in/right-out (RIRO) driveway connection along Mitchell Mill Road. 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.

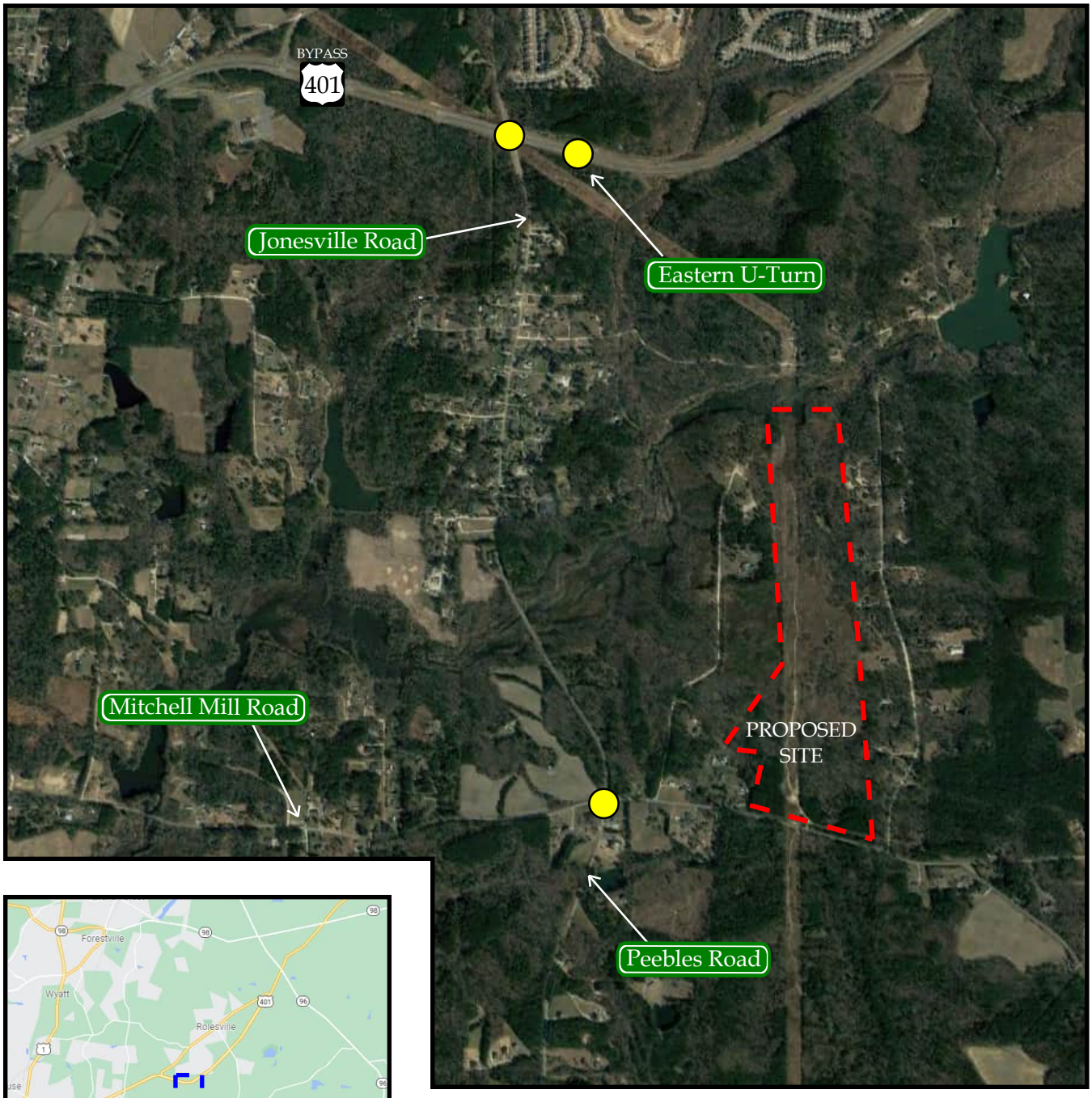
1.4. Existing Roadways

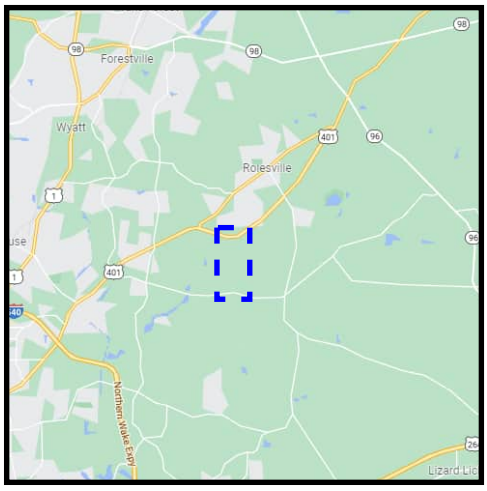
Existing lane configurations (number of traffic lanes on each intersection approach), speed limits, storage capacities, and other intersection and roadway information within the study area are shown in Figure 3. Table 1 provides a summary of this information, as well.

Table 1: Existing Roadway Inventory

Road Name	Route Number	Typical Cross Section	Speed Limit	2021 AADT (vpd)
US 401 Bypass		4-lane divided	55 mph	18,500
Jonesville Road	SR 2226	2-lane undivided	35 mph / 45 mph	2,210*
Mitchell Mill Road	SR 2224	2-lane undivided	45 mph	4,100
Peebles Road	SR 2929	2-lane undivided	45 mph	1,700*

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





N

LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

DRMP	Hills at Harris Creek Rolesville, NC	Site Location Map	
		Scale: Not to Scale	Figure 1

STRONGROCK ENGINEERING GROUP

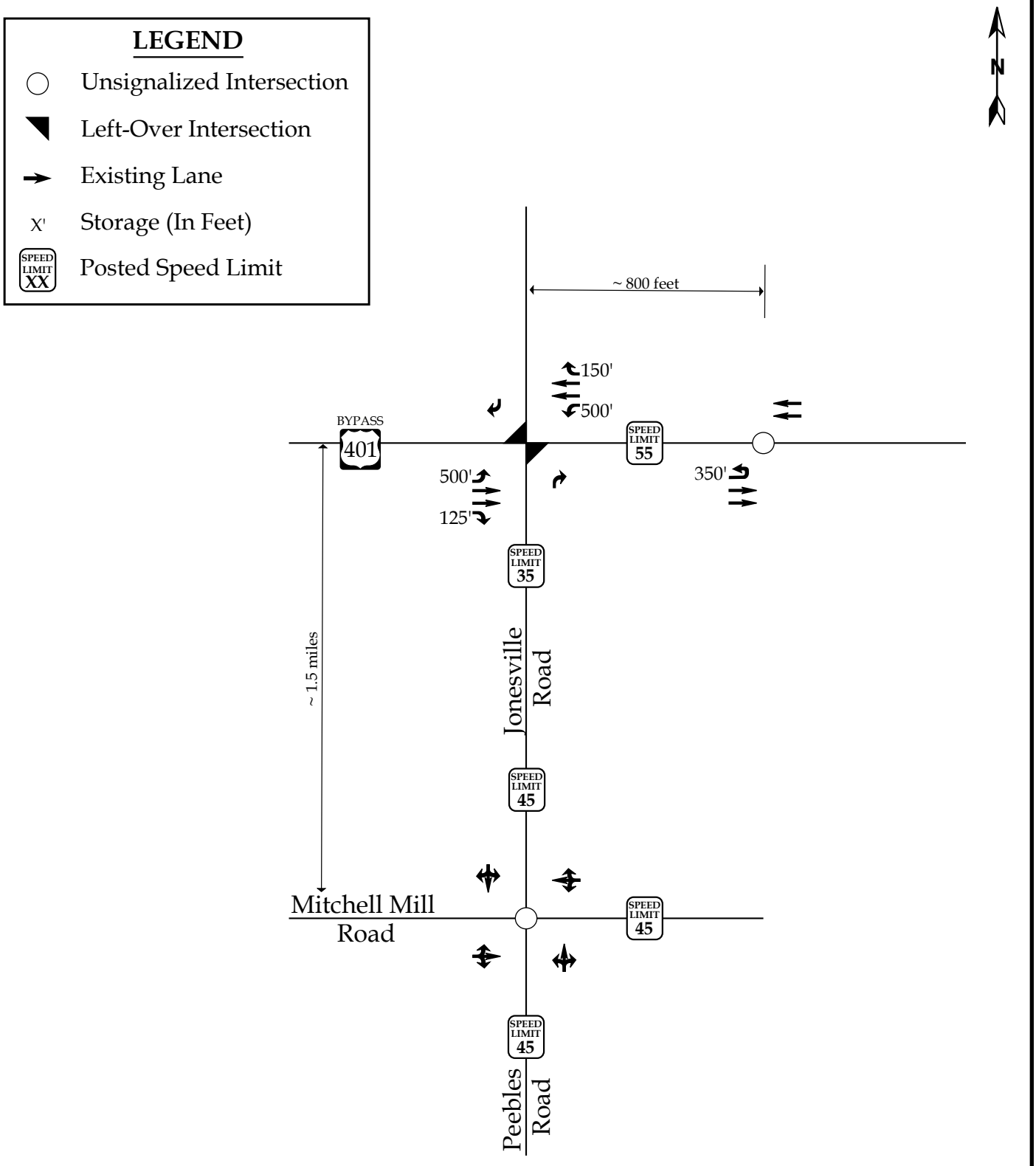
HILLS AT HARRIS CREEK - ROLESVILLE, NC

01/31/2024

0′ 100′ 200′ 400′ 800′

SCALE: 1″ = 200′

N



DRMP	Hills at Harris Creek 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

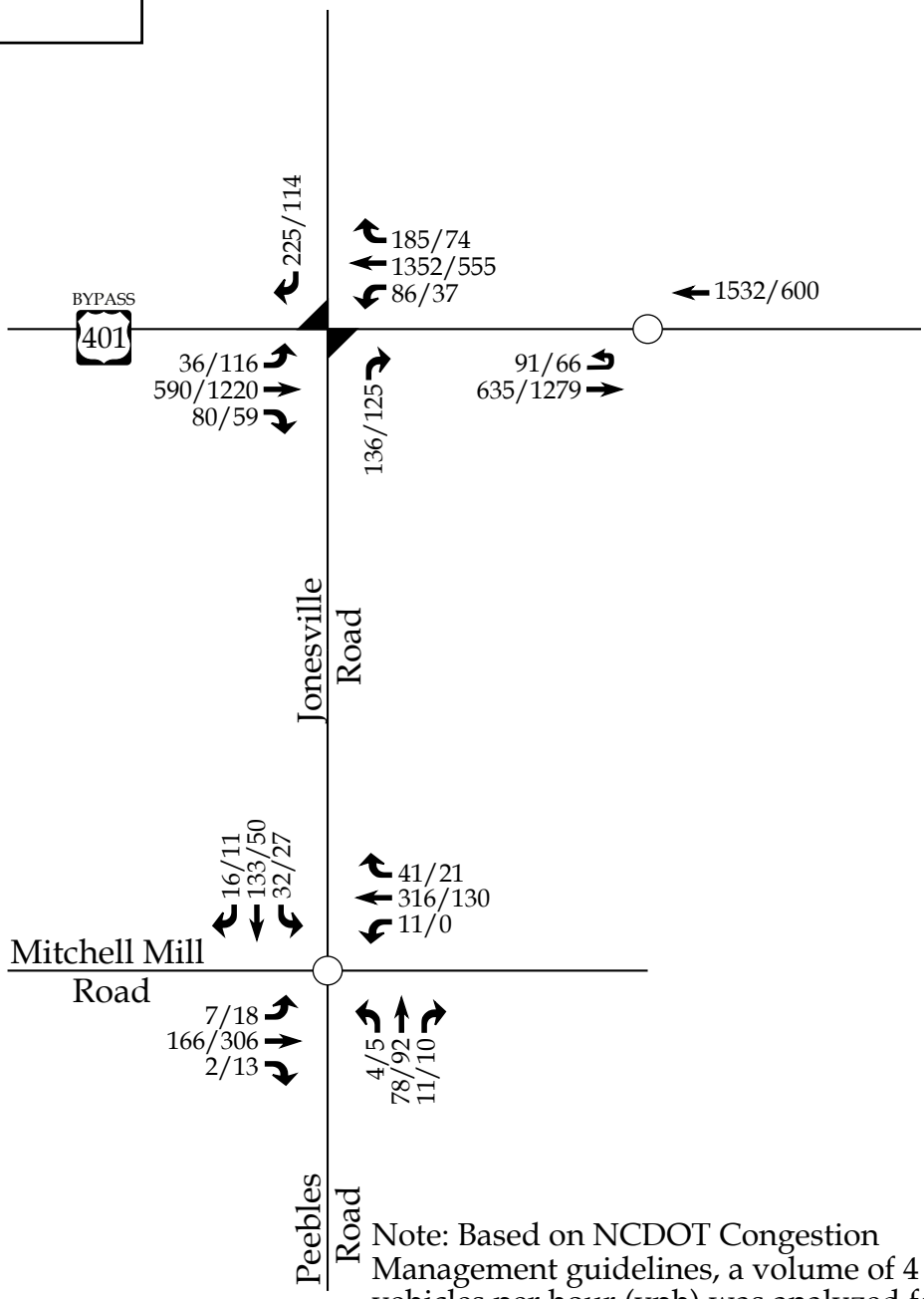
Previously collected counts from the year 2021 were projected to the 2022 existing analysis year using a compounded annual growth rate of 2%. Weekday AM and PM traffic volumes were balanced between study intersections, where appropriate. Refer to Figure 4 for 2022 existing weekday AM and PM peak hour 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.

DRMP	Hills at Harris Creek 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 the 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 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 2% would be used to generate 2027 projected weekday AM and PM peak hour traffic volumes. Refer to Figure 5 for 2027 projected peak hour traffic.

3.2. Adjacent Development Traffic

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

- Cobblestone Crossing Mixed-Use
- Young Street PUD
- Wheeler Tract
- Louisbury Road Assemblage
- Kalas / Watkins Family Property

Table 2, on the following page, provides a summary of the adjacent developments.

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

Adjacent development trips are shown in Figure 6. Adjacent development information can be found in Appendix C.

3.3. Future Roadway Improvements

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

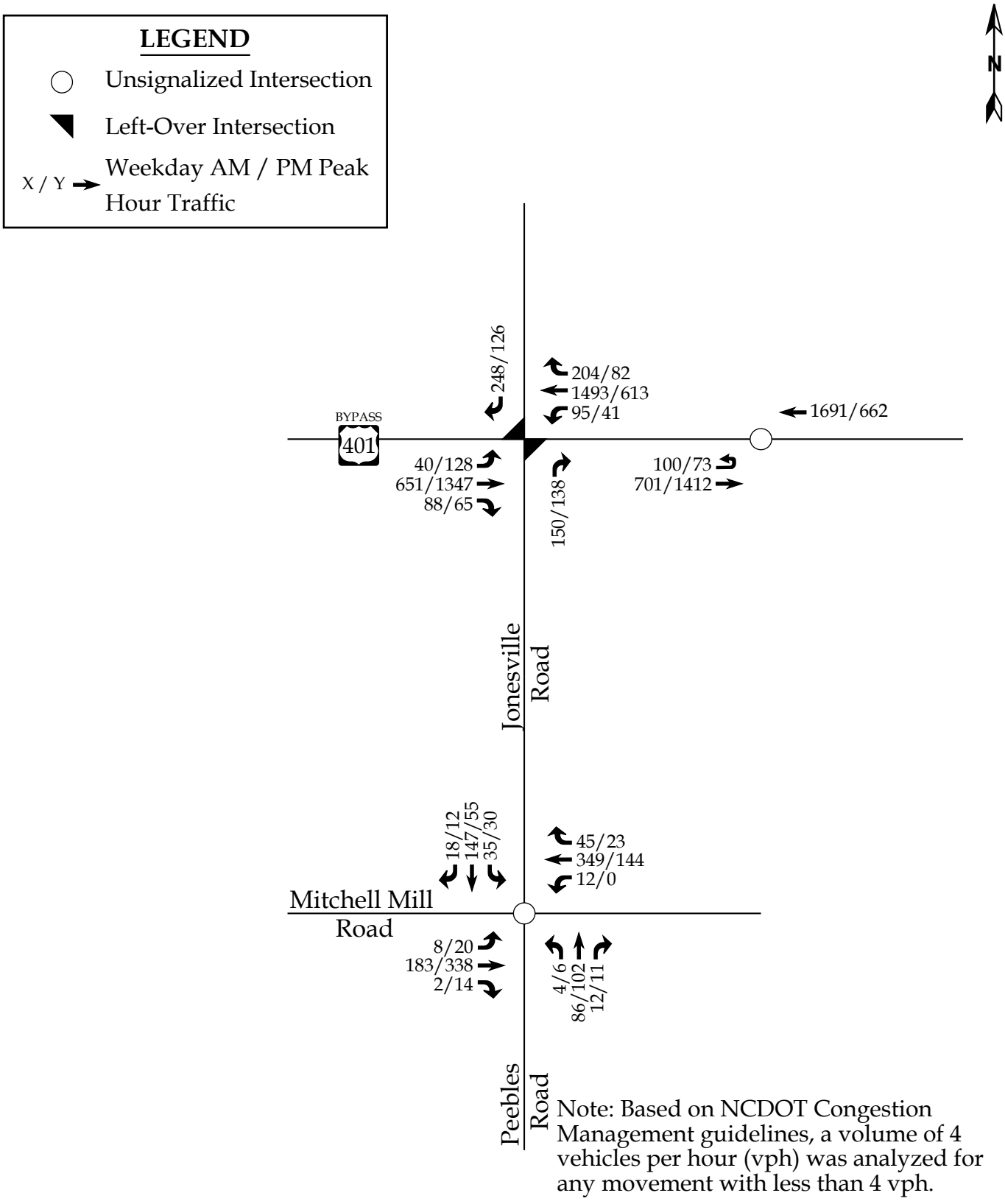
two-way-left-turn-lane (TWLTL) and Mitchell Mill Road is identified as a 4-lane median-divided roadway.

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.

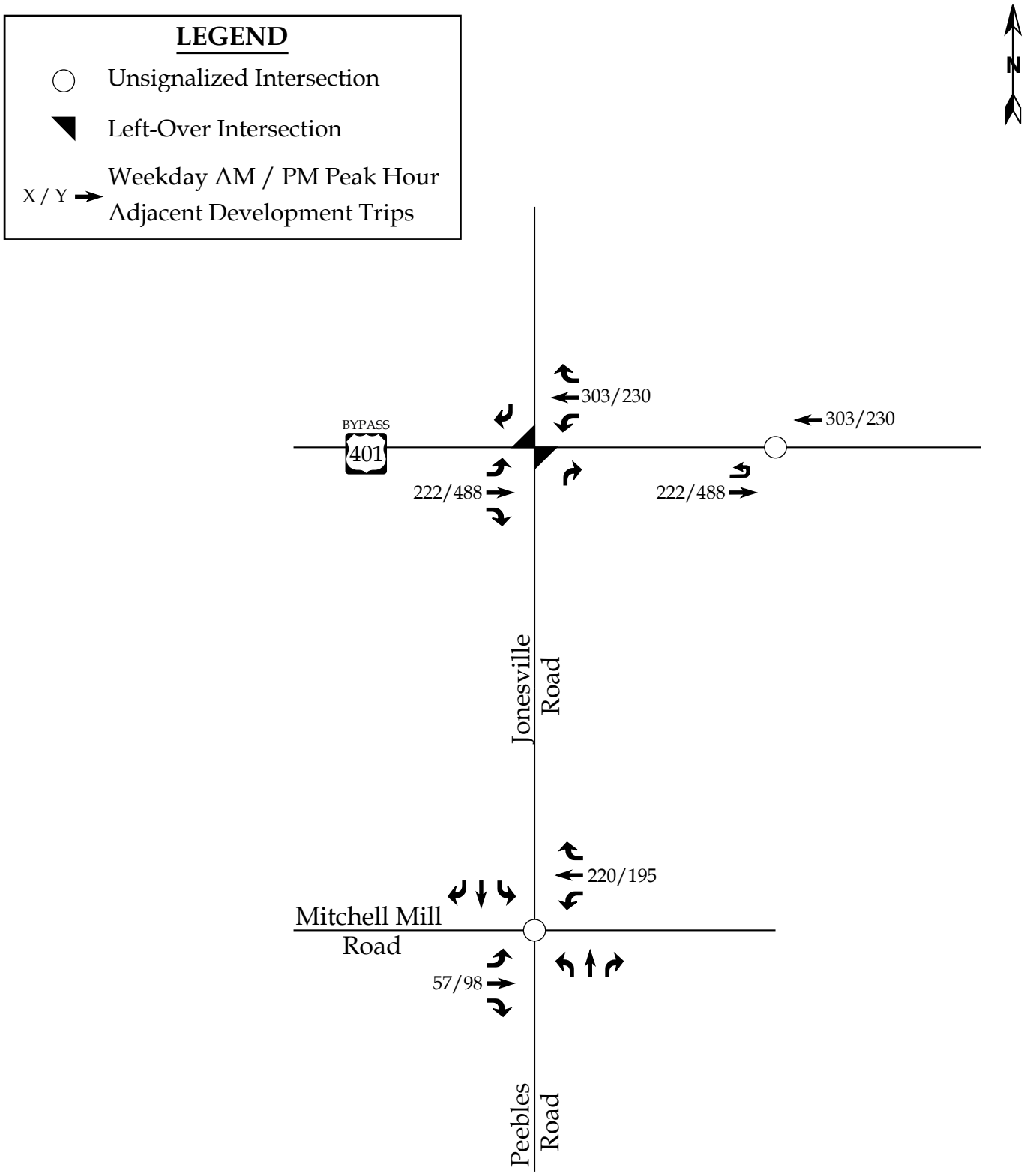
3.5. Analysis of 2027 No-Build Peak Hour Traffic Conditions

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.

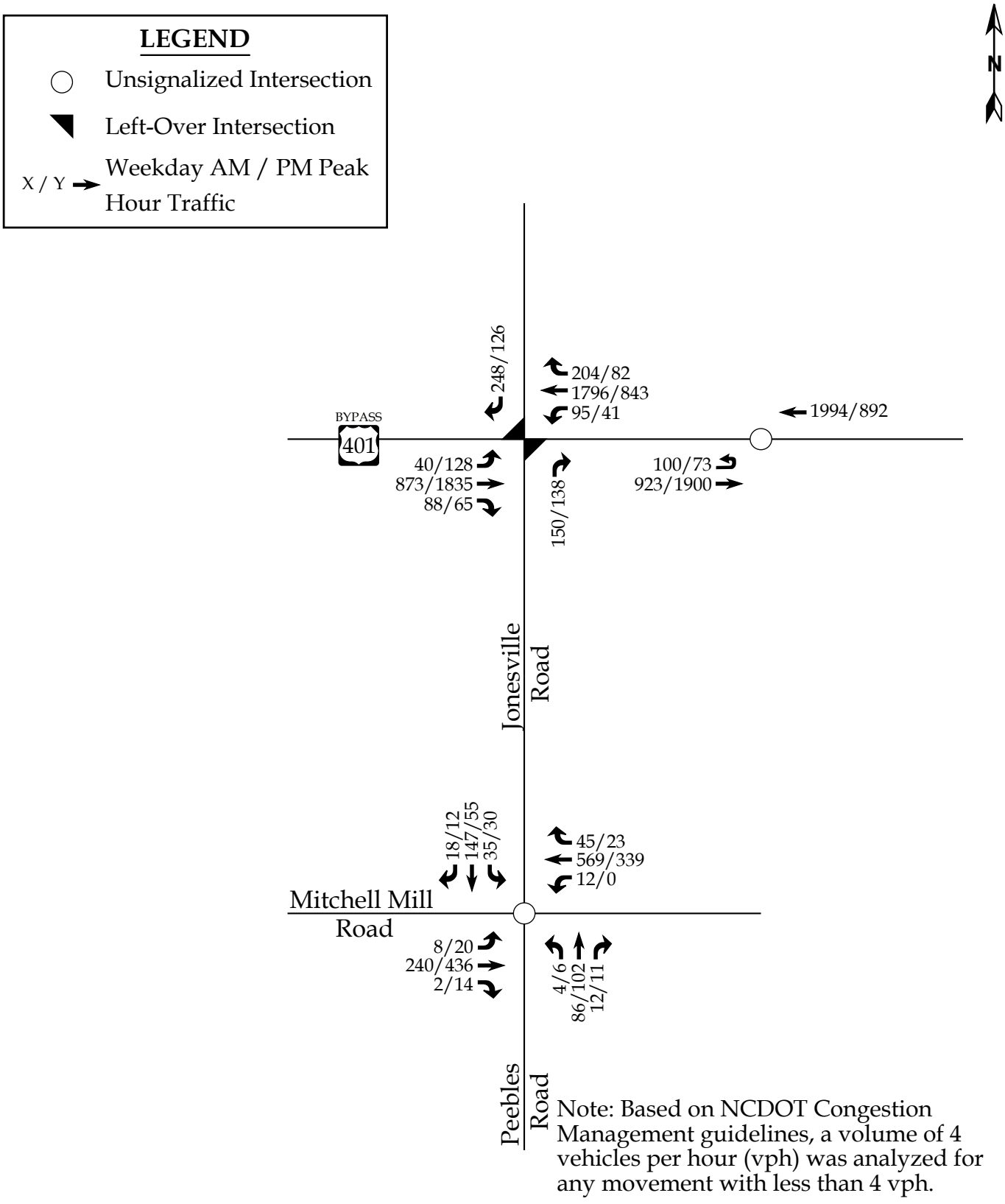


Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

DRMP	Hills at Harris Creek Rolesville, NC	2027 Projected Peak Hour Traffic	
		Scale: Not to Scale	Figure 5



DRMP	Hills at Harris Creek Rolesville, NC	Peak Hour Adjacent Developement Trips	
		Scale: Not to Scale	Figure 6



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.

DRMP	Hills at Harris Creek 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 220 single-family 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, 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	Enter	Exit
Single-Family Home (210)	**220 DU**	**2,084**	**38**	**115**	**131**	**78**

It is estimated that the proposed development will generate approximately 2,084 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 153 trips (38 entering and 115 exiting) will occur during the weekday AM peak hour and 209 trips (131 entering and 78 exiting) will occur during the weekday PM peak hour.

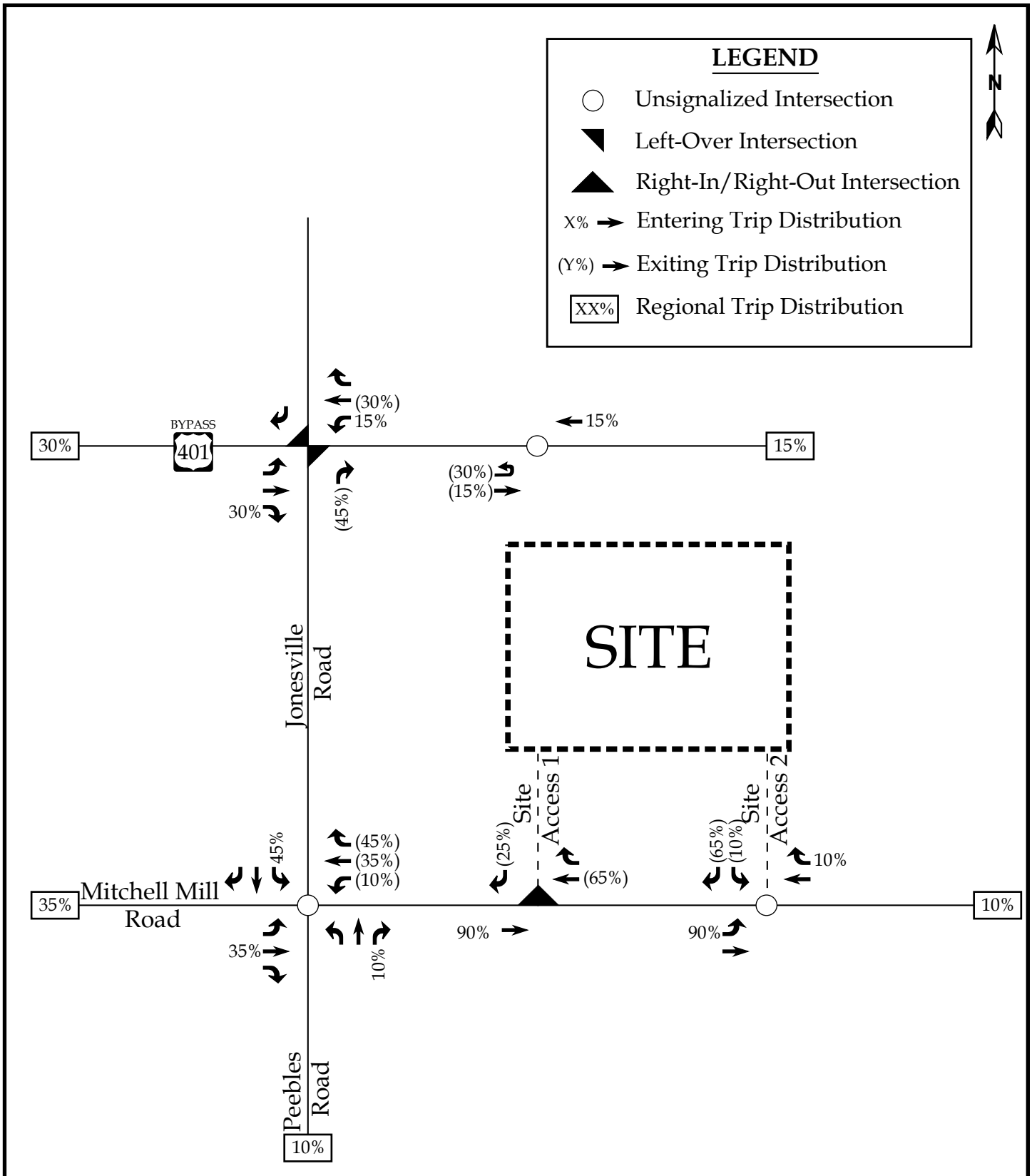
4.2. Site Trip Distribution and Assignment

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

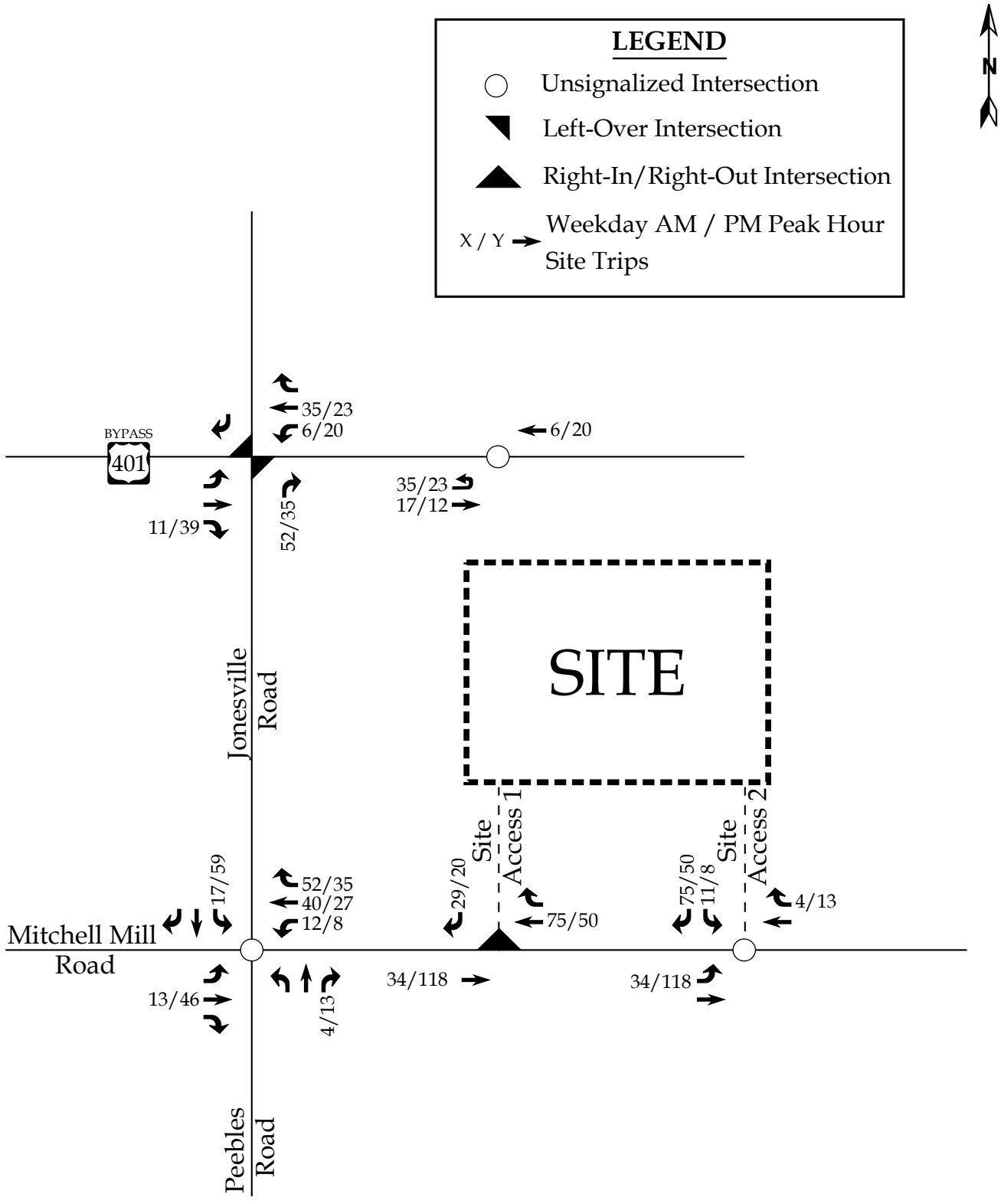
It is estimated that the site trips will be regionally distributed as follows:

- 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. Refer to Figure 9 for the site trip assignment.



DRMP	Hills at Harris Creek Rolesville, NC	Site Trip Distribution Scale: Not to Scale | Figure 8



DRMP	Hills at Harris Creek Rolesville, NC	Site Trip Assignment	
		Scale: Not to Scale	Figure 9

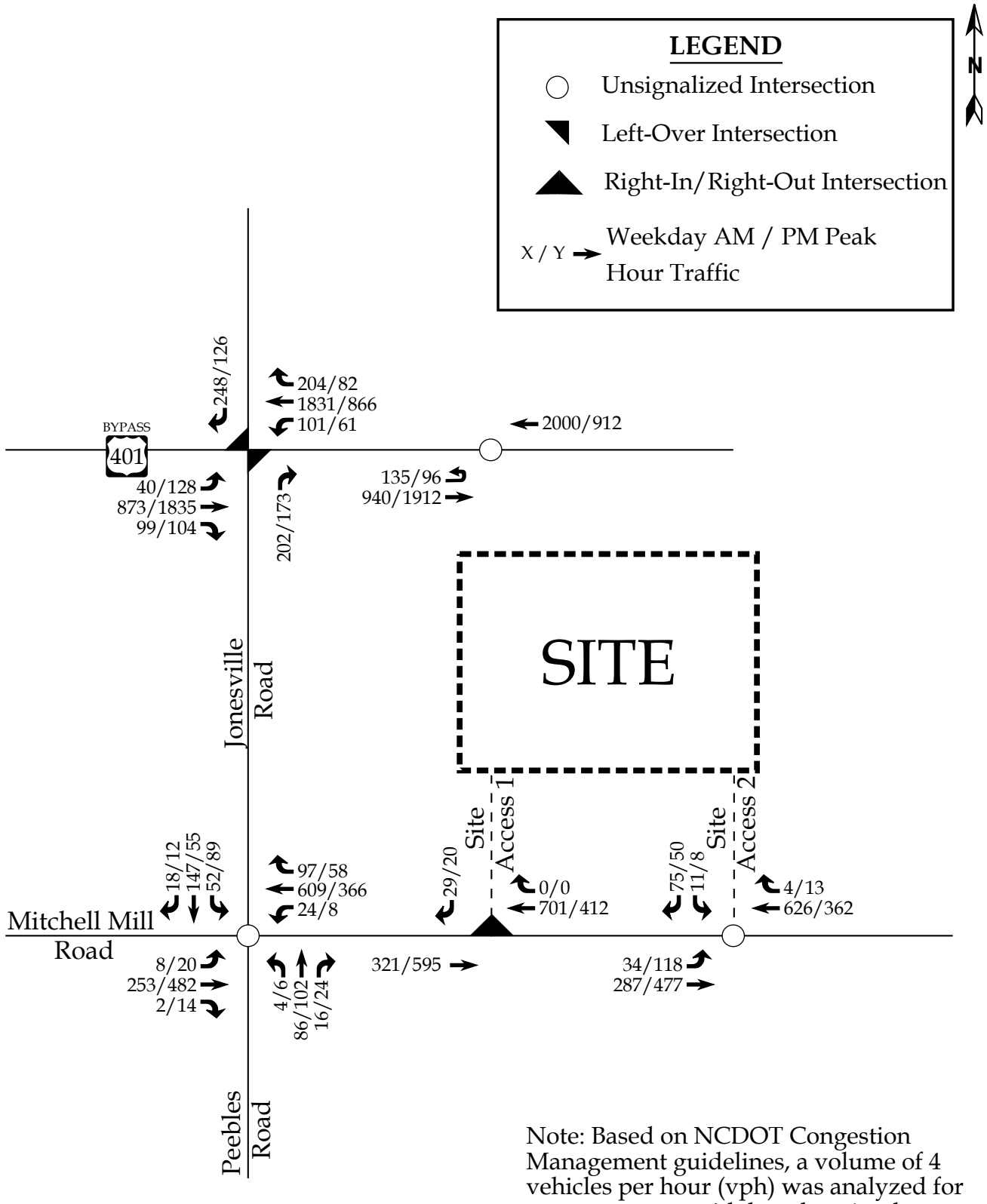
5. 2027 BUILD TRAFFIC CONDITIONS

5.1. 2027 Build Peak Hour Traffic Volumes

To estimate traffic conditions with the site fully built-out, the 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.



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.

DRMP	Hills at Harris Creek 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 11.1), was used to complete the analyses for the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as "the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions." Level of service (LOS) is a term used to represent different driving conditions and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers." Level of service varies from Level "A" representing free flow, to Level "F" where breakdown conditions are evident. Refer to Table 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 the NCDOT Congestion Management Guidelines.

7. CAPACITY ANALYSIS

The following study intersections were analyzed under 2022 existing, 2027 no-build, and 2027 build traffic conditions:

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

All proposed site driveways were analyzed under 2027 build traffic conditions. Refer to Tables 5-9 for a summary of capacity analysis results. Refer to Appendices D-H for the Synchro capacity analysis reports and SimTraffic queueing reports.

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] B[2]	N/A	-- F[1] E[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] C[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

*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 C 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 B/C) 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 3% of the total traffic at this intersection during both the weekday AM and PM peak hours. The proposed development is expected to account for approximately 26% and 20% of the overall northbound approach traffic 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 both the weekday AM and PM peak hours 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 northbound right-turn movement demand is expected to 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: 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)
2023 Existing	EB* WB	1 UT 2 TH	C[1] --	N/A	B[1] --	N/A
2028 No-Build	EB* WB	1 UT 2 TH	E[1] --	N/A	B[1] --	N/A
2028 Build	EB* WB	1 UT 2 TH	F[1] --	N/A	B[1] --	N/A

*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 E).

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 B during the weekday PM peak hour. It should be noted that the proposed development is expected to account for approximately 2% of the total traffic at this intersection during the weekday AM and PM peak hours. The proposed development is expected to account for approximately 26% and 24% of the overall northbound approach traffic 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 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 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 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-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	C[1] F[1] B[1] B[1]	F (51)	C[1] C[1] B[1] B[1]	C (19)
2027 Build	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	C[1] F[1] B[1] C[1]	F (97)	F[1] D[1] B[1] C[1]	E (39)
2027 Build - Improved	EB WB NB SB	1 LT-TH-RT 1 LT-TH, <u>1 RT</u> 1 LT-TH-RT <u>1 LT</u>, 1 TH-RT	C[1] F[1] B[1] B[1]	F (82)	F[1] D[1] C[1] B[1]	E (50)

<u>Improvements to lane configurations by adjacent development are shown underlined.</u>

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

Capacity analysis of 2022 existing and 2027 no-build traffic conditions indicates that the intersection is expected to operate at an overall 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

traffic conditions (LOS F). Under 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 10% and 15% of the total traffic at this intersection during the weekday AM and PM peak hours, respectively. The proposed development is expected to account for approximately 5% and 9% of the overall eastbound approach traffic and 14% and 16% of the overall westbound approach at this intersection during the weekday AM and PM peak hours, respectively.

Turn lanes were considered at this intersection in order to mitigate the proportional impact that the proposed site traffic is expected to have at this intersection and to improve overall operations. An exclusive left-turn lane on the southbound approach (Jonesville Road) and right-turn lane on the westbound approach (Mitchell Mill Road) are recommended by the developer. Both turn lanes are recommended to have 100 feet of storage. It should be noted that an exclusive southbound left-turn lane was also identified in the 5109 Mitchell Mill Road TIA. With these improvements, the intersection is expected to continue operating at an overall LOS F during the weekday AM and PM peak hours.

It should be noted that the overall intersection delay is expected to increase during the weekday PM peak hour as a result of the recommended improvements to the southbound and westbound approaches. This increase in delay is attributable to minor increases in delays for all approaches caused by adding additional lanes to an all-way stop-controlled intersection. No feasible improvements other than signalization would be expected to decrease delays further at this intersection.

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 the weekday AM peak hour under 2027 no-build traffic conditions and both the weekday AM and PM peak hours under 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. Mitchell Mill Road and Site Access 1

The proposed intersection of Mitchell Mill Road and Site Access 1 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 Mitchell Mill Road and Site Access 1

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2027 Build	EB WB <u>SB</u>	1 TH 1 TH-<u>RT</u> <u>1 RT</u>	-- -- B[1]	N/A	-- -- B[1]	N/A

<u>Improvements to lane configurations are shown underlined.</u>
1. Level of service for minor-street approach.

Capacity analysis of 2027 build traffic conditions indicates that the minor-street approach is expected to operate at LOS B during the weekday AM and PM peak hours.

Based on the estimated low volume of right-turn movements into the proposed development at this intersection, an exclusive right-turn lane is not recommended. See Appendix I for the turn lane warrants.

7.5. Mitchell Mill Road and Site Access 2

The proposed intersection of Mitchell Mill Road and Site Access 1 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 Mitchell Mill Road and Site Access 1

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2027 Build	EB WB SB	1 LT, 1 TH 1 TH, 1 RT 1 LT-RT	A[1] -- C[2]	N/A	A[1] -- B[2]	N/A

Improvements to lane configurations are shown underlined.
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 minor-street approach is expected to operate at LOS B during the weekday AM and PM peak hours.

The NCDOT driveway manual states that turn lanes should be considered when the major street carries 4,000 vehicles per day or more. Mitchell Mill Road carries 4,100 vehicles per day. Based on this and previous comments from NCDOT, left and right turn lanes on Mitchell Mill Road are recommended. Both turn lanes are recommended to have 100 feet of storage. See Appendix I for the turn lane warrants.

8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed Hills at Harris Creek development located north of Mitchell Mill Road, west of Manly Farm Road, and east of Gro Peg Lane in Rolesville, North Carolina. The development is expected to consist of 220 single-family homes and to be built-out in 2027. Site access is proposed via one (1) full-movement and one (1) right-in/right-out driveway connection along Mitchell Mill Road.

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 153 primary trips (38 entering and 115 exiting) during the weekday AM peak hour and 209 primary trips (131 entering and 78 exiting) during the weekday PM peak hour.

Rolesville Community Transportation Plan

Per the Rolesville Community Transportation Plan (CTP), the ultimate cross-section of Mitchell Mill Road is identified as a 4-lane median-divided roadway. It is recommended that the proposed development widen one-half section of Mitchell Mill Road along the site frontage in accordance with the Town's CTP.

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.

DRMP

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.

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 NCDOT and the Town.

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 NCDOT and the Town.

Mitchell Mill Road and Jonesville Road / Peebles Road

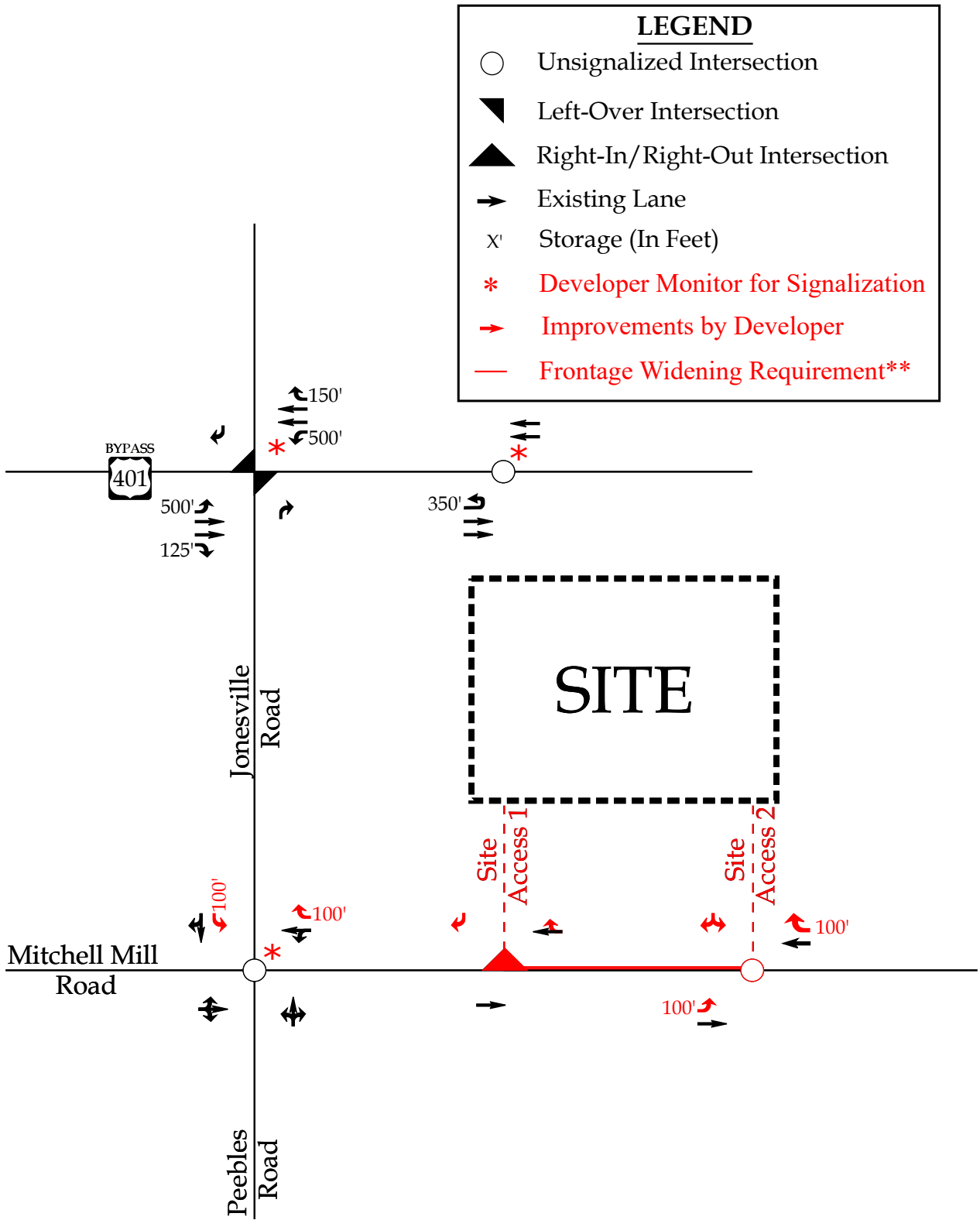
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
    - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA.
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least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

Mitchell Mill Road and Site Access 1

- Construct the southbound approach (Site Access 1) as a right-in/right-out with one ingress lane and one egress lane.
- Provide stop-control for the southbound approach (Site Access 1).
- Construct a concrete median on Mitchell Mill Road that restricts access to right-in/right-out.

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 100 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

DRMP	Hills at Harris Creek Rolesville, NC	Recommended Lane Configurations	
		Scale: Not to Scale	Figure 11

APPENDIX A

SCOPING DOCUMENTATION

Matthew West

From: Jason Pfister <jason@ellisdevgroup.com>
Sent: Tuesday, February 20, 2024 11:18 AM
To: Andrew Eagle; Elabarger, Michael S; Gruber, Meredith; Stephen Ellis
Cc: Keith Spalding-Robbins; Matthew West; Jason Pfister
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)
Attachments: Hills at Harris Creek 1-31.pdf

Thanks Andrew. That is still the plan and we would prefer to keep it as currently planned (reflected in attached site plan) rather than adding another full access entrance.

