

# Traffic Impact Analysis Wheeler Tract Rolesville Road



# TRAFFIC IMPACT ANALYSIS

FOR

## WHEELER TRACT

LOCATED

IN

## ROLESVILLE, NC

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RKA Project No. 19045

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**TRAFFIC IMPACT ANALYSIS  
WHEELER TRACT  
ROLESVILLE, NORTH CAROLINA**

**EXECUTIVE SUMMARY**

**1. Development Overview**

A Traffic Impact Analysis (TIA) was conducted for the proposed Wheeler Tract development in accordance with the Rolesville (Town) Unified Development Ordinance (UDO) and North Carolina Department of Transportation (NCDOT) capacity analysis guidelines. The proposed development is to be located in the northeast quadrant of the intersection of Rolesville Road and Mitchell Mill Road in Rolesville, North Carolina. The proposed development is expected to consist of 233 single-family homes and 125 townhomes and is estimated to be built out in 2026. Site access will be provided via one (1) full movement driveway on Rolesville Road, one (1) full movement driveway on Mitchell Mill Road, and one (1) roadway connection to the existing development to the south of the site, Woods Crossing, via Taviswood Way.

**2. Existing Traffic Conditions**

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

- Rolesville Road and Mitchell Mill Road (unsignalized)
- Rolesville Road and Fowler Road (unsignalized)
- Rolesville Road and Taviswood Way (unsignalized)

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed above, in May of 2019 by BSI Traffic Data Collection during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods.

Traffic volumes were balanced between study intersections, where appropriate.

### 3. Site Trip Generation

The proposed development is expected to consist of 188 single-family homes and 162 townhomes. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 10th Edition. Table 2 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)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single Family Detached Housing (210)	233 dwellings	2300	42	128	144	85
Multifamily Housing - Townhomes (220)	125 dwellings	900	14	45	46	27
<b>Total Trips</b>		<b>3,200</b>	<b>56</b>	<b>173</b>	<b>190</b>	<b>112</b>

### 4. Future Traffic Conditions

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 2% would be used to generate projected (2026) weekday AM and PM peak hour traffic volumes based on a review of traffic growth patterns and adjacent development information. Through coordination with the Town, the following adjacent developments were identified to be included in this study:

- East Young Street PUD (The Point)
- Kalas Property
- Watkins Family Property

Through coordination with NCDOT and the Town, the future roadway improvements associated with the East Young Street PUD should be included in the analysis of future traffic conditions, where applicable.

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

- Existing (2019) Traffic Conditions
- Background (2026) Traffic Conditions
- Combined (2026) Traffic Conditions
- Combined (2026) Traffic Conditions with Improvements

## 5. Capacity Analysis Summary

The analysis considered weekday AM and PM peak hour traffic for existing (2019), background (2026), and combined (2026) conditions. Refer to Section 7 of the report for the capacity analysis 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

#### Rolesville Road and Mitchell Mill Road

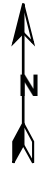
- Monitor intersection for signalization.

#### 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.

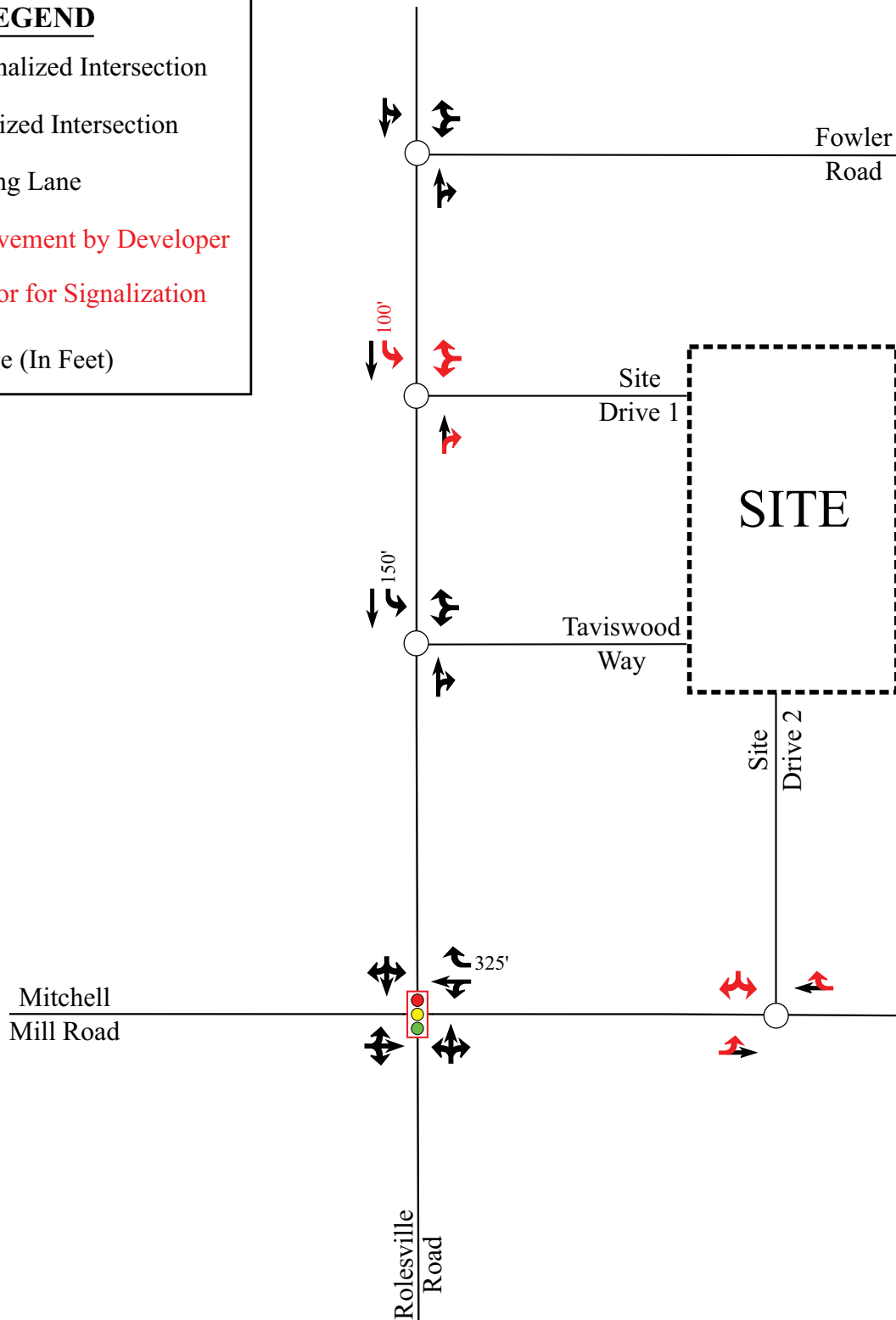
#### Mitchell Mill Road and Site Drive 2

- 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.
- Provide stop control for southbound Site Drive approach.



