Agenda
Item F.4

Rolesville
Genuine Community • Capital Connection
Est. 1837

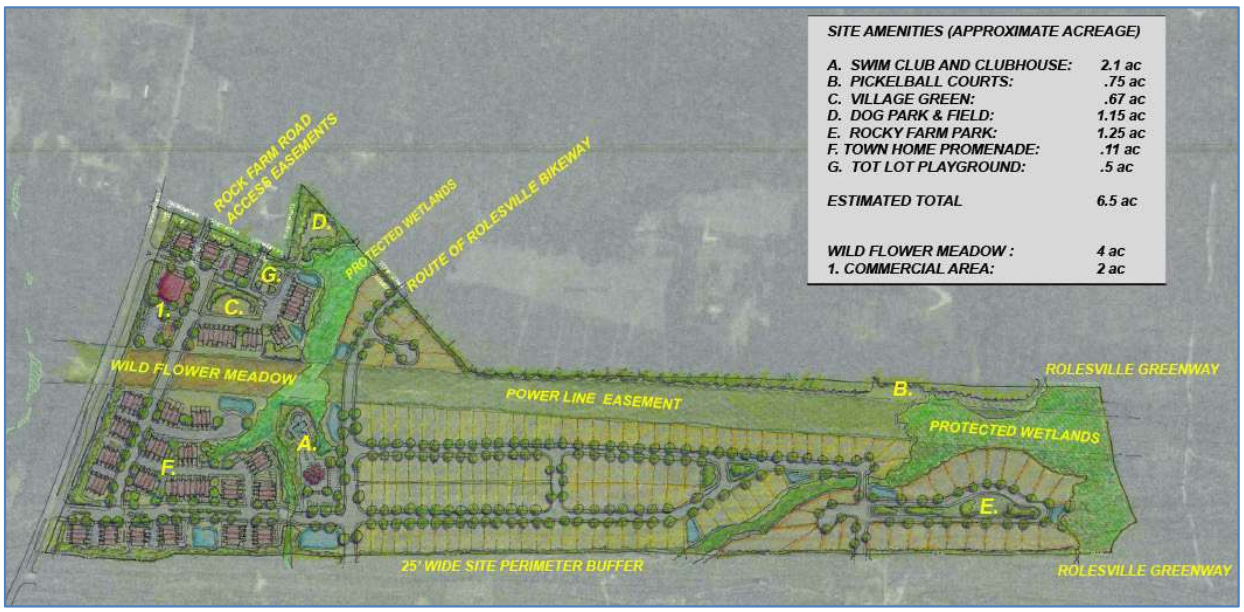
Memo

To: Mayor Currin and Board of Commissioners
From: Michael Elabarger, Senior Planner
Date: September 5, 2023
Re: Hills at Harris Creek
Map Amendment Rezoning REZ-23-03
Voluntary Annexation Petition ANX-22-04

Background

Rezoning (REZ-23-03)

The Town of Rolesville Planning Department received an initial Map Amendment (Rezoning) application in January of 2022 [MA 22-01] for approximatley 116 acres consisting of four (4) tracts of land located on the north side of Mitchell Mill Road, between Jonesville and Rolesville Roads. This application requested rezoning from Wake County's R-30 Zoning District to the Town's Land Development Ordinance (LDO) zoning district of Neighborhood Center.(NC) as a Conditional Zoning (CZ) District. This was reviewed several times over the course of 2022. In early 2023, the Applicant chose to significantly revise the scope of the application, and REZ-23-03 was submitted to usurp MA 22-01, and this 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. Project details include 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.



Hills at Harris Creek Concept/Sketch Plan

ANNEXATION PETITION (ANX-22-04
A Voluntary Annexation Petition has also been submitted and reviewed and is processing simultaneously with this rezoning request. As provided by G.S. 160A-31, the petition was investigated by the Town Clerk as to its sufficiency of meeting G. S. 160A-31 after the October 4, 2022 Town Board Meeting; see Attachment 14. On August 1, 2023, the Town Board of Commissioners scheduled a legislative hearing for the annexation petition (to be held September 5, 2023).

The Rezoning applicant has proposed a Concept/Sketch Plan (see Attachment 5, Exhibit 1) and a set of Conditions of Approval (see Attachment 9, Exhibit 5).

Applicant Justification

The applicant provided this brief statement regarding the submittal (see Attachment 4 also).

> The proposed rezoning of the parcels described above is made in careful consideration of the Rolesville Comprehensive Plan 2017. The Future Land Use Map designates these parcels as Medium Density Residential, and we believe that a combination of the Mixed Use Neighborhood Center Conditional District and Residential High Density Conditional District would allow for the best variety of housing types to meet this objective while integrating seamlessly with the surrounding community. The proposed community includes a mix of housing types (single-family detached homes and townhomes) and is within the density levels recommended by the Comprehensive Plan.
>
> Mixed-use neighborhoods such as the one proposed herein are routinely applauded for their connectivity and walkability and the multiple housing types appeal to various income levels while still maintaining the appeal and quality of the neighborhood. 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.

Neighborhood Meetings

Under the header of MA 22-01, the Applicant conducted Neighborhood meetings on March 16, 2022 and January 10, 2023. With the new application REZ-23-03, the applicant held a meeting on May 23, 2023 – see Attachment 11. Per the Applicant, four (4) persons attended/signed-in at the most recent meeting.

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

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 the 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 mix of residential product types, with a commercial element, 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, Ramey Kemp Associates, performed the Traffic Impact Analysis (TIA) for this project on behalf of the Town; the study analyzed a development of 155 Single Family Detached and 115 Single family Attached (townhome) housing units, and 12,000 square feet of Day Care center non-residential use. The Final Report dated June 2023 (sealed June 23, 2023) is included as Attachment 12 to this memo. Traffic conditions during weekday AM and PM peak hours were looked at in three scenarios: 2022 Existing conditions, 2027 No-build conditions, and 2027 Build conditions. See excerpted Table E-1 from the TIA report:

Table E-1: Site Trip Generation

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Single-Family Home (210)	155 DU	1,510	28	83	111	95	55	150
Single-Family Attached Housing (220)	115 DU	812	14	45	59	44	26	70
Day Care Center (565)	12 KSF	572	70	62	132	63	70	133
Total Trips		**2,894**	**112**	**190**	**302**	**202**	**151**	**353**
Pass-By Trips: Day Care Center (44% PM)			-	-	-	*-30*	*-30*	*-60*
Total Primary Trips			**112**	**190**	**302**	**172**	**121**	**293**

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. ○ *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 two (2) versions of the Rezoning application (and three (3) reviews of MA 22-01 prior to that), 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 Attachment 5 is only a conceptual plan, and not an engineered and dimensioned layout.

LDO Appendix A / 2.3.G. Review Standards with Staff Responses

The Land Development Ordinance (LDO) Handbook, Appendix A, includes the following standards that may be considered when reviewing a rezoning request; Staff responses follow each standard below.

1. **Is the application consistent with the Comprehensive Plan and other applicable adopted Town plans;**
   Staff finds that the general project intent to develop a mix of single-family detached and attached dwelling unit, with a commercial use associated with the Attached units, is consistent with the Medium Density Residential land use, and the pedestrian and transportation improvements will fulfill the development of the Community Transportation Plan, Greenway Plan, and Bicycle Plan.
2. **Is the application in conflict with any provision of the LDO or the Town Code of Ordinances;**
   Based on the level of detail provided, the application materials appear consistent with the LDO; the project will demonstrate full compliance with subdivision/land development requirements at later stage of development.
3. **Does the application correct any errors in the existing zoning present at the time it was adopted;**
   The subject property is currently under land use control of Wake County and therefore is not consistent with the 2017 Rolesville Comprehensive Plan; the property is not within the Town of Rolesville Extraterritorial Jurisdiction (ETJ); per the circa 2014 Annexation Agreement with the City of Raleigh, this property, if sought to Voluntarily Annex, would annex into Rolesville.
4. **Does the application allow uses that are compatible with existing and allowed uses on surrounding land;**
   Presently, the surrounding land uses are larger lot single family detached residential pursuant to Wake County's R-30 low density zoning. These existing land uses are inconsistent with the Rolesville Comprehensive Plan, which covers this region. The application therefore complies with the Rolesville Comprehensive Plan, but is significantly different from the existing or currently allowed (under Wake County R-30 zoning) development pattern.
5. **Would the application ensure efficient development within the Town, including the capacity and safety of the street network, public facilities, and other similar considerations;**
   The application, with an envisioned density in the range of 2.3 dwelling units per acre (270 units/116 acres) is actually lower than the prescribed residential density range of 3 to 5 dwelling units per acre. The application is demonstrating compliance with planned Community Transportation Plan roadways, as well as pedestrian features. The identified amenities are demonstrating general compliance with LDO amenity requirements.
6. **Would the application result in a logical and orderly development pattern; and**
   Based on the concept/sketch plan, the proposed development indicates intentions to meet or exceed all subdivision requirements, including roadway and pedestrian improvements. All LDO subdivision requirements will be demonstrated on the subsequent Major Preliminary Subdivision Plat.
7. **Would the application result in adverse impacts on water, air, noise, storm water management, wildlife, vegetation, wetlands, and the natural functioning of the environment.**
   Based on the concept/sketch plan and the requirement to comply with all LDO minimum requirements to develop the project, beyond the inherent and permitted impacts of land development, the impacts as described should not result.
8. **If a conditional rezoning, the BOC may also consider if the conditional rezoning addresses the impacts reasonably expected to be generated by the development or use of the site, can reasonably be implemented and enforced for the subject**

property, and if it will mitigate specific issues that would likely result if the subject property were zoned to accommodate all the uses and the minimum standards of the corresponding general zoning district.
While submitted as requesting Conditional Zoning (CZ) of the general NC and RH districts, the proposal includes nothing that could not be developed via a General District Rezoning to the NC and RH Districts.

Overall Analysis
The project entails developing approximately 150 single family detached dwelling units with the RH Zoning District utilizing the LDO Section 3.1.3. standards of 7,500 SF minimum lots sizes with 75' of minimum lot width, and then developing up to 115 Single family Attached dwelling units (townhomes) across a portion of the RH District and then also within the NC District. The Applicant has shown the intention in the Concept/Sketch Plan (Attachment 5) and Exhibit 4 (Attachment 8) to subdivide Single family Attached (Townhome) lots both fronting on new/proposed public streets, but also utilizing private access easements for some units/buildings. The latter is the impetus for TA-23-05 and providing LDO regulations for the option to create Single family Attached lots that do not have lot frontage on public streets (right-of-ways), but rather private access easements. Staff generally supports the creation of such an option in the LDO, as it promotes more creative community development, it lessens the propensity of driveway entrances onto public streets, and it lessens the long-term maintenance responsibilities of new public streets by eliminating the need for public streets while still facilitating the development of fee simple (Townhome) lots. The NC District is rather small (~13 acres), making the minimum 15% of gross area for non-residential uses relatively small, but the inclusion of a neighborhood serving non-residential use will be beneficial to the local community, and as demonstrated in the TIA trip calculations, can serve to reduce vehicle trips by containing some (of the non-residential caused trips) to stay within the project.

Staff Recommendation

REZ-23-03 – Map Amendment Rezoning Application
Staff finds the proposed rezoning request REZ-23-03 is consistent with the Comprehensive Plan and recommends Approval of it.

ANX 22-04 – Voluntary Annexation Petition
Staff finds the petition for Voluntary Annexation (see Attachment 13) to be complete. The Town Clerk has provided a Certificate of Sufficiency dated October 26, 2022 (see Attachment 14).

Consistency and Reasonableness

As noted above under the Comprehensive Plan section of this report, the rezoning request for the subject parcels is consistent with the Future Land Use designation of *Medium Density Residential*. The Concept Site Plan and proposed Conditions of Approval express general consistency with the Community Transportation Plan, Bicycle Plan, and Greenway Plan. Rezoning Map Amendment REZ-23-03 is thus consistent with the Comprehensive Plan and other applicable Plans and is therefore reasonable.

Proposed Motions

1. Motion to (approve or deny) Rezoning Map Amendment request REZ-23-03 – Hills at Harris Creek.
2. (Following Approval) Motion to adopt a Plan Consistency Statement and Statement of Reasonableness for REZ-23-03.

3. Motion to (approve or deny) the Voluntary Annexation Petition received under G.S. 160A-31 for ANX 22-04 – Hills at Harris Creek.

Or

4. Motion to continue the legislative hearing for REZ-23-03 and ANX 22-04 to a future Town Board of Commissioners' meeting.

Attachments

1	Vicinity Map
2	Zoning Map
3	Future Land Use Map
4	Map Amendment Application
5	Concept/Sketch Plan (dated June 2, 2023)
6	Zoning District boundary sketch
7	Zoning District Metes & Bounds (Legal Descriptions)
8	Townhome Mews Sketch
9	Proposed Conditions of Approval
10	Duke Powerline Easement and Greenway Topic
11	Neighborhood Meeting Package – May 23, 2023
12	Traffic Impact Analysis (TIA) sealed dated 2023-06-23
13	Voluntary Annexation Petition and Attachments
14	Voluntary Annexation Town Clerk Certificate of Sufficiency – signed October 5, 2022

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

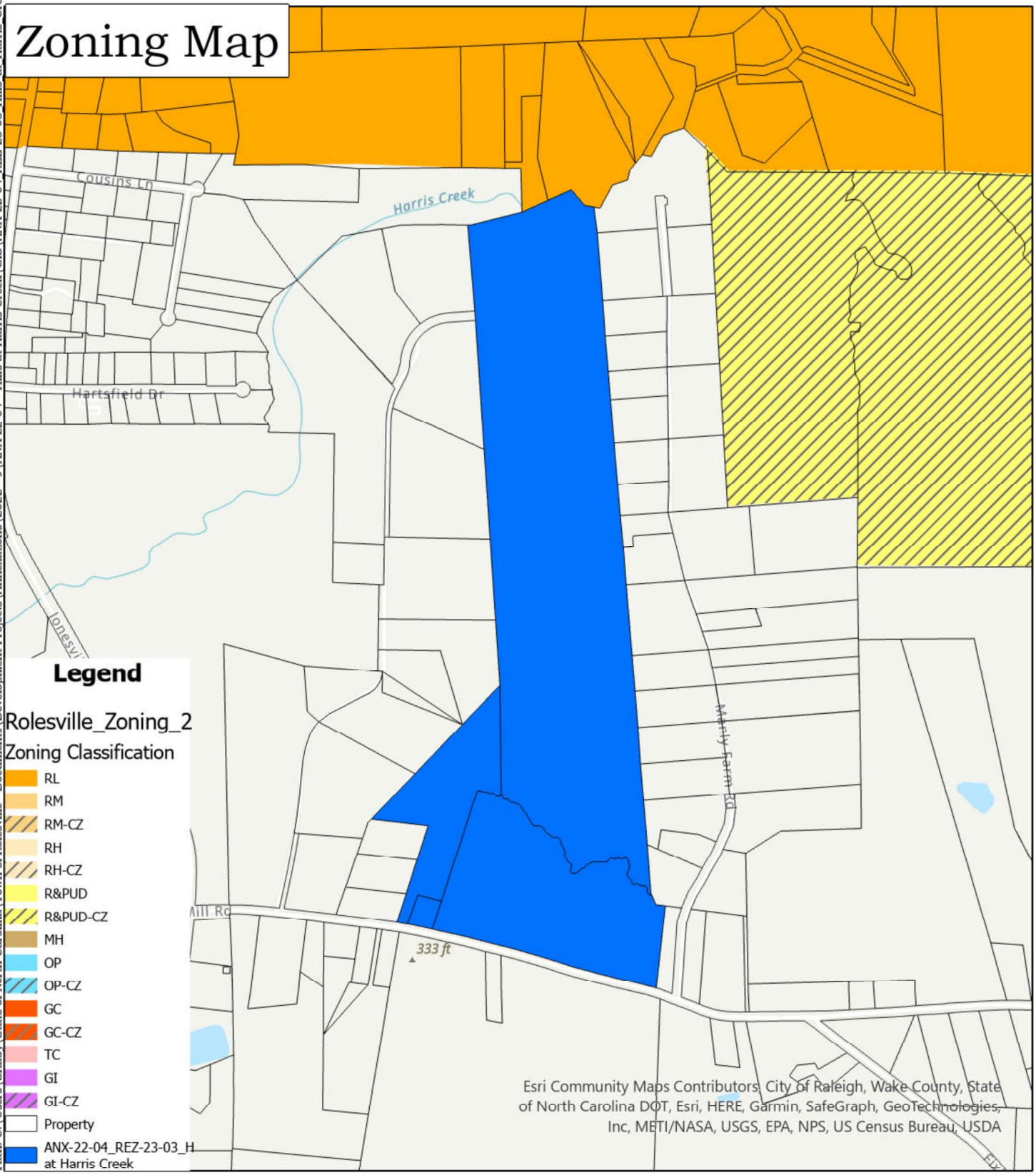
0 0.17 0.35 0.7 Miles
Miles

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

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_Hills at Harris Creek

N
W E
S

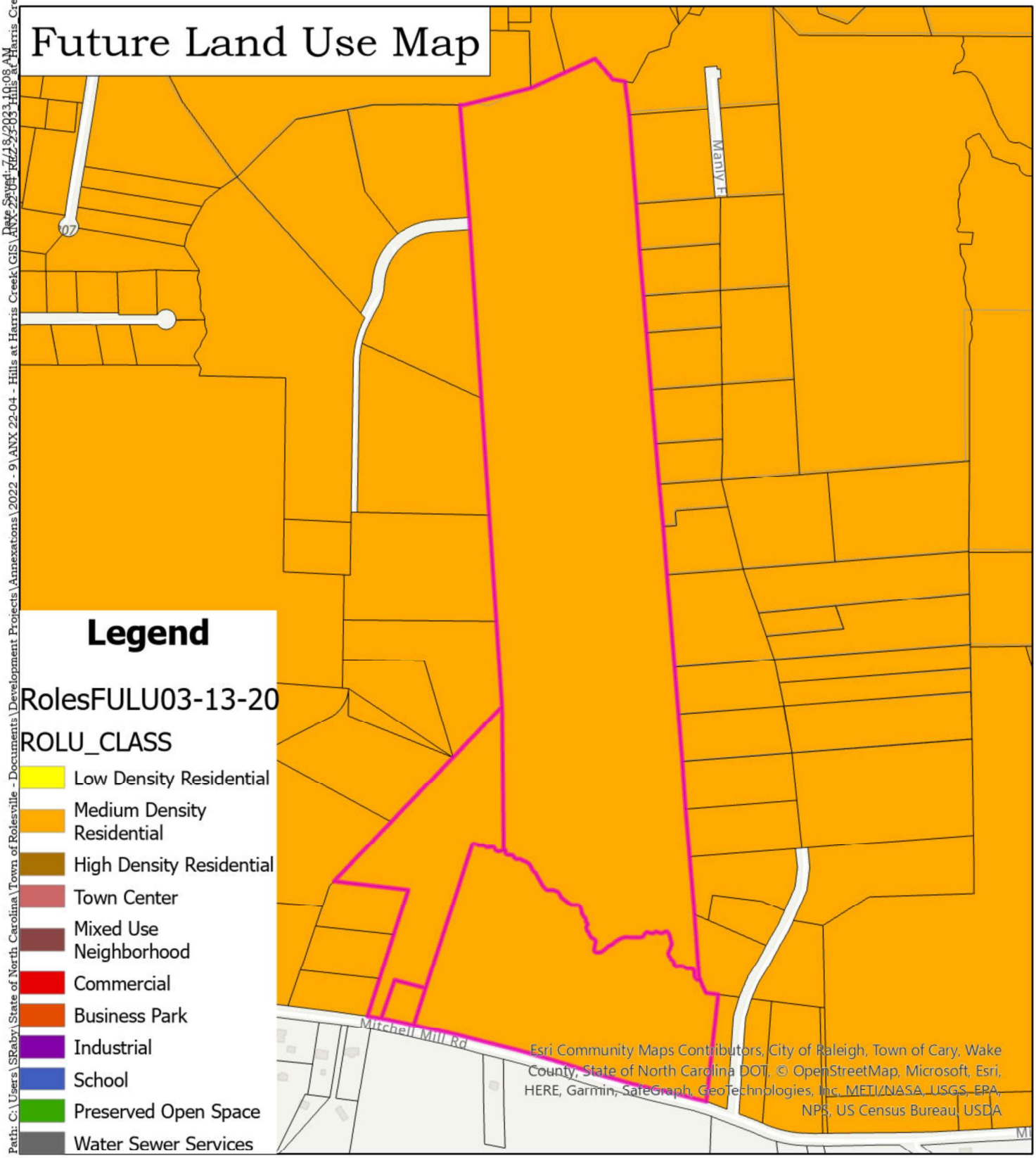
0 0.13 0.25 0 0.5 Miles
Miles

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



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

Case No. REZ-23-03

Date rcvd 06-13-23

Map Amendment Application

Contact Information

Property Owner Alan Watkins

Address 3645 Rock Farm Road City/State/Zip Wake Forest, NC 27587

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

Developer Ellis Developments NC, LLC

Contact Name Jason Pfister, VP of Development

Address 6801 Falls of Neuse Road, Suite 108 City/State/Zip Raleigh NC 27615

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

Property Information

Address 5333 Mitchell Mill Road, Wake Forest, NC 27587 & O Mitchell Mill Road, Wake Forest, NC 27587

Wake County PIN(s) 175750520, 1757758529, 1757761273, 1757778982

Current Zoning District Wake R30 Requested Zoning District ~~NC-CD & RH-CD~~ NC-CZ + RH-CZ

Total Acreage 115.94 acres

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 [signature] Date 3/2/2023

STATE OF NORTH CAROLINA

COUNTY OF Wake

I, a Notary Public, do hereby certify that Alan Watkins

personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the _____ *day of* March 2023.

My commission expires 1/8/2028.

Signature [signature] Seal

JASON C. PFISTER Notary Public Wake County NORTH CAROLINA

Case No. _____

Date _____

Map Amendment Application

Contact Information

Property Owner Randy Watkins

Address 145 Olde Liberty Drive City/State/Zip Youngsville, NC 27596

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

Developer Ellis Developments NC, LLC

Contact Name Jason Pfister, VP of Development

Address 6801 Falls of Neuse Road, Suite 108 City/State/Zip Raleigh NC 27615

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

Property Information

Address 5333 Mitchell Mill Road, Wake Forest, NC 27587 & O Mitchell Mill Road, Wake Forest, NC 27587

Wake County PIN(s) 175750520, 1757758529, 1757761273, 1757778982

Current Zoning District Wake R30 Requested Zoning District ~~NC-CD & RH-CD~~ NC-CZ & RH-CZ

Total Acreage 115.94 acres

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 Randy Watkins Date 3/2/2023

STATE OF NORTH CAROLINA

COUNTY OF Wake

I, a Notary Public, do hereby certify that Randy Watkins

personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the _____ *day of* March 2023.

My commission expires 1/8/2028.

Signature _____ Seal

JASON C PFISTER Notary Public Wake County NORTH CAROLINA

Case No. _____

Date _____

Map Amendment Application

Contact Information

Property Owner Ellis Land Investment Company, LLC

Address 6801 Falls of Neuse Road, Suite 108 City/State/Zip Raleigh NC 27615

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

Developer Ellis Developments NC, LLC

Contact Name Jason Pfister, VP of Development

Address 6801 Falls of Neuse Road, Suite 108 City/State/Zip Raleigh NC 27615

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

Property Information

Address 0 Mitchell Mill Road, Wake Forest, NC 27587

Wake County PIN(s) 175750520, 1757758529, 1757761273, 1757778982

Current Zoning District Wake R30 Requested Zoning District ~~NC-CD & RH-CD~~ NC-CZ + RH-CZ

Total Acreage 115.94 acres

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 _____

STATE OF NORTH CAROLINA

COUNTY OF Wake

I, a Notary Public, do hereby certify that Stephen Ellis, Manager *personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the* 2nd *day of* March 2023 .

My commission expires 01/08/2028 .

Signature _____ Seal

JASON C. PFISTER Notary Public Wake County NORTH CAROLINA

Case No. _____

Date _____

Map Amendment Application

Contact Information

Property Owner Laura Watkins

Address 3544 Donlin Drive City/State/Zip Wake Forest, NC 27587

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

Developer Ellis Developments NC, LLC

Contact Name Jason Pfister, VP of Development

Address 6801 Falls of Neuse Road, Suite 108 City/State/Zip Raleigh NC 27615

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

Property Information

Address 3645 Rock Farm Road, Wake Forest, NC 27587

Wake County PIN(s) 175750520, 1757758529, 1757761273, 1757778982

Current Zoning District Wake R30 Requested Zoning District ~~NC-CD & RH-CD~~ NC-CZ + RH-CZ

Total Acreage 115.94 acres

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 01 Mar 2023

STATE OF NORTH CAROLINA

COUNTY OF Wake

I, a Notary Public, do hereby certify that Laura Watkins

personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the 1st *day of* March 20 23 .

My commission expires 1/8/2028 .

Signature _____ Seal

JASON C. PFISTER Notary Public Wake County NORTH CAROLINA

Case No. _____

Date _____

Map Amendment Application

Contact Information

Property Owner Randall Watkins

Address 3544 Donlin Drive City/State/Zip Wake Forest, NC 27587

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

Developer Ellis Developments NC, LLC

Contact Name Jason Pfister, VP of Development

Address 6801 Falls of Neuse Road, Suite 108 City/State/Zip Raleigh NC 27615

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

Property Information

Address 3645 Rock Farm Road, Wake Forest, NC 27587

Wake County PIN(s) 175750520, 1757758529, 1757761273, 1757778982

Current Zoning District Wake R30 Requested Zoning District ~~NC-CD & RH-CD~~ NC-CZ + RH-CZ

Total Acreage 115.94 acres

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 3/1/23

STATE OF NORTH CAROLINA

COUNTY OF Wake

I, a Notary Public, do hereby certify that Randall Watkins

personally appeared before me this day and acknowledged the due execution of the foregoing instrument. This the 1st *day of* March *20*23.

My commission expires 1/8/2028.

Signature _____ Seal

JASON C. PFISTER Notary Public Wake County NORTH CAROLINA

Rolesville
Genuine Community • Capital Connection
Est. 1837

Map Amendment Application

Metes and Bounds Description of Property

Will be completed upon completion of survey

Rolesville
Genuine Community • Capital Connection
Est. 1837

Map Amendment Application

Rezoning Justification

See attached

Rolesville
Genuine Community • Capital Connection
Est. 1837

Map Amendment Application

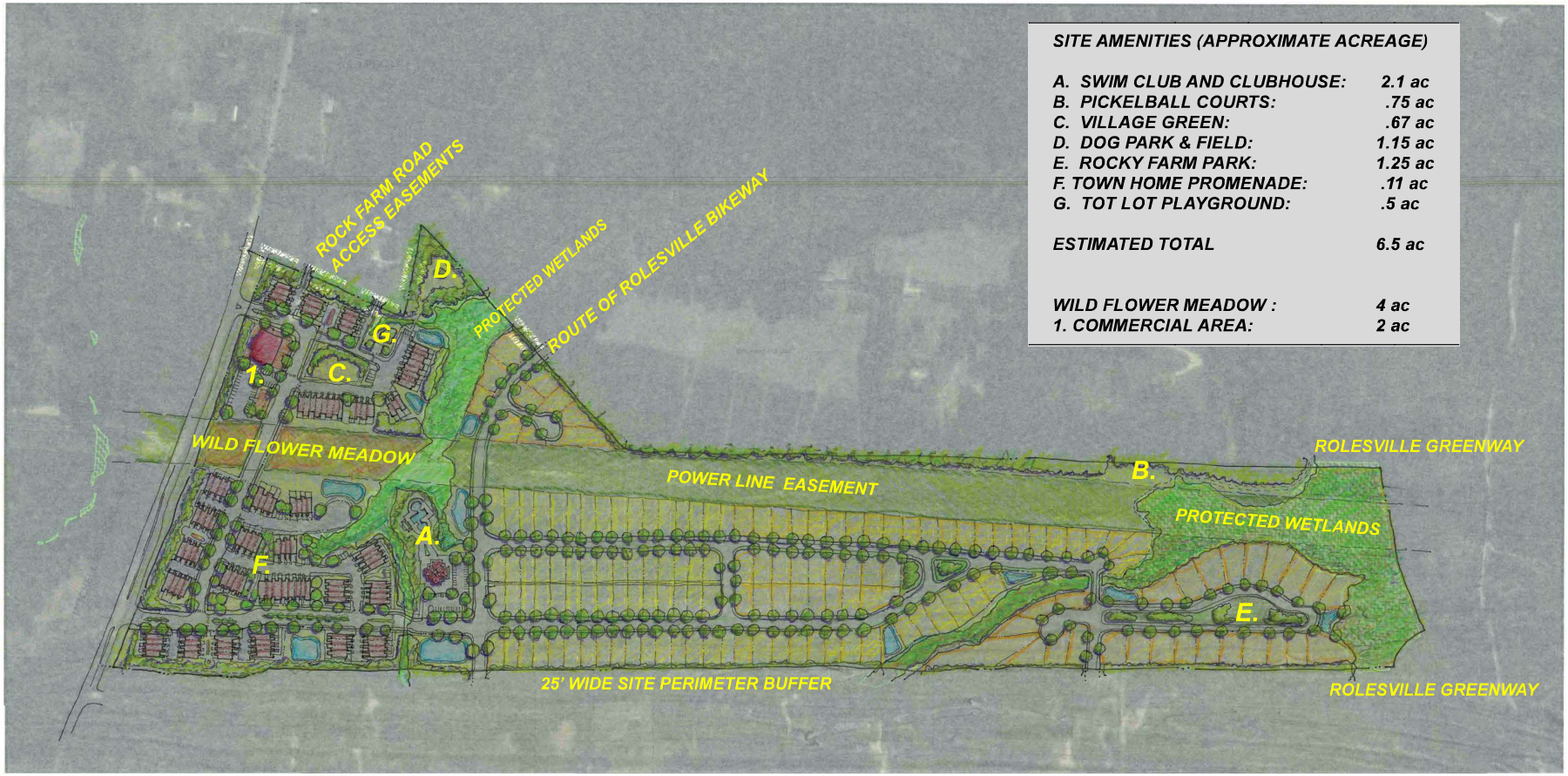
Property Owner Information

Wake County PIN	Property Owner	Mailing Address	Zip Code
1757758529	Ellis Land Investment Company, LLC	6801 Falls of Neuse Road, Suite 108, Raleigh, NC	27615
1757761273	Randall and Laura Watkins	3544 Donlin Drive, Wake Forest, NC	27587
1757750520	Alan and Randy Watkins	3609 Rock Farm Road, Wake Forest, NC	27587
1757778982	Alan and Randy Watkins	3609 Rock Farm Road, Wake Forest, NC	27587

The proposed rezoning of the parcels described above is made in careful consideration of the Rolesville Comprehensive Plan 2017. The Future Land Use Map designates these parcels as Medium Density Residential, and we believe that a combination of the Mixed Use Neighborhood Center Conditional District and Residential High Density Conditional District would allow for the best variety of housing types to meet this objective while integrating seamlessly with the surrounding community. The proposed community includes a mix of housing types (single-family detached homes and townhomes) and is within the density levels recommended by the Comprehensive Plan.

Mixed-use neighborhoods such as the one proposed herein are routinely applauded for their connectivity and walkability and the multiple housing types appeal to various income levels while still maintaining the appeal and quality of the neighborhood. 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.

EXHIBIT ONE: CONCEPT PLAN (SKETCH PLAN)



SITE AMENITIES (APPROXIMATE ACREAGE)	
A. SWIM CLUB AND CLUBHOUSE:	2.1 ac
B. PICKELBALL COURTS:	.75 ac
C. VILLAGE GREEN:	.67 ac
D. DOG PARK & FIELD:	1.15 ac
E. ROCKY FARM PARK:	1.25 ac
F. TOWN HOME PROMENADE:	.11 ac
G. TOT LOT PLAYGROUND:	.5 ac
ESTIMATED TOTAL	6.5 ac
WILD FLOWER MEADOW :	4 ac
1. COMMERCIAL AREA:	2 ac

ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

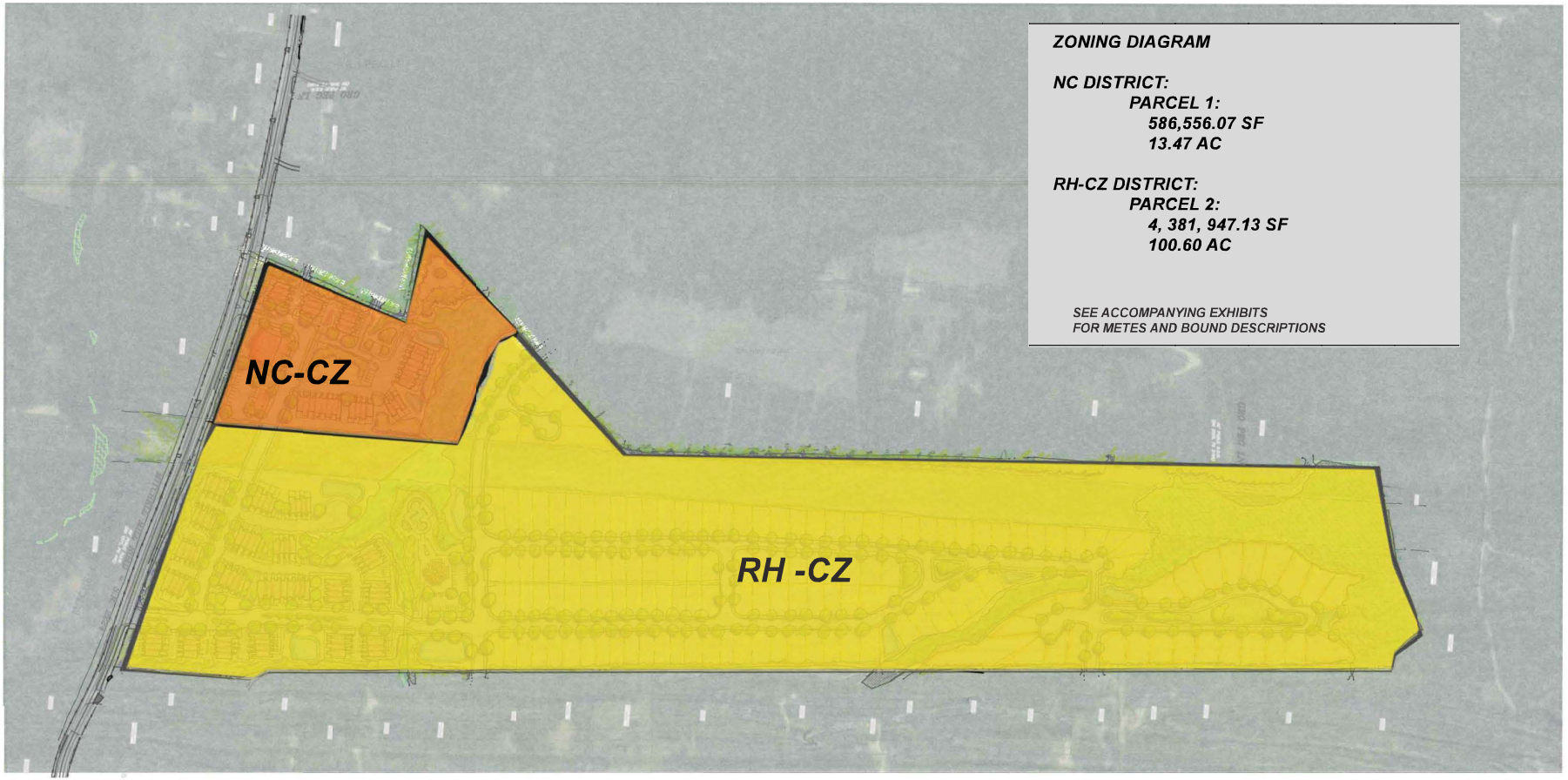
JUNE 2, 2023

SCALE

(IN FEET)
1 inch = 200 ft.

ATTACHMENT 5 - CONCEPT/SKETCH PLAN
REZ-23-03

EXHIBIT TWO: ZONING DIAGRAM



V2 - REZ-23-03

HILLS at HARRIS CREEK

ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

JUNE 2, 2023

SCALE

(IN FEET)
1 inch = 200 ft.

STRONGROCK
ENGINEERING GROUP

Strong Rock Engineering Group, PLLC
Raleigh, NC 27624
PO Box 99552
984.200.1932 (p)
Company License # P-2166

EXHIBIT 3:

V2 - REZ-23-03
rcvd 6-2-23

HILLS at HARRIS CREEK

Metes and Bounds description of Parcel 1: NC-CZ

as shown on Exhibit 2: Zoning Diagram

Point of Beginning: Commencing at a point on the Future (post 35' Dedication) Northern Right-Of-Way of Mitchell Mill Road:
THENCE, North 19°37'29" East, 153.43 feet to a point;
THENCE, North 18°40'39" East, 227.11 feet to a point;
THENCE, North 19°31'15" East, 230.80 feet to a point;
THENCE, North 83°06'35" West, 376.14 feet to a point;
THENCE, North 43°56'42" East, 539.17 feet to a point;
THENCE, South 43°56'42" West, 539.17 feet;
THENCE, South 16°32'05" East, 42.44 feet to a point;
THENCE, South 27°36'38" East, 42.80 feet to a point;
THENCE, South 68°58'38" East, 54.77 feet to a point;
THENCE, South 77°04'07" East, 46.50 feet to a point;
THENCE, South 82°03'47" East, 43.34 feet to a point;
THENCE, South 63°10'34" East, 53.99 feet to a point;
THENCE, South 78°58'51" East, 55.03 feet to a point;
THENCE, South 73°28'18" East, 39.46 feet to a point;
THENCE, South 75°12'22" East, 64.19 feet to a point;
THENCE, South 79°08'05" East, 30.68 feet to a point;
THENCE, South 64°08'20" East, 56.08 feet to a point;
THENCE, South 0°08'08" East, 955.98 feet to the beginning of a non-tangent curve concave southerly, said curve has a radius of 13,079.66 feet, to which a radial line bears North 14°33'02" East;
THENCE, westerly along said curve through a central angle of 2°57'39" an arc distance of 675.93 feet to the point of beginning;

Containing 586,556.07 square feet / 13.47 acres, more or less.

STRONGROCK
ENGINEERING GROUP

Strong Rock Engineering Group, PLLC
Raleigh, NC 27624
PO Box 99552
984.200.1932 (p)
Company License # P-2166

Hills at Mitchell Mill

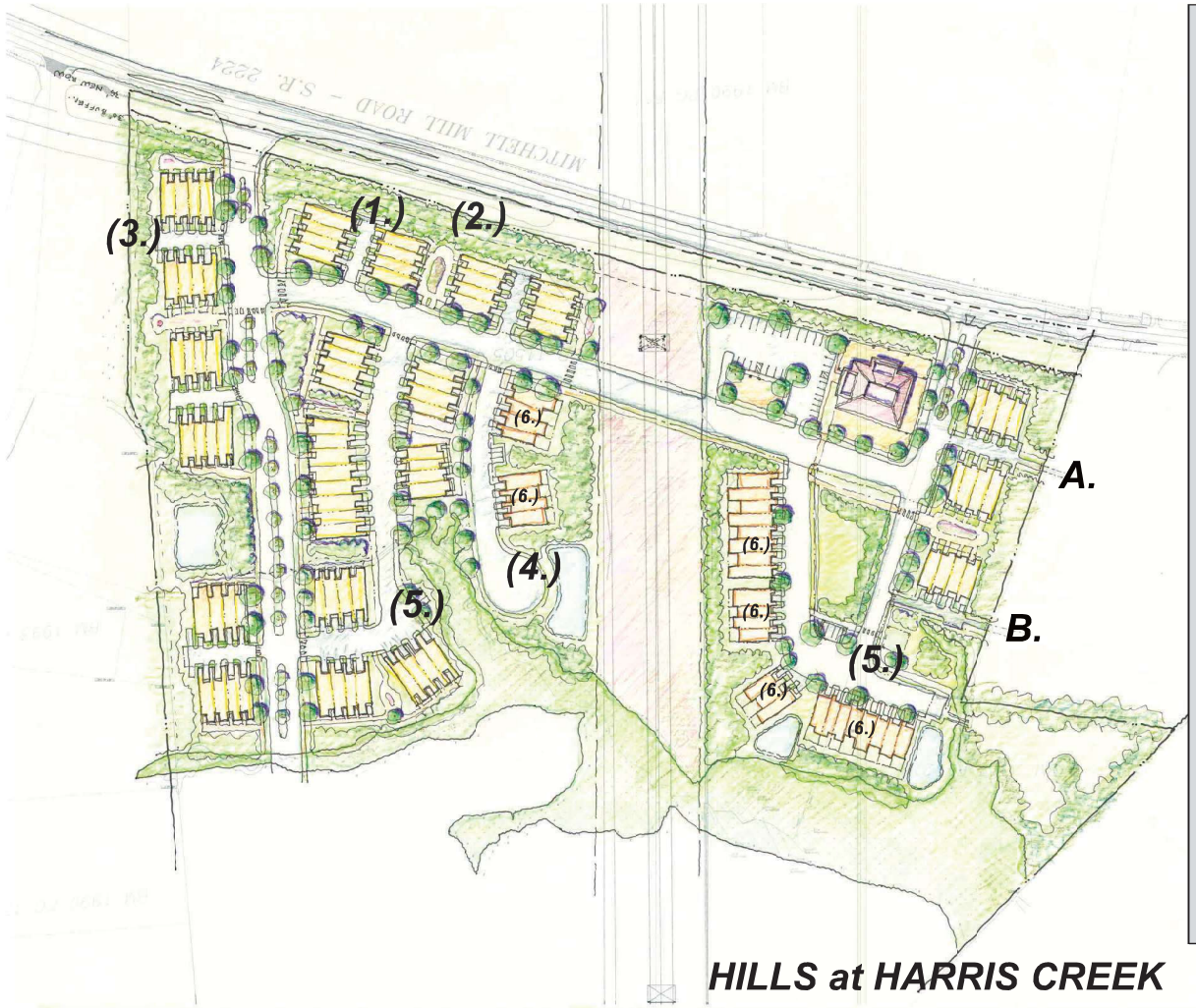
Metes and Bounds description of Parcel 2: RH-CZ

as shown on Exhibit 2: Zoning Diagram

Point of Beginning: Commencing at a point on the Future (post 35' Dedication) Northern Right-Of-Way of Mitchell Mill Road:
THENCE (1) North 0°08'08" West, 955.98 feet to a point;
THENCE (2) North 64°08'20" West, 56.08 feet to a point;
THENCE (3) North 79°08'05" West, 30.68 feet to a point;
THENCE (4) North 75°12'22" West, 64.19 feet to a point;
THENCE (5) North 73°28'18" West, 39.46 feet to a point;
THENCE (6) North 78°58'51" West, 55.03 feet to a point;
THENCE (7) North 63°10'34" West, 53.99 feet to a point;
THENCE (8) North 82°03'47" West, 43.34 feet to a point;
THENCE (9) North 77°04'07" West, 46.50 feet to a point;
THENCE (10) North 68°58'38" West, 54.77 feet to a point;
THENCE (11) North 27°36'38" West, 42.80 feet to a point;
THENCE (12) North 16°32'05" West, 42.44 feet to a point;
THENCE (13) North 43°56'42" East, 651.84 feet to a point;
THENCE (14) North 3°44'09" West, 2,963.58 feet to a point;
THENCE (15) South 88°59'15" East, 0.54 feet to a point;
THENCE (16) North 75°53'40" East, 340.47 feet to a point;
THENCE (17) North 65°27'07" East, 350.10 feet to a point;
THENCE (18) South 40°38'56" East, 133.25 feet to a point;
THENCE (19) South 80°06'11" East, 62.70 feet to a point;
THENCE (20) South 4°46'37" East, 4,426.21 feet to a point;
THENCE (21) South 24°08'12" East, 83.90 feet to a point;
THENCE (22) South 0°25'29" East, 493.75 feet to a point;
THENCE (23) North 71°34'19" West, 3.27 feet to a point;
THENCE (24) North 74°14'58" West, 53.84 feet to a point;
THENCE (25) North 75°50'32" West, 260.45 feet to a point;
THENCE (26) North 75°16'13" West, 150.67 feet to the beginning of a non-tangent curve concave southerly, said curve has a radius of 13,079.66 feet, to which a radial line bears North 17°04'26" East;
THENCE (27) westerly along said curve through a central angle of 2°31'24" an arc distance of 576.04 feet;

Containing 4,381,947.13 square feet / 100.60 acres, more or less.

EXHIBIT FOUR: TOWNHOME MEWS SKETCH



HILLS at HARRIS CREEK

TOWNHOUSE MEWS SKETCH DETAIL

(1) ACCESS / UTILITY EASEMENTS 30 FEET COMBINED WATER AND SANITARY SEWER

(2) STORMWATER 20 FEET EASEMENTS IN FRONT AS SHOWN BY RAIN GARDEN AREAS

(3) MEWS DEPTH LIMTED TO MAX 140 FEET FOR ALL DEAD END TYPES

(4) CUL-DE-SAC MEWS WITH NCDOT STANDARD BULB

(5) CIRCULATION MEWS ALLOWS FOR TWO WAY TRAFFIC

(6) FRONT LOADING GARAGE TOWNHOMES 33 UNITS

ACCESS EASEMENT CONNECTIONS SHOWN FOR ROCK FARM ROAD PRIVATE STREET (A&B) NOTES

PARKING SPACE PROVIDED TO MEET ROLESVILLE CODE

ALL TOWNHOMES AT LEAST 30 FEET SEPARATION

ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

JUNE 2, 2023

SCALE

(IN FEET)

Exhibit FIVE

Hills at Harris Creek (REZ-23-03)

Neighborhood Center Conditional Zoning District (NC-CZ) and
Residential High Density Conditional (RH-CZ) Zoning District
Conditions of Approval

Conditions Applicable to the entire property:

1. The subject property shall be developed generally in accordance with the concept plan attached hereto as Exhibit 1 and incorporated herein as if fully set out. The approximately 13-acre portion of the subject property, further described as Parcel 1 on the attached Exhibit 2 attached hereto, shall be zoned NC-CZ and the remaining 102-acre portion of the property, further described as Parcel 2 on Exhibit 2 attached hereto, shall be zoned RH-CZ. The improvements described herein may be developed in phases in accordance with a phasing plan approved by the Town of Rolesville.

2. Dwelling Units: The total number of dwellings on the subject property shall not exceed 270 dwelling units and no more than 115 of these dwelling units shall be permitted to be Dwellings, Single Family, Attached (Townhouse.)

3. No more than fifteen (15) gross acres of the RH-CZ zoned district shall be assigned to use for Dwellings, Single Family, Attached (Townhouse).

4. Affordable Housing: Prior to the issuance of the first building permit for a dwelling unit, the property owner shall donate Twenty Thousand Dollars and No Cents ($20,000.00} to Homes for Heroes or another non-profit organization with a substantially similar purpose statement.

5. Pollinator Plantings: At least three acres of the landscaping planted within the 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. Where evergreen plantings or street trees are required by the Rolesville Land Development Ordinance as the same may be amended from time to time, pollinator plantings shall not be required. Nothing herein shall be construed to limit the plant materials permitted on individual residential lots.

6. Recreational Amenities: The following recreational amenities shall be provided generally as shown on the attached Exhibit 1 as a part of the development of the subject property and dedicated to the community's homeowner's association except for those areas offered to and accepted by the Town of Rolesville:
   a. A swimming pool and cabana, including changing rooms and restrooms shall be constructed prior to the issuance of the 150th building permit for a dwelling unit;
   b. At least one fenced playground shall be constructed prior to the issuance of the 150th building permit for a dwelling unit;
   c. At least one fenced dog park shall be constructed prior to the issuance of the 150th building permit for a dwelling unit;

d. At least one (1) garden park shall be provided prior to the issuance of the 200th building permit for a dwelling unit.
e. At least one (1) pickle ball court shall be provided prior to issuance of the 250th building permit for a dwelling unit; and

7. Transportation Improvements: The property owner shall install all required roadway and transportation improvements set forth in the Traffic Impact Analysis report associated with this project in order to address the transportation impacts reasonably expected to be generated by the development. All transportation improvements shall be installed in accordance with future phasing plans approved by the Town.