Jason Pfister
Vice President of Development
305 Church at North Hills Street, Suite 1110
Raleigh NC 27609
jason@ellisdevgroup.com
m 919.824.6088

From: Andrew Eagle <AEagle@drmp.com>
Sent: Tuesday, February 20, 2024 10:34 AM
To: Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Jason Pfister <jason@ellisdevgroup.com>; Stephen Ellis <stephen@ellisdevgroup.com>
Cc: Keith Spalding-Robbins <keith@strongrockgroup.com>; Matthew West <mwest@drmp.com>
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)

Jason,

We should have a draft TIA ready by March 12, earlier if possible. Is the plan still to have the western driveway be right-in/right-out and the eastern driveway full access? The right-in/right-out restriction came from NCDOT's preference. Let me know if you want me to ask NCDOT about allowing full access instead of right-in/right-out since we have removed the commercial use.

Thanks,

Andrew Eagle, PE, PTOE
Senior Traffic Analysis Project Manager
Main: 704.549.4260 | Direct: 704.467.0325 | Cell: 704.467.0325
aeagle@drmp.com

8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262

From: Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>
Sent: Tuesday, February 13, 2024 9:15 AM
To: Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Andrew Eagle <AEagle@drmp.com>; Jason Pfister <jason@ellisdevgroup.com>; Stephen Ellis <stephen@ellisdevgroup.com>
Cc: Keith Spalding-Robbins <keith@strongrockgroup.com>; Taylor Geneser <tgeneser@drmp.com>
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)

Good morning,

Attached is Receipt of Payment of the TIA Pre-Pay – Andrew, please proceed with the TIA revision.

Thanks everyone for quick attention on this!
Mike Elabarger
Senior Planner

From: Gruber, Meredith <meredith.gruber@rolesville.nc.gov>
Sent: Saturday, February 10, 2024 2:57 PM
To: Andrew Eagle <AEagle@drmp.com>; Jason Pfister <jason@ellisdevgroup.com>; Stephen Ellis <stephen@ellisdevgroup.com>
Cc: Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Keith Spalding-Robbins <keith@strongrockgroup.com>; Taylor Geneser <tgeneser@drmp.com>
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)

Hello Everyone,

I can sign the contract as soon as we receive a check for the prepayment of the TIA (invoice attached). Jason and/or Stephen—please have the check made out to the Town of Rolesville.

Best regards,
Meredith

Meredith A. Gruber, PLA, AICP
Planning Director
Town of Rolesville
P.O. Box 250
502 Southtown Circle
Rolesville, NC 27571
www.rolesvillenc.gov
919.554.6517

Rolesville
Genuine Community • Capital Connection
Est. 1837

From: Andrew Eagle <AEagle@drmp.com>
Sent: Wednesday, February 7, 2024 2:31 PM
To: Jason Pfister <jason@ellisdevgroup.com>; Stephen Ellis <stephen@ellisdevgroup.com>
Cc: Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>;

Keith Spalding-Robbins <keith@strongrockgroup.com>; Taylor Geneser <tgeneser@drmp.com>
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)

Good afternoon,

We need to contract with the Town. Meredith, please send a signed contract as soon as you are able. We will determine if any of the mitigation can be reduced due to the lower trip generation. We will try to turn the TIA around quicker than the 4-week schedule I gave.

Andrew Eagle, PE, PTOE
Senior Traffic Analysis Project Manager
Main: 704.549.4260 | Direct: 704.467.0325 | Cell: 704.467.0325
aeagle@drmp.com

8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262

From: Jason Pfister <jason@ellisdevgroup.com>
Sent: Tuesday, February 6, 2024 11:07 AM
To: Stephen Ellis <stephen@ellisdevgroup.com>; Andrew Eagle <AEagle@drmp.com>
Cc: Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Keith Spalding-Robbins <keith@strongrockgroup.com>; Taylor Geneser <tgeneser@drmp.com>; Jason Pfister <jason@ellisdevgroup.com>
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)

Here is the signed proposal.

Jason Pfister
Vice President of Development
305 Church at North Hills Street, Suite 1110
Raleigh NC 27609
jason@ellisdevgroup.com
m 919.824.6088

From: Stephen Ellis <stephen@ellisdevgroup.com>
Sent: Tuesday, February 6, 2024 10:01 AM
To: Andrew Eagle <AEagle@drmp.com>
Cc: Jason Pfister <jason@ellisdevgroup.com>; Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Keith Spalding-Robbins <keith@strongrockgroup.com>; Taylor Geneser <tgeneser@drmp.com>
Subject: Re: [External] FW: Hills at Harris Creek (TIA revision)

Hey Andrew

This is good to go, signed doc will be over to you later from jason.

1/ can u please push to reduce our off site impacts, I was expecting a reduction due to commercial and townhomes being both dropped.

2/ can u push this closer to front of Q so we can keep ahead of our schedule?

Many thanks

S

Sent from my iPhone

> On 6 Feb 2024, at 9:54 am, Andrew Eagle <AEagle@drmp.com> wrote:
>
> Attached is our proposal for revising the TIA and attending up to 3 public meetings. We will only bill a portion of the public meetings fee, based on the hours needed for attendance.
>
> **Andrew Eagle, PE, PTOE**
> **Senior Traffic Analysis Project Manager**
> Main: 704.549.4260 | Direct: 704.467.0325 | Cell: 704.467.0325
> aeagle@drmp.com
>
> 
>
> 8210 University Executive Park Drive
> Suite 220, Charlotte, NC 28262
>
> 
>
> ---
>
> **From:** Jason Pfister <jason@ellisdevgroup.com>
> **Sent:** Tuesday, February 6, 2024 8:48 AM
> **To:** Andrew Eagle <AEagle@drmp.com>
> **Cc:** Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Stephen Ellis <stephen@ellisdevgroup.com>; Keith Spalding-Robbins <keith@strongrockgroup.com>
> **Subject:** Re: [External] FW: Hills at Harris Creek (TIA revision)
>
> Thanks Andrew. I think we would want you to attend both the planning board and the commissioners meeting to be safe.
>
> Jason C. Pfister
>
> Sent from my iPhone
>
> > On Feb 6, 2024, at 8:43 AM, Andrew Eagle <AEagle@drmp.com> wrote:

I'll get a proposal to the Town today. Should I include any time for attending public meetings? I expect to have a draft TIA ready 4 weeks after NTP.

Andrew Eagle, PE, PTOE
Senior Traffic Analysis Project Manager
Main: 704.549.4260 | Direct: 704.467.0325 | Cell: 704.467.0325
aeagle@drmp.com

8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262

From: Jason Pfister <jason@ellisdevgroup.com>
Sent: Friday, February 2, 2024 12:50 PM
To: Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Andrew Eagle <AEagle@drmp.com>
Cc: Stephen Ellis <stephen@ellisdevgroup.com>; Keith Spalding-Robbins <keith@strongrockgroup.com>; Jason Pfister <jason@ellisdevgroup.com>
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)

OK, I must have misinterpreted what you said yesterday. Thanks for clarifying Mike. Andrew, do you have any ballpark estimate of how long this TIA update would take to complete?

Jason Pfister
Vice President of Development
305 Church at North Hills Street, Suite 1110
Raleigh NC 27609
jason@ellisdevgroup.com
m 919.824.6088

From: Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>
Sent: Friday, February 2, 2024 12:21 PM
To: Jason Pfister <jason@ellisdevgroup.com>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Andrew Eagle <AEagle@drmp.com>
Cc: Stephen Ellis <stephen@ellisdevgroup.com>; Keith Spalding-Robbins <keith@strongrockgroup.com>
Subject: RE: [External] FW: Hills at Harris Creek (TIA revision)

Hello, all,

Thanks for jumping on this asap.

No, the TIA cannot continue to express the scope of the project as (clip below). The TIA should match the existing proposed project. It's great that the OUTCOME of the TIA will be the same, but corners should NOT be cut to get there. The analysis graphs, trip

generation, movements at intersections, dropping any of that “internal capture” for the Day Care center which will be no longer, all that should be changed to reflect the new project of ~220 SFD’s.

Andrew, please work up a Cost Estimate for the changed Scope and proceed like we normally would (on a TIA revision) -- (and if I recall, didn’t this TIA go through a Revision one time originally? Or I’m confusing it with the 5109 Mitchell Mill (a Hopper project) a little east of this the year before…

Thank you,
Mike E.

<image001.png>

From: Jason Pfister <jason@ellisdevgroup.com>
Sent: Friday, February 2, 2024 10:57 AM
To: Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>
Cc: Stephen Ellis <stephen@ellisdevgroup.com>; Keith Spalding-Robbins <keith@strongrockgroup.com>; Jason Pfister <jason@ellisdevgroup.com>
Subject: [External] FW: Hills at Harris Creek

Meredith/Mike,

See the below response from Andrew Eagle. I agree with his recommendation to reuse the existing underlying data from the prior TIA and was thus going to ask him for an official letter confirming that the roadway improvements will be the same. Is that sufficient for your purposes?

Jason Pfister
Vice President of Development
305 Church at North Hills Street, Suite 1110
Raleigh NC 27609
jason@ellisdevgroup.com
m 919.824.6088

From: Andrew Eagle <AEagle@drmp.com>
Sent: Friday, February 2, 2024 10:36 AM
To: Jason Pfister <jason@ellisdevgroup.com>
Cc: Stephen Ellis <stephen@ellisdevgroup.com>; Keith Spalding-Robbins <keith@strongrockgroup.com>
Subject: RE: Hills at Harris Creek

Hey Jason,

I ran some quick analysis for you. The new site plan will not result in less roadway improvements. This area is experiencing high delays which leaves little room for

additional development trips. I recommend sticking with the existing TIA to save on time.

Please be aware that the attached TIA is the latest. Followed by NCDOT's final review (requirements are slightly different at one driveway). I also attached an email chain regarding the signal warrant analysis that is needed.

Andrew Eagle, PE, PTOE
Senior Traffic Analysis Project Manager
Main: 704.549.4260 | Direct: 704.467.0325 | Cell: 704.467.0325
aeagle@drmp.com

8210 University Executive Park Drive
Suite 220, Charlotte, NC 28262

From: Jason Pfister <jason@ellisdevgroup.com>
Sent: Wednesday, January 31, 2024 4:23 PM
To: Andrew Eagle <AEagle@rameykemp.com>; Daniel Reisfeld <dreisfeld@rameykemp.com>
Cc: Stephen Ellis <stephen@ellisdevgroup.com>; Keith Spalding-Robbins <keith@strongrockgroup.com>; Jason Pfister <jason@ellisdevgroup.com>
Subject: Hills at Harris Creek

Andrew/Daniel,

We are working on a new configuration for our Hills at Harris Creek after getting denied on the initial rezoning. The updated site plan (dropping the townhomes and commercial; about 220 single family lots only) is attached. Quick question: based on the reduced lot count and loss of the commercial, do you think the overall amount of required improvements would be reduced in a new TIA? If not, we are going to ask the planning director if we can reuse the attached TIA in order to save time on the second rezoning submission. Please give me a call if you think it makes sense to talk through this. Thanks.

<image003.png>
Jason Pfister
Vice President of Development
305 Church at North Hills Street, Suite 1110
Raleigh NC 27609
jason@ellisdevgroup.com
m 919.824.6088

<Hills at Harris Creek - TIA - 02-06-2024.pdf>

RAMEY KEMP ASSOCIATES
TOGETHER WE ARE LIMITLESS

T 919 872 5115
5808 Faringdon Pl,
Raleigh, NC 27609

March 24, 2022

Meredith Gruber, PLA, AICP
Town of Rolesville - Planning Director
PO Box 250
502 Southtown Circle
Rolesville, NC 27571
meredith.gruber@rolesville.nc.gov
[Sent via Email]

Reference: Hills at Harris Creek
Rolesville, North Carolina

Subject: Memorandum of Understanding for TIA Report

Dear Ms. Gruber:

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 Hills at Harris Creek development in Rolesville, North Carolina. The proposed development is to be located north of Mitchell Mill Road, west of Manly Farm Road, and east of Gro Peg Lane in Rolesville, NC. The development is expected to consist of 211 single-family homes, 109 townhomes, and 3.626 acres of commercial development. This MOU reflects the assumptions outlined during the initial coordination between Ramey Kemp Associates (RKA), the Town of Rolesville (Town), and the North Carolina Department of Transportation (NCDOT). 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 along Mitchell Mill Road. Refer to the attachments for a copy of the preliminary site plan.

The proposed development, anticipated to be completed in 2027, is expected to consist of 211 single-family homes, 109 townhomes, and 3.626 acres of commercial development. It should be noted that the commercial development land use(s) and intensity are not known at this time. Therefore, 7,000 square feet (sq. ft.) of general retail space per acre of land [approximately 25,400 sq. ft.] was assumed for the commercial development in this study. The proposed development is assumed to consist of the following land uses:

- 211 single-family homes
- 109 townhomes
- 25,400 sq. ft. of general retail

Study Area

Based on a coordination with NCDOT and Town staff, 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)
- Mitchell Mill Road and Site Driveways (2)

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

Background Traffic Volumes

Based on coordination with NCDOT and the Town, background traffic volumes will be determined by projecting 2022 existing traffic volumes to the year 2027 using a 2% annual growth rate. Additionally, it was determined that the following adjacent developments are to be included in this study:

- Cobblestone Crossing Mixed-Use
- Young Street PUD
- Wheeler Tract
- Louisbury Road Assemblage
- Kalas / Watkins Family Property

Future Roadway Improvements

Based on coordination with the Town and NCDOT, it was determined that 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)	211 DU	2,010	38	109	147	126	74	200
Multi-Family Home (Low-Rise) (220)	109 DU	770	14	43	57	42	25	67
Retail (<40 KSF) (822)	25.4* KSF	1,300	32	21	53	75	76	151
Total Trips		**4,080**	**84**	**173**	**257**	**243**	**175**	**418**
*Internal Capture (2% AM, 1% PM)***			*-2*	*-3*	*-5*	*-5*	*-3*	*-8*
Total External Trips			**82**	**170**	**252**	**238**	**172**	**410**
Pass-By Trips: Shopping Center (34% PM)			-	-	-	*-25*	*-25*	*-50*
Total Primary Trips			**82**	**170**	**252**	**213**	**147**	**360**

*Since the commercial development is unknown at this time, 7,000 SF of general retail space per acre of land [3.626 acres in total] was assumed for this land use.
**Utilizing methodology contained in the NCHRP Report 684.

It is estimated that the proposed development will generate approximately 4,080 site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 257 trips (84 entering and 173 exiting) will occur during the weekday AM peak hour and 418 trips (243 entering and 175 exiting) will occur during the weekday PM peak hour.

Internal capture of trips between the retail and residential land uses was considered in this study. Internal capture is the consideration for trips that will be made within the site between different land uses, so the vehicle technically never leaves the internal site but can still be considered as a trip to that specific land use. Based on NCHRP Report 684 methodology, weekday AM and PM peak hour internal capture rates of 2% and 1%, respectively, were applied to the trips generated from the development. The internal capture reductions are expected to account for approximately 5 trips (2 entering and 3 exiting) during the weekday AM peak hour and 8 trips (5 entering and 3 exiting) during the weekday PM peak hour. Refer to the attached NCHRP internal capture reports for reference.

Pass-by trips will also be taken into consideration in this study. Pass-by trips are made by the traffic already using the adjacent roadway, entering the site as an intermediate stop on their way to another destination. Pass-by percentages are applied to site trips after adjustments for internal capture. Pass-by trips are expected to account for approximately 50 trips (25 entering and 25 exiting) during the

weekday PM peak hour. It should be noted that the pass-by trips were balanced, as it is likely that these trips would enter and exit in the same hour.
The total primary trips are the calculated site trips after the reduction for internal capture and pass-by trips. Primary site traffic is expected to generate approximately 252 trips (82 entering and 170 exiting) during the weekday AM peak hour, and 360 trips (213 entering and 147 exiting) 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

Commercial

- 25% 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
- 40% to/from the west via Mitchell Mill Road
- 10% to/from the east via Mitchell Mill Road

Refer to the attached site trip distribution figures.

Analysis Scenarios

All capacity analyses will be performed utilizing Synchro (Version 10.3). 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

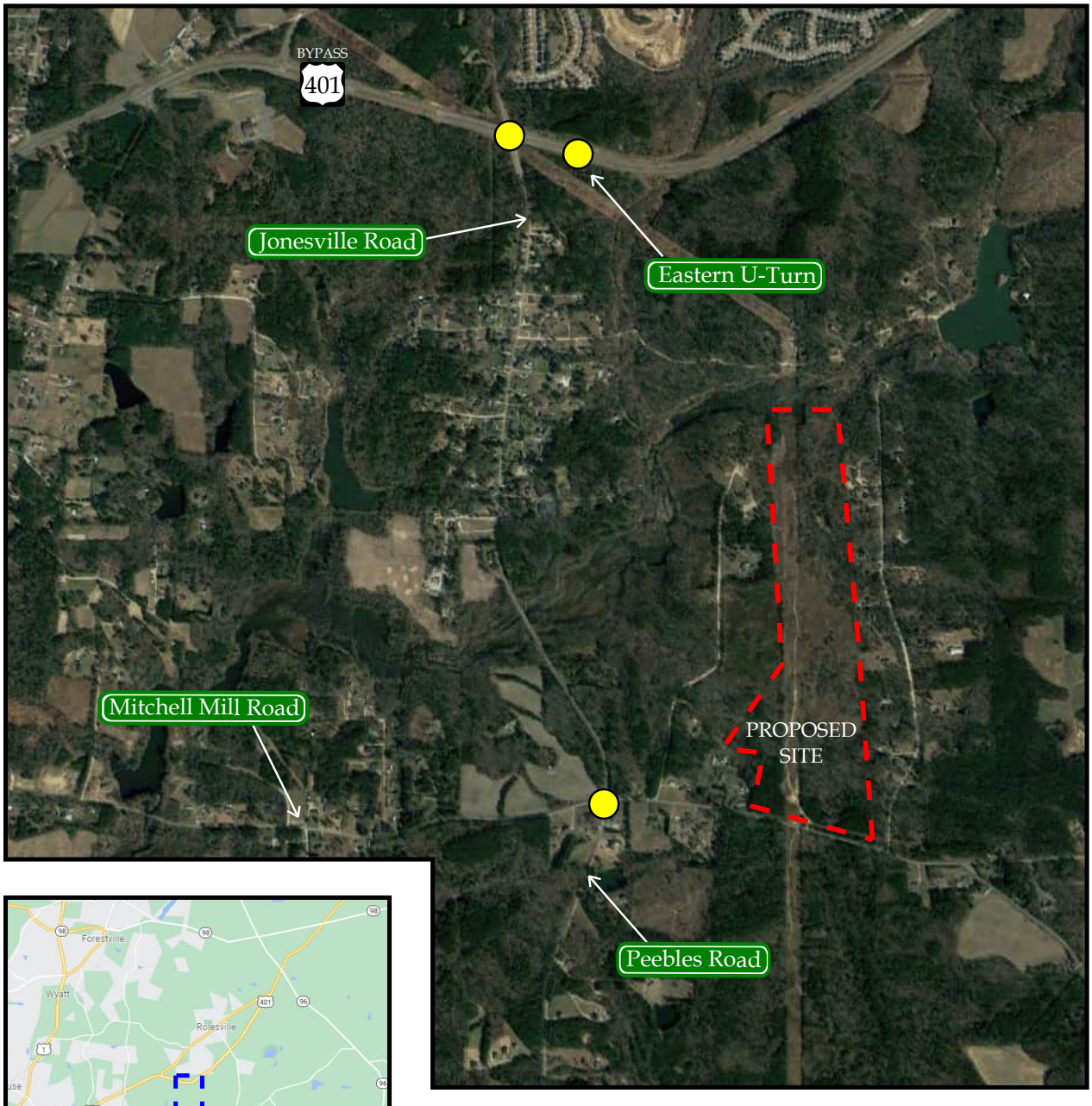
The TIA report will be prepared based on the Town and NCDOT requirements.

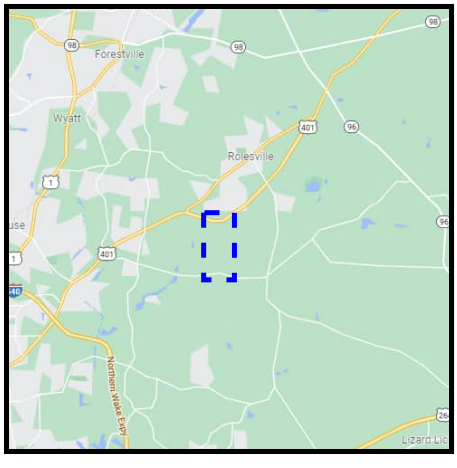
If you find this memorandum of understanding acceptable, please let me know so that we may include it in the TIA report. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,
Ramey Kemp Associates,

Michael Karpkinski, P.E.
Traffic Engineering Project Manager

Attachments:
Site Location Map
Site Plan
2022 Existing Traffic Volumes Figure
NCHRP 684 Internal Capture Reports
Proposed Site Trip Distribution Figures





N

LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

DRMP	Hills at Harris Creek Rolesville, NC	Site Location Map Scale: Not to Scale

STRONGROCK ENGINEERING GROUP

HILLS AT HARRIS CREEK - ROLESVILLE, NC

01/31/2024

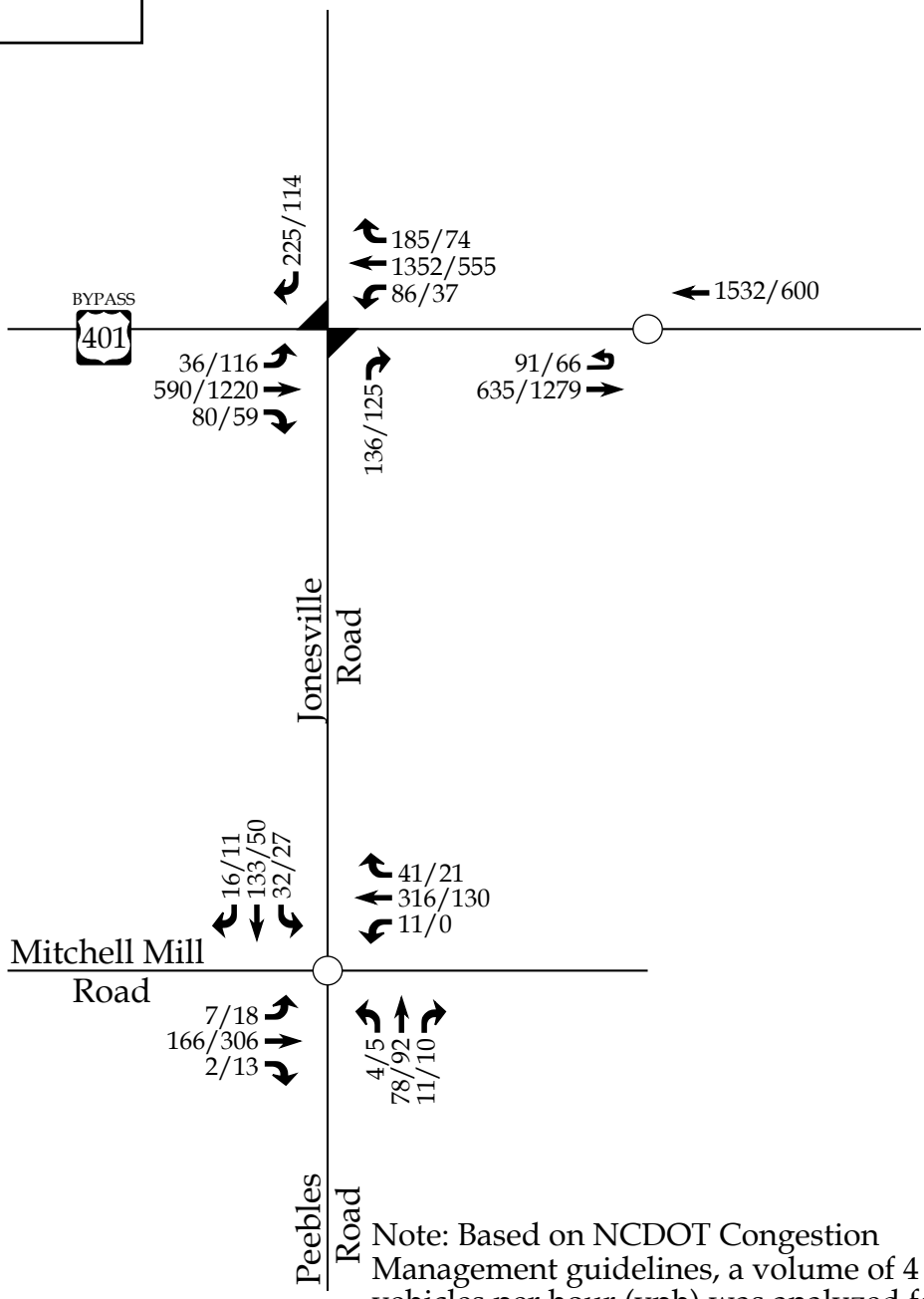
0′ 100′ 200′ 400′ 800′

SCALE: 1″ = 200′

N

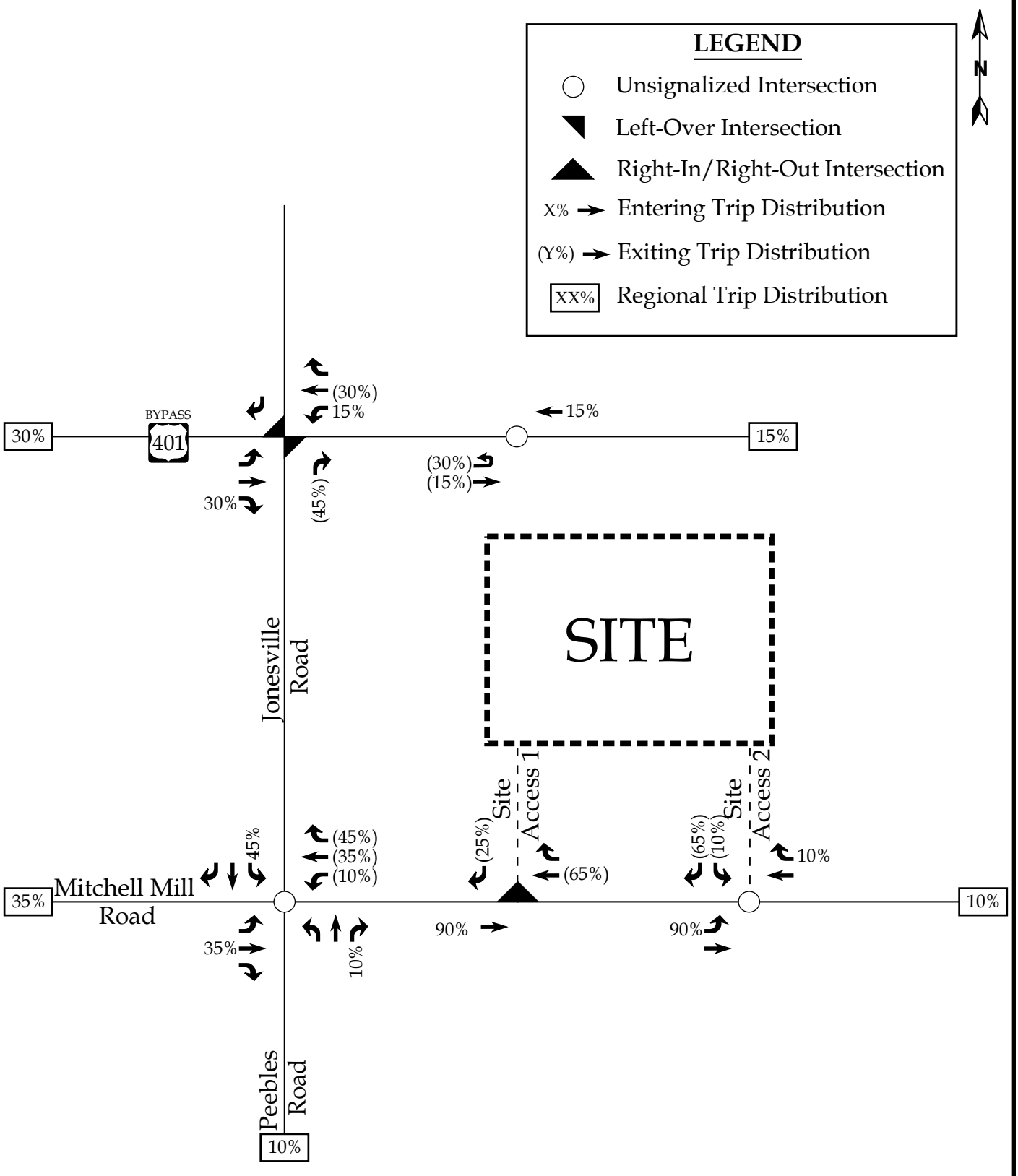
LEGEND

- 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.

DRMP	Hills at Harris Creek Rolesville, NC	2022 Existing Peak Hour Traffic
		Scale: Not to Scale

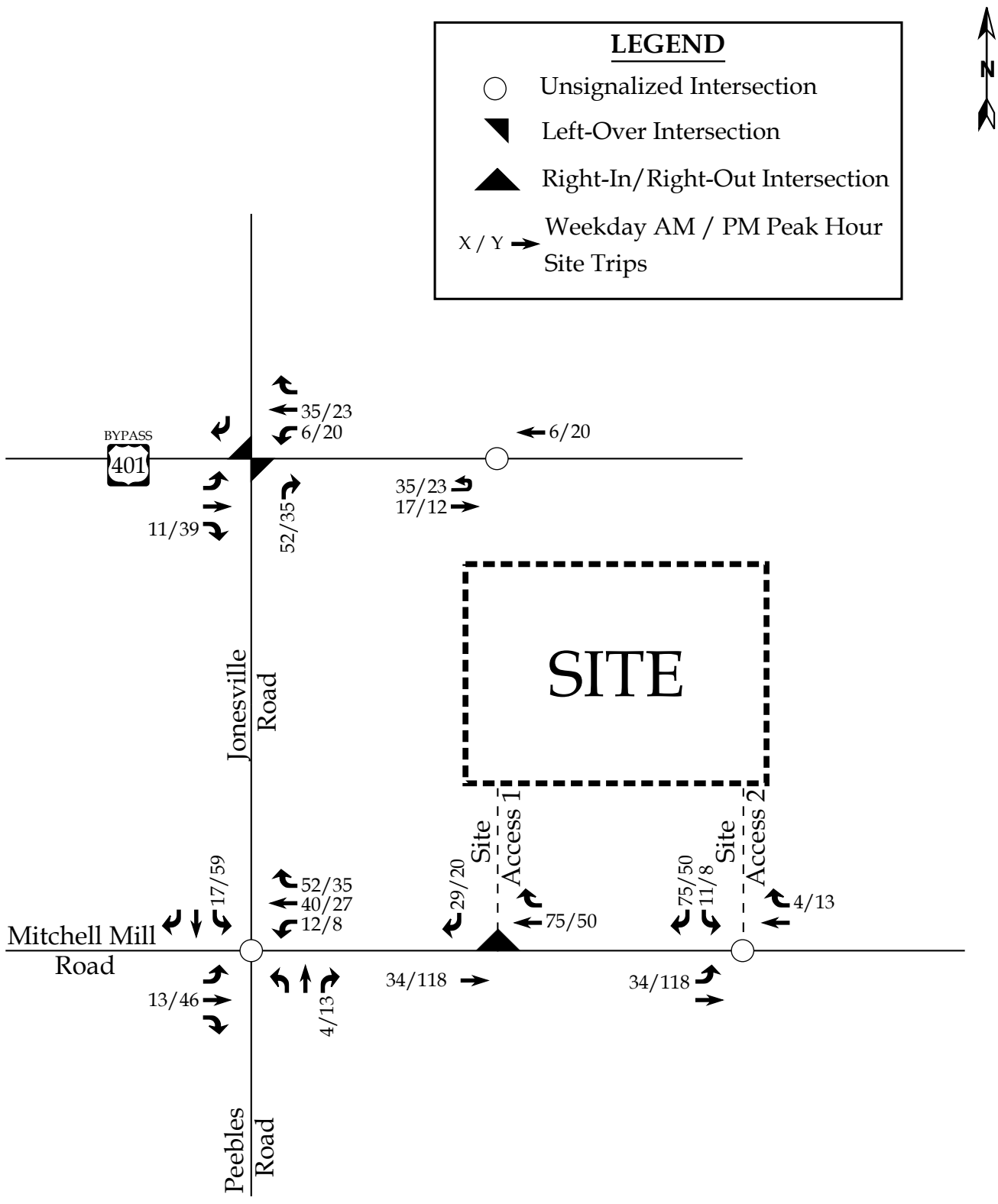


DRMP

Hills at Harris Creek
Rolesville, NC

Site Trip Distribution

Scale: Not to Scale



DRMP	Hills at Harris Creek Rolesville, NC	Site Trip Assignment
		Scale: Not to Scale

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

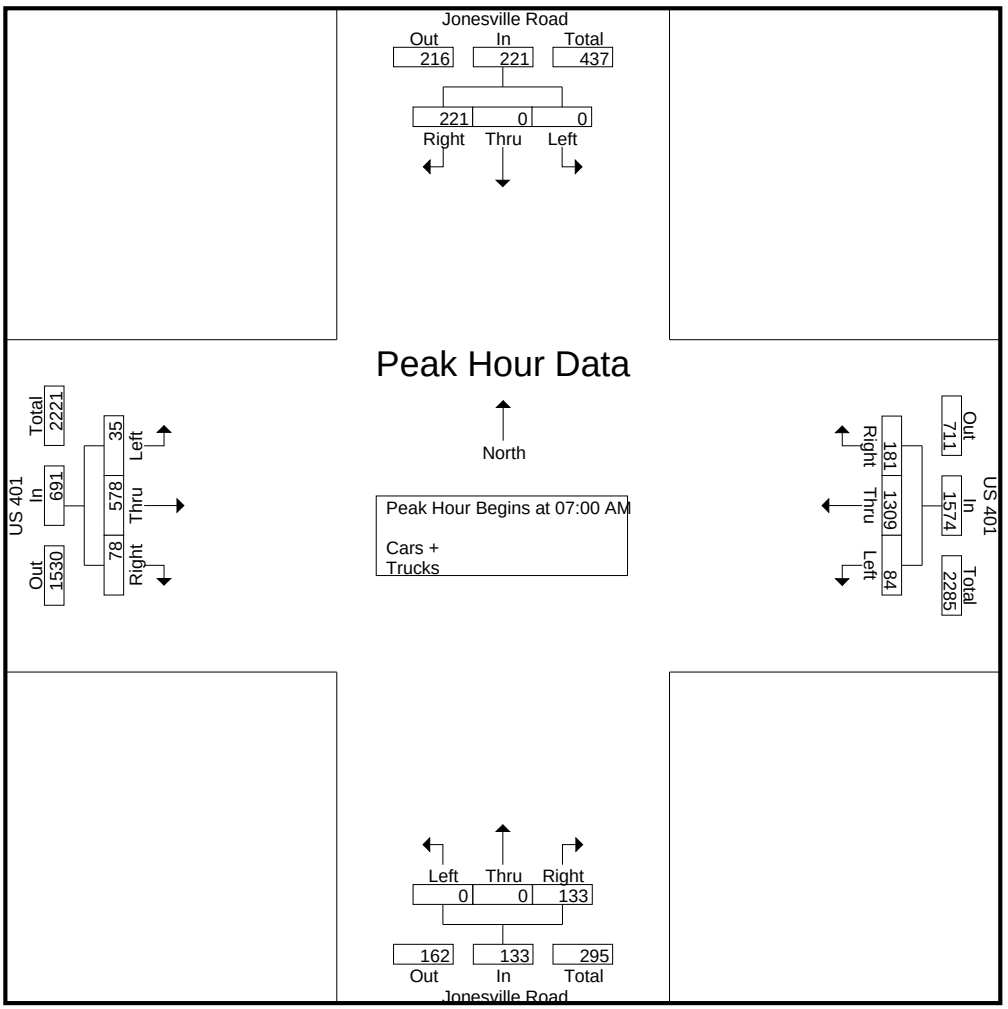
Groups Printed- Cars + - Trucks

	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
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

	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 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



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

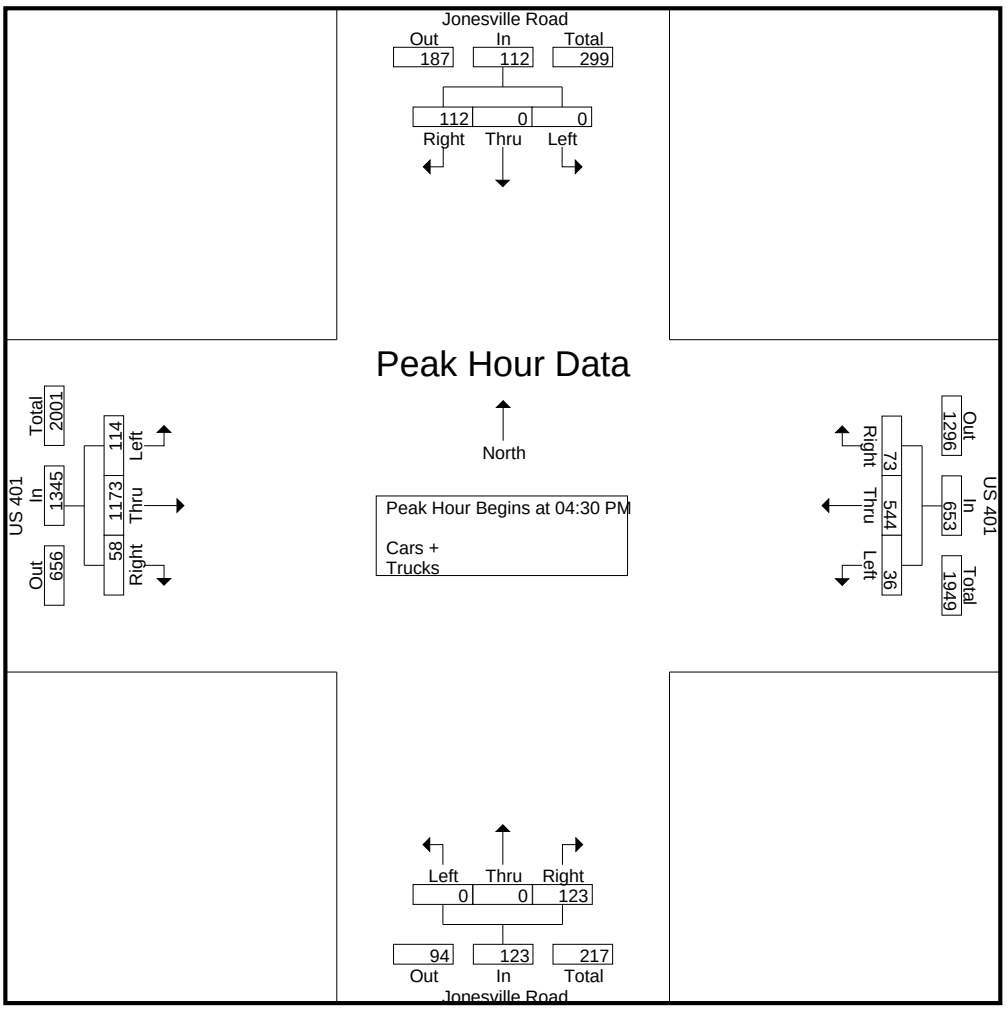
Groups Printed- Cars + - Trucks

	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
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

	Jonesville Road Southbound				US 401 Westbound				Jonesville Road Northbound				US 401 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
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



TRAFFIC DATA COLLECTION

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

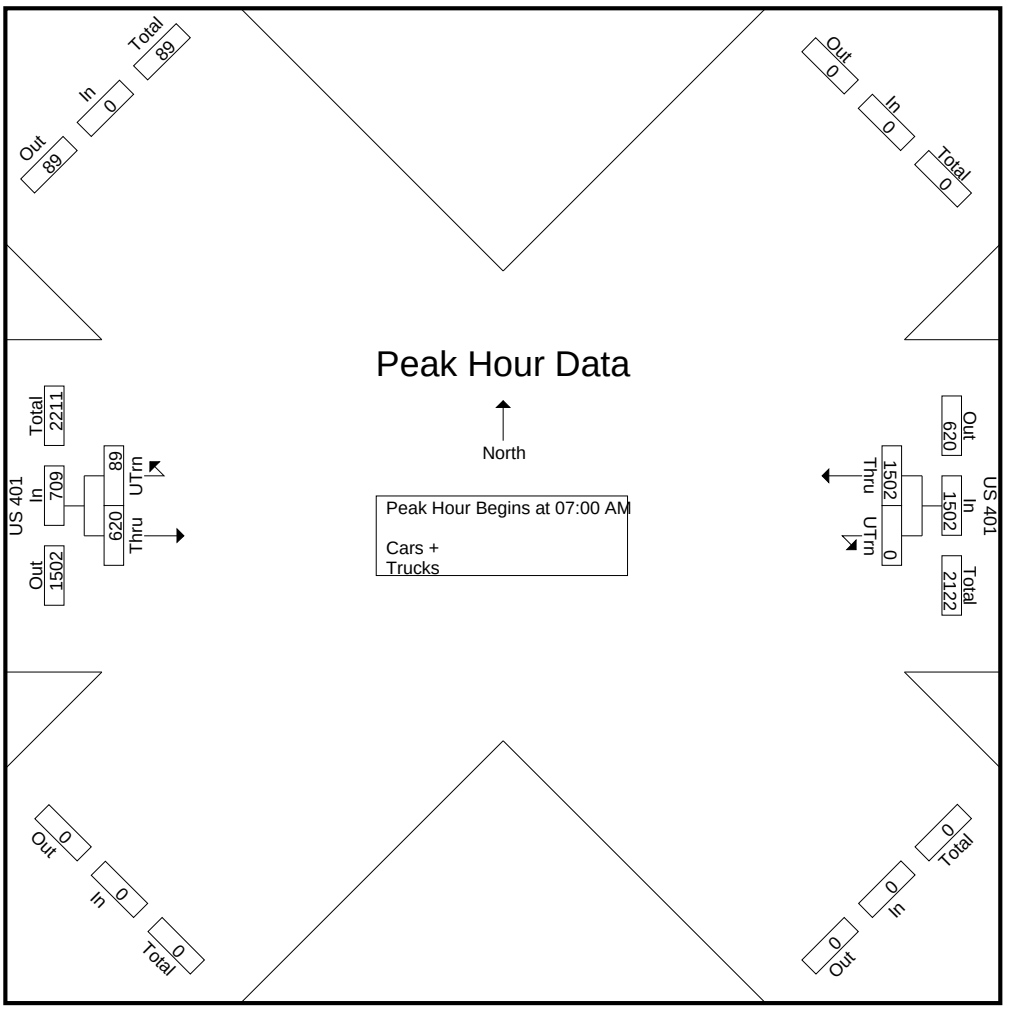
Groups Printed- Cars + - Trucks

	US 401 Westbound			US 401 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. 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

	US 401 Westbound			US 401 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. 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



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

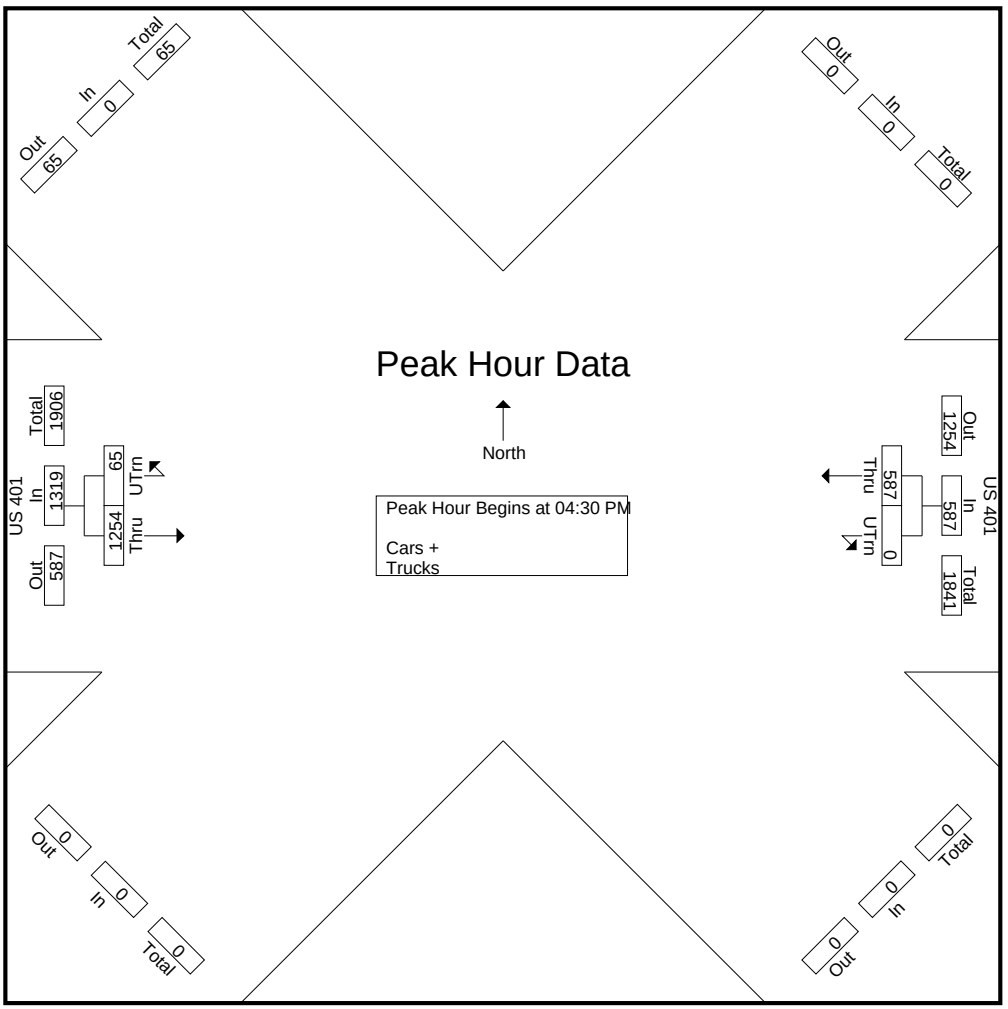
Groups Printed- Cars + - Trucks

	US 401 Westbound			US 401 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. 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

	US 401 Westbound			US 401 Eastbound			
Start Time	Thru	UTrn	App. Total	Thru	UTrn	App. Total	Int. 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

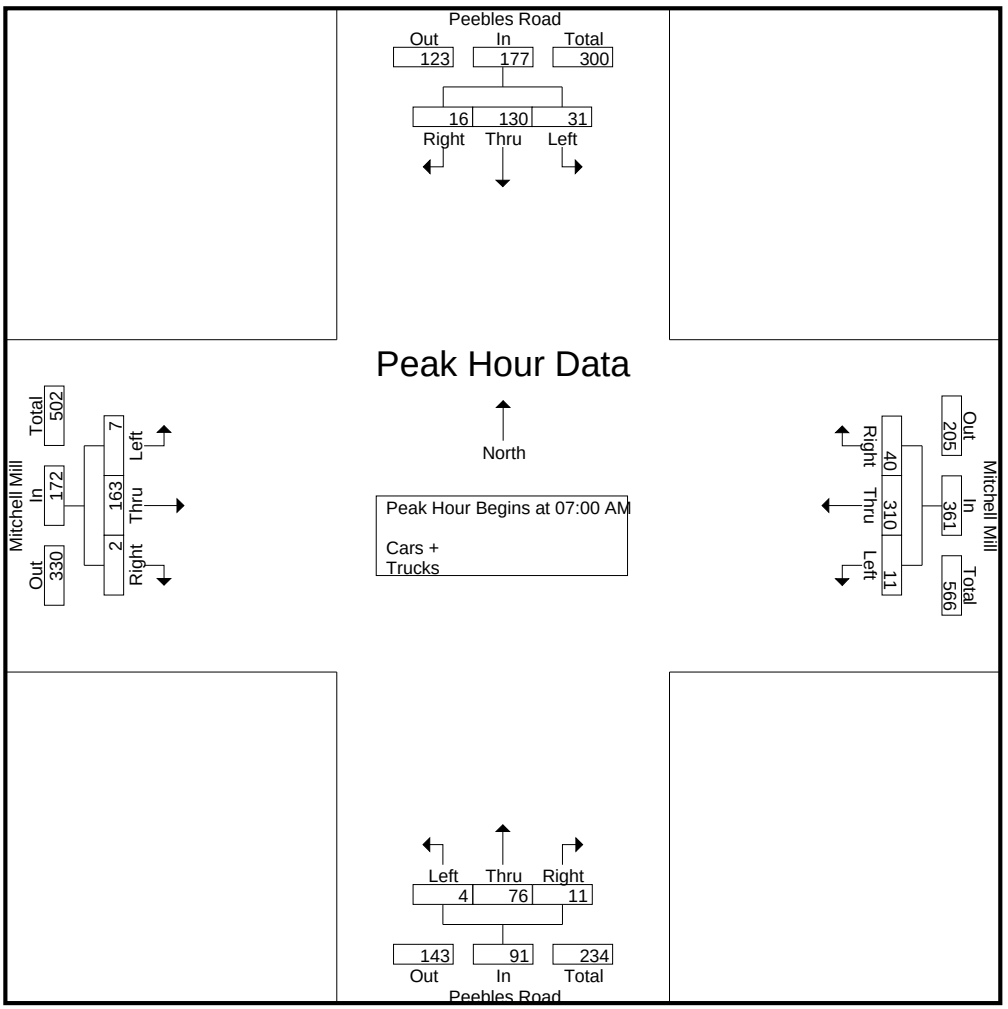
Groups Printed- Cars + - Trucks

	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
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