**LEGEND**

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



Wheeler Tract  
Rolesville, NC

Recommended  
Lane Configurations

Scale: Not to Scale    Figure E-1

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**TABLE OF CONTENTS**

**1. INTRODUCTION.....1**

1.1. Site Location and Study Area.....1

1.2. Proposed Land Use and Site Access .....2

1.3. Adjacent Land Uses.....2

1.4. Existing Roadways .....2

**2. EXISTING (2019) PEAK HOUR CONDITIONS.....7**

2.1. Existing (2019) Peak Hour Traffic .....7

2.2. Analysis of Existing (2019) Peak Hour Traffic.....7

**3. BACKGROUND (2026) PEAK HOUR CONDITIONS .....9**

3.1. Ambient Traffic Growth.....9

3.2. Adjacent Development Traffic .....9

3.3. Future Roadway Improvements.....9

3.4. Background (2026) Peak Hour Traffic Volumes .....9

3.5. Analysis of Background (2026) Peak Hour Traffic Conditions.....10

**4. SITE TRIP GENERATION AND DISTRIBUTION.....14**

4.1. Trip Generation .....14

4.2. Site Trip Distribution and Assignment.....14

**5. COMBINED (2026) TRAFFIC CONDITIONS .....17**

5.1. Combined (2026) Peak Hour Traffic Volumes .....17

5.2. Analysis of Combined (2026) Peak Hour Traffic .....17

**6. TRAFFIC ANALYSIS PROCEDURE.....19**

6.1. Adjustments to Analysis Guidelines .....19

**7. CAPACITY ANALYSIS.....20**

7.1. Rolesville Road and Mitchell Mill Road.....20

7.2. Rolesville Road and Fowler Road.....23

7.3. Rolesville Road and Taviswood Way .....24

7.4. Rolesville Road and Site Drive 1 .....25

7.5. Mitchell Mill Road and Site Drive 2 .....26

**8. CONCLUSIONS.....27**

**9. RECOMMENDATIONS .....29**

**LIST OF FIGURES**

Figure 1 – Site Location Map .....4  
Figure 2 – Preliminary Site Plan.....5  
Figure 3 – Existing Lane Configurations.....6  
Figure 4 – Existing (2019) Peak Hour Traffic .....8  
Figure 5 – Projected (2026) Peak Hour Traffic ..... 11  
Figure 6 – Adjacent Development Trips..... 12  
Figure 7 – Background (2026) Peak Hour Traffic..... 13  
Figure 8 –Site Trip Distribution..... 15  
Figure 9 – Site Trip Assignment..... 16  
Figure 10 – Combined (2026) Peak Hour Traffic..... 18  
Figure 11 – Recommended Lane Configurations .....30

**LIST OF TABLES**

Table 1: Existing Roadway Inventory .....3  
Table 2: Trip Generation Summary ..... 14  
Table 3: Highway Capacity Manual – Levels-of-Service and Delay .....19  
Table 4: Analysis Summary of Rolesville Road and Mitchell Mill Road .....20  
Table 5: Analysis Summary of Rolesville Road and Fowler Road .....23  
Table 6: Analysis Summary of Rolesville Road and Taviswood Way.....24  
Table 7: Analysis Summary of Rolesville Road and Site Drive 1.....25  
Table 8: Analysis Summary of Mitchell Mill Road and Site Drive 2 .....26



**TECHNICAL APPENDIX**

- Appendix A: Memorandum of Understanding
- Appendix B: Traffic Counts
- Appendix C: Adjacent Development Information
- Appendix D: Capacity Calculations – Rolesville Road and Mitchell Mill Road
- Appendix E: Capacity Calculations – Rolesville Road and Fowler Road
- Appendix F: Capacity Calculations – Rolesville Road and Taviswood Way
- Appendix G: Capacity Calculations – Rolesville Road and Site Drive 1
- Appendix H: Capacity Calculations – Mitchell Mill Road and Site Drive 2

**TRAFFIC IMPACT ANALYSIS**  
**WHEELER TRACT**  
**ROLESVILLE, NORTH CAROLINA**

**1. INTRODUCTION**

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Wheeler Tract development to be located in the northeast quadrant of the intersection of Rolesville Road and Mitchell Mill Road in Rolesville, North Carolina. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

The proposed development, anticipated to be completed in 2026, is assumed to consist of the following uses:

- 233 single-family detached homes
- 125 townhomes

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

- Existing (2019) Traffic
- Background (2026) Traffic
- Combined (2026) Traffic
- Combined (2026) Traffic with Improvements

**1.1. Site Location and Study Area**

The development is proposed to be located in the northeast quadrant of the intersection of Rolesville Road and Mitchell Mill Road 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:

- Rolesville Road and Mitchell Mill Road (unsignalized)
- Rolesville Road and Fowler Road (unsignalized)
- Rolesville Road and Taviswood Way (unsignalized)

Refer to Appendix A for the approved Memorandum of Understanding.

### **1.2. Proposed Land Use and Site Access**

The proposed development, anticipated to be completed in 2026, is expected to consist of 233 single-family detached homes and 125 townhomes. Site access is proposed via one (1) full movement driveway on Rolesville Road and one (1) full movement driveway on Mitchell Mill Road. Site access will also be provided through a roadway connection to the existing development to the south of the site, Woods Crossing, via Taviswood Way. 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. Rolesville High School is to the north of the proposed site location along Rolesville Road.

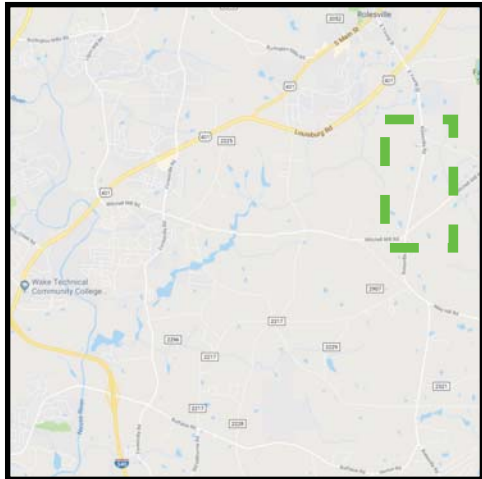
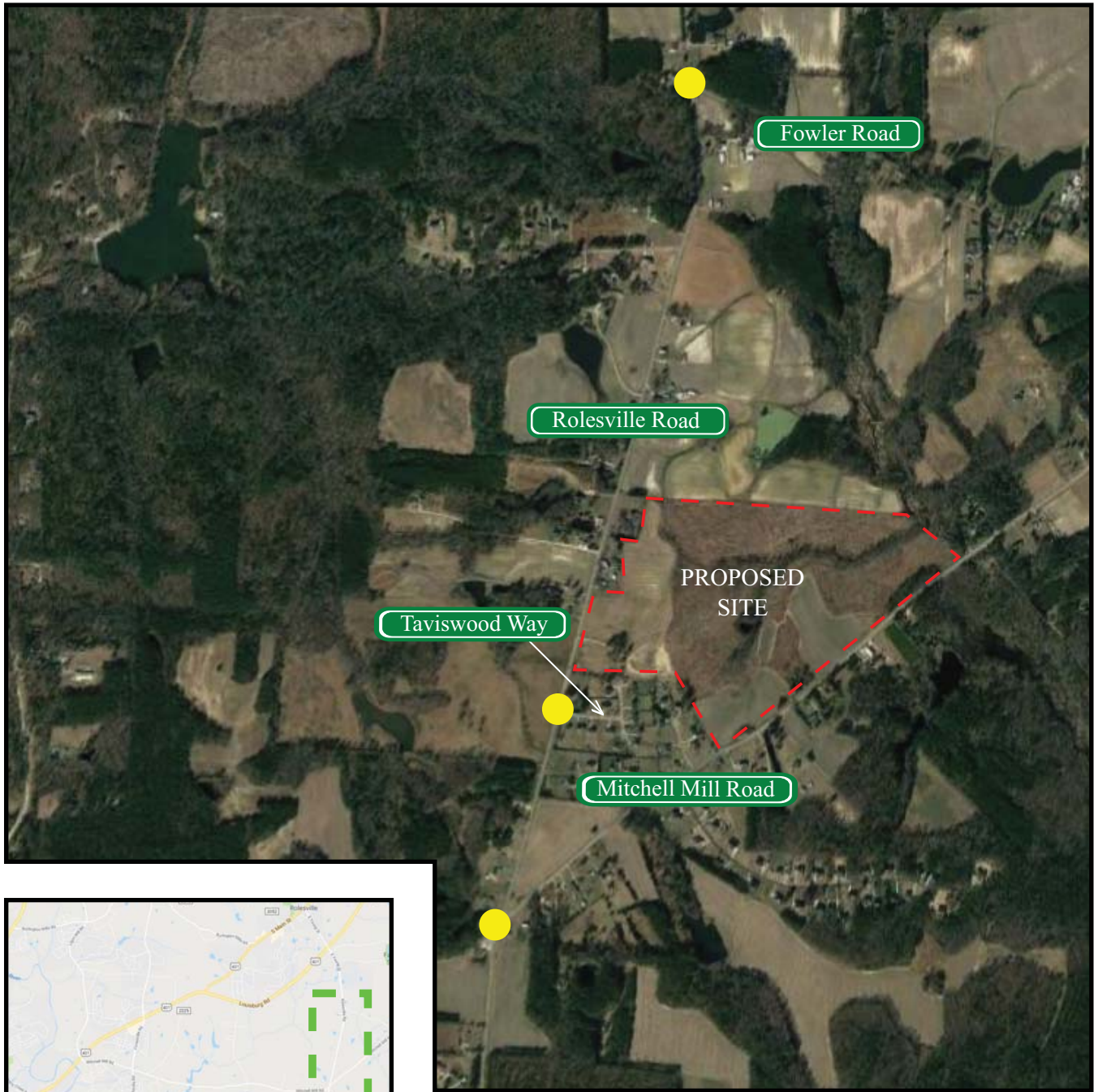
### **1.4. Existing Roadways**

Existing lane configurations (number of traffic lanes on each intersection approach), lane widths, storage capacities, and other intersection and roadway information was collected through field reconnaissance by Ramey Kemp & Associates, Inc. (RKA). Table 1 provides a summary of the field data collected. Refer to Figure 3 for an illustration of the existing lane configurations within the study area.