8. All homes shall include either crawl space foundations or stem wall foundation . Any stem wall foundations shall have an average of at least eighteen inches {18") in height across the front facade of the home and shall have brick or stone veneer on all sides facing a public street.

9. The minimum gross building square footage shall be 2,000 square feet for Single Family Detached dwellings.

10. Prior to the issuance of a building permit for the 150th dwelling unit, the property owner shall contribute Twenty-Five Thousand Dollars ($25,000.00) to the Town of Rolesville to be used by the Town of Rolesville to install a traffic light at the intersection of the US 401 Bypass and Jonesville Road.

Conditions Applicable to Dwellings, Single Family, Attached (Townhouse) use only (In Both NC & RH Districts):

11. The minimum gross building square footage for townhomes shall be 1,500 square feet and include at least a two (2) car garage.

12. No Dwelling, Single Family, Attached (Townhouse) building shall exceed three (3) stories.

Conditions Applicable to the NC-CZ District only:

13. All uses permitted in the Neighborhood Center Conditional Zoning (NC-CZ) district shall be permitted except *Dwellings, Multiple Family* (ie apartments).

ATTACHMENT 10 - DUKE Powerline/Greenway within Easement Topic

From: Pait, Bruce E.
To: Jason Pfister
Cc: keith@strongrockgroup.com
Subject: Duke Energy Q AND A Vinci WO 49291749
Date: Saturday, May 27, 2023 8:04:14 AM
Attachments: image001.png
comment_parks_v1_rez-23-03_concept_plan-markup.pdf
DE MYWORLD DEPICTION.pdf
1 A UGET GDLF-STD-TRM-00004 - 5-2020.pdf
PICTURE - EQUIPMENT WORKING H 1.pdf

Proposed improvements and development within or adjacent to Duke Energy's 180 foot wide transmission level power easement.

Line: OL294 Durham – Wake 500kV at Towers # 100A to # 104A

To: Jason Pfister (919-824-6088) VP – Development - Ellis Development Group | 6801 Falls of Neuse Rd, STE 108, Raleigh, NC 27615
Cc: Stephen Ellis – Ellis Development Group, Keith Spalding-Robbins – Strong Rock Group
Dear Jason:
-1. Duke Energy highly discourages a parallel paved trail at this location. Duke Energy has plans to replace the large lattice towers and parallel trails at this location will be in the way of heavy equipment and could likely be damaged. See the "Equipment working" picture attached above.
-2. Duke Energy power easements are not compatible with dumping grounds and abandoned or junk vehicles. The junk car on the site should be removed as soon as possible by the property owners. These types of encroachments represent hazards to Duke Energy workers, property owners and the general public.
-3. Easement documents:
We have not performed a title search for the property and only a full title search to the beginning of the records would capture all encumbrances on the property. The attached easement was referenced in our maintenance records for the property's location. We are providing this as a courtesy but make no guarantees as to any easement rights on the property, including rights for corridors that are currently unoccupied. We strongly suggest that you engage a licensed attorney to complete a full title search on the property to confirm any rights that Duke Energy has on the property.

The maintenance records that I have seen include but may not be limited to the following easements: Book 2830 page 24, Book 2878 page 411 of the Wake County Registry.

I hope this information is beneficial to you and your team.

Sincerely,

Bruce 919-219-9567

Bruce E Pait

DUKE ENERGY.

Sr. Asset Protection Program Manager
Transmission Department
Carolinas East & Carolinas West - Zone 7

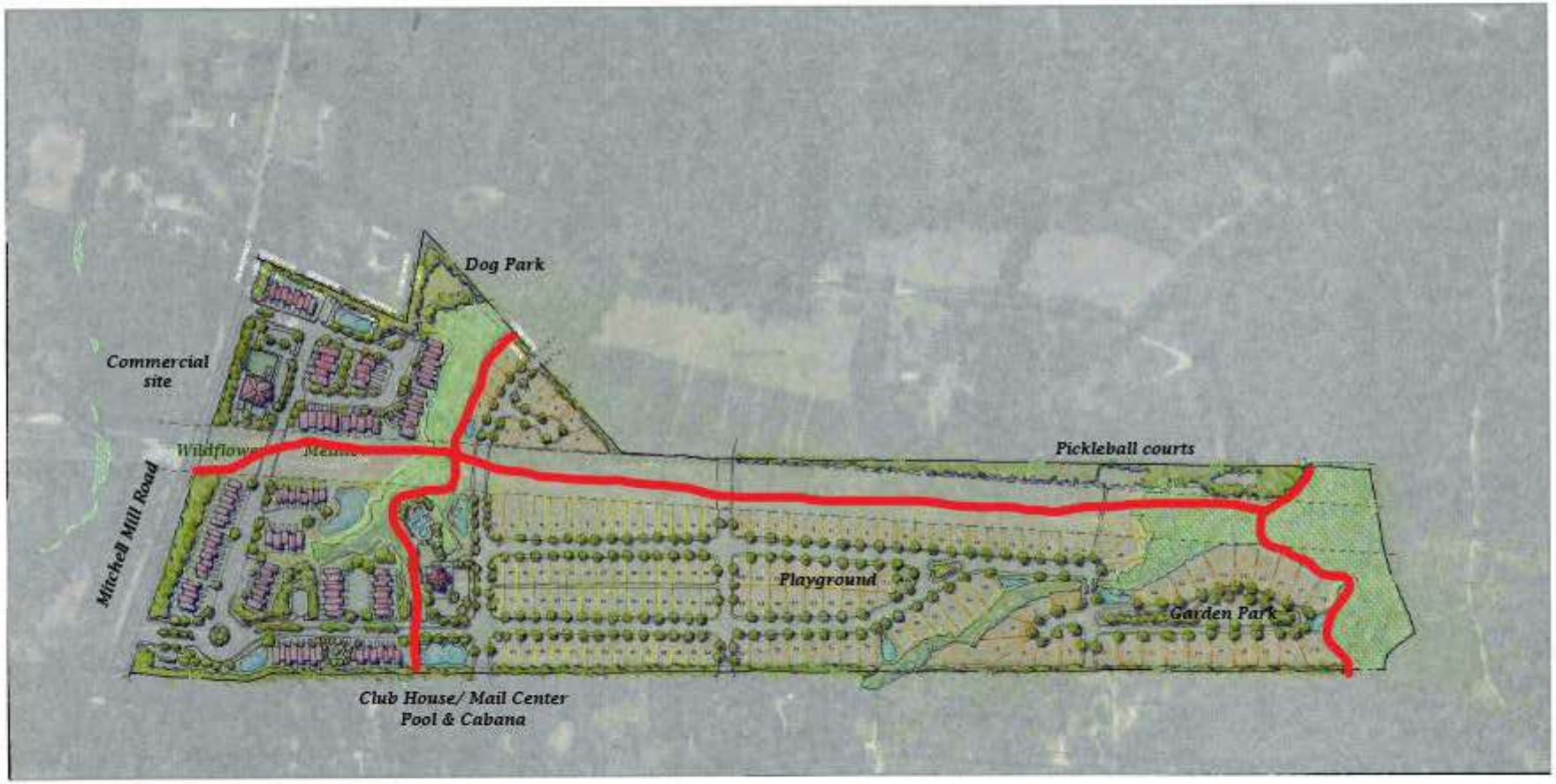
4690 Simms Creek Road | MC: US 1N T&D OPS | Raleigh, NC 27616
Work: 919.431.4831 | Cell: 919.219.9567

Bruce.Pait@duke-energy.com

For more information about Transmission Asset Protection: Trees & Rights of Way @ Duke-Energy.com

V1 - REZ-23-03

Hills at Harris Creek



ELLIS

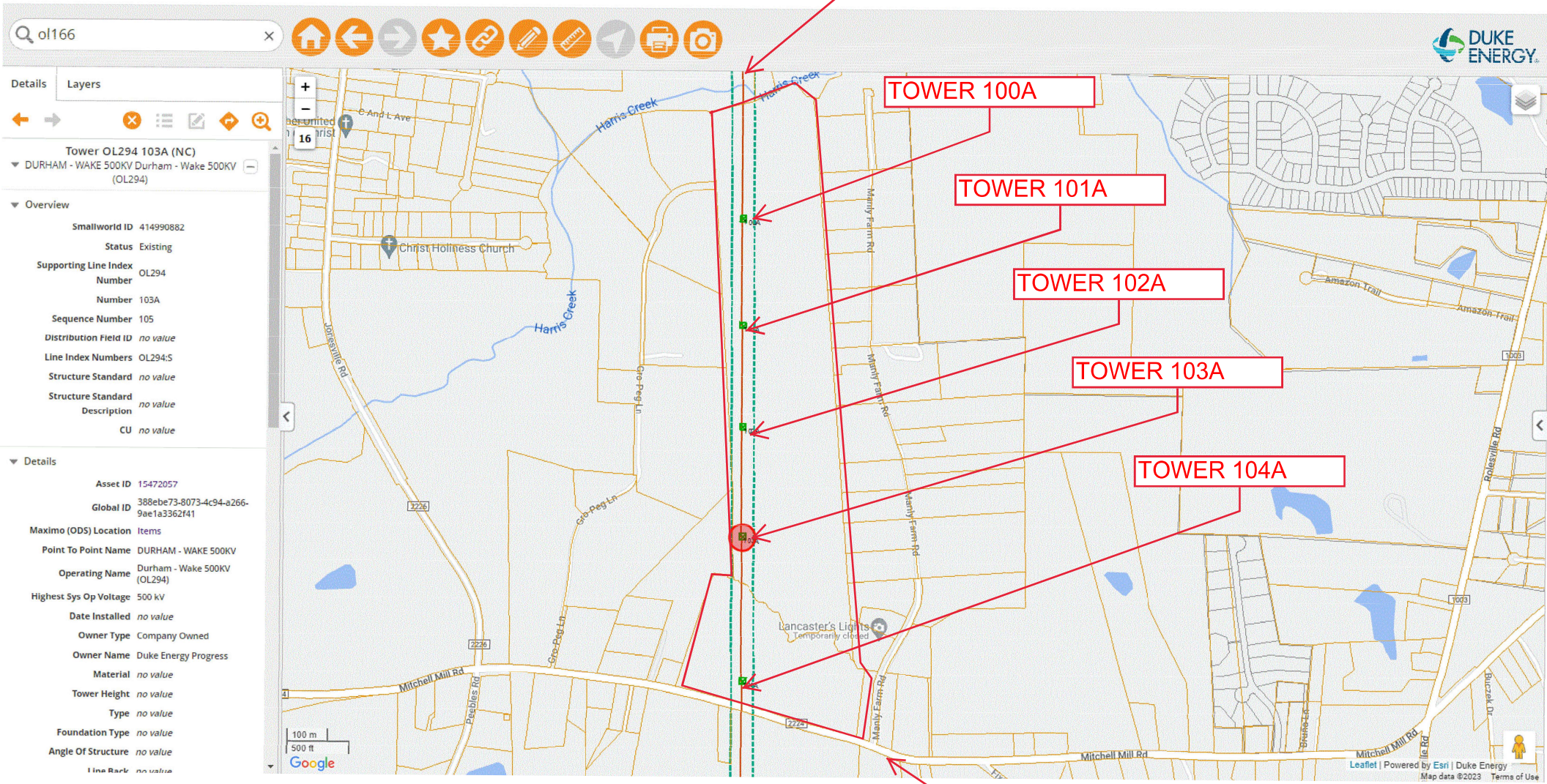
STRONGROCK ENGINEERING GROUP

TRANSMISSION ASSET PROTECTION
DUKE ENERGY.
NOT APPROVED
05/08/2023
1:50 pm
BRUCE PATT

SCALE

DUKE ENERGY
LINE: OL294 DURHAM - WAKE 500kV
TOWERS: TOWER # 100A THRU # 104A
CONTACT: BRUCE PAIT 919-219-9567

180' WIDE DUKE ENERGY HIGH VOLTAGE POWER EASEMENT



MITCHELL MILL RD

JASON PFISTER 919-824-6088
ELLIS DEVELOPMENTS GROUP
VICE PRESIDENT OF DEVELOPMENT
6801 FALLS OF NEUSE RD, SUITE 108
RALEIGH, NC 27615

ATTACHMENT 11 - NEIGHBORHOOD MEETING PACKAGE

PIN_NUM	OWNER	ADDR1	ADDR2	ZIP
1757675786	CARLE, SCOTT CARLE, THERESA	PO BOX 371	WAKE FOREST NC 27588-0371	0
1757669828	GRO PEG PROPERTIES LLC	481 AIRPORT RD	LOUISBURG NC 27549-6806	27587
1757771603	GRO PEG PROPERTIES LLC	481 AIRPORT RD	LOUISBURG NC 27549-6806	27587
1757684697	GRO PEG PROPERTIES LLC	481 AIRPORT RD	LOUISBURG NC 27549-6806	27587
1757664956	UNDERHILL, GROVER ARCHIE JR	5229 MITCHELL MILL RD	WAKE FOREST NC 27587-7249	0
1757694902	JONES, CHARLES E	3816 JONESVILLE RD	WAKE FOREST NC 27587-8180	27587
1757974973	JONES PROPERTIES, LLC	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757758529	ELLIS LAND INVESTMENT COMPANY, LLC	6801 FALLS OF NEUSE RD STE 108	RALEIGH NC 27615-5387	27587
1757641415	GOODNIGHT, CECIL L GOODNIGHT, JUDY J	1201 ROLESVILLE RD	WAKE FOREST NC 27587-6957	27587
1757956528	HOSS FARM LLC	3920 MARLOWE ST	HOUSTON TX 77005-2046	27587
1757944104	JONES, CHARLES SPENCER	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757856303	JONES, CHARLES SPENCER JONES, SHARON	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757950297	MILLS, JOSEPHUS DANIELS JR	5517 MITCHELL MILL RD	WAKE FOREST NC 27587-7254	0
1757645809	UNITY THREE BUILDERS INC	104 S MAIN ST STE A	ROLESVILLE NC 27571-9657	0
1757778982	WATKINS, ALAN WATKINS, RANDY	3609 ROCK FARM RD	WAKE FOREST NC 27587-6872	27587
1758802673	DEROUSSE, TERRANCE	5005 UPCHURCH LN	WAKE FOREST NC 27587-6374	27587
1758806894	DEROUSSE, TERRANCE	5005 UPCHURCH LN	WAKE FOREST NC 27587-6374	27587
	GUDURU, KAVITHA EQUITY TRUST COMPANY FBO			
1758604688	SRIVATSA SRINATH	849 RIVER SONG PL	CARY NC 27519-0882	27587
1757856755	JONES PROPERTIES LLC	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757859764	VASQUEZ, SUSIE A	3532 MANLY FARM RD	WAKE FOREST NC 27587-9664	27587
1757665301	UNDERHILL, GROVER ARCHIE JR	5229 MITCHELL MILL RD	WAKE FOREST NC 27587-7249	27587
1757857937	JONES, CHARLES SPENCER	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757868104	ANDERSON, BOBBY G	3605 MANLY FARM RD	WAKE FOREST NC 27587-8489	27587
1757866385	LANGWORTHY, ROBERT JOSEPH	3607 MANLY FARM RD	WAKE FOREST NC 27587-8489	27587
1757962198	BATSTONE, JEREMY C	3608 MANLY FARM RD	WAKE FOREST NC 27587-8488	27587
1757866660	GOLD, SHARIE	3609 MANLY FARM RD	WAKE FOREST NC 27587-8489	27587
1757657746	WATKINS, ALAN DWAIN	3609 ROCK FARM RD	WAKE FOREST NC 27587-6872	27587
1757668628	UNDERHILL, GROVER ARCHIE JR	5229 MITCHELL MILL RD	WAKE FOREST NC 27587-7249	27587
1757658917	NEWELL, RONALD W NEWELL, MARIE J	3617 ROCK FARM RD	WAKE FOREST NC 27587-6872	27587
1757770001	FERLITO, CHRISTOPHER J MORRIS, SARAH L	3620 GRO PEG LN	WAKE FOREST NC 27587	27587
1757772106	FERLITO, CHRISTOPHER J MORRIS, SARAH L	3620 GRO PEG LN	WAKE FOREST NC 27587	27587
1757963564	NICHOLAS, ALLAN W NICHOLAS, JUDY T	3628 MANLY FARM RD	WAKE FOREST NC 27587-8488	27587

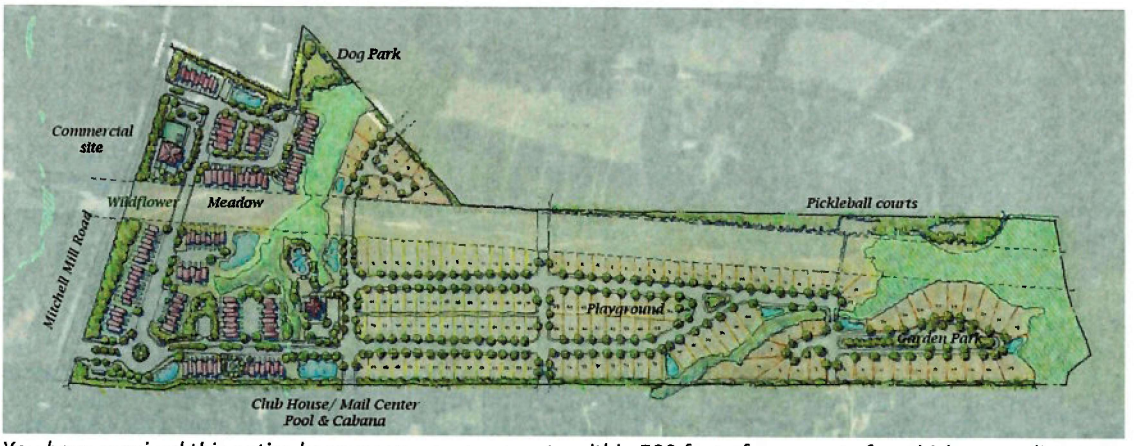
1757761273	WATKINS, RANDALL WATKINS, LAURA	3544 DONLIN DR	WAKE FOREST NC 27587-3521	27587
1757963868	LEFRANCOIS CONSTRUCTION CO INC	3716 MANLY FARM RD	WAKE FOREST NC 27587-9665	27587
1757866852	LEFRANCOIS CONSTRUCTION CO INC	3716 MANLY FARM RD	WAKE FOREST NC 27587-9665	27587
1757973045	LEFRANCOIS, THOMAS D LEFRANCOIS, JANET R	3716 MANLY FARM RD	WAKE FOREST NC 27587-9665	27587
1757973137	LEFRANCOIS, THOMAS D LEFRANCOIS, JANET R	3720 MANLY FARM RD	WAKE FOREST NC 27587-9665	27587
1757876015	LEFRANCOIS, MICHAEL L LEFRANCOIS, TONIA	3717 MANLY FARM RD	WAKE FOREST NC 27587-8490	27587
1757973384	LEFRANCOIS, THOMAS D LEFRANCOIS, JANET R	3720 MANLY FARM RD	WAKE FOREST NC 27587-9665	27587
1757879378	LEFRANCOIS, THOMAS D LEFRANCOIS, JANET R	3720 MANLY FARM RD	WAKE FOREST NC 27587-9665	27587
1757972579	JONES PROPERTIES LLC	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757875349	BEATTIE, LENORA M	3733 MANLY FARM RD	WAKE FOREST NC 27587-8490	27587
1757878878	JONES PROPERTIES LLC	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757874787	LEFRANCOIS, STEPHEN D	3737 MANLY FARM RD	WAKE FOREST NC 27587-8490	27587
1757874938	ADAMS, BENJAMIN ADAMS, WHITNEY	3741 MANLY FARM RD	WAKE FOREST NC 27587-8490	27587
1757780258	CARLE, SCOTT CARLE, THERESA	PO BOX 371	WAKE FOREST NC 27588-0371	27587
1757884137	JONES PROPERTIES LLC	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757887363	CORTES, FREDY MORENO	5103 WETLANDS DR	RALEIGH NC 27610-1564	27587
1757884420	JONES PROPERTIES LLC	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757884608	JONES, CHARLES SPENCE	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757781960	CARLE, SCOTT CARLE, THERESA	PO BOX 371	WAKE FOREST NC 27588-0371	27587
1757883981	JONES, CHARLES SPENCE	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757696434	CARLE, SCOTT CARLE, THERESA	PO BOX 371	WAKE FOREST NC 27588-0371	27587
1757887850	MCLAMB, REBECCA R	3816 MANLY FARM RD	WAKE FOREST NC 27587-8491	27587
1757790646	CARLE, SCOTT CARLE, THERESA	PO BOX 371	WAKE FOREST NC 27588-0371	27587
1757897244	MCKNIGHT, H BRENT JR MCKNIGHT, ASHLEY E H	3904 MANLY FARM RD	WAKE FOREST NC 27587-8493	27587
1757894101	JONES, CHARLES SPENCER	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757893394	JONES, CHARLES SPENCER	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757897740	RGA CONSULTING LLC	3904 MANLY FARM RD	WAKE FOREST NC 27587-8493	27587
1757893647	RGA CONSULTING LLC	3904 MANLY FARM RD	WAKE FOREST NC 27587-8493	27587
1758805145	JONES PROPERTIES LLC	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1758704715	ASSOCIATE PROPERTIES LLC	5025 UPCHURCH LN	WAKE FOREST NC 27587-6374	27587
1758707313	FORRESTER, JENNIFER N FORRESTER, HAYES G	4929 UPCHURCH LN	WAKE FOREST NC 27587-6385	27587
1758709579	DAVIS, WILLIAM C DAVIS, KAREN M	4932 UPCHURCH LN	WAKE FOREST NC 27587-6385	27587
1758706961	QUINTO, JEFFERY L QUINTO, BARBARA B	4933 UPCHURCH LN	WAKE FOREST NC 27587-6385	27587
1758803892	DEROUSSE, TERRANCE	5005 UPCHURCH LN	WAKE FOREST NC 27587-6374	27587
1757571035	FOWLER, JAMES ROBERT III BRIGHT, JILL F	7400 FOWLER RD	ZEBULON NC 27597-8318	27587

1757650296	GOODNIGHT, CECIL L GOODNIGHT, JUDY J	1201 ROLESVILLE RD	WAKE FOREST NC 27587-6957	27587
1757660324	MT CALVARY HOLINESS CHURCH OF WAKE CO INC	3921 JONESVILLE RD	WAKE FOREST NC 27587-8183	27587
1757653216	PARTIN, BETTY H	5300 MITCHELL MILL RD	WAKE FOREST NC 27587-7250	27587
1757653765	UNDERHILL, G ARCHIE JR UNDERHILL, TERESSA C	5229 MITCHELL MILL RD	WAKE FOREST NC 27587-7249	27587
1757654381	PARTIN, BETTY H	5300 MITCHELL MILL RD	WAKE FOREST NC 27587-7250	27587
1757654161	TIGNOR, GLENN ALLEN TIGNOR, FRANCES P	5304 MITCHELL MILL RD	WAKE FOREST NC 27587-7250	27587
1757656586	PREDDY, GENADIUS MAC PREDDY, MATTIE F	5305 MITCHELL MILL RD	WAKE FOREST NC 27587-7251	27587
1757656231	UNITY THREE BUILDERS INC	104 S MAIN ST STE A	ROLESVILLE NC 27571-9657	27587
1757646703	UNITY THREE BUILDERS INC	104 S MAIN ST STE A	ROLESVILLE NC 27571-9657	27587
1757657280	SUTTON, WILLIE RAY SUTTON, PAMELA Z	5320 MITCHELL MILL RD	WAKE FOREST NC 27587-7250	27587
1757738451	SOUTHVIEW INVESTMENT LLC	10030 GREEN LEVEL CHURCH RD STE 802	CARY NC 27519-8195	27587
1757750520	WATKINS, ALAN WATKINS, RANDY	3609 ROCK FARM RD	WAKE FOREST NC 27587-6872	27587
1757754163	HAMPTON, MELODY L	5400 MITCHELL MILL RD	WAKE FOREST NC 27587-7252	27587
1757849656	JONES, CHARLES SPENCER	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757859243	MILLS, JOSEPHEUS DANIELS	5517 MITCHELL MILL RD	WAKE FOREST NC 27587-7254	27587
1757943559	JONES, CHARLES SPENCER JONES, SHARON K	3905 MANLY FARM RD	WAKE FOREST NC 27587-8494	27587
1757948723	WATKINS, REX I WATKINS, ELLA MAE	12695 SW 84TH AVENUE RD	MIAMI FL 33156-5803	27587
1757946408	WHITE, AARON ANTHONY WHITE, KRISTY IVORY	5608 FIXIT SHOP RD	WAKE FOREST NC 27587-9632	27587

ELLIS
DEVELOPMENTS GROUP

6801 Falls of Neuse Road, Suite 108
Raleigh, NC 27615

Notification of Neighborhood Meeting for Pending Annexation/ Rezoning



You have received this notice because you own property within 500 feet of a property for which an application to rezone or subdivide property has been filed. This notice is to inform you of an upcoming information meeting on this proposed annexation and 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. The project consists of approximately 115.94 acres which is currently zoned R-30: Residential under the jurisdiction of Wake County. These applications are being presented by Ellis Developments Group on behalf of the property owners.

Ellis Developments Group has applied to rezone the parcels to a combination of NC-CZ (Neighborhood Center Conditional Zoning) and RH-CZ (Residential High Density Conditional Zoning) under the Town of Rolesville's Land Development Ordinance to allow for the construction of a mixed-use residential development featuring a mix of detached homes and townhomes, along with commercial outparcels along Mitchell Mill Road. 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, this 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 Tuesday, May 23, 2023 from 7:00-8:00 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	**Meeting Date:**	May 23, 2023
Applicant:	Ellis Developments Group	**Location:**	Rolesville Community Center

Name	Address	Phone	E-Mail
Barbara Pinto	4933 Upchurch Ave Wake Forest	919 266 9788	BBQpinto2@ymail
B Martin	5300 Mitchell Mill Wake Forest	919 669 6392	bttpartin@gmail.com
Steve LeFrancois	3737 Marty Farm Rd Wake Forest	919-369 1917	steve.lefrancois54@gmail.com
Mike LeFrancois	3717 Marty Farm Rd Wake forest	911 812-6799	MikeLeFrancois@bellsouth.net

Hills at Harris Creek: Neighborhood Meeting

May 23, 2023
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

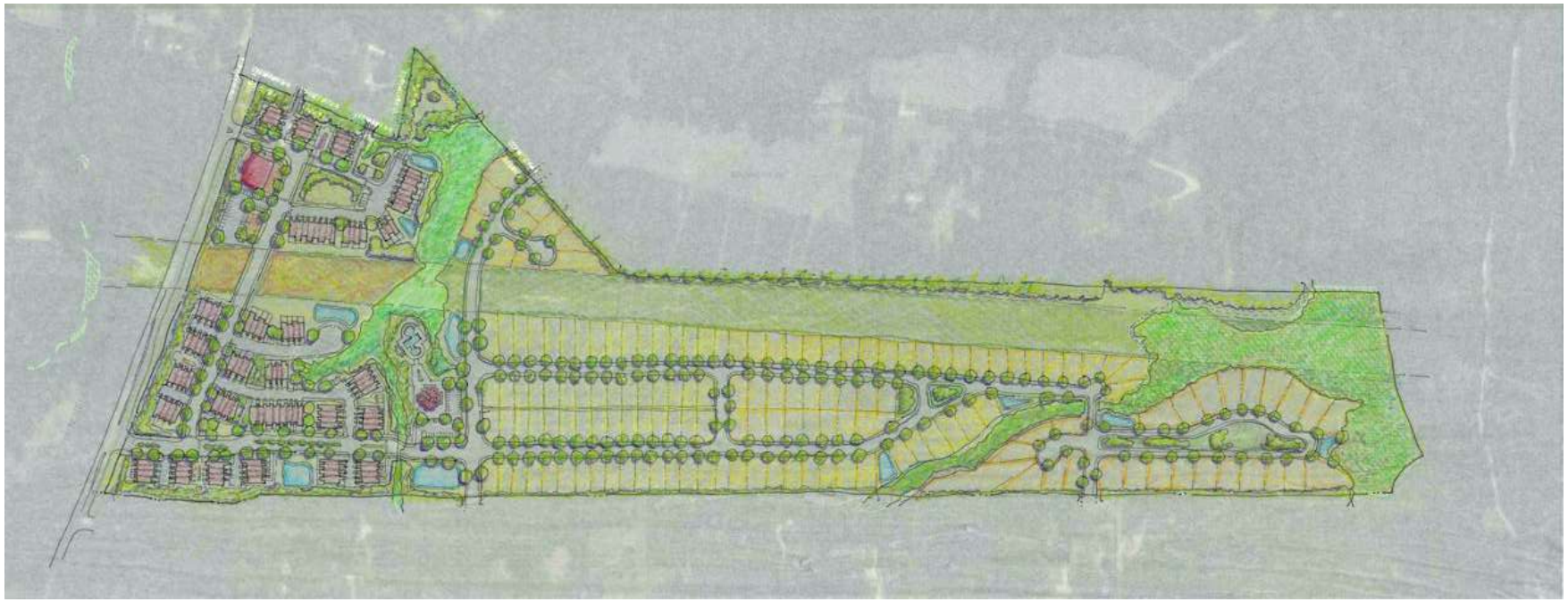
Zoning Change to Neighborhood Center-Conditional Zoning and Residential High Density Conditional Zoning

Proposed construction of 152 single family homes and 115 townhomes (2.3 units/acre)

Approximately 2-acre commercial site (proposed day care facility)

ELLIS
DEVELOPMENTS GROUP

Site Plan



Updates Since Prior Meeting

Reduced units from 318 homes to 267 homes

Minimum lot size increased from 5000 sf to 7500 sf

Improved open space with pollinator garden, bike paths and dog park

Greenway trail integrated into wetland areas

Reduced intensity of commercial parcel

External Road Improvements

A. Right In/Right Out only Entrance.

B. Former Rock Farm Road parcels with Separate Drives

C. Three Lanes total across site.

D. Left Turn Lane to Main Entrance

E. Improvements include dedication of new ROW

F. New Right Turn and lane with wider turn for Manly Farm Road

Manly Road Improvements

A. New Right Turn Lane In from East

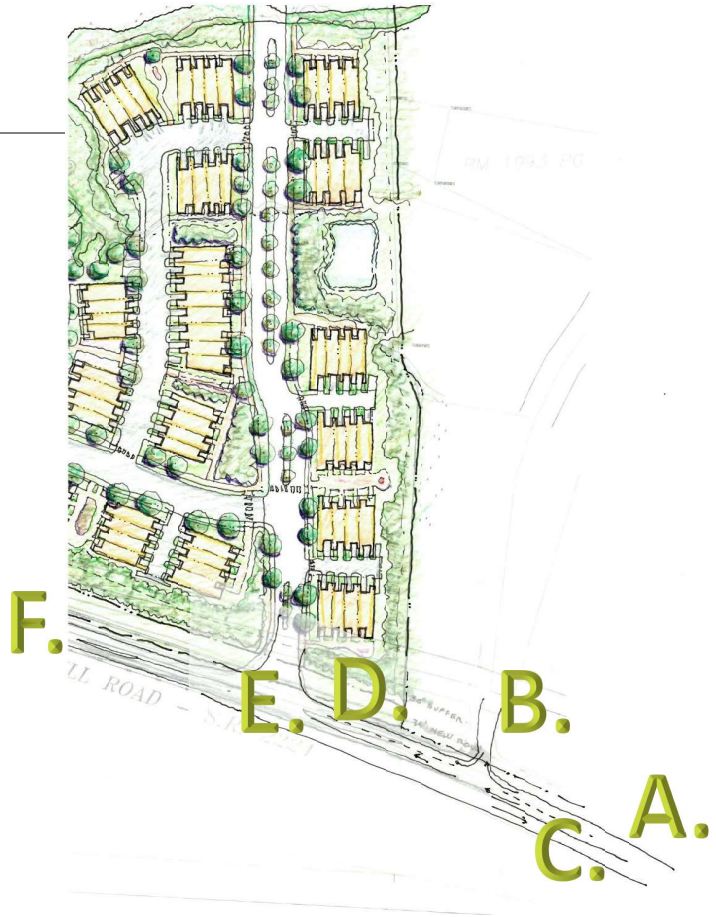
B. New Turn Radius at Corners

C. Passing Lane

D. New Right Turn Out on Mitchell Mill

E. Three Dedicated Lanes

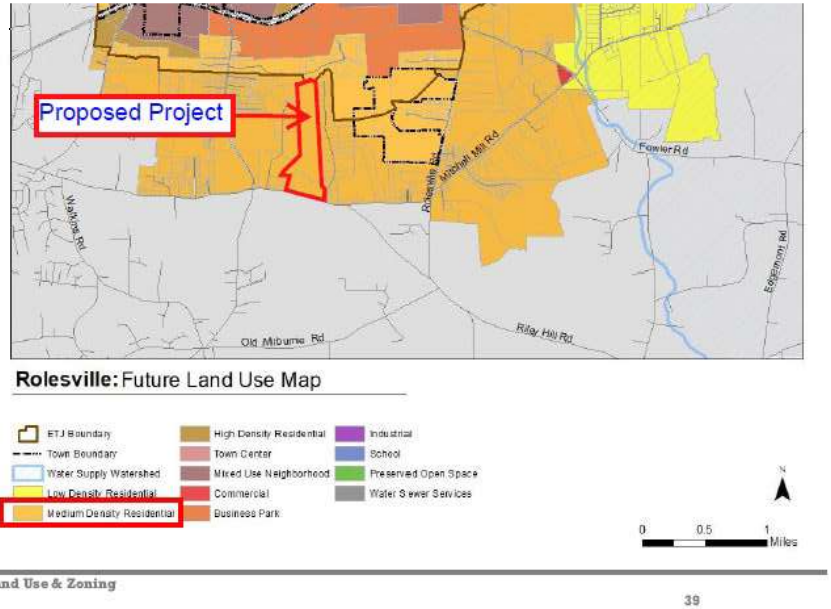
F. All Improvements within Existing ROW



Comprehensive Plan 2017

Rezoning Proposal:

- Consistent with Comprehensive Plan
  - Future Land Use Map designates these parcels at Medium Density Residential (3-5 units/acre)
- Consistent with residential character of adjacent properties



Amenities

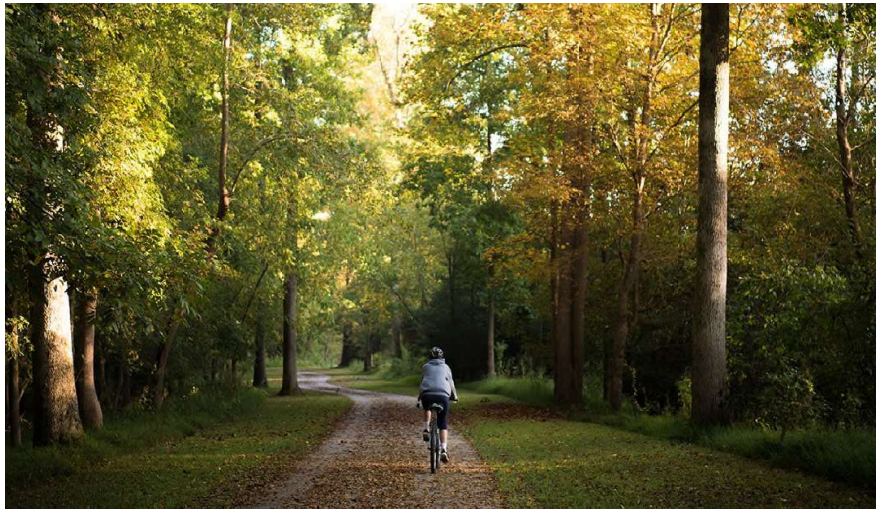
COMMUNITY POOL AND CABANA

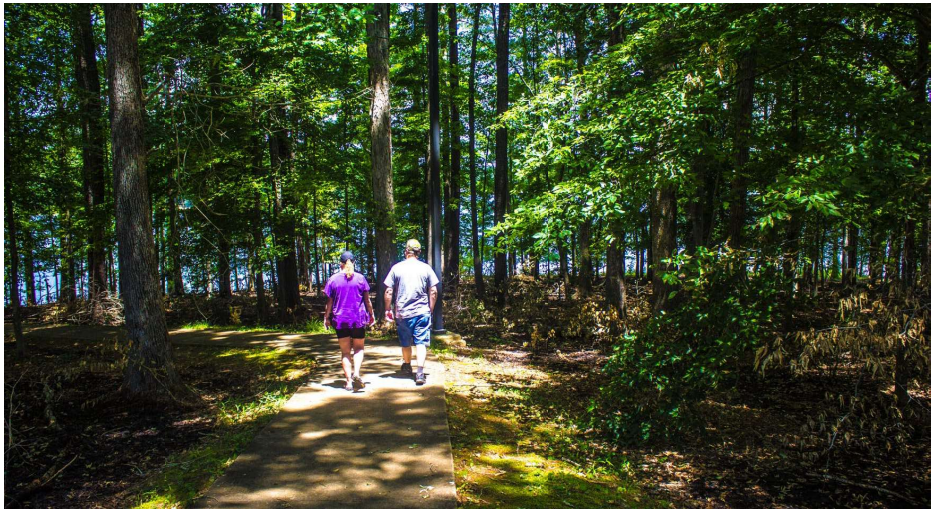
Amenities

DOG PARK

Amenities

GREENWAY TRAILS





Amenities

POLLINATOR/WILDFLOWER GARDEN

Amenities

LANDSCAPED BOULEVARD STREETSCAPES

Amenities

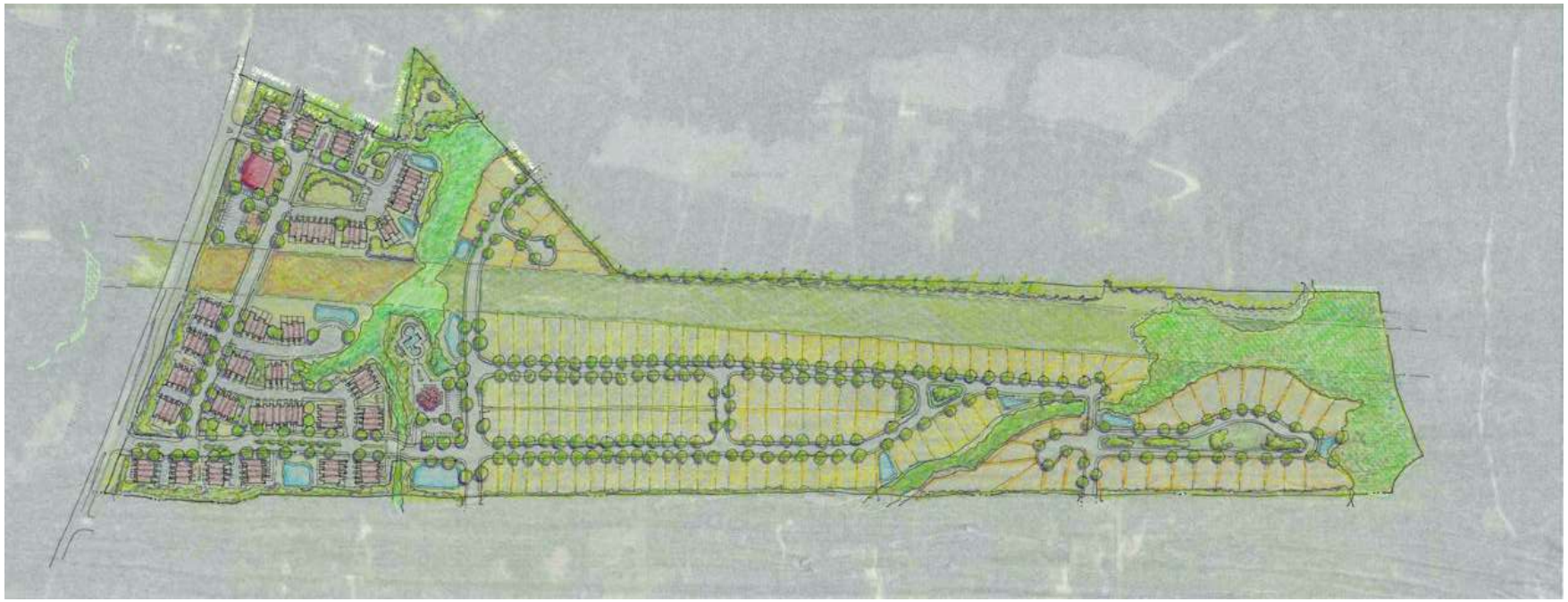
PICKLEBALL COURT

INTEGRATED BIKE PATHS

Commercial Parcel

ELLIS
DEVELOPMENTS GROUP

Site Plan



Hills at Harris Creek Neighborhood Meeting Report

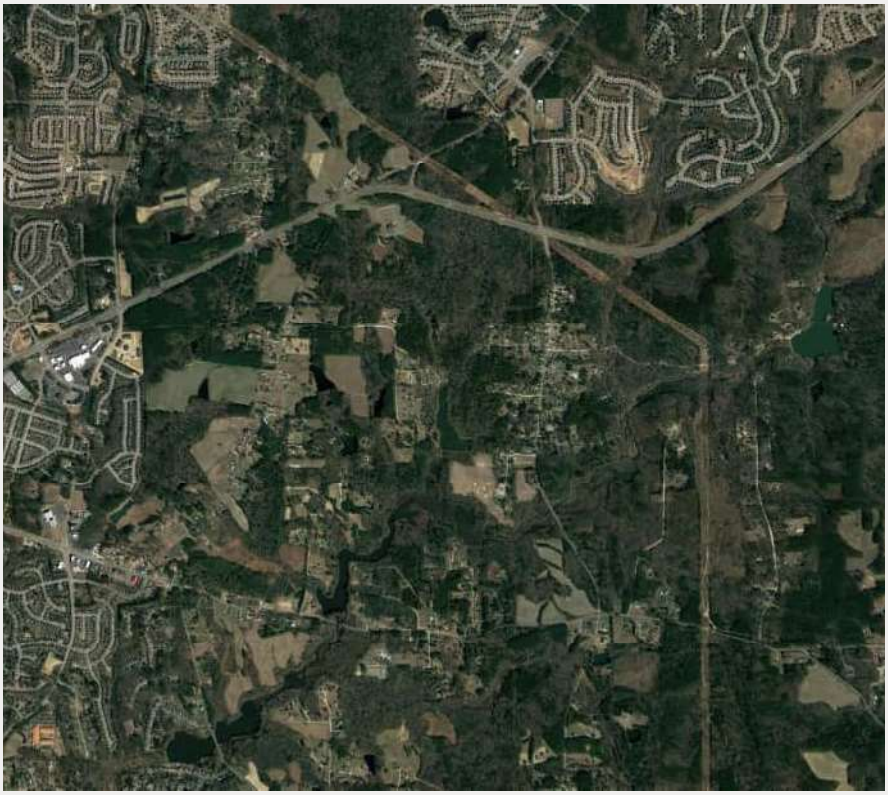
Ellis Developments Group (EDG) hosted an informational meeting for the proposed project on May 23, 2023 at the Rolesville Community Center. Five neighboring residents attended the meeting (attendance sheet attached). During the meeting, EDG presented an overview of the proposed project and provided the 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.
- Overview of project
    - Unit mix, overall goal for neighborhood look and feel
        - 116 acres; 115 THs; 152 SF homes
        - Density: 2.3 units/acre
    - Described amenities green space design/walkability of community
    - Commercial: tentative plans for childcare center
- Comparison to prior version of site plan and need for second neighborhood meeting
    - Reduced units from 318 homes to 267 homes
    - Minimum lot size increased from 5000 sf to 7500 sf
    - Improved open space with pollinator garden, bike paths and dog park
    - Greenway trail integrated into wetland areas
    - Reduced intensity of commercial parcel

- Traffic
    - EDG responsible for all traffic improvements called for in the TIA
        - Widen Mitchell Mill Road for entire frontage of site
        - Left turn lanes into development from Mitchell Mill
        - Right in, right out at each entrance with tapered lane to help residents of Manly Farm Road
    - Measures to control traffic including traffic calming boulevard entrance

RAMEY KEMP ASSOCIATES

TOGETHER WE ARE LIMITLESS



Hills at Harris Creek

Traffic Impact Analysis

Rolesville, North Carolina

RKA rameykemp.com

TRAFFIC IMPACT ANALYSIS

FOR

HILLS AT HARIS CREEK

LOCATED

IN

ROLESVILLE, NORTH CAROLINA

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

Prepared By:
Infrastructure Consulting Services, Inc.
dba
Ramey Kemp Associates
5808 Faringdon Place
Raleigh, NC 27609
License #F-1489

JUNE 2023

RKA Project No. 20498 - 005

Prepared By: DAR

Reviewed By: JAE

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) Land Development Ordinance (LDO) 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. This TIA is an update to the approved TIA that was sealed on May 19, 2022. This updated study reflects changes to the proposed land use types and densities and a change to the site access at the westernmost driveway from full-movement to right-in/right-out. No other scope changes were made from the previous TIA.

The proposed development is anticipated to be completed in 2027 and is expected to consist of 155 single-family homes, 115 townhomes, and a 12,000 sq. ft. day care center. Site access is proposed via one (1) full-movement and one (1) right-in/right-out (RIRO) 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

2. Existing Traffic Conditions

The study area for the TIA was determined through coordination with NCDOT and the 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. Site Trip Generation

The proposed development is assumed to consist of 155 single-family homes, 115 townhomes, and a 12,000 sq. ft. day care center. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 11th Edition. Table E-1 provides a summary of the trip generation potential for the site.