	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 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



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

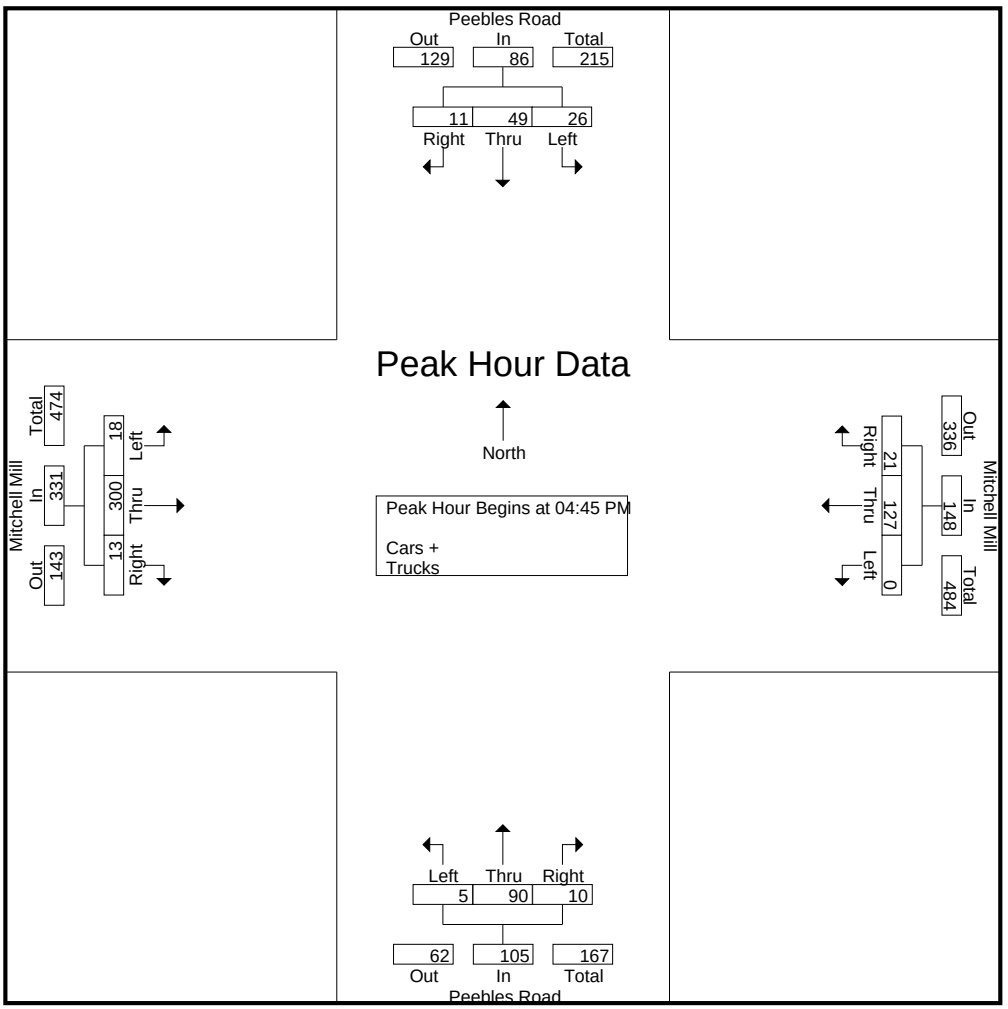
Groups Printed- Cars + - Trucks

	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
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

	Peebles Road Southbound				Mitchell Mill Westbound				Peebles Road Northbound				Mitchell Mill Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 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

3-15-2021

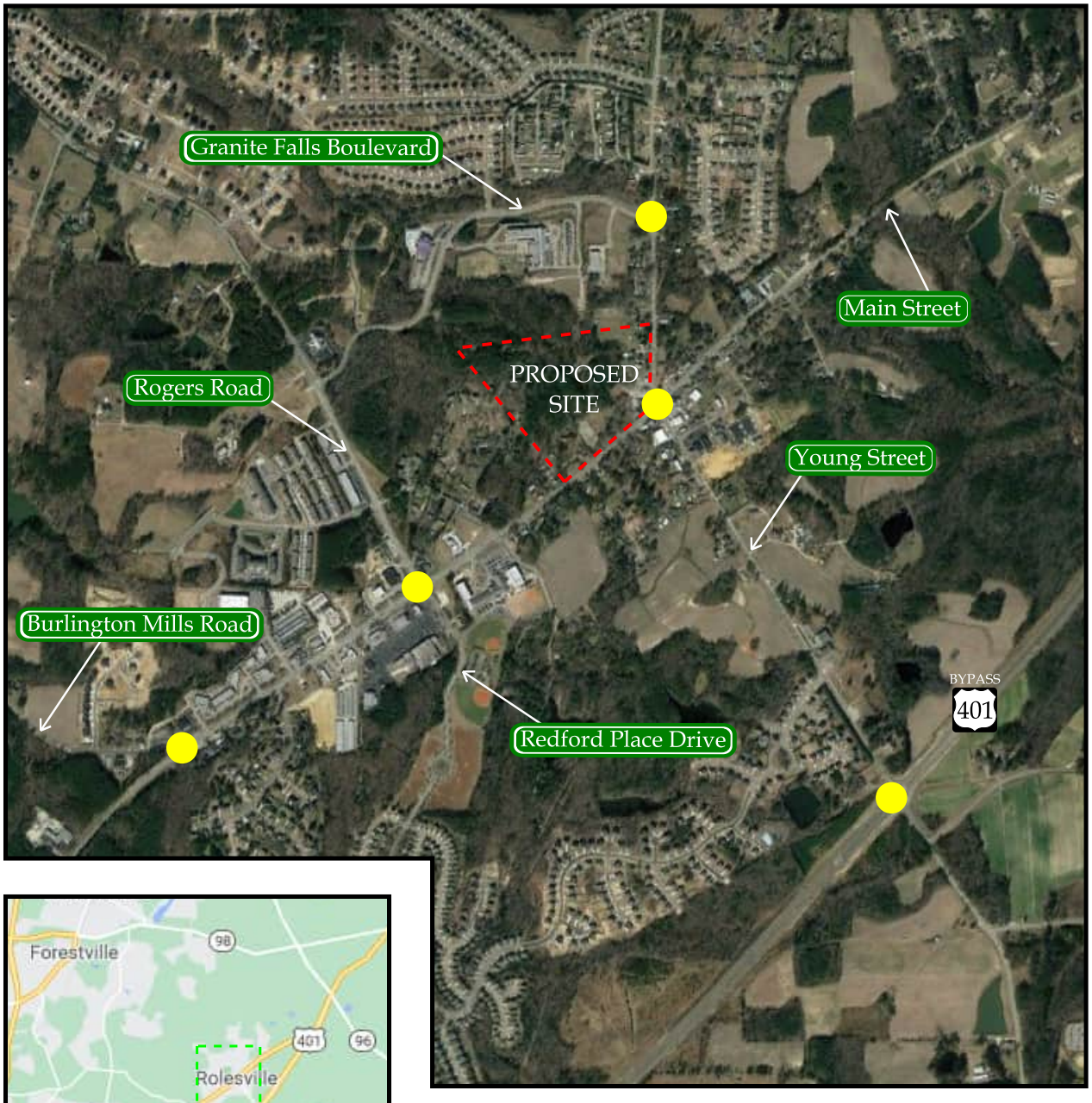
Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

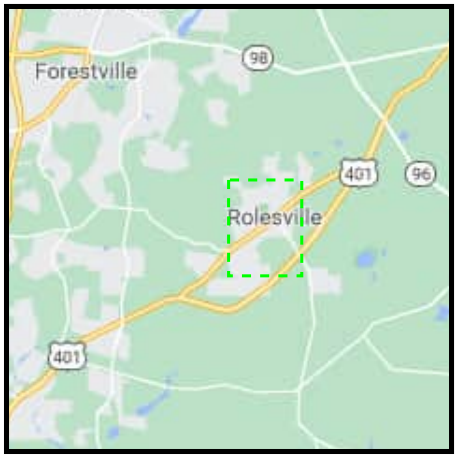
MARCH 2021

RKA Project No. 20498

Prepared By: TF

Reviewed By: MK



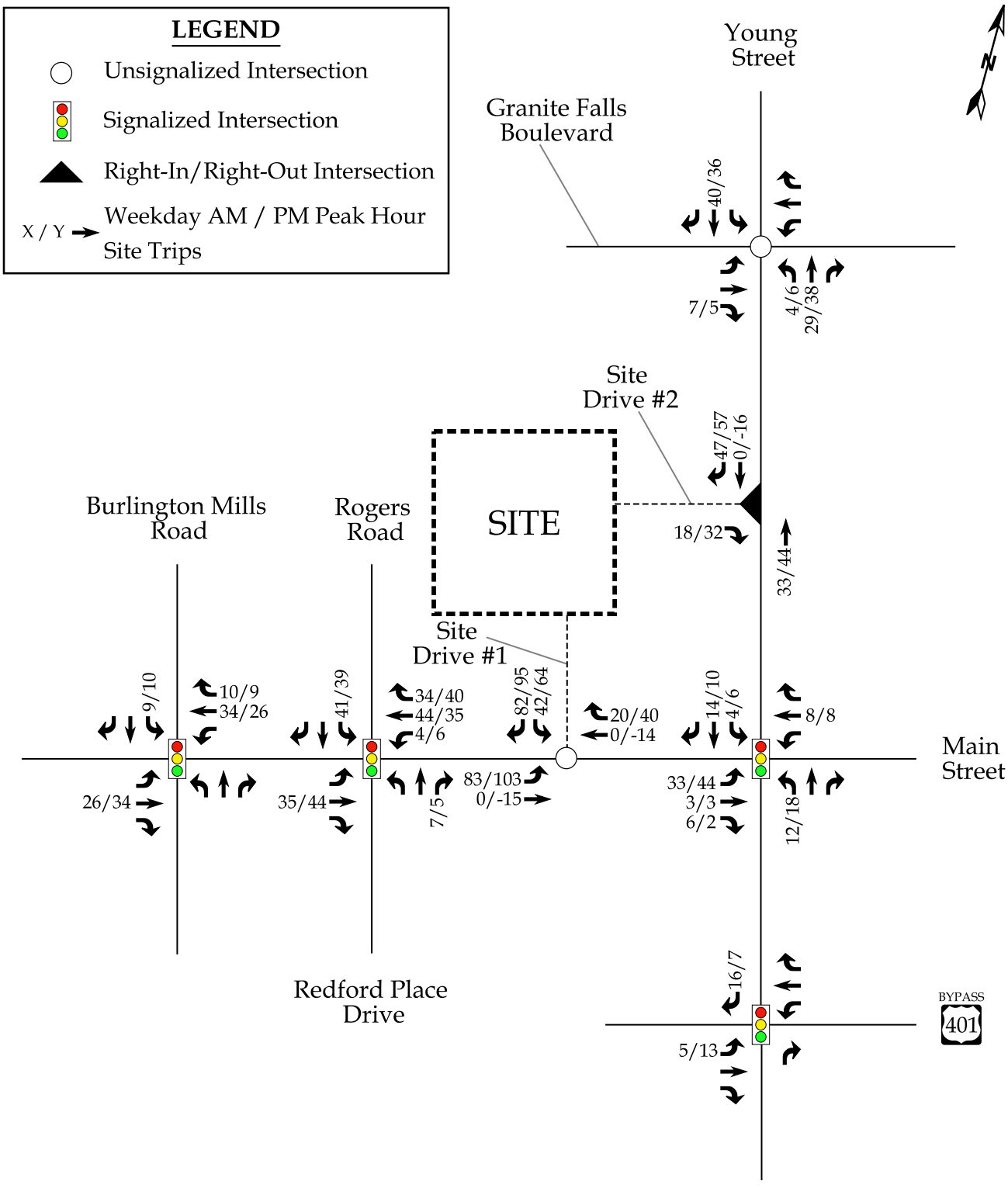


N

LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

Moving forward. RKA RAMEY KEMP ASSOCIATES	Cobblestone Crossing Mixed-Use Rolesville, NC	Site Location Map
		Scale: Not to Scale | Figure 1



Moving forward. RKA 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.

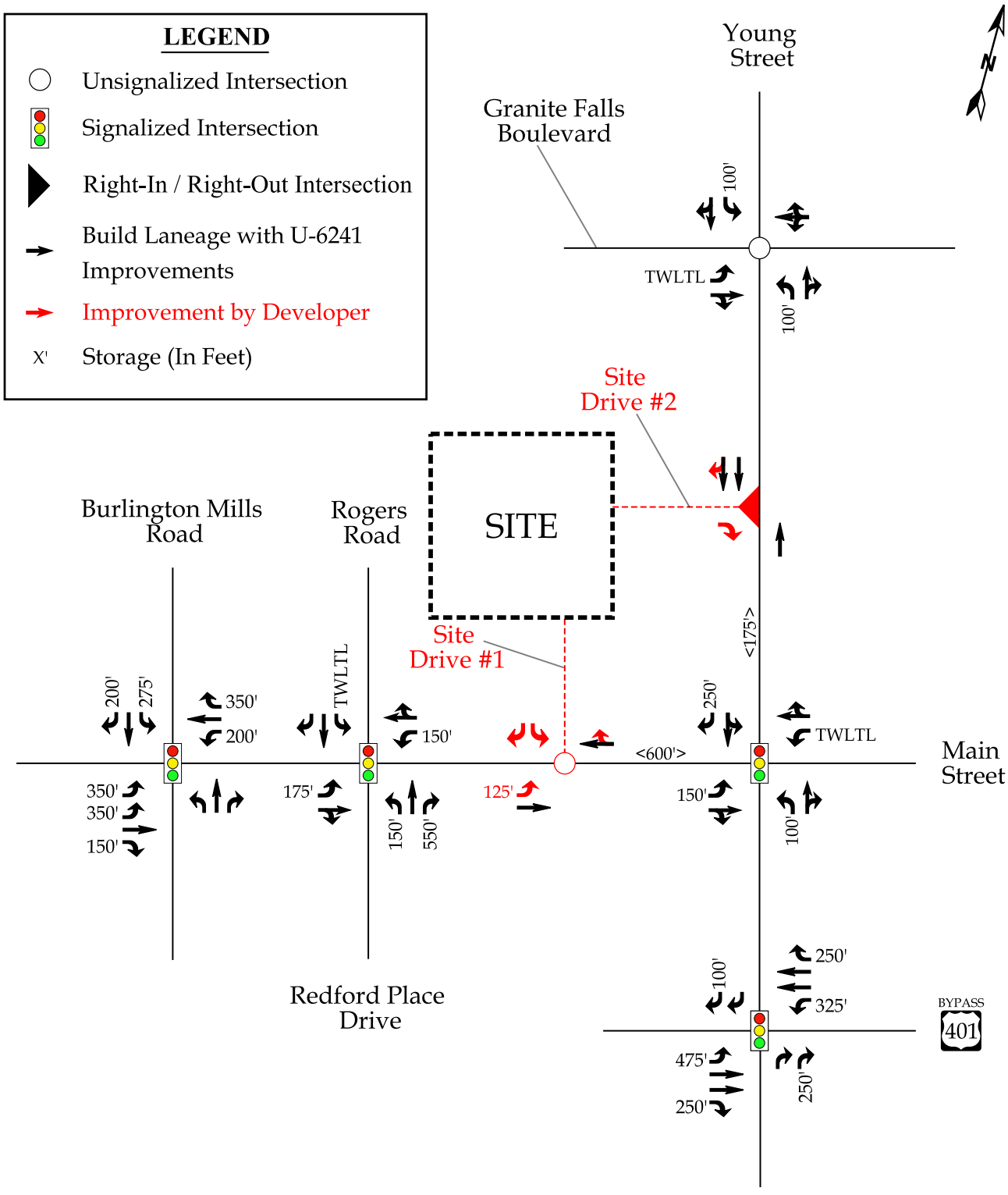
Recommended Improvements by Developer

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.



Moving forward. RKA RAMEY KEMP ASSOCIATES	Cobblestone Crossing Mixed-Use Rolesville, NC	Recommended Lane Configurations Scale: Not to Scale | Figure 14

Revised Traffic Impact Analysis for

Young Street PUD

Rolesville, North Carolina

Prepared for:

Ashton Woods
Raleigh, North Carolina

Prepared by:

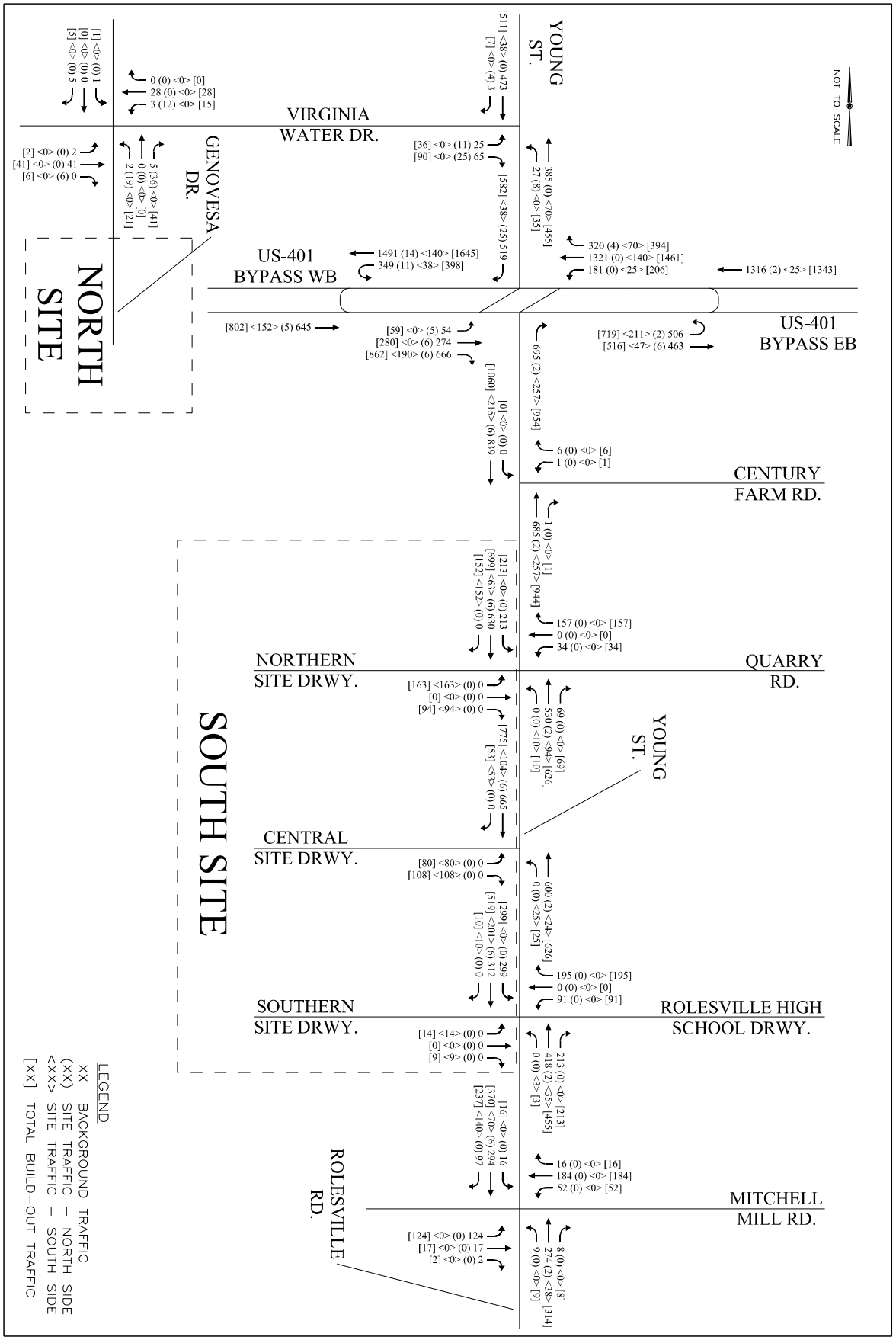
Kimley-Horn and Associates, Inc.
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

June 2019

015956012

6/13/2019

Kimley»Horn	YOUNG STREET PUD ROLESVILLE, NC TRAFFIC IMPACT ANALYSIS	SITE LOCATION	FIGURE 1

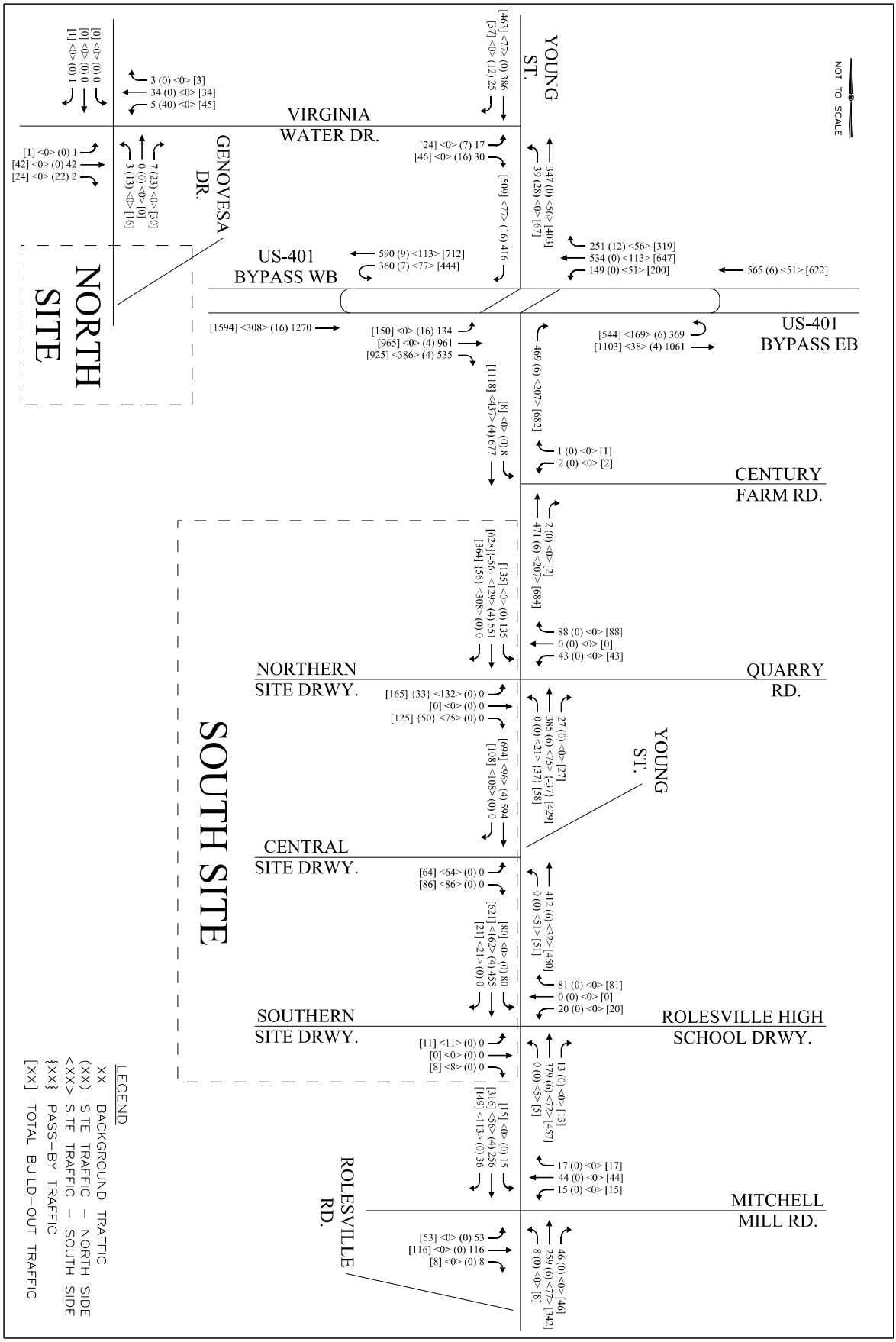


Kimley»Horn

YOUNG STREET PUD
ROLESVILLE, NC
TRAFFIC IMPACT ANALYSIS

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

FIGURE
14



Kimley»Horn	YOUNG STREET PUD ROLESVILLE, NC TRAFFIC IMPACT ANALYSIS	PROJECTED (2025) BUILD-OUT PM PEAK HOUR TRAFFIC VOLUMES - COMMERCIAL BUILD-OUT	FIGURE 16

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:

<u>US 401 Bypass Eastbound at Young Street:</u>

- 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

<u>Young Street at Quarry Road/North Site Driveway:</u>

- 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

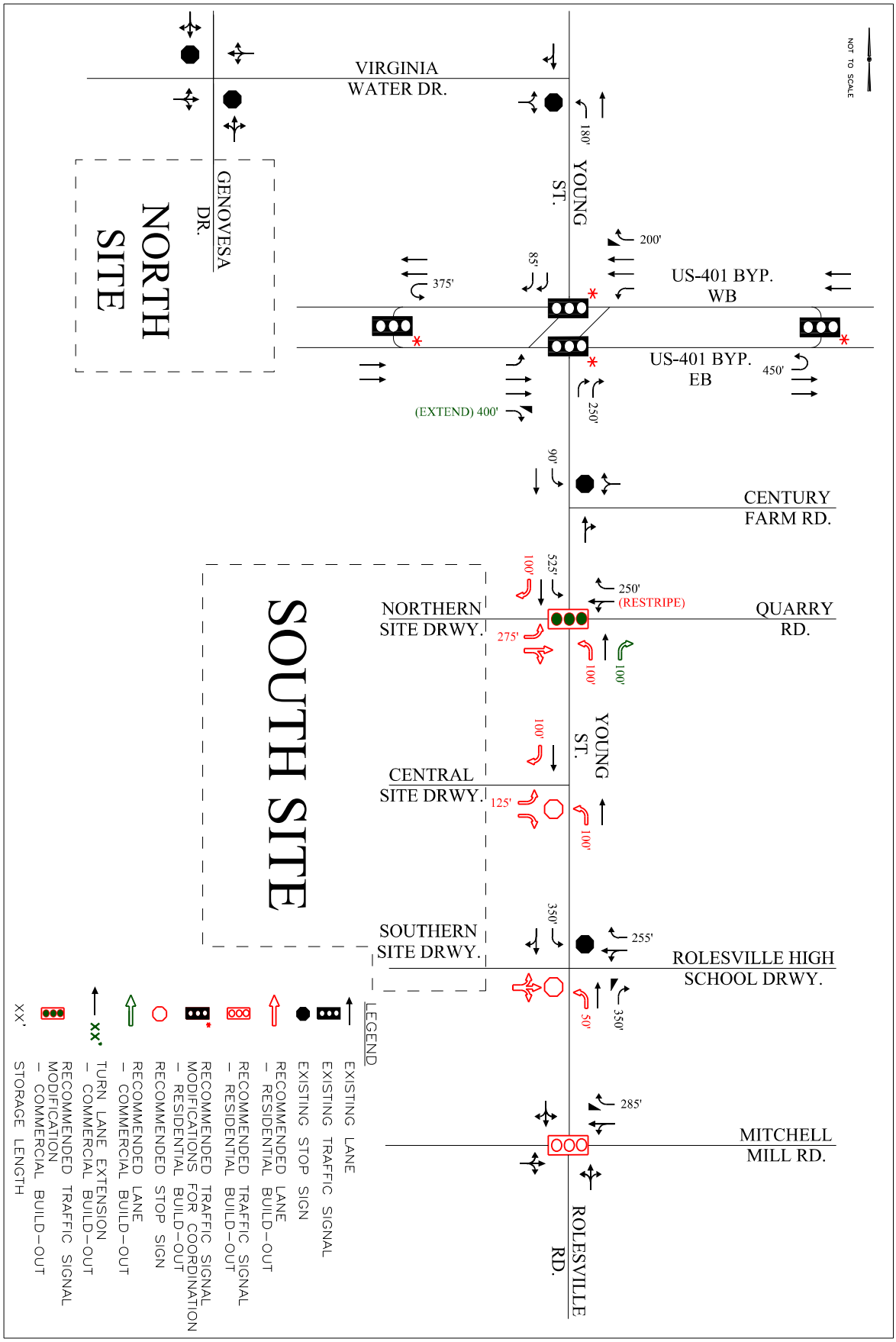
traffic simulations indicate that short queues are likely on the minor street approach in the AM peak hour at commercial build-out.

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**.



Kimley»Horn	YOUNG STREET PUD ROLESVILLE, NC TRAFFIC IMPACT ANALYSIS	RECOMMENDED ROADWAY LANEAGE	FIGURE 17

TRAFFIC IMPACT ANALYSIS

FOR

WHEELER TRACT

LOCATED

IN

ROLESVILLE, NC

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

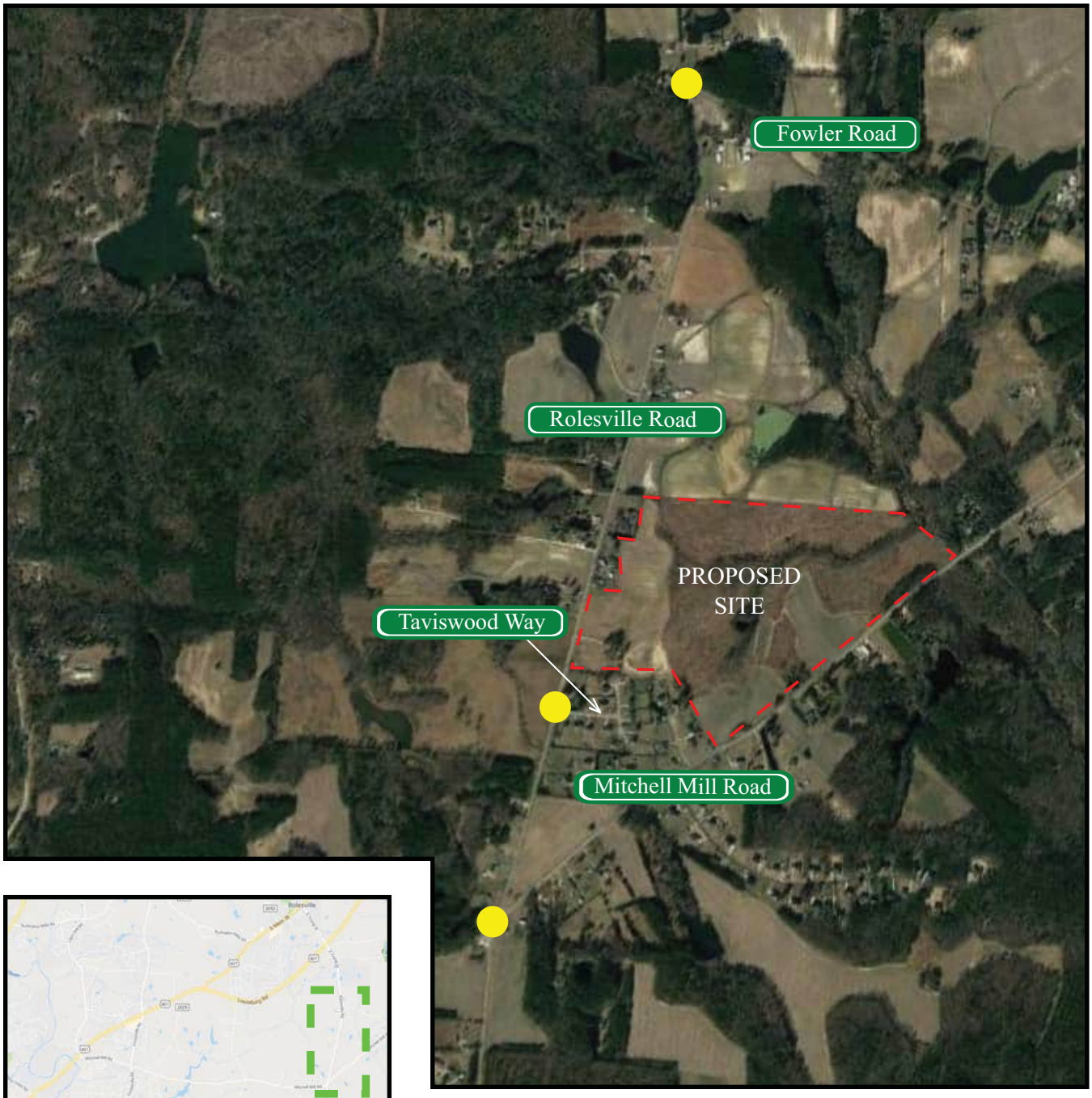
Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

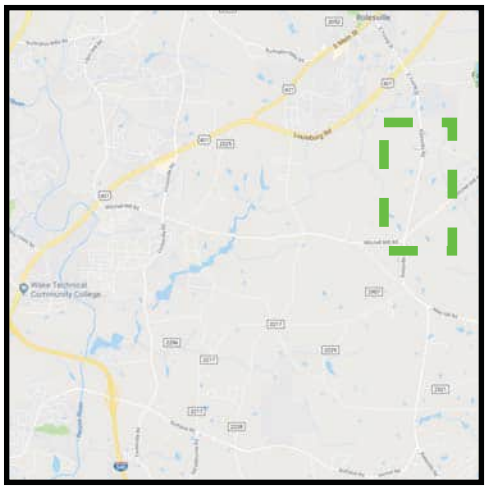
June 2019

RKA Project No. 19045

Prepared By: CAB

Reviewed By: JTR



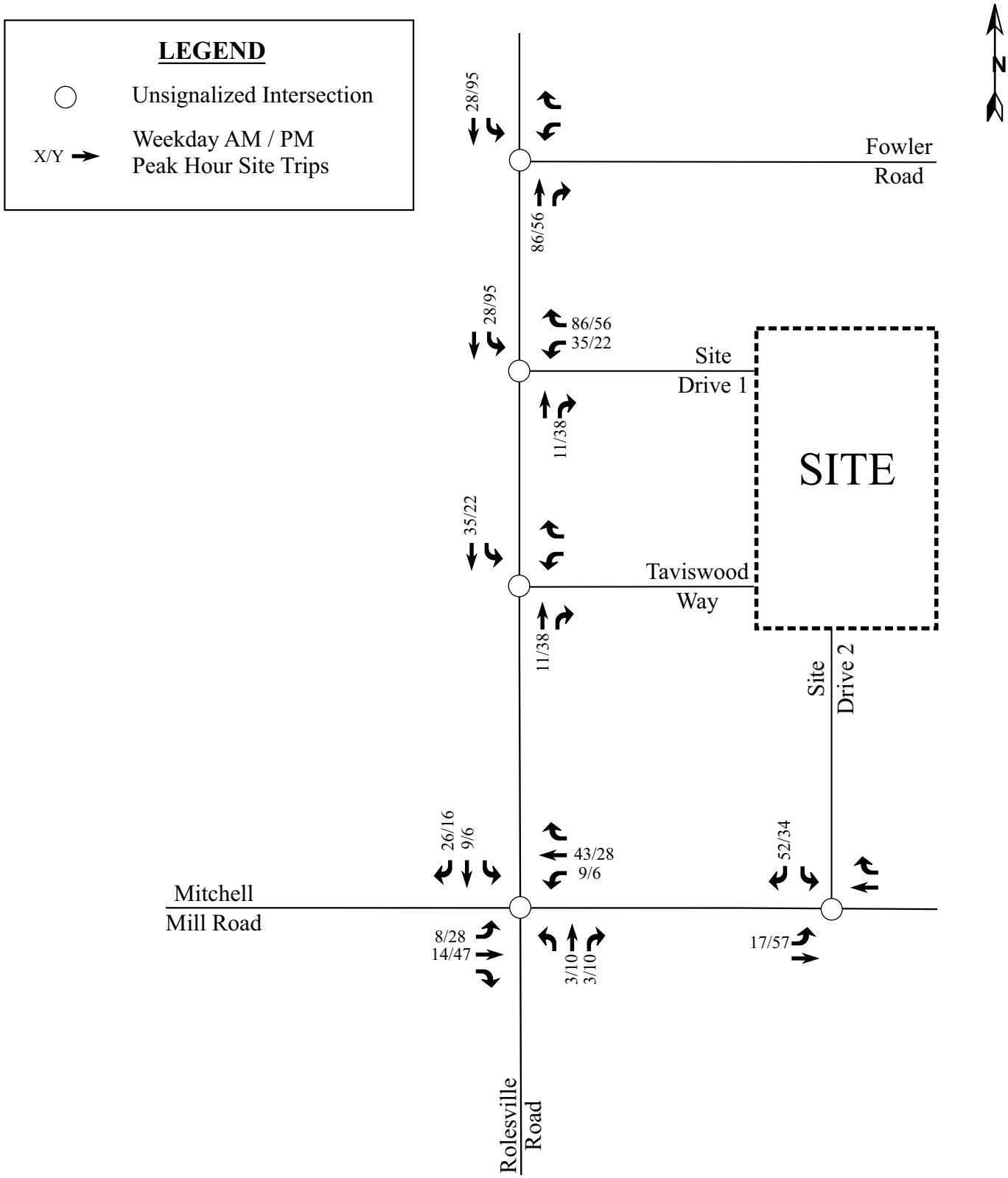


N

LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

RAMEY KEMP & ASSOCIATES TRANSPORTATION ENGINEERS	Wheeler Tract Rolesville, NC	Site Location Map Scale: Not to Scale — Figure 1



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

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

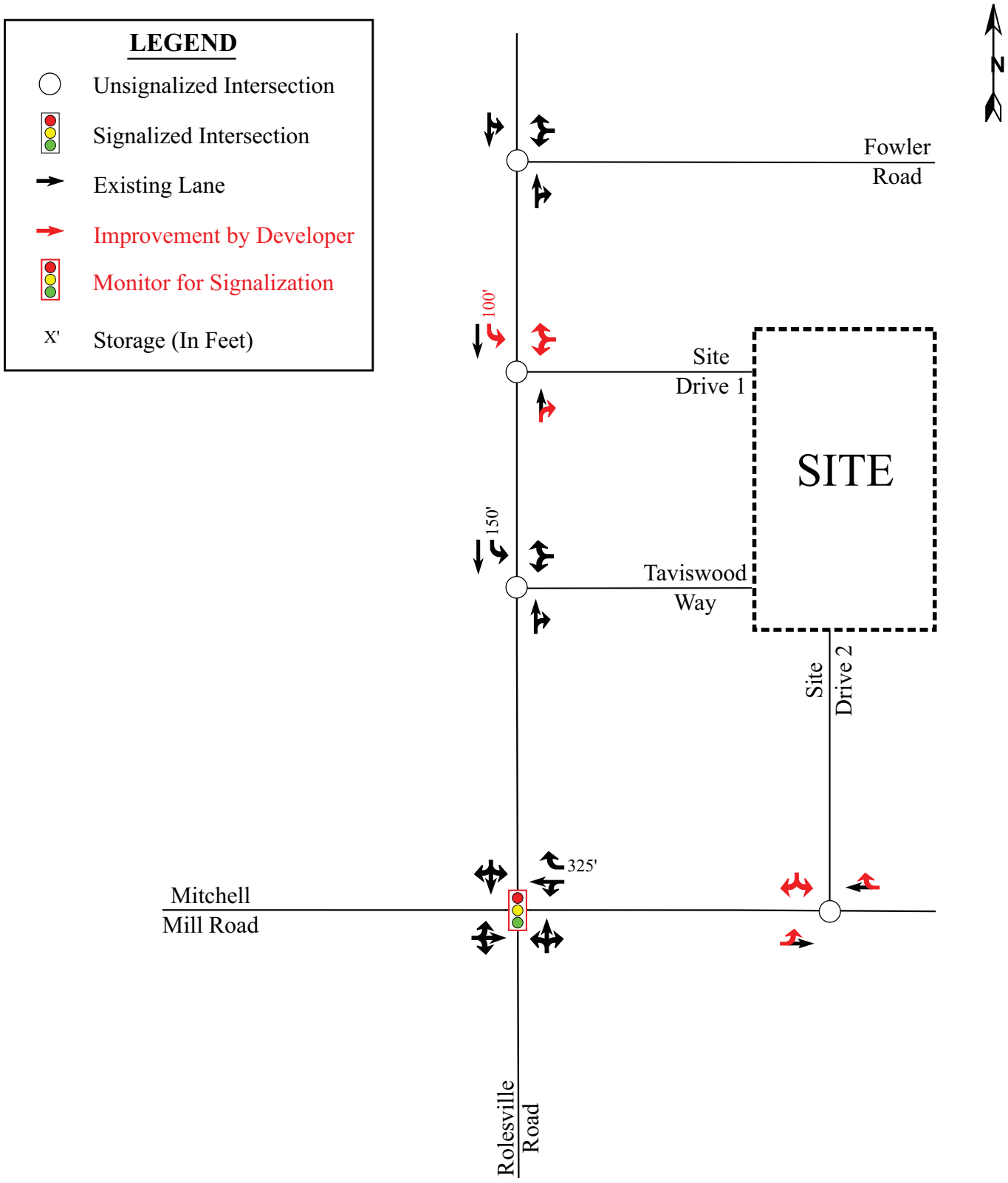
- Monitor intersection for signalization.

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.



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wheeler Tract
Rolesville, NC

Recommended Lane Configurations

Scale: Not to Scale

Figure 11

TRAFFIC IMPACT ANALYSIS

FOR

LOUISBURY ROAD ASSEMBLAGE

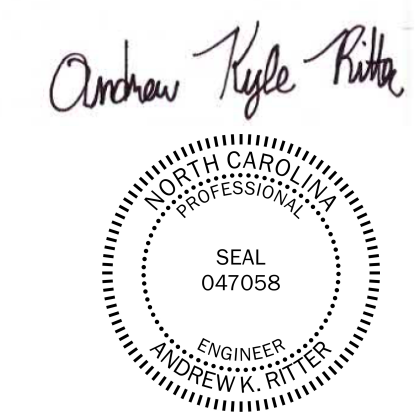
LOCATED

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



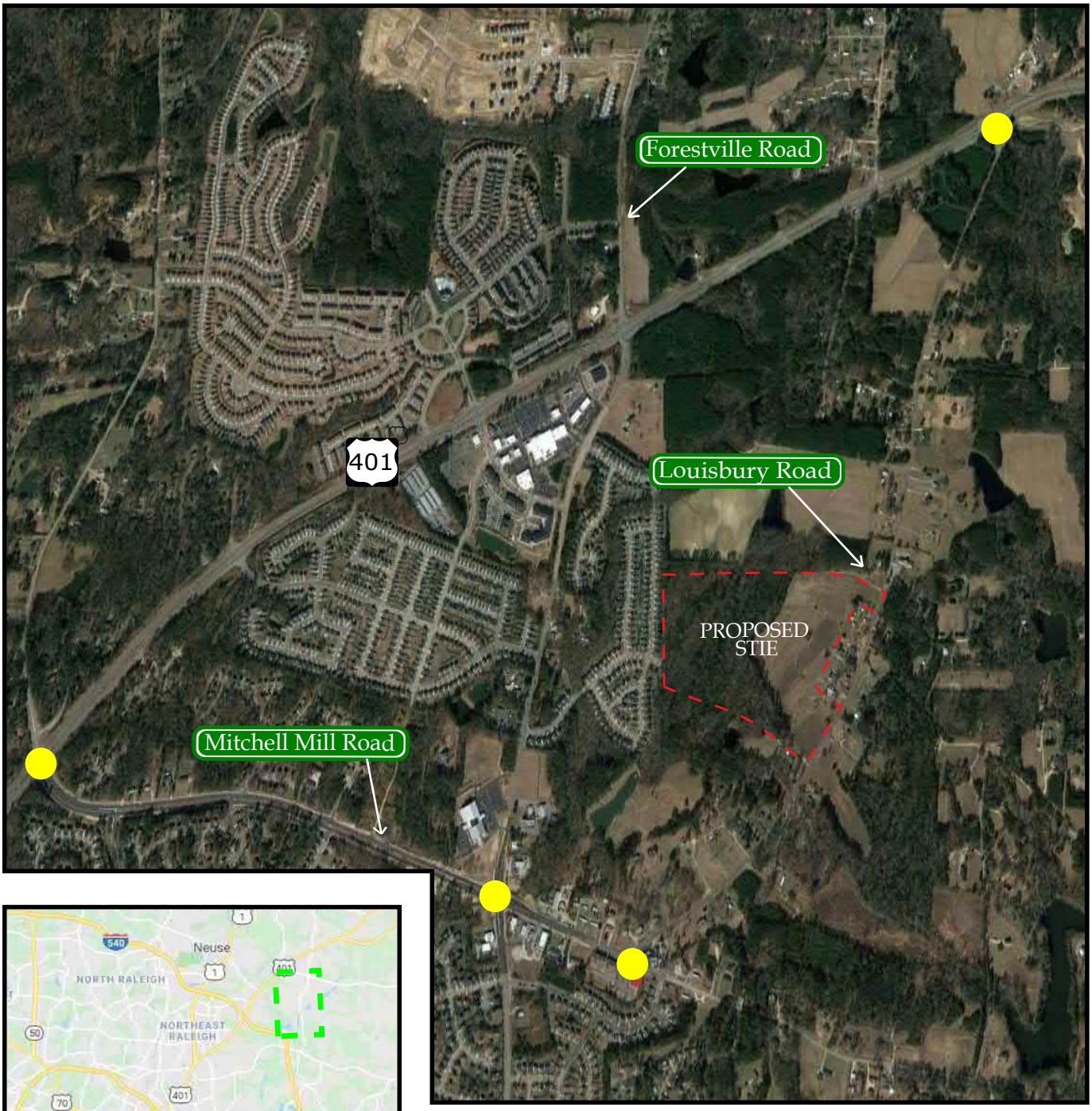
5/8/2020

May 2020

RKA Project No. 19418

Prepared By: DT

Reviewed By: DR



N

LEGEND

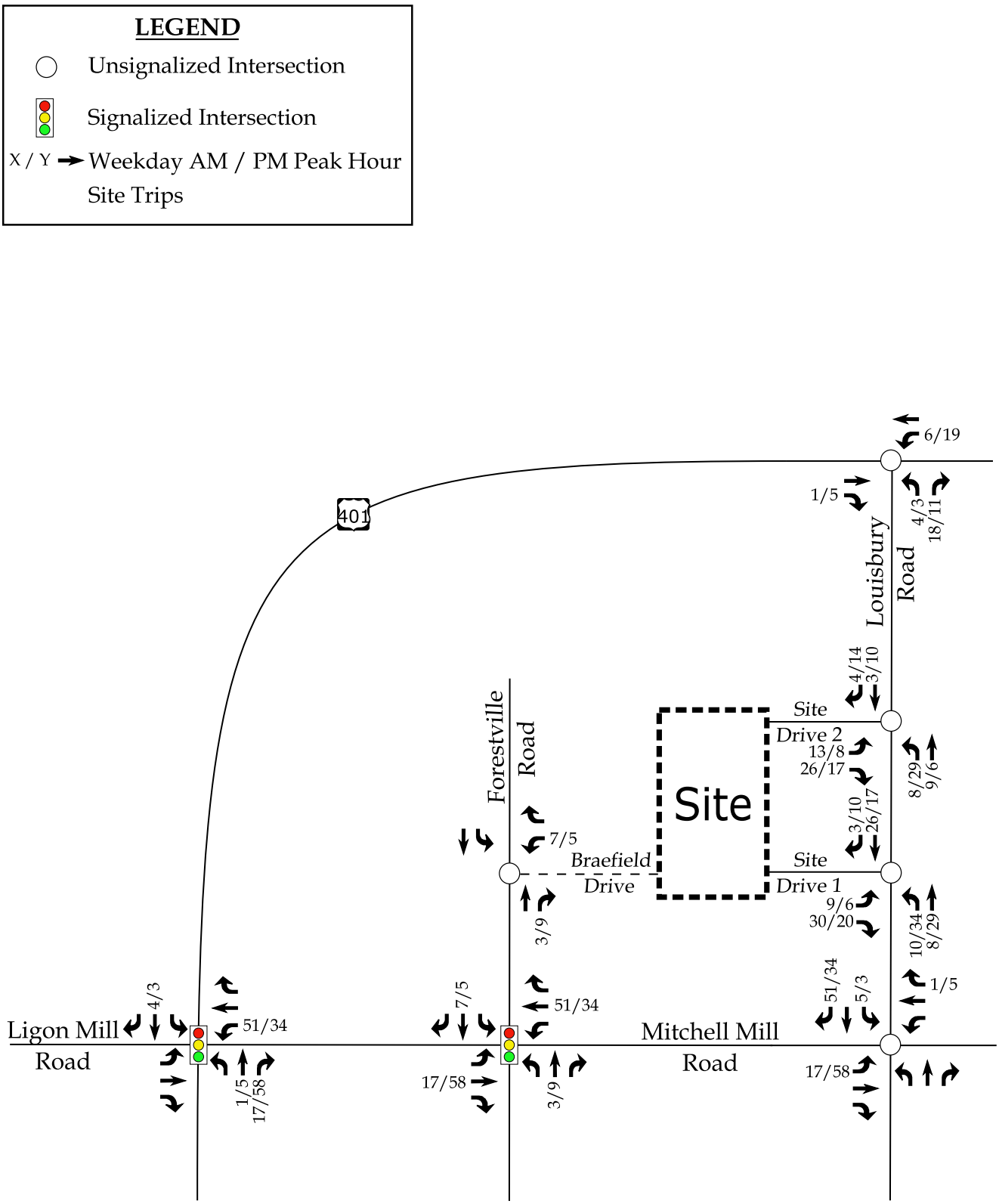
- Proposed Site Location
- Study Intersection
- Study Area

Moving forward.