**Table 1: Existing Roadway Inventory**

<b>Road Name</b>	<b>Route Number</b>	<b>Typical Cross Section</b>	<b>Speed Limit</b>	<b>Maintained By</b>	<b>2017 AADT (vpd)</b>
Rolesville Road	SR 1003	2-lane undivided	45 mph	NCDOT	3100
Mitchell Mill Road	SR 2224	2-lane undivided	45 mph	NCDOT	2100
Fowler Road	SR 2308	2-lane undivided	45 mph	NCDOT	990
Taviswood Way	N/A	2-lane undivided	25 mph (unposted)	Local	90*

\* ADT based on the traffic counts from 2019 and assuming the weekday PM peak hour volume is 10% of the average daily traffic.



**LEGEND**

-  Proposed Site Location
-  Study Intersection
-  Study Area



Wheeler Tract  
Rolesville, NC

Site Location Map

Scale: Not to Scale

Figure 1

**SITE DATA**

PROPERTY OWNER: 1400 FOWLER ROAD, WARE, NC 27888  
 WARE COUNTY (PINS): 1161493143, 1161506093  
 ZONING: R-10  
 TRACT AREA: 93.51 AC (COMPUTED)  
 AREA IN R/W: 16.39 AC  
 NET TRACT AREA: 77.12 AC  
 MINIMUM LOT SIZE: 16,39 SQ FT  
 PROPOSED NUMBER OF LOTS: 5500 SF  
 NUMBER OF 50' WIDE LOTS: 361  
 NUMBER OF 30' WIDE LOTS: 189  
 NUMBER TOWNHOUSES: 125  
 PROPOSED DENSITY: 361 / 92,511 = 3.9 UNITS/AC  
 LENGTH OF 50' R/W: 41,120.00 LF



**GENERAL NOTES**

- BOUNDARY IS TAKEN FROM GIS INFORMATION ON FILE WITH WARE COUNTY.
- THIS PLAN IS CONCEPTUAL IN NATURE AND HAS NOT BEEN REVIEWED BY ANY AGENCY.
- UNIT COUNT IS SUBJECT TO CHANGE PENDING WETLAND AND BUFFER DETERMINATIONS.
- THIS SITE WILL REQUIRE TOWN OF ROLESVILLE ZONING. THIS LAYOUT ASSUMES REPTD.
- FEMA DESIGNATED FLOOD ZONES ARE LOCATED ON THIS SITE.

**WHEELER TRACT**  
 SINGLE FAMILY DETACHED (35' WIDE)


SCALE: 1/8" = 1'-0"  
 DATE: 11/19/2019  
 PROJECT NUMBER: 30  
 DROBBER: CRAWFORD  
 DRAWN BY: CRAWFORD

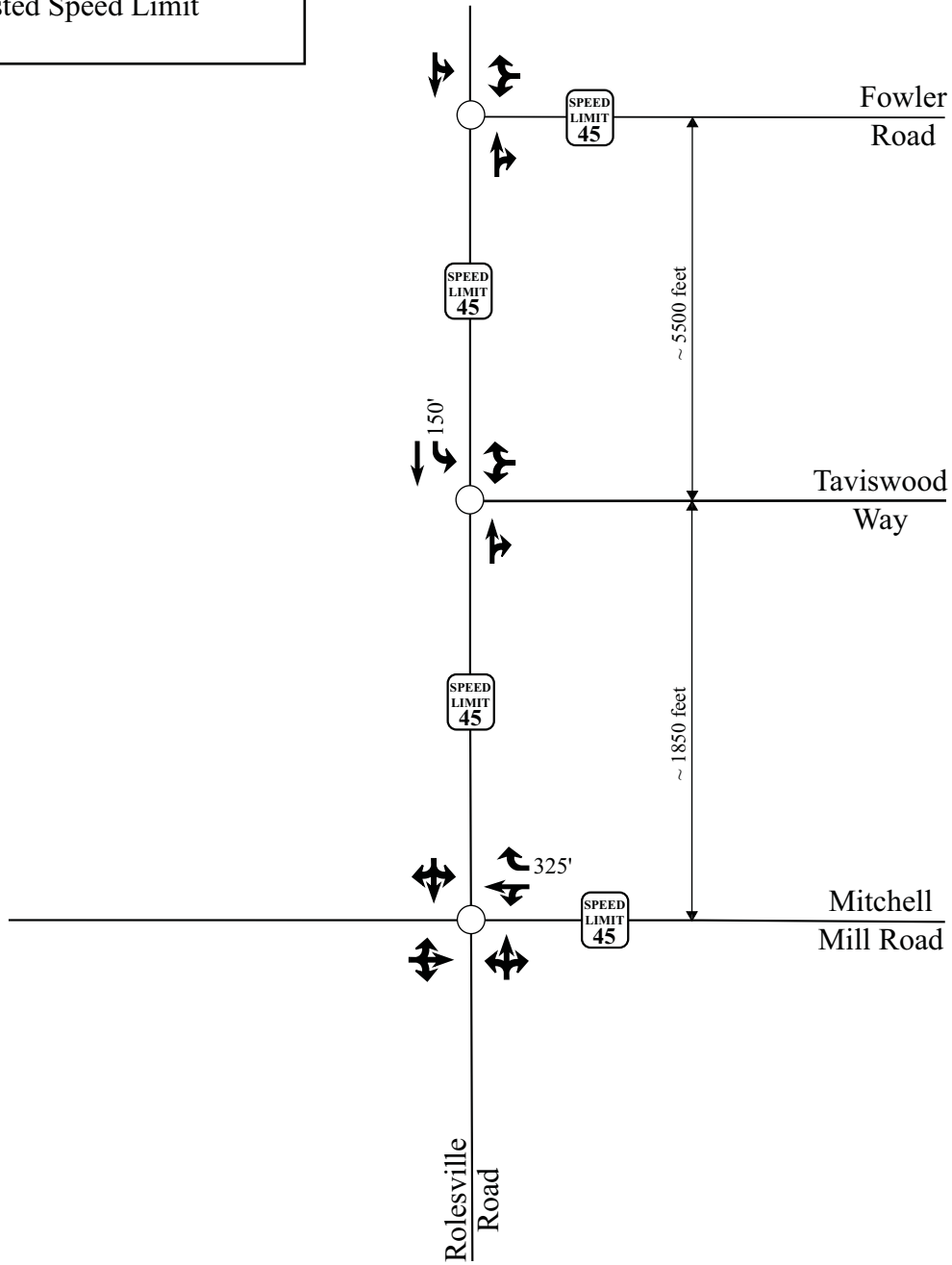
**CONCEPT PLAN 3**

**PRIEST, CRAVEN & ASSOCIATES, INC.**  
 LAND USE CONSULTANTS, PLANNERS / LANDSCAPE DESIGNERS / SURVEYORS / ENGINEERS  
 3809 E. Orange Grove Drive, Suite 104 Raleigh, NC 27609, Phone: 919 / 719-2100, Fax: 919 / 719-2108, Email: PCAST@pcra.com  
 SHEET # CP-3



**LEGEND**

- Unsignalized Intersection
- ➔ Existing Lane
- X' Storage (In Feet)
-  Posted Speed Limit



Wheeler Tract  
Rolesville, NC

Existing  
Lane Configurations

Scale: Not to Scale

Figure 3

## **2. EXISTING (2019) PEAK HOUR CONDITIONS**

### **2.1. Existing (2019) Peak Hour Traffic**

Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in May of 2019 by BSI Traffic Data Collection during a typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- Rolesville Road and Mitchell Mill Road (unsignalized)
- Rolesville Road and Fowler Road (unsignalized)
- Rolesville Road and Taviswood Way (unsignalized)

Traffic volumes were balanced between study intersections, where appropriate. Refer to Figure 4 for existing (2019) 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 Existing (2019) Peak Hour Traffic**

The existing (2019) weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. The results of the analysis are presented in Section 7 of this report.