Table E-1: Site Trip Generation

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Single-Family Home (210)	155 DU	1,510	28	83	111	95	55	150
Single-Family Attached Housing (220)	115 DU	812	14	45	59	44	26	70
Day Care Center (565)	12 KSF	572	70	62	132	63	70	133
Total Trips		**2,894**	**112**	**190**	**302**	**202**	**151**	**353**
Pass-By Trips: Day Care Center (44% PM)			-	-	-	*-30*	*-30*	*-60*
Total Primary Trips			**112**	**190**	**302**	**172**	**121**	**293**

4. Future Traffic Conditions

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. The following adjacent developments were identified to be considered under future conditions:

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

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 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

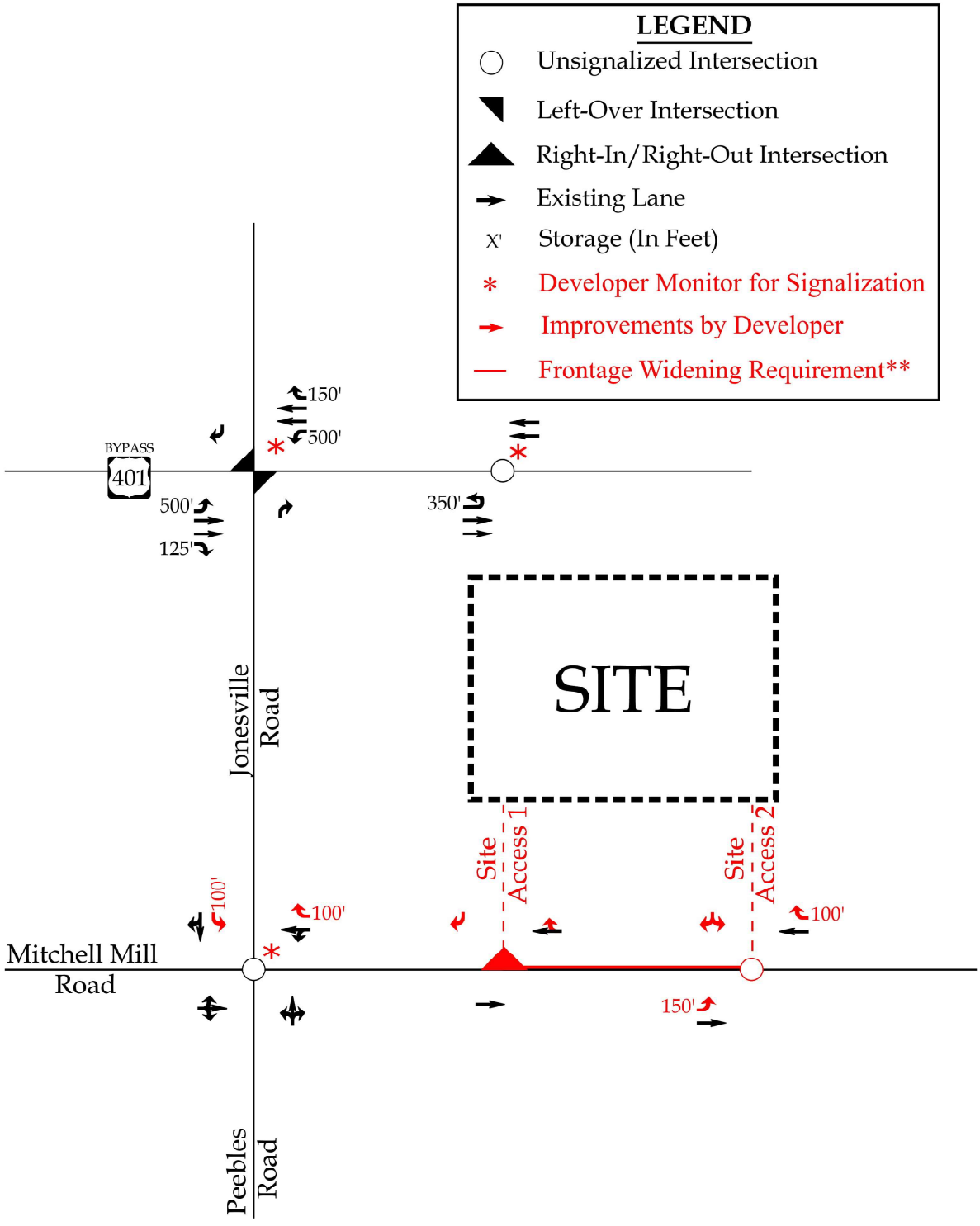
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
    - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA.
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 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 150 feet of storage and appropriate decel and taper.
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.



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

RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	Recommended Lane Configurations Scale: Not to Scale | Figure E-1

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

TECHNICAL APPENDIX

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.

This TIA is an update to the approved TIA that was sealed on May 19, 2022. This updated study reflects changes to the proposed land use types and densities and a change to the site access at the westernmost driveway from full-movement to right-in/right-out. No other scope changes were made from the previous TIA.

The proposed development is expected to consist of 155 single-family homes, 115 townhomes, and a 12,000 sq. ft. day care center.

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

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

1.1. Site Location and Study Area

The proposed development is 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

Refer to Appendix A for the approved scoping documentation.

1.2. Proposed Land Use and Site Access

The site is to be located north of Mitchell Mill Road, west of Manly Farm Road, and east of Gro Peg Lane. The proposed development, anticipated to be completed in 2027, is assumed to consist of the following uses:

- 155 single-family homes
- 115 townhomes
- 12,000 sq. ft. day care center

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.

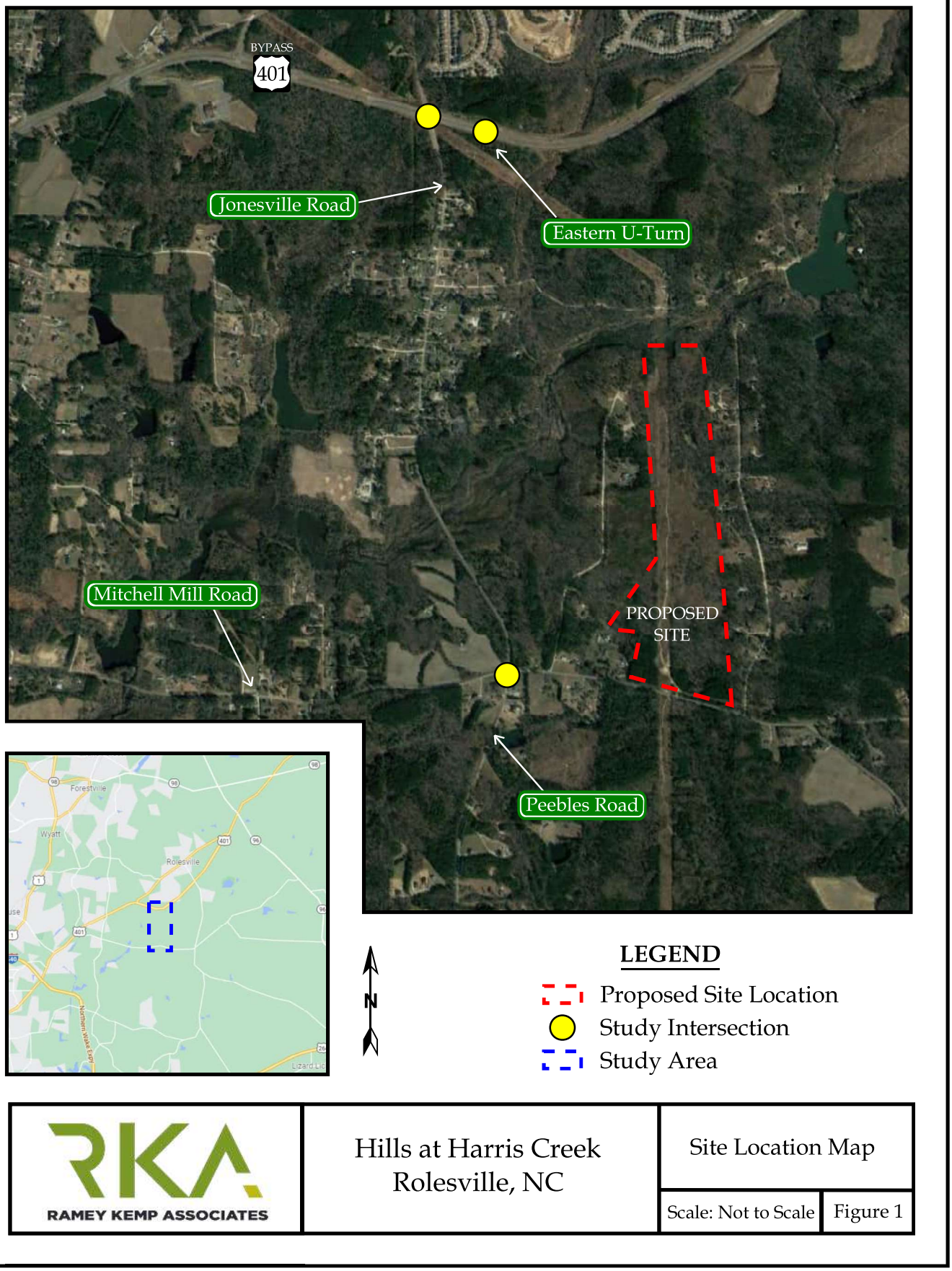
1.4. Existing Roadways

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

Table 1: Existing Roadway Inventory

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

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



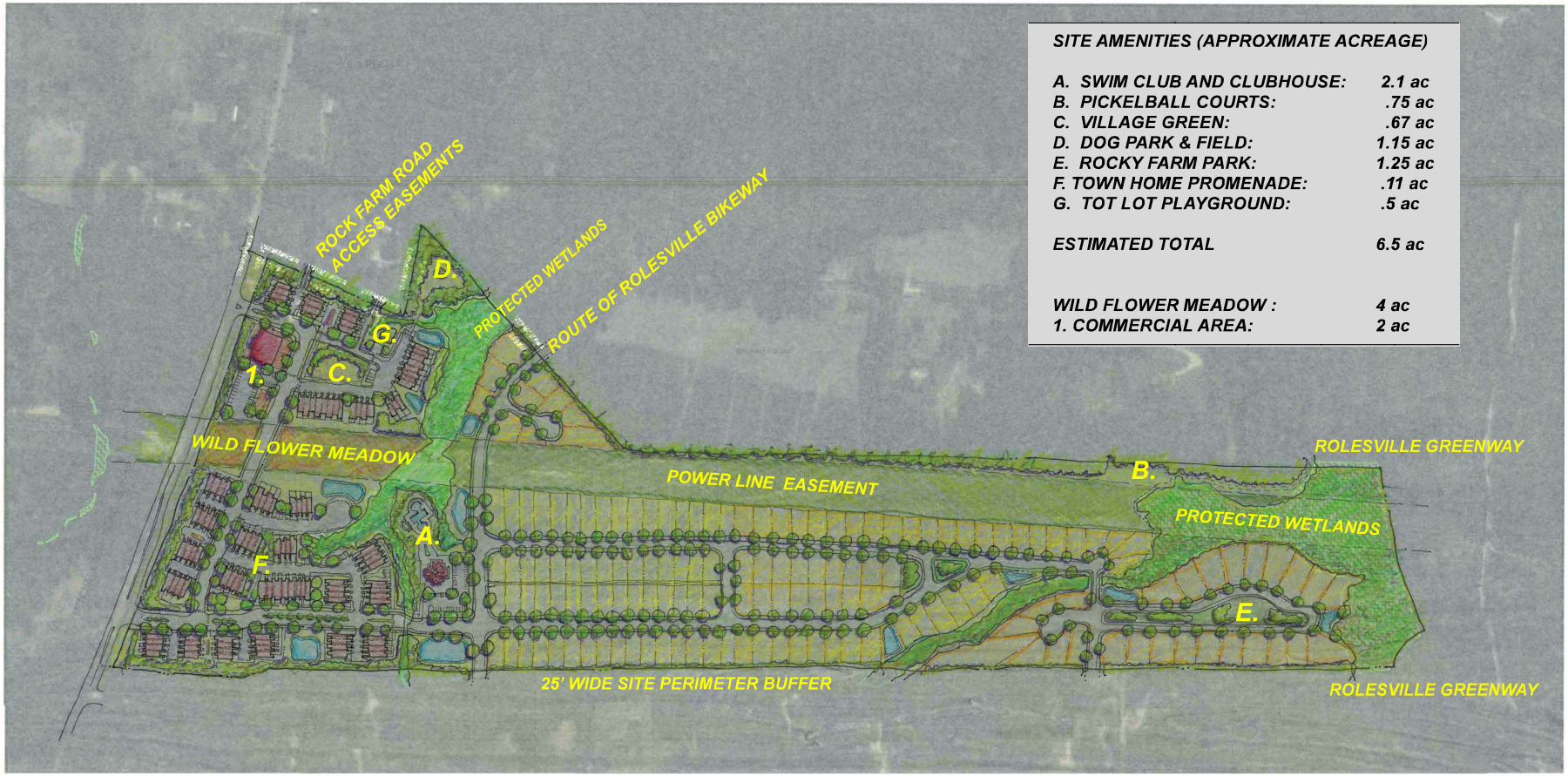
RAMEY KEMP ASSOCIATES

Hills at Harris Creek
Rolesville, NC

Site Location Map

Scale: Not to Scale | Figure 1

EXHIBIT ONE: CONCEPT PLAN (SKETCH PLAN)



SITE AMENITIES (APPROXIMATE ACREAGE)	
A. SWIM CLUB AND CLUBHOUSE:	2.1 ac
B. PICKELBALL COURTS:	.75 ac
C. VILLAGE GREEN:	.67 ac
D. DOG PARK & FIELD:	1.15 ac
E. ROCKY FARM PARK:	1.25 ac
F. TOWN HOME PROMENADE:	.11 ac
G. TOT LOT PLAYGROUND:	.5 ac
ESTIMATED TOTAL	6.5 ac
WILD FLOWER MEADOW :	4 ac
1. COMMERCIAL AREA:	2 ac

V2 - REZ-23-03

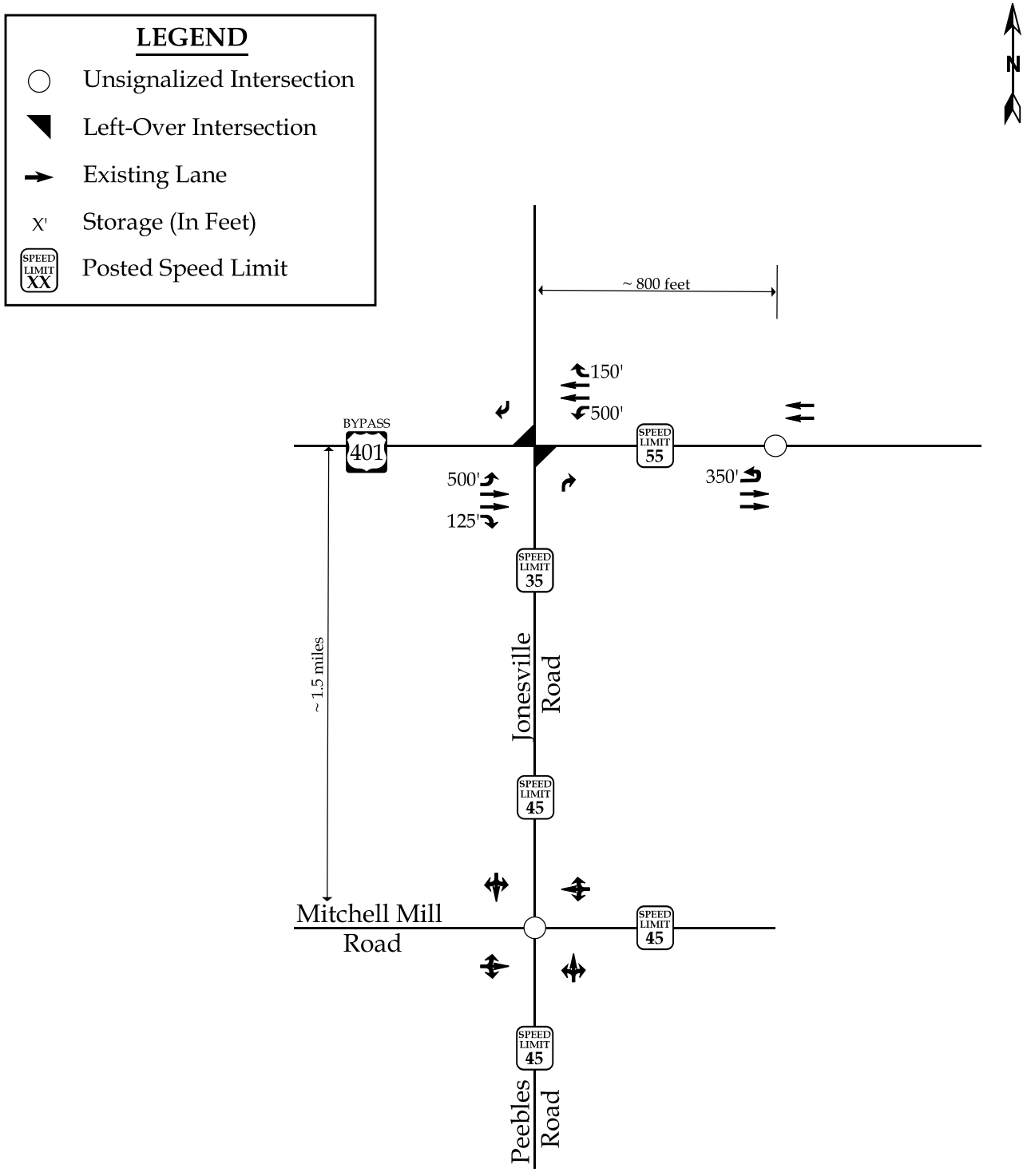
ELLIS DEVELOPMENTS GROUP

STRONGROCK ENGINEERING GROUP

JUNE 2, 2023

SCALE

(IN FEET)
1 inch = 200 ft.



RKA RAMEY KEMP ASSOCIATES	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

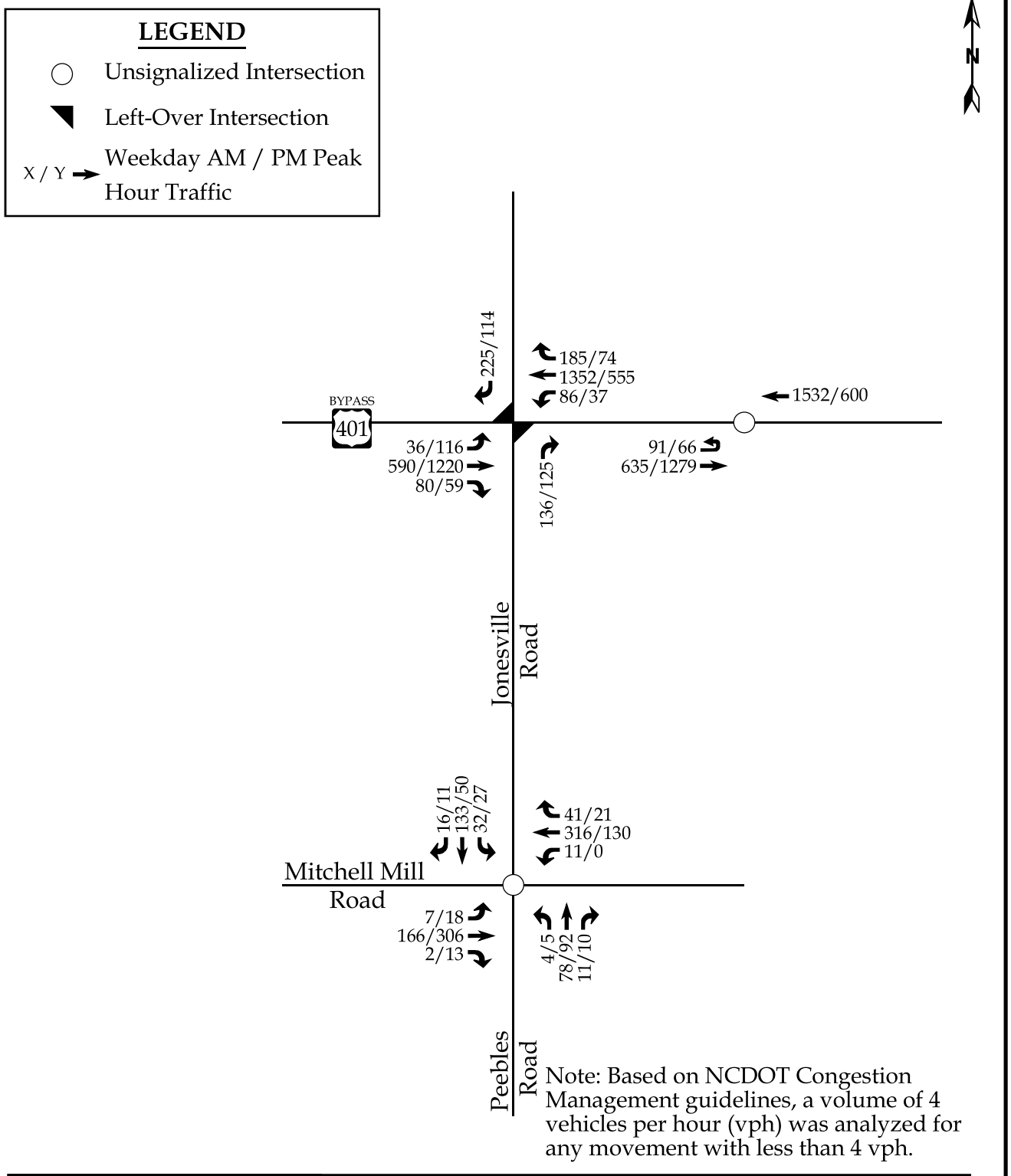
Existing peak hour traffic volumes were determined based on previously collected traffic counts conducted at the study intersections listed below, in November of 2021 during typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods, while schools were in session for in-person learning:

- 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.



RAMEY KEMP ASSOCIATES

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 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

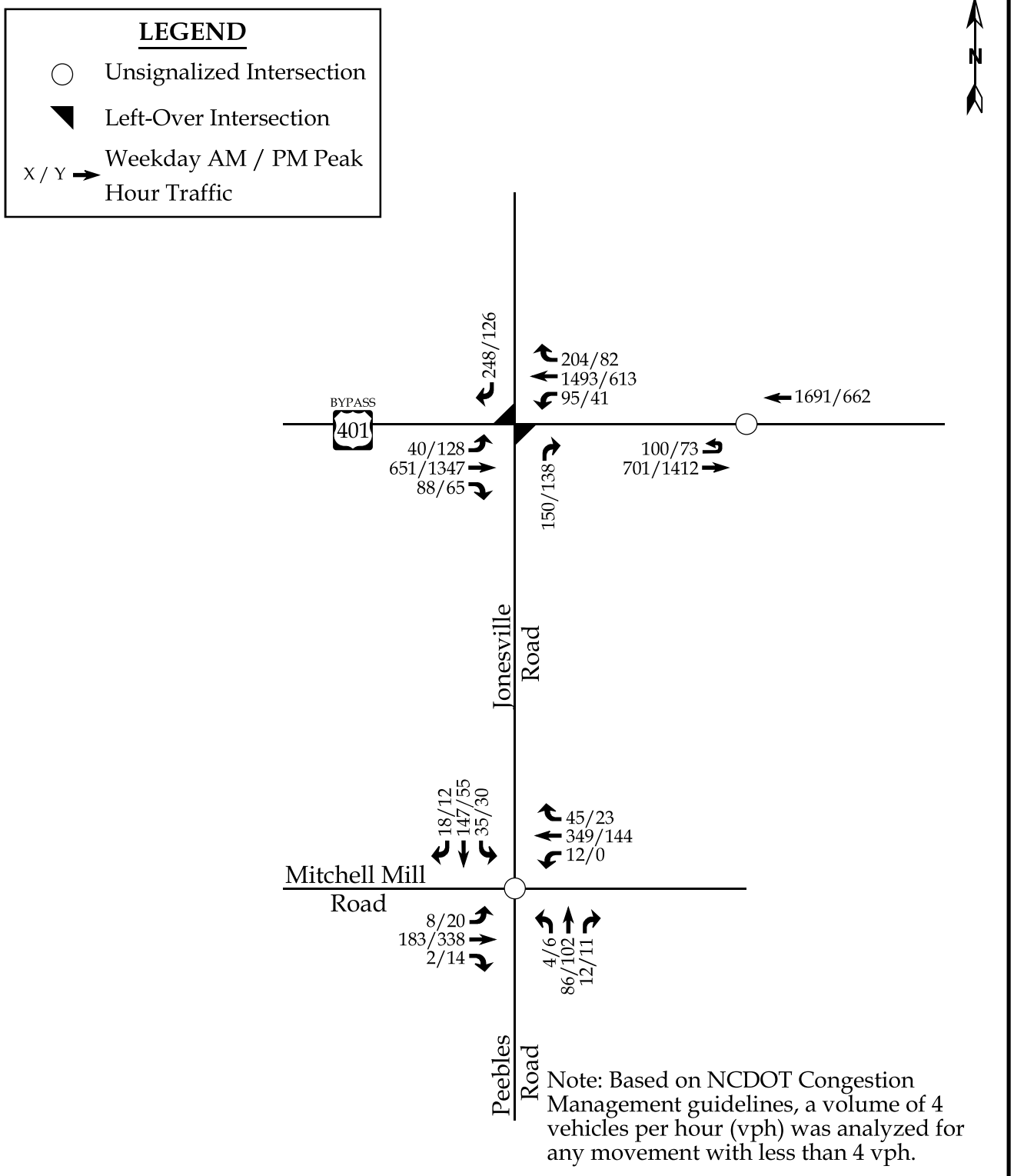
Based on coordination with the NCDOT and the Town, it was determined there were no future roadway improvements to consider under future conditions with this study. It should be noted that per the Rolesville Community Transportation Plan (dated May 2022), the ultimate cross-section of Jonesville Road 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

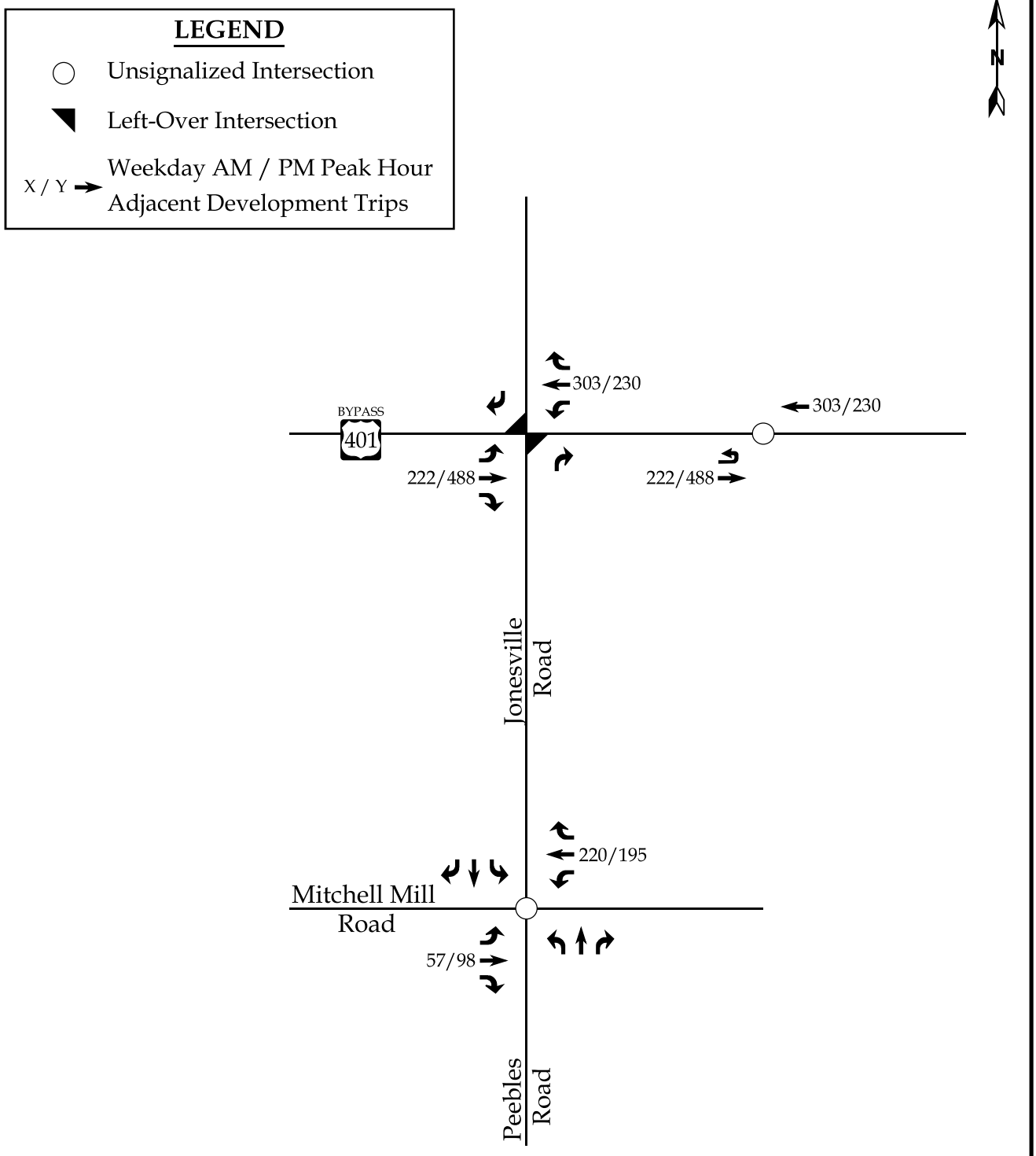
The 2027 no-build traffic volumes were determined by projecting the 2022 existing peak hour traffic to the year 2027 and adding the adjacent development trips. Refer to Figure 7 for an illustration of the 2027 no-build peak hour traffic volumes at the study intersections.

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.



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

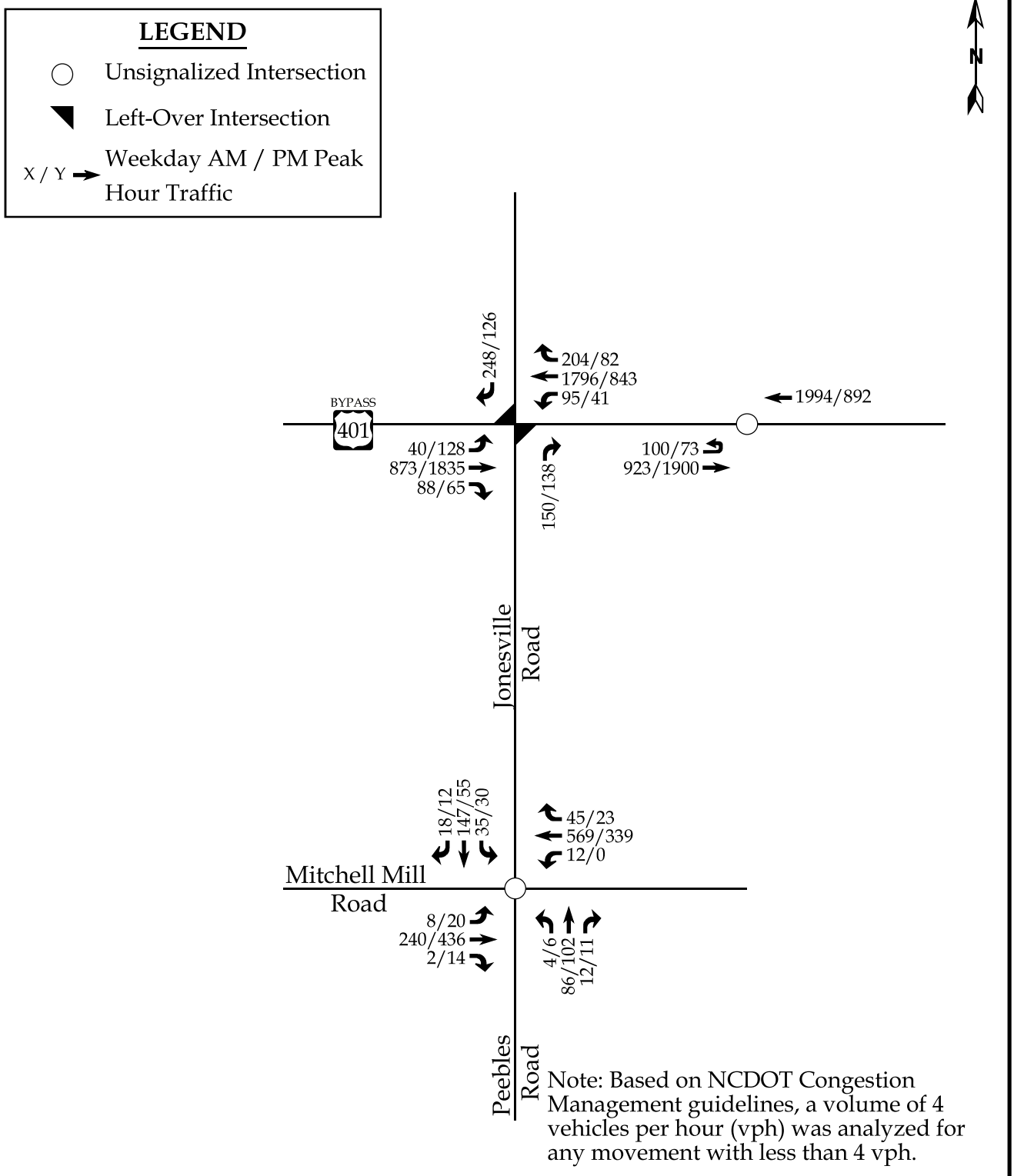


RAMEY KEMP ASSOCIATES

Hills at Harris Creek
Rolesville, NC

Peak Hour Adjacent
Developement Trips

Scale: Not to Scale | Figure 6



RAMEY KEMP ASSOCIATES

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 155 single-family homes, 115 townhomes, and a 12,000 sq. ft. day care center. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 11th Edition. Table 3 provides a summary of the trip generation potential for the site.

Table 3: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Single-Family Home (210)	155 DU	1,510	28	83	111	95	55	150
Single-Family Attached Housing (220)	115 DU	812	14	45	59	44	26	70
Day Care Center (565)	12 KSF	572	70	62	132	63	70	133
Total Trips		**2,894**	**112**	**190**	**302**	**202**	**151**	**353**
Pass-By Trips: Day Care Center (44% PM)			-	-	-	*-30*	*-30*	*-60*
Total Primary Trips			**112**	**190**	**302**	**172**	**121**	**293**

It is estimated that the proposed development will generate approximately 2,894 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 302 trips (112 entering and 190 exiting) will occur during the weekday AM peak hour and 353 trips (202 entering and 151 exiting) will occur during the weekday PM peak hour.

Pass-by trips were also 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 trips are expected to account for approximately 60 trips (30 entering and 30 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 site trips are the calculated site trips after the reduction for pass-by trips. There are anticipated to be approximately 302 primary site trips (112 entering and 190 exiting) during the weekday AM peak hour and 293 primary site trips (172 entering and 121 exiting) 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.

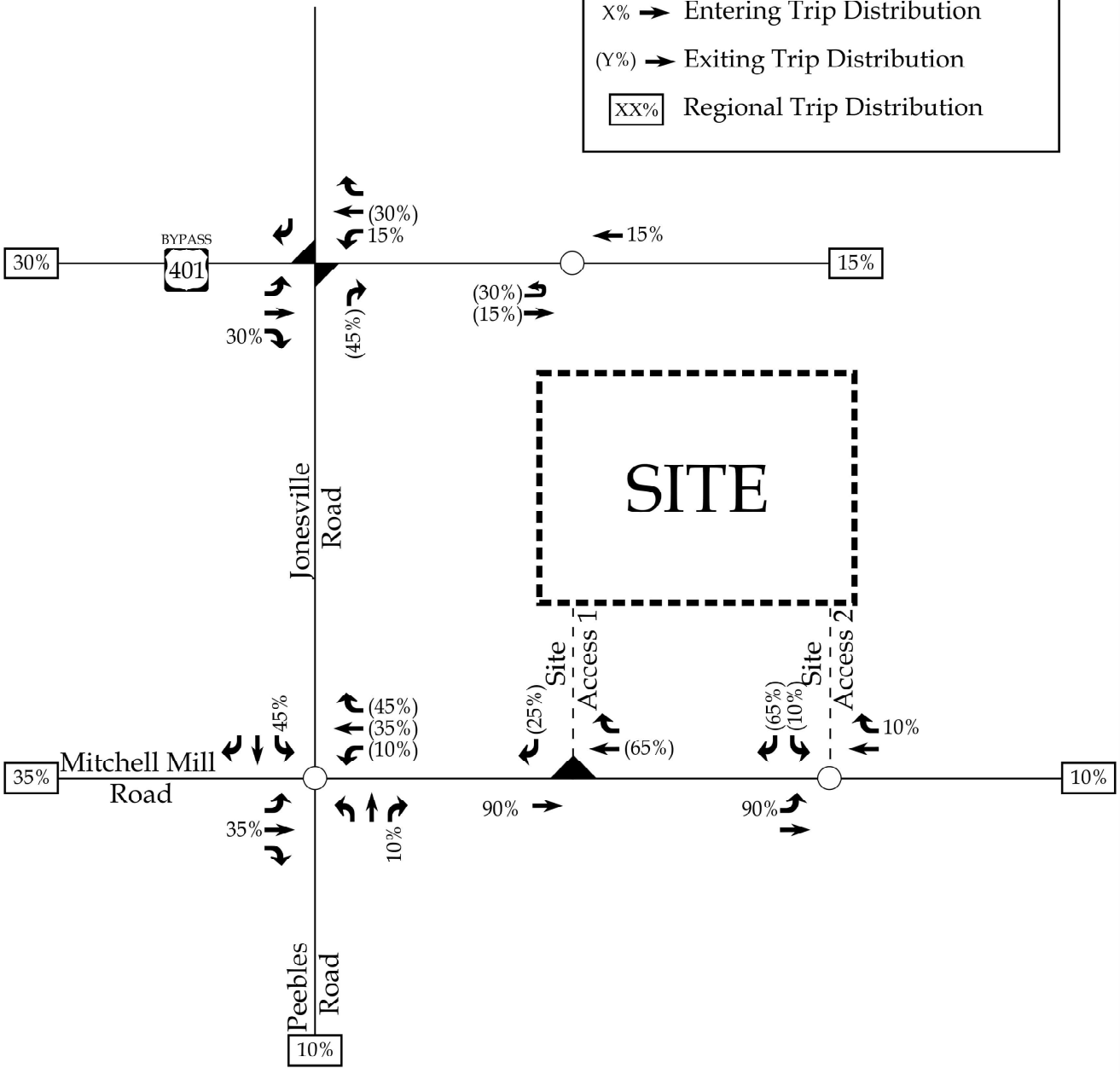
It is estimated that site trips will be regionally distributed as follows:

- 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

The residential site trip distribution is shown in Figure 8a and the day care center site trip distribution is shown in Figure 8b. Refer to Figures 9a and 9b for the residential site trip assignment and day care center site trip assignment, respectively.

The pass-by site trips were distributed based on existing traffic patterns with consideration given to the proposed driveway access and site layout. Refer to Figure 10 for the pass-by site trip distribution. Pass-by site trips are shown in Figure 11.

The total site trips were determined by adding the primary site trips and the pass-by site trips. Refer to Figure 12 for the total peak hour site trips at the study intersections.