RKA

RAMEY KEMP ASSOCIATES

Louisbury Road Assemblage Raleigh, NC	Site Location Map	
	Scale: Not to Scale	Figure 1



Moving forward. RKA RAMEY KEMP ASSOCIATES	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.

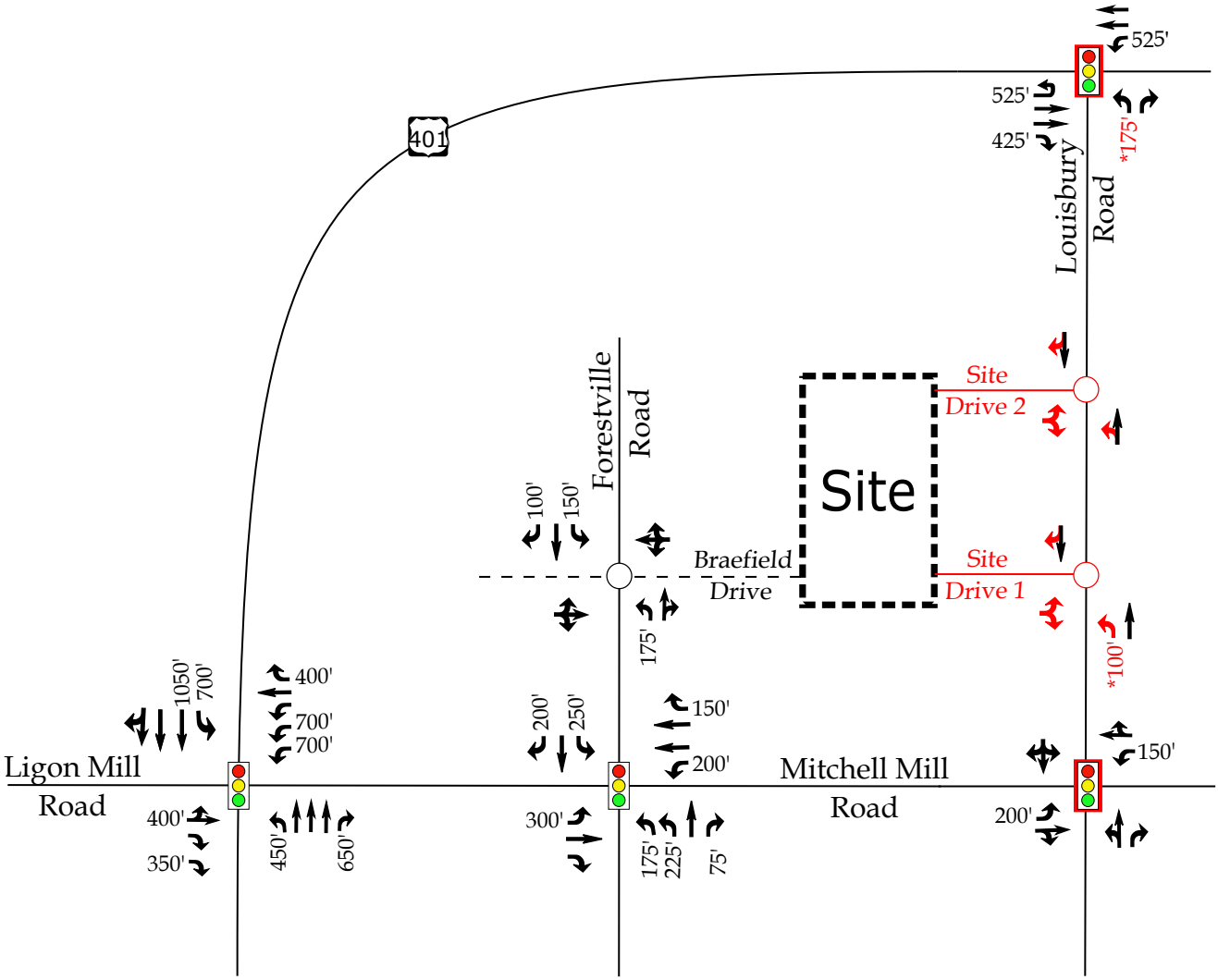
Louisbury Road and Site Drive 2

- 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
- Monitor for Signalization at Full Build-Out
- Existing Lane
- Improvement by Developer
- X' Storage (In Feet)

*Based on NCDOT Review



Moving forward. RKA RAMEY KEMP ASSOCIATES	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)

Matt Peach, PE, PTOE

Approved by Christa Greene

(signature)

Christa Greene, PE

NORTH CAROLINA PROFESSIONAL SEAL 039265 ENGINEER MATTHEW D. PEACH

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

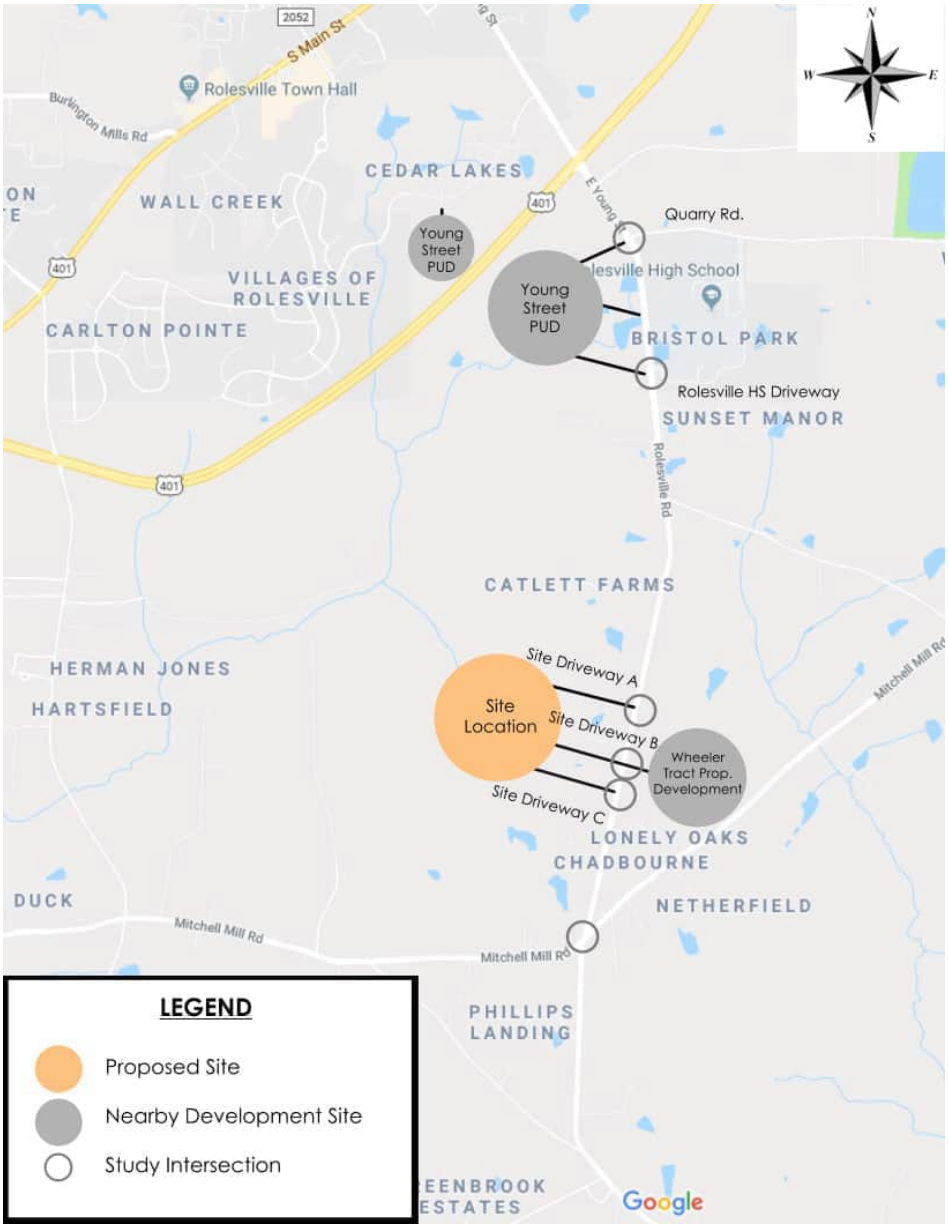
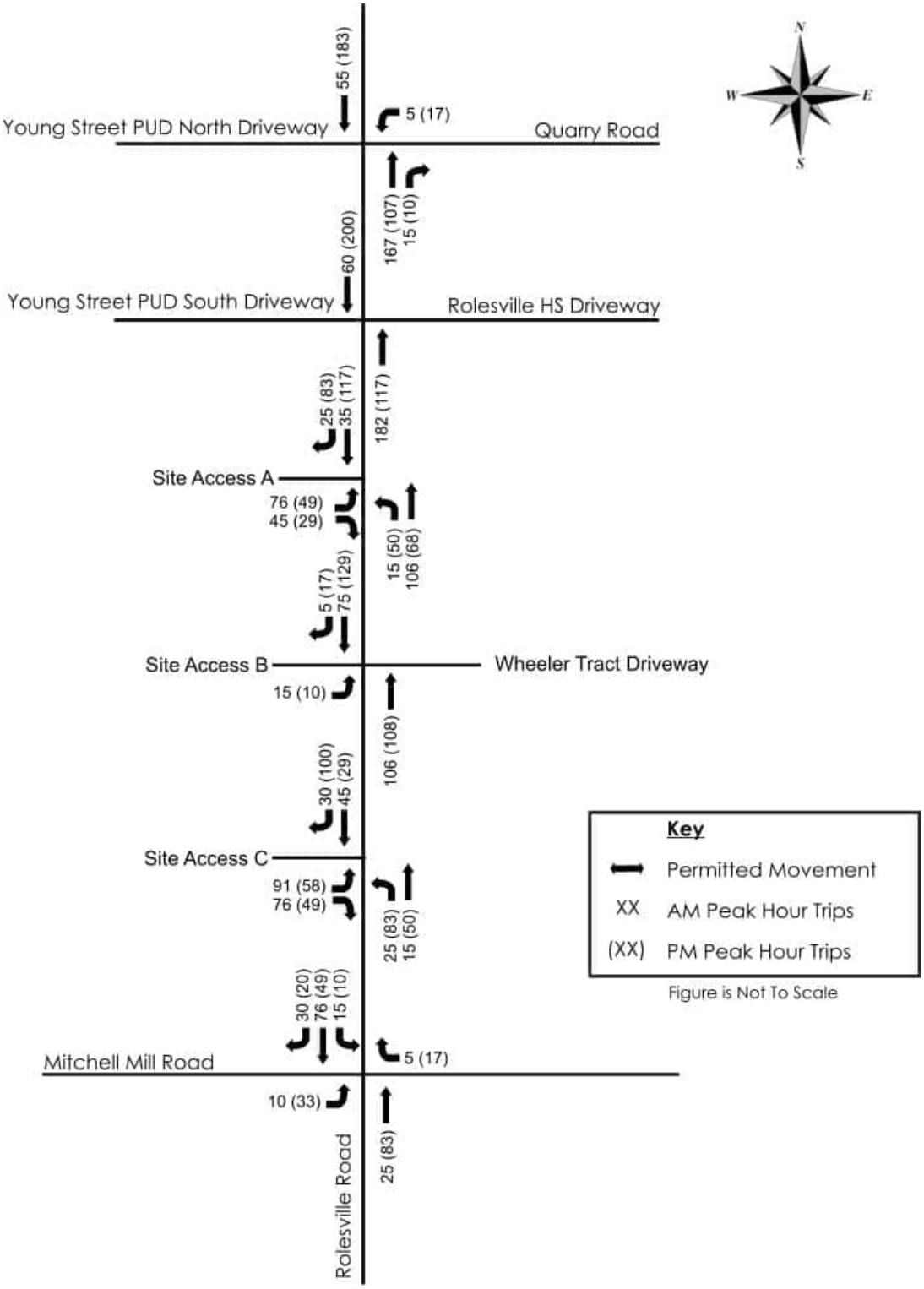


Figure 6: Site Trip Assignment



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:

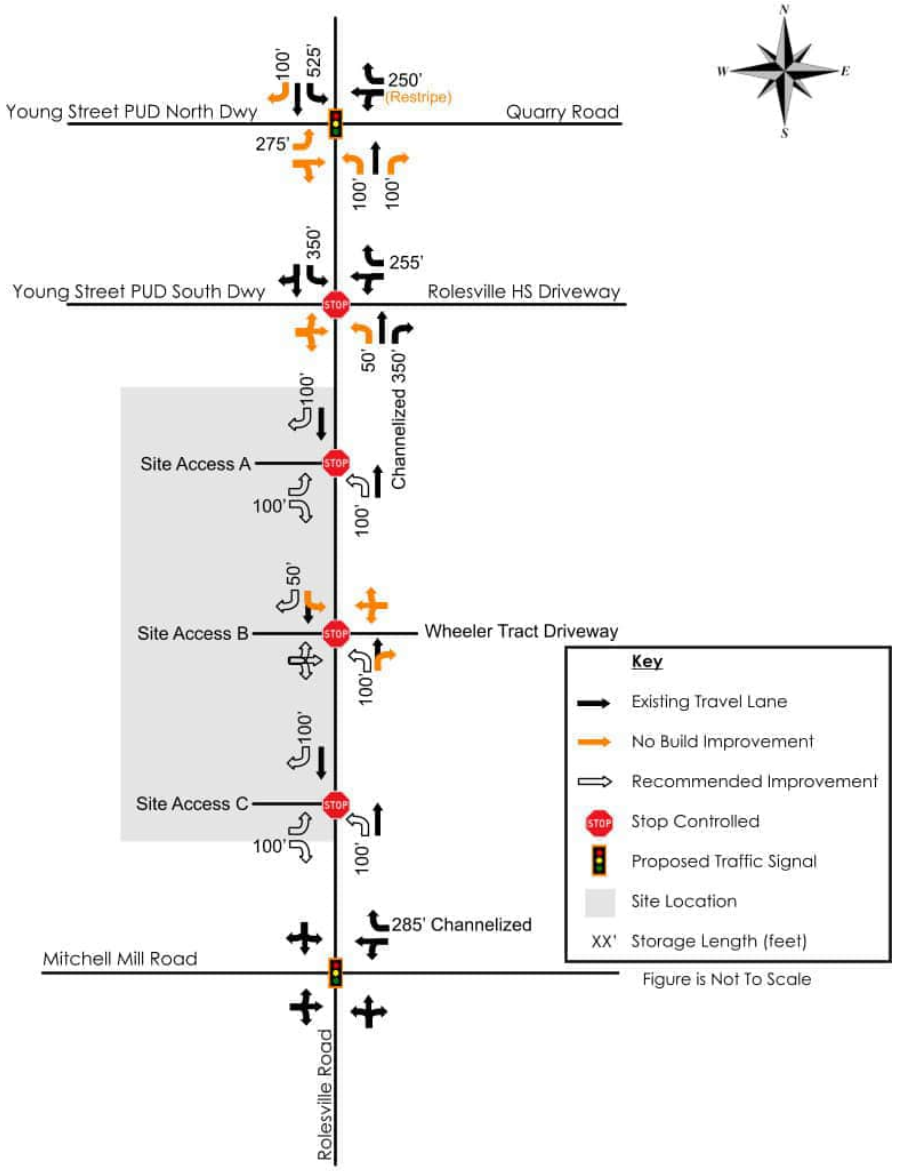
- The east and westbound approaches to the intersection of Rolesville Road at Rolesville High School Driveway / Young Street PUD Southern Driveway operates at LOS F in the AM peak hour. This causes high overall delays at the intersection. Furthermore, the eastbound approach operates at LOS F and westbound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

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



APPENDIX D

CAPACITY ANALYSIS CALCULATIONS

US 401 BYPASS

&

JONESVILLE ROAD

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	-	-	16983	-	-	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	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	873	88	0	0	0	0	0	150	0	95	0
Future Vol, veh/h	0	873	88	0	0	0	0	0	150	0	95	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	-	-	16983	-	-	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	970	98	0	0	0	0	0	167	0	106	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	485	-	970	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	970	-
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	528	0	252	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	330	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	528	-	252	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	252	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	330	-

Approach	EB	NB	SB
HCM Control Delay, s	0	14.9	29.2
HCM LOS		B	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	528	-	-	252
HCM Lane V/C Ratio	0.316	-	-	0.419
HCM Control Delay (s)	14.9	-	-	29.2
HCM Lane LOS	B	-	-	D
HCM 95th %tile Q(veh)	1.3	-	-	2

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	873	99	0	0	0	0	0	202	0	101	0
Future Vol, veh/h	0	873	99	0	0	0	0	0	202	0	101	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	970	110	0	0	0	0	0	224	0	112	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	485	-	970	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	970	-
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	528	0	252	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	330	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	528	-	252	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	252	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	330	-

Approach	EB	NB	SB
HCM Control Delay, s	0	16.8	30.3
HCM LOS		C	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	528	-	-	252
HCM Lane V/C Ratio	0.425	-	-	0.445
HCM Control Delay (s)	16.8	-	-	30.3
HCM Lane LOS	C	-	-	D
HCM 95th %tile Q(veh)	2.1	-	-	2.1

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	-	-	16983	-	-	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	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↑	
Traffic Vol, veh/h	0	1835	65	0	0	0	0	0	138	0	41	0
Future Vol, veh/h	0	1835	65	0	0	0	0	0	138	0	41	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	-	-	16983	-	-	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	2039	72	0	0	0	0	0	153	0	46	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	1020	-	2039	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	2039	-
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	234	0	56	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	99	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	234	-	56	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	56	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	99	-

Approach	EB	NB	SB
HCM Control Delay, s	0	45.5	186.4
HCM LOS		E	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	234	-	-	56
HCM Lane V/C Ratio	0.655	-	-	0.813
HCM Control Delay (s)	45.5	-	-	186.4
HCM Lane LOS	E	-	-	F
HCM 95th %tile Q(veh)	4.1	-	-	3.5

Intersection	
Int Delay, s/veh	13.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↑	
Traffic Vol, veh/h	0	1835	104	0	0	0	0	0	173	0	61	0
Future Vol, veh/h	0	1835	104	0	0	0	0	0	173	0	61	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	2039	116	0	0	0	0	0	192	0	68	0

Major/Minor	Major1			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	1020	-	2039	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	2039	-
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	234	0	~ 56	0
Stage 1	0	-	-	0	0	-	0	-	0
Stage 2	0	-	-	0	0	-	0	99	0
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	234	-	~ 56	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 56	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	99	-

Approach	EB	NB	SB
HCM Control Delay, s	0	65.7	$ 309.6
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	234	-	-	56
HCM Lane V/C Ratio	0.821	-	-	1.21
HCM Control Delay (s)	65.7	-	-	$ 309.6
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	6.3	-	-	5.8

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

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, #	-	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	0	0	0	1502	206	0	40	0	0	0	250

Major/Minor	Major2			Minor1			Minor2			
Conflicting Flow All	-	-	0	-	1708	-	-	-	751	
Stage 1	-	-	-	-	0	-	-	-	-	
Stage 2	-	-	-	-	1708	-	-	-	-	
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-	
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32	
Pot Cap-1 Maneuver	0	-	-	0	90	0	0	0	353	
Stage 1	0	-	-	0	-	0	0	0	-	
Stage 2	0	-	-	0	145	0	0	0	-	
Platoon blocked, %		-	-							
Mov Cap-1 Maneuver	-	-	-	-	90	-	-	-	353	
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

Intersection	
Int Delay, s/veh	20.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	1796	204	0	40	0	0	0	248
Future Vol, veh/h	0	0	0	0	1796	204	0	40	0	0	0	248
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, #	-	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	0	0	0	1996	227	0	44	0	0	0	276

Major/Minor	Major2		Minor1			Minor2			
Conflicting Flow All	-	-	0	-	2223	-	-	-	998
Stage 1	-	-	-	-	0	-	-	-	-
Stage 2	-	-	-	-	2223	-	-	-	-
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	~ 43	0	0	0	~ 242
Stage 1	0	-	-	0	-	0	0	0	-
Stage 2	0	-	-	0	79	0	0	0	-
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	~ 43	-	-	-	~ 242
Mov Cap-2 Maneuver	-	-	-	-	~ 43	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	79	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	293.8	143.8
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	43	-	-	242
HCM Lane V/C Ratio	1.034	-	-	1.139
HCM Control Delay (s)	293.8	-	-	143.8
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	4.2	-	-	12.5

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

Intersection	
Int Delay, s/veh	22.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	1831	204	0	40	0	0	0	248
Future Vol, veh/h	0	0	0	0	1831	204	0	40	0	0	0	248
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	2034	227	0	44	0	0	0	276

Major/Minor	Major2		Minor1			Minor2			
Conflicting Flow All	-	-	0	-	2261	-	-	-	1017
Stage 1	-	-	-	-	0	-	-	-	-
Stage 2	-	-	-	-	2261	-	-	-	-
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	~ 40	0	0	0	~ 235
Stage 1	0	-	-	0	-	0	0	0	-
Stage 2	0	-	-	0	76	0	0	0	-
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	~ 40	-	-	-	~ 235
Mov Cap-2 Maneuver	-	-	-	-	~ 40	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	76	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	$ 333.6	157.1
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	40	-	-	235
HCM Lane V/C Ratio	1.111	-	-	1.173
HCM Control Delay (s)	$ 333.6	-	-	157.1
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	4.4	-	-	13

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

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, #	-	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	0	0	0	617	82	0	129	0	0	0	127

Major/Minor	Major2			Minor1			Minor2			
Conflicting Flow All	-	-	0	-	699	-	-	-	309	
Stage 1	-	-	-	-	0	-	-	-	-	
Stage 2	-	-	-	-	699	-	-	-	-	
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-	
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32	
Pot Cap-1 Maneuver	0	-	-	0	362	0	0	0	687	
Stage 1	0	-	-	0	-	0	0	0	-	
Stage 2	0	-	-	0	440	0	0	0	-	
Platoon blocked, %		-	-							
Mov Cap-1 Maneuver	-	-	-	-	362	-	-	-	687	
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	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	843	82	0	128	0	0	0	126
Future Vol, veh/h	0	0	0	0	843	82	0	128	0	0	0	126
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, #	-	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	0	0	0	937	91	0	142	0	0	0	140

Major/Minor	Major2		Minor1			Minor2			
Conflicting Flow All	-	-	0	-	1028	-	-	-	469
Stage 1	-	-	-	-	0	-	-	-	-
Stage 2	-	-	-	-	1028	-	-	-	-
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	233	0	0	0	541
Stage 1	0	-	-	0	-	0	0	0	-
Stage 2	0	-	-	0	310	0	0	0	-
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	233	-	-	-	541
Mov Cap-2 Maneuver	-	-	-	-	233	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	310	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	42	14
HCM LOS		E	B

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	233	-	-	541
HCM Lane V/C Ratio	0.61	-	-	0.259
HCM Control Delay (s)	42	-	-	14
HCM Lane LOS	E	-	-	B
HCM 95th %tile Q(veh)	3.6	-	-	1

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	866	82	0	128	0	0	0	126
Future Vol, veh/h	0	0	0	0	866	82	0	128	0	0	0	126
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	962	91	0	142	0	0	0	140

Major/Minor	Major2			Minor1			Minor2			
Conflicting Flow All	-	-	0	-	1053	-	-	-	481	
Stage 1	-	-	-	-	0	-	-	-	-	
Stage 2	-	-	-	-	1053	-	-	-	-	
Critical Hdwy	-	-	-	-	6.54	-	-	-	6.94	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	5.54	-	-	-	-	
Follow-up Hdwy	-	-	-	-	4.02	-	-	-	3.32	
Pot Cap-1 Maneuver	0	-	-	0	225	0	0	0	531	
Stage 1	0	-	-	0	-	0	0	0	-	
Stage 2	0	-	-	0	301	0	0	0	-	
Platoon blocked, %		-	-							
Mov Cap-1 Maneuver	-	-	-	-	225	-	-	-	531	
Mov Cap-2 Maneuver	-	-	-	-	225	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	301	-	-	-	-	

Approach	WB	NB	SB
HCM Control Delay, s	0	45	14.2
HCM LOS		E	B

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	225	-	-	531
HCM Lane V/C Ratio	0.632	-	-	0.264
HCM Control Delay (s)	45	-	-	14.2
HCM Lane LOS	E	-	-	B
HCM 95th %tile Q(veh)	3.8	-	-	1.1

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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	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	0
Stage 1	0	-	-	0
Stage 2	0	-	379	0
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	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	1994	100	0
Future Vol, veh/h	0	0	0	1994	100	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	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	2216	111	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	1108	-
Stage 1	-	-	0	-
Stage 2	-	-	1108	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	204	0
Stage 1	0	-	-	0
Stage 2	0	-	278	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	204	-
Mov Cap-2 Maneuver	-	-	204	-
Stage 1	-	-	-	-
Stage 2	-	-	278	-

Approach	WB	NB
HCM Control Delay, s	0	41.9
HCM LOS		E

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	204	-
HCM Lane V/C Ratio	0.545	-
HCM Control Delay (s)	41.9	-
HCM Lane LOS	E	-
HCM 95th %tile Q(veh)	2.9	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↰	
Traffic Vol, veh/h	0	0	0	2000	135	0
Future Vol, veh/h	0	0	0	2000	135	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	2222	150	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	1111	-
Stage 1	-	-	0	-
Stage 2	-	-	1111	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	203	0
Stage 1	0	-	-	0
Stage 2	0	-	277	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	203	-
Mov Cap-2 Maneuver	-	-	203	-
Stage 1	-	-	-	-
Stage 2	-	-	277	-

Approach	WB	NB
HCM Control Delay, s	0	60.7
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	203	-
HCM Lane V/C Ratio	0.739	-
HCM Control Delay (s)	60.7	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	4.9	-

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, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	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	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	892	73	0
Future Vol, veh/h	0	0	0	892	73	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	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	991	81	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	496	-
Stage 1	-	-	0	-
Stage 2	-	-	496	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	503	0
Stage 1	0	-	-	0
Stage 2	0	-	577	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	503	-
Mov Cap-2 Maneuver	-	-	503	-
Stage 1	-	-	-	-
Stage 2	-	-	577	-

Approach	WB	NB
HCM Control Delay, s	0	13.5
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	503	-
HCM Lane V/C Ratio	0.161	-
HCM Control Delay (s)	13.5	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.6	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↰	
Traffic Vol, veh/h	0	0	0	912	96	0
Future Vol, veh/h	0	0	0	912	96	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	1013	107	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	507	-
Stage 1	-	-	0	-
Stage 2	-	-	507	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	495	0
Stage 1	0	-	-	0
Stage 2	0	-	570	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	495	-
Mov Cap-2 Maneuver	-	-	495	-
Stage 1	-	-	-	-
Stage 2	-	-	570	-

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

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	495	-
HCM Lane V/C Ratio	0.215	-
HCM Control Delay (s)	14.3	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	0.8	-

APPENDIX F

CAPACITY ANALYSIS CALCULATIONS

MITCHELL MILL ROAD

&

JONESVILLE ROAD / PEEBLES ROAD

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	4	11	316	41	4	78	11	32	133	16
Future Vol, veh/h	7	166	4	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	4	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	14.9	10.1	11.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	4%	3%	18%
Vol Thru, %	84%	94%	86%	73%
Vol Right, %	12%	2%	11%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	93	177	368	181
LT Vol	4	7	11	32
Through Vol	78	166	316	133
RT Vol	11	4	41	16
Lane Flow Rate	103	197	409	201
Geometry Grp	1	1	1	1
Degree of Util (X)	0.168	0.297	0.577	0.318
Departure Headway (Hd)	5.85	5.433	5.079	5.696
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	612	661	711	629
Service Time	3.904	3.477	3.114	3.743
HCM Lane V/C Ratio	0.168	0.298	0.575	0.32
HCM Control Delay	10.1	10.8	14.9	11.4
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.6	1.2	3.7	1.4

Intersection	
Intersection Delay, s/veh	50.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	240	4	12	569	45	4	86	12	35	147	18
Future Vol, veh/h	8	240	4	12	569	45	4	86	12	35	147	18
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	9	267	4	13	632	50	4	96	13	39	163	20
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	15.2	82.4	12.5	15
HCM LOS	C	F	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	3%	2%	17%
Vol Thru, %	84%	95%	91%	73%
Vol Right, %	12%	2%	7%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	102	252	626	200
LT Vol	4	8	12	35
Through Vol	86	240	569	147
RT Vol	12	4	45	18
Lane Flow Rate	113	280	696	222
Geometry Grp	1	1	1	1
Degree of Util (X)	0.223	0.481	1.081	0.417
Departure Headway (Hd)	7.412	6.42	5.595	7.067
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	487	566	647	513
Service Time	5.412	4.42	3.663	5.067
HCM Lane V/C Ratio	0.232	0.495	1.076	0.433
HCM Control Delay	12.5	15.2	82.4	15
HCM Lane LOS	B	C	F	B
HCM 95th-tile Q	0.8	2.6	19.6	2

Intersection	
Intersection Delay, s/veh	96.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	253	4	24	609	97	4	86	16	52	147	18
Future Vol, veh/h	8	253	4	24	609	97	4	86	16	52	147	18
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	9	281	4	27	677	108	4	96	18	58	163	20
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	16.9	161.3	13.4	16.8
HCM LOS	C	F	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	3%	3%	24%
Vol Thru, %	81%	95%	83%	68%
Vol Right, %	15%	2%	13%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	265	730	217
LT Vol	4	8	24	52
Through Vol	86	253	609	147
RT Vol	16	4	97	18
Lane Flow Rate	118	294	811	241
Geometry Grp	1	1	1	1
Degree of Util (X)	0.236	0.517	1.29	0.459
Departure Headway (Hd)	7.968	6.819	5.727	7.548
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	453	533	633	480
Service Time	5.968	4.819	3.789	5.548
HCM Lane V/C Ratio	0.26	0.552	1.281	0.502
HCM Control Delay	13.4	16.9	161.3	16.8
HCM Lane LOS	B	C	F	C
HCM 95th-tile Q	0.9	2.9	32	2.4

Intersection	
Intersection Delay, s/veh	81.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	253	4	24	609	97	4	86	16	52	147	18
Future Vol, veh/h	8	253	4	24	609	97	4	86	16	52	147	18
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	9	281	4	27	677	108	4	96	18	58	163	20
Number of Lanes	0	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	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	19.8	134.2	14.5	15
HCM LOS	C	F	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	4%	3%	4%	0%	100%	0%
Vol Thru, %	81%	95%	96%	0%	0%	89%
Vol Right, %	15%	2%	0%	100%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	265	633	97	52	165
LT Vol	4	8	24	0	52	0
Through Vol	86	253	609	0	0	147
RT Vol	16	4	0	97	0	18
Lane Flow Rate	118	294	703	108	58	183
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.258	0.571	1.263	0.172	0.13	0.382
Departure Headway (Hd)	8.565	7.416	6.465	5.733	8.673	8.078
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	422	489	563	623	416	449
Service Time	6.565	5.416	4.225	3.492	6.373	5.778
HCM Lane V/C Ratio	0.28	0.601	1.249	0.173	0.139	0.408
HCM Control Delay	14.5	19.8	153.3	9.7	12.7	15.7
HCM Lane LOS	B	C	F	A	B	C
HCM 95th-tile Q	1	3.5	27.6	0.6	0.4	1.8

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	4	130	21	5	92	10	27	50	11
Future Vol, veh/h	18	306	13	4	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	4	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	9.5	9.6	9.4
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	5%	3%	31%
Vol Thru, %	86%	91%	84%	57%
Vol Right, %	9%	4%	14%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	107	337	155	88
LT Vol	5	18	4	27
Through Vol	92	306	130	50
RT Vol	10	13	21	11
Lane Flow Rate	119	374	172	98
Geometry Grp	1	1	1	1
Degree of Util (X)	0.175	0.489	0.233	0.146
Departure Headway (Hd)	5.312	4.702	4.878	5.379
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	668	760	728	659
Service Time	3.407	2.766	2.957	3.477
HCM Lane V/C Ratio	0.178	0.492	0.236	0.149
HCM Control Delay	9.6	12.2	9.5	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	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	436	14	4	339	23	6	102	11	30	55	12
Future Vol, veh/h	20	436	14	4	339	23	6	102	11	30	55	12
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	22	484	16	4	377	26	7	113	12	33	61	13
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	24.7	17.3	11.8	11.5
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	4%	1%	31%
Vol Thru, %	86%	93%	93%	57%
Vol Right, %	9%	3%	6%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	470	366	97
LT Vol	6	20	4	30
Through Vol	102	436	339	55
RT Vol	11	14	23	12
Lane Flow Rate	132	522	407	108
Geometry Grp	1	1	1	1
Degree of Util (X)	0.245	0.777	0.621	0.203
Departure Headway (Hd)	6.682	5.357	5.493	6.79
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	541	668	651	531
Service Time	4.682	3.437	3.578	4.796
HCM Lane V/C Ratio	0.244	0.781	0.625	0.203
HCM Control Delay	11.8	24.7	17.3	11.5
HCM Lane LOS	B	C	C	B
HCM 95th-tile Q	1	7.4	4.3	0.8

Intersection	
Intersection Delay, s/veh	39
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	482	14	8	366	58	6	102	24	89	55	12
Future Vol, veh/h	20	482	14	8	366	58	6	102	24	89	55	12
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	22	536	16	9	407	64	7	113	27	99	61	13
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	56.2	34.5	14.2	15.3
HCM LOS	F	D	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	4%	2%	57%
Vol Thru, %	77%	93%	85%	35%
Vol Right, %	18%	3%	13%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	516	432	156
LT Vol	6	20	8	89
Through Vol	102	482	366	55
RT Vol	24	14	58	12
Lane Flow Rate	147	573	480	173
Geometry Grp	1	1	1	1
Degree of Util (X)	0.313	0.975	0.844	0.372
Departure Headway (Hd)	7.69	6.238	6.331	7.725
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	468	585	576	466
Service Time	5.727	4.238	4.331	5.758
HCM Lane V/C Ratio	0.314	0.979	0.833	0.371
HCM Control Delay	14.2	56.2	34.5	15.3
HCM Lane LOS	B	F	D	C
HCM 95th-tile Q	1.3	13.7	9	1.7

Intersection	
Intersection Delay, s/veh	49.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	482	14	8	366	58	6	102	24	89	55	12
Future Vol, veh/h	20	482	14	8	366	58	6	102	24	89	55	12
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	22	536	16	9	407	64	7	113	27	99	61	13
Number of Lanes	0	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	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	88.3	26.8	15.5	13.5
HCM LOS	F	D	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	5%	4%	2%	0%	100%	0%
Vol Thru, %	77%	93%	98%	0%	0%	82%
Vol Right, %	18%	3%	0%	100%	0%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	516	374	58	89	67
LT Vol	6	20	8	0	89	0
Through Vol	102	482	366	0	0	55
RT Vol	24	14	0	58	0	12
Lane Flow Rate	147	573	416	64	99	74
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.327	1.081	0.773	0.107	0.232	0.162
Departure Headway (Hd)	8.437	6.788	6.965	6.236	8.839	8.191
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	428	539	524	578	408	441
Service Time	6.437	4.788	4.665	3.936	6.539	5.891
HCM Lane V/C Ratio	0.343	1.063	0.794	0.111	0.243	0.168
HCM Control Delay	15.5	88.3	29.5	9.7	14.2	12.5
HCM Lane LOS	C	F	D	A	B	B
HCM 95th-tile Q	1.4	17.6	6.9	0.4	0.9	0.6

APPENDIX G

CAPACITY ANALYSIS CALCULATIONS

MITCHELL MILL ROAD

&

SITE ACCESS 1

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	321	701	4	0	29
Future Vol, veh/h	0	321	701	4	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	357	779	4	0	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	781
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	395
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	395
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	395
HCM Lane V/C Ratio	-	-	-	0.082
HCM Control Delay (s)	-	-	-	14.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	595	412	4	0	20
Future Vol, veh/h	0	595	412	4	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	661	458	4	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	460
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	0	-	-	-	0	601
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	601
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	601
HCM Lane V/C Ratio	-	-	-	0.037
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

APPENDIX H

CAPACITY ANALYSIS CALCULATIONS

MITCHELL MILL ROAD

&

SITE ACCESS 2

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	287	626	4	11	75
Future Vol, veh/h	34	287	626	4	11	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	319	696	4	12	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	700	0	-	0	1091	696
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	897	-	-	-	238	442
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	897	-	-	-	228	442
Mov Cap-2 Maneuver	-	-	-	-	228	-
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	681	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	17
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	897	-	-	-	395
HCM Lane V/C Ratio	0.042	-	-	-	0.242
HCM Control Delay (s)	9.2	-	-	-	17
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	287	626	4	11	75
Future Vol, veh/h	34	287	626	4	11	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	319	696	4	12	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	700	0	-	0	1091	696
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	897	-	-	-	238	442
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	897	-	-	-	228	442
Mov Cap-2 Maneuver	-	-	-	-	228	-
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	681	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	17
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	897	-	-	-	395
HCM Lane V/C Ratio	0.042	-	-	-	0.242
HCM Control Delay (s)	9.2	-	-	-	17
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	118	477	362	13	8	50
Future Vol, veh/h	118	477	362	13	8	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	131	530	402	14	9	56

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	416	0	-	0	1194	402
Stage 1	-	-	-	-	402	-
Stage 2	-	-	-	-	792	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1143	-	-	-	206	648
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	446	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1143	-	-	-	182	648
Mov Cap-2 Maneuver	-	-	-	-	182	-
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	446	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1143	-	-	-	479
HCM Lane V/C Ratio	0.115	-	-	-	0.135
HCM Control Delay (s)	8.6	-	-	-	13.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.5

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	118	477	362	13	8	50
Future Vol, veh/h	118	477	362	13	8	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	131	530	402	14	9	56

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	416	0	-	0	1194	402
Stage 1	-	-	-	-	402	-
Stage 2	-	-	-	-	792	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1143	-	-	-	206	648
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	446	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1143	-	-	-	182	648
Mov Cap-2 Maneuver	-	-	-	-	182	-
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	446	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	13.7
HCM LOS			B

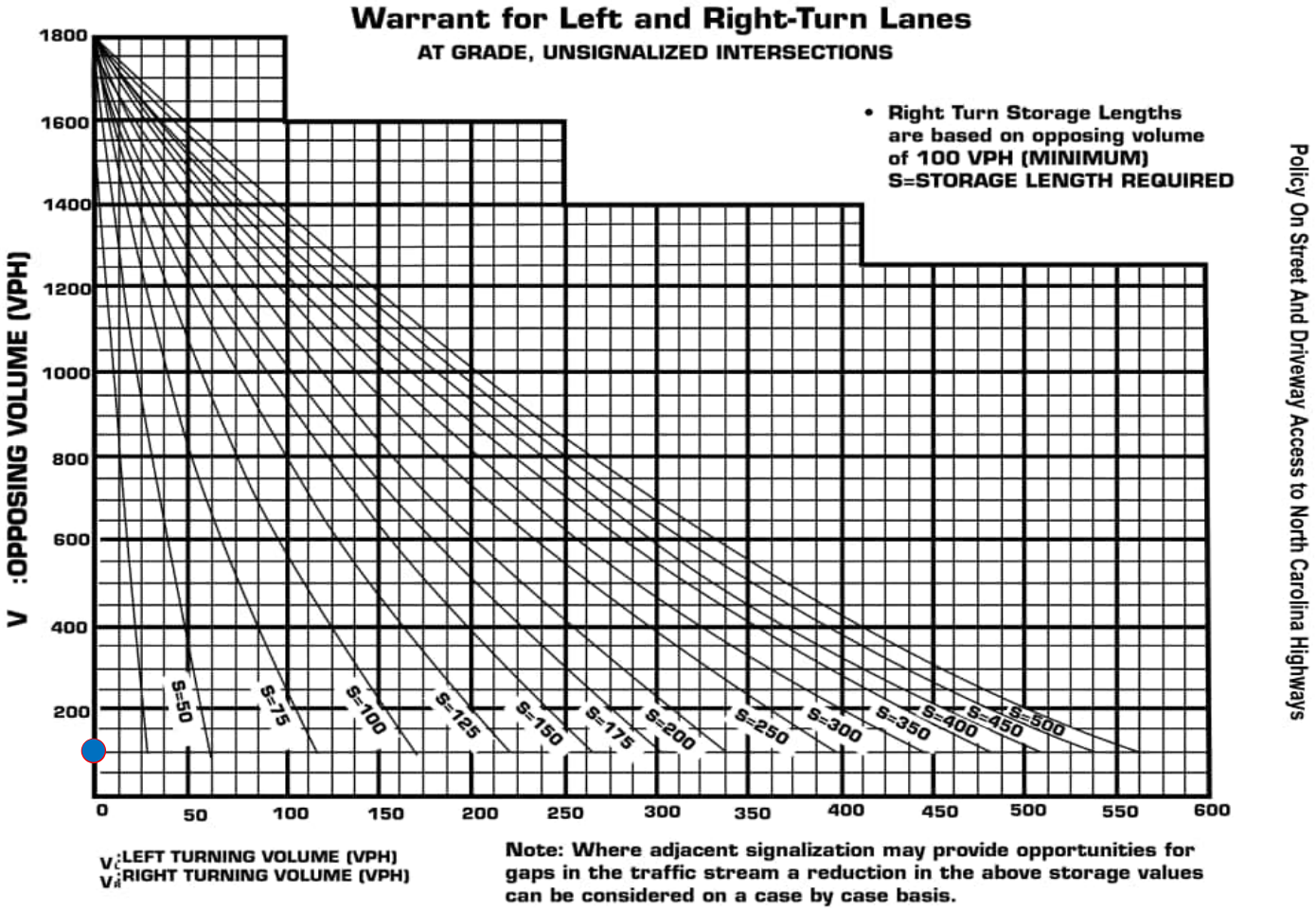
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1143	-	-	-	479
HCM Lane V/C Ratio	0.115	-	-	-	0.135
HCM Control Delay (s)	8.6	-	-	-	13.7
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.5

APPENDIX I

TURN LANE WARRANTS

HILLS AT HARRIS CREEK

TURN LANE STORAGE WARRANTS

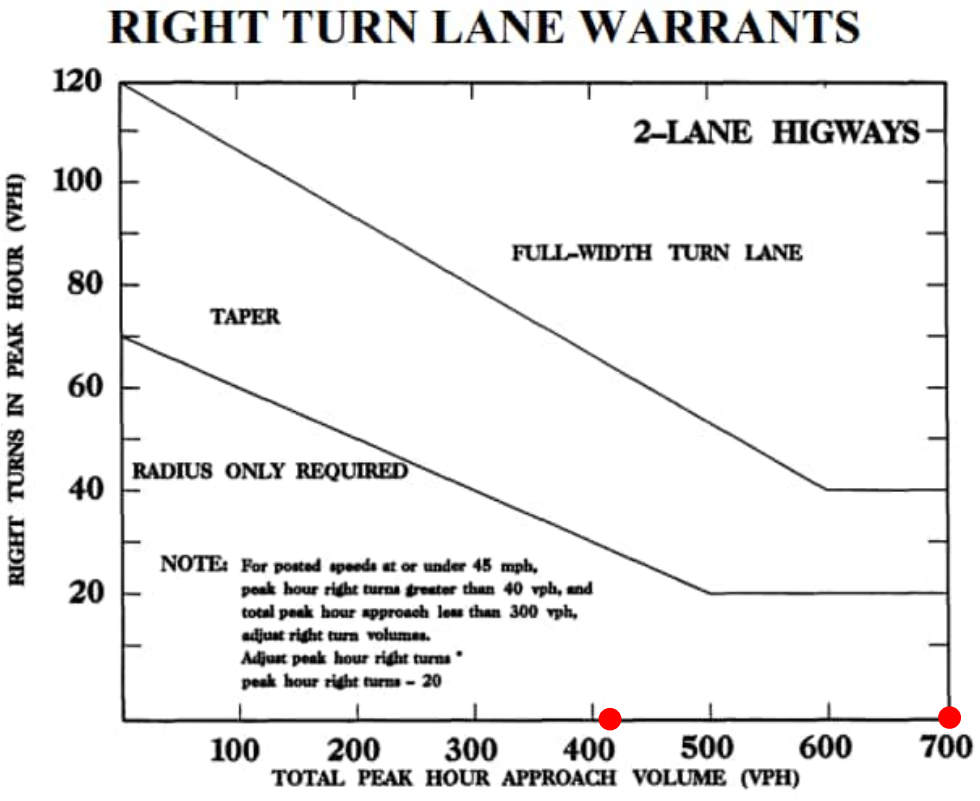


INTERSECTION: Mitchell Mill Road & Site Access 1

SCENARIO	Movement	Turn Lane	Turning Volume (V_R/V_L)	Approach / Opposing Volume (V_A/V_O)	Symbol
AM Build	WBR	Right	0	100	
PM Build	WBR	Right	0	100	

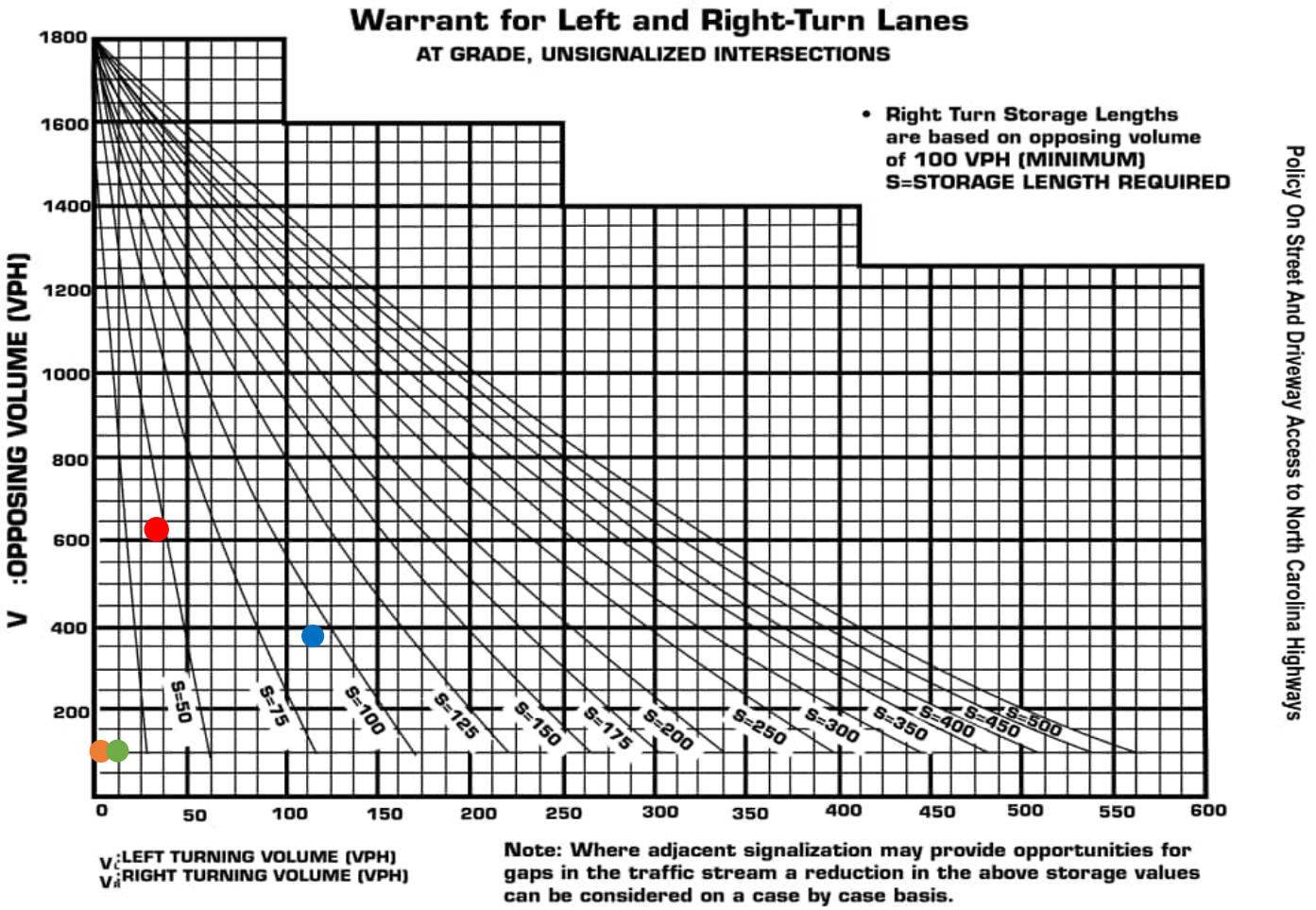
Mitchell Mill Road and Site Access 1

2027 Build				
Peak Hour	**Approach**	**Right Turn Volume**	**Approach Volume**	**Warranted?**
AM	Westbound	0	701	No
PM	Westbound	0	412	No