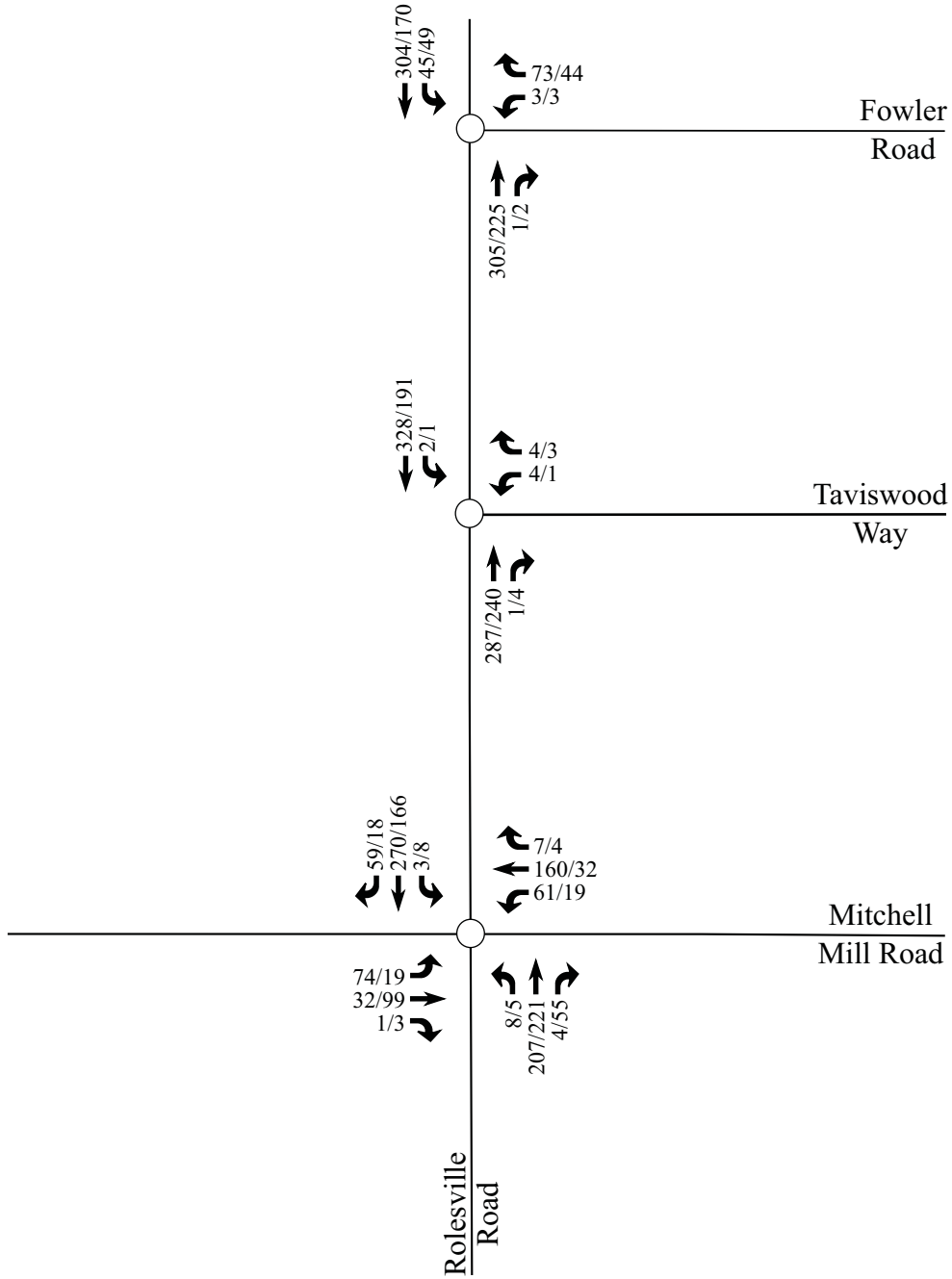




**LEGEND**

○ Unsignalized Intersection

X / Y → Weekday AM / PM Peak Hour Traffic



Wheeler Tract  
Rolesville, NC

Existing (2019)  
Peak Hour Traffic

Scale: Not to Scale

Figure 4

### **3. BACKGROUND (2026) PEAK HOUR CONDITIONS**

In order to account for growth of traffic and subsequent traffic conditions at a future year, background traffic projections are needed. Background traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether or not the proposed development is constructed. Background traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments.

#### **3.1. Ambient Traffic Growth**

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 2% would be used to generate projected (2026) weekday AM and PM peak hour traffic volumes. Refer to Figure 5 for projected (2026) peak hour traffic.

#### **3.2. Adjacent Development Traffic**

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

- East Young Street PUD (The Point)
- Kalas Property
- Watkins Family Property

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 with this study.

#### **3.4. Background (2026) Peak Hour Traffic Volumes**

The background (2026) traffic volumes were determined by projecting the existing (2019) peak hour traffic to the year 2026, and adding the adjacent development trips. Refer to Figure 7 for an illustration of the background (2026) peak hour traffic volumes at the study intersections.

### **3.5. Analysis of Background (2026) Peak Hour Traffic Conditions**

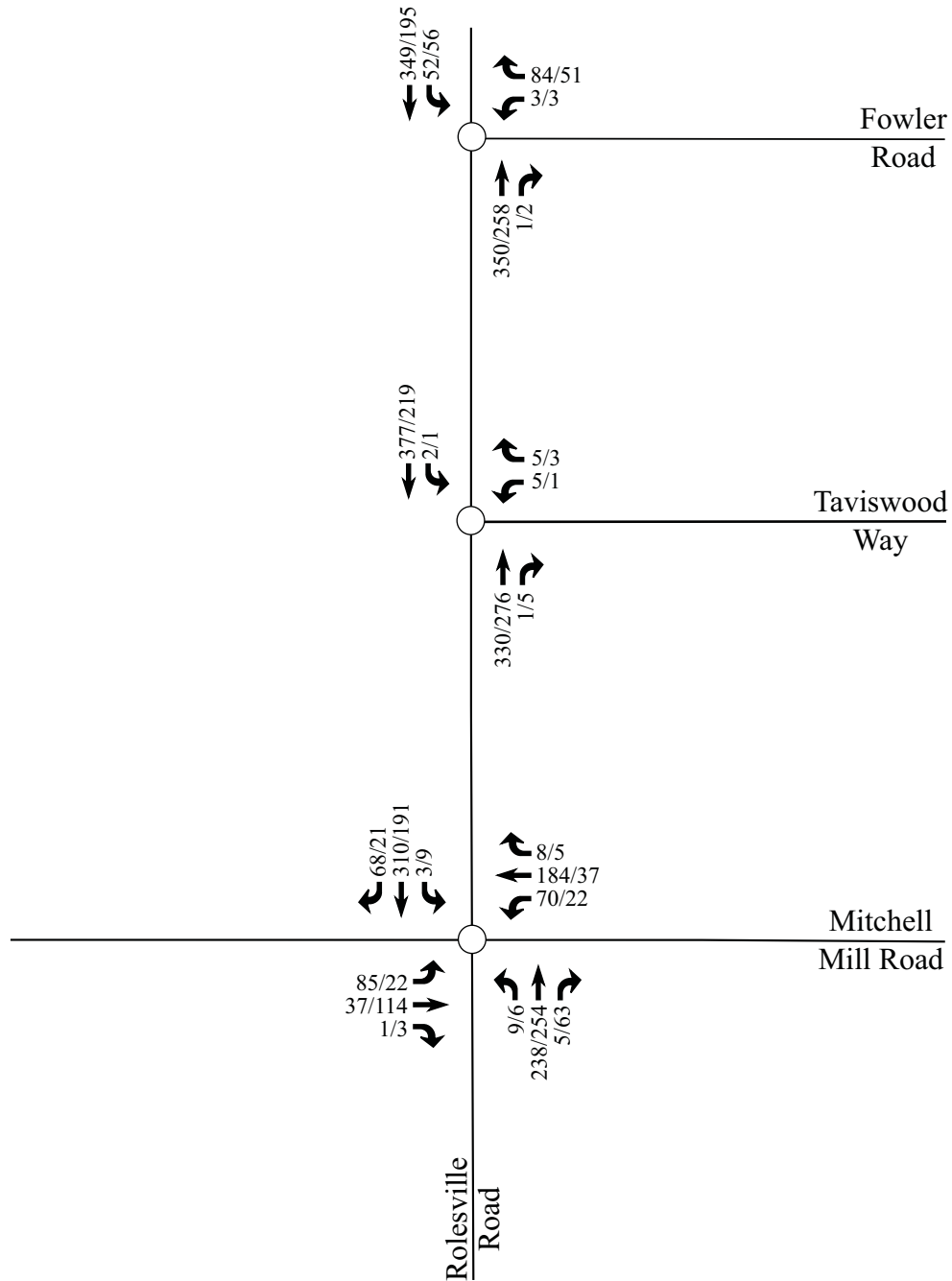
The background (2026) AM and PM peak hour traffic volumes at the study intersections were analyzed with future geometric roadway conditions and traffic control. The analysis results are presented in Section 7 of this report.