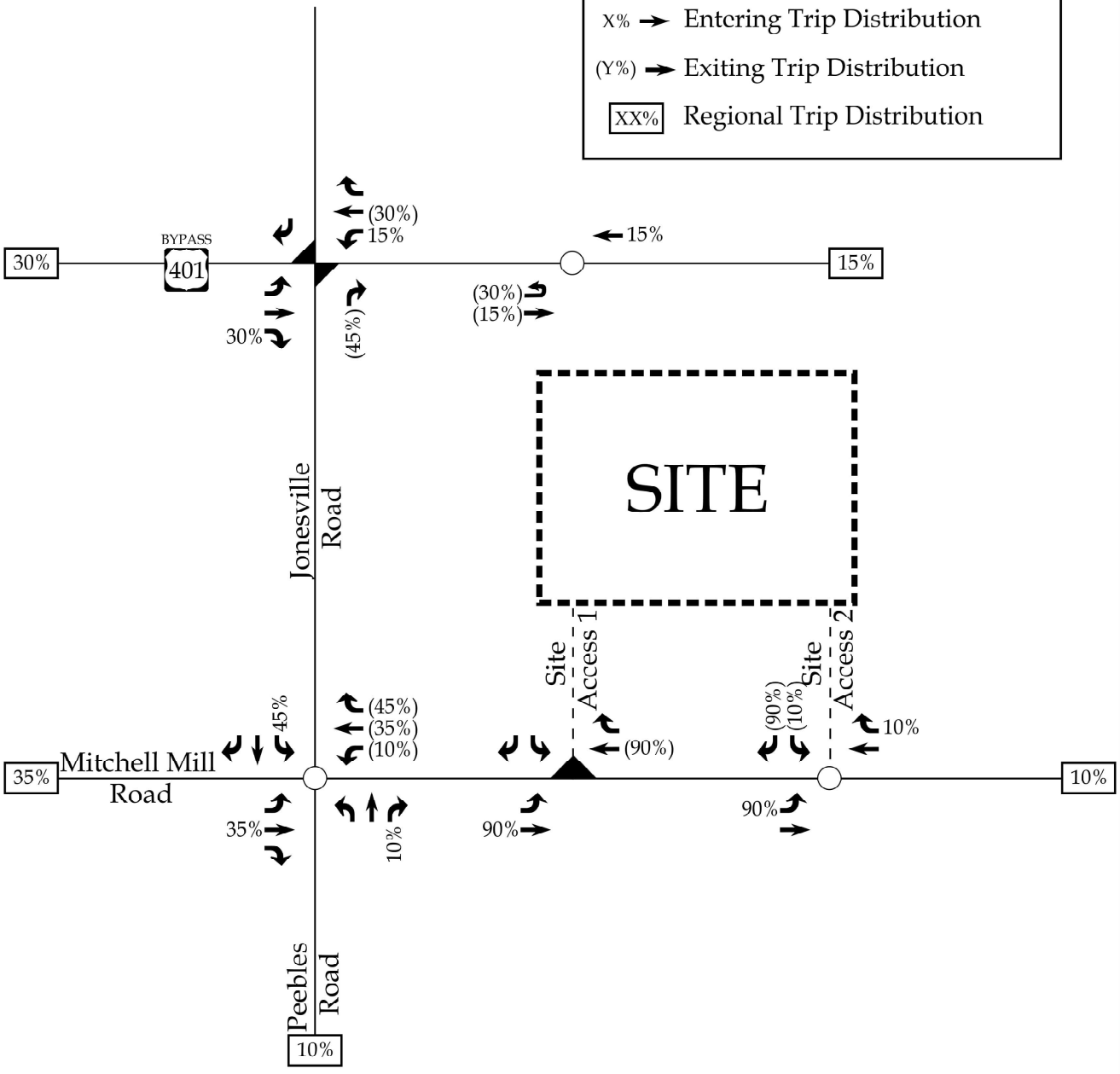


RAMEY KEMP ASSOCIATES

Hills at Harris Creek
Rolesville, NC

Residential
Site Trip Distribution

Scale: Not to Scale | Figure 8a

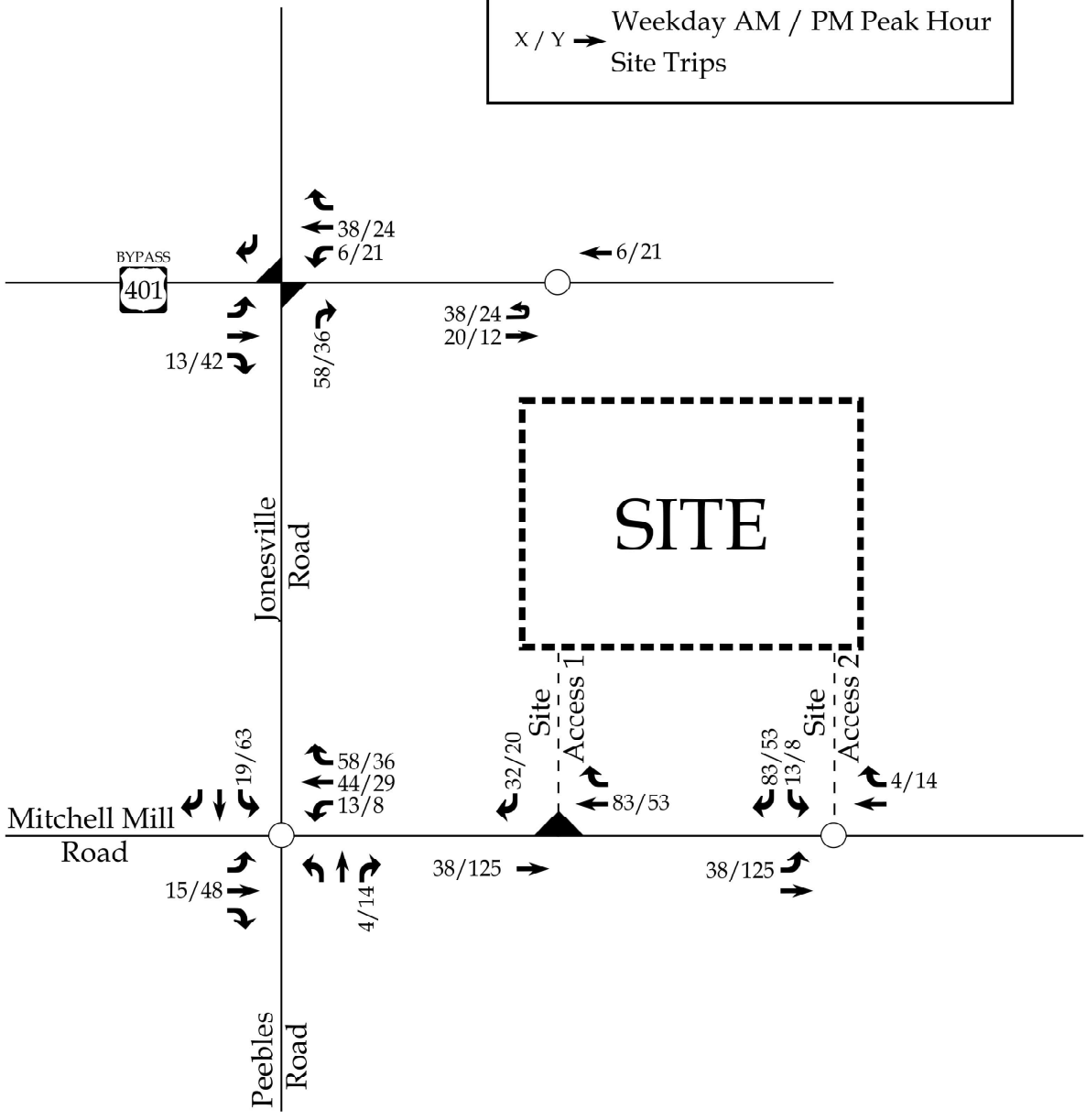


RAMEY KEMP ASSOCIATES

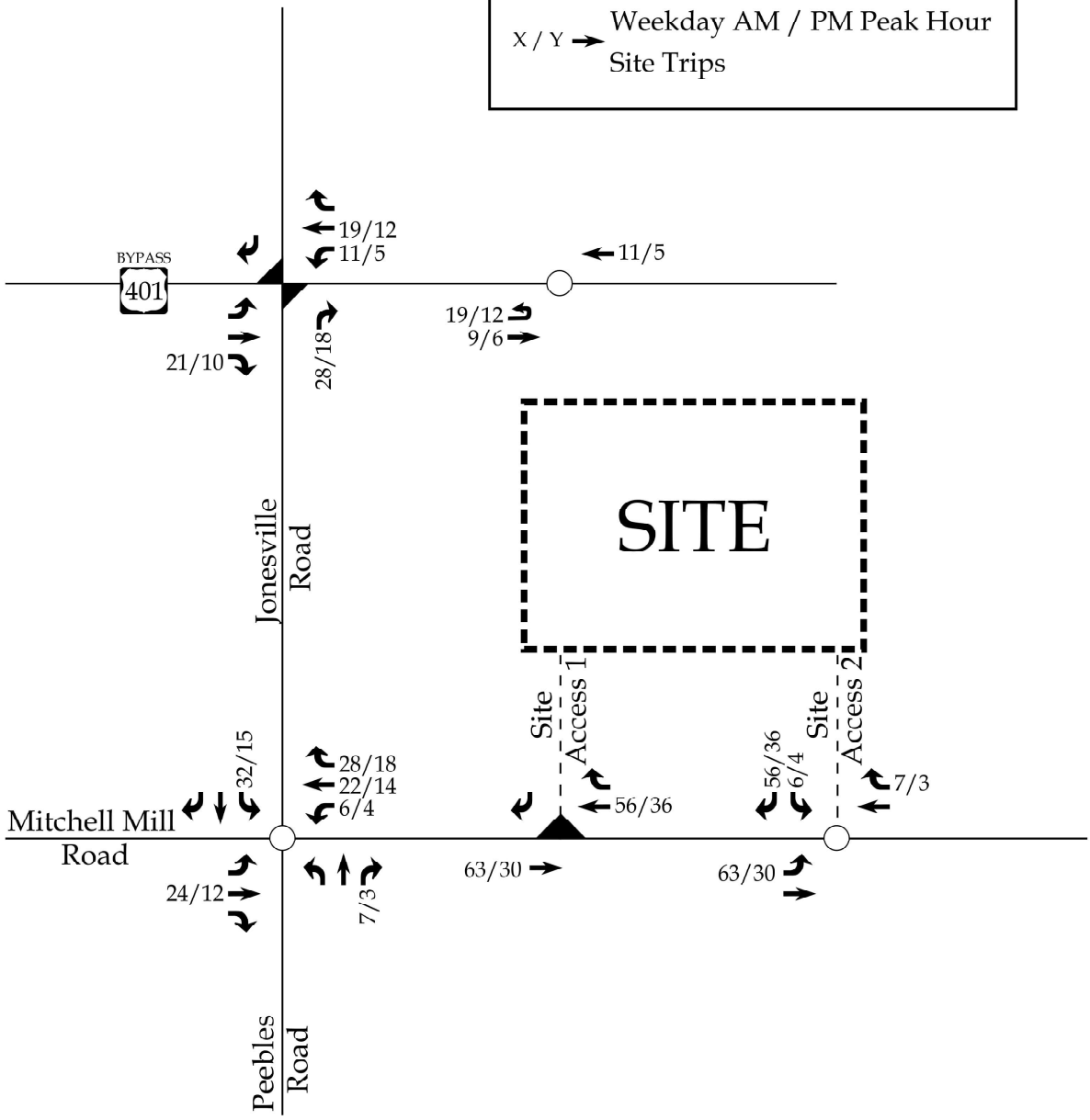
Hills at Harris Creek
Rolesville, NC

Day Care Center
Site Trip Distribution

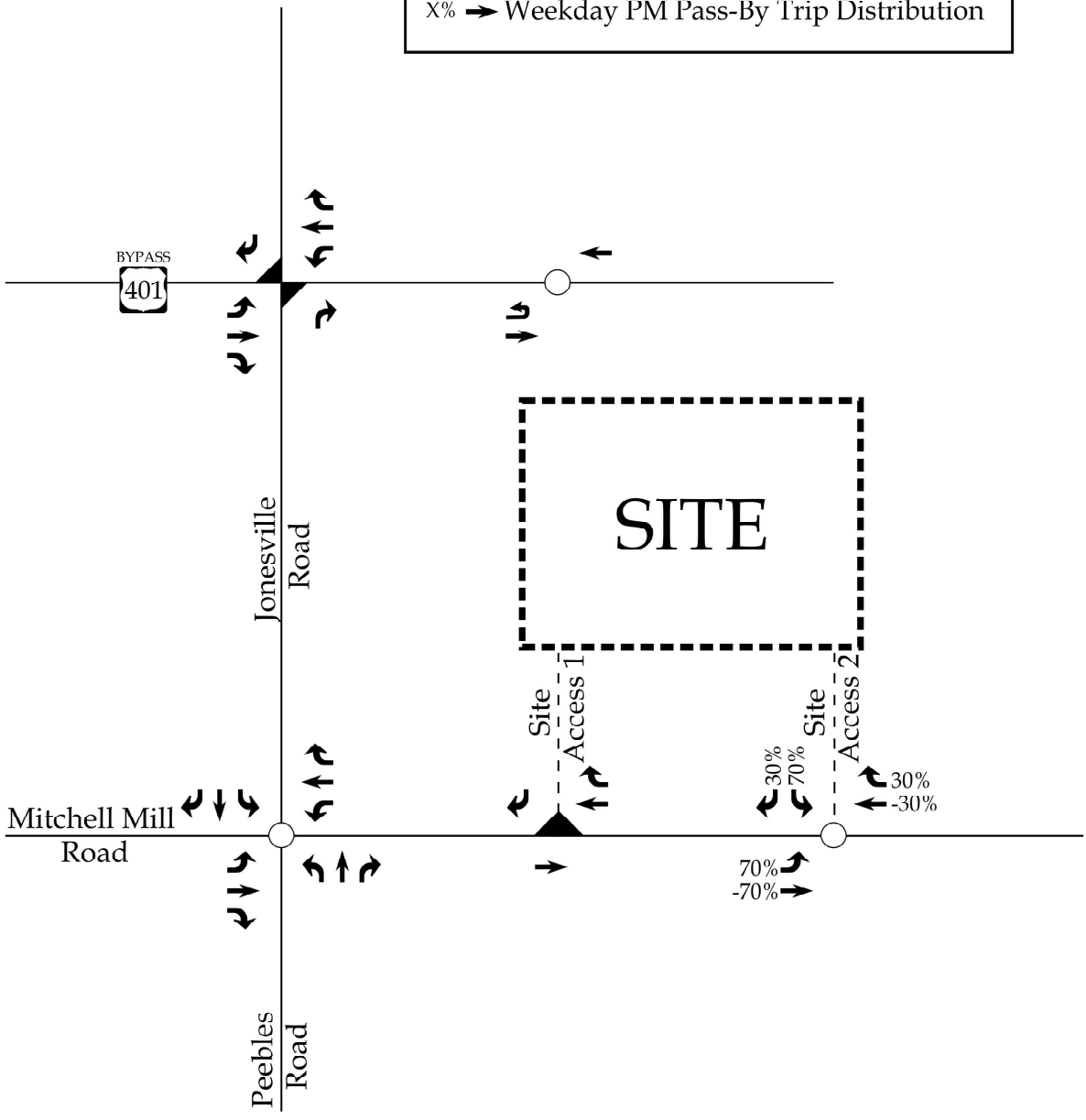
Scale: Not to Scale | Figure 8b



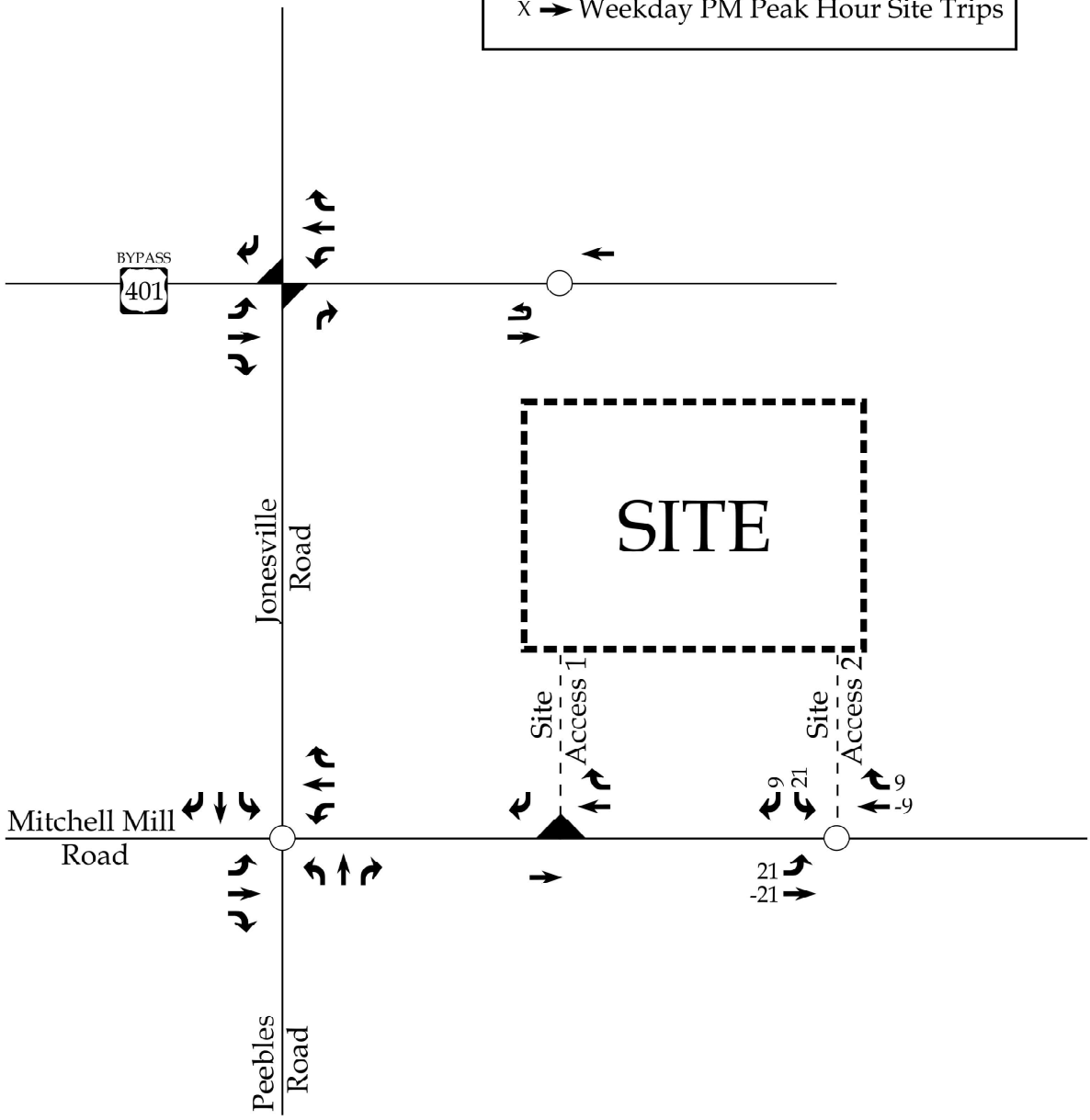
RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	Residential Site Trip Assignment Scale: Not to Scale | Figure 9a



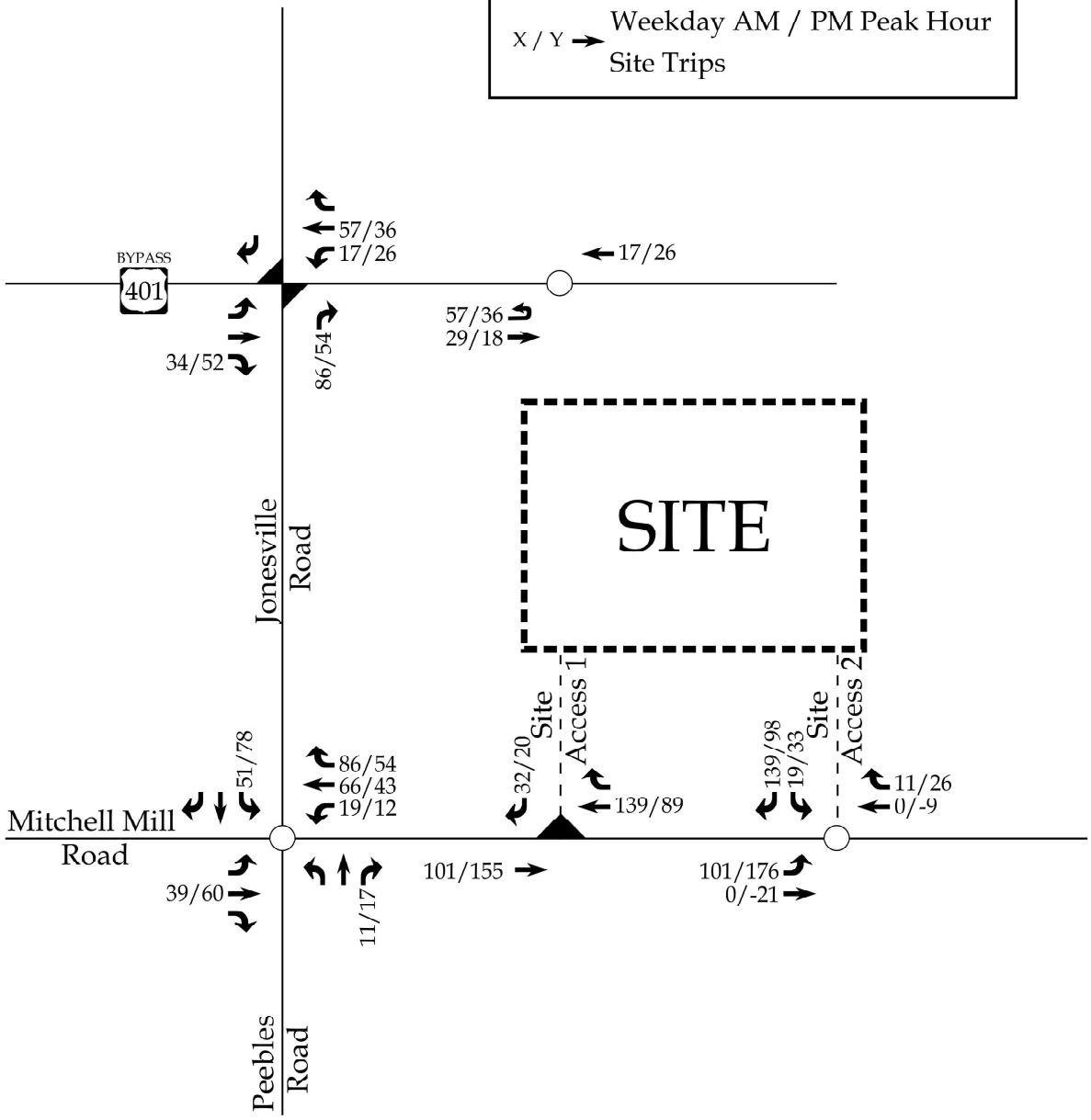
RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	Day Care Center Site Trip Assignment Scale: Not to Scale | Figure 9b



RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	Pass-By Site Trip Distribution Scale: Not to Scale | Figure 10



RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	Pass-By Site Trip Assignment Scale: Not to Scale | Figure 11



RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	Total Site Trip Assignment Scale: Not to Scale | Figure 12

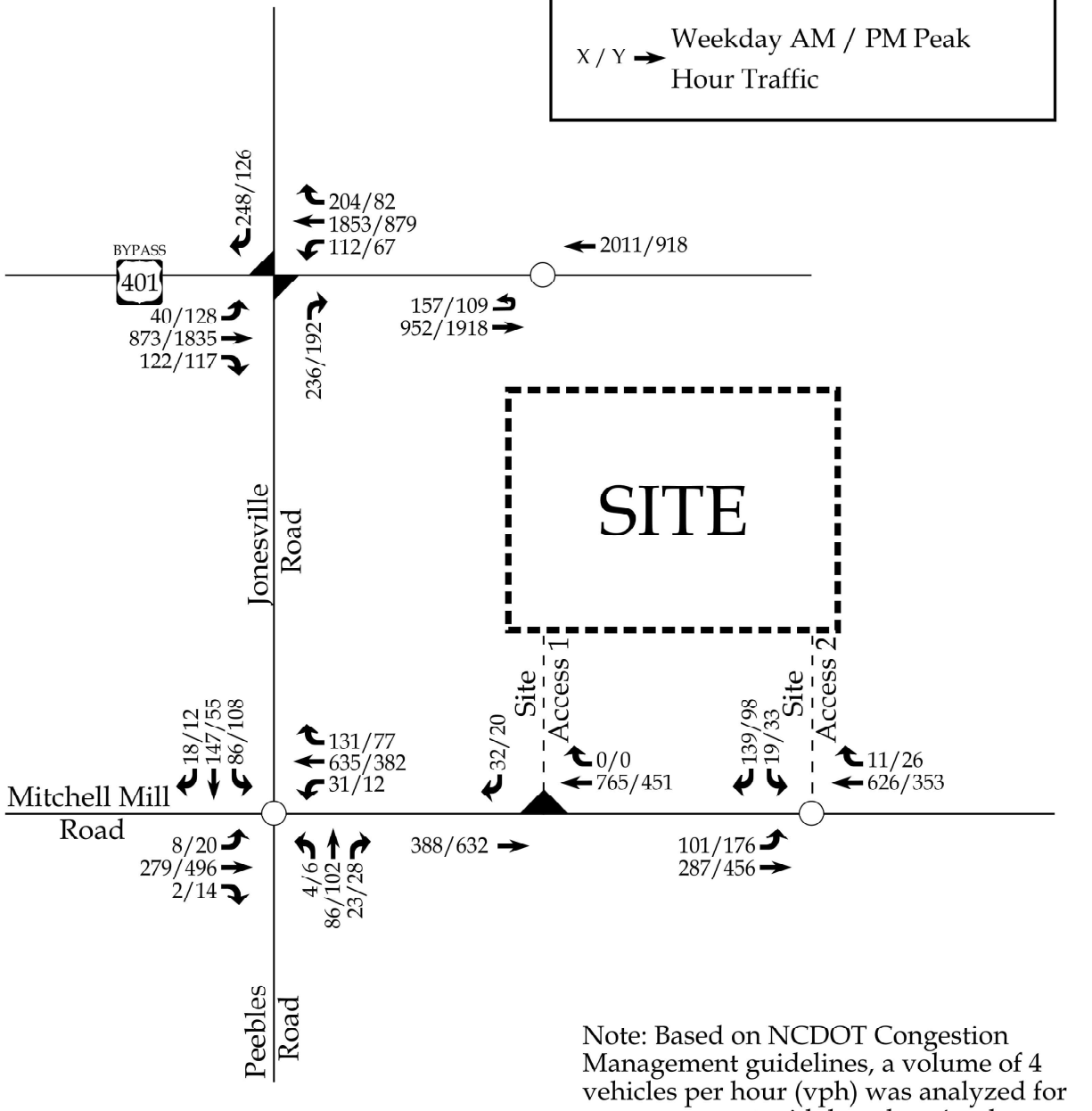
5. 2027 BUILD TRAFFIC CONDITIONS

5.1. 2027 Build Peak Hour Traffic Volumes

To estimate traffic conditions with the site fully built-out, the total site trips were added to the 2027 no-build traffic volumes to determine the 2027 build traffic volumes. Refer to Figure 13 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.

RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	2027 Build Peak Hour Traffic	
		Scale: Not to Scale	Figure 13

6. TRAFFIC ANALYSIS PROCEDURE

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

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

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

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

6.1. Adjustments to Analysis Guidelines

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

7. CAPACITY ANALYSIS

7.1. US 401 Bypass and Jonesville Road

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

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

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

*Synchro analyzed the WB left-turns as SB through movements due to the nature of the superstreet and synchro limitations.
**Synchro analyzed the EB left-turns as NB through movements due to the nature of the superstreet and synchro limitations.
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

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

the westbound left-turn movement during the weekday PM peak hour (LOS E), and the southbound minor-street approach during the weekday AM peak hour (LOS E).

Under 2027 no-build and 2027 build traffic conditions, the major-street left-turn movements are expected to operate at LOS E/F during the weekday AM and PM peak hours with the exception of the westbound left-turn movement during the weekday AM peak hour (LOS D) under 2027 no-build and 2027 build traffic conditions. The minor-street approaches are expected to operate at LOS E/F during the weekday AM and PM peak hours with the exception of the northbound approach during the weekday AM peak hour (LOS 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 5% 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 36% and 28% 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: Analysis Summary of US 401 Bypass and Eastern U-Turn Location

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2022 Existing	EB* WB	1 UT 2 TH	C[1] --	N/A	B[1] --	N/A
2027 No-Build	EB* WB	1 UT 2 TH	E[1] --	N/A	B[1] --	N/A
2027 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 3% of the total traffic at this intersection during the weekday AM and PM peak hours. The proposed development is expected to account for approximately 36% and 33% 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 (142)	F[1] E[1] C[1] C[1]	F (53)
2027 Build - **Improved**	EB WB NB SB	1 LT-TH-RT 1 LT-TH, **1 RT** 1 LT-TH-RT **1 LT**, 1 TH-RT	C[1] F[1] C[1] C[1]	F (103)	F[1] D[1] C[1] B[1]	F (61)

Improvements by the developer are shown in bold.
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 19% and 20% 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 13% and 11% of the overall eastbound approach traffic and 21% and 23% 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. 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 **SB**	1 TH 1 TH-**RT** **1 RT**	-- -- C[2]	N/A	-- -- B[2]	N/A

Improvements to lane configurations by the developer are shown in bold.
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 C or better 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.

7.5. Mitchell Mill Road and Site Access 2

The proposed intersection of Mitchell Mill Road and Site Access 2 was analyzed under 2027 build traffic conditions with the lane configurations and traffic control shown in Table 9. Refer to Table 9 for a summary of the analysis results. Refer to Appendix H for the synchro capacity analysis reports.

Table 9: Analysis Summary of Mitchell Mill Road and Site Access 2

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

Improvements to lane configurations by the developer are shown in bold.
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

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

Right and left-turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways*. The policy states that turn lanes should be considered on roads that carry at least 4,000 vehicles per day. Mitchell Mill Road is expected to carry more than 4,000 vehicles per day. Based on previous coordination with NCDOT, an eastbound left turn lane and a westbound right turn lane is recommended to be constructed by the developer on Mitchell Mill Road at Site Access 2. Refer to Appendix I for a copy of 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 155 single-family homes, 115 townhomes, and a 12,000 sq. ft. day care center 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 302 primary trips (112 entering and 190 exiting) during the weekday AM peak hour and 293 primary trips (172 entering and 121 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.

9. RECOMMENDATIONS

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

Recommended Improvements by Developer

Required Frontage Improvements per Rolesville Community Transportation Plan

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

US 401 Bypass and Jonesville Road

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

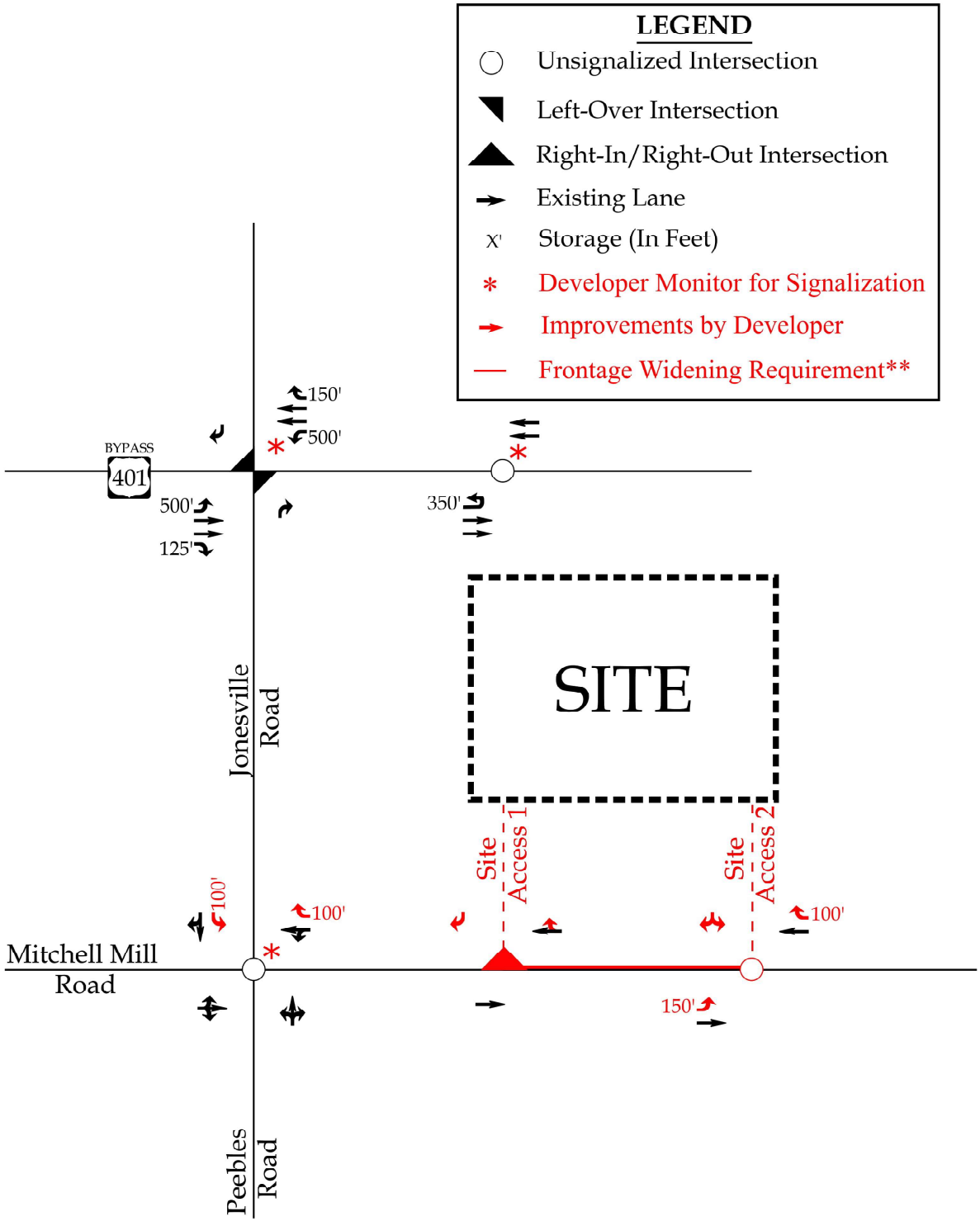
- Construct a southbound (Jonesville Road) left-turn lane with at least 100 feet of storage and appropriate decel and taper.
    - It should be noted that this improvement was also identified by the 5109 Mitchell Mill Road TIA.
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 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 150 feet of storage and appropriate decel and taper.
- Construct a westbound (Mitchell Mill Road) right-turn lane with at least 100 feet of storage and appropriate decel and taper.



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

RKA RAMEY KEMP ASSOCIATES	Hills at Harris Creek Rolesville, NC	Recommended Lane Configurations Scale: Not to Scale | Figure 14

APPENDIX A

SCOPING DOCUMENTATION

Andrew Eagle

From: Warren, Jeremy L <jlwarren@ncdot.gov>
Sent: Tuesday, May 23, 2023 12:17 PM
To: Andrew Eagle; Nolfo, Matthew J
Cc: Jessica McClure; Daniel Reisfeld; Elabarger, Michael S; Gruber, Meredith; Jason Pfister; Lineberger, Nicholas C; Darnell, Trevor S
Subject: RE: [External] RE: Hills at Harris Creek

Andrew,
We would prefer to see an updated TIA with the new volumes and the RIRO.
Thanks,

Jeremy Warren, P.E.
Assistant Division Maintenance Engineer
Division 5
North Carolina Department of Transportation

jlwarren@ncdot.gov

4009 District Drive
Raleigh, NC 27607

From: Andrew Eagle <AEagle@rameykemp.com>
Sent: Monday, May 22, 2023 9:34 AM
To: Warren, Jeremy L <jlwarren@ncdot.gov>; Nolfo, Matthew J <mjnolfo@ncdot.gov>
Cc: Jessica McClure <jmcclure@rameykemp.com>; Daniel Reisfeld <dreisfeld@rameykemp.com>; Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Jason Pfister <jason@ellisdevgroup.com>
Subject: RE: [External] RE: Hills at Harris Creek

Jeremy/Matt,

It's my understanding NCDOT prefers Access A to be RIRO. We can update the TIA to match this configuration. Also, the developer now plans the commercial area to be 12,000 square feet of Day Care instead of 14,000 square feet of retail. This results in 30 more entering trips and 20 more exiting trips during the AM peak hour when compared to the original TIA. During the PM peak hour the Day Care scenario results in 11 fewer entering trips and 4 more exiting trips.

Does NCDOT want the TIA updated to reflect the Day Care trip generation as well as the RIRO?

Andrew Eagle, PE, PTOE
Senior Traffic Engineering Project Manager
D 704 220 6847 | C 704 467 0325
RAMEY KEMP ASSOCIATES
TOGETHER WE ARE LIMITLESS

From: Andrew Eagle
Sent: Monday, May 8, 2023 2:59 PM
To: Warren, Jeremy L <jlwarren@ncdot.gov>; Nolfo, Matthew J <mjnolfo@ncdot.gov>
Cc: Jessica McClure <JMCClure@rameykemp.com>; Daniel Reisfeld <dreisfeld@rameykemp.com>; Elabarger, Michael S <michael.elabarger@rolesville.nc.gov>; Gruber, Meredith <meredith.gruber@rolesville.nc.gov>; Jason Pfister <jason@ellisdevgroup.com>
Subject: RE: [External] RE: Hills at Harris Creek

The link below can be used to download the TIA, site plan, and Synchro files. Please review and let me know if you have any questions/comments. Thank you!
20498-0005 - Hills at Harris Creek - 05-08-2023

Andrew Eagle, PE, PTOE
Senior Traffic Engineering Project Manager
D 704 220 6847 | C 704 467 0325
RAMEY KEMP ASSOCIATES
TOGETHER WE ARE LIMITLESS

From: Warren, Jeremy L <jlwarren@ncdot.gov>
Sent: Friday, April 14, 2023 8:53 AM
To: Andrew Eagle <AEagle@rameykemp.com>; Nolfo, Matthew J <mjnolfo@ncdot.gov>
Cc: Jessica McClure <JMCClure@rameykemp.com>; Daniel Reisfeld <dreisfeld@rameykemp.com>
Subject: RE: [External] RE: Hills at Harris Creek

The study area should be the same so an updated TIA with an explanation should suffice.

Jeremy Warren, P.E.
Assistant Division Maintenance Engineer
Division 5
North Carolina Department of Transportation

jlwarren@ncdot.gov

4009 District Drive
Raleigh, NC 27607

From: Andrew Eagle <AEagle@rameykemp.com>
Sent: Friday, April 14, 2023 8:37 AM
To: Warren, Jeremy L <jlwarren@ncdot.gov>; Nolfo, Matthew J <mjnolfo@ncdot.gov>
Cc: Jessica McClure <jmcclure@rameykemp.com>; Daniel Reisfeld <dreisfeld@rameykemp.com>
Subject: [External] RE: Hills at Harris Creek

Jeremy,

NCDOT approved the Hills at Harris Creek TIA in June of last year. The site plan has been changed, resulting in less density and fewer trips. The Town of Rolesville wants the TIA updated to match the latest site plan. Do you want an updated MOU, or can we revise the TIA and submit it via email with an explanation of the changes?

…and a heads up due to the similar names, this is a different project from Harris Creek Farm. NCDOT recently approved the MOU for that one on April 3.

Thanks,

Andrew Eagle, PE, PTOE
Senior Traffic Engineering Project Manager
D 704 220 6847 | C 704 467 0325
RAMEY KEMP ASSOCIATES
TOGETHER WE ARE LIMITLESS

From: Warren, Jeremy L <jlwarren@ncdot.gov>
Sent: Friday, June 17, 2022 1:47 PM
To: Tucker Fulle <tfulle@rameykemp.com>
Cc: Nolfo, Matthew J <mjnolfo@ncdot.gov>; Brennan, Sean P <spbrennan@ncdot.gov>
Subject: FW: Hills at Harris Creek

Please see congestions comments.

Jeremy Warren, P.E.
District Engineer
Division 5, District 1
North Carolina Department of Transportation

919 733 3213 office
jlwarren@ncdot.gov

4009 District Drive
Raleigh, NC 27607

From: Walker, Braden M <bmwalker1@ncdot.gov>
Sent: Thursday, June 16, 2022 9:32 AM
To: Warren, Jeremy L <jlwarren@ncdot.gov>
Cc: Lacy, Kevin <jklacy1@ncdot.gov>; Brennan, Sean P <spbrennan@ncdot.gov>; Grant, John H <jhgrant@ncdot.gov>; Keilson, David P <dpkeilson@ncdot.gov>; Ishak, Doumit Y <dishak@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Jones, Brandon H <bhjones@ncdot.gov>; Parrott, Tracy N <tnparrott@ncdot.gov>; Holmes, Benjamin W <bwholmes@ncdot.gov>; Mcneal, Douglas R <dmcneal@ncdot.gov>; Nolfo, Matthew J <mjnolfo@ncdot.gov>
Subject: Hills at Harris Creek

Attached is a PDF copy of our final review letter for Hills at Harris Creek. This letter is only being distributed electronically and should be considered as the official documentation. If you have any questions, please contact me or Clarence Bunting.

Thank you,

Braden M. Walker, PE.
Congestion Management Project Design Engineer
Traffic Management Unit
North Carolina Department of Transportation

919 814 5078 office
bmwalker1@ncdot.gov

750 N. Greenfield Parkway
Garner, NC 27529

Nothing Compares

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

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

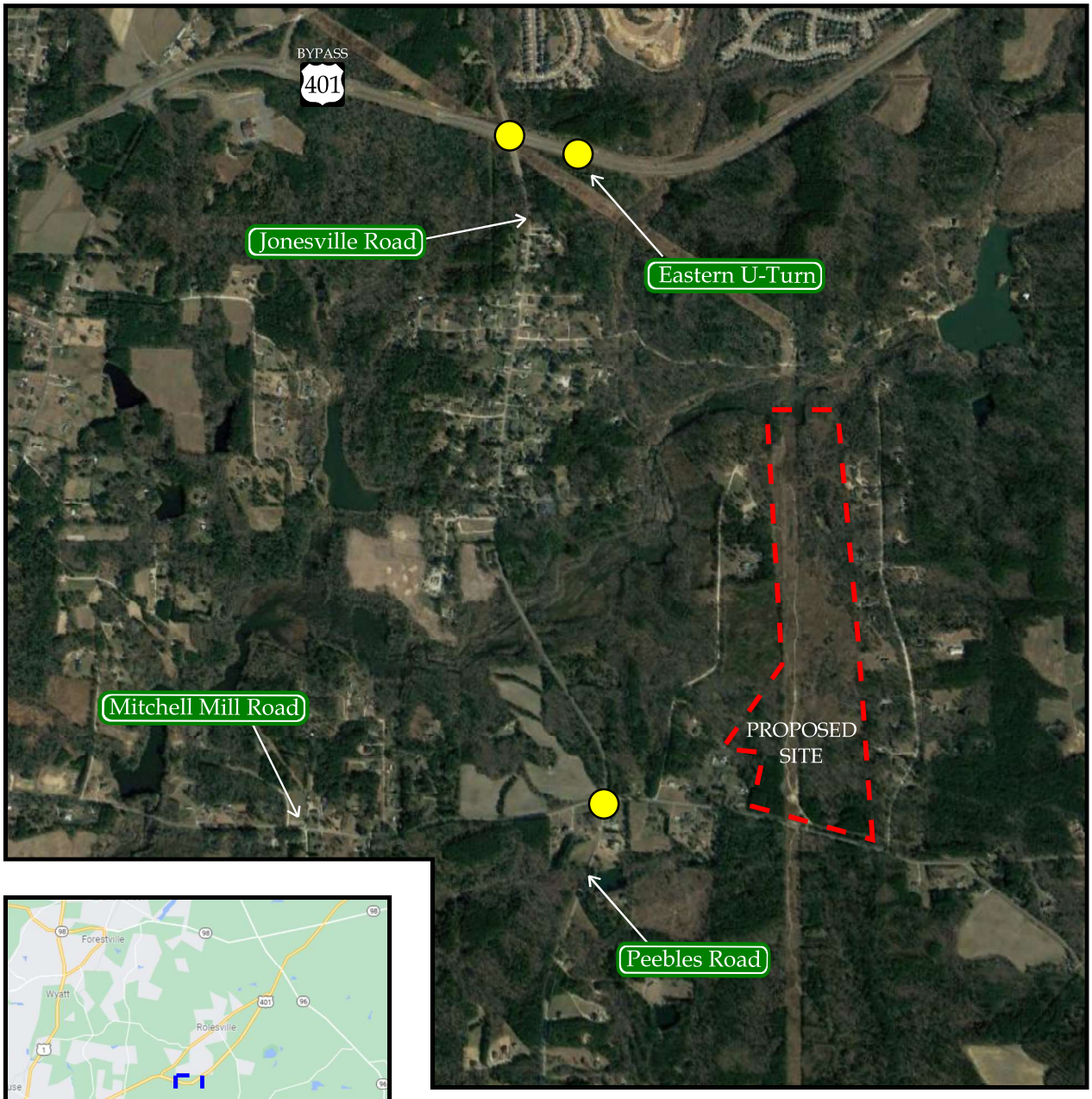
The TIA report will be prepared based on the Town and NCDOT requirements.

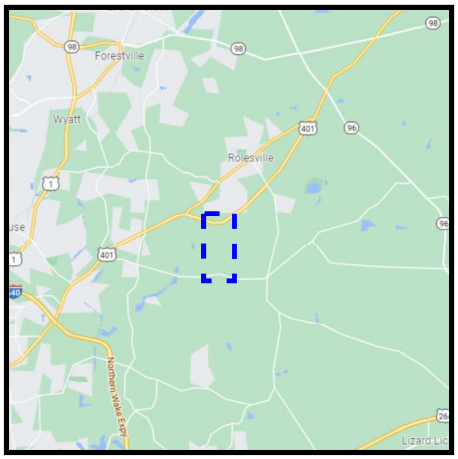
If you find this memorandum of understanding acceptable, please let me know so that we may include it in the TIA report. If you have any questions or concerns, please do not hesitate to contact me.

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

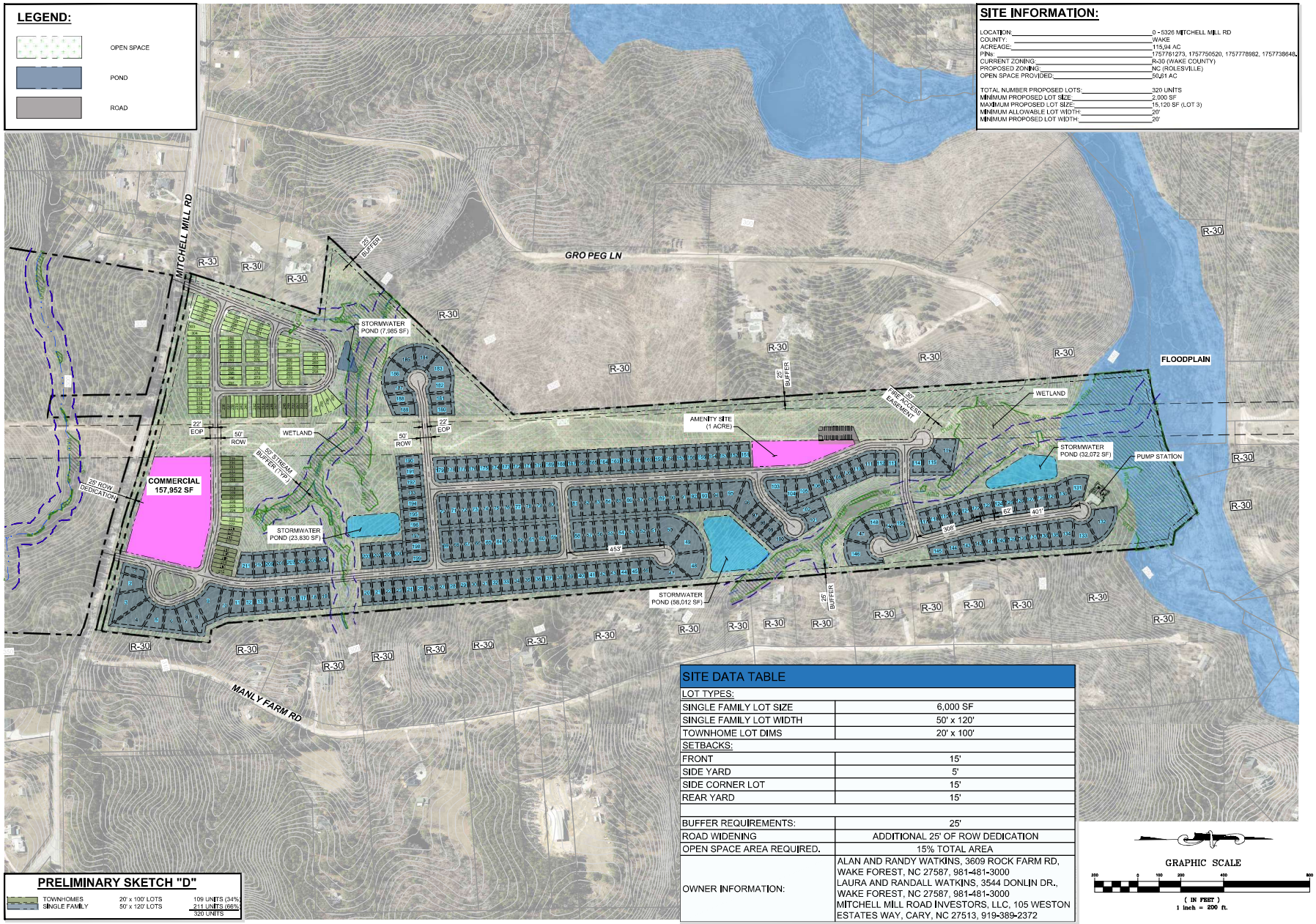
RKA
RAMEY KEMP ASSOCIATES

Hills at Harris Creek
Rolesville, NC

Site Location Map

Scale: Not to Scale

PROGRESS PLOT DATE: 11-17-2021



SITE DATA TABLE	
LOT TYPES:	
SINGLE FAMILY LOT SIZE	6,000 SF
SINGLE FAMILY LOT WIDTH	50' x 120'
TOWNHOME LOT DIMS	20' x 100'
SETBACKS:	
FRONT	15'
SIDE YARD	5'
SIDE CORNER LOT	15'
REAR YARD	15'
BUFFER REQUIREMENTS:	25'
ROAD WIDENING	ADDITIONAL 25' OF ROW DEDICATION
OPEN SPACE AREA REQUIRED.	15% TOTAL AREA
OWNER INFORMATION:	ALAN AND RANDY WATKINS, 3609 ROCK FARM RD, WAKE FOREST, NC 27587, 981-481-3000 LAURA AND RANDALL WATKINS, 3544 DONLIN DR., WAKE FOREST, NC 27587, 981-481-3000 MITCHELL MILL ROAD INVESTORS, LLC, 105 WESTON ESTATES WAY, CARY, NC 27513, 919-389-2372

NO.	REVISIONS	DATE	BY

NORTH CAROLINA PROFESSIONAL SEAL 045688 ENGINEER DANIEL L. BRENNINGTON

STRONGROCK ENGINEERING GROUP

STRONG ROCK ENGINEERING GROUP, PLLC | COMPANY LICENSE # P-2186
8801 FALLS OF NEUSE RD, SUITE 150 RALEIGH, NC 27615 | JOE@STRONGROCKENGINEERING.COM

STRONGROCK PROJECT	
DATE	AS SHOWN
SCALE	JAL
DESIGNED BY	
DRAWN BY	JAL
CHECKED BY	

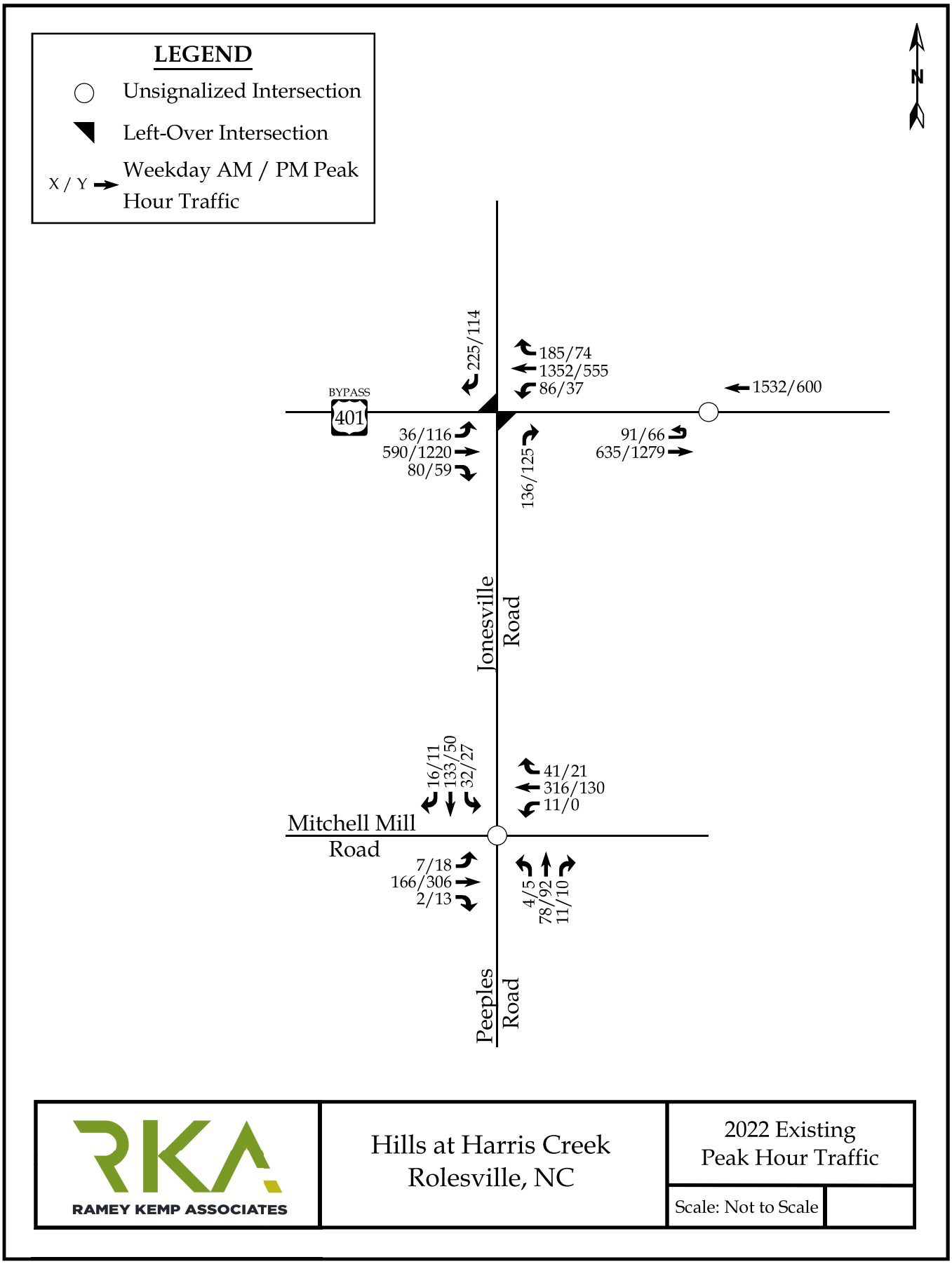
ROLESVILLE - MITCHELL MILL - ELLIS

WAKE FOREST, WAKE COUNTY, NORTH CAROLINA

PRELIMINARY LAYOUT

DRAWING SHEET

PROJECT NUMBER



RAMEY KEMP ASSOCIATES

Hills at Harris Creek
Rolesville, NC

2022 Existing
Peak Hour Traffic

Scale: Not to Scale

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Hills at Harris Creek	**Organization:**	Ramey Kemp & Associates
Project Location:	Rolesville, NC	**Performed By:**	TF
Scenario Description:	AM Street Peak Hour	**Date:**	3/18/2022
Analysis Year:	20xx Build	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office						
Retail	822	25,400	sq.ft.		32	21
Restaurant						
Cinema/Entertainment						
Residential	210,220	211,109	units		52	152
Hotel						
All Other Land Uses[2]						
				0	84	173

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses[2]	1.10	0%	0%	1.10	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	282	92	190
Internal Capture Percentage	2%	3%	2%
External Vehicle-Trips[5]	251	81	170
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	6%	4%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Hills at Harris Creek
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.10	0	0	1.10	0	0
Retail	1.10	32	35	1.10	21	23
Restaurant	1.10	0	0	1.10	0	0
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	52	57	1.10	152	167
Hotel	1.10	0	0	1.10	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	7		3	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	2	33	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		11	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	3		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	6	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	33	35	30	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	56	57	51	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	22	23	20	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	165	167	150	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Hills at Harris Creek	**Organization:**	Ramey Kemp & Associates
Project Location:	Rolesville, NC	**Performed By:**	TF
Scenario Description:	AM Street Peak Hour	**Date:**	3/18/2022
Analysis Year:	20xx Build	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office						
Retail	822	25,400	sq.ft.		75	76
Restaurant						
Cinema/Entertainment						
Residential	210,220	211,109	units		168	99
Hotel						
All Other Land Uses[2]						
				0	243	175

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses[2]	1.10	0%	0%	1.10	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4000	4000		4000	
Retail					4000	
Restaurant					4000	
Cinema/Entertainment					4000	
Residential		4000	4000			
Hotel					4000	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	461	268	193
Internal Capture Percentage	1%	1%	2%
External Vehicle-Trips[5]	414	241	173
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	1%	2%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	1%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	Hills at Harris Creek
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.10	0	0	1.10	0	0
Retail	1.10	75	83	1.10	76	84
Restaurant	1.10	0	0	1.10	0	0
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	168	185	1.10	99	109
Hotel	1.10	0	0	1.10	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	2		24	3	2	4
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	5	2	0		3
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	7	0
Retail	0		0	0	85	0
Restaurant	0	42		0	30	0
Cinema/Entertainment	0	3	0		7	0
Residential	0	1	0	0		0
Hotel	0	2	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	82	83	75	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	183	185	166	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