HILLS AT HARRIS CREEK

TURN LANE STORAGE WARRANTS

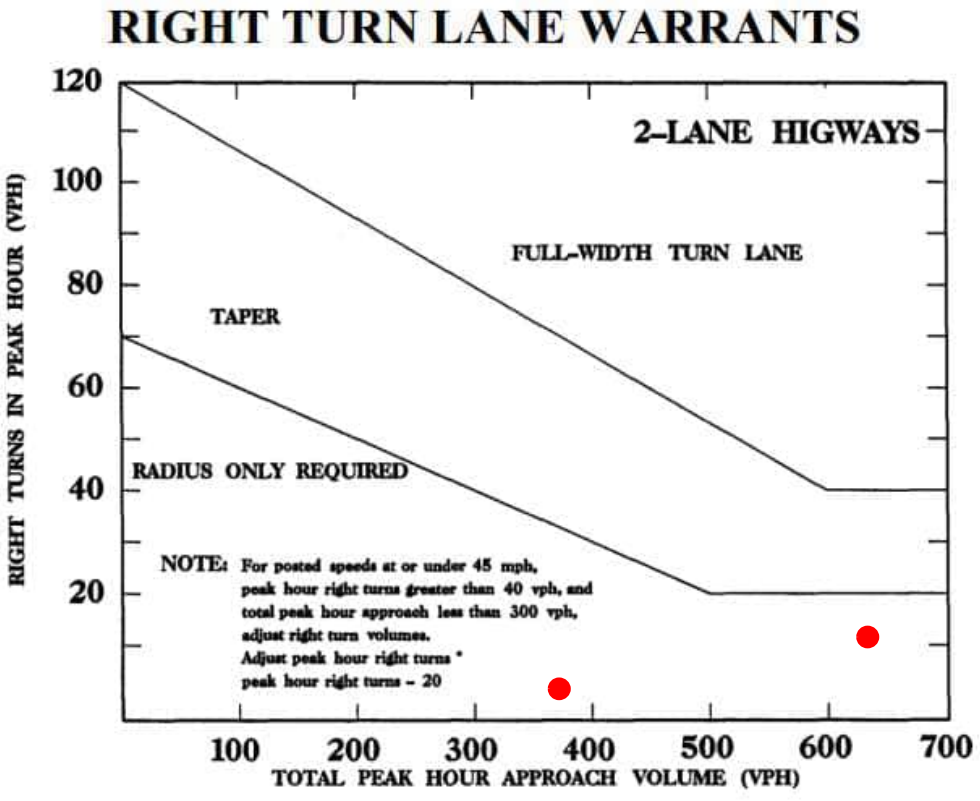


INTERSECTION: Mitchell Mill Road & Site Access 2

SCENARIO	Movement	Turn Lane	Turning Volume (V_R/V_L)	Approach / Opposing Volume (V_A/V_O)	Symbol
AM Build	EBL	Left	34	630	
PM Build	EBL	Left	118	375	
AM Build	WBR	Right	4	100	
PM Build	WBR	Right	13	100	

Mitchell Mill Road and Site Access 2

2027 Build				
Peak Hour	**Approach**	**Right Turn Volume**	**Approach Volume**	**Warranted?**
AM	Westbound	4	630	No
PM	Westbound	13	375	No



APPENDIX J

MUTCD / ITRE

SIGNAL WARRANT ANALYSIS

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Hills at Harris Creek
Project/File #	20498 - 05
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	2861 vehicles	Total Approach Volume	424 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	100 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

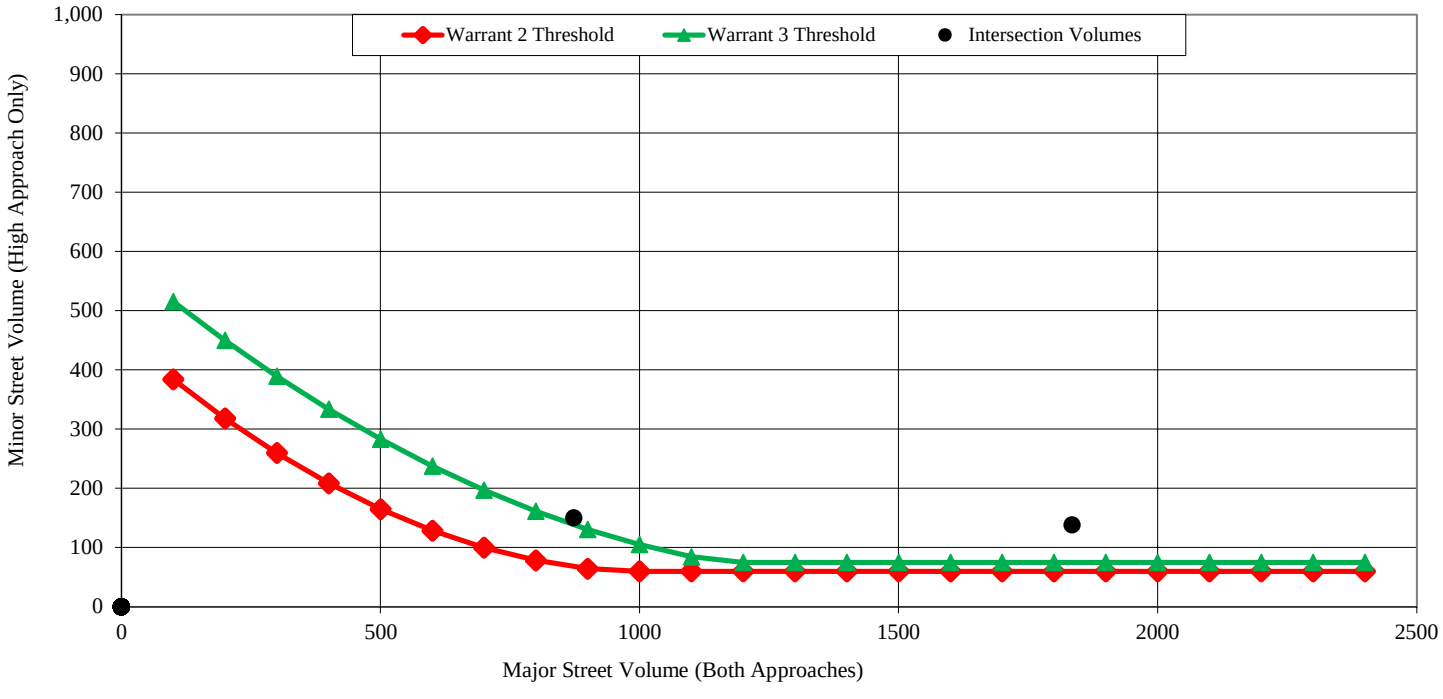
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor 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	1941 total, 41 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 [Major-Street Left-Turn] **[No-Build]**

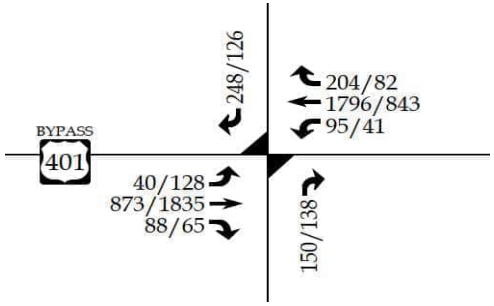
AM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00004	0.0097	0.4284
961	0.7	4.0E-05	0.009192	0.460018
1080	0.7	0.00004	0.0082	0.5217

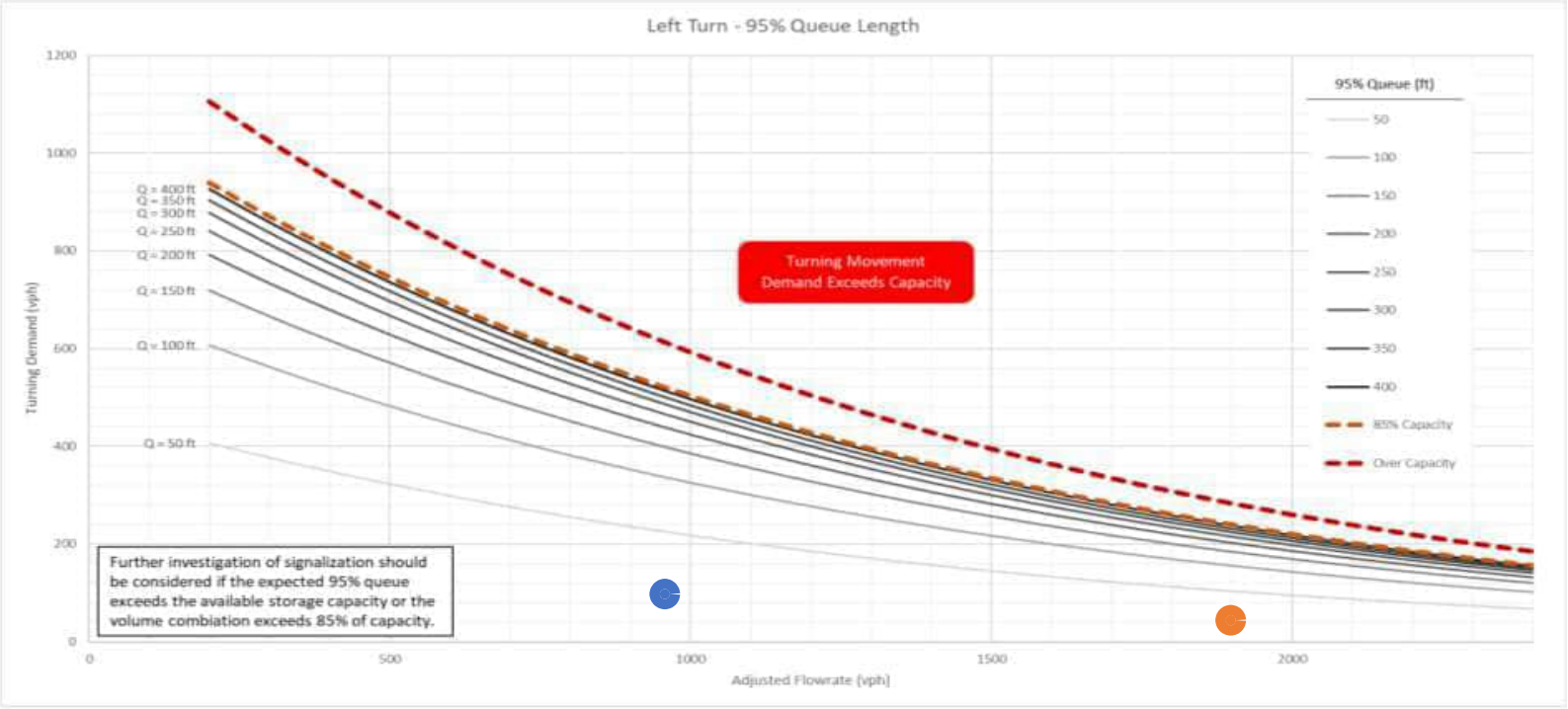
CVAF	1
Conflicting Volume (vph)	961
Adjusted Conflicting (vph)	961
Turning Volume (vph)	95

PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0097	0.4284
1900	0.7	4.0E-05	0.008867	0.480233
1980	0.7	0.00004	0.0082	0.5217

CVAF	1
Conflicting Volume (vph)	1900
Adjusted Conflicting (vph)	1900
Turning Volume (vph)	41

Distance to Upstream Signal	8800	ft
Posted Speed Limit	55	mph
Travel Time	109.09	s





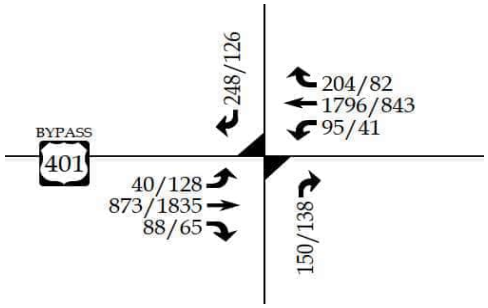
US 401 Bypass & Jonesville Road [Minor-Street Right-Turn] **[No-Build]**

AM Peak Hour				
vph	g/c	a	b	c
720	0.7	0.00004	0.0108	0.2587
873	0.7	3.2E-05	0.009525	0.34557
900	0.7	0.00003	0.0093	0.3609

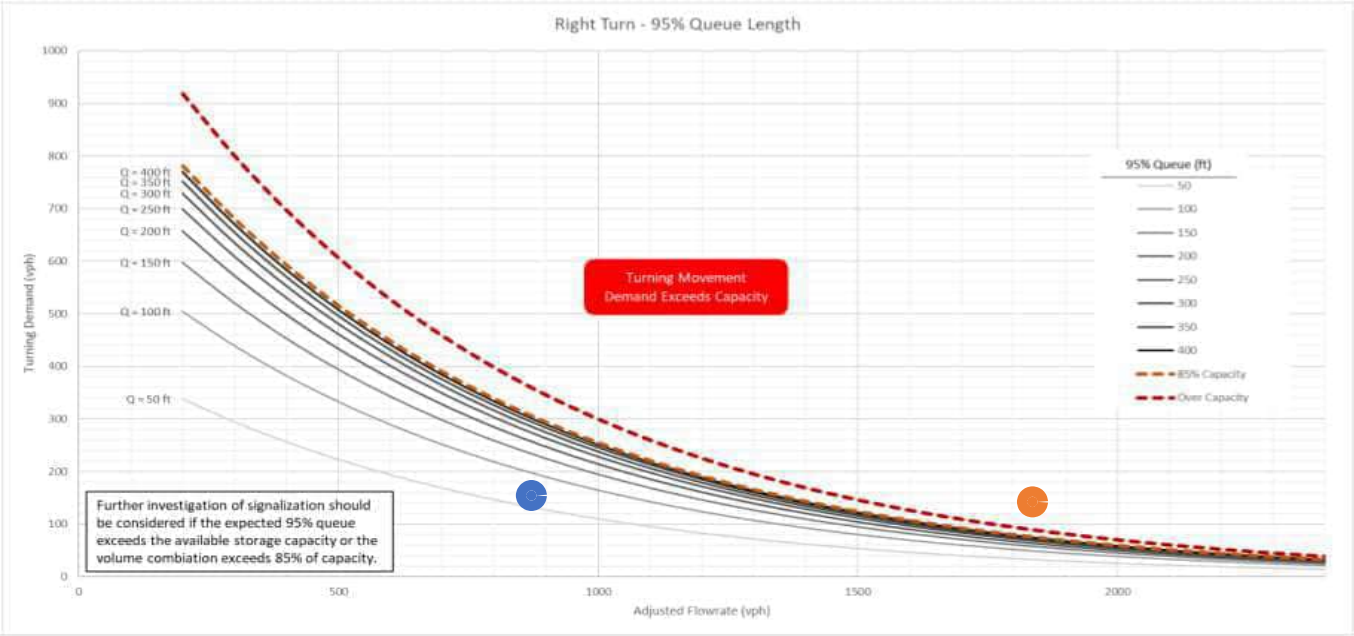
CVAF	1
Conflicting Volume (vph)	873
Adjusted Conflicting (vph)	873
Turning Volume (vph)	150

PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0108	0.2587
1835	0.7	3.8E-05	0.010508	0.278572
1980	0.7	0.00003	0.0093	0.3609

CVAF	1
Conflicting Volume (vph)	1835
Adjusted Conflicting (vph)	1835
Turning Volume (vph)	138



Distance to Upstream Signal	8800	ft
Posted Speed Limit	55	mph
Travel Time	109.09	s



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Hills at Harris Creek
Project/File #	20498 - 05
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	2911 vehicles	Total Approach Volume	537 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	100 percent applied	Right turn reduction of	0 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

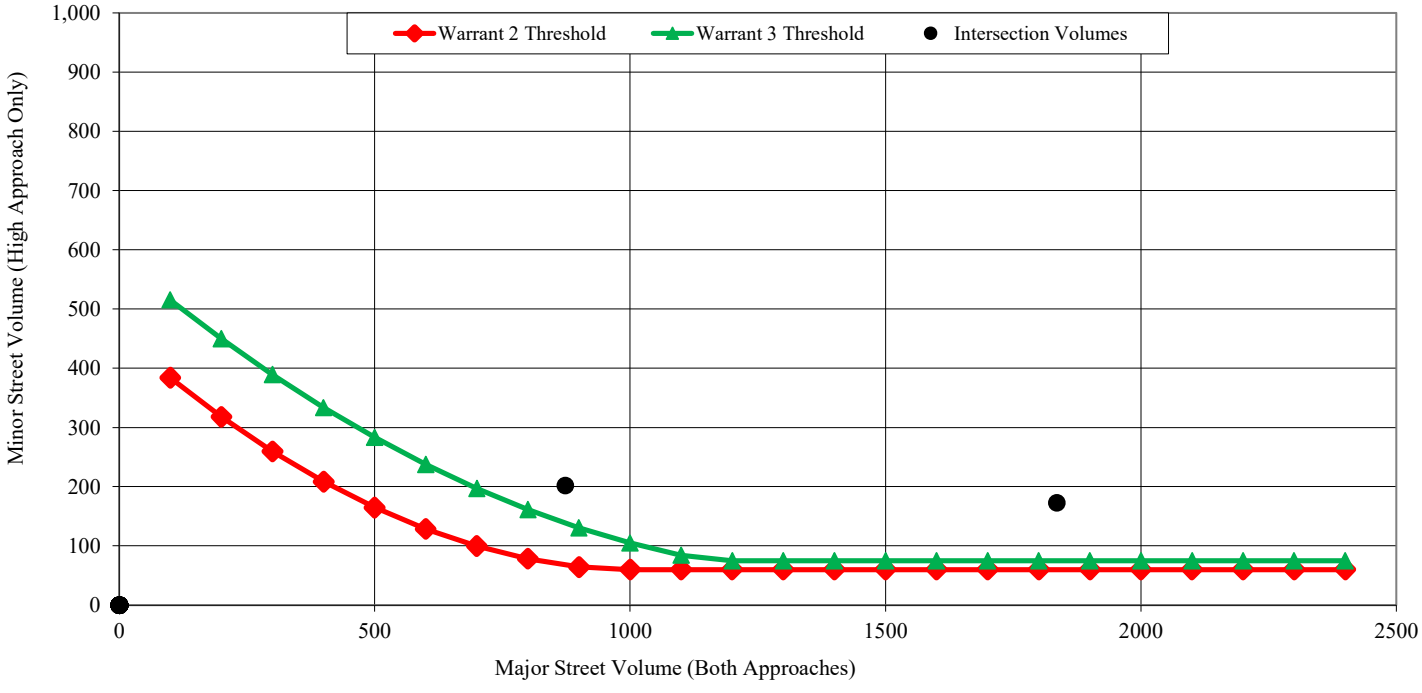
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor 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	2000 total, 61 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)



Pedestrian Crossing Volume

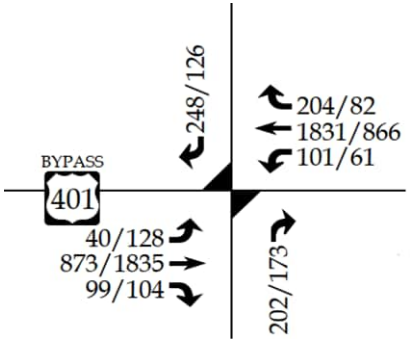
US 401 Bypass & Jonesville Road [Minor-Street Right-Turn] **[Build]**

AM Peak Hour				
vph	g/c	a	b	c
720	0.7	0.00004	0.0108	0.2587
873	0.7	3.2E-05	0.009525	0.34557
900	0.7	0.00003	0.0093	0.3609

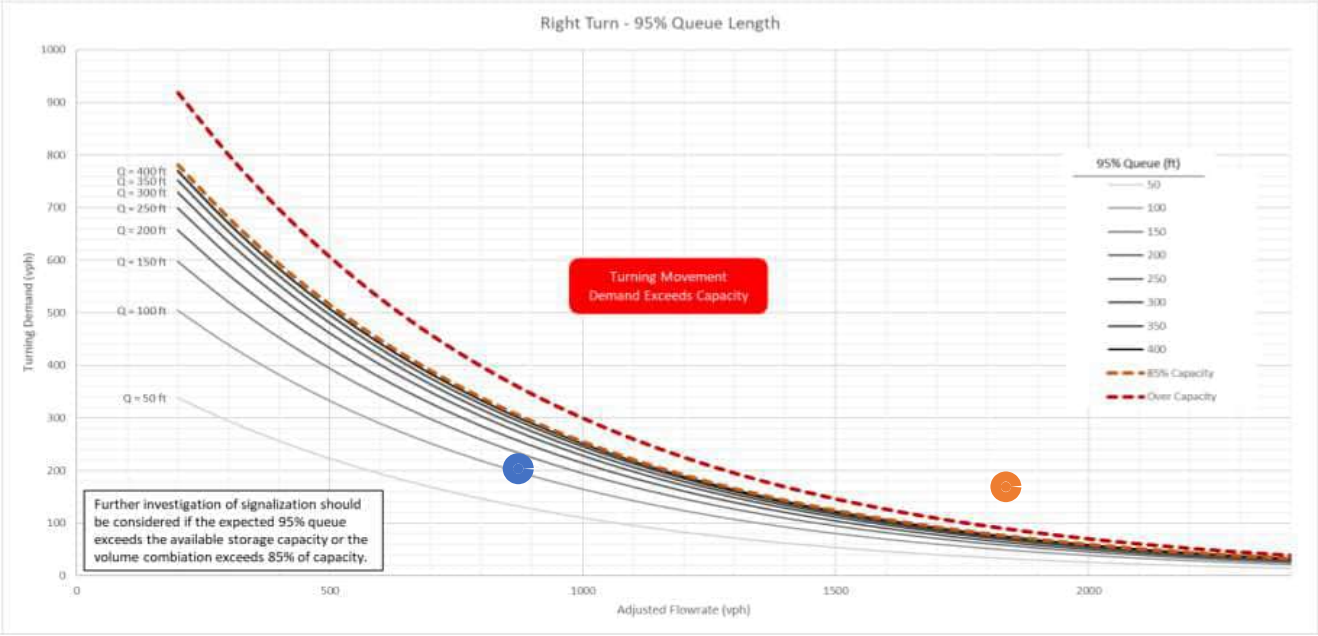
CVAF	1
Conflicting Volume (vph)	873
Adjusted Conflicting (vph)	873
Turning Volume (vph)	200

PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0108	0.2587
1835	0.7	3.8E-05	0.010508	0.278572
1980	0.7	0.00003	0.0093	0.3609

CVAF	1
Conflicting Volume (vph)	1835
Adjusted Conflicting (vph)	1835
Turning Volume (vph)	165



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]**

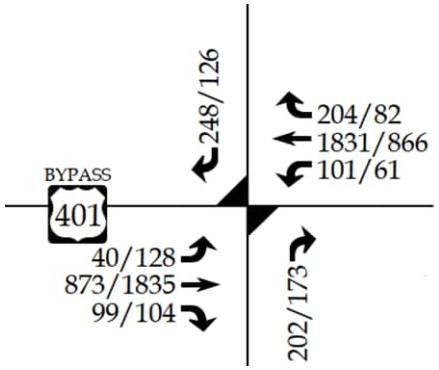
AM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00004	0.0097	0.4284
972	0.7	4.0E-05	0.0091	0.46572
1080	0.7	0.00004	0.0082	0.5217

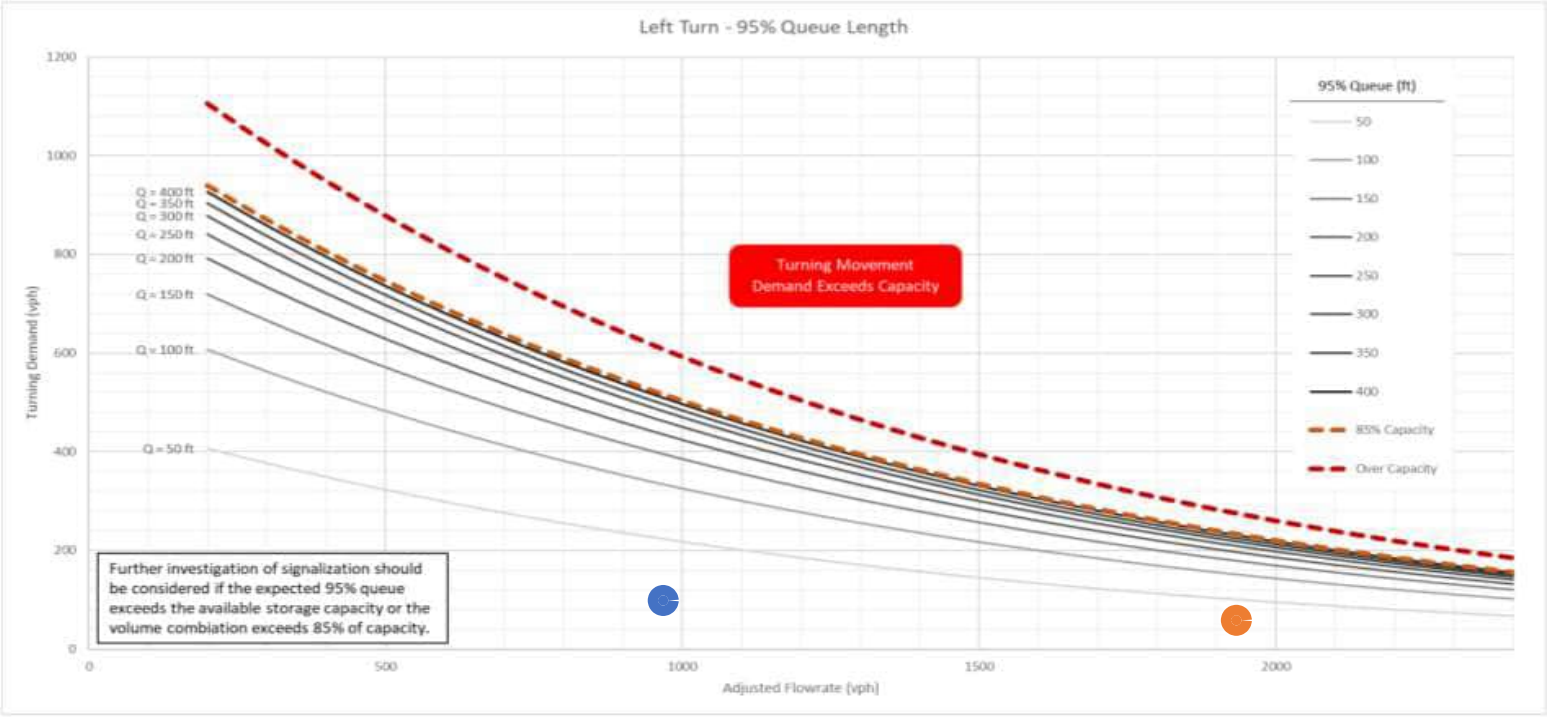
PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0097	0.4284
1939	0.7	4.0E-05	0.008542	0.500448
1980	0.7	0.00004	0.0082	0.5217

Distance to Upstream Signal	8800	ft
Posted Speed Limit	55	mph
Travel Time	109.09	s

CVAF	1
Conflicting Volume (vph)	972
Adjusted Conflicting (vph)	972
Turning Volume (vph)	101

CVAF	1
Conflicting Volume (vph)	1939
Adjusted Conflicting (vph)	1939
Turning Volume (vph)	61





Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Hills at Harris Creek
Project/File #	20498 - 05
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	2886 vehicles	Total Approach Volume	173 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.

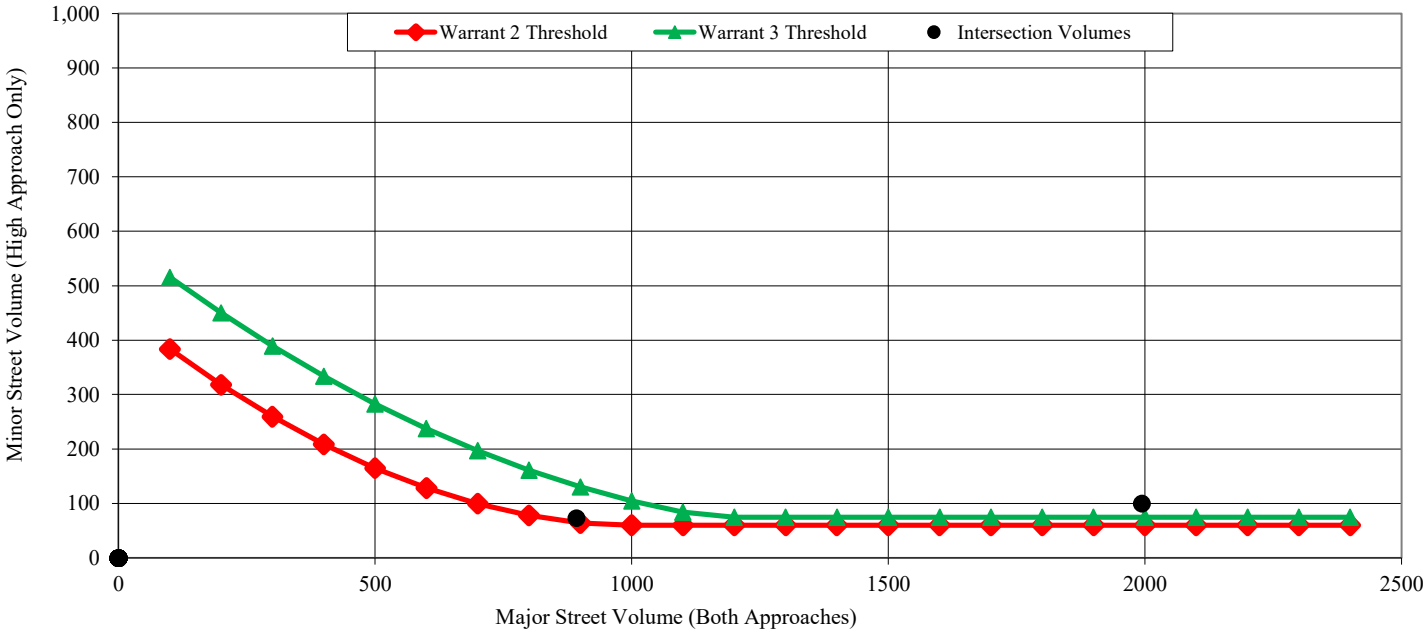
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	0 hours	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor 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	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	2094 total, 100 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)

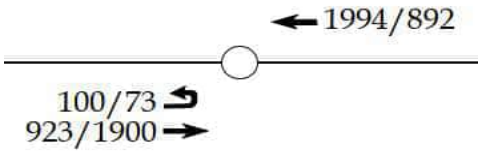


Pedestrian Crossing Volume

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
1994	0.7	3.0E-05	0.006984	0.539484
1980	0.7	0.00003	0.007	0.5374

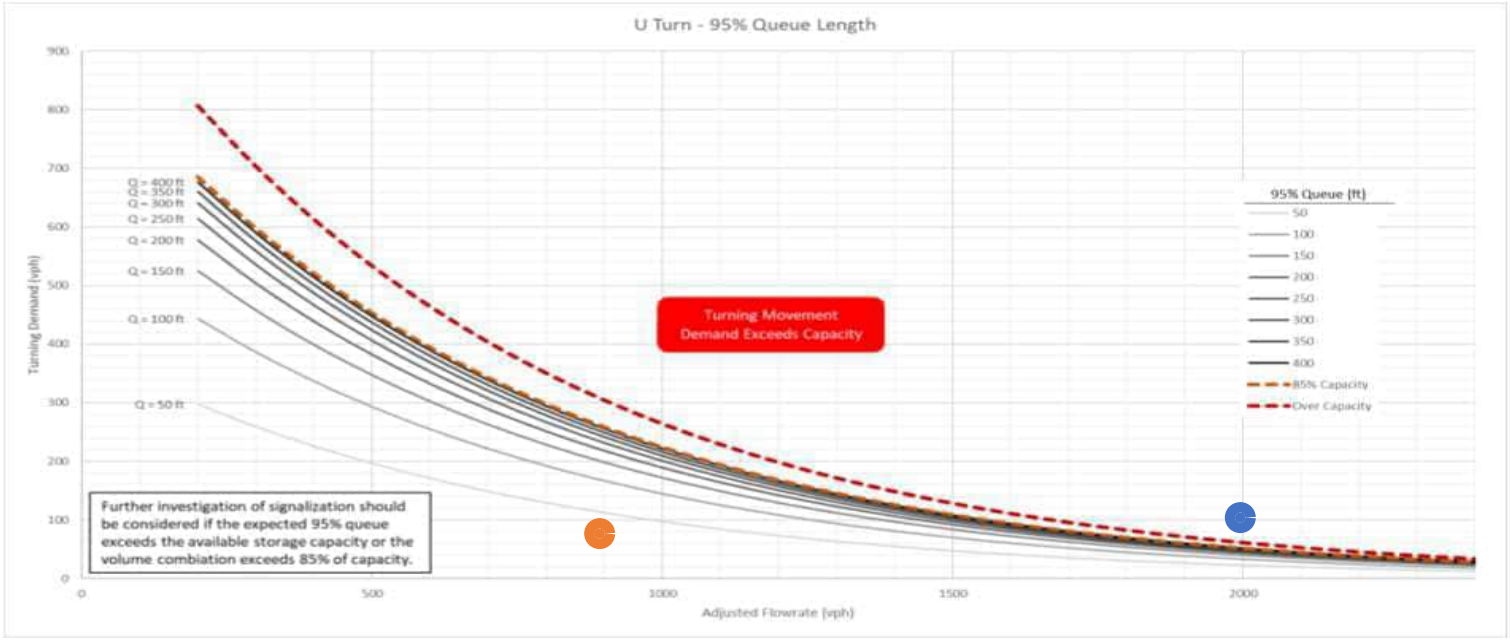
CVAF	1
Conflicting Volume (vph)	1994
Adjusted Conflicting (vph)	1994
Turning Volume (vph)	100



PM Peak Hour				
vph	g/c	a	b	c
720	0.7	0.00003	0.0072	0.5106
892	0.7	3.0E-05	0.007009	0.536209
900	0.7	0.00003	0.007	0.5374

CVAF	1
Conflicting Volume (vph)	892
Adjusted Conflicting (vph)	892
Turning Volume (vph)	73

Distance to Upstream Signal	10000	ft
Posted Speed Limit	55	mph
Travel Time	123.97	s



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Hills at Harris Creek
Project/File #	20498 - 05
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	2912 vehicles	Total Approach Volume	231 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	1 hour	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)

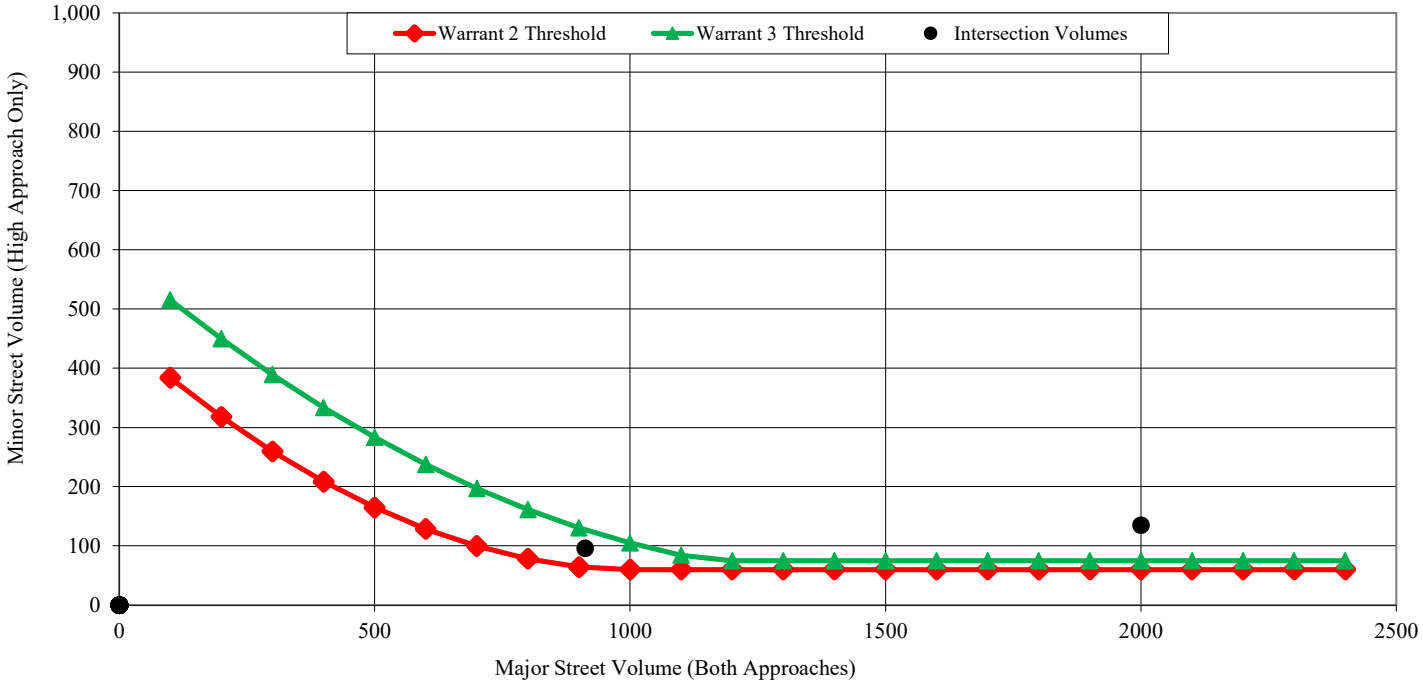
* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

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	2135 total, 135 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	

Pedestrian Crossing Volume

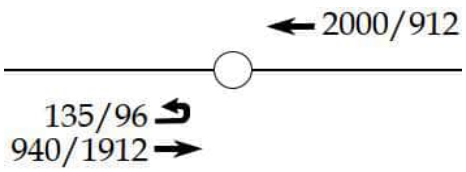
Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



US 401 Bypass & Eastern U-Turn Location [Major-Street U-Turn] **[Build]**

AM Peak Hour				
vph	g/c	a	b	c
1980	0.7	0.00003	0.007	0.5374
2000	0.7	3.0E-05	0.006978	0.542078
2160	0.7	0.00003	0.0068	0.5795

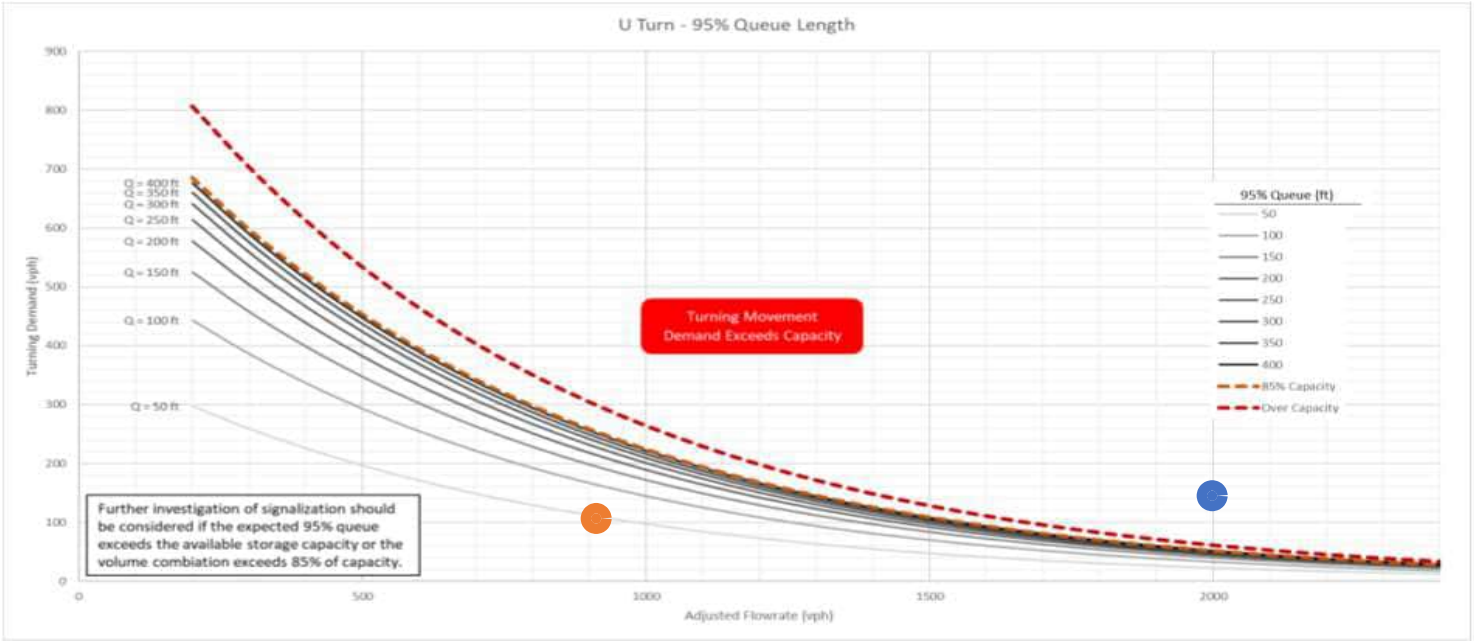
CVAF	1
Conflicting Volume (vph)	2000
Adjusted Conflicting (vph)	2000
Turning Volume (vph)	135



PM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00003	0.007	0.5374
912	0.7	3.0E-05	0.006987	0.540207
1080	0.7	0.00003	0.0068	0.5795

CVAF	1
Conflicting Volume (vph)	912
Adjusted Conflicting (vph)	912
Turning Volume (vph)	96

Distance to Upstream Signal	10000	ft
Posted Speed Limit	55	mph
Travel Time	123.97	s



Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Hills at Harris Creek
Project/File #	20498 - 05
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	1708 vehicles	Total Approach Volume	518 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	100 percent applied	Right turn reduction of	100 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

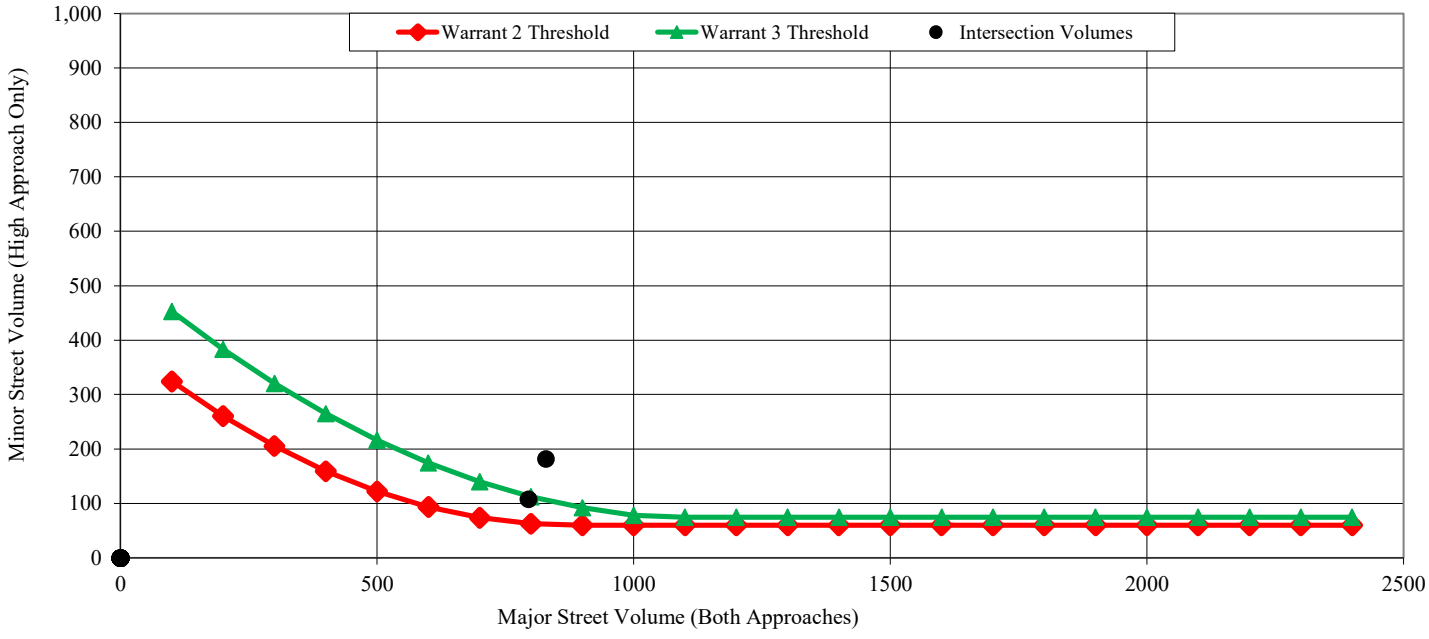
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor 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	1178 total, 200 minor, 0 delay	1 hour
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)



Pedestrian Crossing Volume

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Hills at Harris Creek
Project/File #	20498 - 05
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	1941 vehicles	Total Approach Volume	611 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	100 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)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

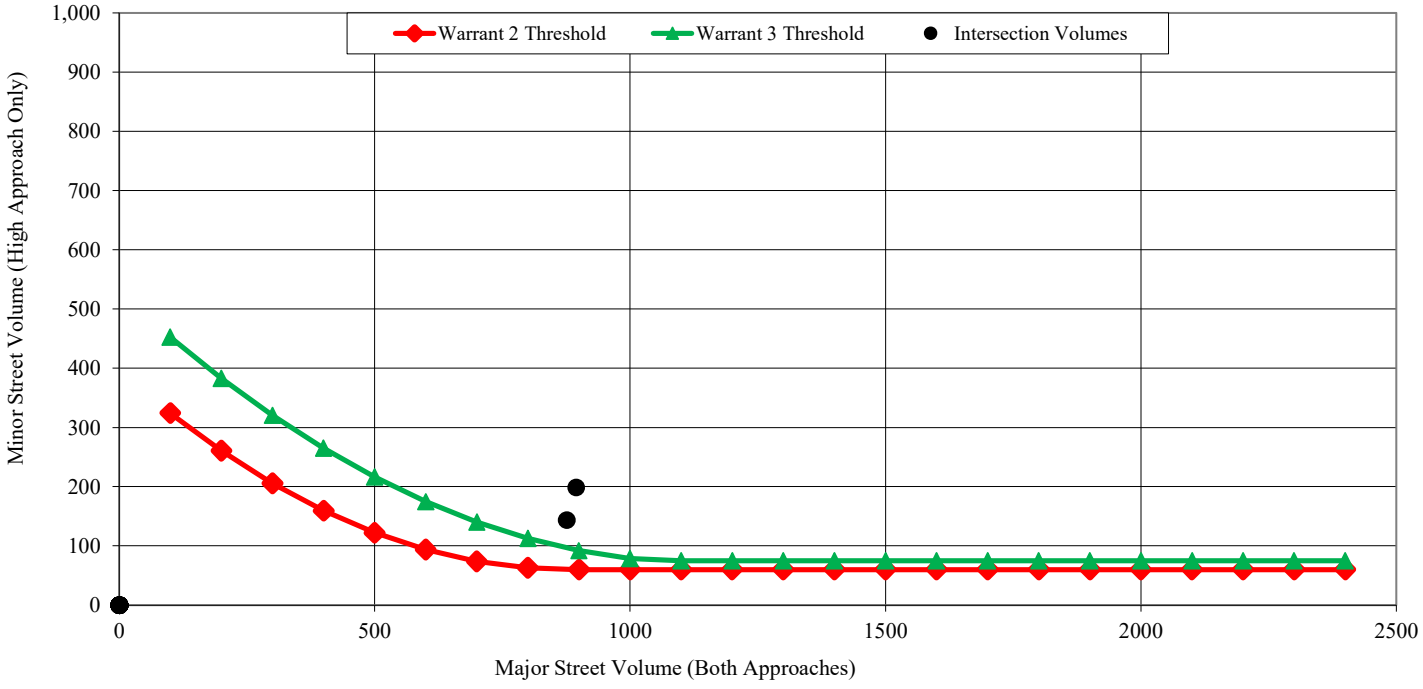
* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

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	1316 total, 217 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	

Pedestrian Crossing Volume

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Attachment 9

Rolesville
Genuine Community • Capital Connection Est. 1837

TOWN OF ROLESVILLE
PETITION FOR ANNEXATION

The items below are required in order to complete your application and shall be submitted when the application if 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 – LOCATION

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 RIGHTS

NC General Statues 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 DETAILS

PIN Number	Real Estate ID Number	Deed Book Number	Page Number	Acreage To Be Annexed	Wake County Assessed Value
1757761273	0443802	DB 016701	PG 00363	10.48	$ 196,750
		DB	PG		$
		DB	PG		$

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)

Signature of Owner #1 — 3/21/22 Date Signed

Randall & Laura Watkins 3544
Donlin Dr, Wake Forest NC 27587

Signature of Owner #2 — 21 Mar 2022 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, Granville County

I, Isabel Nobles, a 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 21st day of March, 2022

ISABEL NOBLES NOTARY PUBLIC FRANKLIN COUNTY, NC My Commission Expires 10-7-2026

Notary Public

My commission expires: 10/7/26

Rolesville
Genuine Community • Capital Connection Est. 1837

TOWN OF ROLESVILLE
PETITION FOR ANNEXATION

The items below are required in order to complete your application and shall be submitted when the application if 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 – LOCATION

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 RIGHTS

NC General Statues 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 DETAILS

PIN Number	Real Estate ID Number	Deed Book Number	Page Number	Acreage To Be Annexed	Wake County Assessed Value
1757778982	0443803	DB 20-E	PG 114	97.41	$ 1,954,590
1757750520	0074789	DB 20-E	PG 114	0.69	$ 179,871
		DB	PG		$

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)

Randy D Watkins
Signature of Owner #1

3/15/2022
Date Signed

3609 Rock Farm Rd, Wake Forest NC 27587-6872

Donna M Watkins
Signature of Owner #2

3-15-2022
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, Harriette H. Doggett, *a 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 15th *day of* March, 2022

HARRIETTE H. DOGGETT NOTARY PUBLIC WAKE COUNTY, NC

Harriette H Doggett
Notary Public
My commission expires: 8/17, 2024

Notary Seal

TOWN OF ROLESVILLE
PETITION FOR ANNEXATION

The items below are required in order to complete your application and shall be submitted when the application if 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 – LOCATION

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 RIGHTS

NC General Statues 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 DETAILS

PIN Number	Real Estate ID Number	Deed Book Number	Page Number	Acreage To Be Annexed	Wake County Assessed Value
1757778982	0443803	DB20-E	PG 114	97.41	$ 1,954,590
1757750520	0074789	DB20-E	PG 114	0.69	$ 179,871
		DB	PG		$

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)

Alan D. Watkins
Signature of Owner #1

3/15/2022
Date Signed

Melody L. Watkins
Signature of Owner #2

3/15/2022
Date Signed

3609 Rock Farm Rd,
Wake Forest, NC
27587-6872

- **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, Karen W. Watkins, a 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 15 day of March, 2022

KAREN W. WATKINS NOTARY PUBLIC WAKE COUNTY, NC

Karen W. Watkins
Notary Public
My commission expires: 9/21/26

TOWN OF ROLESVILLE
PETITION FOR ANNEXATION

The items below are required in order to complete your application and shall be submitted when the application if 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 – LOCATION

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 §160-31(1).