### LEGEND

○ Unsignalized Intersection

X / Y → Weekday AM / PM Peak Hour Traffic



Wheeler Tract  
Rolesville, NC

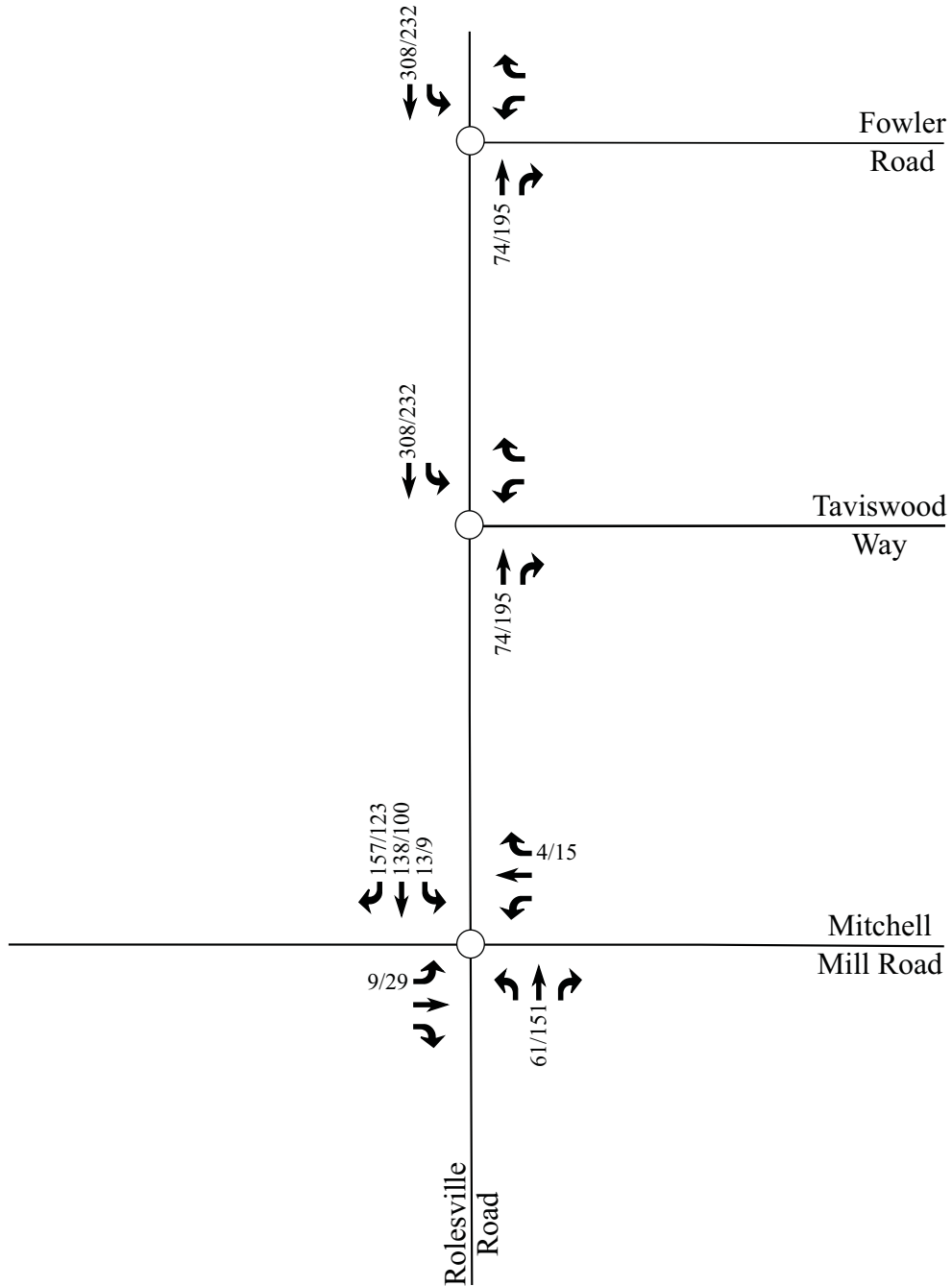
Projected (2026)  
Peak Hour Traffic

Scale: Not to Scale

Figure 5

**LEGEND**

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



Wheeler Tract  
Rolesville, NC

Peak Hour Adjacent  
Development Trips

Scale: Not to Scale

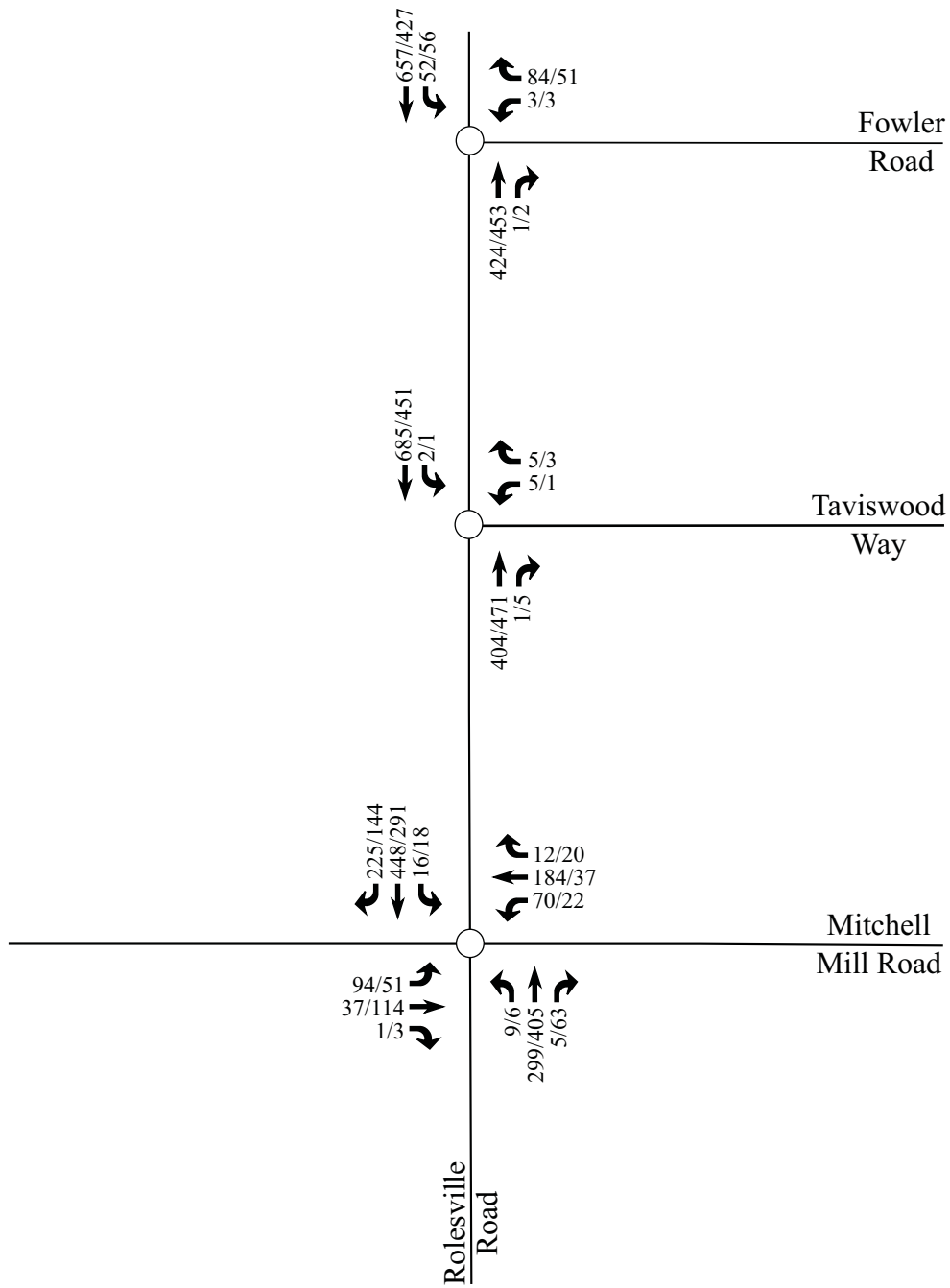
Figure 6



**LEGEND**

○ Unsignalized Intersection

X / Y → Weekday AM / PM Peak Hour Traffic



Wheeler Tract  
Rolesville, NC

Background (2026)  
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 233 single-family detached homes and 125 townhomes. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 10th Edition. Table 2 provides a summary of the trip generation potential for the site.

**Table 2: Trip Generation Summary**

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single Family Detached Housing (210)	233 dwellings	2300	42	128	144	85
Multifamily Housing - Townhomes (220)	125 dwellings	900	14	45	46	27
<b>Total Trips</b>		<b>3,200</b>	<b>56</b>	<b>173</b>	<b>190</b>	<b>112</b>

It is estimated that the proposed development will generate approximately 3,200 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 229 trips (56 entering and 173 exiting) will occur during the AM peak hour and 302 trips (190 entering and 112 exiting) will occur during the PM peak hour.