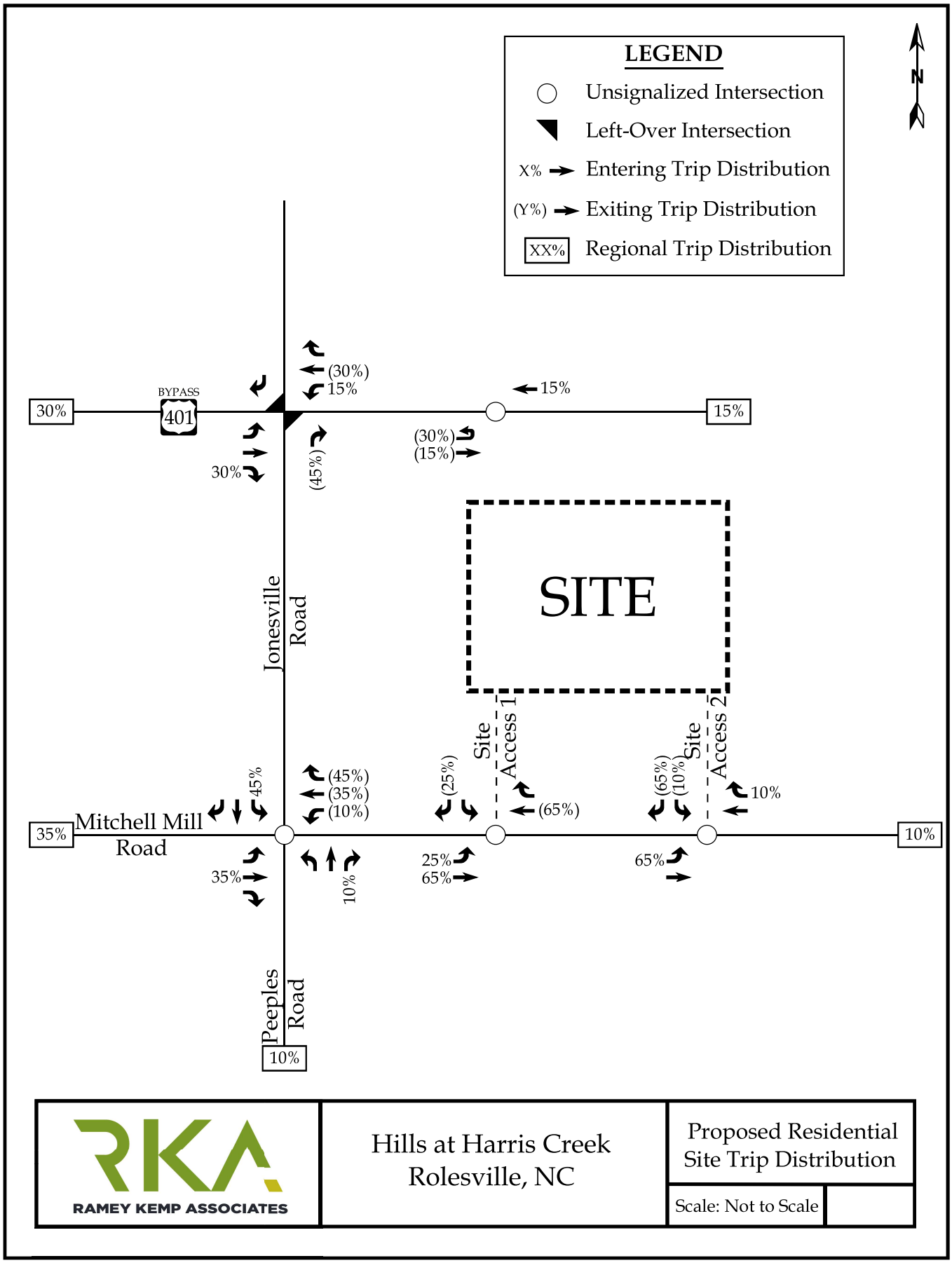
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	82	84	75	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	108	109	98	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

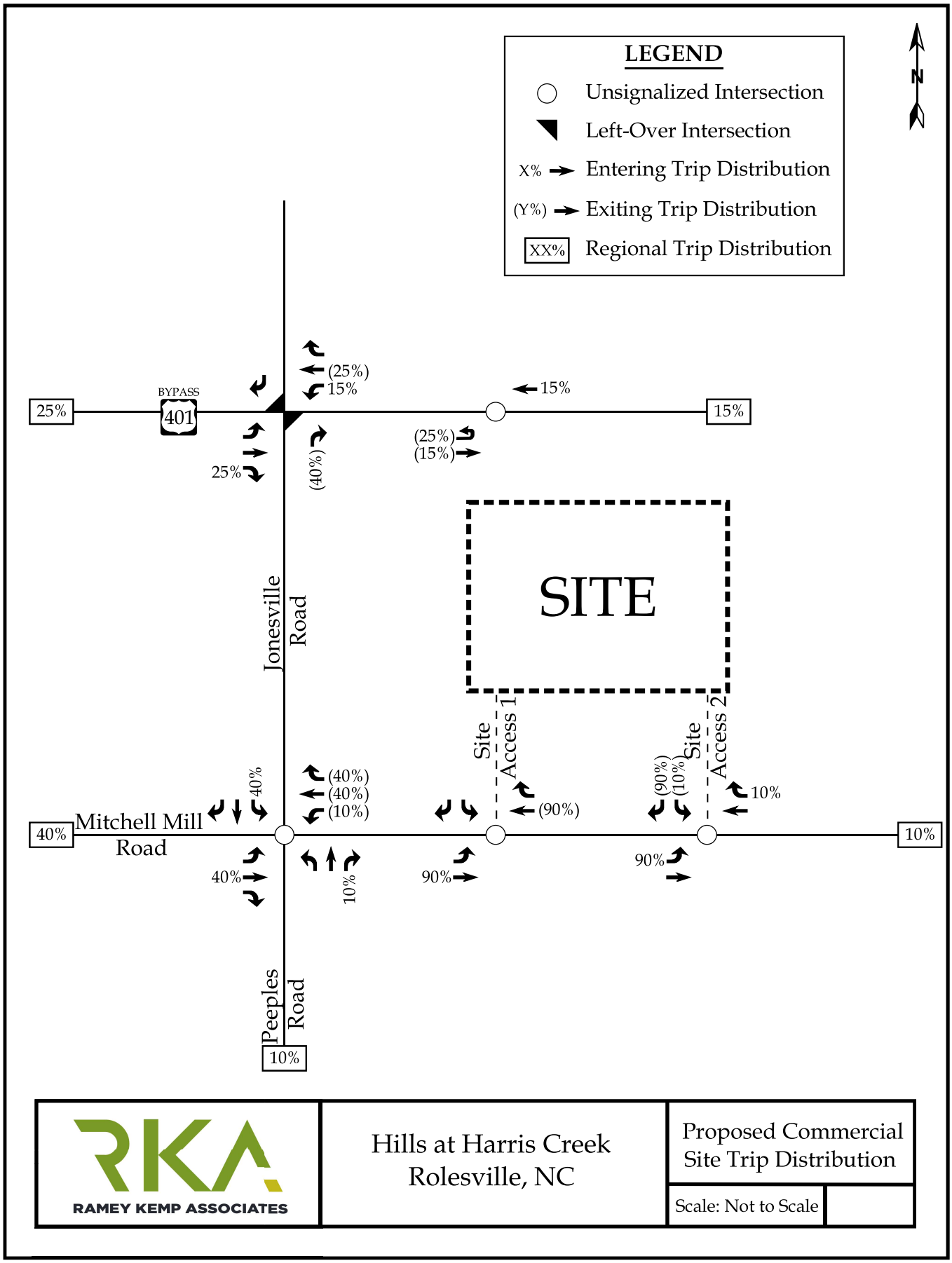
[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.


LEGEND
Unsignalized Intersection
Left-Over Intersection
X% Entering Trip Distribution
(Y%) Exiting Trip Distribution
XX% Regional Trip Distribution
N
BYPASS
401
30%
15%
(30%)
15%
15%
(30%)
(15%)
30%
(45%)
SITE
Jonesville Road
Site Access 1
Site Access 2
45%
(45%)
(35%)
(10%)
(25%)
(65%)
(65%)
(10%)
10%
Mitchell Mill Road
35%
10%
35%
10%
25%
65%
65%
Peeples Road
10%
RAMEY KEMP ASSOCIATES
Hills at Harris Creek
Rolesville, NC
Proposed Residential
Site Trip Distribution
Scale: Not to Scale



RAMEY KEMP ASSOCIATES

Hills at Harris Creek
Rolesville, NC

Proposed Commercial
Site Trip Distribution

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

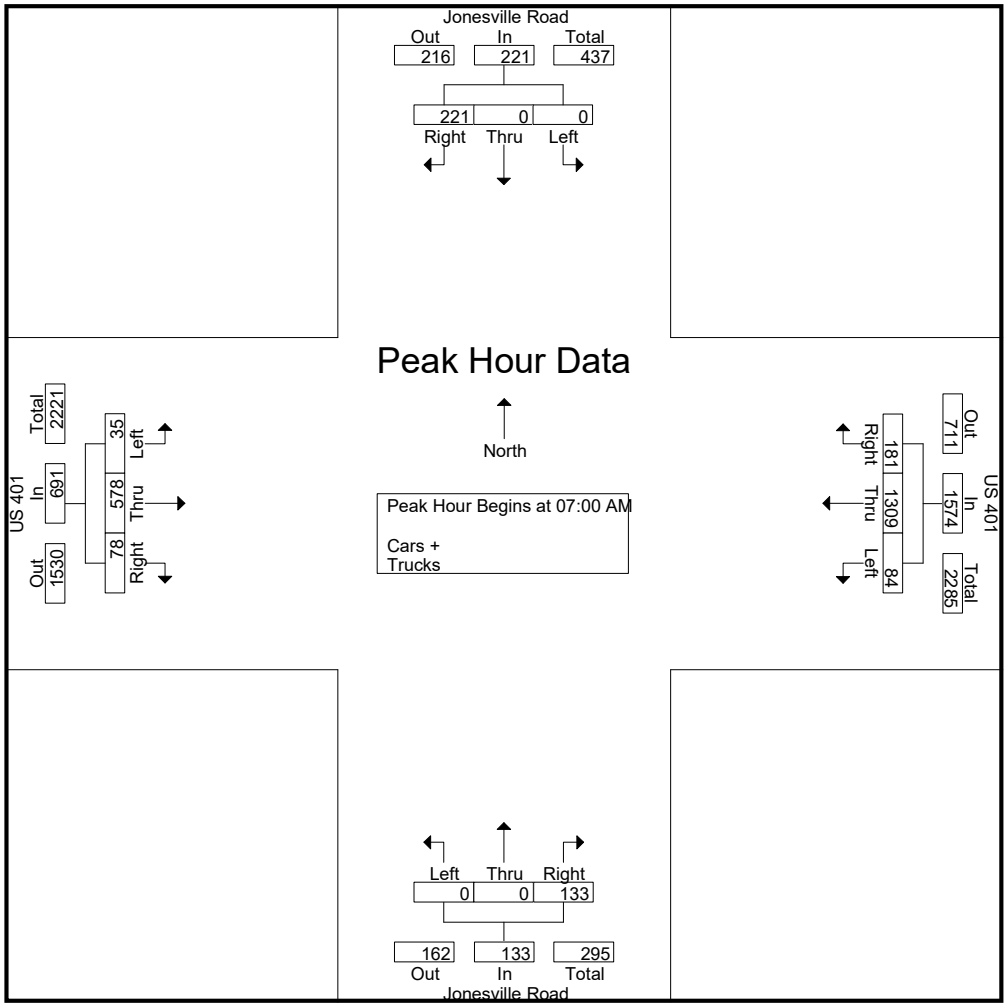
Groups Printed- Cars + - Trucks

	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



TRAFFIC DATA COLLECTION

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

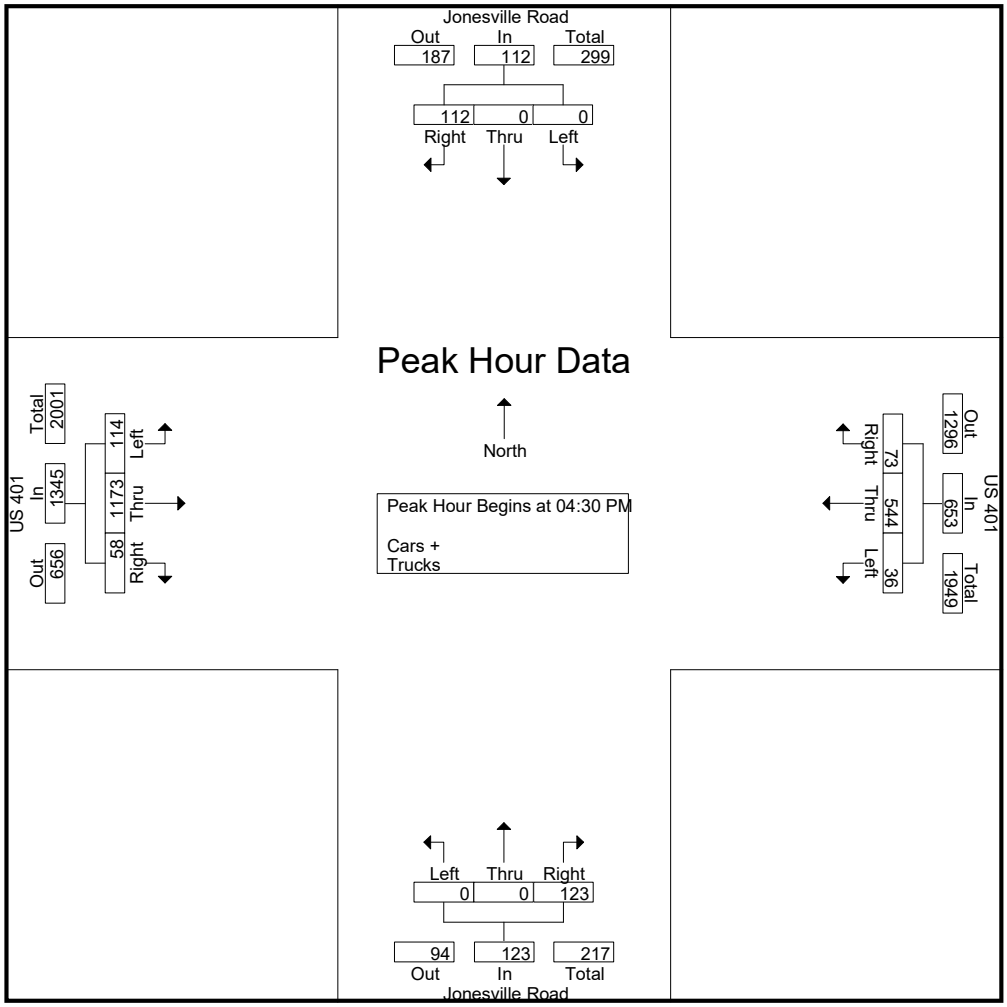
Groups Printed- Cars + - Trucks

	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

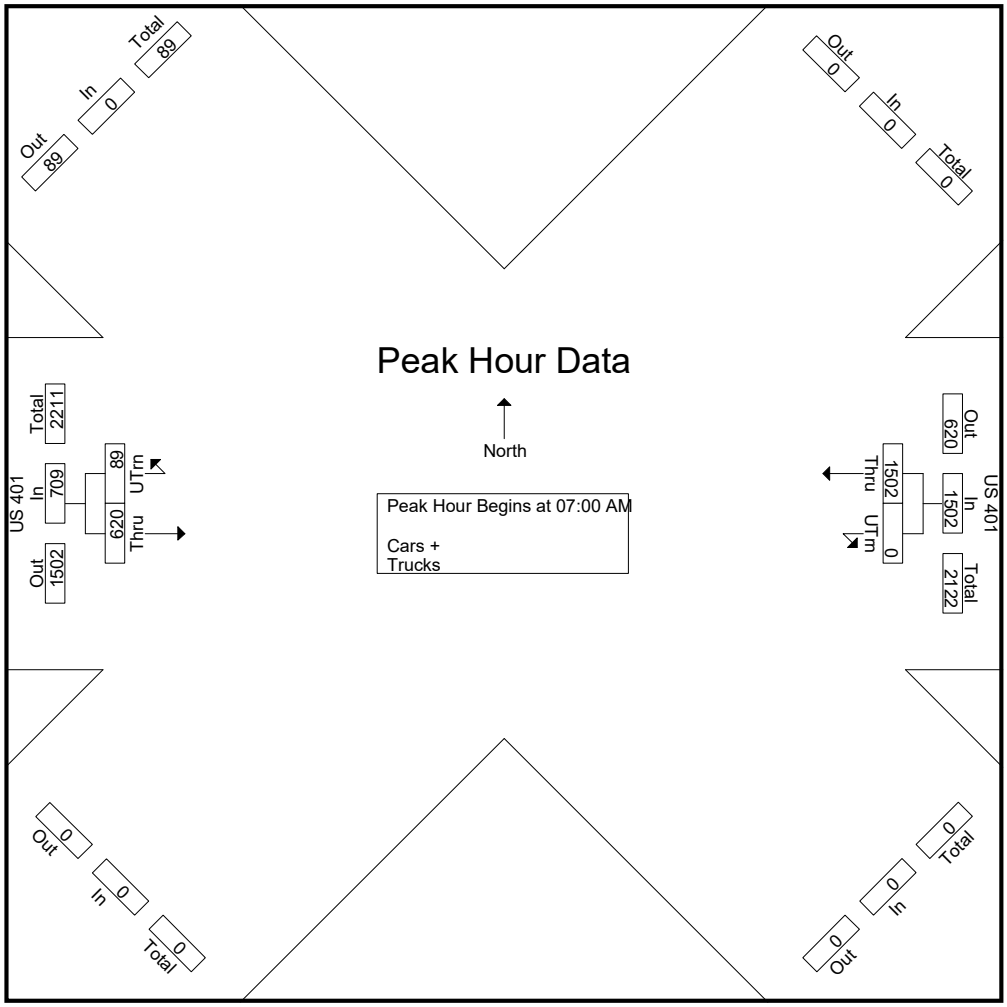
Groups Printed- Cars + - Trucks

	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



TRAFFIC DATA COLLECTION

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

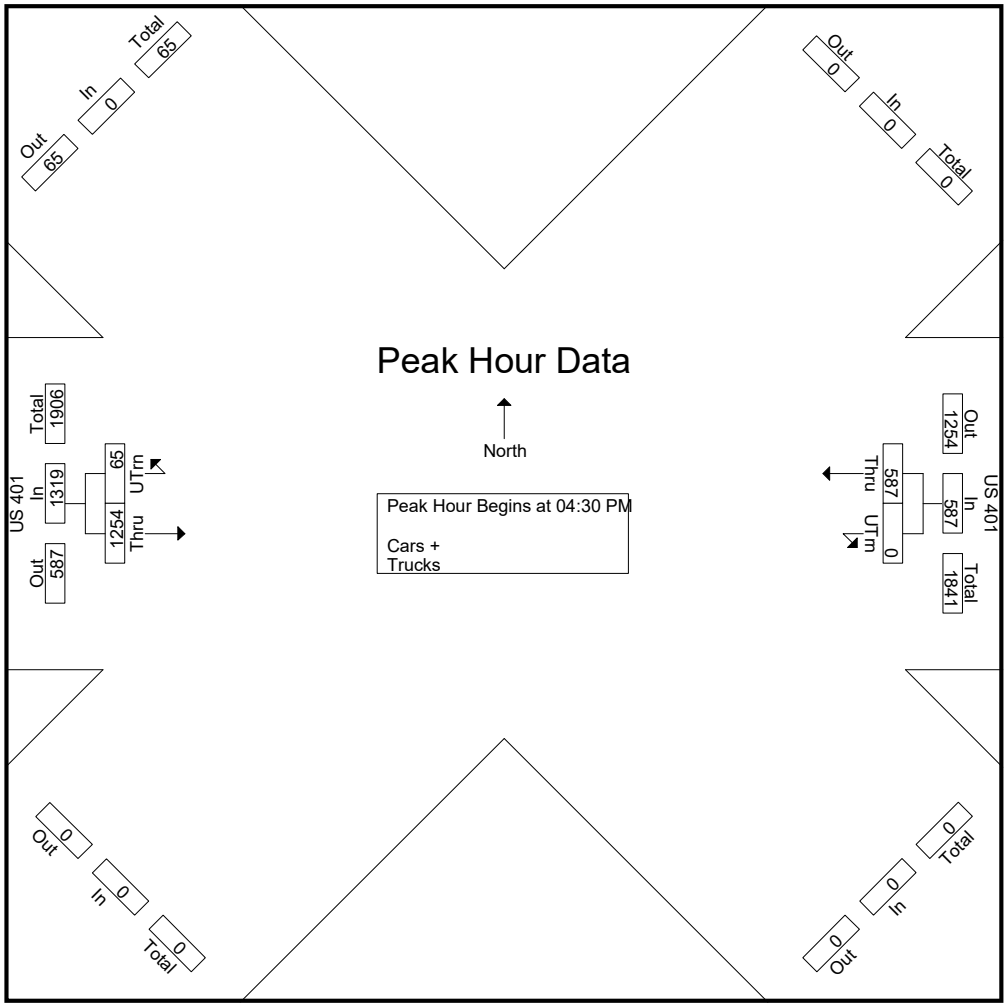
Groups Printed- Cars + - Trucks

	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

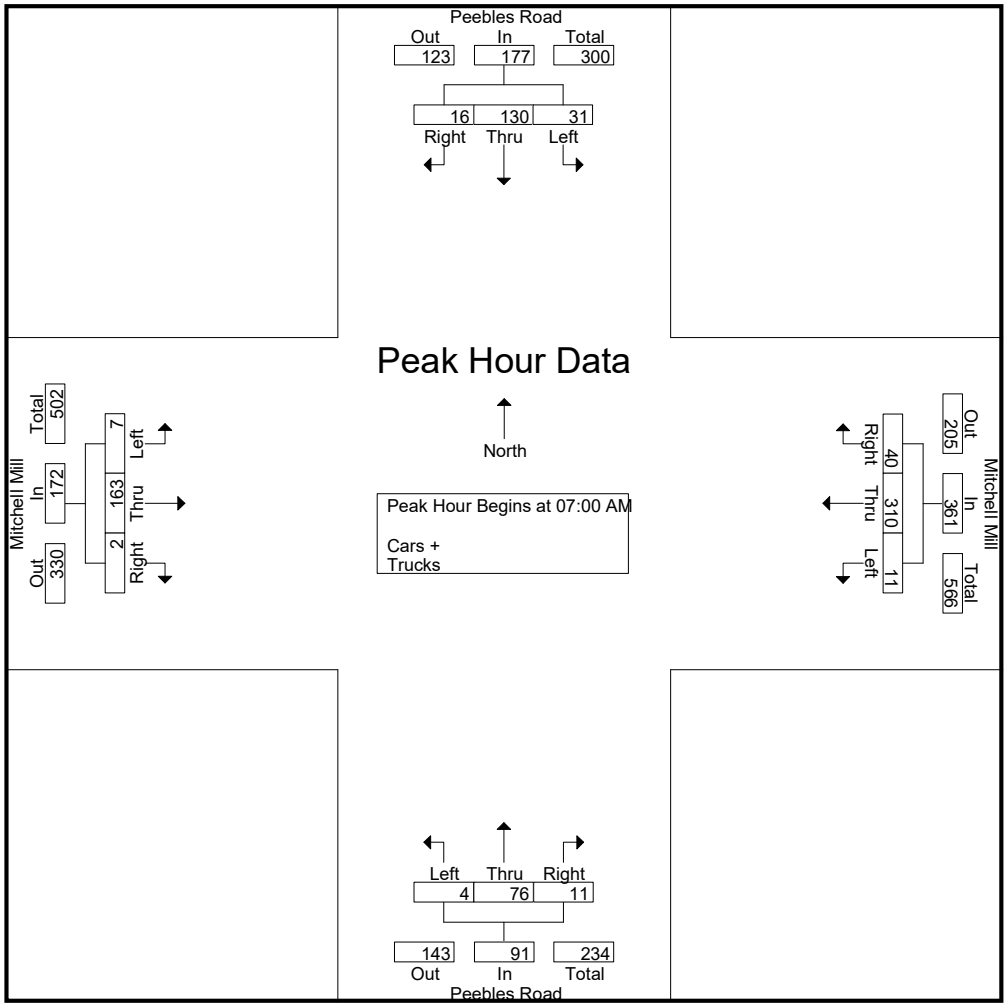
Groups Printed- Cars + - Trucks

	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



TRAFFIC DATA COLLECTION

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

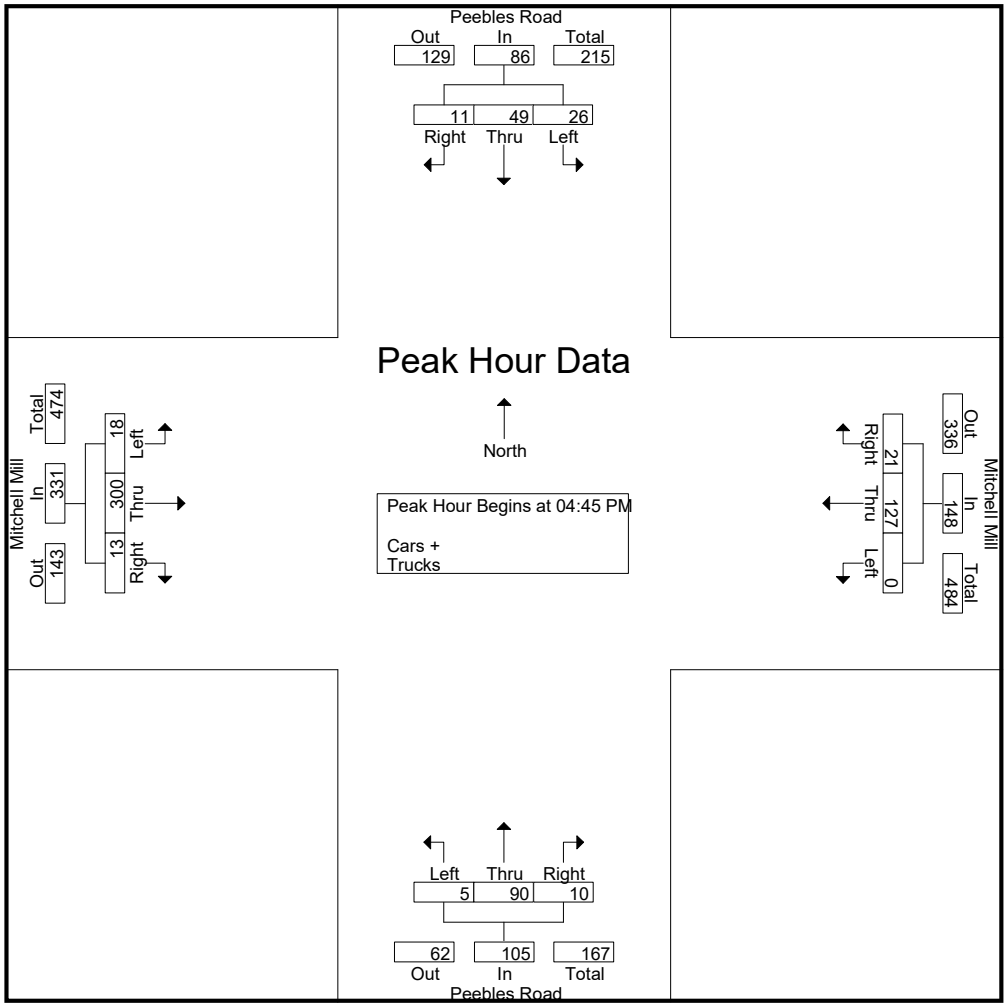
Groups Printed- Cars + - Trucks

	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

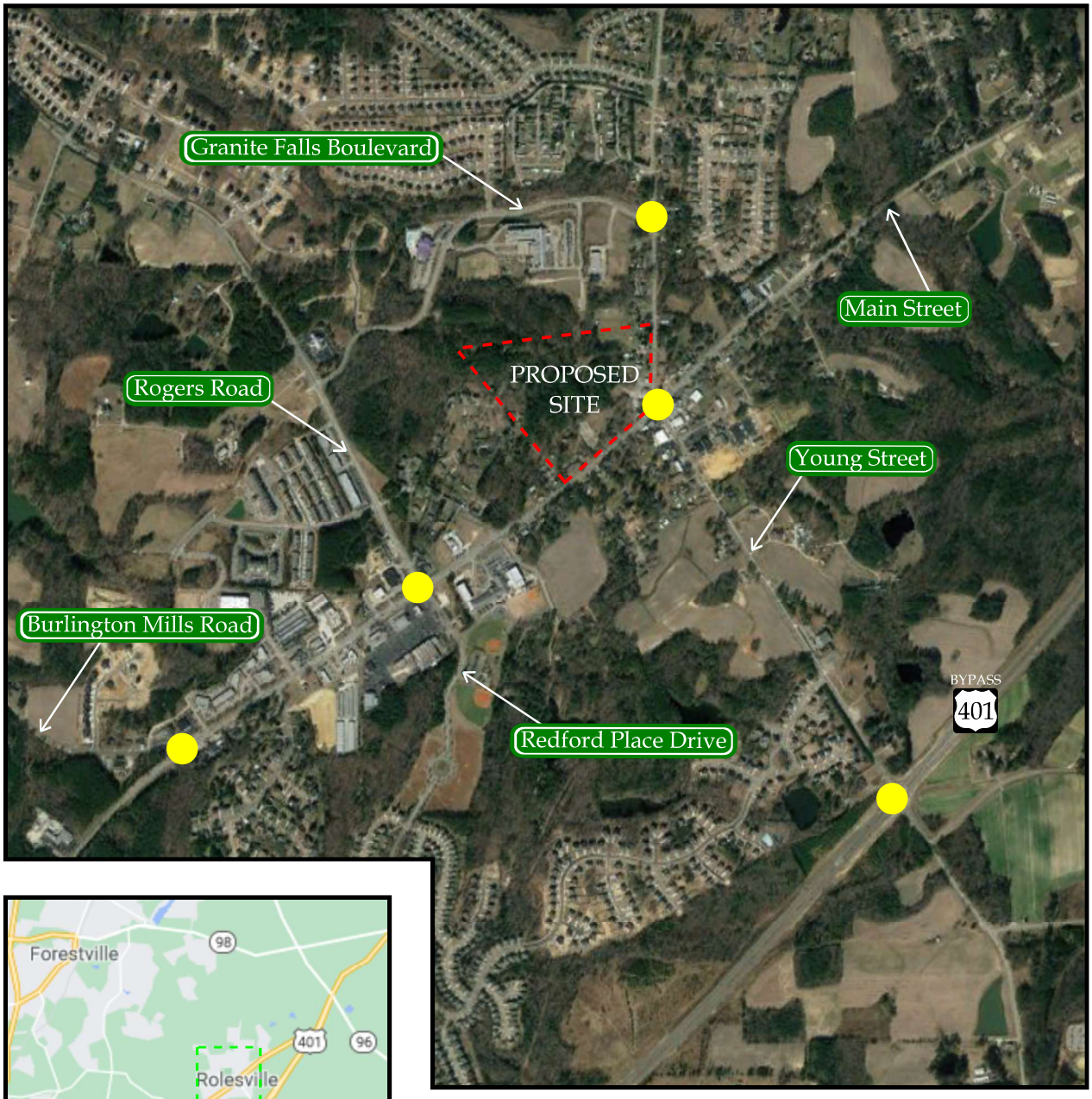
Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

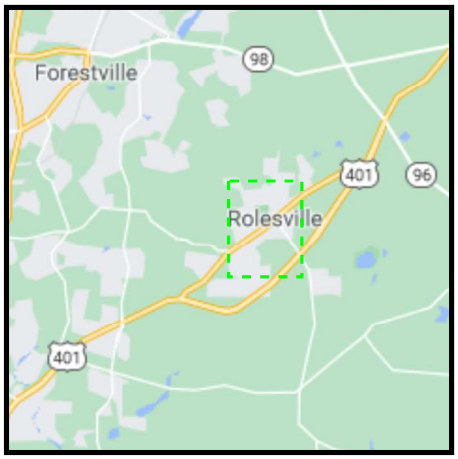
MARCH 2021

RKA Project No. 20498

Prepared By: TF

Reviewed By: MK



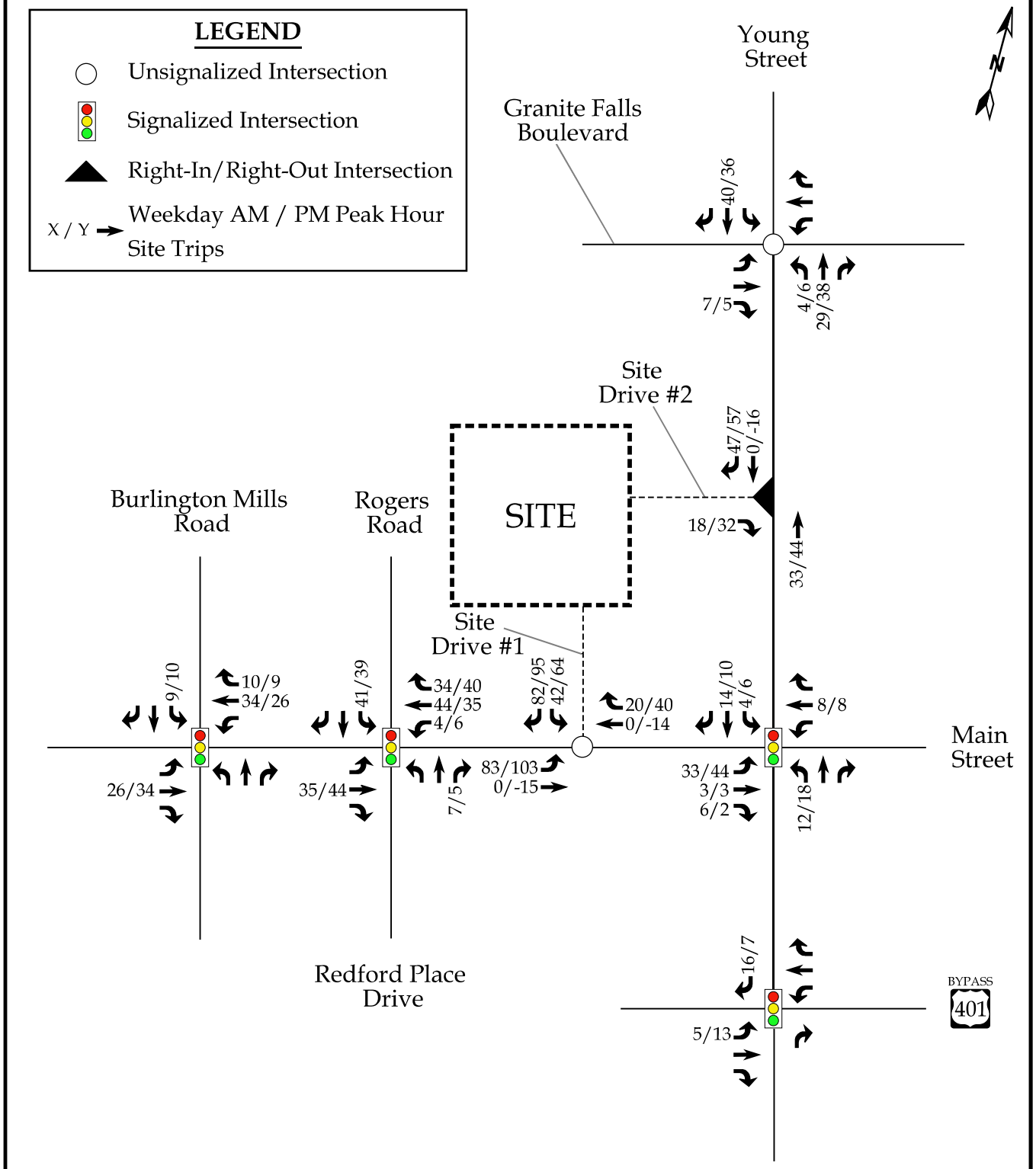


N

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.

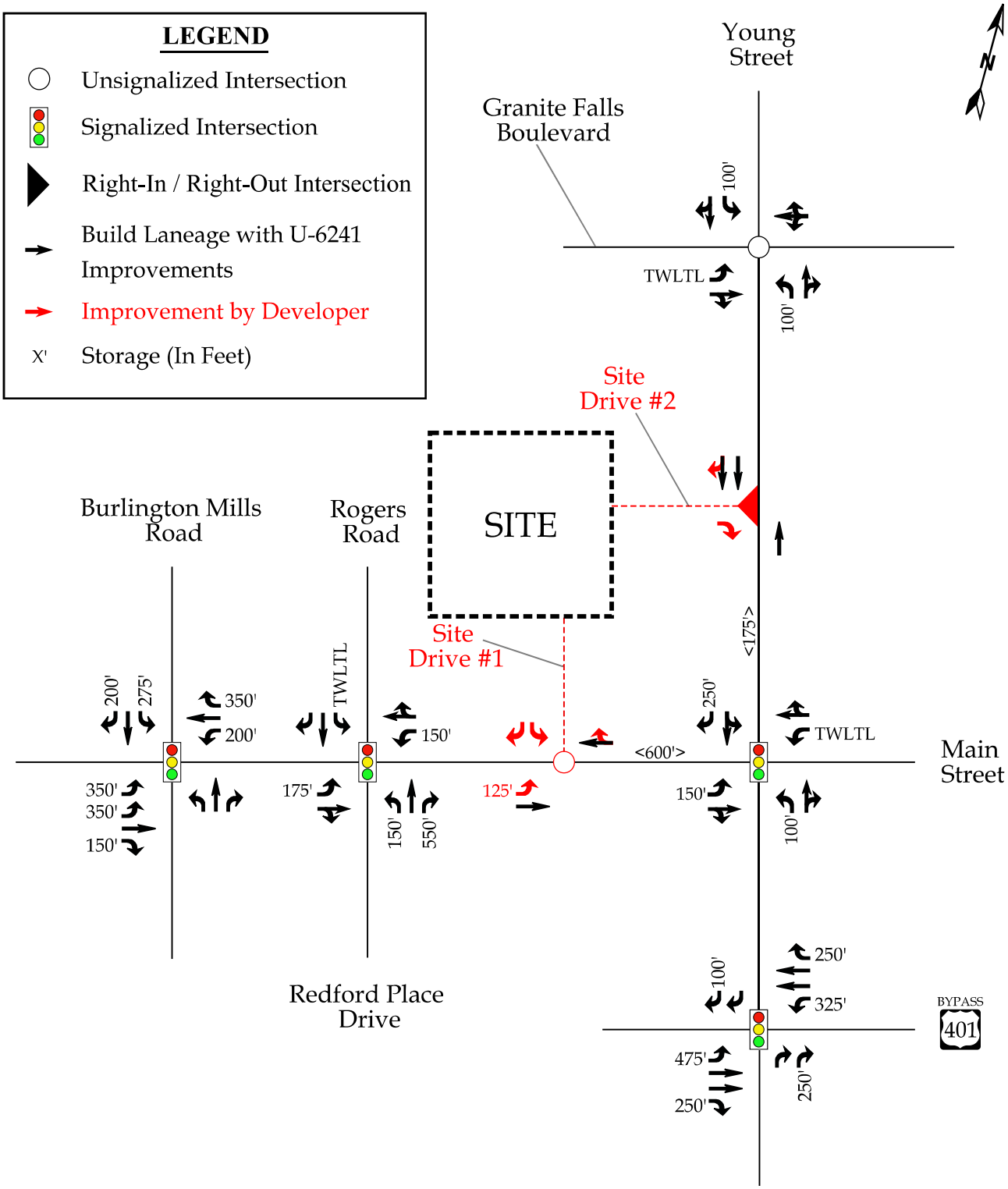
Recommended Improvements by Developer

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:

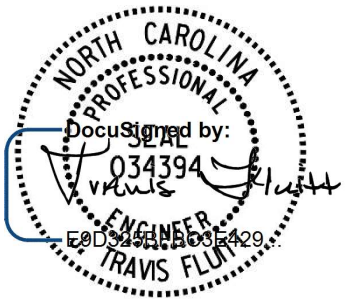
Ashton Woods
Raleigh, North Carolina

Prepared by:

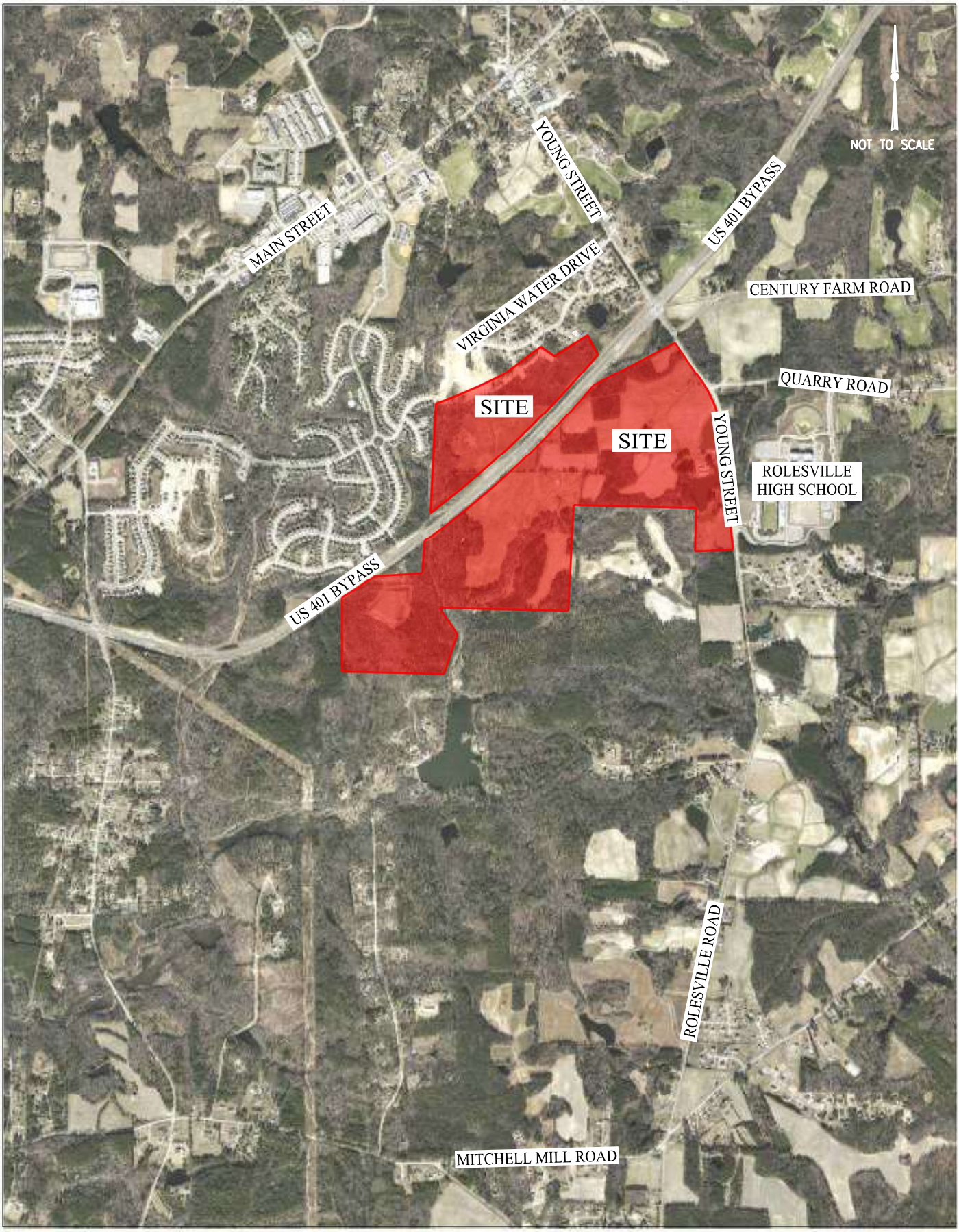
Kimley-Horn and Associates, Inc.
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