SECTION 2 – VESTED RIGHTS

NC General Statues 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 DETAILS

PIN Number	Real Estate ID Number	Deed Book Number	Page Number	Acreage To Be Annexed	Wake County Assessed Value
1757758529	0493307	DB 018421	PG 00370	24.08	$
		DB	PG		$
		DB	PG		$

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)

Signature of Owner #1 — Date Signed

Signature of Owner #2 — 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)

Ellis Land Investment Company
Name of Corporation

Stephen Ellis
Printed Name of Registered Agent

Signature of Registered Agent

6801 Falls of Neuse Rd. Suite 108 Raleigh, NC 27615
Address, State, Zip of Registered Office:

North Carolina, Wake *County*

I, Anne B. Oakley, a 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 16th *day of* August, 2022

ANNE B. OAKLEY NOTARY PUBLIC WAKE COUNTY, NC MY COMMISSION EXPIRES 11-14-2026

Notary Seal

Anne B. Oakley
Notary Public
My commission expires: 11/14/2026

NORTH CAROLINA

WAKE COUNTY

BOOK 1318 PAGE 333 WARRANTY DEED

THIS DEED, made this 24th day of March, 1959, by Romie C. Watkins and wife, Irma Kirkland Watkins; Claiborne Watkins and wife, Elizabeth Watkins; Ione Ayscue and husband, Ervin R. Ayscue; Milton Watkins and wife, Excell Watkins; Jane Watkins Ruffin and husband, Carlie Ruffin; Louis Watkins and wife, Nevada Watkins; David M. Watkins, single, all of Wake County, North Carolina, and Lois Watkins Ward and husband, Leo Ward, of Durham County, North Carolina, of the first part, to Donnell Watkins and wife, Daisy Watkins, of Wake County, North Carolina, of the second part;

W I T N E S S E T H:

That said parties of the first part, in consideration of One Hundred ($100.00) Dollars, and other valuable considerations to them paid by said parties of the second part, the receipt of which is hereby acknowledged, have bargained and sold, and by these presents do grant, bargain, sell, and convey to said parties of the second part, their heirs and assigns, a certain tract or parcel of land in Wake County, State of North Carolina, adjoining the lands of J. M. Jones, Mrs. A. P. Upchurch, and others, and bounded as follows:

BEGINNING at stake on the North side of the Traboro Road, corner of Lot No. 4; thence along the lines of Lot No. 4, N. 22° 30' E. 658 feet to a stake; thence N. 47° 30' E. 1223 feet to a stake; thence N. 3100 feet to a stake and pointers on the south side of Powell's Creek; thence up with the various courses of said Creek to a stake corner of Lot No. 2; thence South along the line of Lot No. 2, 4600 feet to a stake on the Kelly Branch 50 feet West of J. M. Jones' corner; thence down with the various courses of said branch to a stake corner of J. M. Jones; thence along Jones line S. 23° W. 996 feet to a stake on the North side of the Traboro Road; thence along said road N. 81° W. 600 feet to the BEGINNING, containing 114-3/4 acres and being Lot No. 3 of the division of the lands of the late John M. Watkins, a map of which is recorded in Book of Maps in the Register of Deeds office for Wake County; and being the same property conveyed by deed recorded in Book 752, page 599, Wake County Registry.

There is excepted from the above described tract of land a one (1) acre tract, more or less, and more particularly described as follows:

All that certain tract or parcel of land located in Wake Forest Township, Wake Forest, North Carolina, and being on the North side

ELLIS NASSIF
ATTORNEY AT LAW
RALEIGH, N. C.

of the Tarboro Road, and containing 1 acre, more or less, and more particularly described as follows:

BEGINNING at a point in the center of the Tarboro Road, corner with the land of J. M. Jones; running thence along the center of said Tarboro Road N. 19° W. 210 feet to a point, corner with the land of R. O. Watkins; running thence along the R. O. Watkins' line N. 23° E. 210 feet to a point, another corner with the lands of R. O. Watkins; running thence along R. O. Watkins' line S. 18° E. 210 feet to a point in the line of J. M. Jones; running thence with the line of J. M. Jones S. 23° W. 210 feet to the point and place of BEGINNING, and being a part of Lot No. 3 of the J. M. Watkins' farm, according to a map and survey made by Pittman Stell, Surveyor, dated April, 1925.

TO HAVE AND TO HOLD the aforesaid tract or parcel of land, and all privileges and appurtenances thereto belonging, to the said parties of the second part, their heirs and assigns, to their only use and behoof in fee simple absolute forever.

And the said parties of the first part, for themselves and their heirs, executors, and administrators, covenant with said parties of the second part, their heirs and assigns, that they are seized of said premises in fee and have right to convey in fee simple; that the same are free and clear from all encumbrances, and that they do hereby forever warrant and will forever defend the said title to the same against the lawful claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the said parties of the first part have hereunto set their hands and seals, the day and year first above written.

R. O. Watkins (SEAL) ✓
Romie O. Watkins

Irma Kirkland Watkins (SEAL) ✓
Irma Kirkland Watkins

Claiborne Watkins (SEAL) ✓
Claiborne Watkins

Elizabeth Watkins (SEAL) ✓
Elizabeth Watkins

Jone Ayscue (SEAL) ✓
Jone Ayscue

Ervin R. Ayscue (SEAL) ✓
Ervin R. Ayscue

Wilton Watkins (SEAL) ✓
Wilton Watkins

Excell Watkins (SEAL) ✓
Excell Watkins

BOOK 1318 PAGE 335

Jane Watkins Ruffin (SEAL)

Carlie Ruffin (SEAL)

Louis Watkins (SEAL)

Nevass Watkins (SEAL)

David M. Watkins (SEAL)

Lois Watkins Ward (SEAL)

Leo Ward (SEAL)

NORTH CAROLINA
WAKE COUNTY

I, Bettie Jernigan, Notary Public, do hereby certify that Romie O. Watkins, Irma Kirkland Watkins, Claiborne Watkins, Elizabeth Watkins, Ione Ayscue, Wilton Watkins, Excell Watkins, Jane Watkins Ruffin, Louis Watkins, Nevass Watkins, David M. Watkins, Lois Watkins Ward, and Leo Ward, each personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and Notarial seal, this the 31 day of March, 1959.

Bettie Jernigan
Notary Public

My commission expires: Mar-23.1959

NORTH CAROLINA
DURHAM COUNTY

I, Mae S. Sellers, Notary Public, do hereby certify that Ervin R. Ayscue personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and Notarial seal, this the 25 day of March, 1959.

Mae S. Sellers
Notary Public

My commission expires: 9-13-59

NORTH CAROLINA
New Hanover COUNTY

BOOK 1318 PAGE 336

I, Henry Isaac Rhodes, Notary Public, do hereby certify that Carlie Suffin personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

WITNESS my hand and Notarial seal, this the 26 day of March,

Henry Isaac Rhodes
Notary Public

My commission expires:
5-1-96

STATE OF NORTH CAROLINA:

Wake County:

The foregoing Certificate(s) of

Bettie Jernigan A Notary Public of Wake County, State of North Carolina
Mae D. Gillespie A Notary Public of Durham County, State of North Carolina
Henry Isaac Rhodes A Notary Public of New Hanover County, State of North Carolina

are adjudged to be in due form and correct. Let the instrument with the certificate be registered.

Witness my hand this the 6 day of June, 1958

Grace L. Lewis
Deputy Clerk Superior Court, Wake County, N. C.

Filed for registration at 1:50 P.M. o'clock 6 day of June, 1958,
and registered in the office of the Register of Deeds for Wake County,
in Book 1318 Page 333, 19

Probate 2.50 Paid

Registration $ _____

M. T. Booker
Register of Deeds

STATE OF NORTH CAROLINA
WAKE COUNTY

From Romie O. Watkins

To Irma Kirkland Watkins

THIS DEED, Made this 25th day of February, 1932, by Romie O. Watkins of Wake County and State of North Carolina of the first part, to Irma Kirkland Watkins for the period of her natural life, then equally to her children who survive her of Wake County and State of North Carolina, of the second part:

WITNESSETH, That said Romie O. Watkins in consideration of Ten Dollars and natural love and affection ——— Dollars, to him paid by Irma Kirkland Watkins the receipt of which is hereby acknowledged, has bargained and sold, and by these presents does grant, bargain, sell and convey to said Irma Kirkland Watkins, for the period of her natural life & to her heirs and assigns, a certain tract or parcel of land in Wake County, State of North Carolina, adjoining the lands of J. M. Jones, Mrs. A. P. Upchurch and others, and bounded as follows, viz.:

Beginning at stake on the N.side of the Farboro Road, corner of lot No.4; thence along the lines of lot No.4, N. 22 deg. 30' E. 658' to a stake; thence N. 47 deg. 30' E. 1223' to a stake, thence N. 3100 ft. to a stake and pointers on the south side of Powell's Creek; thence up with the various courses or said Creek to a stake corner of lot No.2; thence south along the line of lot No.2, 4600' to a stake on the Kelly Branch 50' West of J. M. Jones' corner, thence down with the various courses of said Branch to a stake corner of J. M. Jones; thence along Jones line s. 23 deg. W. 886' to a stake on the north side of the Farboro Road, thence along said road N. 81 deg. W. 600' to the beginning, containing one hundred and fourteen and three-fourths acres(114¾) and being lot No.3 or the Division of the lands of the late John M. Watkins, a map of which is recorded in the book of maps in the Register of Deeds office for Wake County .

TO HAVE AND TO HOLD the aforesaid tract or parcel of land, and all privileges and appurtenances thereto belonging, to the said Irma Kirkland Watkins, her heirs and assigns, to their only use and behoof forever.

And the said Romie O. Watkins, for himself and his heirs, executors and administrators, covenanted with said Irma Kirkland Watkins, her heirs and assigns, that he is seized of said premises in fee and has right to convey in fee simple, that the same are free and clear from all encumbrances, and that he do es hereby forever warrant and will forever defend the said title to the same against the claims of all persons whomsoever.

IN TESTIMONY WHEREOF, the said Romie O. Watkins has hereunto set his hand and seal, the day and year first above written.

Attest: W. T. Booker

Romie O. Watkins (Seal)

(Seal)

(Seal)

(Seal)

STATE OF NORTH CAROLINA, Wake COUNTY

I, W. T. Booker, Justice of the Peace, do hereby certify that Romie O. Watkins and ——— his wife, personally appeared before me this day and acknowledged the due execution of the annexed Deed of Conveyance; ~~and the said being by me privately examined, separate and apart from her said husband, touching her voluntary execution of the same, doth state that she signed the same freely and voluntarily, without fear or compulsion of her said husband or any other person, and that she doth still voluntarily assent thereto. Let the instrument, with this certificate, be registered.~~

Witness my hand and Private seal, this 1st day of March, A.D. 1932

~~My commission expires~~ W. T. Booker J. P. N.P. (Seal)

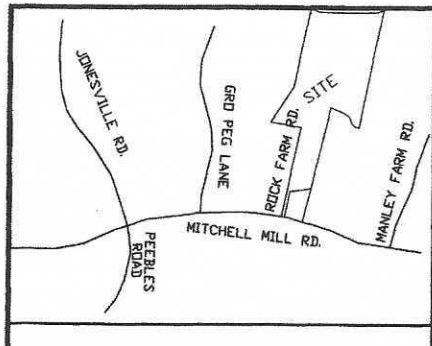
NORTH CAROLINA—WAKE COUNTY

The foregoing certificate of W. T. Booker, a Justice of the Peace of Wake County, State of North Carolina, is adjudged to be correct. Let the instrument, with the certificates, be registered.

Witness my hand, this 1st day of March, A.D. 1932. Hallie Whitlock Dyer, Clerk Superior Court.

Filed for registration on the 1st day of March, 1932, at 9 o'clock A.M., and registered in the office of the Register of Deeds for Wake County, N. C., this 9th day of March, 1932, in Book 752 of Deeds, on page 599. Hunter Ellington, Register of Deeds.

By W. T. Booker, Deputy.



NOTE: BEING A PORTION OF PIN # 1757.02-77-8942
ZONED R -30
REFERENCES: DEED BOOK 1169, PG. 328
DEED BOOK 1318, PG. 333
BOOK OF MAPS 1987, PG. 955
MAP BY KENNETH CLOSE, INC. DATED 07-10-03
ENTITLED " BOUNDARY SURVEY OF HAMPTON AND

NOTE: NO NCGS MONUMENT WITHIN 2000'.
NOTE: AREA COMPUTED BY COORDINATE METHOD.
NOTE: IMPERVIOUS SURFACE COVERAGE SHALL NOT EXCEED 15% ON ANY INDIVIDUAL LOT.

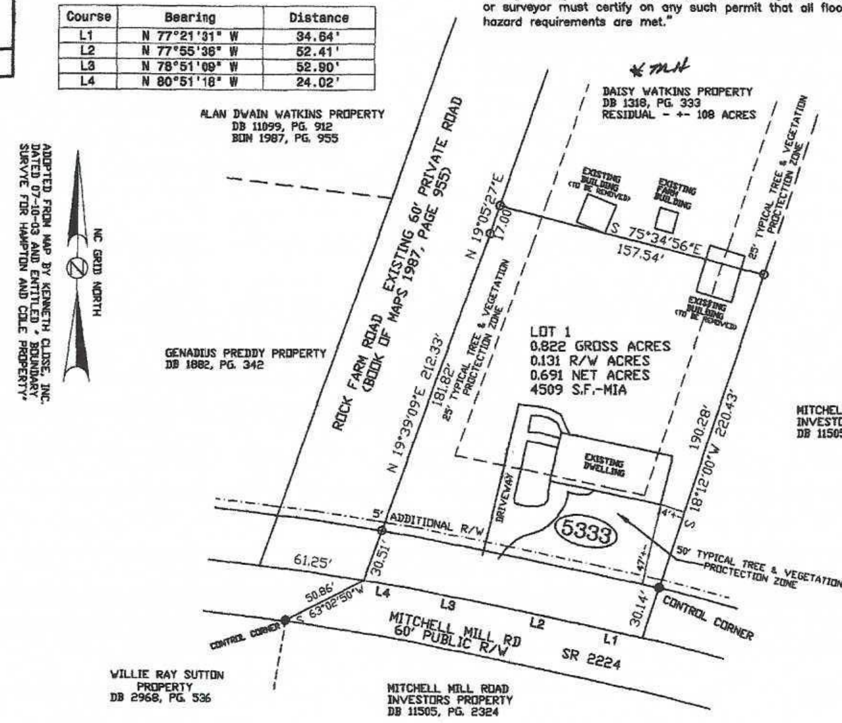
ANY FURTHER SUBDIVISION OF THESE TRACTS WILL HAVE TO MEET ALL REGULATIONS AND STANDARDS, INCLUDING APPLICABLE ROAD STANDARD.

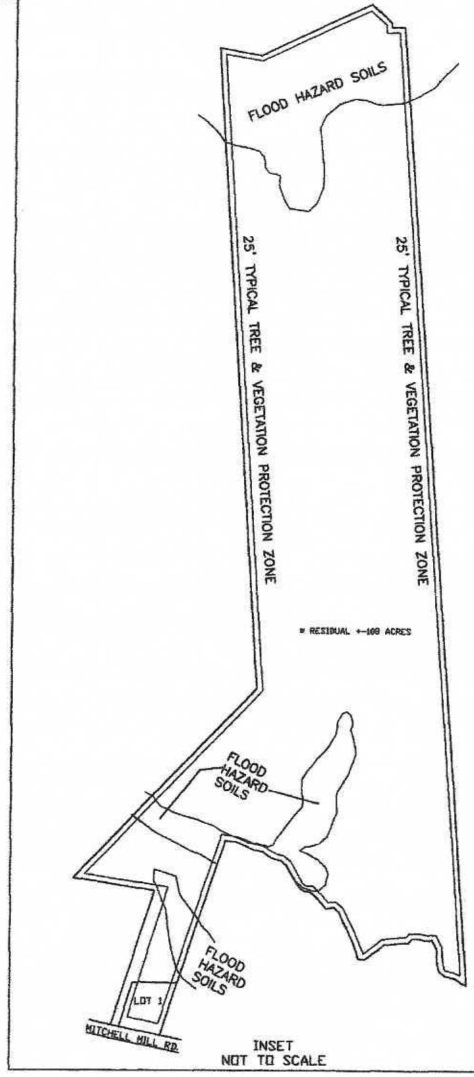
Course	Bearing	Distance
L1	N 77°21'31" W	34.64'
L2	N 77°55'36" W	52.41'
L3	N 78°51'09" W	52.90'
L4	N 80°51'18" W	24.02'

This statement is to advise that one or more of the roads serving this subdivision are designated as private roads, not public roads. All owners of property within the subdivision have easements with one another to travel over and across such roads. The responsibility for maintenance of such private roads falls solely upon the property owners within the subdivision. No representation is made that the private roads within this subdivision meet the minimum requirements necessary to allow such roads to be included in the state secondary road system or that the North Carolina Department of Transportation will eventually assume maintenance of such roads. Moreover, if such private roads are note adequately constructed and maintained, emergency service providers and public service vehicles may be unable to provide adequate service to the residents of the subdivision.

There shall be no filling or the erection of permanent structures in the areas of Wake County Flood Hazard Soil or F.E.M.A. zones until a Flood Study is approved by Wake County or F.E.M.A.

"* Before acquiring a building permit for lots marked by "*", the builder may need to obtain a Flood Hazard Permit from County Zoning Administration. The builder's engineer, architect, or surveyor must certify on any such permit that all flood hazard requirements are met."





CERTIFICATION OF REVIEW BY WAKE COUNTY
DEPARTMENT OF ENVIRONMENTAL SERVICES

Certification granted in conjunction with issuance of improvements permits on lot(s)
EACH IMPROVEMENT PERMIT IS FOR A SPECIFIC USE AND SITING. ANY CHANGE IN INTENDED USE AND/OR SITING OR ANY SITE ALTERATION MAY VOID THE IMPROVEMENT PERMIT. CERTIFICATION IS ONLY FOR LOT(S) WITH THE FOLLOWING PERMIT NUMBER(S):
LOT#: ______ PERMIT#: ______

Certification granted for existing structure with respect to recombination of property lines on lot(s) ______
ANY CHANGE IN USE OR ANY SITE ALTERATION MAY RESULT IN SUSPENSION OR REVOCATION OF APPLICATION PERMITS.
11/1/05 DATE — Brianna Holloway, WAKE COUNTY ENVIRONMENTAL SERVICES AUTHORIZED REPRESENTATIVE
Lot 1, D035079

CERTIFICATION OF OWNERSHIP

The undersigned hereby certify that I am (we are) the owner(s) of the property shown and described hereon, which is in the subdivision jurisdiction of the County of Wake and that I (we) hereby adopt this plat with my (our) free consent.

Daisy C. Watkins — owner — 11-2-2005 — date

______ owner ______ date

" I, CLYDE T. PEARCE, certify that this plat was drawn under my supervision from an actual survey made under my supervision (deed description recorded in Book , page , etc.)(other), that the boundaries not surveyed are clearly indicated as drawn from information found in Book , page , that the ratio of precision as calculated is 1:10000, that this plat was prepared in accordance with G.S 47-30 as amended. Witness my original signature, registration number and seal this 17 day of AUGUST , 2005 A.D.

Surveyor
L-2481
Registration Number

Seal or Stamp

SEAL L-2481 CLYDE T. PEARCE

I, CLYDE T. PEARCE, Registered Land Surveyor No. L-2481, certify that this plat is of a survey that creates a subdivision of land within the area of a county or municipality that has an ordinance that regulates parcels of land.

CLYDE T. PEARCE, REGISTERED LAND SURVEYOR NO. L-2481

I, Stefan Hoddinott , Subdivision Administrator and Review Officer of Wake County, certify that this plat creates a subdivision subject to and approved in accord with the Wake County Subdivision Ordinance, and that it meets all statutory requirements for recording.

11/18/05 Date — S. Hoddinott, Subdivision Administrator/Review Officer

Approval expires if not recorded on or before 2/02/2005

IMPERVIOUS SURFACE COVERAGE - LOT 1
1870 S.F. - HOUSE
1746 S.F. - DRIVEWAY
3616 TOTAL S.F. - COVERAGE
4509 S.F. - ALLOWABLE COVERAGE
893 S.F. - AVAILABLE COVERAGE

LEGEND
● EXISTING IRON PIPE
○ NEW IRON PIPE

MINOR SUBDIVISION FOR DAISY WATKINS WAKE FOREST TOWNSHIP WAKE COUNTY NORTH CAROLINA

50 0 50 100 150
GRAPHIC SCALE - FEET

WAKE COUNTY, NC 220
LAURA M RIDDICK
REGISTER OF DEEDS
PRESENTED & RECORDED ON 11/21/2005 AT 10:51:00

BOOK:BM2005 PAGE:02287

DRAWN BY: CTP & BGW
CHECKED BY: CTP
DATE: 08-17-2005
SCALE: 1' = 50'
JOB: /NEWMAPS/DAISY WATKINS/VHP97 CF
FB:

Book 2005 Page 02287

WILLIAMS - PEARCE & ASSOC., P.A. Professional Land Surveyors P.O. Box 892, Zebulon, N.C. Phone (919)269-9605

S-321-005

WAKE COUNTY, NC
TAMMY L. BRUNNER
REGISTER OF DEEDS
PRESENTED & RECORDED ON
02-16-2022 AT 12:53:17
STATE OF NC REAL ESTATE
EXCISE TAX: $1,445.00
BOOK: 018921 PAGE: 00370 - 00374

NORTH CAROLINA SPECIAL WARRANTY DEED

Excise Tax: $1445.00

Wake County REID Out of 0046970

Mail/Box to: Grantee

This instrument was prepared by: Kenneth L. Eagle, 105 Weston Estates Way, Cary, NC 27513

Brief description for the Index: 25.125 Acres, north side of Mitchell Mill Road (NCSR 2224)

THIS DEED made this 15 day of February 2022, by and between

GRANTOR	GRANTEE
Mitchell Mill Road Investors LLC, a North Carolina limited liability company	Ellis Land Investment Company, LLC, a North Carolina limited liability company
Address: 105 Weston Estates Way Cary, NC 27513	Address: 6801 Falls of Neuse Road, Suite 108 Raleigh, NC 27615

Enter in appropriate block for each Grantor and Grantee: name, mailing address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, 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 situated in Wake Forest Township, Wake County, North Carolina and more particularly described as follows (the "Property"):

SEE EXHIBIT A ATTACHED HERETO AND INCORPORATED BY REFERENCE.

The Property was acquired by Grantor by instrument recorded in Book 11505, Page 2324.

None of the Property herein conveyed includes the primary residence of Grantor.

TO HAVE AND TO HOLD the Property and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor has done nothing to impair such title as Grantor received, and Grantor will warrant and defend the title against the lawful claims of all persons claiming by, under or through Grantor, other than the following exceptions:

1. Ad valorem property taxes for 2022 and subsequent years.

2. Right of way of Mitchell Mill Road (North Carolina Secondary Road 2224).

3. All rights of way, easements, restrictions, agreements, and other matters of record affecting the Property recorded in the office of the Register of Deeds for Wake County, North Carolina, including, without limitation, the following:
   a. Easement to Carolina Power and Light Company recorded in Book 2830, Page 24.
   b. Rights of others entitled thereto in and to the continued uninterrupted flow of any portion of Kelly Branch on or adjoining the Property.
   c. Riparian or littoral rights incident to any branches, creeks, streams, or other waters on or adjoining the Property.
   d. Rights of adjoining property owners in and to any ditches on or adjoining the Property.
   e. Matters that would be shown by a current survey of the Property.

IN WITNESS WHEREOF, the Grantor has caused this Deed to be executed in its company name by its duly authorized official, as of the day and year first above written.

Mitchell Mill Road Investors LLC,
a North Carolina limited liability company

By: _____
Name: Timothy R. Smith
Title: Vice President

Wake County, North Carolina

I certify that the following person personally appeared before me this day and acknowledged to me that he executed the foregoing Deed: Timothy R. Smith.

Date: February 15, 2022

(affix seal or stamp here)

LAUREN L. WARD
NOTARY
PUBLIC
WAKE COUNTY, NC

_____
Notary Public
Printed/Typed Name: Lauren L. Ward
My Commission Expires: Aug. 3, 2024

EXHIBIT A
PROPERTY DESCRIPTION

LYING AND BEING in Wake Forest Township, Wake County, North Carolina, adjoining the right of way of Mitchell Mill Road (North Carolina Secondary Road 2224), and being more particularly described as follows (all recording references are to the office of the Register of Deeds for Wake County, North Carolina):

BEGINNING at an iron pipe found in the north right-of-way line of Mitchell Mill Road, said point being a common corner with the southeast corner of property owned now or formerly by Donnell Watkens (see Deed Book 1318, Page 333); then running along the following lines:

With the eastern boundary line of Watkens, North 18 degrees 12 minutes 00 seconds East 893.03 feet to an iron pipe set;

Continuing with the eastern boundary line of Watkens, North 18 degrees 12 minutes 00 seconds East 50.00 feet to a point in the Kelly Branch;

The along center line of Kelly Branch:

North 39 degrees 14 minutes 44 seconds East 7.31 feet;
South 56 degrees 54 minutes 35 seconds East 48.61 feet;
South 70 degrees 54 minutes 35 seconds East 24.61 feet;
North 70 degrees 48 minutes 45 seconds East 25 .45 feet;
South 40 degrees 27 minutes 21 seconds East 28.19 feet;
South 89 degrees 23 minutes 35 seconds East 32.88 feet;
South 36 degrees 29 minutes 25 seconds East 17.15 feet;
North 87 degrees 07 minutes 56 seconds East 15.72 feet;
South 51 degrees 42 minutes 06 seconds East 21.14 feet;
South 89 degrees 24 minutes 42 seconds East 33.05 feet;
South 02 degrees 01 minutes 35 seconds East 17.48 feet;
South 81 degrees 55 minutes 17 seconds East 15.31 feet;
North 69 degrees 56 minutes 02 seconds East 14.47 feet;
South 47 degrees 41 minutes 48 seconds East 9.88 feet;
South 10 degrees 48 minutes 42 seconds West 17.64 feet;
South 60 degrees 44 minutes 48 seconds East 46.31 feet;
South 37 degrees 39 minutes 08 seconds East 49.81 feet;
South 12 degrees 22 minutes 12 seconds East 24.12 feet;
South 29 degrees 48 minutes 24 seconds East 30.28 feet;
South 82 degrees 27 minutes 46 seconds East 31.99 feet;
South 59 degrees 14 minutes 13 seconds East 17.52 feet;
South 84 degrees 17 minutes 27 seconds East 25.35 feet;
South 34 degrees 56 minutes 33 seconds East 75.35 feet;
South 76 degrees 29 minutes 04 seconds East 27.94 feet;
South 53 degrees 56 minutes 59 seconds East 23.48 feet;
North 62 degrees 42 minutes 03 seconds East 27.98 feet;
South 12 degrees 06 minutes 52 seconds East 39.01 feet;
South 19 degrees 20 minutes 23 seconds East 50.44 feet;

South 77 degrees 09 minutes 16 seconds East 19.10 feet;
South 07 degrees 23 minutes 00 seconds East 8.05 feet;
South 27 degrees 33 minutes 46 seconds West 17.80 feet;
South 02 degrees 52 minutes 45 seconds East 17.25 feet;
South 56 degrees 32 minutes 15 seconds East 19.64 feet;
South 12 degrees 52 minutes 10 seconds East 26.30 feet;
South 77 degrees 21 minutes 17 seconds East 19.17 feet;
South 22 degrees 18 minutes 41 seconds East 19.39 feet;
South 65 degrees 53 minutes 52 seconds East 24.78 feet;
South 19 degrees 31 minutes 10 seconds West 13.15 feet;
South 71 degrees 14minutes 44 seconds East 11.65 feet;
North 78 degrees 16 minutes 05 seconds East 30.35 feet;
North 66 degrees 40 minutes 56 seconds East 29.69 feet;
North 52 degrees 43 minutes 45 seconds East 52.03 feet;
South 84 degrees 05 minutes 40 seconds East 20.63 feet;
North 75 degrees 05 minutes 35 seconds East 16.99 feet;
South 68 degrees 27 minutes 23 seconds East 16.87 feet;
North 81 degrees 44 minutes 06 seconds East 14.34 feet;
South 74 degrees 50 minutes 19 seconds East 19.97 feet;
North 49 degrees 38 minutes 31 seconds East 44.60 feet;
South 62 degrees 45 minutes 51 seconds East 22.37 feet;
North 57 degrees 04 minutes 06 seconds East 21.98 feet;
South 85 degrees 24 minutes 11 seconds East 37.57 feet;
North 62 degrees 13 minutes 03 seconds East 23 .16 feet;
South 54 degrees 59 minutes 08 seconds East 19 .65 feet;
South 15 degrees 17 minutes 54 seconds East 38.18 feet;
South 05 degrees 38 minutes 36 seconds East 33.15 feet;
South 15 degrees 59 minutes 03 seconds West 8.22 feet;
South 53 degrees 28 minutes 36 seconds West 20. 78 feet;
South 27 degrees 04 minutes 40 seconds East 79.74 feet;
North 82 degrees 47 minutes 20 seconds East 21.90 feet;
South 66 degrees 58 minutes 30 seconds East 28.16 feet;
South 81 degrees 40 minutes 19 seconds East 27.96 feet;
South 51 degrees 33 minutes 15 seconds East 16.75 feet;
South 06 degrees 37 minutes 45 seconds West 10.90 feet;
South 19 degrees 04 minutes 40 seconds West 14.50 feet;
South 48 degrees 42 minutes 21 seconds East 17.71 feet;
South 61 degrees 22 minutes 03 seconds East 39.43 feet; and
South 36 degrees 38 minutes 48 seconds East 39.44 feet to a point in the center line of Kelly Branch, in the western boundary line of property owned now or formerly by Joseph H. Wagner (see deeds recorded in Book 5816, Page 277 and Book 2619, Page 775 and maps recorded in Book of Maps 1985, Page 2212 and Book of Maps 1993, Page 446);

then leaving the center line of Kelly Creek and running with the western boundary line of said property of Wagner along the following two (2) lines:

South 01 degrees 27 minutes 33 seconds East 19.71 feet; and
South 00 degrees 27 minutes 33 seconds East 10.00 feet to a point in the eastern boundary line of the Property herein described and a common corner with the southwest corner of said property of Wagner and with the northwest corner of property owned now or formerly by Charles Spencer Jones (see deed recorded in Book 10112, Page 1534);

then with the western boundary line of said property of Jones, along the following two (2) lines:
South 00 degrees 27 minutes 33 seconds East 10.00 feet; and
South 00 degrees 27 minutes 33 seconds East 552.55 feet to a spike set in the centerline of Mitchell Mill Road;

then along the centerline of Mitchell Mill Road the following lines:
North 71 degrees 32 minutes 39 seconds West 24.07 feet;
North 74 degrees 13 minutes 18 seconds West 51.42 feet;
North 75 degrees 48 minutes 52 seconds West 259.87 feet;
North 75 degrees 14 minutes 33 seconds West 152.68 feet;
North 74 degrees 15 minutes 20 seconds West 51.96 feet;
North 74 degrees 59 minutes 06 seconds West 50.07 feet;
North 74 degrees 05 minutes 27 seconds West 50.77 feet;
North 73 degrees 34 minutes 20 seconds West 99.95 feet;
North 72 degrees 45 minutes 42 seconds West 52.88 feet;
North 73 degrees 37 minutes 20 seconds West 98.57 feet;
North 74 degrees 31 minutes 11 seconds West 100.00 feet;
North 75 degrees 15 minutes 51 seconds West 96.96 feet;
North 75 degrees 39 minutes 32 seconds West 154.21 feet;
North 76 degrees 20 minutes 42 seconds West 100.91 feet;
North 77 degrees 07 minutes 54 seconds West 104.34 feet; and
North 77 degrees 21 minutes 31 seconds West 70.97 feet to a spike set in the centerline of Mitchell Mill Road, a common corner with the southeast corner of the aforesaid property owned now or formerly by Watkens;

then with the eastern boundary line of said property of Watkens, North 18 degrees 12 minutes 00 seconds East 30.14 feet to the point and place of BEGINNING,

and being Tract 1, containing a total of 25.125 acres (1.043acres in the right of way of Mitchell Mill Road and 24.082 outside of the right of way of Mitchell Mill Road), as shown on a survey entitled "Boundary Survey of Hampton and Cole Property", prepared by Kenneth Close, Inc., dated July 10, 2003.

WAKE COUNTY, NC
LAURA M RIDDICK
REGISTER OF DEEDS
PRESENTED & RECORDED ON
02-22-2017 AT 13:53:42

BOOK: 016701 PAGE: 00363 - 00364

Excise Tax: $0 Parcel# 443802

Prepared By: Gwynn & Edwards, P.A. (without title exam or tax advice)

Mail After Recording to: **GRANTEE**

NORTH CAROLINA GENERAL WARRANTY DEED

This Deed made this 15 day of February, 2017, by and between **DAISY WATKINS, *GRANTOR, to* RANDALL WATKINS and wife, LAURA WATKINS, *GRANTEES,*** whose mailing address is 3278 Landing Falls Lane, Raleigh, NC 27616.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for 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 situated in Wake County, North Carolina and more particularly described as follows:

BEING ALL OF TRACT 1 containing 10.524 gross acres as shown on map entitled "Exempt Subdivision for Randall Watkins, Wake Forest Township, Wake County, North Carolina" by Williams-Pearce and Assoc., Professional Land Surveyors, P.A., dated 12/08/2016 and recorded in Book of Maps 2017, Page 218, Wake County Registry.

This deed was prepared without a title search and drafting attorney makes no representation as to title or estate.

This is not the primary residence of the Grantor.

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 Grantor covenants with the Grantee, that Grantor is 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 Grantor 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:

1. 2017 ad valorem taxes; and
2. Any rights of way and easements of record, if any.

The property hereinabove described was conveyed to Grantor by instrument recorded in Book 1318, Page 333, Wake County Registry.

A map of the above-described property is recorded in Book of Maps 2017, Page 218, Wake County Registry.

IN TESTIMONY WHEREOF, the Grantor has hereunto set her hand and seal the day and year first above written.

Daisy Watkins (SEAL)
DAISY WATKINS

CHARLOTTE L. THAXTON Notary Public Franklin County NORTH CAROLINA

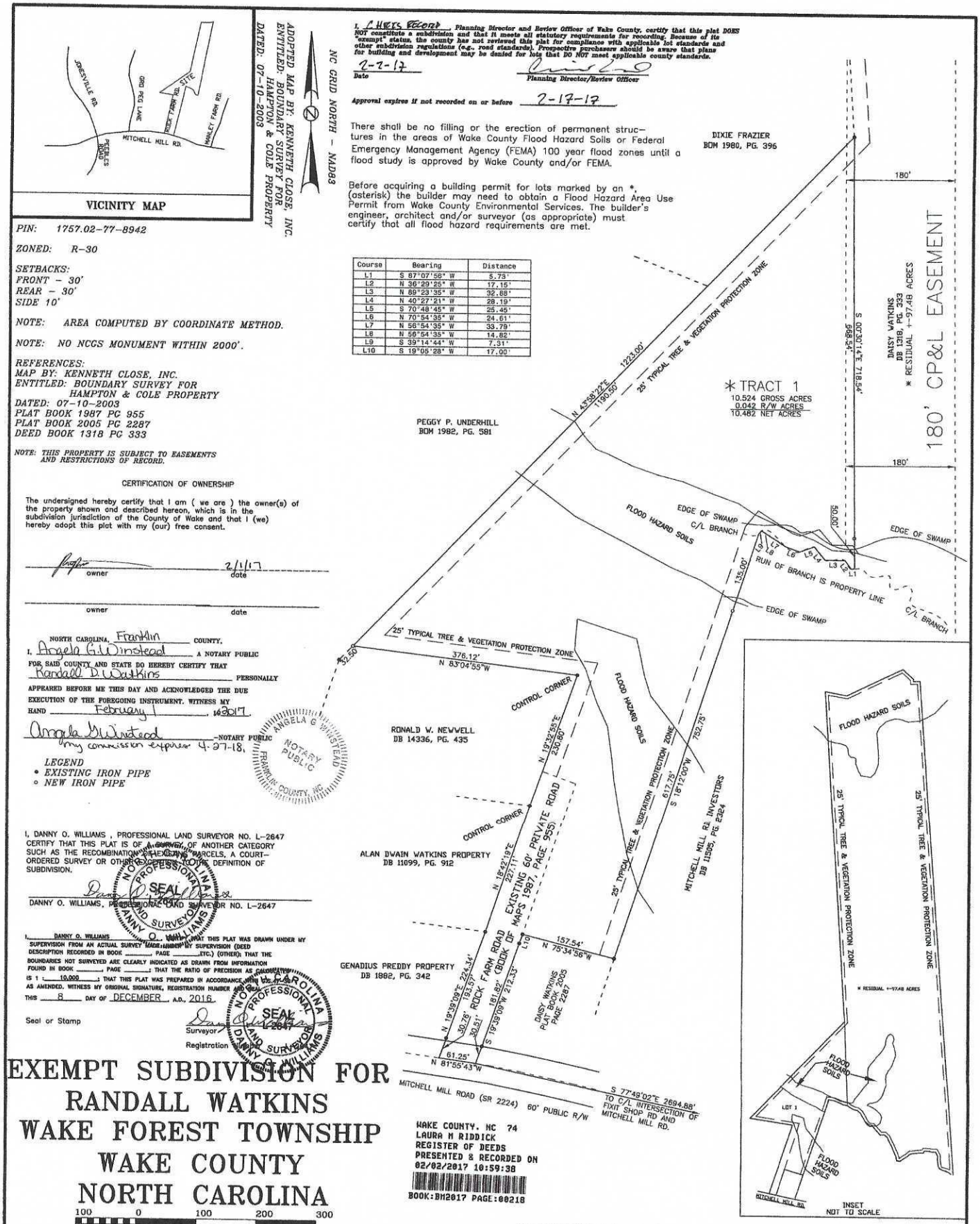
STATE OF NORTH CAROLINA
Wake COUNTY
Franklin

I, a Notary Public of the County and State aforesaid, certify that DAISY WATKINS personally appeared before me this day and acknowledged the voluntary execution of the foregoing instrument. Witness my hand and official stamp or seal, this 15 day of FEBRUARY, 2017.

My Commission Expires: 9-12-2021

CHARLOTTE L. THAXTON Notary Public Franklin County NORTH CAROLINA

Charlotte L Thaxton
NOTARY PUBLIC
CHARLOTTE L. THAXTON



BM 2017 PG 218

S-333-16

BKBM2017PG00218

LEGAL DESCRIPTIONS

5333 Mitchell Mill Road, Wake Forest, NC 27587 (PIN: 1757750520; REID: 0074789)

BEING all of Lot 1 as shown on that plat titled "Minor Subdivision for Daisy Watkins" by Williams-Pearce & Assoc., P.A., recorded in Book of Maps 2005, Page 2287, Wake County Registry.

3645 Rock Farm Road, Wake Forest, NC 27587 (PIN: 1757761273; REID: 0443802)

BEING all of Tract 1 containing 10.524 gross acres as shown on map entitled "Exempt Subdivision for Randall Watkins, Wake Forest Township, Wake County, North Carolina" by Williams-Pearce and Assoc., Professional Land Surveyors, P.A., dated 12/08/2016 and recorded in Book of Maps 2017, Page 218, Wake County Registry.

0 Mitchell Mill Road, Wake Forest, NC 27587 (PIN: 1757778982; REID: 0443803)

BEGINNING at stake on the North side of the Traboro Road corner of Lot No. 4; thence along the lines of Lot No. 4, N. 22° 30' E. 658 feet to a stake; thence N. 47° 30' E. 1223 feet to a stake; thence N. 3100 feet to a stake and pointers on the south side of Powell's Creek; thence up with the various courses of said Creek to a stake corner of Lot No. 2; thence South along the line of Lot No. 2, 4600 feet to a stake on the Kelly Branch 50 feet West of J.M. Jones' corner; thence down with the various courses of said branch to a stake corner of J.M. Jones; thence along Jones line S. 23° W. 886 feet to a stake on the North side of the Traboro Road; thence along said road N. 81° W. 600 feet to the BEGINNING, containing 114-3/4 acres and being Lot No. 3 of the division of the lands of the late John M. Watkins, a map of which is recorded in Book of Maps in the Register of Deeds office for Wake County; and being the same property conveyed by deed recorded in Book 752, Page 599, Wake County Registry.

There is excepted from the above described tract of land a one (1) acre tract, more or less, and more particularly described as follows:

All that certain tract or parcel of land located in Wake Forest Township, Wake Forest, North Carolina, and being on the North side of the Tarboro Road, and containing 1 acre, more or less, and more particularly described as follows:

BEGINNING at a point in the center of the Tarboro Road, corner with the land of J.M. Jones; running thence along the center of said Tarboro Road N. 18° W. 210 feet to a point, corner with the land of R.O. Watkins; running thence along the R.O. Watkins' line N. 23° E. 210 feet to a point, another corner with the lands of R.O. Watkins; running thence along R.O. Watkins' line S. 18° E. 210 feet to a point in the line of J.M. Jones; running thence with the line of J.M. Jones S. 23° W. 210 feet to the point and place of BEGINNING, and being a part of Lot No. 3 of the J.M. Watkins' farm, according to a map and survey made by Pittman Stell, Surveyor, dated April, 1925.