**4.2. Site Trip Distribution and Assignment**

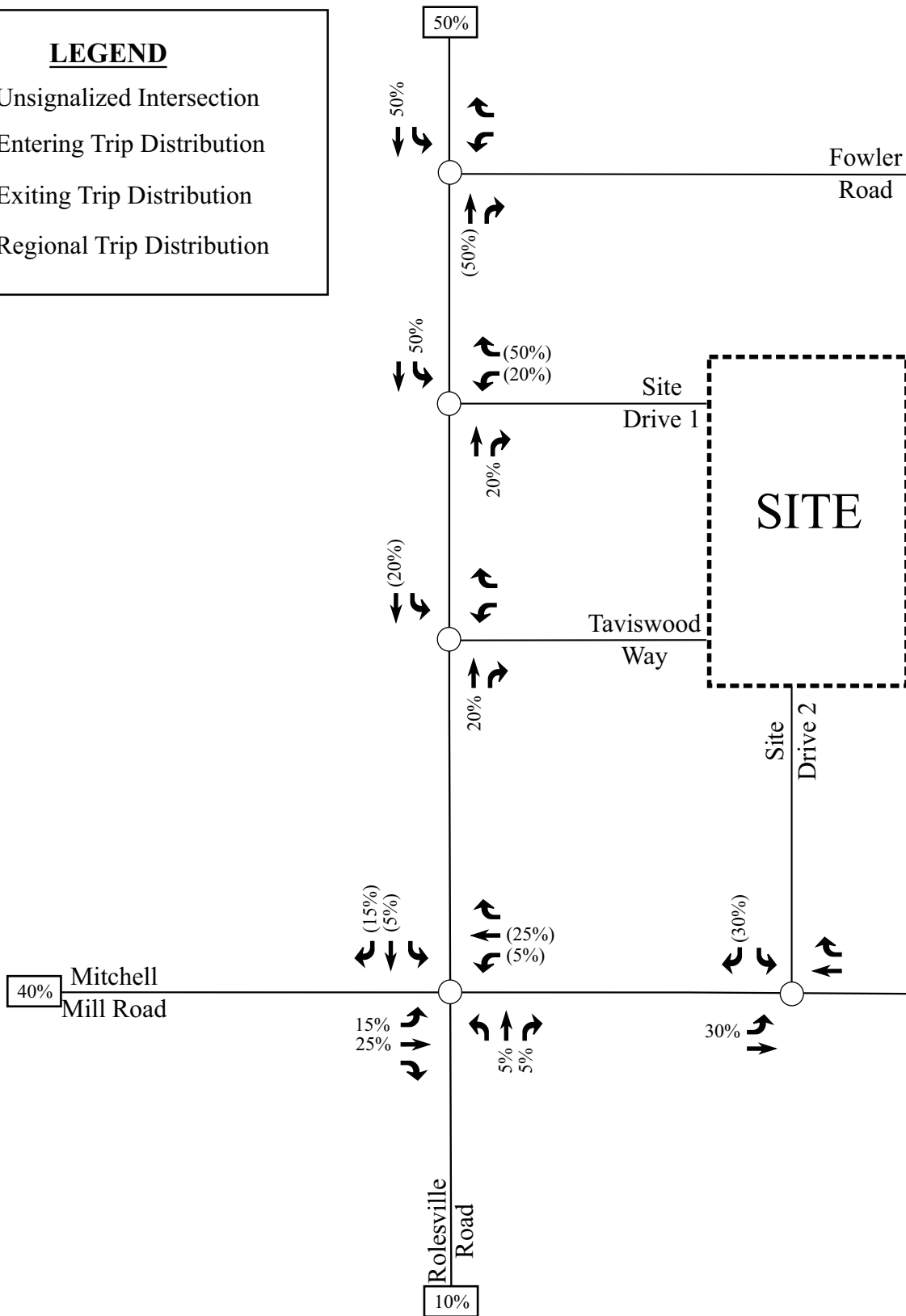
Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. It is estimated that trips will be distributed as follows:

- 50% to/from the north via Rolesville Road
- 40% to/from the west via Mitchell Mill Road
- 10% to/from the south via Rolesville Road

The site trip distribution is shown in Figure 8. Refer to Figure 9 for the site trip assignment.

**LEGEND**

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



Wheeler Tract  
Rolesville, NC

Site Trip Distribution

Scale: Not to Scale

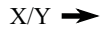
Figure 8



**LEGEND**



Unsignalized Intersection



Weekday AM / PM  
Peak Hour Site Trips

Mitchell  
Mill Road

Rolesville  
Road

Fowler  
Road

Site  
Drive 1

Taviswood  
Way

SITE

Site  
Drive 2

28/95

28/95

35/22

26/16  
9/6

8/28  
14/47

86/56

86/56  
35/22

11/38

11/38

43/28  
9/6

3/10  
3/10

52/34

17/57



Wheeler Tract  
Rolesville, NC

Site  
Trip Assignment

Scale: Not to Scale

Figure 9

## **5. COMBINED (2026) TRAFFIC CONDITIONS**

### **5.1. Combined (2026) Peak Hour Traffic Volumes**

To estimate traffic conditions with the site fully built-out, the total site trips were added to the background (2026) traffic volumes to determine the combined (2026) traffic volumes. Refer to Figure 10 for an illustration of the combined (2026) peak hour traffic volumes with the proposed site fully developed.