June 2019

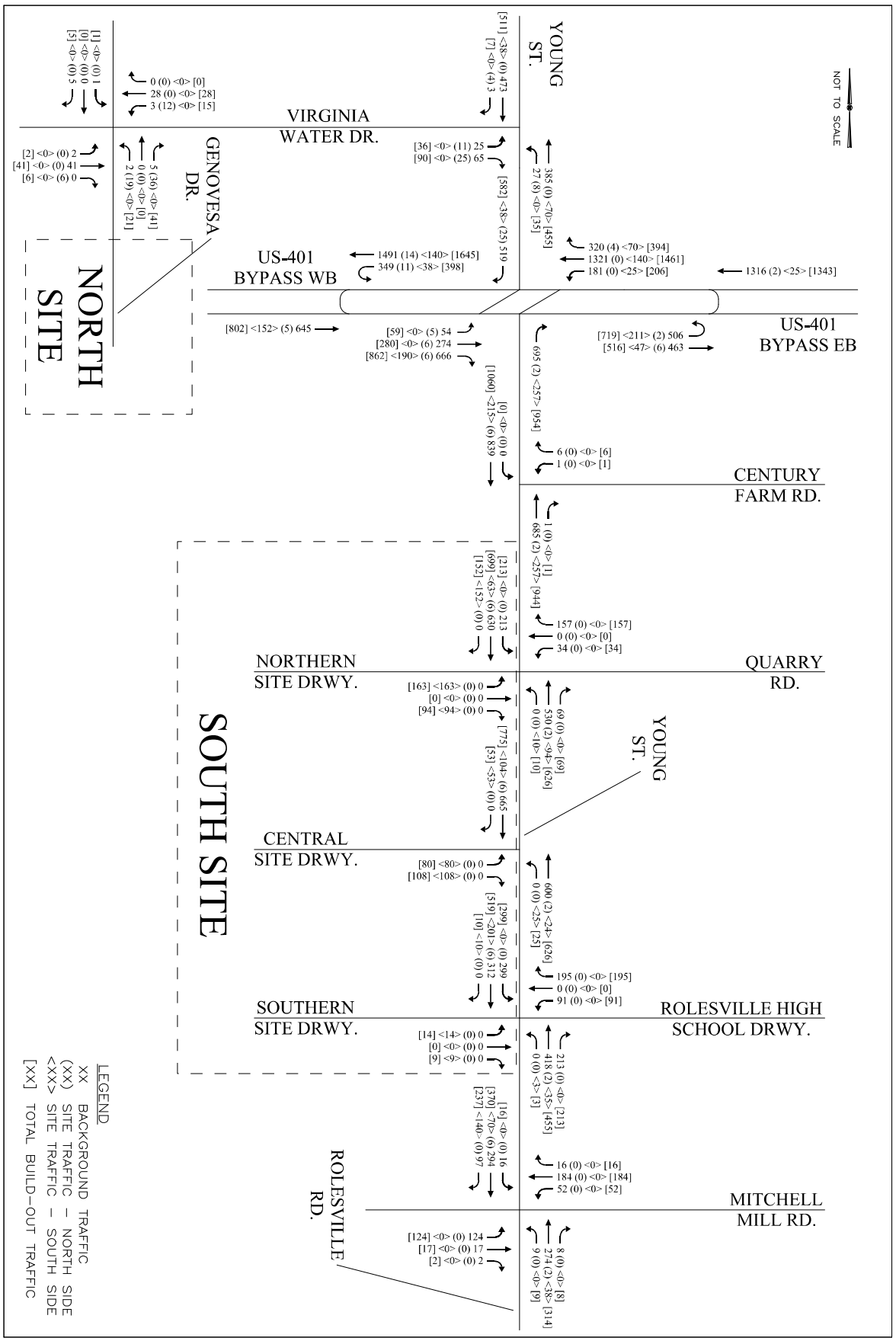
015956012



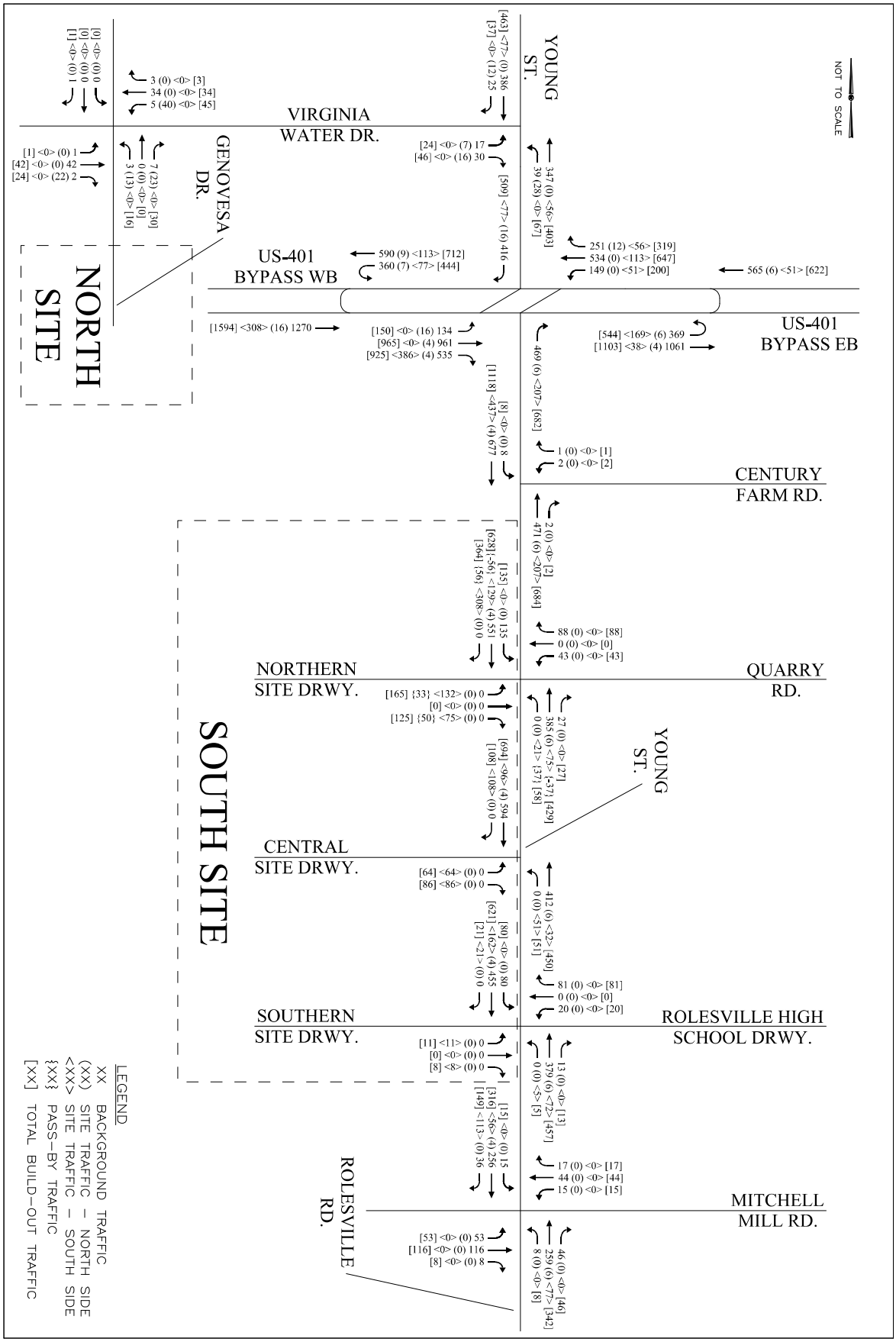
6/13/2019



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:

US 401 Bypass Eastbound at Young Street:

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

Young Street at Quarry Road/North Site Driveway:

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

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

Analyses indicate that the intersection of Young Street at Century Farm Road is expected to operate with long delays on the minor street approach (Century Farm Road) in the AM peak hour at project build-out. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. SimTraffic

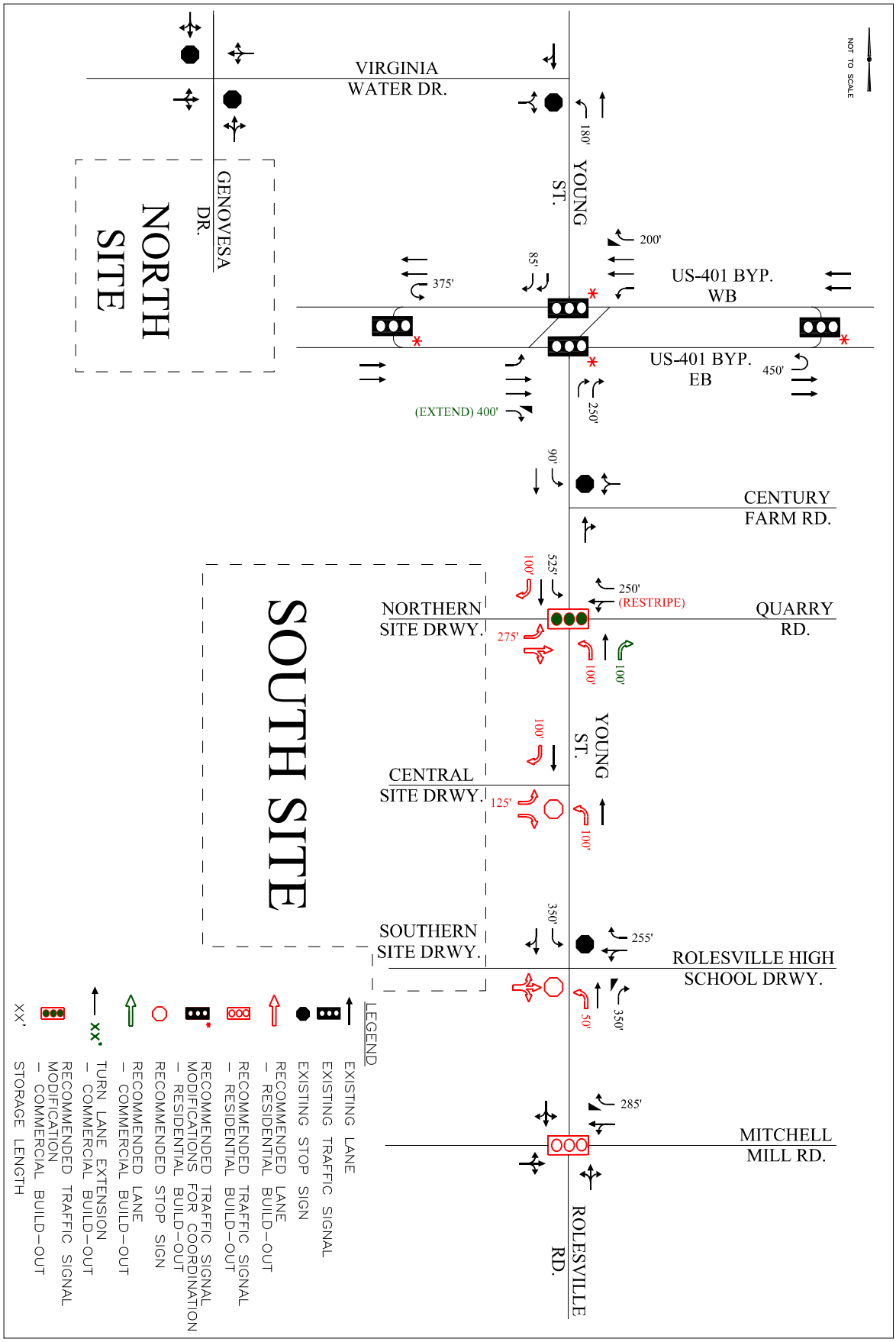
traffic simulations indicate that short queues are likely on the minor street approach in the AM peak hour at commercial build-out.

Analyses indicate that the intersection of Young Street at the Central Site Driveway is expected to operate with long delays on the minor street approach (Central Site Driveway) in the AM peak hour in the commercial build-out traffic condition. It is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. SimTraffic traffic simulations indicate the possibility of long queues on the eastbound left-turn movement at this intersection in the AM peak hour in the commercial build-out condition.

Analyses indicate that the intersection of Young Street at the Rolesville High School Driveway/South Site Driveway is expected to operate with long delays on the minor street approach (Rolesville High School Driveway) in the AM peak hour and school PM peak hour with or without the proposed project in place in the study year 2025. SimTraffic traffic simulations also indicate the possibility of long queues on the westbound left-turn movement at this intersection in the AM peak hour and school PM peak hour. However, it is typical for stop sign controlled side streets and driveways intersecting major streets to experience long delays during peak hours, while the majority of the traffic moving through the intersection on the major street experiences little or no delay. This intersection is not expected to meet 4-hour or 8-hour MUTCD traffic signal warrants.

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

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



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

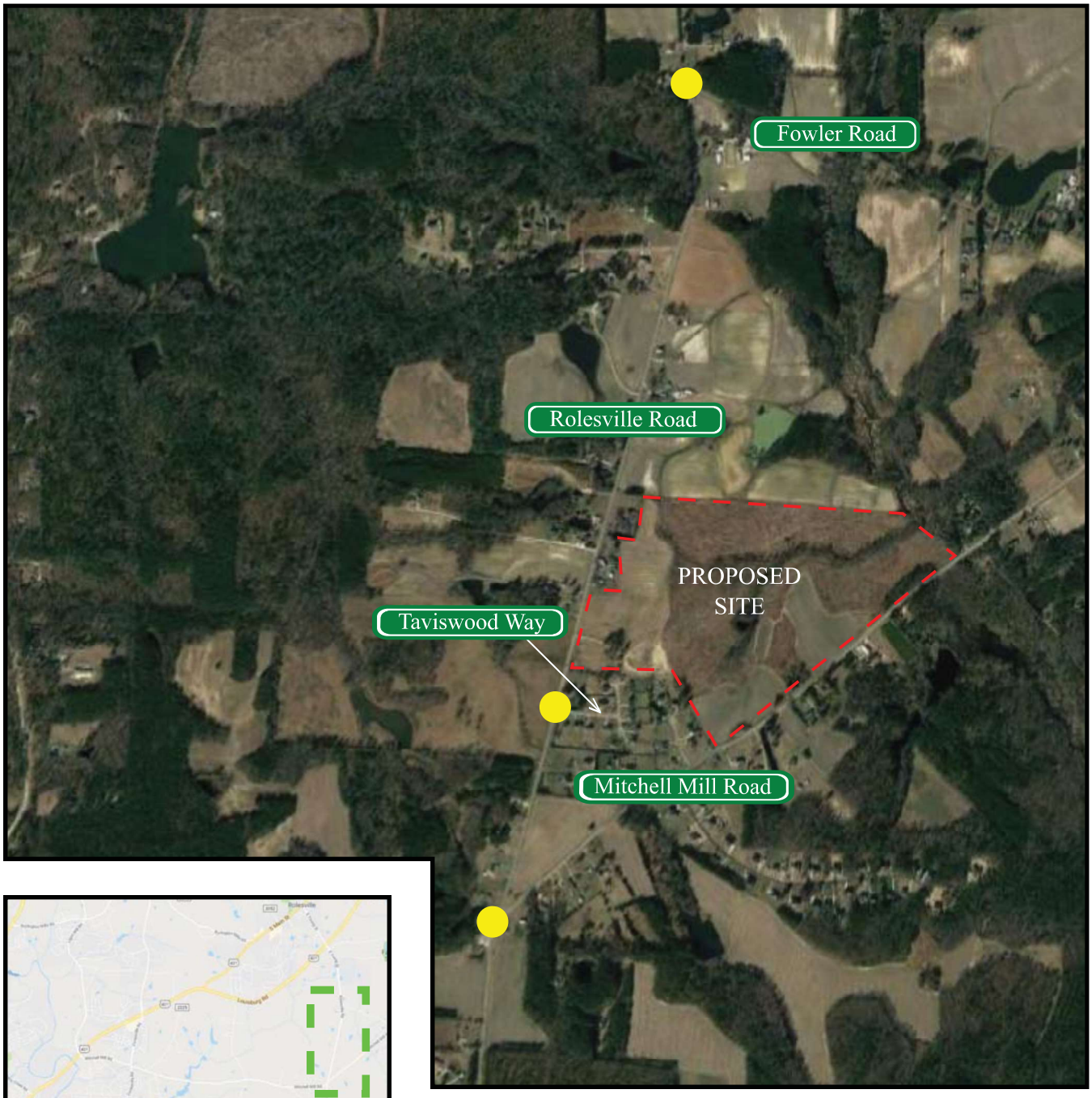
Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

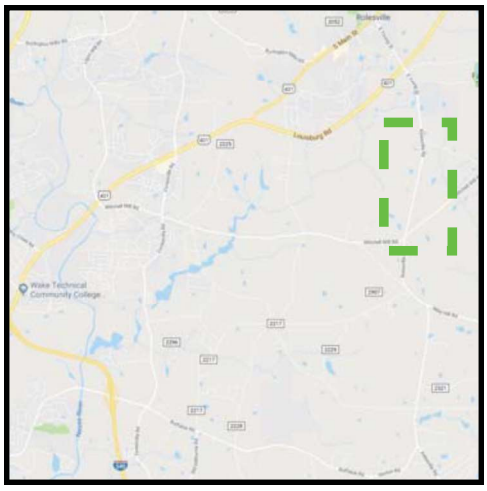
June 2019

RKA Project No. 19045

Prepared By: CAB

Reviewed By: JTR





N

LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

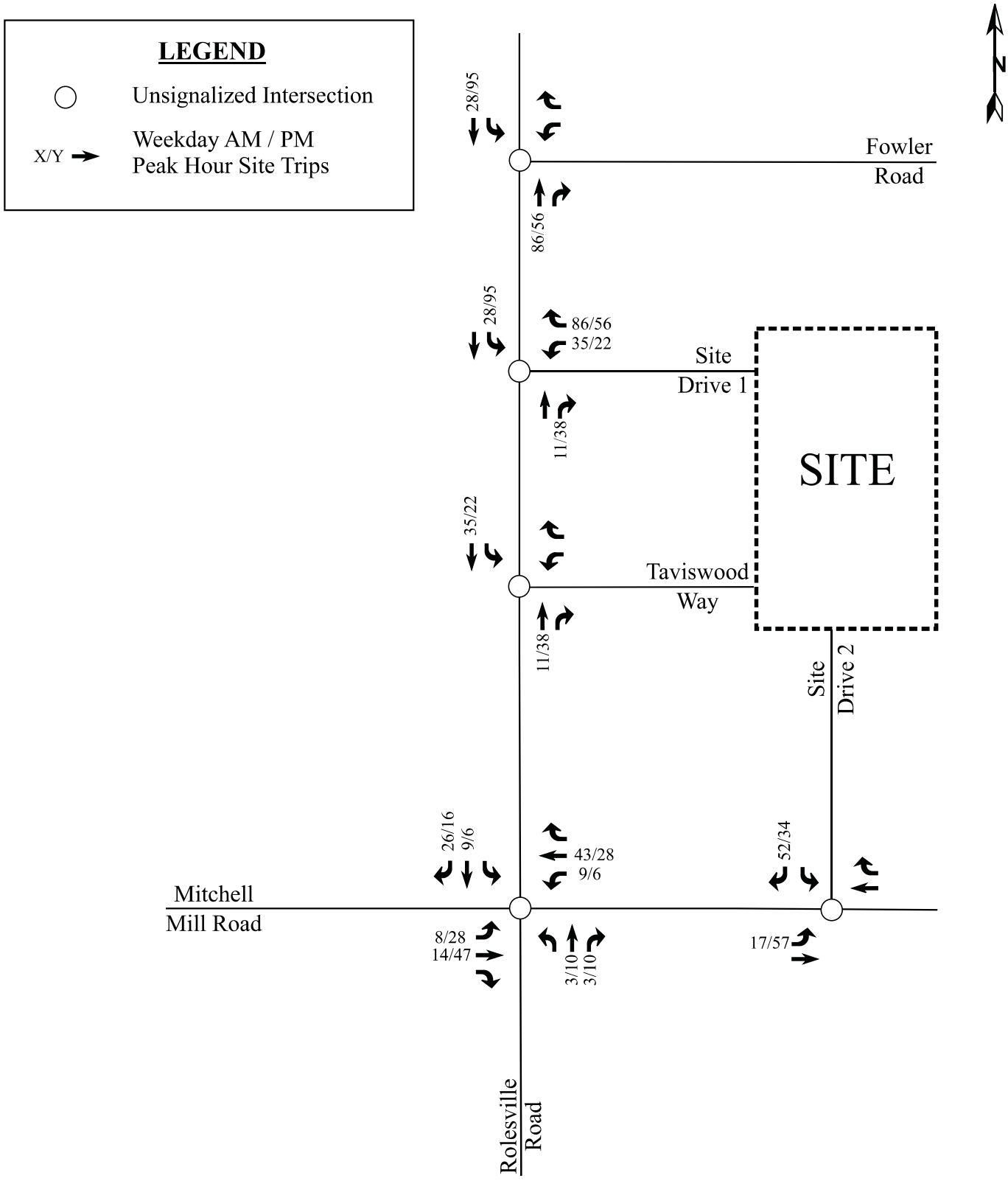
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

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

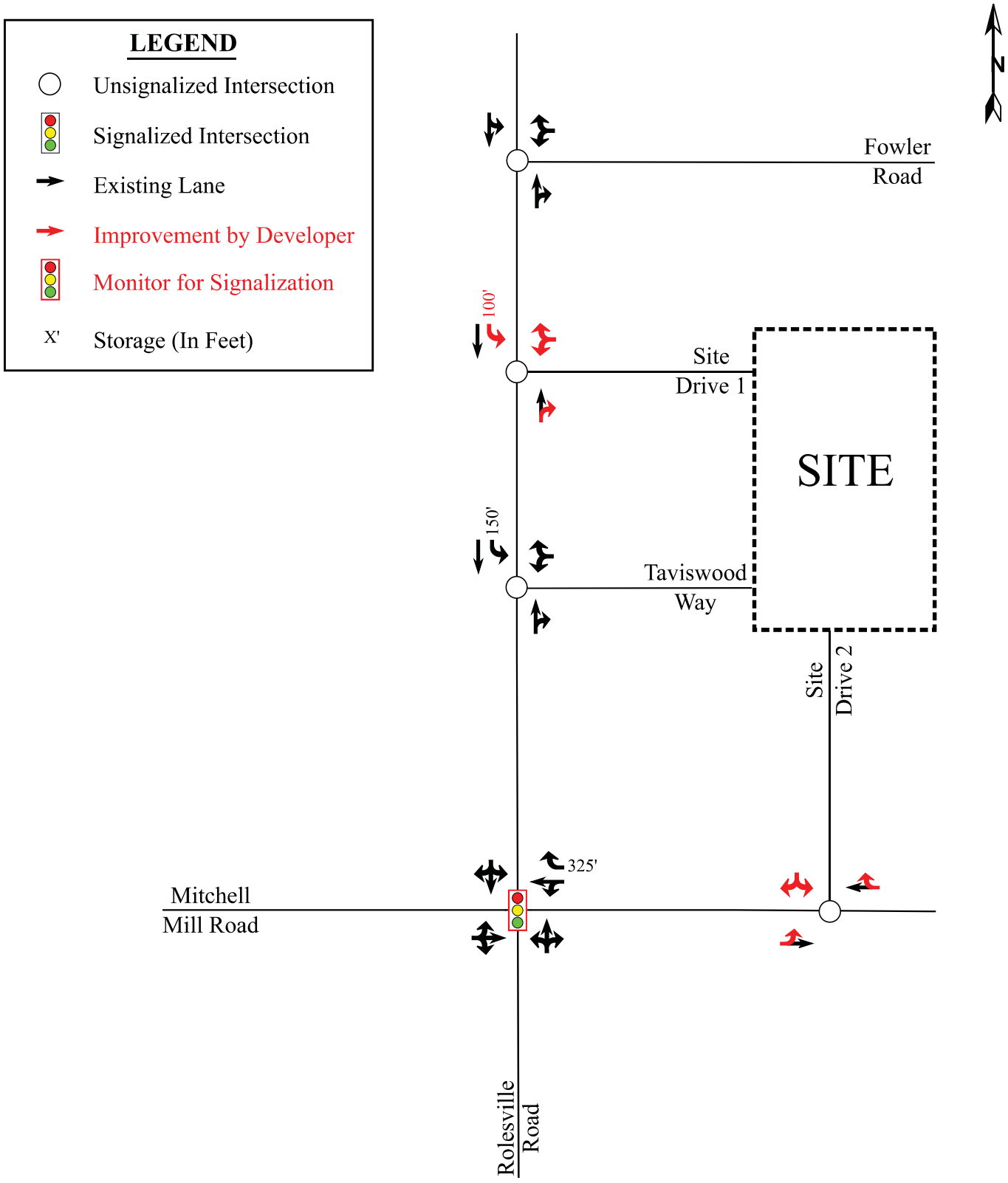
- Monitor intersection for signalization.

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

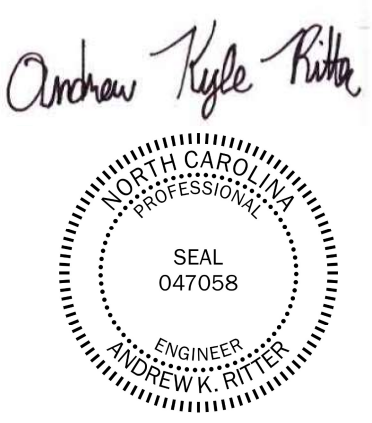
LOCATED

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



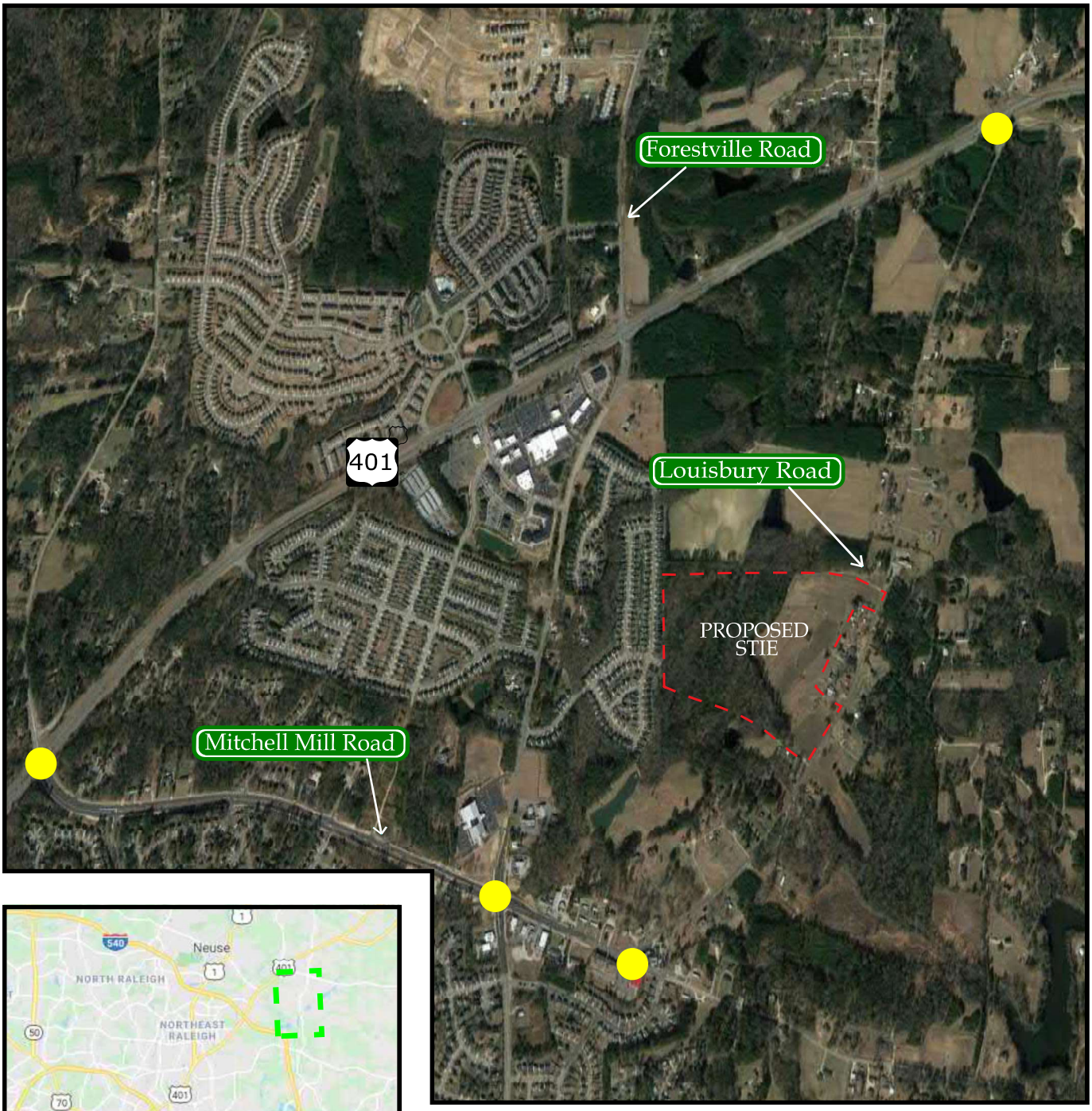
5/8/2020

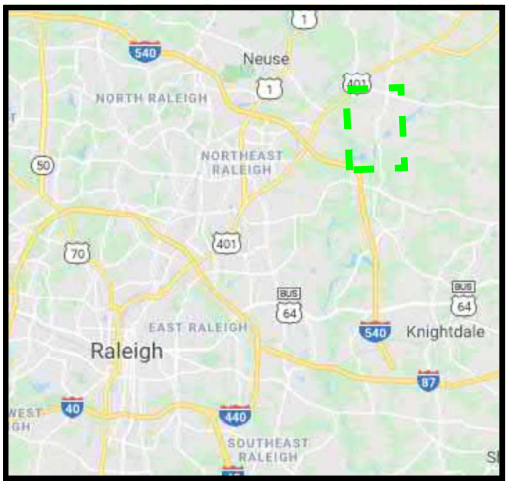
May 2020

RKA Project No. 19418

Prepared By: DT

Reviewed By: DR





N

LEGEND

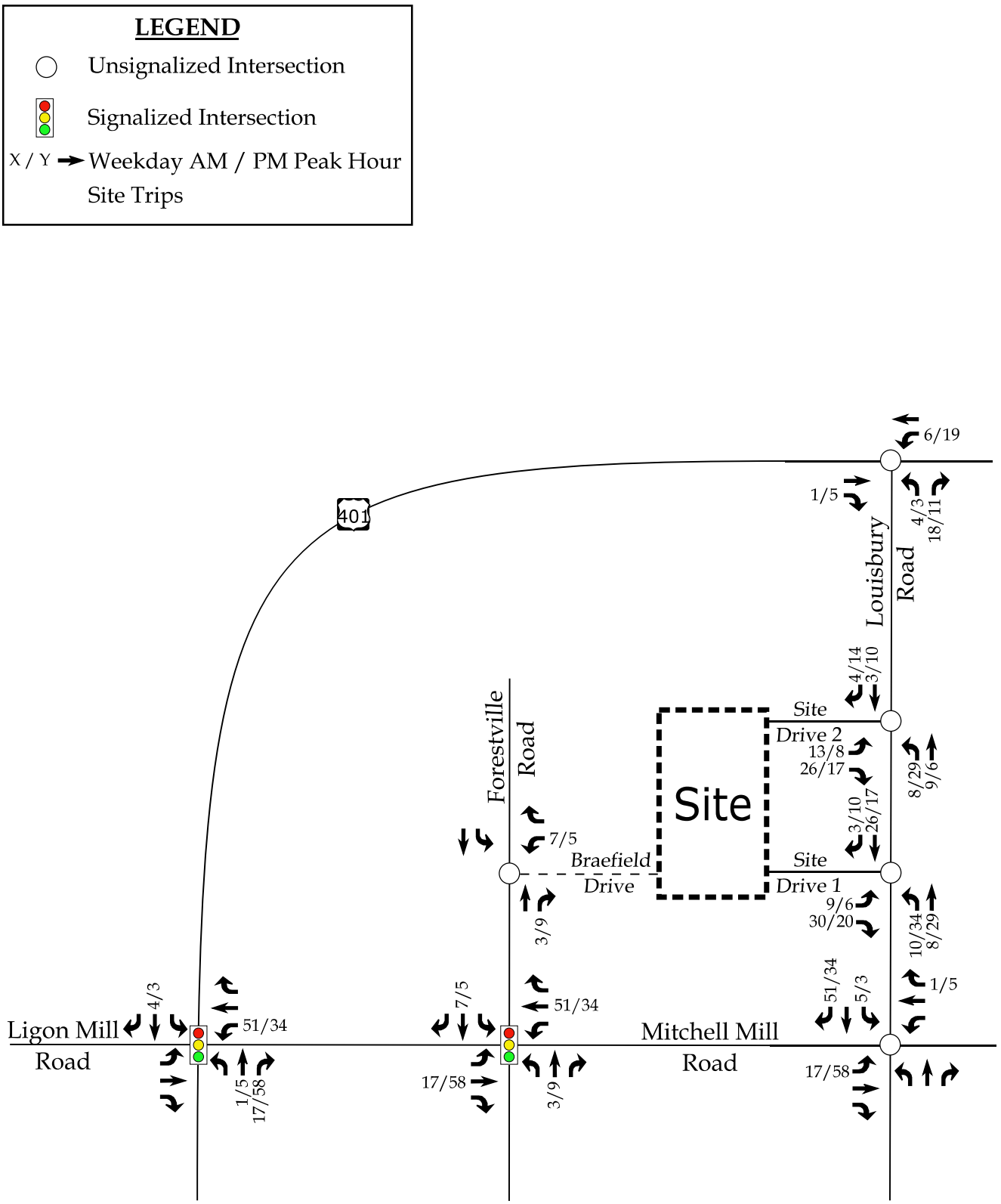
- Proposed Site Location
- Study Intersection
- Study Area

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.

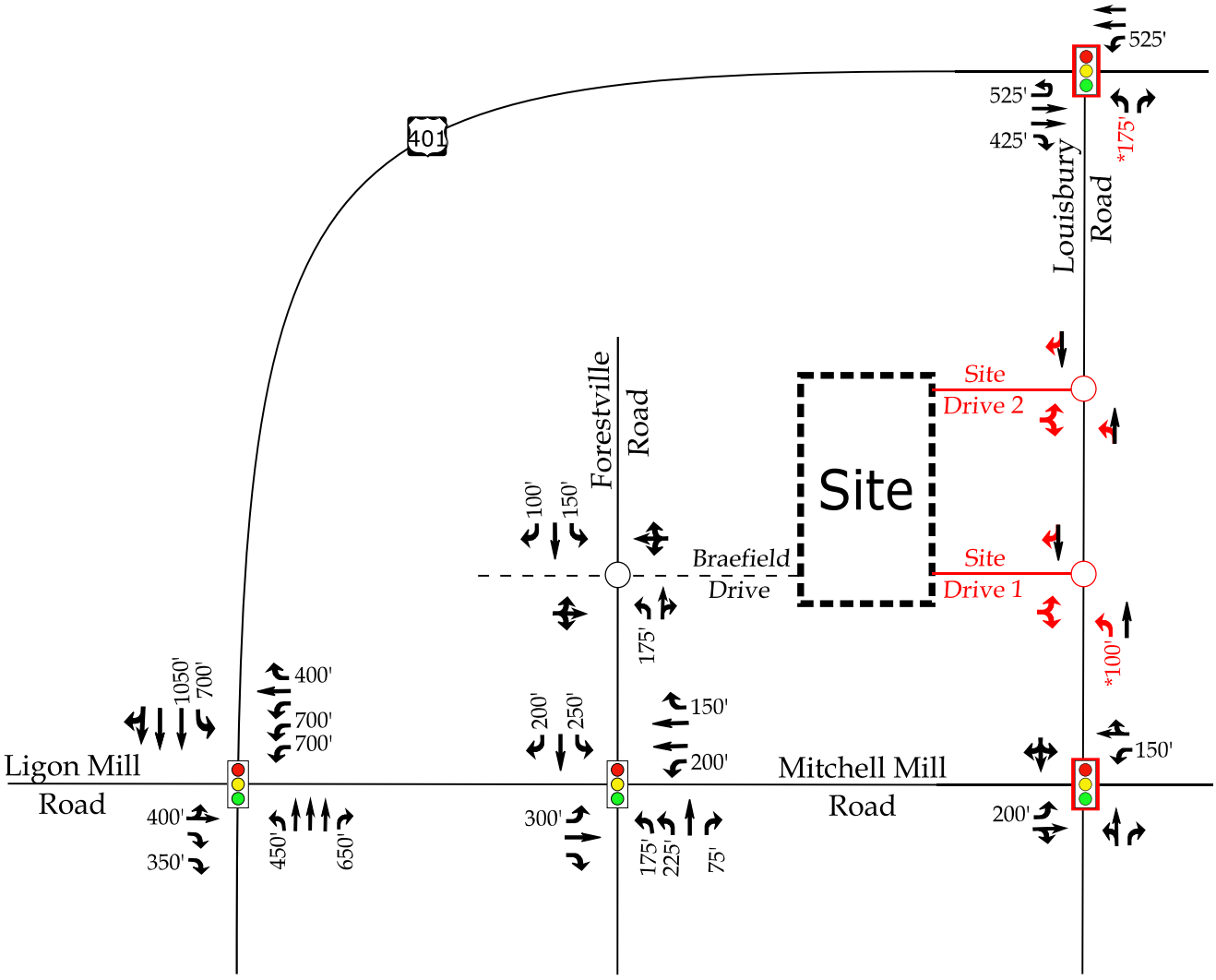
Louisbury Road and Site Drive 2

- 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

Stantec

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

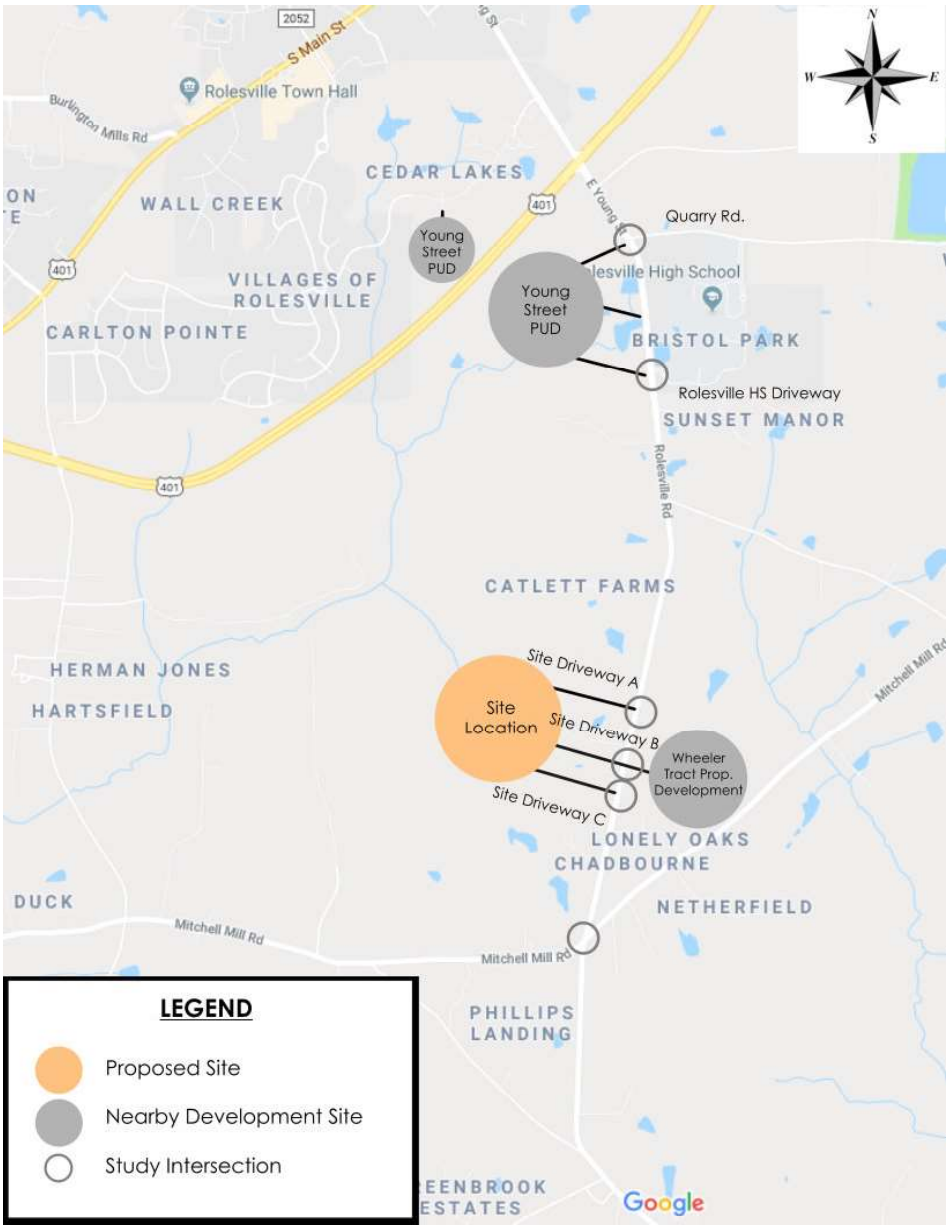
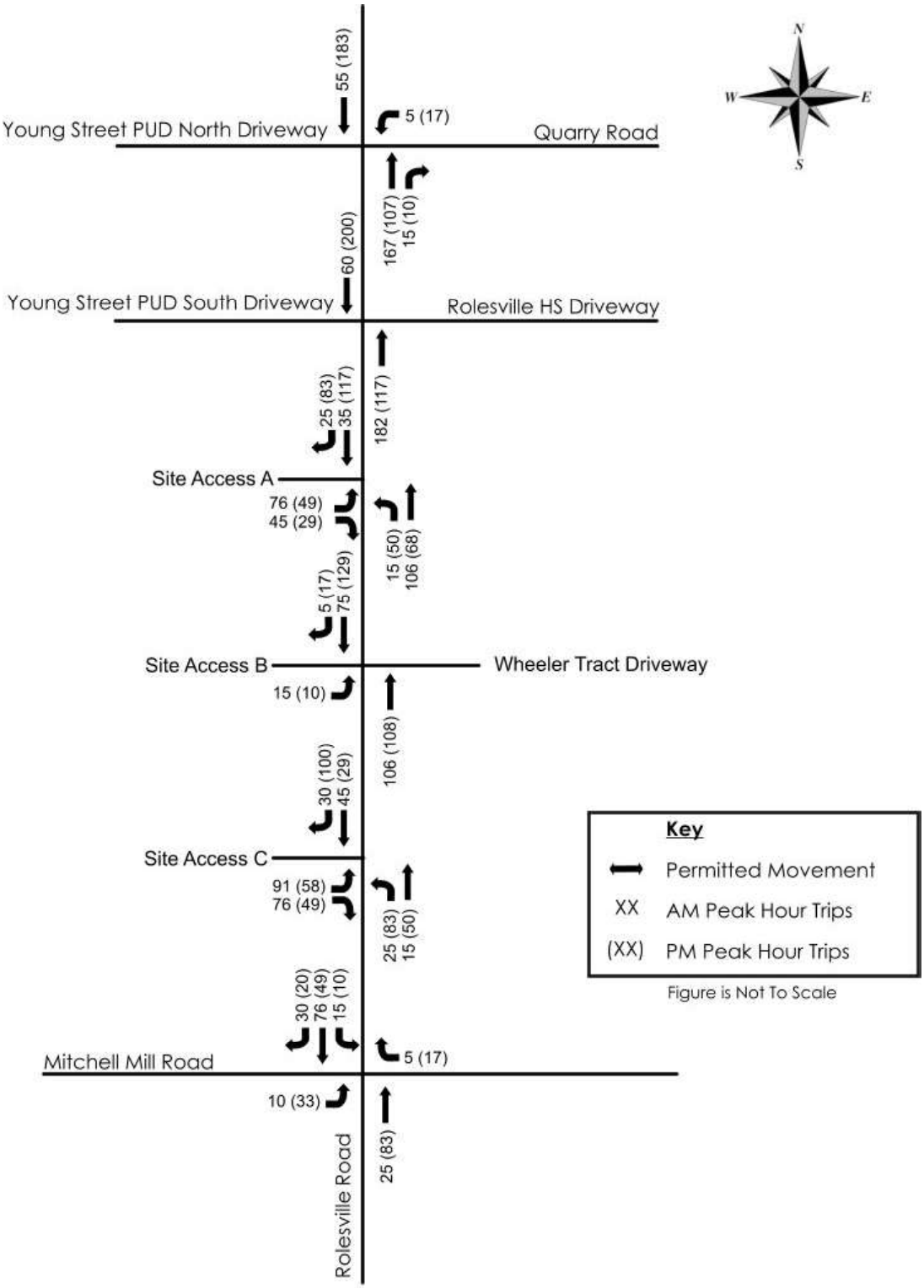


Figure 6: Site Trip Assignment



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:

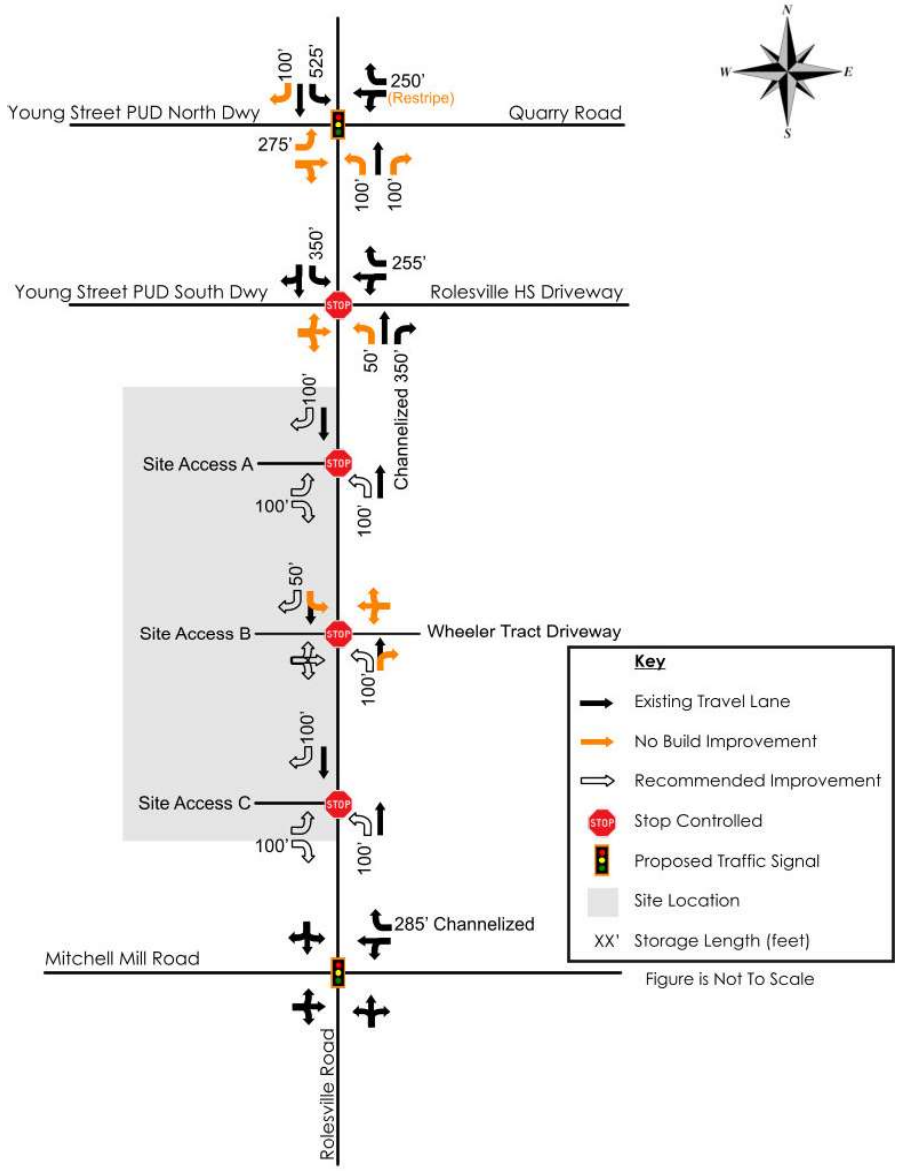
- The east and westbound approaches to the intersection of Rolesville Road at Rolesville High School Driveway / Young Street PUD Southern Driveway operates at LOS F in the AM peak hour. This causes high overall delays at the intersection. Furthermore, the eastbound approach operates at LOS F and westbound 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	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↑	
Traffic Vol, veh/h	0	873	122	0	0	0	0	0	236	0	112	0
Future Vol, veh/h	0	873	122	0	0	0	0	0	236	0	112	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	136	0	0	0	0	0	262	0	124	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	18.4	32.5
HCM LOS		C	D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	528	-	-	252
HCM Lane V/C Ratio	0.497	-	-	0.494
HCM Control Delay (s)	18.4	-	-	32.5
HCM Lane LOS	C	-	-	D
HCM 95th %tile Q(veh)	2.7	-	-	2.5

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	17.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱						↱		↑	
Traffic Vol, veh/h	0	1835	117	0	0	0	0	0	192	0	67	0
Future Vol, veh/h	0	1835	117	0	0	0	0	0	192	0	67	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	130	0	0	0	0	0	213	0	74	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	82.4	$ 353
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	SBLn1
Capacity (veh/h)	234	-	-	56
HCM Lane V/C Ratio	0.912	-	-	1.329
HCM Control Delay (s)	82.4	-	-	$ 353
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	7.7	-	-	6.6

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	23.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↱		↑				↱
Traffic Vol, veh/h	0	0	0	0	1853	204	0	40	0	0	0	248
Future Vol, veh/h	0	0	0	0	1853	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	2059	227	0	44	0	0	0	276

Major/Minor	Major2			Minor1			Minor2		
Conflicting Flow All	-	-	0	-	2286	-	-	-	1030
Stage 1	-	-	-	-	0	-	-	-	-
Stage 2	-	-	-	-	2286	-	-	-	-
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	~ 39	0	0	0	~ 231
Stage 1	0	-	-	0	-	0	0	0	-
Stage 2	0	-	-	0	74	0	0	0	-
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	~ 39	-	-	-	~ 231
Mov Cap-2 Maneuver	-	-	-	-	~ 39	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	74	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	$ 348.5	165.2
HCM LOS		F	F

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	39	-	-	231
HCM Lane V/C Ratio	1.14	-	-	1.193
HCM Control Delay (s)	$ 348.5	-	-	165.2
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	4.4	-	-	13.3

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	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↱		↑				↱
Traffic Vol, veh/h	0	0	0	0	879	82	0	128	0	0	0	126
Future Vol, veh/h	0	0	0	0	879	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	977	91	0	142	0	0	0	140

Major/Minor	Major2			Minor1			Minor2		
Conflicting Flow All	-	-	0	-	1068	-	-	-	489
Stage 1	-	-	-	-	0	-	-	-	-
Stage 2	-	-	-	-	1068	-	-	-	-
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	220	0	0	0	525
Stage 1	0	-	-	0	-	0	0	0	-
Stage 2	0	-	-	0	296	0	0	0	-
Platoon blocked, %		-	-						
Mov Cap-1 Maneuver	-	-	-	-	220	-	-	-	525
Mov Cap-2 Maneuver	-	-	-	-	220	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	296	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	47.1	14.3
HCM LOS		E	B