5326 Mitchell Mill Road, Wake Forest, NC 27587 (PIN: 1757738648; REID: 0046970)

LYING AND BEING in Wake Forest Township, Wake County, North Carolina, adjoining the right of way of Mitchell Mill Road (North Carolina State Road 2224), and being more particularly described as follows:

TRACT ONE:

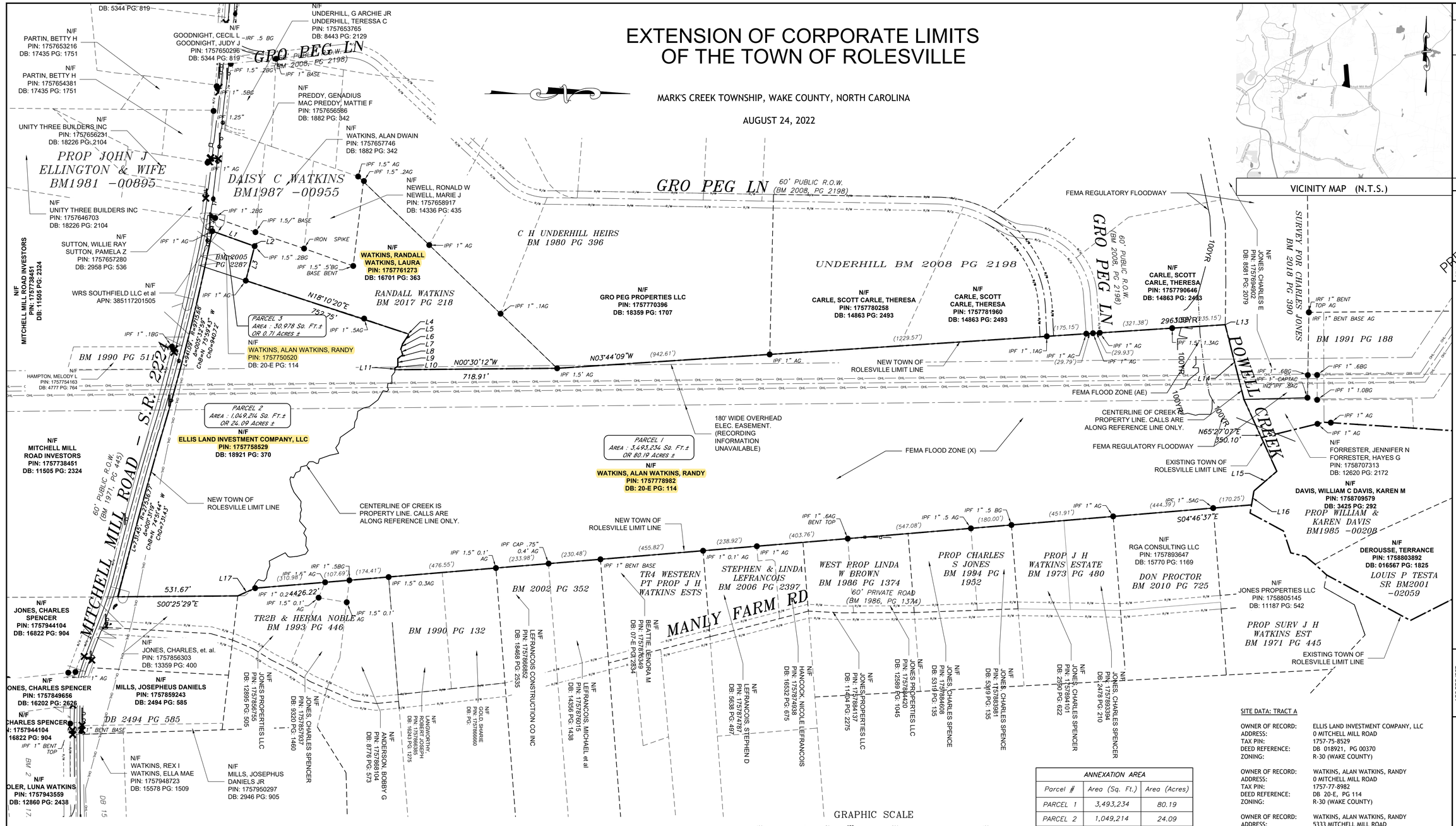
BEGINNING at an iron pipe found in the north right-of-way line of Mitchell Mill Road, said point being the common corner of Lois Jones Merriman Heirs' property and the southeast corner of Donnell Watkens (Deed Book 1318, Page 333, Wake County Registry); thence North 18 degrees 12 minutes 00 seconds East 893.03 feet to an iron pipe set; thence North 18 degrees 12 minutes 00 seconds East 50.00 feet to a point in the Kelly Branch the following courses and distances: North 39 degrees 14 minutes 44 seconds East 7.31 feet; South 56 degrees 54 minutes 35 seconds East 48.61 feet; South 70 degrees 54 minutes 35 seconds East 24.61 feet; North 70 degrees 48 minutes 45 seconds East 25.45 feet; South 40 degrees 27 minutes 21 seconds East 28.19 feet; South 89 degrees 23 minutes 35 seconds East 32.88 feet; South 36 degrees 29 minutes 25 seconds East 17.15 feet; North 87 degrees 07 minutes 56 seconds East 15.72 feet; South 51 degrees 42 minutes 06 seconds East 21.14 feet; South 89 degrees 24 minutes 42 seconds East 33.05 feet; South 02 degrees 01 minutes 35 seconds East 17.48 feet; South 81 degrees 55 minutes 17 seconds East 15.31 feet; North 69 degrees 56 minutes 02 seconds East 14.47 feet; South 47 degrees 41 minutes 48 seconds East 9.88 feet; South 10 degrees 48 minutes 42 seconds West 17.64 feet; South 60 degrees 44 minutes 48 seconds East 46.31 feet; South 37 degrees 39 minutes 08 seconds East 49.81 feet; South 12 degrees 22 minutes 12 seconds East 24.12 feet; South 29 degrees 48 minutes 24 seconds East 30.28 feet; South 82 degrees 27 minutes 46 seconds East 31.99 feet; South 59 degrees 14 minutes 13 seconds East 17.52 feet; South 84 degrees 17 minutes 27 seconds East 25.35 feet; South 34 degrees 56 minutes 33 seconds East 75.35 feet; South 76 degrees 29 minutes 04 seconds East 27.94 feet; South 53 degrees 56 minutes 59 seconds East 23.48 feet; North 62 degrees 42 minutes 03 seconds East 27.98 feet; South 12 degrees 06 minutes 52 seconds East 39.01 feet; South 19 degrees 20 minutes 23 seconds East 50.44 feet; South 77 degrees 09 minutes 16 seconds East 19.10 feet; South 07 degrees 23 minutes 00 seconds East 8.05 feet; South 27 degrees 33 minutes 46 seconds West 17.80 feet; South 02 degrees 52 minutes 45 seconds East 17.25 feet; South 56 degrees 32 minutes 15 seconds East 19.64 feet; South 12 degrees 52 minutes 10 seconds East 26.30 feet; South 77 degrees 21 minutes 17 seconds East 19.17 feet; South 22 degrees 18 minutes 41 seconds East 19.39 feet; South 65 degrees 53 minutes 52 seconds East 24.78 feet; South 19 degrees 31 minutes 10 seconds West 13.15 feet; South 71 degrees 14 minutes 44 seconds East 11.65 feet; North 78 degrees 16 minutes 05 seconds East 30.35 feet; North 66 degrees 40 minutes 56 seconds East 29.69 feet; North 52 degrees 43 minutes 45 seconds East 52.03 feet; South 84 degrees 05 minutes 40 seconds East 20.63 feet; North 75 degrees 05 minutes 35 seconds East 16.99 feet; South 68 degrees 27 minutes 23 seconds East 16.87 feet; North 81 degrees 44 minutes 06 seconds East 14.34 feet; South 74 degrees 50 minutes 19 seconds East 19.97 feet; North 49 degrees 38 minutes 31 seconds East 44.60 feet; South 62 degrees 45 minutes 51 seconds East 22.37 feet; North 57 degrees 04 minutes 06 seconds East 21.98 feet; South 85 degrees 24 minutes 11 seconds East 37.57 feet; North 62 degrees 13 minutes 03 seconds East 23.16 feet; South 54 degrees 59 minutes 08 seconds East 19.65 feet; South 15 degrees 17 minutes 54 seconds East 38.18 feet; South 05 degrees 38 minutes 36 seconds East 33.15 feet; South 15 degrees 59 minutes 03 seconds West 8.22 feet; South 53 degrees 28 minutes 36 seconds West 20.78 feet; South 27 degrees 04 minutes 40 seconds East 79.74 feet; North 82 degrees 47 minutes 20 seconds East 21.90 feet; South 66 degrees 58 minutes 30 seconds East 28.16 feet; South 81 degrees 40 minutes 19 seconds East 27.96 feet; South 51 degrees 33 minutes 15 seconds East 16.75 feet; South 06 degrees 37 minutes 45 seconds West 10.90 feet; South 19 degrees 04 minutes 40 seconds West 14.50 feet; South 48 degrees 42 minutes 21 seconds East 17.71 feet; South 61 degrees 22 minutes 03 seconds East 39.43 feet; South 36 degrees 38 minutes 48 seconds East 39.44 feet; South 00 degrees 27 minutes 33 seconds East 19.71 feet; South 00 degrees 27 minutes 33 seconds East 10.00 feet; South 00 degrees 27 minutes 33 seconds East 10.00 feet; then South 00 degrees 27 minutes 33 seconds East 552.55 feet to a spike set in the centerline of Mitchell Mill Road; thence along the centerline of Mitchell Mill Road the following courses and distances: North 71 degrees 32 minutes 39 seconds West 24.07 feet; North 74 degrees 13 minutes 18 seconds West 51.42 feet; North 75 degrees 48 minutes 52 seconds West 259.87 feet; North 75 degrees 14 minutes 33 seconds West 152.68 feet; North 74 degrees 15 minutes 20 seconds West 51.96 feet; North 74 degrees 59 minutes 06 seconds West 50.07 feet; North 74 degrees 05 minutes 27 seconds West 50.77 feet; North 73 degrees 34 minutes 20 seconds West 99.95 feet; North 72 degrees 45 minutes 42 seconds West 52.88 feet; North 73 degrees 37 minutes 20 seconds West 98.57 feet; North 74 degrees 31 minutes 11 seconds West 100.00 feet; North 75 degrees 15 minutes 51 seconds West 96.96 feet; North 75 degrees 39 minutes 32 seconds West 154.21 feet; North 76 degrees 20 minutes 42 seconds West 100.91 feet; North 77 degrees 07 minutes 54 seconds West 104.34 feet; North 77 degrees 21 minutes 31 seconds West 70.97 feet to a spike set in the centerline of Mitchell Mill Road; thence North 18 degrees 12 minutes 00 seconds East 30.14 feet to the point and place of BEGINNING and being Tract 1 containing a total of 25.125 acres (1.043 acres in the right-of-way of Mitchell Road and 24.082 outside of the right-of-way of Mitchell Mill Road), as shown on a survey entitled "Boundary Survey of Hampton and Cole Property", prepared by Kenneth Close, Inc., dated July 10, 2003.

PROGRESS PLOT DATE: 12-03-2021

EXTENSION OF CORPORATE LIMITS
OF THE TOWN OF ROLESVILLE

MARK'S CREEK TOWNSHIP, WAKE COUNTY, NORTH CAROLINA

AUGUST 24, 2022



D.B.	DEED BOOK
B.M.	BOOK OF MAPS
Pg.	PAGE
PIN	PARCEL ID NUMBER
S.F.	SQUARE FEET
Ac.	ACRES
○	EX. PROPERTY CORNER
●	NEW 3/4" IRON PIPE
□	EX. CONCRETE MONUMENT
⊙	COMPUTED POINT
⊡	CATCH BASIN
Ⓓ	STORM JUNCTION BOX
⊞	STORM GRATED INLET
◁	FLARED-END SECTION
⊕	STORM CLEANOUT
	FIRE HYDRANT
⋈	WATER VALVE
Ⓦ	WATER METER
Ⓢ	SANITARY SEWER MANHOLE
◯	SANITARY SEWER MANHOLE (NON-SURVEY)
⊡	SANITARY SEWER CLEANOUT
Ⓕ	FIBER OPTIC MARKER
T	TELEPHONE PEDESTAL
C	CABLE PEDESTAL
	POWER POLE
P	POWER PEDESTAL
☼	LAMP POST
Ⓖ	GAS MARKER

OVERHEAD POWER
UNDERGROUND POWER
GAS MAIN
STORM PIPE
SANITARY SEWER PIPE
WATER MAIN
UNDERGROUND TELE.
FENCE
EASEMENT
PROPERTY BOUNDARY
— — — -330- — — — MAJOR CONTOUR
MINOR CONTOUR
TREE LINE

LINE TABLE

LINE #	BEARING	DISTANCE
L1	N19°39'09"E	181.82'
L2	N18°12'39"E	17.06'
L3	S75°36'36"E	157.54'
L4	N39°13'04"E	7.31'
L5	S56°56'15"E	48.61'
L6	S70°56'15"E	24.61'
L7	N70°47'05"E	25.45'
L8	S40°29'01"E	28.19'
L9	S89°25'15"E	32.88'
L10	S36°31'05"E	17.15'
L11	N87°06'16"E	5.73'
L13	S88°59'15"E	0.54'
L14	N75°53'40"E	340.47'
L15	S40°38'56"E	133.25'
L16	S80°06'11"E	62.70'
L17	S24°08'12"E	83.90'

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

ANNEXATION AREA

Parcel #	Area (Sq. Ft.)	Area (Acres)
PARCEL 1	3,493,234	80.19
PARCEL 2	1,049,214	24.09
PARCEL 3	30,978	0.71
TOTAL AREA	4,612,910	105.90

SURVEYOR NOTES:

1. Field survey performed March, 2022.
2. All distances shown are horizontal ground measurements in U.S. Survey Feet.
3. Surveyor has made no investigation or independent search for easements of record, encumbrances, restrictive covenants, ownership title evidence or any other facts that an accurate and current title search may disclose
4. All coordinates and bearings are based on the North American Datum of 1983(NSRS2011). Units of measurement are US Survey Feet.
5. Areas calculated by CAD software (coordinate geometry).
6. Subject parcel is NOT located in a Special Flood Hazard Zone per FEMA Map Number 3720175700K, last revised July 19, 2022 EXCEPT as indicated herein.
7. This plat is for annexation purposes only. All improvements, easements not shown hereon.

SURVEYOR CERTIFICATION

I, Dale Lovelace, certify that this plat was drawn under my supervision from an actual survey made under my supervision (deed and description recorded in Book referenced etc.)(other); that the boundaries not surveyed are clearly indicated as drawn from information found in Book referenced; that the ratio of precision or positional accuracy as calculated exceeds 1:10,000; that this plat was prepared in accordance with G.S. 47-30 as amended.

Furthermore 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, license number and seal this ___th day of February A.D.,2022.

____
Professional Land Surveyor
License Number: L-4901

SITE DATA: TRACT A

OWNER OF RECORD: ELLIS LAND INVESTMENT COMPANY, LLC
ADDRESS: 0 MITCHELL MILL ROAD
TAX PIN: 1757-75-8529
DEED REFERENCE: DB 018921, PG 00370
ZONING: R-30 (WAKE COUNTY)

OWNER OF RECORD: WATKINS, ALAN WATKINS, RANDY
ADDRESS: 0 MITCHELL MILL ROAD
TAX PIN: 1757-77-8982
DEED REFERENCE: DB 20-E, PG 114
ZONING: R-30 (WAKE COUNTY)

OWNER OF RECORD: WATKINS, ALAN WATKINS, RANDY
ADDRESS: 5333 MITCHELL MILL ROAD
TAX PIN: 1757-75-0520
DEED REFERENCE: DB 20-E, PG 114
ZONING: R-30 (WAKE COUNTY)

REVIEW OFFICER CERTIFICATION

I, ______________________, Review Officer of Wake County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

____
Review Officer Date

TOWN CLERK CERTIFICATION

I hereby certify that this map has been granted approval for recording in the office of the Wake County Register of Deeds.

____
Town Clerk Date

No.	REVISIONS	DATE	BY

SEAL
NORTH CAROLINA PROFESSIONAL SEAL L-4901 LAND SURVEYOR DALE F. LOVELACE
PRELIMINARY PLAT
NOT FOR RECORDATION, CONVEYANCES OR SALES

AERIAL + GROUND
SURVEYING + ENGINEERING
AERIAL AND GROUND SURVEYING, PLLC | COMPANY LICENSE # P-2586
6801 FALLS OF NEUSE RD. SUITE 108 RALEIGH, NC 27615 | JOSH@STRONGROCKGROUP.COM

AGS PROJECT
NOT FOR CONSTRUCTION
SCALE AS SHOWN
DESIGNED BY DAL
DRAWN BY FFS
CHECKED BY DAL

MITCHELL MILL ROAD
MARKS CREEK TOWNSHIP
TOWN OF ROLESVILLE
WAKE COUNTY, NORTH CAROLINA
ANNEXATION PLAT

DRAWING SHEET
AN-1

CERTIFICATE OF SUFFICIENCY

ANX24-01 - Hills at Harris Creek

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 9th day of April 2024

TOWN OF ROLESVILLE INCORPORATED 1941 NORTH CAROLINA

Robin E. Peyton

Robin E. Peyton
Town Clerk

ANX-24-01_HILLS at HARRIS CREEK PROPERTY OWNER MAP

Metes and Bounds City of Rolesville

All those tracts of land located in the City of Rolesville, Wake County, North Carolina being owned by Watkins, Randall Watkins, Laura (Tract 1), Watkins, Alan Watkins, Randy (Tract 2), Ellis Land Investment Company, LLC (Tract 3), and Watkins, Alan Watkins, Randy (Tract 4) being more particularly described as follows:

Tract 1:

Beginning at an Existing 1 Inch Iron Pipe at the intersection of the right-of-way of Mitchell Mill Road and Rock Farm Road a 60 Foot Private Road and having North Carolina State Plane Coordinates of N: 775,443.03 E: 2,156,848.70 NAD_83 (2011):

Thence along said Rock Farm Road and the adjoining property lines of the Preddy, Genadius Mac Preddy, Mattie F property, Watkins, Alan Dwain property, and the Newell, Ronald W Newell, Marie J property the following four courses:

1. N 19°37'29" E 190.11 Feet to an Existing 1 1/2Inch Iron Pipe:
2. N 18°40'39" E 227.11 Feet to an Existing Iron Pipe:
3. N 19°31'15" E 230.79 Feet to an Existing 1 1/2Inch Iron Pipe:
4. N 83°06'35" W 376.14 Feet to an Existing 1 1/2Inch Iron Pipe along the property line of Villanueva, Philip Shelley Villanueva, Nadia Sulta property:

Thence along said property line N 43°56'42" E 404.87 Feet to an Existing 1 Inch Iron Pipe at the Northeastern property corner of the aforementioned property and the Southwestern property corner of the Gro Peg Properties LLC property:

Thence along said property line N 43°56'42" E 438.17 Feet to an Existing 1 Inch Iron Pipe at the Northeastern property corner of the aforementioned property, the Southern property corner of the Ferlito, Christopher J Morris, Sarah L Lot 1, and the Southwestern property corner of the Ferlito, Christopher J Morris, Sarah L Lot 2 property:

Thence along said property line N 43°56'42" E 347.97 Feet to an Existing Iron Pipe along the property line of the Watkins, Alan Watkins, Randy (Tract 4) property:

Thence along said property line S 00°30'14" E 718.36 Feet to a Calculated Point along the property line of the Ellis Land Investment Company, LLC:

Thence along said property line the following nine courses:

1. S 87°04'15" W 5.86 Feet to a Calculated Point:
2. N 36°29'25" W 16.94 Feet to a Calculated Point:
3. N 89°23'35" W 32.88 Feet to a Calculated Point:
4. N 40°27'21" W 28.19 Feet to a Calculated Point:
5. S 70°48'45" W 25.45 Feet to a Calculated Point:
6. N 70°54'35" W 24.61 Feet to a Calculated Point:
7. N 56°54'35" W 48.61 Feet to a Calculated Point:
8. S 39°14'44" W 7.31 Feet to a Calculated Point:

9. S 18°10’18” W 752.73 Feet to an Existing 1 Inch Iron Pipe found at the Northeastern corner of the Watkins, Alan Watkins, Randy (Tract 2) property:

Thence along said property line the following three courses:

1. N 75°34’56” W 157.91 Feet to an Existing 1 1/2 Inch Iron Pipe:
2. S 19°05’28” W 17.00 Feet to a Calculated Point:
3. S 19°39’09” W 182.35 Feet to an Existing 1 1/2 Inch Iron Pipe along the right-of-way of Mitchell Mill Road:

Thence along said right-of-way N 78°33’23” W 60.00 Feet to the point of beginning containing 456,273 square feet or 10.47 acres, more or less, being portion of the Watkins, Randall Watkins, Laura (Tract 1) property as described in Deed Book 16701, Page 363 and Book of Maps 2017, Page 218 of the Wake County Register of Deeds.

Tract 2:

Commencing at an Existing 1 Inch Iron Pipe at the intersection of the right-of-way of Mitchell Mill Road and Rock Farm Road a 60 Foot Private Road and having North Carolina State Plane Coordinates of N: 775,443.03 E: 2,156,848.70 NAD_83 (2011):

Thence along said right-of-way S 78°33’23” E 60.00 Feet to the point of beginning at the Southeastern corner of the Watkins, Randall Watkins, Laura (Tract 1) property and the aforementioned right-of-way:

Thence leaving said right-of-way and along said property line the following three courses:

1. N 19°39’09” E 182.35 Feet to a calculated point:
2. N 19°05’28” E 17.00 Feet to an Existing 1 1/2 Inch Iron Pipe:
3. S 75°34’56” E 157.91 Feet to an Existing 1 Inch Iron Pipe along the property line of the Ellis Land Investment Company, LLC (Tract 3) property:

Thence along said property line S 18°08’19” W 190.74 Feet to a Calculated Point along the right-of-way of Mitchell Mill Road:

Thence along said right-of-way the following two courses:

1. N 77°23’13” W 76.88 Feet to a Calculated Point:
2. A curve to the left said curve having a radius of 1,254.28 Feet, a length of 86.92 Feet, and a bearing and distance of N 79°23’30” W 86.90 Feet to the point of beginning containing 31,014 square feet or 0.71 acres, more or less, being a portion of the Watkins, Alan Watkins, Randy (Tract 2) property as described in Book of Maps 2005, Page 2287 of the Wake County Register of Deeds

Tract 3:

Commencing at an Existing 1 Inch Iron Pipe at the intersection of the right-of-way of Mitchell Mill Road and Rock Farm Road a 60 Foot Private Road and having North Carolina State Plane Coordinates of N:775,443.03 E: 2,156,848.84 NAD_83 (2011):

Thence along said right of way the following three courses:

1. S 78°33'23" E 60.00 Feet to an Existing 1 Inch Iron Pipe:
2. A curve to the right said curve having a radius of 1,254.28 Feet, a length of 86.92 Feet, and a bearing and distance of S 79°23'30" E 86.90 Feet to a Calculated Point:
3. S 77°23'13" E 76.88 Feet to the point of beginning at along the aforementioned right-of-way and the Southeastern corner of the Watkins, Alan Watkins, Randy (Tract 2) property:

Thence along said property line N 18°08'19" E 190.74 Feet to an Existing 1 Inch Iron Pipe along the property line of the Watkins, Randall Watkins, Laura (Tract 1):

Thence along said property line the following nine courses

1. N 18°10'08" E 752.73 Feet to a Calculated Point:
2. N 39°14'44" E 7.31 Feet to a Calculated Point:
3. S 56°54'35" E 48.61 Feet to a Calculated Point:
4. S 70°54'35" E 24.61 Feet to a Calculated Point:
5. N 70°48'45" E 25.45 Feet to a Calculated Point:
6. S 40°27'21" E 28.19 Feet to a Calculated Point:
7. S 89°23'35" E 32.88 Feet to a Calculated Point:
8. S 36°29'25" E 16.94 Feet to a Calculated Point:
9. N 87°04'15" E 5.86 Feet to a Calculated Point along the property line of Watkins, Alan Watkins, Randy (Tract 4):

Thence along said property line the following fifty-nine courses:

1. N 87°04'15" E 9.59 Feet to a Calculated Point:
2. S 51°45'47" E 21.14 Feet to a Calculated Point:
3. S 89°28'23" E 33.05 Feet to a Calculated Point:
4. S 02°05'16" E 17.48 Feet to a Calculated Point:
5. S 81°58'58" E 15.31 Feet to a Calculated Point:
6. N 69°52'21" E 14.47 Feet to a Calculated Point:
7. S 47°45'29" E 9.88 Feet to a Calculated Point:
8. S 10°45'01" W 17.64 Feet to a Calculated Point:
9. S 60°48'29" E 46.31 Feet to a Calculated Point:
10. S 37°42'49" E 49.81 Feet to a Calculated Point:
11. S 12°25'53" E 24.12 Feet to a Calculated Point:
12. S 29°52'05" E 30.28 Feet to a Calculated Point:
13. S 82°31'27" E 31.99 Feet to a Calculated Point:
14. S 59°17'54" E 17.52 Feet to a Calculated Point:
15. S 84°21'08" E 25.35 Feet to a Calculated Point:
16. S 35°00'14" E 75.35 Feet to a Calculated Point:

17. S 76°32’45” E 27.94 Feet to a Calculated Point:
18. S 54°00’40” E 23.48 Feet to a Calculated Point:
19. N 62°38’22” E 27.98 Feet to a Calculated Point:
20. S 12°10’33” E 39.01 Feet to a Calculated Point:
21. S 19°24’04” E 50.44 Feet to a Calculated Point:
22. S 77°12’54” E 19.10 Feet to a Calculated Point:
23. S 07°12’57” E 8.05 Feet to a Calculated Point:
24. S 27°30’05” W 17.80 Feet to a Calculated Point:
25. S 02°56’26” E 17.25 Feet to a Calculated Point:
26. S 56°35’56” E 19.64 Feet to a Calculated Point:
27. S 12°55’51” E 26.30 Feet to a Calculated Point:
28. S 77°24’58” E 19.17 Feet to a Calculated Point:
29. S 22°22’22” E 19.39 Feet to a Calculated Point:
30. S 65°57’33” E 24.78 Feet to a Calculated Point:
31. S 19°27’29” W 13.15 Feet to a Calculated Point:
32. S 71°18’25” E 11.65 Feet to a Calculated Point:
33. N 78°12’24” E 30.35 Feet to a Calculated Point:
34. N 66°37’15” E 29.69 Feet to a Calculated Point:
35. N 52°40’04” E 52.03 Feet to a Calculated Point:
36. S 84°09’21” E 20.63 Feet to a Calculated Point:
37. N 75°01’54” E 16.99 Feet to a Calculated Point:
38. S 68°31’04” E 16.87 Feet to a Calculated Point:
39. N 81°40’25” E 14.34 Feet to a Calculated Point:
40. S 74°54’00” E 19.97 Feet to a Calculated Point:
41. N 49°34’50” E 44.60 Feet to a Calculated Point:
42. S 62°49’32” E 22.37 Feet to a Calculated Point:
43. N 57°00’25” E 21.98 Feet to a Calculated Point:
44. S 85°27’52” E 37.57 Feet to a Calculated Point:
45. N 62°09’22” E 23.16 Feet to a Calculated Point:
46. S 55°02’49” E 19.65 Feet to a Calculated Point:
47. S 15°21’35” E 38.18 Feet to a Calculated Point:
48. S 05°42’17” E 33.15 Feet to a Calculated Point:
49. S 15°55’22” W 8.22 Feet to a Calculated Point:
50. S 53°24’55” W 20.78 Feet to a Calculated Point:
51. S 27°08’21” E 79.74 Feet to a Calculated Point:
52. N 82°43’39” E 21.90 Feet to a Calculated Point:
53. S 67°02’11” E 28.16 Feet to a Calculated Point:
54. S 81°44’00” E 27.96 Feet to a Calculated Point:
55. S 51°36’56” E 16.75 Feet to a Calculated Point:
56. S 06°34’04” W 10.90 Feet to a Calculated Point:
57. S 19°00’59” W 14.50 Feet to a Calculated Point:
58. S 48°46’02” E 17.71 Feet to a Calculated Point:
59. S 61°25’44” E 33.69 Feet to a Calculated Point along the property line of the Jones Properties LLC property:

Thence along said property line S 24°08’05” E 71.51 Feet to a Calculated Point at the Northwestern corner of the Jones, Charles Spencer Jones, Sharon property:

Thence along said property line S 00°25’56” E 530.78 Feet to a Calculated Point along the right-of-way of Mitchel Mill Road:

Thence along said right-of-way the following six courses:

1. N 71°34’19” W 6.89 Feet to a Calculated Point:
2. A curve to the left having a radius of 730.00 Feet, a length of 54.41 Feet, and a bearing and distance of N 73°42’26” W 54.39 Feet to a Calculated Point:
3. N 75°50’32” W 213.47 Feet to a Calculated Point:
4. A curve to the right having a radius of 10,970.00 Feet, a length of 454.08 Feet, and a bearing and distance of N 74°39’23” W 454.05 Feet to a Calculated Point:
5. A curve to the left having a radius of 11,030.00 Feet, a length of 753.92 Feet, and a bearing and distance of N 75°25’44” W 753.77 Feet to a Calculated Point:
6. N 77°23’13” W 26.66 Feet to the point of beginning containing 1,049,657 square feet or 24.09 acres, more or less, being a portion of the Ellis Land Investment Company, LLC (Tract 3) as described in Deed Book 18921, Page 370 of the Wake County Register of Deeds.

Tract 4:

Commencing at an Existing Capped 2 Inch Iron Pipe at the Northeastern property corner of the Jones, Charles E property and having North Carolina State Plane Coordinates of N:780,278.25 E:2,157,644.83 NAD_83 (2011):

Thence along said property line S 01°25’49” E 281.33 Feet to the point of beginning at the Southwestern property corner of the Forrester, Jennifer N Forrester, Hayes G property:

Thence along said property line N 65°27’07” E 185.98 Feet to a Calculated Point at the Southwestern property corner of the Davis, William C Davis, Karen M property:

Thence along said property line the following three courses:

1. N 65°27’07” E 164.12 Feet to a Calculated Point:
2. S 40°38’56” E 133.25 Feet to a Calculated Point:
3. S 80°06’11” E 62.70 Feet to a Calculated Point at the Northwestern property corner of the Jones Properties LLC property:

Thence along said property line and the adjoining properties of RGA Consulting LLC, Jones, Charles Spencer property, Adams, Benjamin Adams, Whitney property, Lefrancois, Stephen D property, Beattie, Lenora M property, Lefrancois, Michael L Lefrancois, Tonia property, Lefrancois Construction CO INC, Gold, Sharie property, Hernadez, Juanita property, Anderson, Bobby G property S 04°46’37” E passing at 170.12 Feet an Existing 1 Inch Iron Pipe, 444.52 Feet an Existing 1 Inch Iron Pipe, 451.98 Feet an Existing 1 Inch Iron Pipe, 179.93 Feet an Existing 1 Inch Iron Pipe, 547.15 Feet an Existing 1 Inch Iron Pipe, 403.94 Feet an Existing 1 Inch Iron Pipe, 238.67 Feet an Existing 1 Inch Iron Pipe, 455.88 Feet an Existing 1 Inch Iron Pipe, 231.03 Feet an Existing Capped

Iron Pipe, 233.37 Feet an Existing 1 1/2 Inch Iron Pipe, 476.55 Feet an Existing 1 1/2 Inch Iron Pipe, 174.41 Feet an Existing 1 1/2 Inch Iron Pipe, 107.69 Feet an Existing 1 1/2 Inch Iron Pipe, 310.98 Feet to an Existing 1" Iron pipe along the property of the Jones Properties LLC property for a total of 4,426.22 Feet:

Thence along said property line S 24°08'47" E 12.39 Feet to a Calculated Point along the property line of Ellis Land Investment Company, LLC (Tract 3) property:

Thence along said property line the following fifty-nine courses:

1. N 61°25'44" W 33.69 Feet to a Calculated Point:
2. N 48°46'02" W 17.71 Feet to a Calculated Point:
3. N 19°00'59" E 14.50 Feet to a Calculated Point:
4. N 06°34'04" E 10.90 Feet to a Calculated Point:
5. N 51°36'56" W 16.75 Feet to a Calculated Point:
6. N 81°44'00" W 27.96 Feet to a Calculated Point:
7. N 67°02'11" W 28.16 Feet to a Calculated Point:
8. S 82°43'39" W 21.90 Feet to a Calculated Point:
9. N 27°08'21" W 79.74 Feet to a Calculated Point:
10. N 53°24'55" E 20.78 Feet to a Calculated Point:
11. N15°55'22" E 8.22 Feet to a Calculated Point:
12. N 05°42'17" W 33.15 Feet to a Calculated Point:
13. N 15°21'35" W 38.18 Feet to a Calculated Point:
14. N 55°02'49" W 19.65 Feet to a Calculated Point:
15. S 62°09'22" W 23.16 Feet to a Calculated Point:
16. N 85°27'52" W 37.57 Feet to a Calculated Point:
17. S 57°00'25" W 21.98 Feet to a Calculated Point:
18. N 62°49'32" W 22.37 Feet to a Calculated Point:
19. S 49°34'50" W 44.60 Feet to a Calculated Point:
20. N 74°54'00" W 19.97 Feet to a Calculated Point:
21. S 81°40'25" W 14.34 Feet to a Calculated Point:
22. N 68°31'04" W 16.87 Feet to a Calculated Point:
23. S 75°01'54" W 16.99 Feet to a Calculated Point:
24. N 84°09'21" W 20.63 Feet to a Calculated Point:
25. S 52°40'04" W 52.03 Feet to a Calculated Point:
26. S 66°37'15" W 29.69 Feet to a Calculated Point:
27. S 78°12'24" W 30.35 Feet to a Calculated Point:
28. N 71°18'25" W 11.65 Feet to a Calculated Point:
29. N 19°27'29" E 13.15 Feet to a Calculated Point:
30. N 65°57'33" W 24.78 Feet to a Calculated Point:
31. N 22°22'22" W 19.39 Feet to a Calculated Point:
32. N 77°24'58" W 19.17 Feet to a Calculated Point:
33. N 12°55'51" W 26.30 Feet to a Calculated Point:
34. N 56°35'56" W 19.64 Feet to a Calculated Point:
35. N 02°56'26" W 17.25 Feet to a Calculated Point:
36. N 27°30'05" E 17.80 Feet to a Calculated Point:

37. N 07°26’47” W 8.05 Feet to a Calculated Point:
38. N 77°12’57” W 19.10 Feet to a Calculated Point:
39. N 19°24’04” W 50.44 Feet to a Calculated Point:
40. N 12°10’33” W 39.01 Feet to a Calculated Point:
41. S 62°38’22” W 27.98 Feet to a Calculated Point:
42. N 54°00’40” W 23.48 Feet to a Calculated Point:
43. N 76°32’45” W 27.94 Feet to a Calculated Point:
44. N 35°00’14” W 75.35 Feet to a Calculated Point:
45. N 84°21’08” W 25.35 Feet to a Calculated Point:
46. N 59°17’54” W 17.52 Feet to a Calculated Point:
47. N 82°31’27” W 31.99 Feet to a Calculated Point:
48. N 29°52’05” W 30.28 Feet to a Calculated Point:
49. N 12°25’53” W 24.12 Feet to a Calculated Point:
50. N 37°42’49” W 49.81 Feet to a Calculated Point:
51. N 60°48’29” W 46.31 Feet to a Calculated Point:
52. N 10°45’01” E 17.64 Feet to a Calculated Point:
53. N 47°45’29” W 9.88 Feet to a Calculated Point:
54. S 69°52’21” W 14.47 Feet to a Calculated Point:
55. N 81°58’58” W 15.31 Feet to a Calculated Point:
56. N 02°05’16” W 17.48 Feet to a Calculated Point:
57. N 89°28’23” W 33.05Feet to a Calculated Point:
58. N 51°45’47” W 21.14 Feet to a Calculated Point:
59. S 87°04’15” W 9.59 Feet to a Calculated Point along the property line of Watkins, Randall Watkins, Laura (Tract 1) property:

Thence along said property line N 00°30’14” W 718.36 to an Existing Iron Pipe along the property line of Ferlito, Christopher J Morris, Sarah L property:

Thence along said property line and the adjoining property lines of GRO PEG Properties LLC, and the Carle, Scott Carle, Theresa properties N 03°44’09” W passing at 943.22 Feet an Existing Iron Pipe, 1,229.07 Feet an Existing Iron Pipe, 174.63 Feet an Existing Iron Pipe, 60 Feet an Existing Iron Pipe, 321.51 Feet an Existing Iron Pipe, 235.15 Feet to a Calculated Point along the property line of Jones, Charles E property for a total of 2,963.58 Feet:

Thence along said property line the following two courses

1. S 88°59’15” E 0.54 Feet to a Calculated Point:
2. N 75°53’40” E 340.47 Feet to the point of beginning containing 3,492,568 square feet or 80.17 acres, more or less, being a portion of the Alan Watkins, Randy (Tract 4) as described in Deed book 1318 Page 333 of the Wake County Register of Deeds.

Surveyor Signature 

04-11-24

Hills at Harris Creek: Planning Board Meeting

May 7, 2024
Rolesville Community Center

Rolesville
Genuine Community • Capital Connection
Est. 1837

ELLIS
DEVELOPMENTS GROUP

Proposed Rezoning

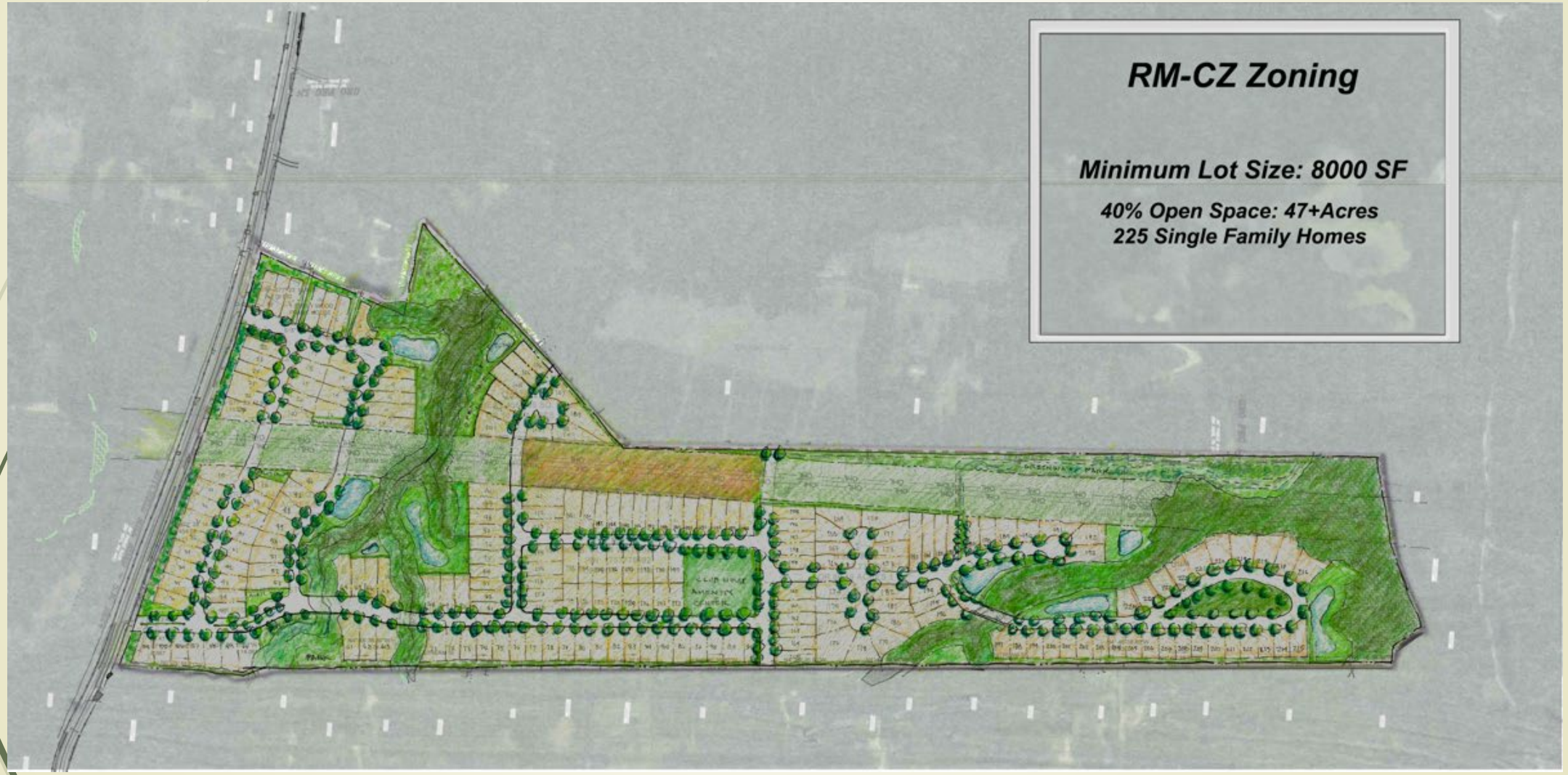
Current Status

- Rural residential land
- Acreage: 115.94 acres
- Current Zoning: Wake County R-30 (allows approximately 75 lots)

Proposed Changes

- Zoning Change to Residential Medium Density Conditional Zoning (Cluster allows up to 5 units/acre)
- Proposed construction of 225 single family homes with minimum 8000 sf lots(Under 2 units/acre)

Site Plan


RM-CZ Zoning
Minimum Lot Size: 8000 SF
40% Open Space: 47+Acres
225 Single Family Homes

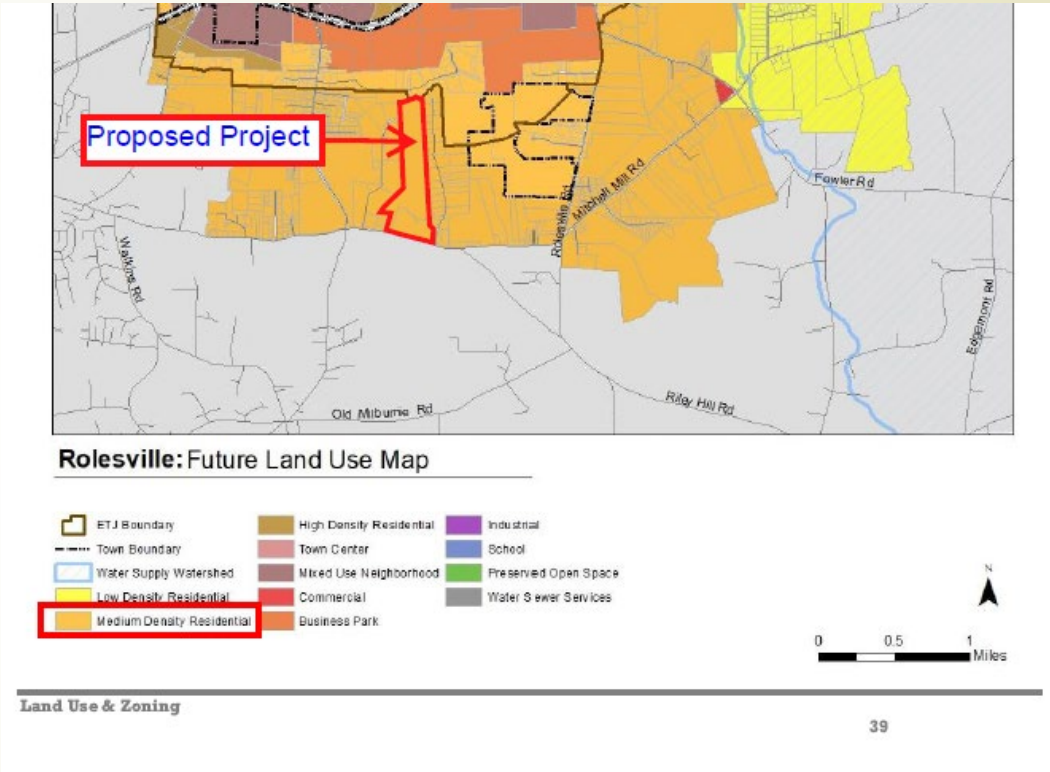
Updates Since Prior Case

- Reduced units from 267 total homes to 225 homes
- Removed townhomes and commercial parcel
- Maintains all prior traffic improvements to minimize impacts and improve traffic flows
- Greenway trail expanded and integrated into amenity center
- Reduced density and increased minimum lot size

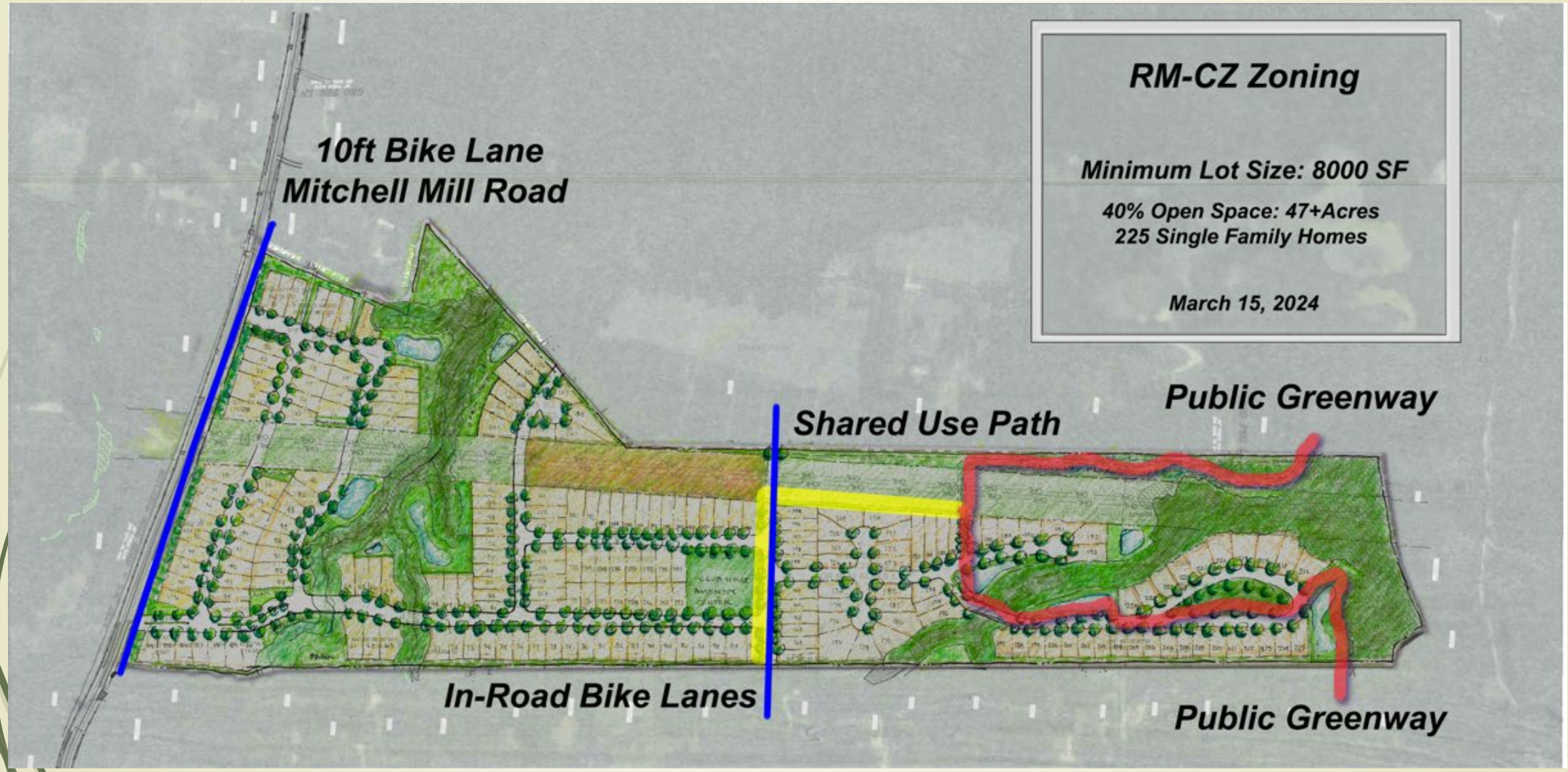
Comprehensive Plan 2017

Rezoning Proposal:

- Consistent with Comprehensive Plan
  - Future Land Use Map designates these parcels at Medium Density Residential
  - Consistent with residential character of adjacent properties