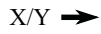
### **5.2. Analysis of Combined (2026) Peak Hour Traffic**

Study intersections were analyzed with the combined (2026) traffic volumes using the same methodology previously discussed for existing and background traffic conditions. Intersections were analyzed with improvements necessary to accommodate future traffic volumes. The results of the capacity analysis for each intersection are presented in Section 7 of this report.

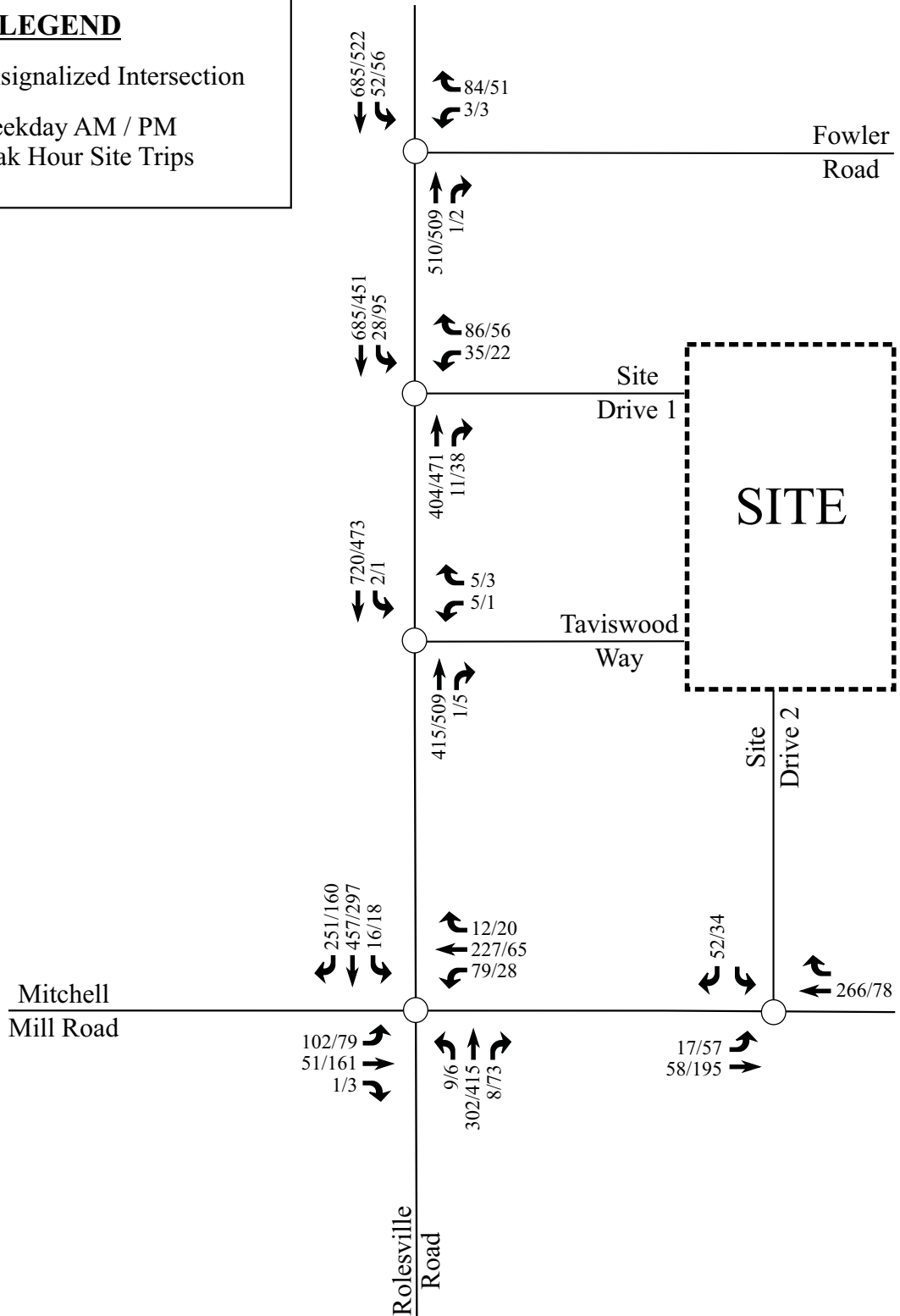
**LEGEND**



Unsignalized Intersection



Weekday AM / PM  
Peak Hour Site Trips



Wheeler Tract  
Rolesville, NC

Combined (2026)  
Peak Hour Traffic

Scale: Not to Scale

Figure 10

**6. TRAFFIC ANALYSIS PROCEDURE**

Study intersections were analyzed using the methodology outlined in the *Highway Capacity Manual* (HCM), 6<sup>th</sup> Edition published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 10.3), was used to complete the analyses for 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 3 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay”. An average control delay of 30 seconds at an unsignalized intersection results in LOS “D” operation at the intersection.

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

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

**6.1. Adjustments to Analysis Guidelines**

Capacity analysis at all study intersections was completed according to the NCDOT Congestions Management Guidelines.

**7. CAPACITY ANALYSIS**

**7.1. Rolesville Road and Mitchell Mill Road**

The existing unsignalized intersection of Rolesville Road and Mitchell Mill Road was analyzed under existing (2019), background (2026), and combined (2026) traffic conditions with the lane configurations and traffic control shown in Table 4. Refer to Table 4 for a summary of the analysis results. Refer to Appendix D for the Synchro capacity analysis reports.

**Table 4: Analysis Summary of Rolesville Road and Mitchell Mill Road**

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2019) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT-TH-RT	B B B C	N/A	A A B A	N/A
Background (2026) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT-TH-RT	C C D F	N/A	B B D D	N/A
Combined (2026) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT-TH-RT	C E D F	N/A	C B F F	N/A
Combined (2026) Conditions – Roundabout	EB WB NB SB	1 LT-TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT-TH-RT	B B B F	E (36)	B A C B	C (15)
Combined (2026) Conditions – Signalization	EB WB NB SB	1 LT-TH-RT 1 LT-TH, 1 RT 1 LT-TH-RT 1 LT-TH-RT	D C A C	C (23)	C B B B	B (15)

Capacity analysis of existing (2019) traffic conditions indicates that each approach at the intersection of Rolesville Road and Mitchell Mill Road is expected to operate at LOS C or better during both weekday AM and PM peak hours. Under background (2026) traffic

conditions, each approach is expected to operate at LOS D or better, with the exception of the southbound approach, which is expected to operate at LOS F, during the weekday AM peak hour. Under combined (2026) traffic conditions, the intersection is expected to have multiple approaches degrade below acceptable LOS during both weekday AM and PM peak hour. It should be noted that the SimTraffic simulation illustrates significant queuing at the southbound approach during the weekday AM peak hour under both background (2026) and combined (2026) traffic conditions.

Based on coordination with the Town and NCDOT during the scoping process, due to the current geometry of the intersection, significant geometric improvement would not be feasible without acquiring additional right-of-way and a proportional share fee-in-lieu would be considered if significant improvement is required.

A roundabout was considered as an improvement at the intersection. Combined (2026) traffic volumes were analyzed with SIDRA 7. Although there are geometric challenges with converting the existing intersection to a roundabout design, the intersection was analyzed as a roundabout to determine if it would be a viable improvement. With a roundabout, the intersection is expected to operate at an overall LOS E during the weekday AM peak hour and LOS C during the weekday PM peak hour, with the southbound approach failing during the weekday AM peak hour. Based on the predicted operations, a roundabout would not be recommended.

A traffic signal was considered at this intersection, and background (2026) and combined (2026) traffic volumes were analyzed utilizing the criteria contained in the *Manual on Uniform Traffic Control Devices* (MUTCD). A traffic signal was warranted during both weekday peak hours under background (2026) and combined (2026) traffic conditions. Due to the high amount of residential development in the surrounding area, which typically has two peak hours during the day, the intersection may not meet the 4 or 8-hour volumes that the NCDOT typically require for installation of a traffic signal. A traffic signal was analyzed under combined (2026) traffic conditions. It should be noted that due to the existing lane configuration and approach angles, the intersection was analyzed with permitted only phasing.