Minor Lane/Major Mvmt	NBLn1	WBT	WBR	SBLn1
Capacity (veh/h)	220	-	-	525
HCM Lane V/C Ratio	0.646	-	-	0.267
HCM Control Delay (s)	47.1	-	-	14.3
HCM Lane LOS	E	-	-	B
HCM 95th %tile Q(veh)	3.9	-	-	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	5.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↰	
Traffic Vol, veh/h	0	0	0	2011	157	0
Future Vol, veh/h	0	0	0	2011	157	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	2234	174	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	1117	-
Stage 1	-	-	0	-
Stage 2	-	-	1117	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	201	0
Stage 1	0	-	-	0
Stage 2	0	-	275	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	201	-
Mov Cap-2 Maneuver	-	-	201	-
Stage 1	-	-	-	-
Stage 2	-	-	275	-

Approach	WB	NB
HCM Control Delay, s	0	81.9
HCM LOS		F

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	201	-
HCM Lane V/C Ratio	0.868	-
HCM Control Delay (s)	81.9	-
HCM Lane LOS	F	-
HCM 95th %tile Q(veh)	6.6	-

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	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↑↑	↰	
Traffic Vol, veh/h	0	0	0	918	109	0
Future Vol, veh/h	0	0	0	918	109	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	1020	121	0

Major/Minor	Major2		Minor1	
Conflicting Flow All	-	-	510	-
Stage 1	-	-	0	-
Stage 2	-	-	510	-
Critical Hdwy	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.84	-
Follow-up Hdwy	-	-	3.52	-
Pot Cap-1 Maneuver	0	-	493	0
Stage 1	0	-	-	0
Stage 2	0	-	568	0
Platoon blocked, %		-		
Mov Cap-1 Maneuver	-	-	493	-
Mov Cap-2 Maneuver	-	-	493	-
Stage 1	-	-	-	-
Stage 2	-	-	568	-

Approach	WB	NB
HCM Control Delay, s	0	14.7
HCM LOS		B

Minor Lane/Major Mvmt	NBLn1	WBT
Capacity (veh/h)	493	-
HCM Lane V/C Ratio	0.246	-
HCM Control Delay (s)	14.7	-
HCM Lane LOS	B	-
HCM 95th %tile Q(veh)	1	-

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	142.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	279	4	31	635	131	4	86	23	86	147	18
Future Vol, veh/h	8	279	4	31	635	131	4	86	23	86	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	310	4	34	706	146	4	96	26	96	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	20.4	242.9	14.7	20.4
HCM LOS	C	F	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	3%	4%	34%
Vol Thru, %	76%	96%	80%	59%
Vol Right, %	20%	1%	16%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	291	797	251
LT Vol	4	8	31	86
Through Vol	86	279	635	147
RT Vol	23	4	131	18
Lane Flow Rate	126	323	886	279
Geometry Grp	1	1	1	1
Degree of Util (X)	0.26	0.59	1.481	0.545
Departure Headway (Hd)	8.674	7.367	6.021	8.087
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	417	495	602	449
Service Time	6.674	5.367	4.101	6.087
HCM Lane V/C Ratio	0.302	0.653	1.472	0.621
HCM Control Delay	14.7	20.4	242.9	20.4
HCM Lane LOS	B	C	F	C
HCM 95th-tile Q	1	3.8	43.1	3.2

Intersection	
Intersection Delay, s/veh	103.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	279	4	31	635	131	4	86	23	86	147	18
Future Vol, veh/h	8	279	4	31	635	131	4	86	23	86	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	310	4	34	706	146	4	96	26	96	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	23.8	172.6	15.5	15.6
HCM LOS	C	F	C	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	4%	3%	5%	0%	100%	0%
Vol Thru, %	76%	96%	95%	0%	0%	89%
Vol Right, %	20%	1%	0%	100%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	113	291	666	131	86	165
LT Vol	4	8	31	0	86	0
Through Vol	86	279	635	0	0	147
RT Vol	23	4	0	131	0	18
Lane Flow Rate	126	323	740	146	96	183
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.283	0.645	1.385	0.243	0.218	0.39
Departure Headway (Hd)	8.975	7.746	6.739	6	8.989	8.391
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	403	469	540	595	402	433
Service Time	6.975	5.746	4.513	3.774	6.689	6.091
HCM Lane V/C Ratio	0.313	0.689	1.37	0.245	0.239	0.423
HCM Control Delay	15.5	23.8	204.5	10.7	14.2	16.4
HCM Lane LOS	C	C	F	B	B	C
HCM 95th-tile Q	1.1	4.5	33.6	0.9	0.8	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	53.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	496	14	12	382	77	6	102	28	108	55	12
Future Vol, veh/h	20	496	14	12	382	77	6	102	28	108	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	551	16	13	424	86	7	113	31	120	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	79.1	48.3	15.1	16.9
HCM LOS	F	E	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	4%	3%	62%
Vol Thru, %	75%	94%	81%	31%
Vol Right, %	21%	3%	16%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	136	530	471	175
LT Vol	6	20	12	108
Through Vol	102	496	382	55
RT Vol	28	14	77	12
Lane Flow Rate	151	589	523	194
Geometry Grp	1	1	1	1
Degree of Util (X)	0.329	1.056	0.928	0.422
Departure Headway (Hd)	8.141	6.455	6.582	8.1
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	444	565	555	447
Service Time	6.141	4.503	4.582	6.1
HCM Lane V/C Ratio	0.34	1.042	0.942	0.434
HCM Control Delay	15.1	79.1	48.3	16.9
HCM Lane LOS	C	F	E	C
HCM 95th-tile Q	1.4	16.9	11.6	2.1

Intersection	
Intersection Delay, s/veh	60.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	496	14	12	382	77	6	102	28	108	55	12
Future Vol, veh/h	20	496	14	12	382	77	6	102	28	108	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	551	16	13	424	86	7	113	31	120	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	112.5	32.4	16.3	14.4
HCM LOS	F	D	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	4%	4%	3%	0%	100%	0%
Vol Thru, %	75%	94%	97%	0%	0%	82%
Vol Right, %	21%	3%	0%	100%	0%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	136	530	394	77	108	67
LT Vol	6	20	12	0	108	0
Through Vol	102	496	382	0	0	55
RT Vol	28	14	0	77	0	12
Lane Flow Rate	151	589	438	86	120	74
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.345	1.149	0.835	0.146	0.286	0.165
Departure Headway (Hd)	8.785	7.023	7.215	6.48	9.089	8.439
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	413	524	503	557	398	428
Service Time	6.785	5.023	4.915	4.18	6.789	6.139
HCM Lane V/C Ratio	0.366	1.124	0.871	0.154	0.302	0.173
HCM Control Delay	16.3	112.5	36.7	10.3	15.4	12.8
HCM Lane LOS	C	F	E	B	C	B
HCM 95th-tile Q	1.5	20.4	8.4	0.5	1.2	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	388	765	4	0	32
Future Vol, veh/h	0	388	765	4	0	32
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	431	850	4	0	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	852
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	359
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	359
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	359
HCM Lane V/C Ratio	-	-	-	0.099
HCM Control Delay (s)	-	-	-	16.1
HCM Lane LOS	-	-	-	C
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	632	451	4	0	20
Future Vol, veh/h	0	632	451	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	702	501	4	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	503
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	569
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	569
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	569
HCM Lane V/C Ratio	-	-	-	0.039
HCM Control Delay (s)	-	-	-	11.6
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	3.9					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	101	287	626	11	19	139
Future Vol, veh/h	101	287	626	11	19	139
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	112	319	696	12	21	154

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	708	0	-	0	1239	696
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	543	-
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	891	-	-	-	194	442
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	582	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	891	-	-	-	170	442
Mov Cap-2 Maneuver	-	-	-	-	170	-
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	582	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	23.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	891	-	-	-	371
HCM Lane V/C Ratio	0.126	-	-	-	0.473
HCM Control Delay (s)	9.6	-	-	-	23.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	2.4

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	176	456	353	26	33	98
Future Vol, veh/h	176	456	353	26	33	98
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	196	507	392	29	37	109

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	421	0	-	0	1291	392
Stage 1	-	-	-	-	392	-
Stage 2	-	-	-	-	899	-
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	1138	-	-	-	180	657
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	397	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1138	-	-	-	149	657
Mov Cap-2 Maneuver	-	-	-	-	149	-
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	397	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	22.2
HCM LOS			C

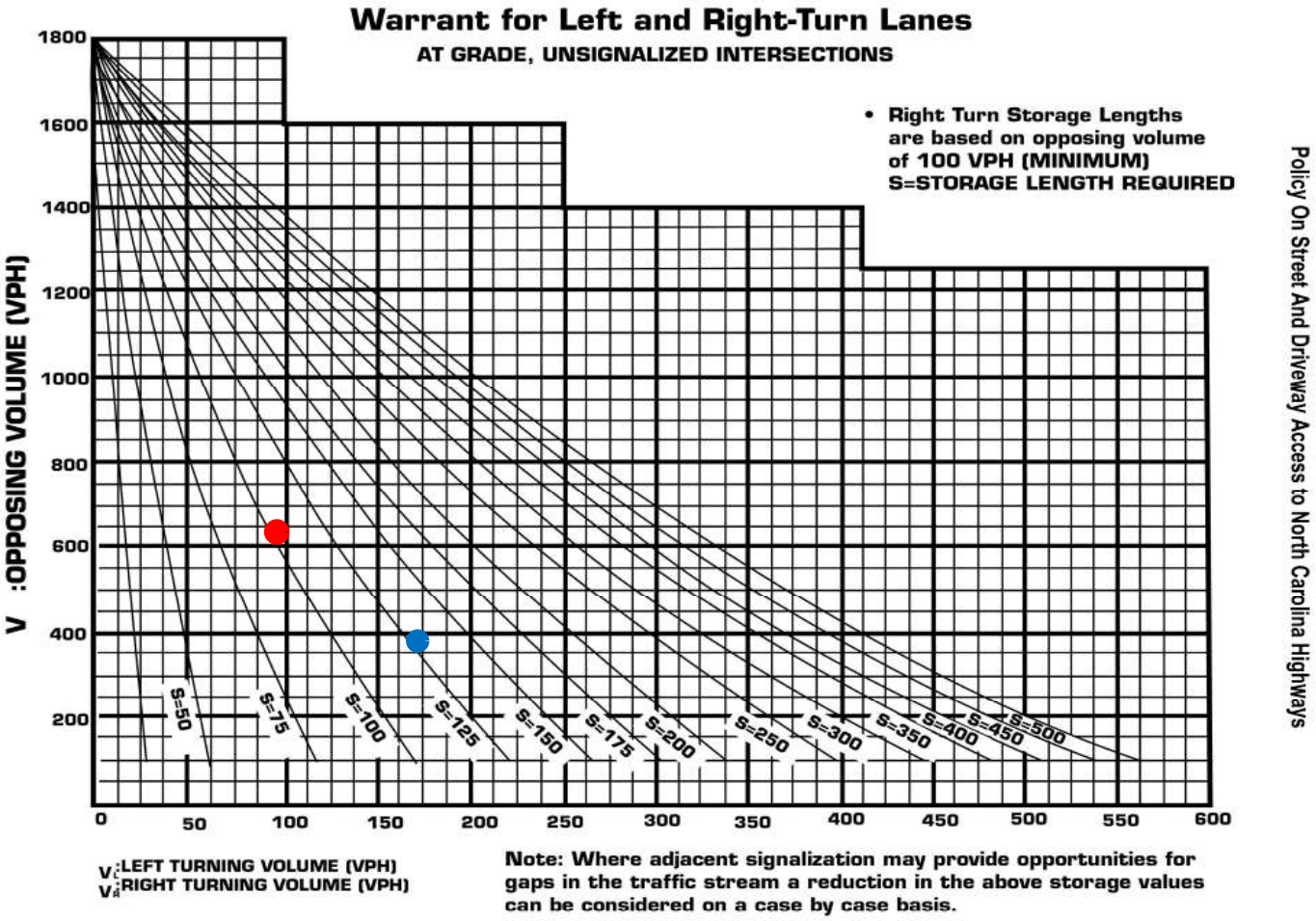
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1138	-	-	-	353
HCM Lane V/C Ratio	0.172	-	-	-	0.412
HCM Control Delay (s)	8.8	-	-	-	22.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.6	-	-	-	2

APPENDIX I

TURN LANE WARRANTS

HILLS AT HARRIS CREEK

TURN LANE STORAGE WARRANTS

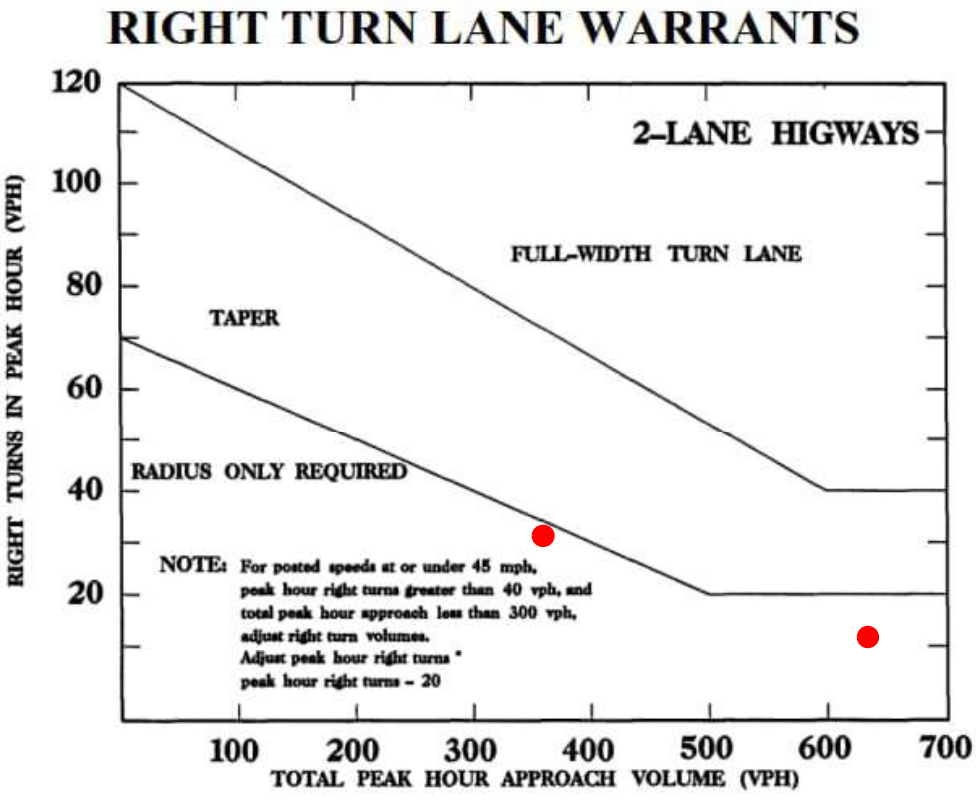


INTERSECTION: Mitchell Mill Road & Site Access 2

SCENARIO	Movement	Turn Lane	Turning Volume (V_R/V_L)	Approach / Opposing Volume (V_A/V_O)	Symbol
AM Build	EBL	Left	101	637	
PM Build	EBL	Left	176	379	

Mitchell Mill Road and Site Access 2

2027 Build				
Peak Hour	**Approach**	**Right Turn Volume**	**Approach Volume**	**Warranted?**
AM	Westbound	11	637	No
PM	Westbound	26	379	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.

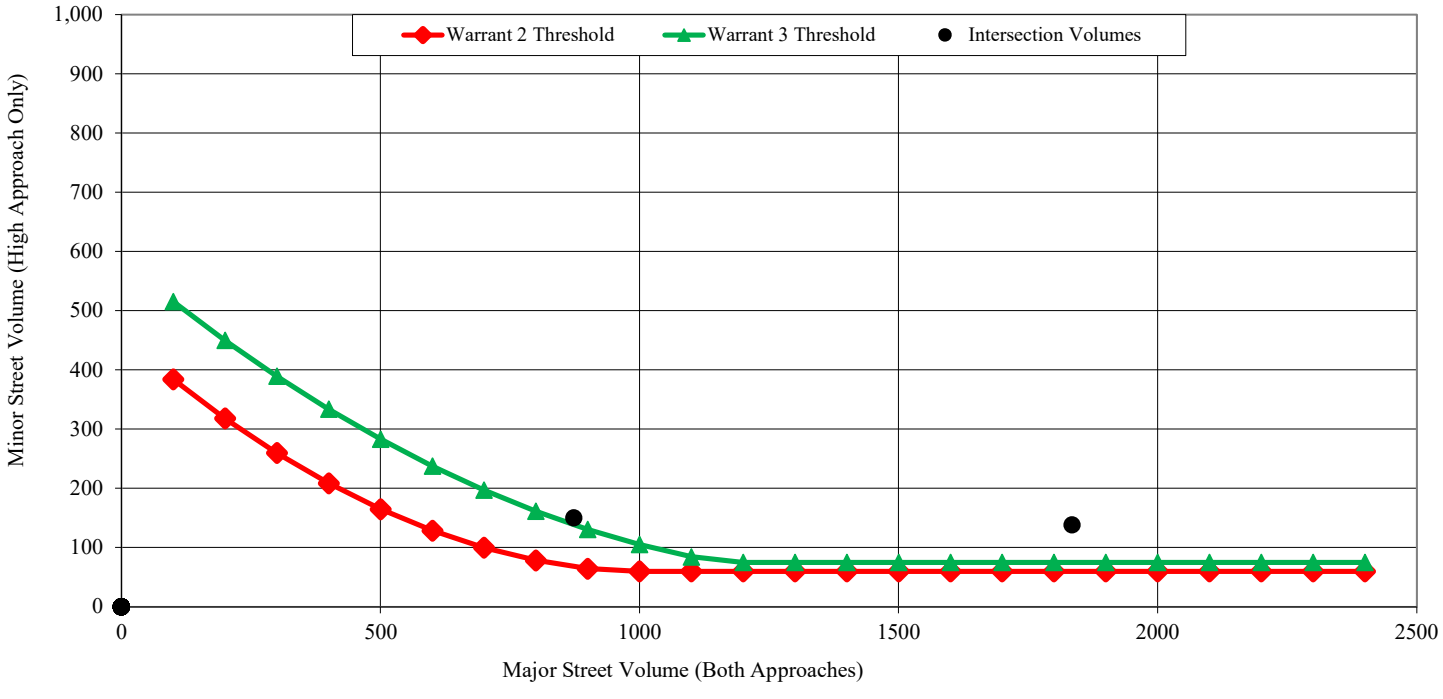
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond.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

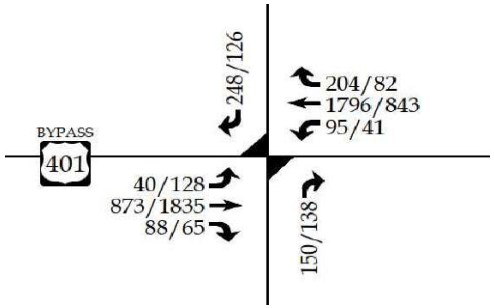
AM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00004	0.0097	0.4284
961	0.7	4.0E-05	0.009192	0.460018
1080	0.7	0.00004	0.0082	0.5217

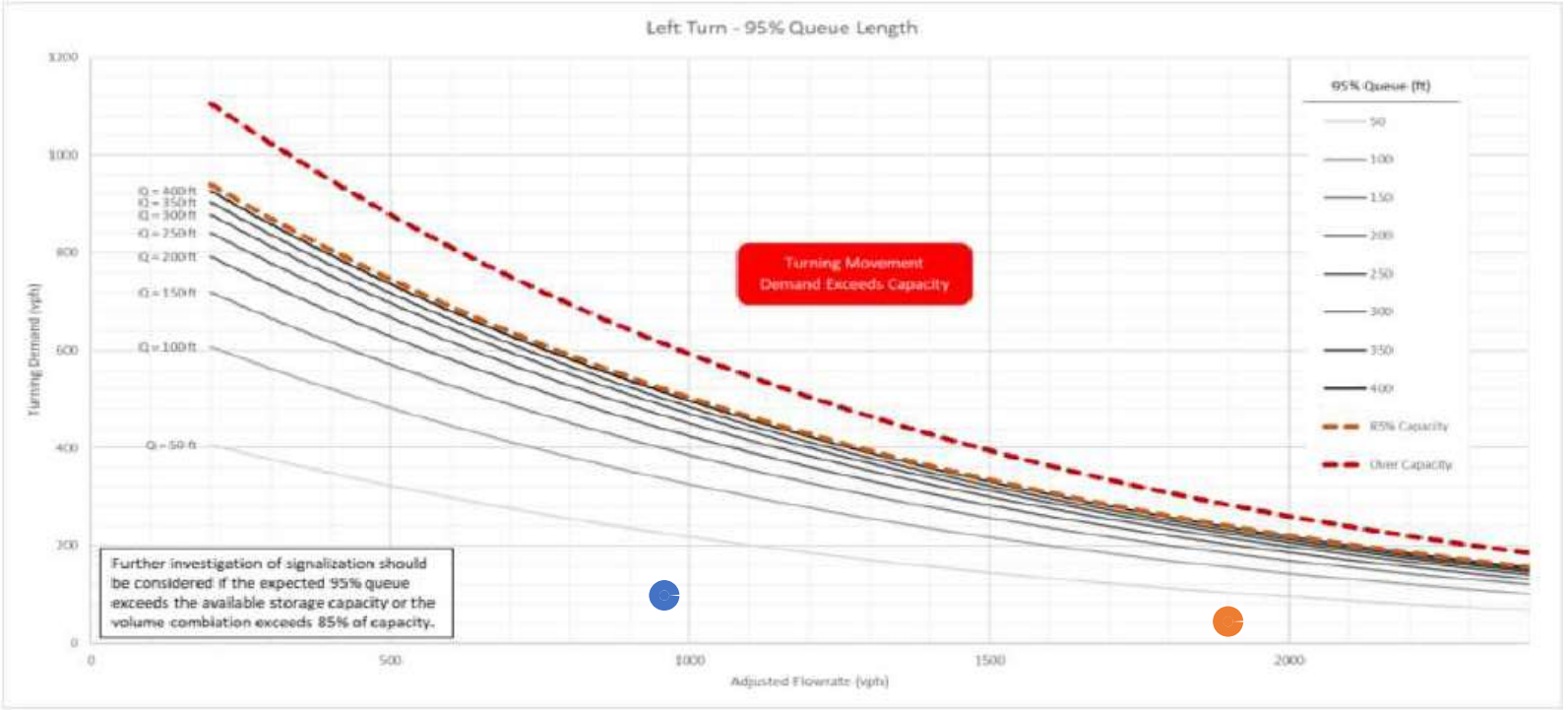
CVAF	1
Conflicting Volume (vph)	961
Adjusted Conflicting (vph)	961
Turning Volume (vph)	95

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





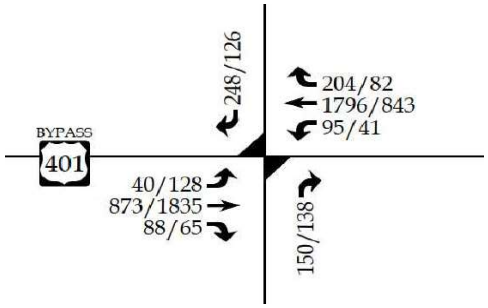
US 401 Bypass & Jonesville Road [Minor-Street Right-Turn] **[No-Build]**

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

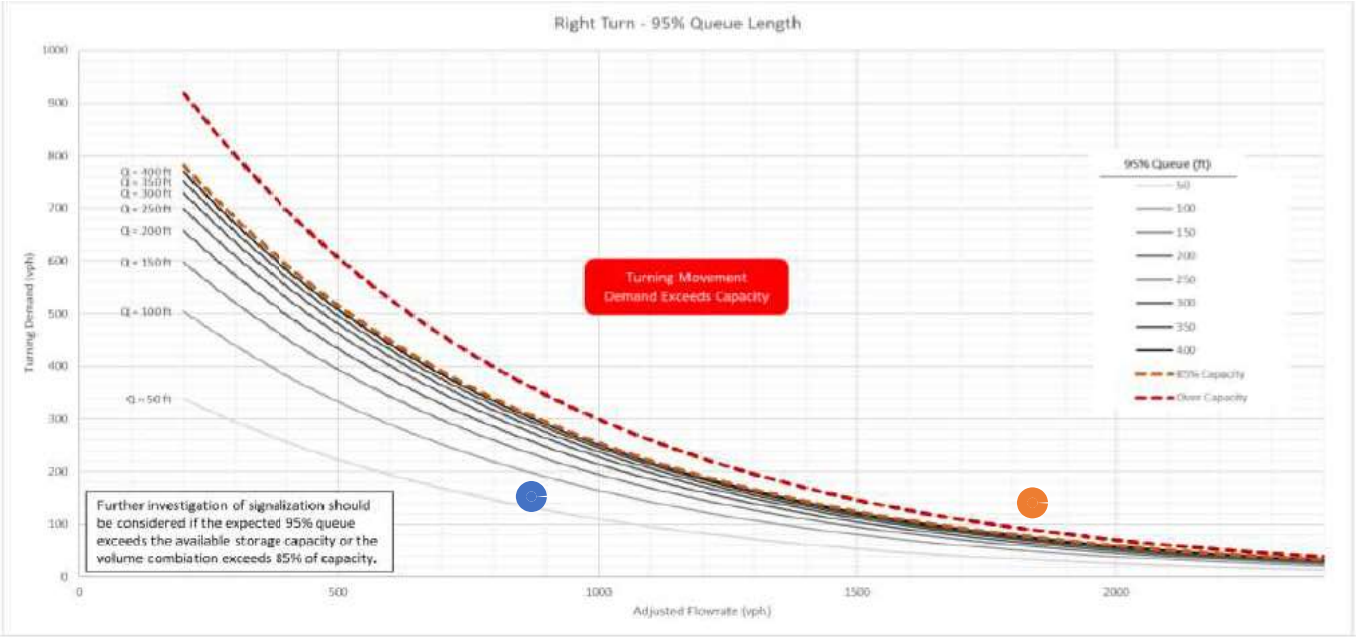
CVAF	1
Conflicting Volume (vph)	873
Adjusted Conflicting (vph)	873
Turning Volume (vph)	150

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	2947 vehicles	Total Approach Volume	607 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.

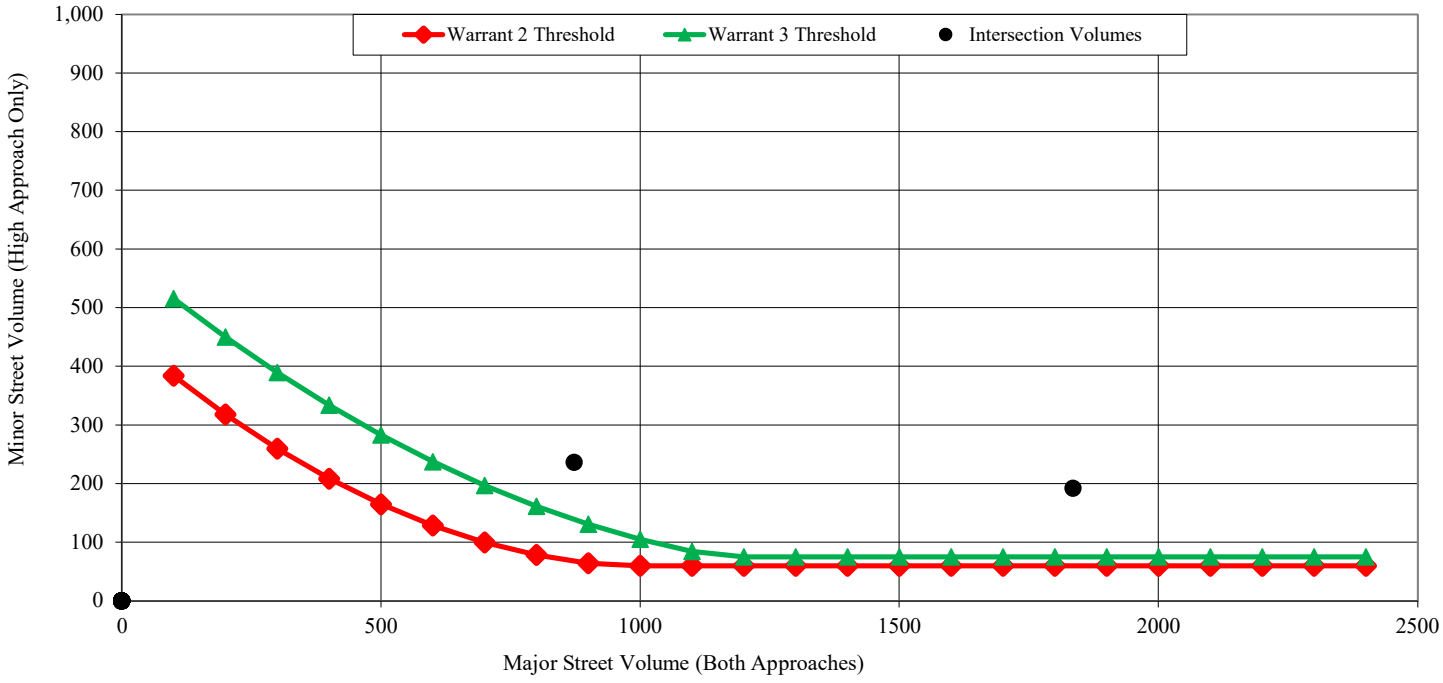
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor 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	2019 total, 67 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] **[Build]**

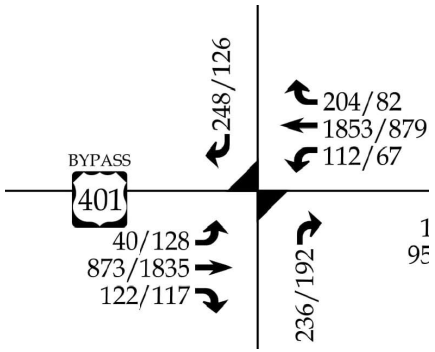
AM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00004	0.0097	0.4284
995	0.7	4.0E-05	0.008908	0.477642
1080	0.7	0.00004	0.0082	0.5217

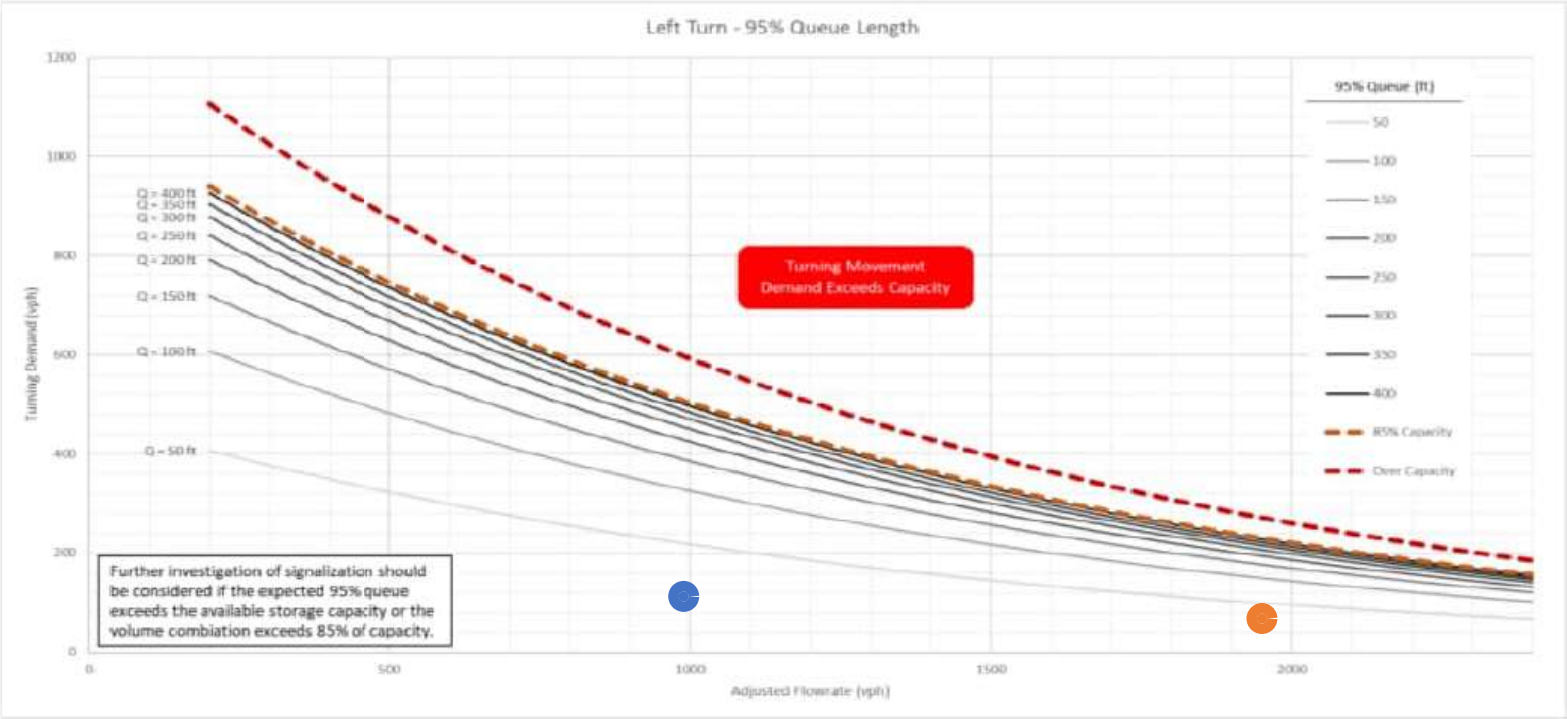
PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0097	0.4284
1952	0.7	4.0E-05	0.008433	0.507187
1980	0.7	0.00004	0.0082	0.5217

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

CVAF	1
Conflicting Volume (vph)	995
Adjusted Conflicting (vph)	995
Turning Volume (vph)	112

CVAF	1
Conflicting Volume (vph)	1952
Adjusted Conflicting (vph)	1952
Turning Volume (vph)	67





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

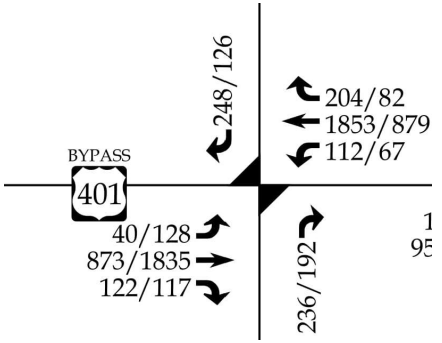
AM Peak Hour				
vph	g/c	a	b	c
720	0.7	0.00004	0.0108	0.2587
873	0.7	3.2E-05	0.009525	0.34557
900	0.7	0.00003	0.0093	0.3609

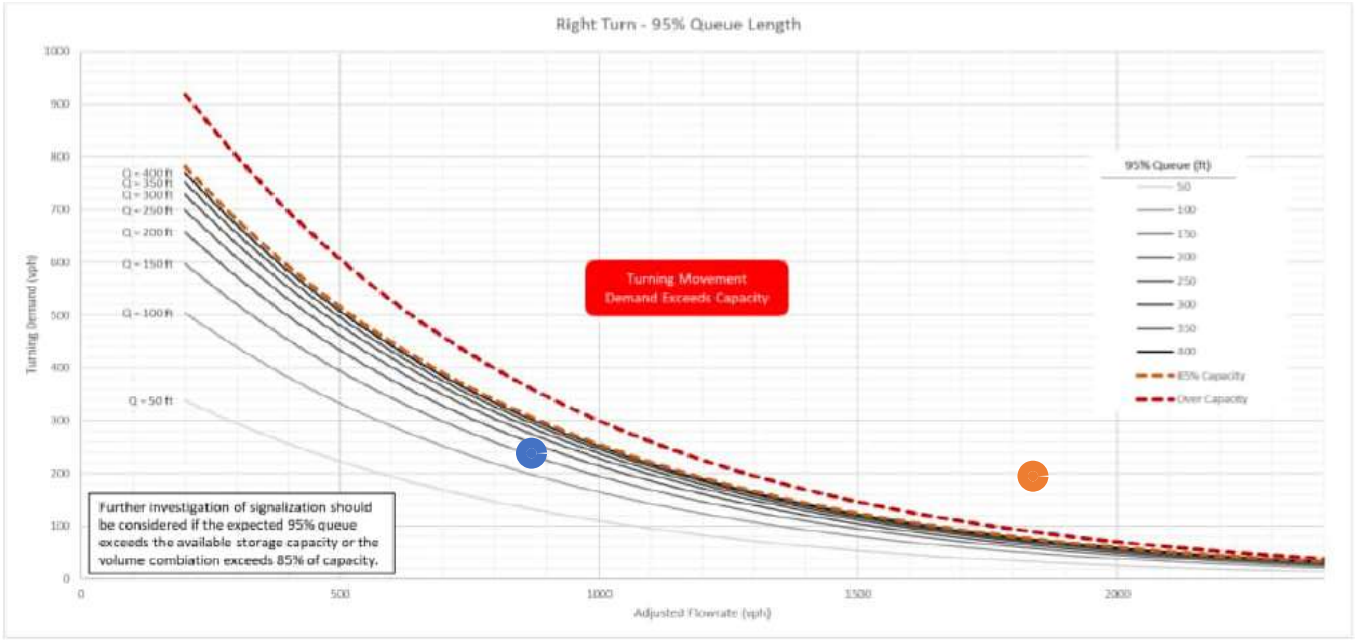
PM Peak Hour				
vph	g/c	a	b	c
1800	0.7	0.00004	0.0108	0.2587
1835	0.7	3.8E-05	0.010508	0.278572
1980	0.7	0.00003	0.0093	0.3609

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

CVAF	1
Conflicting Volume (vph)	873
Adjusted Conflicting (vph)	873
Turning Volume (vph)	236

CVAF	1
Conflicting Volume (vph)	1835
Adjusted Conflicting (vph)	1835
Turning Volume (vph)	192





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.

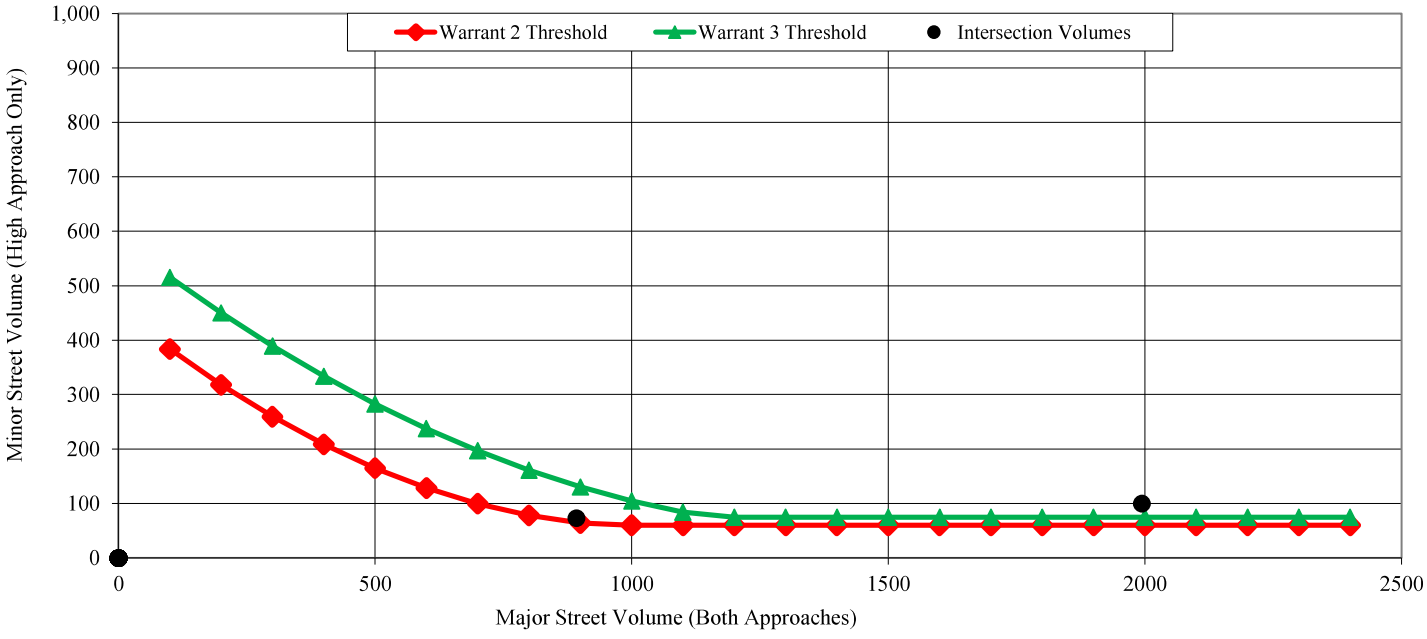
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	0 hours	2 hours	1 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor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

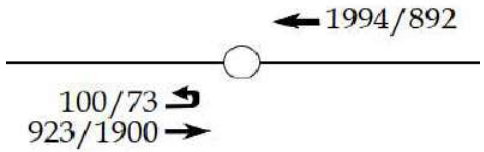


Pedestrian Crossing Volume

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

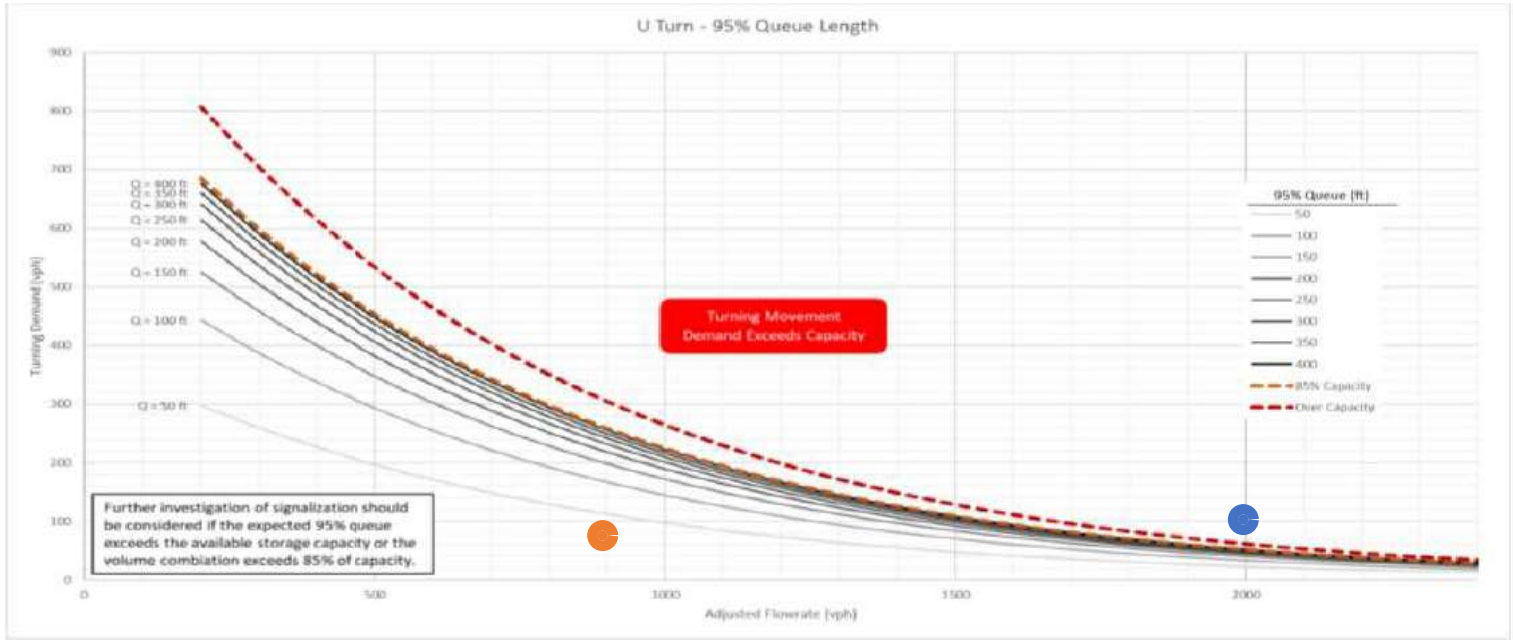
CVAF	1
Conflicting Volume (vph)	1994
Adjusted Conflicting (vph)	1994
Turning Volume (vph)	100



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	2929 vehicles	Total Approach Volume	266 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	0 percent applied	Right turn reduction of	0 percent applied

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

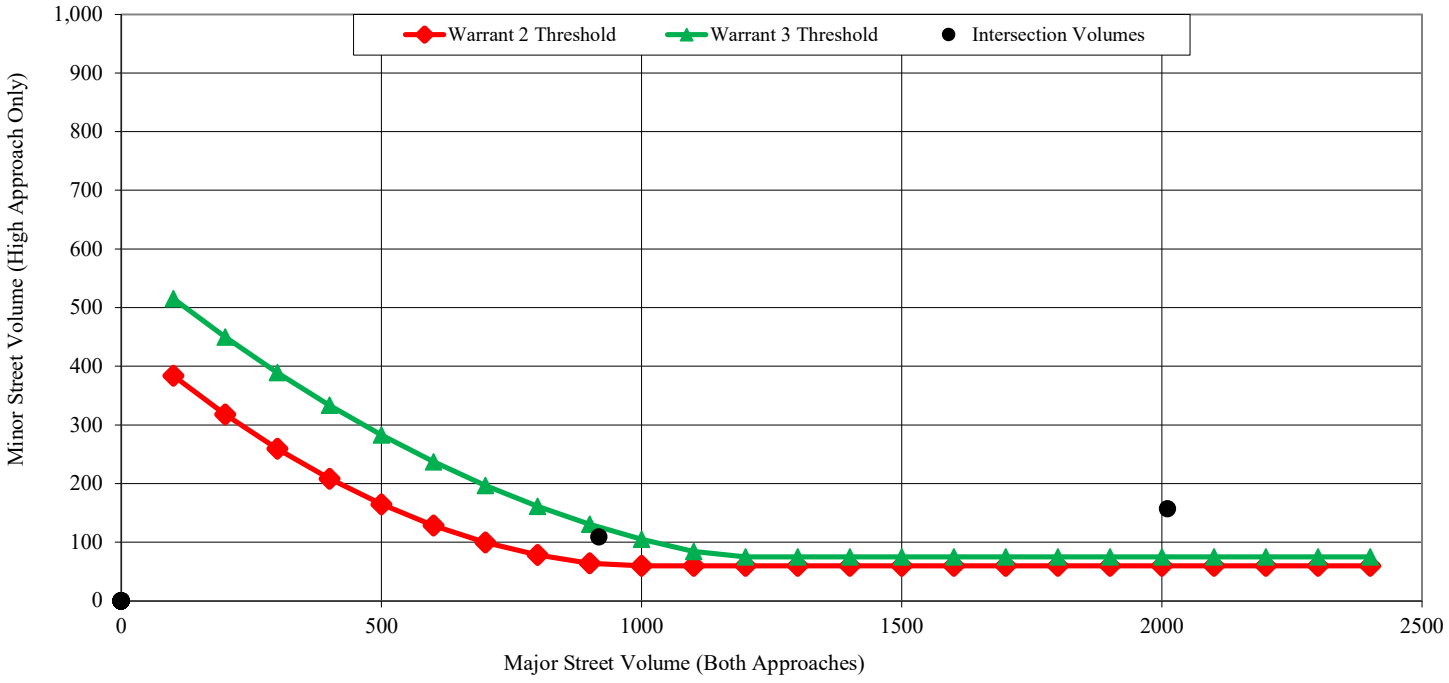
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

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

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	Not Satisfied
Required values reached for	2 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	Condition B
Condition Satisfied?	Not Satisfied	Satisfied
Required values reached for	2168 total, 157 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)



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
2011	0.7	3.0E-05	0.006966	0.544651
2160	0.7	0.00003	0.0068	0.5795

CVAF	1
Conflicting Volume (vph)	2011
Adjusted Conflicting (vph)	2011
Turning Volume (vph)	157

79

2011/918 ←

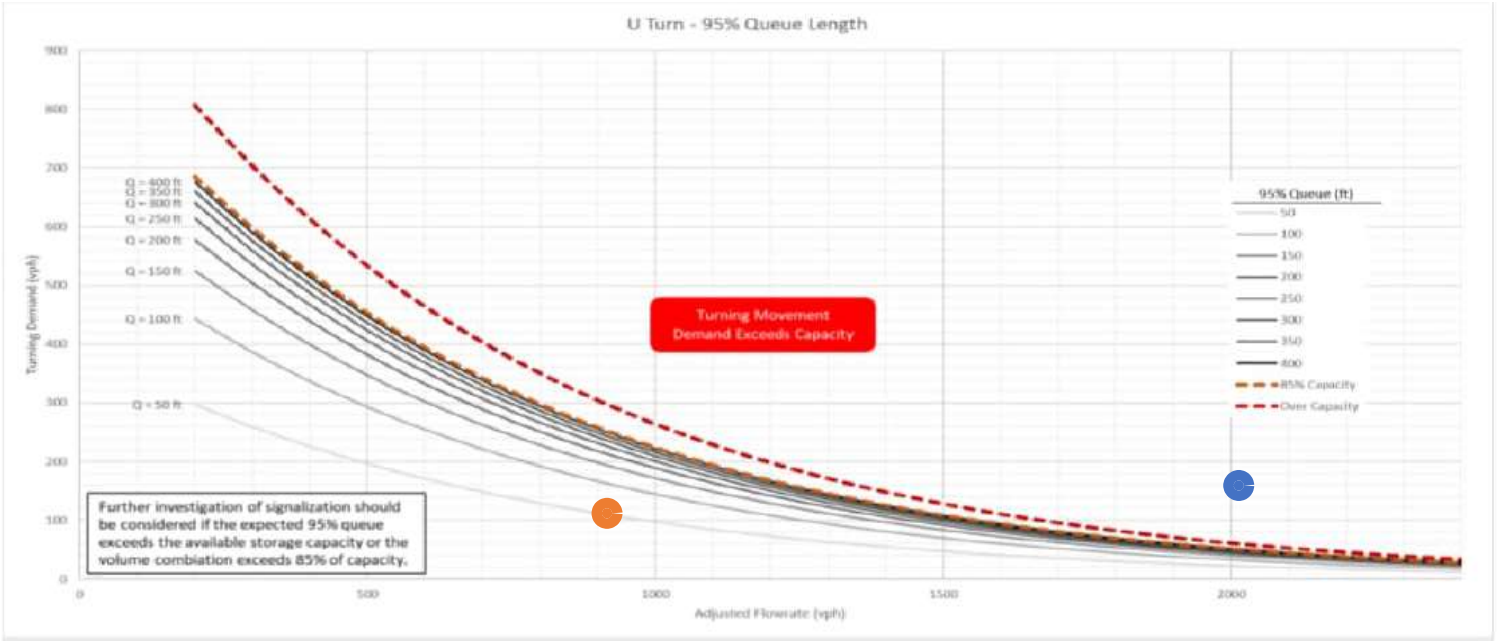
157/109 ↩

952/1918 →

PM Peak Hour				
vph	g/c	a	b	c
900	0.7	0.00003	0.007	0.5374
918	0.7	3.0E-05	0.00698	0.54161
1080	0.7	0.00003	0.0068	0.5795

CVAF	1
Conflicting Volume (vph)	918
Adjusted Conflicting (vph)	918
Turning Volume (vph)	109

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.