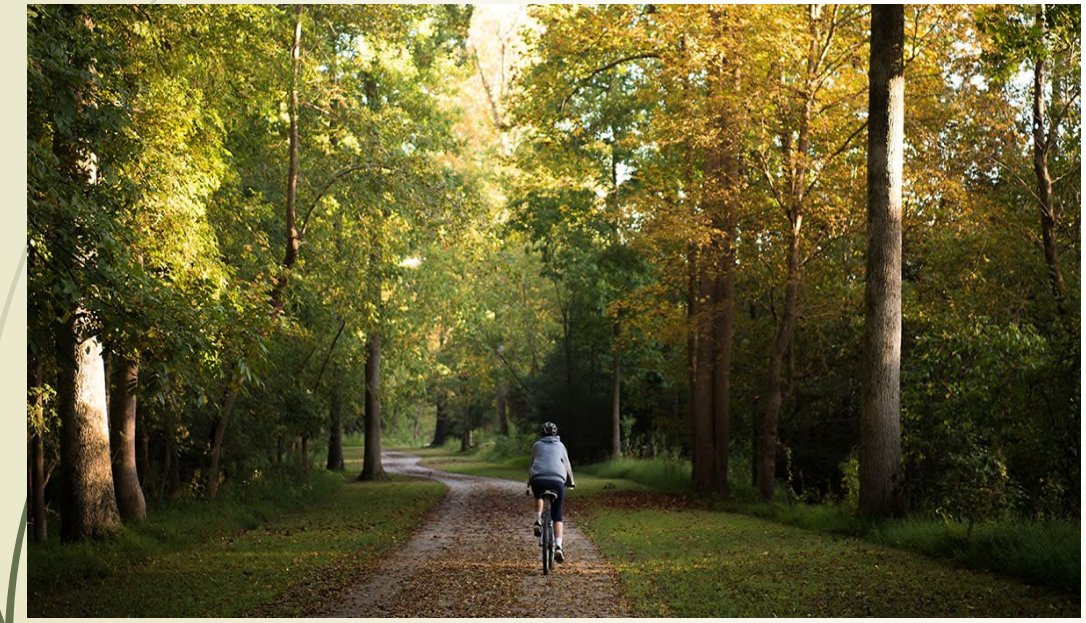


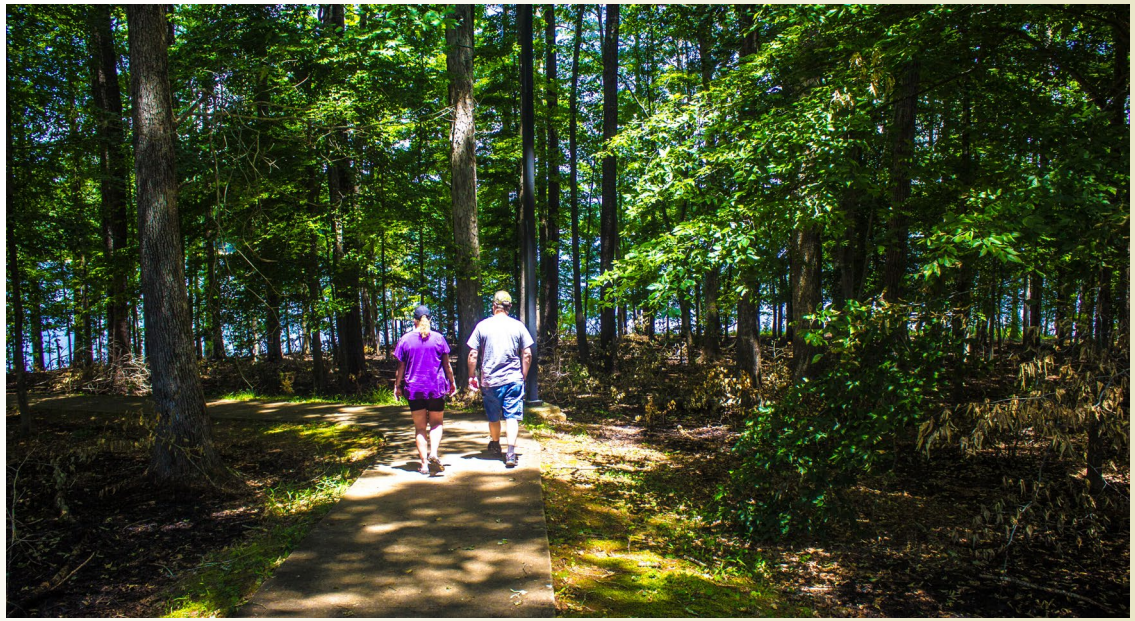
Greenway Plan



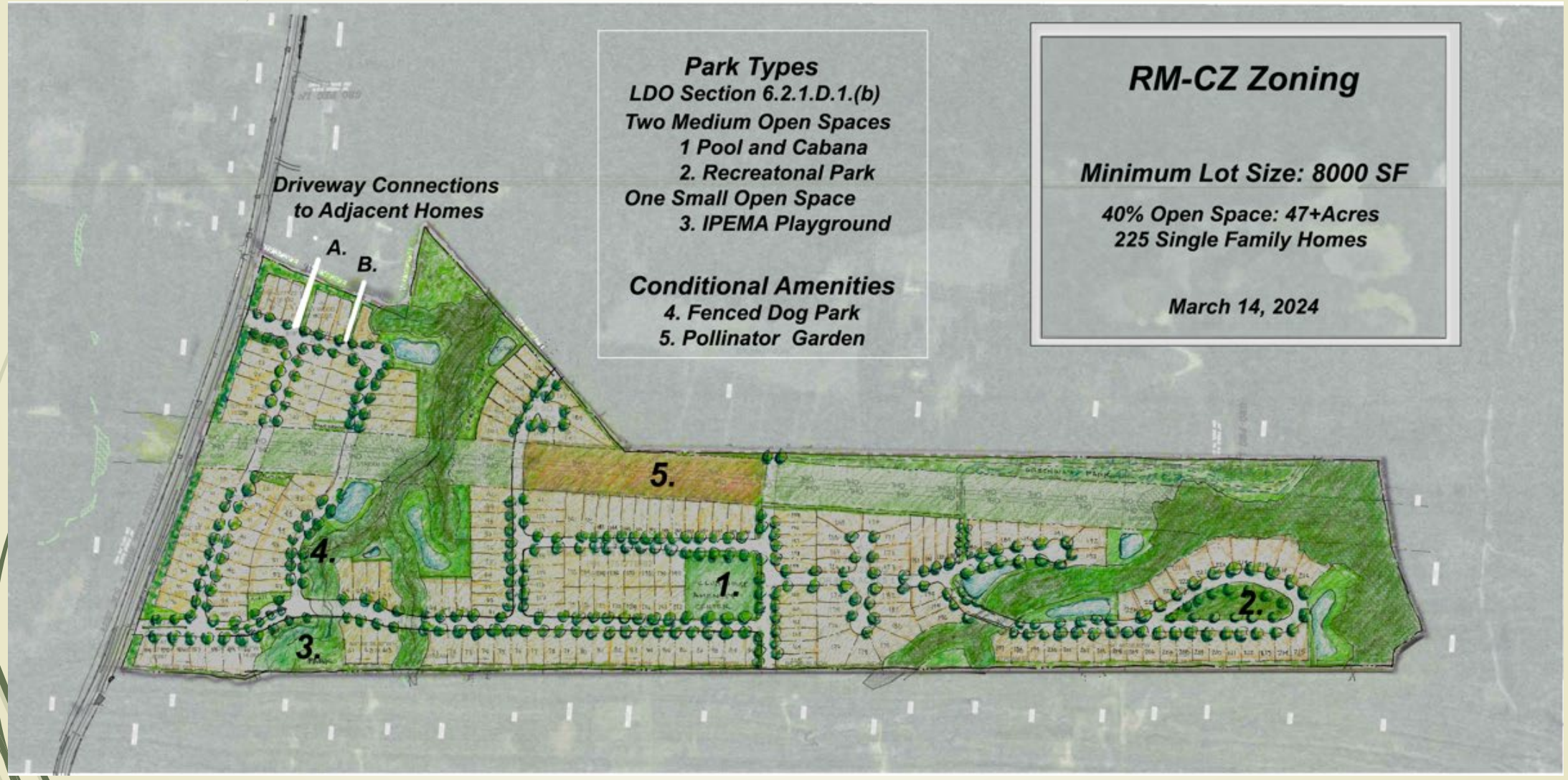
Amenities

Greenway Trails





Recreational Amenities Plan



Amenities

Community Pool and Cabana

Amenities

Dog Park

Amenities

Pollinator/Wildflower Garden

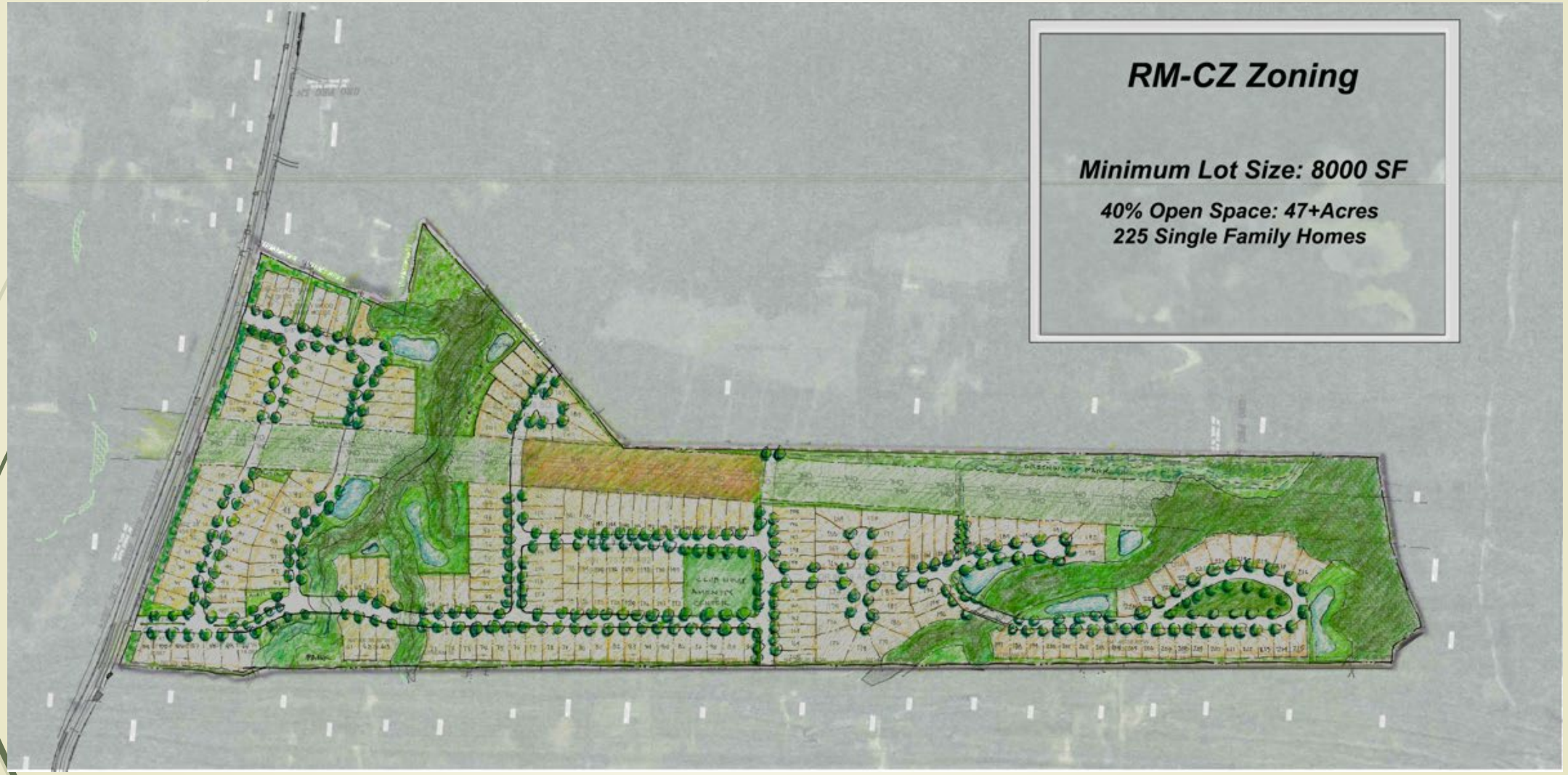
Amenities

Landscaped Boulevard Streetscapes

Benefits of Proposed Rezoning

- Preserves and maximizes open space (40%)
  - Multiple parks; pollinator garden
- Variety of housing types and price points
- Improved connectivity and traffic flow
- Increased tax base for town

Site Plan


RM-CZ Zoning
Minimum Lot Size: 8000 SF
40% Open Space: 47+Acres
225 Single Family Homes

After Recording Mail to: Town of Rolesville
P. O. Box 250
Rolesville, NC 27571

AN ORDINANCE TO EXTEND THE CORPORATE LIMITS OF THE TOWN OF ROLESVILLE UNDER THE AUTHORITY GRANTED BY PART 1, ARTICLE 4A CHAPTER 160A OF THE GENERAL STATUTES OF NORTH CAROLINA

ORDINANCE 2024-O-06
CASE ANX-24-01

WHEREAS, the Mayor and Board of Commissioners for the Town of Rolesville, North Carolina has adopted a resolution under G.S. 160A-31 stating its intent to annex the area described below; and

WHEREAS, the petition has been certified by the Town Clerk as to its sufficiency of meeting G.S. 160A-31; and

WHEREAS, a public hearing on the question of this annexation was held in the Town Board Room at Rolesville Town Hall located at 502 Southtown Circle, Rolesville, NC 27571 at 7:00 pm or thereafter on 7th day of May, 2024, after due notice; and

WHEREAS, the Mayor and Board of Commissioners finds that the proposed annexation meets the requirements of G.S. 160A-31;

NOW, THEREFORE, BE IT ORDAINED by the Mayor and Board of Commissioners of the Town of Rolesville, North Carolina that:

Section 1. By the authority granted by G.S. 160A-31, the following described contiguous properties owned by Watkins, Randall Watkins, Laura (Tract 1), Watkins, Alan Watkins, Randy (Tract 2), Ellis Land Investment Company, LLC (Tract 3), and Watkins, Alan Watkins, Randy (Tract 4) is hereby annexed and made part of the Town of Rolesville effective as of the 7th day of May, 2024:

All that certain real property situated in the Town of Rolesville, Wake Forest Township, Wake County, North Carolina, described as follows:

Tract 1:

Beginning at an Existing 1 Inch Iron Pipe at the intersection of the right-of-way of Mitchell Mill Road and Rock Farm Road a 60 Foot Private Road and having North Carolina State Plane Coordinates of N: 775,443.03 E: 2,156,848.70 NAD_83 (2011):

Thence along said Rock Farm Road and the adjoining property lines of the Preddy, Genadius Mac Preddy, Mattie F property, Watkins, Alan Dwain property, and the Newell, Ronald W Newell, Marie J property the following four courses:

1. N 19°37’29” E 190.11 Feet to an Existing 1 1/2Inch Iron Pipe:
2. N 18°40’39” E 227.11 Feet to an Existing Iron Pipe:
3. N 19°31’15” E 230.79 Feet to an Existing 1 1/2Inch Iron Pipe:
4. N 83°06’35” W 376.14 Feet to an Existing 1 1/2Inch Iron Pipe along the property line of Villanueva, Philip Shelley Villanueva, Nadia Sulta property:

Thence along said property line N 43°56’42” E 404.87 Feet to an Existing 1 Inch Iron Pipe at the Northeastern property corner of the aforementioned property and the Southwestern property corner of the Gro Peg Properties LLC property:

Thence along said property line N 43°56’42” E 438.17 Feet to an Existing 1 Inch Iron Pipe at the Northeastern property corner of the aforementioned property, the Southern property corner of the Ferlito, Christopher J Morris, Sarah L Lot 1, and the Southwestern property corner of the Ferlito, Christopher J Morris, Sarah L Lot 2 property:

Thence along said property line N 43°56’42” E 347.97 Feet to an Existing Iron Pipe along the property line of the Watkins, Alan Watkins, Randy (Tract 4) property:

Thence along said property line S 00°30’14” E 718.36 Feet to a Calculated Point along the property line of the Ellis Land Investment Company, LLC:

Thence along said property line the following nine courses:

1. S 87°04’15” W 5.86 Feet to a Calculated Point:
2. N 36°29’25” W 16.94 Feet to a Calculated Point:
3. N 89°23’35” W 32.88 Feet to a Calculated Point:
4. N 40°27’21” W 28.19 Feet to a Calculated Point:
5. S 70°48’45” W 25.45 Feet to a Calculated Point:
6. N 70°54’35” W 24.61 Feet to a Calculated Point:
7. N 56°54’35” W 48.61 Feet to a Calculated Point:
8. S 39°14’44” W 7.31 Feet to a Calculated Point:
9. S 18°10’18” W 752.73 Feet to an Existing 1 Inch Iron Pipe found at the Northeastern corner of the Watkins, Alan Watkins, Randy (Tract 2) property:

Thence along said property line the following three courses:

1. N 75°34’56” W 157.91 Feet to an Existing 1 1/2 Inch Iron Pipe:
2. S 19°05’28” W 17.00 Feet to a Calculated Point:
3. S 19°39’09” W 182.35 Feet to an Existing 1 1/2 Inch Iron Pipe along the right-of-way of Mitchell Mill Road:

Thence along said right-of-way N 78°33’23” W 60.00 Feet to the point of beginning containing 456,273 square feet or 10.47 acres, more or less, being portion of the Watkins, Randall Watkins, Laura (Tract 1) property as described in Deed Book 16701, Page 363 and Book of Maps 2017, Page 218 of the Wake County Register of Deeds.

Tract 2:

Commencing at an Existing 1 Inch Iron Pipe at the intersection of the right-of-way of Mitchell Mill Road and Rock Farm Road a 60 Foot Private Road and having North Carolina State Plane Coordinates of N: 775,443.03 E: 2,156,848.70 NAD_83 (2011):

Thence along said right-of-way S 78°33’23” E 60.00 Feet to the point of beginning at the Southeastern corner of the Watkins, Randall Watkins, Laura (Tract 1) property and the aforementioned right-of-way:

Thence leaving said right-of-way and along said property line the following three courses:

1. N 19°39’09” E 182.35 Feet to a calculated point:
2. N 19°05’28” E 17.00 Feet to an Existing 1 1/2 Inch Iron Pipe:
3. S 75°34’56” E 157.91 Feet to an Existing 1 Inch Iron Pipe along the property line of the Ellis Land Investment Company, LLC (Tract 3) property:

Thence along said property line S 18°08’19” W 190.74 Feet to a Calculated Point along the right-ofway of Mitchell Mill Road:

Thence along said right-of-way the following two courses:

1. N 77°23’13” W 76.88 Feet to a Calculated Point:
2. A curve to the left said curve having a radius of 1,254.28 Feet, a length of 86.92 Feet, and a bearing and distance of N 79°23’30” W 86.90 Feet to the point of beginning containing 31,014 square feet or 0.71 acres, more or less, being a portion of the Watkins, Alan Watkins, Randy (Tract 2) property as described in Book of Maps 2005, Page 2287 of the Wake County Register of Deeds

Tract 3:

Commencing at an Existing 1 Inch Iron Pipe at the intersection of the right-of-way of Mitchell Mill Road and Rock Farm Road a 60 Foot Private Road and having North Carolina State Plane Coordinates of N:775,443.03 E: 2,156,848.84 NAD_83 (2011):

Thence along said right of way the following three courses:

1. S 78°33’23” E 60.00 Feet to an Existing 1 Inch Iron Pipe:
2. A curve to the right said curve having a radius of 1,254.28 Feet, a length of 86.92 Feet, and a bearing and distance of S 79°23’30” E 86.90 Feet to a Calculated Point:

3. S 77°23’13” E 76.88 Feet to the point of beginning at along the aforementioned right-of-way and the Southeastern corner of the Watkins, Alan Watkins, Randy (Tract 2) property:

Thence along said property line N 18°08’19” E 190.74 Feet to an Existing 1 Inch Iron Pipe along the property line of the Watkins, Randall Watkins, Laura (Tract 1):

Thence along said property line the following nine courses

1. N 18°10’08” E 752.73 Feet to a Calculated Point:
2. N 39°14’44” E 7.31 Feet to a Calculated Point:
3. S 56°54’35” E 48.61 Feet to a Calculated Point:
4. S 70°54’35” E 24.61 Feet to a Calculated Point:
5. N 70°48’45” E 25.45 Feet to a Calculated Point:
6. S 40°27’21” E 28.19 Feet to a Calculated Point:
7. S 89°23’35” E 32.88 Feet to a Calculated Point:
8. S 36°29’25” E 16.94 Feet to a Calculated Point:
9. N 87°04’15” E 5.86 Feet to a Calculated Point along the property line of Watkins, Alan Watkins, Randy (Tract 4):

Thence along said property line the following fifty-nine courses:

1. N 87°04’15” E 9.59 Feet to a Calculated Point:
2. S 51°45’47” E 21.14 Feet to a Calculated Point:
3. S 89°28’23” E 33.05 Feet to a Calculated Point:
4. S 02°05’16” E 17.48 Feet to a Calculated Point:
5. S 81°58’58” E 15.31 Feet to a Calculated Point:
6. N 69°52’21” E 14.47 Feet to a Calculated Point:
7. S 47°45’29” E 9.88 Feet to a Calculated Point:
8. S 10°45’01” W 17.64 Feet to a Calculated Point:
9. S 60°48’29” E 46.31 Feet to a Calculated Point:
10. S 37°42’49” E 49.81 Feet to a Calculated Point:
11. S 12°25’53” E 24.12 Feet to a Calculated Point:
12. S 29°52’05” E 30.28 Feet to a Calculated Point:
13. S 82°31’27” E 31.99 Feet to a Calculated Point:
14. S 59°17’54” E 17.52 Feet to a Calculated Point:
15. S 84°21’08” E 25.35 Feet to a Calculated Point:
16. S 35°00’14” E 75.35 Feet to a Calculated Point:
17. S 76°32’45” E 27.94 Feet to a Calculated Point:
18. S 54°00’40” E 23.48 Feet to a Calculated Point:
19. N 62°38’22” E 27.98 Feet to a Calculated Point:
20. S 12°10’33” E 39.01 Feet to a Calculated Point:
21. S 19°24’04” E 50.44 Feet to a Calculated Point:
22. S 77°12’54” E 19.10 Feet to a Calculated Point:
23. S 07°12’57” E 8.05 Feet to a Calculated Point:
24. S 27°30’05” W 17.80 Feet to a Calculated Point:
25. S 02°56’26” E 17.25 Feet to a Calculated Point:

26. S 56°35’56” E 19.64 Feet to a Calculated Point:
27. S 12°55’51” E 26.30 Feet to a Calculated Point:
28. S 77°24’58” E 19.17 Feet to a Calculated Point:
29. S 22°22’22” E 19.39 Feet to a Calculated Point:
30. S 65°57’33” E 24.78 Feet to a Calculated Point:
31. S 19°27’29” W 13.15 Feet to a Calculated Point:
32. S 71°18’25” E 11.65 Feet to a Calculated Point:
33. N 78°12’24” E 30.35 Feet to a Calculated Point:
34. N 66°37’15” E 29.69 Feet to a Calculated Point:
35. N 52°40’04” E 52.03 Feet to a Calculated Point:
36. S 84°09’21” E 20.63 Feet to a Calculated Point:
37. N 75°01’54” E 16.99 Feet to a Calculated Point:
38. S 68°31’04” E 16.87 Feet to a Calculated Point:
39. N 81°40’25” E 14.34 Feet to a Calculated Point:
40. S 74°54’00” E 19.97 Feet to a Calculated Point:
41. N 49°34’50” E 44.60 Feet to a Calculated Point:
42. S 62°49’32” E 22.37 Feet to a Calculated Point:
43. N 57°00’25” E 21.98 Feet to a Calculated Point:
44. S 85°27’52” E 37.57 Feet to a Calculated Point:
45. N 62°09’22” E 23.16 Feet to a Calculated Point:
46. S 55°02’49” E 19.65 Feet to a Calculated Point:
47. S 15°21’35” E 38.18 Feet to a Calculated Point:
48. S 05°42’17” E 33.15 Feet to a Calculated Point:
49. S 15°55’22” W 8.22 Feet to a Calculated Point:
50. S 53°24’55” W 20.78 Feet to a Calculated Point:
51. S 27°08’21” E 79.74 Feet to a Calculated Point:
52. N 82°43’39” E 21.90 Feet to a Calculated Point:
53. S 67°02’11” E 28.16 Feet to a Calculated Point:
54. S 81°44’00” E 27.96 Feet to a Calculated Point:
55. S 51°36’56” E 16.75 Feet to a Calculated Point:
56. S 06°34’04” W 10.90 Feet to a Calculated Point:
57. S 19°00’59” W 14.50 Feet to a Calculated Point:
58. S 48°46’02” E 17.71 Feet to a Calculated Point:
59. S 61°25’44” E 33.69 Feet to a Calculated Point along the property line of the Jones Properties LLC property:

Thence along said property line S 24°08’05” E 71.51 Feet to a Calculated Point at the Northwestern corner of the Jones, Charles Spencer Jones, Sharon property:

Thence along said property line S 00°25’56” E 530.78 Feet to a Calculated Point along the rightof-way of Mitchel Mill Road:

Thence along said right-of-way the following six courses:

1. N 71°34’19” W 6.89 Feet to a Calculated Point:
2. A curve to the left having a radius of 730.00 Feet, a length of 54.41 Feet, and a bearing and distance of N 73°42’26” W 54.39 Feet to a Calculated Point:

3. N 75°50’32” W 213.47 Feet to a Calculated Point:
4. A curve to the right having a radius of 10,970.00 Feet, a length of 454.08 Feet, and a bearing and distance of N 74°39’23” W 454.05 Feet to a Calculated Point:
5. A curve to the left having a radius of 11,030.00 Feet, a length of 753.92 Feet, and a bearing and distance of N 75°25’44” W 753.77 Feet to a Calculated Point:
6. N 77°23’13” W 26.66 Feet to the point of beginning containing 1,049,657 square feet or 24.09 acres, more or less, being a portion of the Ellis Land Investment Company, LLC (Tract 3) as described in Deed Book 18921, Page 370 of the Wake County Register of Deeds.

Tract 4:

Commencing at an Existing Capped 2 Inch Iron Pipe at the Northeastern property corner of the Jones, Charles E property and having North Carolina State Plane Coordinates of N:780,278.25 E:2,157,644.83 NAD_83 (2011):

Thence along said property line S 01°25’49” E 281.33 Feet to the point of beginning at the Southwestern property corner of the Forrester, Jennifer N Forrester, Hayes G property:

Thence along said property line N 65°27’07” E 185.98 Feet to a Calculated Point at the Southwestern property corner of the Davis, William C Davis, Karen M property:

Thence along said property line the following three courses:

1. N 65°27’07” E 164.12 Feet to a Calculated Point:
2. S 40°38’56” E 133.25 Feet to a Calculated Point:
3. S 80°06’11” E 62.70 Feet to a Calculated Point at the Northwestern property corner of the Jones Properties LLC property:

Thence along said property line and the adjoining properties of RGA Consulting LLC, Jones, Charles Spencer property, Adams, Benjamin Adams, Whitney property, Lefrancois, Stephen D property, Beattie, Lenora M property, Lefrancois, Michael L Lefrancois, Tonia property, Lefrancois Construction CO INC, Gold, Sharie property, Hernadez, Juanita property, Anderson, Bobby G property S 04°46’37” E passing at 170.12 Feet an Existing 1 Inch Iron Pipe, 444.52 Feet an Existing 1 Inch Iron Pipe, 451.98 Feet an Existing 1 Inch Iron Pipe, 179.93 Feet an Existing 1 Inch Iron Pipe, 547.15 Feet an Existing 1 Inch Iron Pipe, 403.94 Feet an Existing 1 Inch Iron Pipe, 238.67 Feet an Existing 1 Inch Iron Pipe, 455.88 Feet an Existing 1 Inch Iron Pipe, 231.03 Feet an Existing Capped Iron Pipe, 233.37 Feet an Existing 1 1/2 Inch Iron Pipe, 476.55 Feet an Existing 1 1/2 Inch Iron Pipe, 174.41 Feet an Existing 1 1/2 Inch Iron Pipe, 107.69 Feet an Existing 1 1/2 Inch Iron Pipe, 310.98 Feet to an Existing 1” Iron pipe along the property of the Jones Properties LLC property for a total of 4,426.22 Feet:

Thence along said property line S 24°08’47” E 12.39 Feet to a Calculated Point along the property line of Ellis Land Investment Company, LLC (Tract 3) property:
Thence along said property line the following fifty-nine courses:

1. N 61°25’44” W 33.69 Feet to a Calculated Point:

2. N 48°46’02” W 17.71 Feet to a Calculated Point:
3. N 19°00’59” E 14.50 Feet to a Calculated Point:
4. N 06°34’04” E 10.90 Feet to a Calculated Point:
5. N 51°36’56” W 16.75 Feet to a Calculated Point:
6. N 81°44’00” W 27.96 Feet to a Calculated Point:
7. N 67°02’11” W 28.16 Feet to a Calculated Point:
8. S 82°43’39” W 21.90 Feet to a Calculated Point:
9. N 27°08’21” W 79.74 Feet to a Calculated Point:
10. N 53°24’55” E 20.78 Feet to a Calculated Point:
11. N15°55’22” E 8.22 Feet to a Calculated Point:
12. N 05°42’17” W 33.15 Feet to a Calculated Point:
13. N 15°21’35” W 38.18 Feet to a Calculated Point:
14. N 55°02’49” W 19.65 Feet to a Calculated Point:
15. S 62°09’22” W 23.16 Feet to a Calculated Point:
16. N 85°27’52” W 37.57 Feet to a Calculated Point:
17. S 57°00’25” W 21.98 Feet to a Calculated Point:
18. N 62°49’32” W 22.37 Feet to a Calculated Point:
19. S 49°34’50” W 44.60 Feet to a Calculated Point:
20. N 74°54’00” W 19.97 Feet to a Calculated Point:
21. S 81°40’25” W 14.34 Feet to a Calculated Point:
22. N 68°31’04” W 16.87 Feet to a Calculated Point:
23. S 75°01’54” W 16.99 Feet to a Calculated Point:
24. N 84°09’21” W 20.63 Feet to a Calculated Point:
25. S 52°40’04” W 52.03 Feet to a Calculated Point:
26. S 66°37’15” W 29.69 Feet to a Calculated Point:
27. S 78°12’24” W 30.35 Feet to a Calculated Point:
28. N 71°18’25” W 11.65 Feet to a Calculated Point:
29. N 19°27’29” E 13.15 Feet to a Calculated Point:
30. N 65°57’33” W 24.78 Feet to a Calculated Point:
31. N 22°22’22” W 19.39 Feet to a Calculated Point:
32. N 77°24’58” W 19.17 Feet to a Calculated Point:
33. N 12°55’51” W 26.30 Feet to a Calculated Point:
34. N 56°35’56” W 19.64 Feet to a Calculated Point:
35. N 02°56’26” W 17.25 Feet to a Calculated Point:
36. N 27°30’05” E 17.80 Feet to a Calculated Point:
37. N 07°26’47” W 8.05 Feet to a Calculated Point:
38. N 77°12’57” W 19.10 Feet to a Calculated Point:
39. N 19°24’04” W 50.44 Feet to a Calculated Point:
40. N 12°10’33” W 39.01 Feet to a Calculated Point:
41. S 62°38’22” W 27.98 Feet to a Calculated Point:
42. N 54°00’40” W 23.48 Feet to a Calculated Point:
43. N 76°32’45” W 27.94 Feet to a Calculated Point:
44. N 35°00’14” W 75.35 Feet to a Calculated Point:
45. N 84°21’08” W 25.35 Feet to a Calculated Point:
46. N 59°17’54” W 17.52 Feet to a Calculated Point:
47. N 82°31’27” W 31.99 Feet to a Calculated Point:

48. N 29°52’05” W 30.28 Feet to a Calculated Point:
49. N 12°25’53” W 24.12 Feet to a Calculated Point:
50. N 37°42’49” W 49.81 Feet to a Calculated Point:
51. N 60°48’29” W 46.31 Feet to a Calculated Point:
52. N 10°45’01” E 17.64 Feet to a Calculated Point:
53. N 47°45’29” W 9.88 Feet to a Calculated Point:
54. S 69°52’21” W 14.47 Feet to a Calculated Point:
55. N 81°58’58” W 15.31 Feet to a Calculated Point:
56. N 02°05’16” W 17.48 Feet to a Calculated Point:
57. N 89°28’23” W 33.05Feet to a Calculated Point:
58. N 51°45’47” W 21.14 Feet to a Calculated Point:
59. S 87°04’15” W 9.59 Feet to a Calculated Point along the property line of Watkins, Randall Watkins, Laura (Tract 1) property:

Thence along said property line N 00°30’14” W 718.36 to an Existing Iron Pipe along the property line of Ferlito, Christopher J Morris, Sarah L property:

Thence along said property line and the adjoining property lines of GRO PEG Properties LLC, and the Carle, Scott Carle, Theresa properties N 03°44’09” W passing at 943.22 Feet an Existing Iron Pipe, 1,229.07 Feet an Existing Iron Pipe, 174.63 Feet an Existing Iron Pipe, 60 Feet an Existing Iron Pipe, 321.51 Feet an Existing Iron Pipe, 235.15 Feet to a Calculated Point along the property line of Jones, Charles E property for a total of 2,963.58 Feet:

Thence along said property line the following two courses
1. S 88°59’15” E 0.54 Feet to a Calculated Point:
2. N 75°53’40” E 340.47 Feet to the point of beginning containing 3,492,568 square feet or 80.17 acres, more or less, being a portion of the Alan Watkins, Randy (Tract 4) as described in Deed book 1318 Page 333 of the Wake County Register of Deeds.

Section 2. That the Mayor and Board of Commissioners directs a duly certified copy of this ordinance and annexation boundary map be submitted for filing to the Office of the Register of Deeds of Wake County and the Office of the Secretary of the State of North Carolina.

Adopted this 7th day of May, 2024.

_____
Ronnie I. Currin
Town of Rolesville Mayor

CERTIFICATION

I, Robin E. Peyton, Town Clerk for the Town of Rolesville, North Carolina, do hereby certify the foregoing to be a true copy of an ordinance duly adopted at the meeting of the Town Board of Commissioners held on this 7th day of May, 2024.

_____
Robin E. Peyton
Town Clerk

ORDINANCE 2024-O-07

ORDINANCE OF THE BOARD OF COMMISSIONERS OF THE TOWN OF ROLESVILLE AMENDING THE OFFICIAL ZONING DISTRICT MAP OF THE TOWN OF ROLESVILLE TO CHANGE THE ZONING OF APPROXIMATELY 116 ACRES LOCATED AT 0 MITCHELL MILL ROAD, 5333 MITCHELL MILL ROAD, 3645 ROCK FARM ROAD, and 0 MITCHELL MILL ROAD , BEING WAKE COUNTY TAX PINS 1757758529, 1757750520, 1757761273, AND 1757778982 FROM THE WAKE COUNTY R-30 DISTRICT TO A RESIDENTIAL MEDIUM DENSITY CONDITIONAL ZONING DISTRICT (RM-CZ)

REZ-24-02, Hills at Harris Creek

WHEREAS, the application submitted by Ellis Land Investment Company, LLC on behalf of property owners Watkins, Randall Watkins, Laura (Tract 1), Watkins, Alan Watkins, Randy (Tract 2), Ellis Land Investment Company, LLC (Tract 3), and Watkins, Alan Watkins, Randy (Tract 4) for the rezoning of land hereinafter described was duly filed with the Planning Department; and

WHEREAS, the Planning Board was presented the application for Recommendation on March 25, 2024 and the Board of Commissioners held a Legislative hearing on May 7, 2024; and

WHEREAS, mailed notices and property sign postings were carried out in advance of the Legislative hearing pursuant to G.S. § 160D-602 and the Land Development Ordinance; and

WHEREAS, the Planning Board submitted its recommendation to the Board of Commissioners recommending Approval of said application that was generally consistent with the Comprehensive Plan for the lands hereinafter described, all in accordance with the requirements of the Town of Rolesville Land Development Ordinance and the provisions of Chapter 160D, Article 6, of the North Carolina General Statutes;

NOW, THEREFORE, BE IT ORDAINED by the Board of Commissioners of the Town of Rolesville, North Carolina:

Section 1: The lands that are the subject of the Ordinance are those certain lands described in **Exhibit 1 – Legal Description**, which is incorporated herein by reference, and said lands are hereafter referred to as the "Rezoned Lands."

Section 2: The parcels identified by the Wake County Tax Parcel Identification Numbers 1757758529, 1757750520, 1757761273, AND 1757778982, and described in **Exhibit 1**, are currently located within Wake County, but will be within the Town's Corporate Limits upon adoption of Ordinance 2024-O-07 for ANX-24-01.

Section 3: The Town of Rolesville Land Development Ordinance, including the Town of Rolesville North Carolina Official Zoning District Map which is a part of said Ordinance, is hereby amended by changing the zoning classification of the "Rezoned Lands" from WAKE COUNTY R-30 DISTRICT TO A RESIDENTIAL MEDIUM DENSITY CONDITIONAL ZONING DISTRICT (RM-CZ), subject to the conditions stated herein.

Section 4: The "Rezoned Lands" are subject to all of the standards and conditions in **Exhibit 2 – Conditions of Approval dated April 30, 2024**, which are voluntarily imposed as part of this rezoning.

Section 5: The Administrator is hereby authorized and directed to cause the said Official Zoning District Map for the Town of Rolesville, North Carolina, to be physically revised and amended to reflect the zoning changes ordained by this Ordinance.

Section 6: After reviewing all the information presented at the Legislative hearing and the Town of Rolesville plans, policies and ordinances, the Rolesville Board of Commissioners find the Rezoning map amendment request reasonable and consistent with the 2017 Comprehensive Plan and is in the interest of the public and adopted a Plan Consistency and Reasonableness Statement.

Section 7: The "Rezoned Lands" shall be perpetually bound to the Conditions imposed including the uses authorized, unless subsequently changed or amended as provided for in the Land Development Ordinance.

Adopted and effective this the 7th day of May 2024.

_____

Ronnie Currin
Mayor

ATTEST:

_____

Robin Peyton
Town Clerk

APPROVED AS TO FORM:

_____

David J. Neill
Town Attorney

Exhibit 1 to ORDINANCE 2024-O-07 for REZ-24-02

Metes and Bounds report for Hills at Harris Creek Parcel

Beginning at an iron pipe, with North Carolina Grid Coordinates using NAD83 (2011) of Northing 775,443.03' and an Easting 2,156,848.70', the true point of beginning, thence,

N19°37'29"E for a distance of 190.11' to a point, thence

N18°40'39"E for a distance of 227.11' to a point, thence

N19°31'15"E for a distance of 230.79' to a point, thence

N83°06'35"W for a distance of 376.14' to a point, thence

N43°56'42"E for a distance of 1,191.02' to a point, thence

N03°44'09"W for a distance of 2,728.43' to a point, thence

N03°44'09"W for a distance of 235.15' to a point, thence

N75°53'40"E for a distance of 340.47' to a point, thence

N65°27'07"E for a distance of 350.10' to a point, thence

S40°38'56"E for a distance of 133.25' to a point, thence

S80°06'11"E for a distance of 62.70' to a point, thence

S04°46'37"E for a distance of 4,426.22' to a point, thence

S24°08'12"E for a distance of 83.90' to a point, thence

S00°25'56"E for a distance of 530.78' to a point, thence

N71°34'19"W for a distance of 6.89' to a point, thence

Around a curve to the left with a radius of 730.00', a length of 54.41', a chord bearing of N73°42'26"W and chord distance of 54.39' to a point, thence

Around a curve to the right with a radius of 12,981.80', a length of 667.56', a chord bearing of N75°02'09"W, and a chord distance of 667.49' to a point, thence

Around a curve to the left with a radius of 11,030.00', a length of 753.92', a chord bearing of N75°25'44"W, and a chord distance of 753.77' to a point, thence

N77°23'13"W for a distance of 103.54' to a point, thence

Around a curve to the left with a radius of 1,229.93', a length of 86.32', a chord bearing of N79°23'51"W, and a chord distance of 86.30' to a point, thence

N78°33'23"W for a distance of 60.60' to the point and place of beginning. For a total of 5,029,708.11 square feet or 115.466 acres.

Exhibit Three

REZ-24-02/Hills at Harris Creek

Conditions of Approval
Date: April 30, 2024

1. The subject property shall be developed generally in accordance with the Concept Sketch Plan attached hereto as Exhibit One and incorporated herein as if fully set out. Locations shown for committed elements including, but not limited to Greenways, streets, and open space areas shown on the Concept Sketch Plan, are conceptual and provided for illustration and context only. Final locations of elements shall be determined at subsequent stages through the Town's development review approval processes.
2. Density: The property may be developed with up to a maximum of 225 single family detached dwelling units.
3. Affordable Housing: Prior to the issuance of the first building permit, Twenty Thousand Dollars and No Cents ($20,000.00} shall be donated to Homes for Heroes (or another non-profit organization with a substantially similar mission statement). A signed and notarized affidavit from the benefitted charity shall be provided as evidence of performance of this commitment.
4. Pollinator Plantings: At least four acres of the landscaping planted within the Duke Energy power line easement on the subject property shall utilize plant materials that are listed as Native Pollinator Plants on North Carolina Wildlife Federation ("NCWF") or other resources for native plants recommended by the NCWF. This landscape element shall be identified as a "feature" in the appropriate proposed Lot within the Preliminary Subdivision Plat drawings, and then again identified and fully detailed on landscape plan drawings included in the Construction Infrastructure Drawings, and this shall be considered infrastructure that is inspected for (installation) compliance by/at the time of subdivision close-out. Applicant may provide this feature earlier in the development process by evidence of photo documentation and inspection report by the Town infrastructure inspector or other staff.
5. Recreational Amenities: The following recreational amenities shall be provided generally as shown on the Recreational Amenities Plan attached hereto as Exhibit Two as a part of the development of the subject property and shall be dedicated to the subdivision's homeowner's association (HOA). These amenities shall be identified as a "feature" in the appropriate proposed Lot within the Preliminary Subdivision Plat drawings, and then again identified and detailed in the Construction Infrastructure Drawings, and this shall be considered infrastructure that is inspected for (installation) compliance by/at the time of subdivision close-out. Applicant may provide this feature earlier in the development process by evidence of photo documentation and inspection report by the Town infrastructure inspector or other staff.

    i. A swimming pool and cabana, including changing rooms and restrooms shall be constructed prior to the issuance of the 150th residential dwelling unit building permit;
    ii. At least one fenced playground shall be constructed prior to the issuance of the 150th residential dwelling unit building permit;
    iii. At least one fenced dog park shall be constructed prior to the issuance of

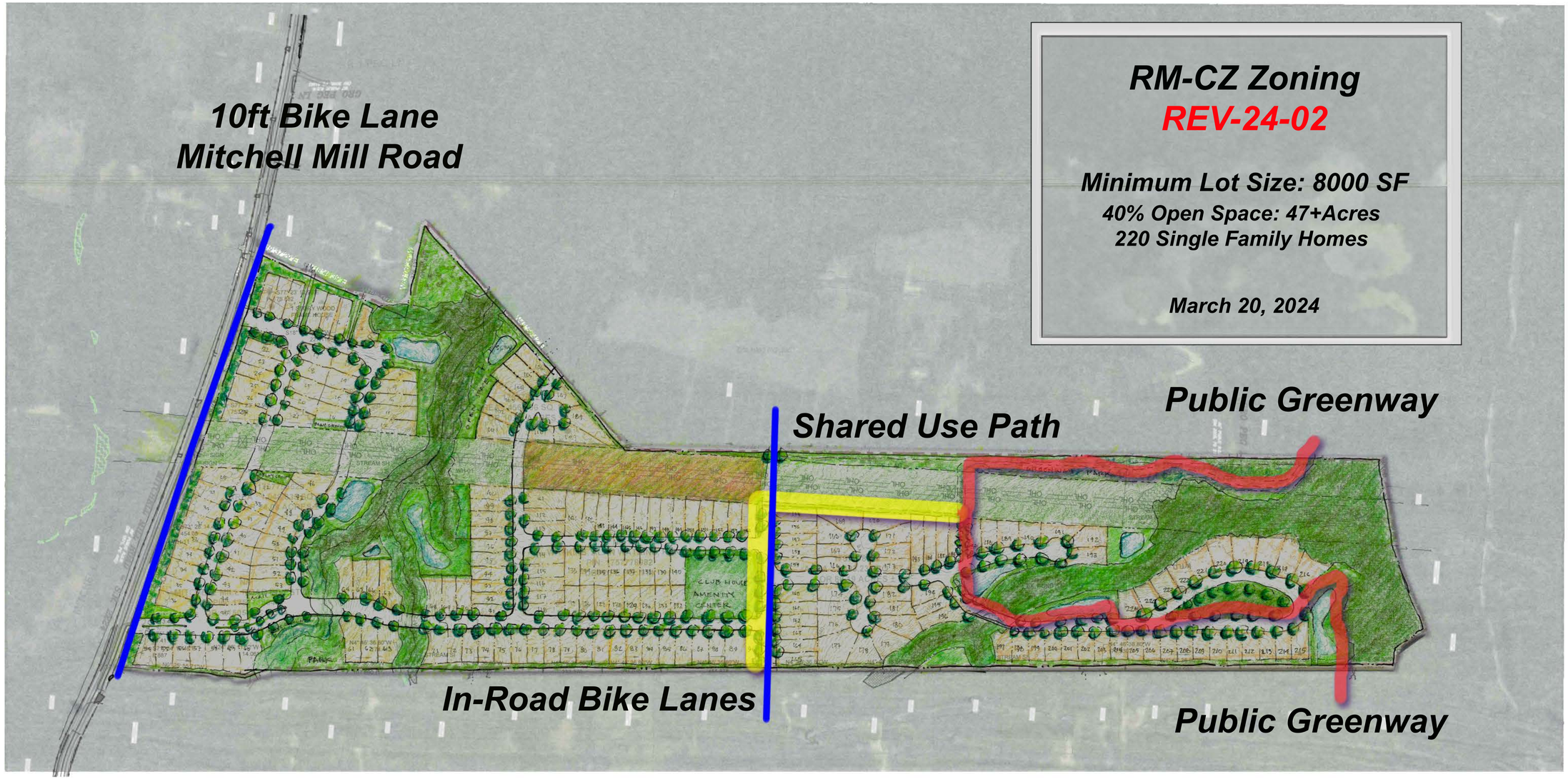
the 150th residential dwelling unit building permit;

iv. At least one (1) garden park shall be provided prior to the issuance of the 200th residential dwelling unit building permit.

6. Foundations: All homes shall include either crawl space foundations or stem wall foundation (as they are generally defined in the home building industry). Any stem wall foundations shall have an average of at least eighteen inches (18") in height of reveal above the finished ground surface across the front facade of the home. There shall be no exposed concrete on any portion of the stem wall foundation on any side of the home facing and directly parallel to a public street. Compliance with this condition shall be demonstrated by noting the following on the plans submitted with the residential building permit application: i) the average stem wall height for the front façade of the stem wall foundation, and ii) the building materials to be used (stone veneer or brick) on the stem wall foundation façade on any side of the home facing a public street.
7. Minimum Dwelling Size: Each single family detached dwelling unit shall contain a minimum gross building square footage of 2,000 square feet.
8. Driveway Access to Neighboring Properties: Two private driveways (shown as Driveway A and Driveway B on the attached Exhibit One) shall be constructed to connect the property to the two adjacent properties (identified as Wake County PIN's 1757657746 & 1757658917) that currently access Mitchell Mill Road via the private road known as Rock Farm Road (the "Rock Farm Road Properties"). Rock Farm Road will be abandoned and removed in connection with the development of the property. Access easements shall be provided to the Rock Farm Road Properties to provide ingress/egress to the Rock Farm Road Properties through Driveway A and Driveway B prior to the abandonment and removal of Rock Farm Road.
9. Greenway and Shared Use Path: A 10' wide public shared use path (labeled as "Shared Use Path" on the attached Exhibit One) shall be constructed and dedicated to the Town to connect to the 10' wide public greenway (labeled as the Public Greenway on the attached Exhibit One).
10. Future Greenway Expansion: The 50' wide "Greenway Easement" as shown on Exhibit One, shall be dedicated to the Town as a future public greenway.

V2 - REZ-24-02

EXHIBIT ONE
CONCEPT SKETCH PLAN



Hills at Harris Creek

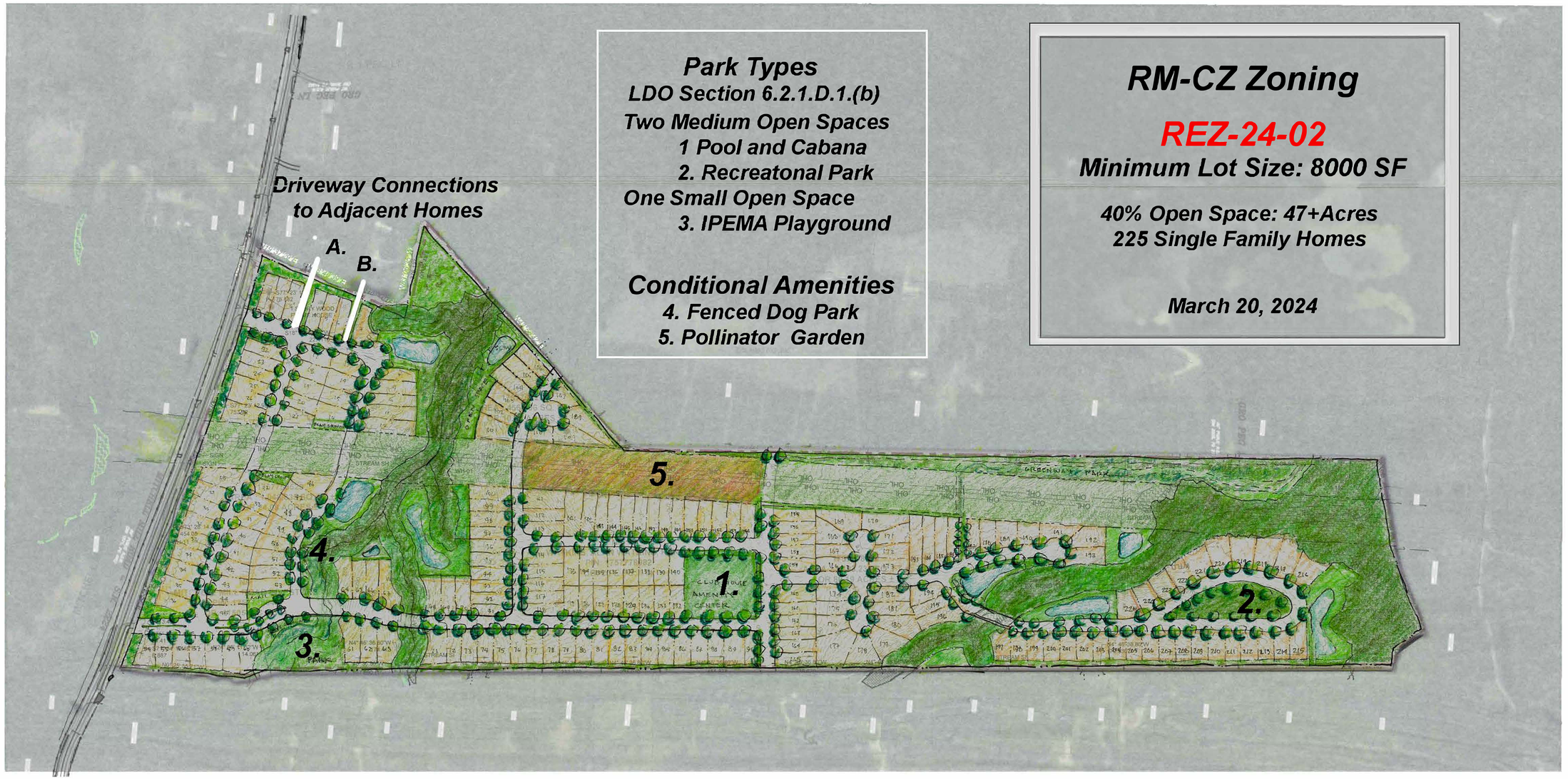
ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

V2-REZ-24-02

EXHIBIT TWO
RECREATIONAL AMENITIES PLAN



Park Types
LDO Section 6.2.1.D.1.(b)
Two Medium Open Spaces
1 Pool and Cabana
2. Recreatonal Park
One Small Open Space
3. IPEMA Playground

Conditional Amenities
4. Fenced Dog Park
5. Pollinator Garden

RM-CZ Zoning

REZ-24-02

Minimum Lot Size: 8000 SF

40% Open Space: 47+Acres
225 Single Family Homes

March 20, 2024

Hills at Harris Creek

ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.