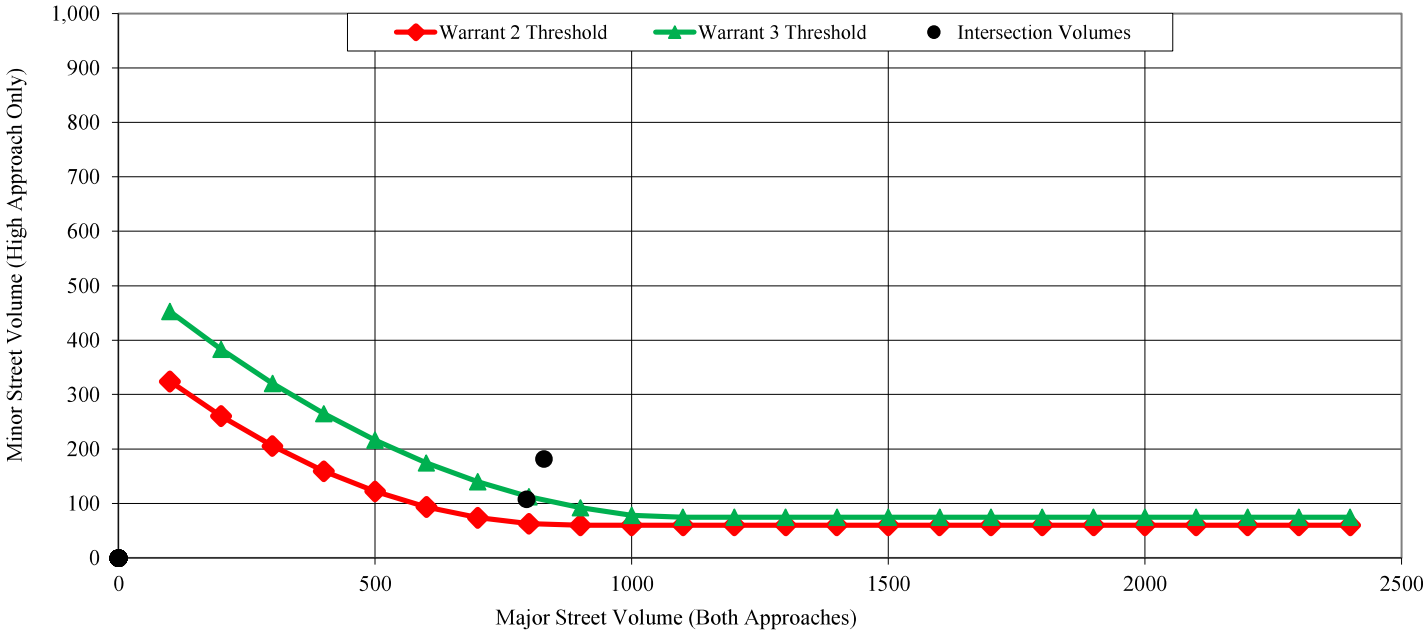
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor 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	2087 vehicles	Total Approach Volume	675 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.

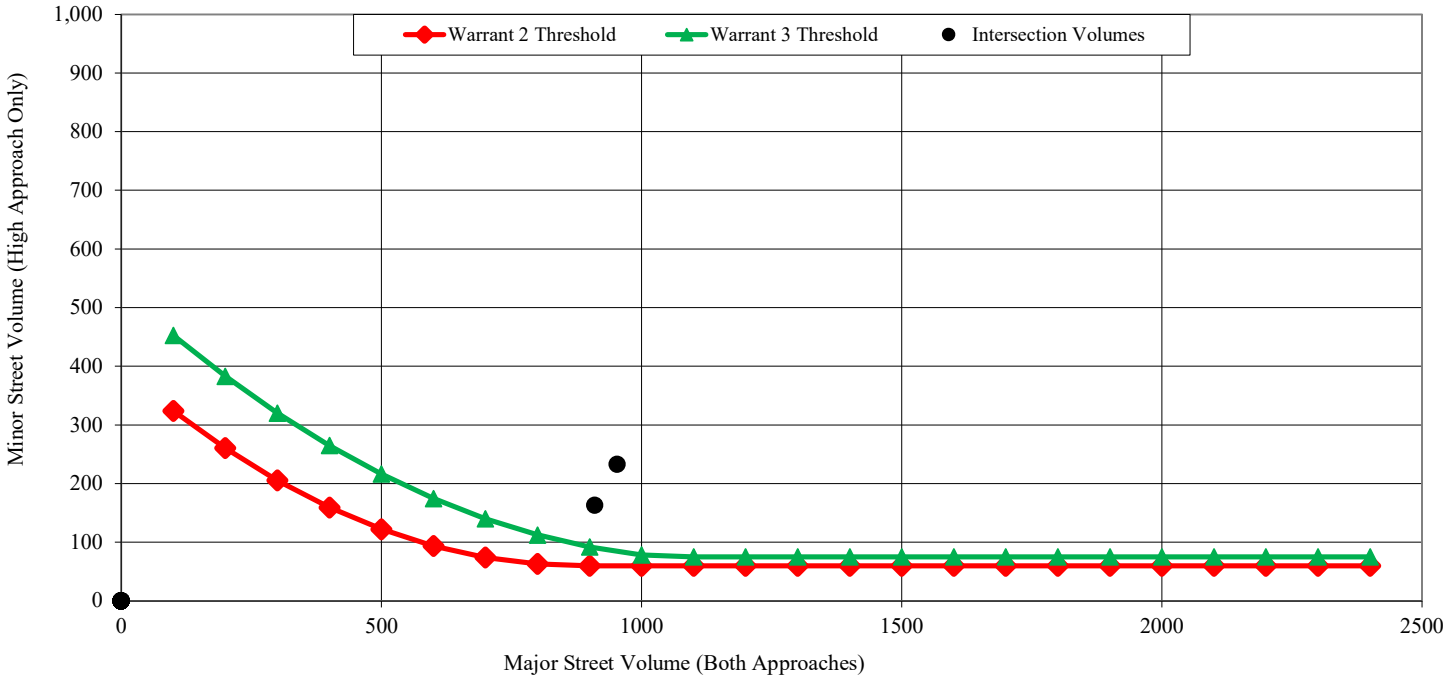
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	Condition B	Condition A+B*
Condition Satisfied?	Not Satisfied	Not Satisfied	Not Satisfied
Required values reached for	2 hours	2 hours	2 (Cond. A) & 2 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor 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	1450 total, 251 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)



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 — 21Mar2022 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, Franklin 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
Growing 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 Watts
Signature of Owner #1

3/15/2022
Date Signed

3609 Rock Farm Rd, Wake Forest NC 27587-6872

Dawn M Watts
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. Latkins
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

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 A31(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, 2025

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.

_____ (SEAL)
Romie O. Watkins

_____ (SEAL)
Irma Kirkland Watkins

_____ (SEAL)
Claiborne Watkins

_____ (SEAL)
Elizabeth Watkins

_____ (SEAL)
Jone Ayscue

_____ (SEAL)
Ervin R. Ayscue

_____ (SEAL)
Wilton 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,

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,

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 Griffin 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:
5-1-196

STATE OF NORTH CAROLINA:

Wake County:

The foregoing Certificate(s) of

Bettie Jernigan A Notary Public of Wake County, State of North Carolina
Mae S. Gilliam 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. Lumpkin
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, 1938, 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 do 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 Tarboro 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 Tarboro 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 or 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 does 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. 1938

~~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.

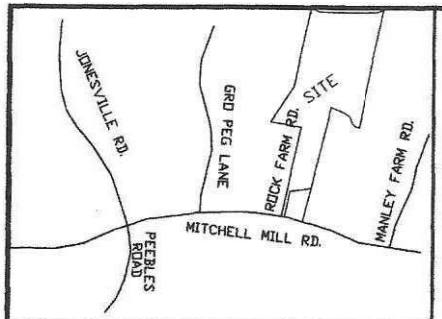
Witness my hand, this 1st day of March, A.D. 1938

Hallie Whitlock Dyer, Clerk Superior Court.

Filed for registration on the 1st day of March, 1938, 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, 1938, in Book 752 of Deeds, on page 599

Hunter Blanton, 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.

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 not 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."

Course	Bearing	Distance
L1	N 77°21'31" W	34.64'
L2	N 77°55'38" W	52.41'
L3	N 78°51'09" W	52.90'
L4	N 80°51'18" W	24.02'

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 STRUCTURE. ANY CHANGE IN INTENDED USE AND/OR STRUCTURE AS ANY SUCH ALTERATION MAY VOID THE IMPROVEMENT PERMIT. CERTIFICATION IS ONLY FOR LOT(S) WITH THE FOLLOWING PERMIT NUMBER(S):

Lot(s): Permit(s):

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 PERMIT.

11/18/05 DATE
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 11-2-2005
owner 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 17th day of AUGUST , 2005 A.D.

Seal or Stamp

Surveyor L-2481 Registration Number

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.

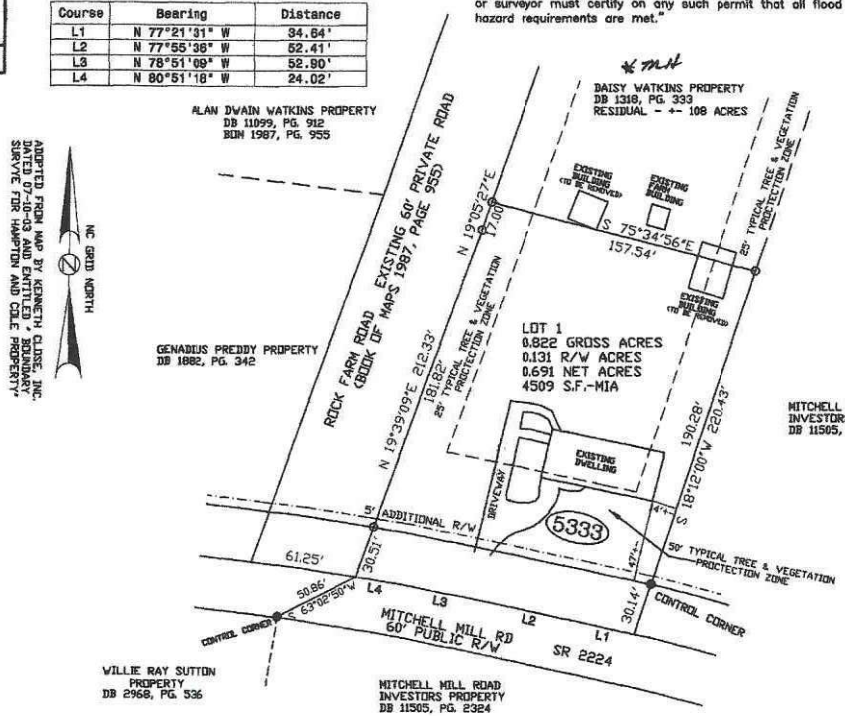
SEAL L-2481

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

I, Stefan Haddenett, 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.

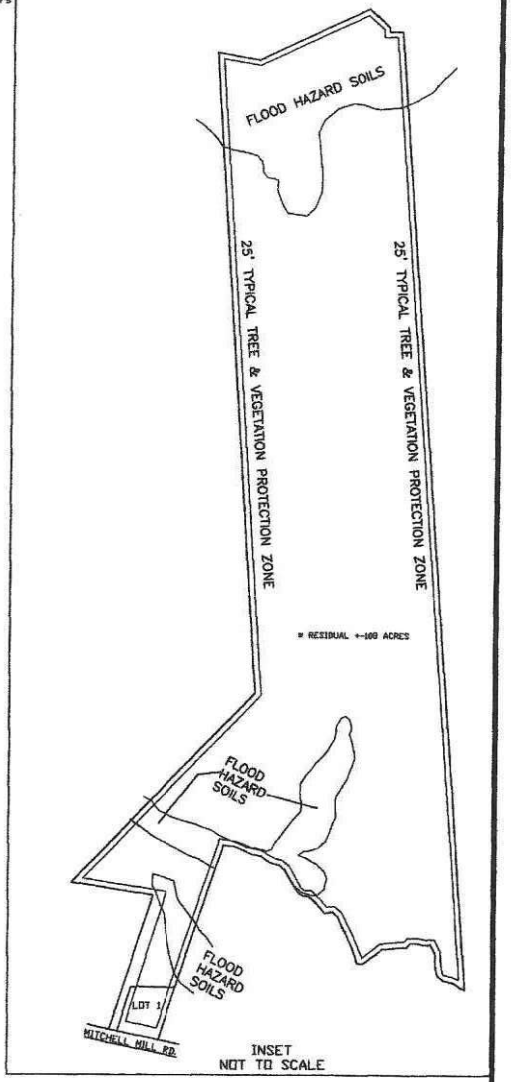
11/18/05 Date
S. Haddenett
Subdivision Administrator/Review Officer

Approval expires if not recorded on or before 11/18/2005



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



INSET
NOT TO SCALE

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 10:51:08

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

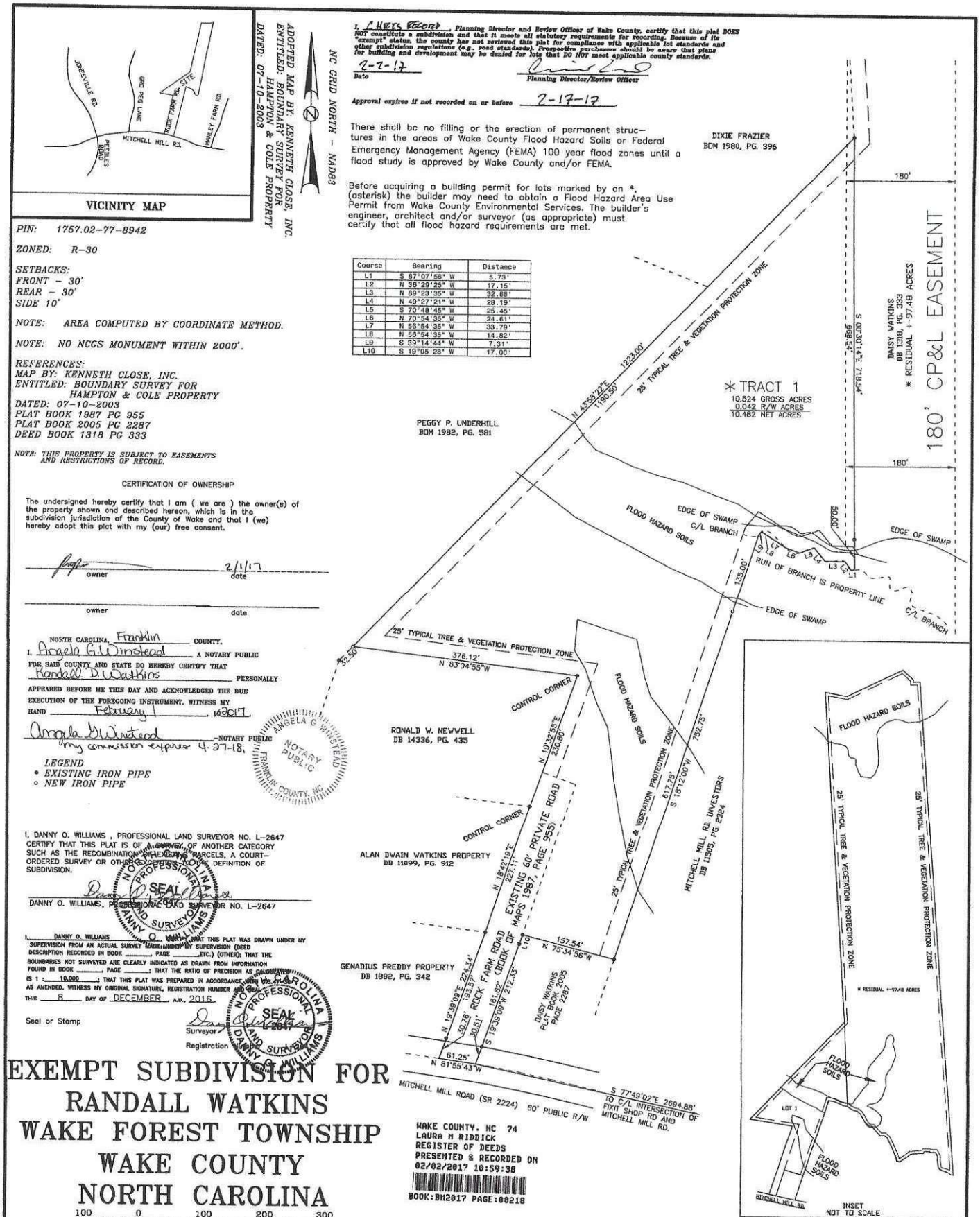
STATE OF NORTH CAROLINA
Wake COUNTY
Franklin

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
CHARLOTTE L. THAXTON

CHARLOTTE L. THAXTON Notary Public Franklin County NORTH CAROLINA



Course	Bearing	Distance
L1	S 67°07'56" W	5.73'
L2	N 36°29'25" W	17.15'
L3	N 89°23'35" W	32.88'
L4	N 40°27'21" W	28.19'
L5	S 70°48'45" W	25.45'
L6	N 70°54'35" W	24.61'
L7	N 56°54'35" W	33.79'
L8	N 56°54'35" W	14.82'
L9	S 39°14'44" W	7.31'
L10	S 19°05'28" W	17.00'

PIN: 1757.02-77-8942

ZONED: R-30

SETBACKS:
FRONT - 30'
REAR - 30'
SIDE 10'

NOTE: AREA COMPUTED BY COORDINATE METHOD.

NOTE: NO NCGS MONUMENT WITHIN 2000'.

REFERENCES:
MAP BY: KENNETH CLOSE, INC.
ENTITLED: BOUNDARY SURVEY FOR HAMPTON & COLE PROPERTY
DATED: 07-10-2003
PLAT BOOK 1987 PG 955
PLAT BOOK 2005 PG 2287
DEED BOOK 1318 PG 333

NOTE: THIS PROPERTY IS SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

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.

owner 2/1/17 date

owner date

NORTH CAROLINA, Franklin COUNTY.
I, Angela G Winstead A NOTARY PUBLIC FOR SAID COUNTY AND STATE DO HEREBY CERTIFY THAT Randall D Watkins PERSONALLY APPEARED BEFORE ME THIS DAY AND ACKNOWLEDGED THE DUE EXECUTION OF THE FOREGOING INSTRUMENT. WITNESS MY HAND February 1, 2017.
Angela G Winstead NOTARY PUBLIC
My commission expires 4-27-18.

ANGELA G WINSTEAD NOTARY PUBLIC FRANKLIN COUNTY, NC

LEGEND
• EXISTING IRON PIPE
◦ NEW IRON PIPE

I, DANNY O. WILLIAMS, PROFESSIONAL LAND SURVEYOR NO. L-2647 CERTIFY THAT THIS PLAT IS OF A SURVEY OF ANOTHER CATEGORY SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY OR OTHER EXCEPTIONS TO THE DEFINITION OF SUBDIVISION.

SEAL L-2647 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR DANNY O. WILLIAMS

DANNY O. WILLIAMS, PROFESSIONAL LAND SURVEYOR NO. L-2647

I, DANNY O. WILLIAMS, 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 : 10,000 ; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G.S. 47-30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 8 DAY OF DECEMBER, A.D., 2016.

Seal or Stamp

Surveyor

Registration Number

SEAL L-2647 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR DANNY O. WILLIAMS

EXEMPT SUBDIVISION FOR RANDALL WATKINS
WAKE FOREST TOWNSHIP
WAKE COUNTY
NORTH CAROLINA

WAKE COUNTY, NC 74
LAURA M RIDDICK
REGISTER OF DEEDS
PRESENTED & RECORDED ON
02/02/2017 10:59:38
BOOK:BM2017 PAGE:00218

JOB:S:\NEWMAPS\R\RANDALL WATKINS\10+AC TRACT.DWG JHP375 CF

DRAWN BY: DOW & BGW
CHECKED BY: DOW
DATE: 12-08-2016
SCALE: 1" = 100'

Lic. # C-0243
Williams-Pearce and Assoc., Professional Land Surveyors, P.A.
P.O. Box 892, Zebulon, N.C. 27597 Tel. 919-269-9605

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:

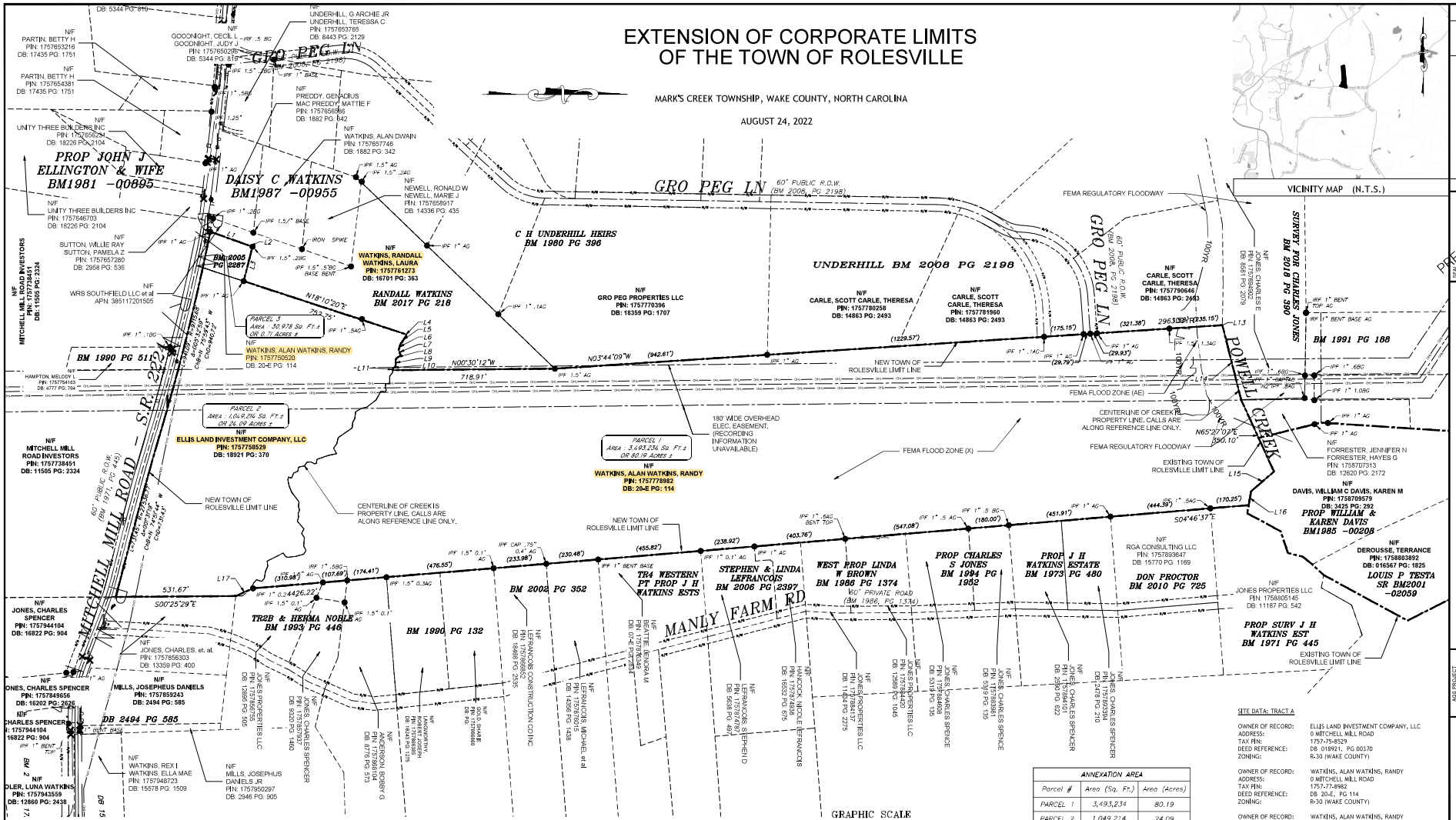
BEGINNING at an iron pipe found in the north right-of-way line of Mitchell Mill Road, said point being the common corner of Lois Jones Merriman Heirs' property and the southeast corner of Donnell Watkens (Deed Book 1318, Page 333, Wake County Registry); thence North 18 degrees 12 minutes 00 seconds East 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



VICINITY MAP (N.T.S.)

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'

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: 1757-77-4982
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

DB DEED BOOK
BM BOOK OF MAPS
PG PAGE
PIN PARCEL IDENTIFIER NUMBER
SQ.FT. 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
TELEPHONE PEDESTAL
CABLE PEDESTAL
POWER POLE
POWER PEDESTAL
LAMP POST
GAS MARKER

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

REVISIONS	DATE	BY

AERIAL+GROUND SURVEYING + ENGINEERING
AERIAL AND GROUND SURVEYING, PLLC | COMPANY LICENSE # P-2586
6801 FALLS OF NEUSE RD, SUITE 120 RALEIGH, NC 27615 | JOSH@STRONGGROUP.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

ANX22-04 - 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 5th day of October 2022

TOWN OF ROLESVILLE INCORPORATED 1941 NORTH CAROLINA

Robin E. Peyton
Town Clerk

Hills at Harris Creek: Board of Commissioners Meeting REZ-23-03

September 5, 2023
Rolesville Town Hall

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

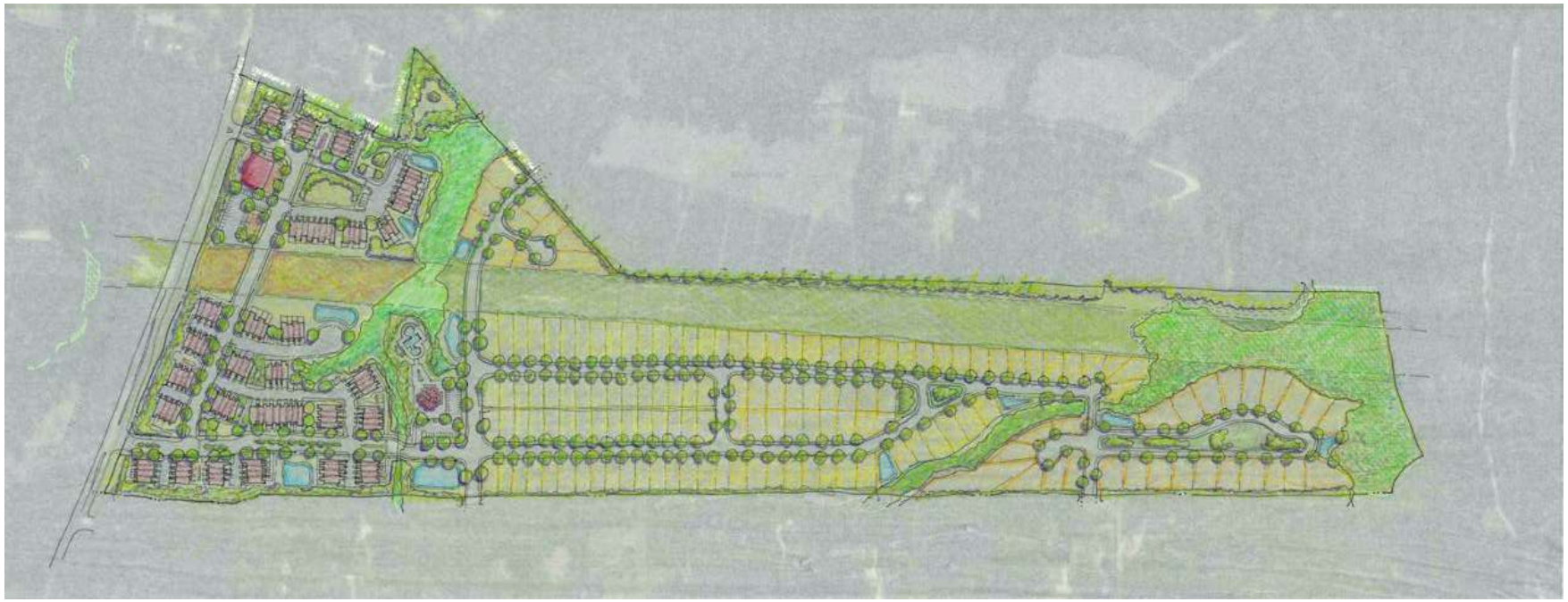
Zoning Change to Neighborhood Center-Conditional Zoning and Residential High Density Conditional Zoning

Proposed construction of 152 single family homes and 115 townhomes (2.3 units/acre)

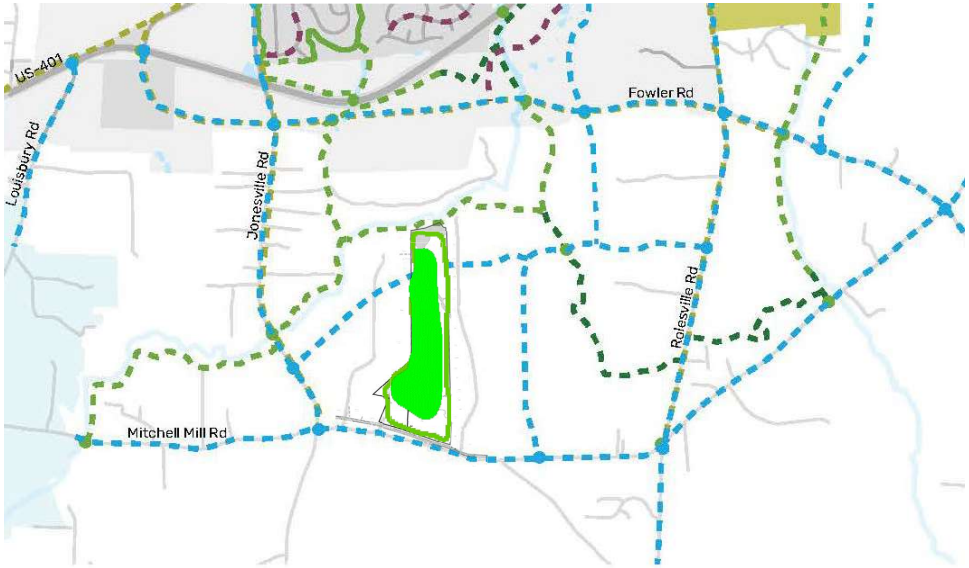
Approximately 2-acre commercial site (proposed day care facility)

ELLIS
DEVELOPMENTS GROUP

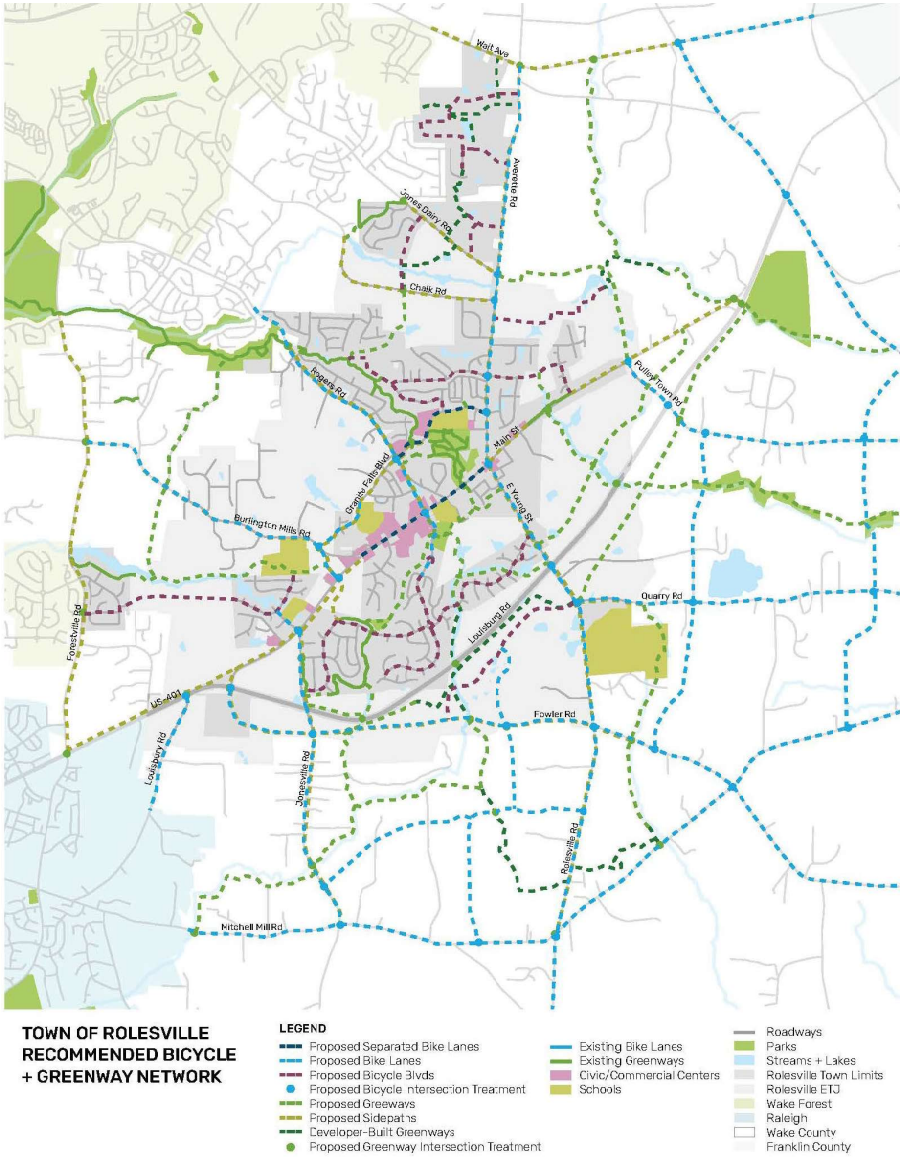
Site Plan



Bike & Greenway Plan



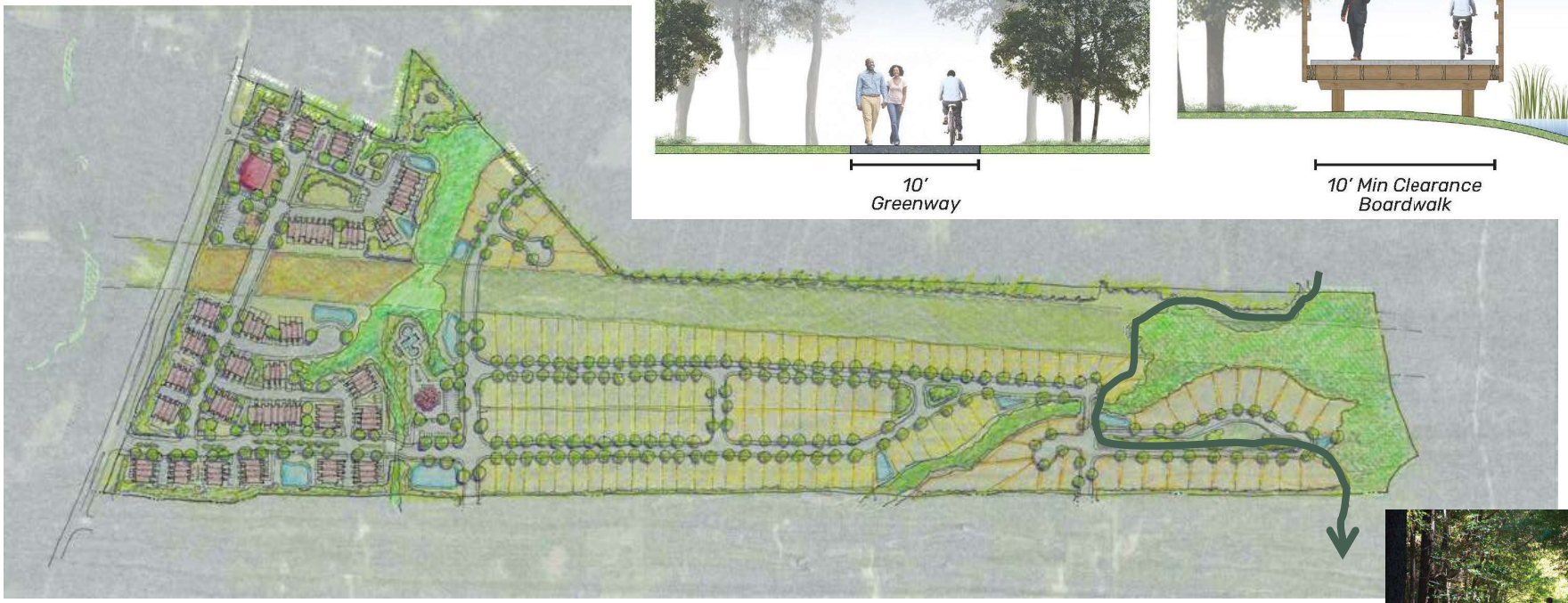
Town approved Bikeways shown in **Blue**
Town approved Greenways in **Green**
Subject site shown in **green**

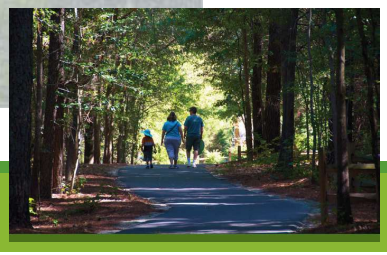


Greenway Plan

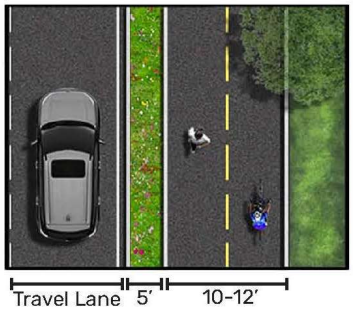
10′
Greenway

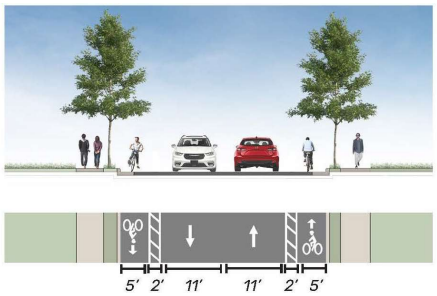
10′ Min Clearance
Boardwalk





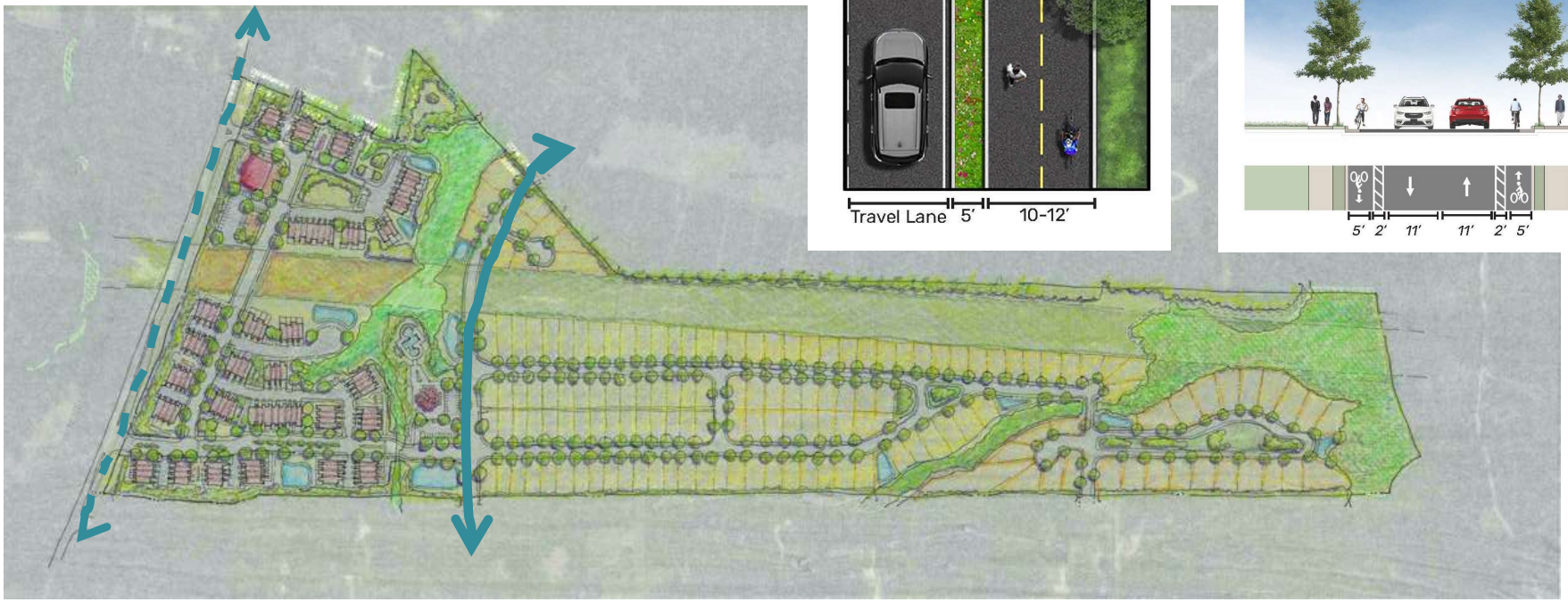
Bikeway Plan





Design Approaches

- **Site path**
- **In-street**



Community Features

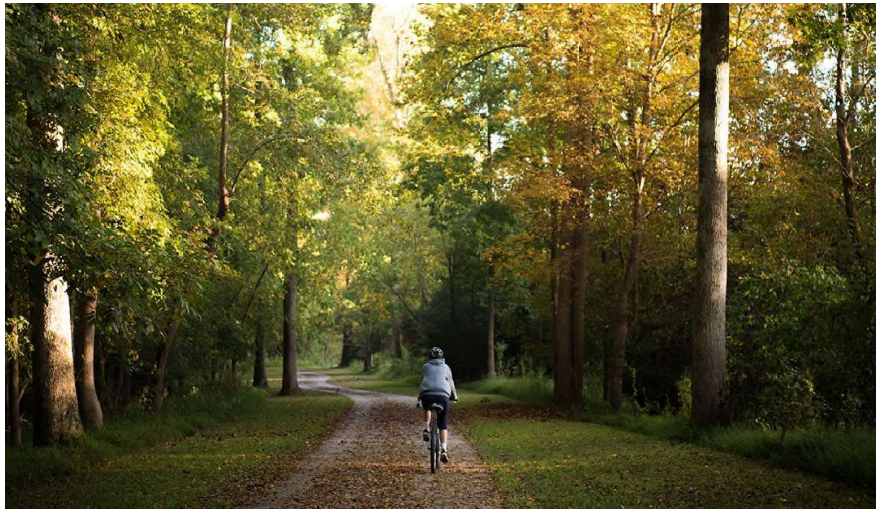
COMMUNITY POOL AND CABANA

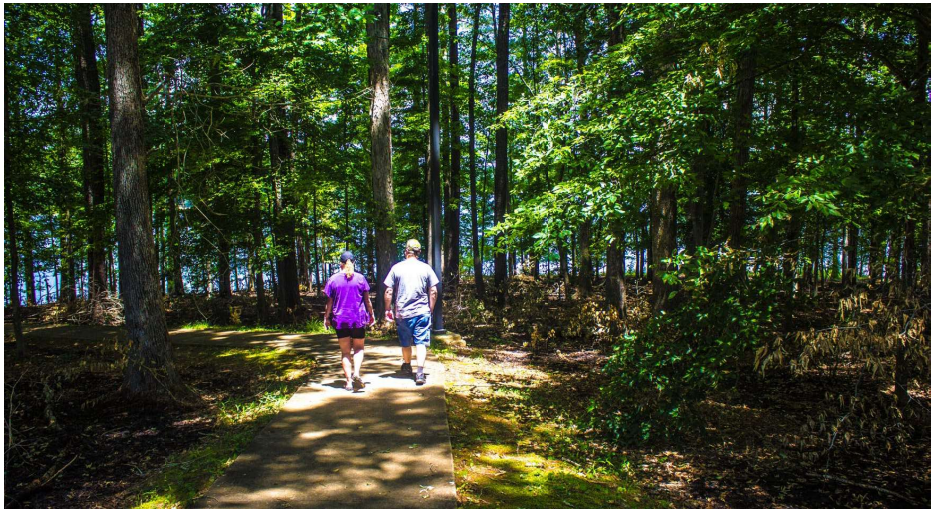
Community Features

DOG PARK

Community Features

GREENWAY TRAILS





Community Features

POLLINATOR/WILDFLOWER GARDEN

Community Features

LANDSCAPED BOULEVARD STREETSCAPES

Community Features

PICKLEBALL COURT

INTEGRATED BIKE PATHS

Commercial Parcel

ELLIS
DEVELOPMENTS GROUP

Site Plan