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Split phasing at the eastbound and westbound approaches would result in unacceptable approach levels of service; however, the intersection sight distance will need to be evaluated before allowing permitted-only phasing. With signalization, the intersection is expected to operate at an overall LOS C or better and all of the approaches are expected to operate at LOS D or better during both the weekday AM and PM peak hours. It is recommended that the intersection is monitored for signalization.

**7.2. Rolesville Road and Fowler Road**

The existing unsignalized intersection of Rolesville Road and Fowler Road was analyzed under existing (2019), background (2026), and combined (2026) traffic conditions with existing lane configurations and traffic control. Refer to Table 5 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports.

**Table 5: Analysis Summary of Rolesville Road and Fowler Road**

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2019) Conditions	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	B <sup>2</sup> -- A <sup>1</sup>	N/A	B <sup>2</sup> -- A <sup>1</sup>	N/A
Background (2026) Conditions	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	B <sup>2</sup> -- A <sup>1</sup>	N/A	B <sup>2</sup> -- A <sup>1</sup>	N/A
Combined (2026) Conditions	WB NB SB	1 LT-RT 1 TH-RT 1 LT-TH	B <sup>2</sup> -- A <sup>1</sup>	N/A	B <sup>2</sup> -- A <sup>1</sup>	N/A

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

Capacity analysis of existing (2019), background (2026), and combined (2026) traffic conditions indicates all minor-street approaches and major-street left-turn movements at Rolesville Road and Fowler Road are expected to operate at LOS B or better during both weekday AM and PM peak hours.



**7.3. Rolesville Road and Taviswood Way**

The existing unsignalized intersection of Rolesville Road and Taviswood Way was analyzed under existing (2019), background (2026), and combined (2026) traffic conditions with existing lane configurations and traffic control. Refer to Table 6 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports.

**Table 6: Analysis Summary of Rolesville Road and Taviswood Way**

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2019) Conditions	WB NB SB	1 LT-RT 1 TH-RT 1 LT, 1 TH	B <sup>2</sup> -- A <sup>1</sup>	N/A	B <sup>2</sup> -- A <sup>1</sup>	N/A
Background (2026) Conditions	WB NB SB	1 LT-RT 1 TH-RT 1 LT, 1 TH	C <sup>2</sup> -- A <sup>1</sup>	N/A	B <sup>2</sup> -- A <sup>1</sup>	N/A
Combined (2026) Conditions	WB NB SB	1 LT-RT 1 TH-RT 1 LT, 1 TH	C <sup>2</sup> -- A <sup>1</sup>	N/A	B <sup>2</sup> -- A <sup>1</sup>	N/A

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

Capacity analysis of existing (2019), background (2026), and combined (2026) traffic conditions indicates all minor-street approaches and major-street left-turn movements at Rolesville Road and Fowler Road are expected to operate at LOS C or better during both weekday AM and PM peak hours.

**7.4. Rolesville Road and Site Drive 1**

The proposed unsignalized intersection of Rolesville Road and Site Drive 1 was analyzed under combined (2026) traffic conditions with proposed lane configurations and traffic control. Refer to Table 7 for a summary of the analysis results. Refer to Appendix G for the Synchro capacity analysis reports.

**Table 7: Analysis Summary of Rolesville Road and Site Drive 1**

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Combined (2026) Conditions	<b>WB</b> NB SB	<b>1 LT-RT</b> 1 TH-RT <b>1 LT, 1 TH</b>	C <sup>2</sup> -- A <sup>1</sup>	N/A	C <sup>2</sup> -- A <sup>1</sup>	N/A

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

**Improvements to lane configurations are shown in bold.**

Capacity analysis of combined (2026) traffic conditions indicates all minor-street approaches and major-street left-turn movements at the intersection of Rolesville Road are expected to operate at LOS C or better during the weekday AM and PM peak hours.

Turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* (Driveway Manual). A southbound left-turn lane with a minimum of 100 feet of storage and appropriate taper and deceleration is recommended at this intersection. Due to the expected low volume of northbound right-turning traffic, a right-turn lane is not recommended.

**7.5. Mitchell Mill Road and Site Drive 2**

The proposed unsignalized intersection of Mitchell Mill Road and Site Drive 2 was analyzed under combined (2026) traffic conditions with proposed lane configurations and traffic control. Refer to Table 8 for a summary of the analysis results. Refer to Appendix H for the Synchro capacity analysis reports.

**Table 8: Analysis Summary of Mitchell Mill Road and Site Drive 2**

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Combined (2026) Conditions	EB WB SB	1 LT-TH 1 TH-RT <b>1 LT-RT</b>	A <sup>1</sup> -- B <sup>2</sup>	N/A	A <sup>1</sup> -- A <sup>2</sup>	N/A

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

**Improvements to lane configurations are shown in bold.**

Capacity analysis of combined (2026) traffic conditions indicates all minor-street approaches and major-street left-turn movements at the intersection of Rolesville Road are expected to operate at LOS B or better during the weekday AM and PM peak hours.

Right and left-turn lanes were considered at this intersection; however, Mitchell Mill Road is expected to have an AADT less than 4,000 vehicles per day in 2026, which is the threshold typically used by the NCDOT to consider turn lanes.

## 8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed Wheeler Tract development, located in the northeast quadrant of the intersection of Rolesville Road and Mitchell Mill Road in Rolesville, North Carolina. The proposed development is expected to be a residential development and be built out by 2026. Site access is proposed via one (1) full movement driveway on Rolesville Road, one (1) full movement driveway on Mitchell Mill Road, and one (1) roadway connection to the existing development to the south of the site, Woods Crossing, via Taviswood Way.

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

- Existing (2019) Traffic Conditions
- Background (2026) Traffic Conditions
- Combined (2026) Traffic Conditions
- Combined (2026) Traffic Conditions with Improvements

### Trip Generation

It is estimated that the proposed development will generate approximately 3,200 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 229 trips (56 entering and 173 exiting) will occur during the AM peak hour and 302 (190 entering and 112 exiting) will occur during the PM peak hour.

### Adjustments to Analysis Guidelines

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

### Intersection Capacity Analysis Summary

All the study area intersections (including the proposed site driveways) are expected to operate at acceptable levels-of-service under existing and future year conditions with the exception of

the intersections listed below. A summary of the study area intersections that are expected to need improvements are as follows:

#### Rolesville Road and Mitchell Mill Road

Under combined (2026) conditions, the northbound and southbound approaches at the intersection of Rolesville Road and Mitchell Mill Road are expected to operate below acceptable LOS. Based on coordination with the Town and NCDOT during the scoping process, due to the current geometry of the intersection, significant geometric improvement would not be feasible without acquiring additional right-of-way and a proportional share fee-in-lieu would be considered if significant improvement is required.

A traffic signal was considered at this intersection, and background (2026) and combined (2026) traffic volumes were analyzed utilizing the criteria contained in the *Traffic Control MUTCD*. A traffic signal was warranted during both weekday peak hours under background (2026) and combined (2026) traffic conditions. Due to the high amount of residential development in the surrounding area, which typically has two peak hours during the day, the intersection may not meet the 4 or 8-hour volumes that the NCDOT typically require for installation of a traffic signal. A traffic signal was analyzed under combined (2026) traffic conditions. It should be noted that due to the existing lane configuration and approach angles, the intersection was analyzed with permitted only phasing. Split phasing at the eastbound and westbound approaches would result in unacceptable approach levels of service; however, the intersection sight distance will need to be evaluated before allowing permitted-only phasing. With signalization, the intersection is expected to operate at an overall LOS C or better and all of the approaches are expected to operate at LOS D or better during both the weekday AM and PM peak hours. It is recommended that the intersection is monitored for signalization.

## 9. RECOMMENDATIONS

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

### **Recommended Improvements by Developer**

#### Rolesville Road and Mitchell Mill Road

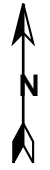
- Monitor intersection for signalization.

#### Rolesville Road and Site Drive 1

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

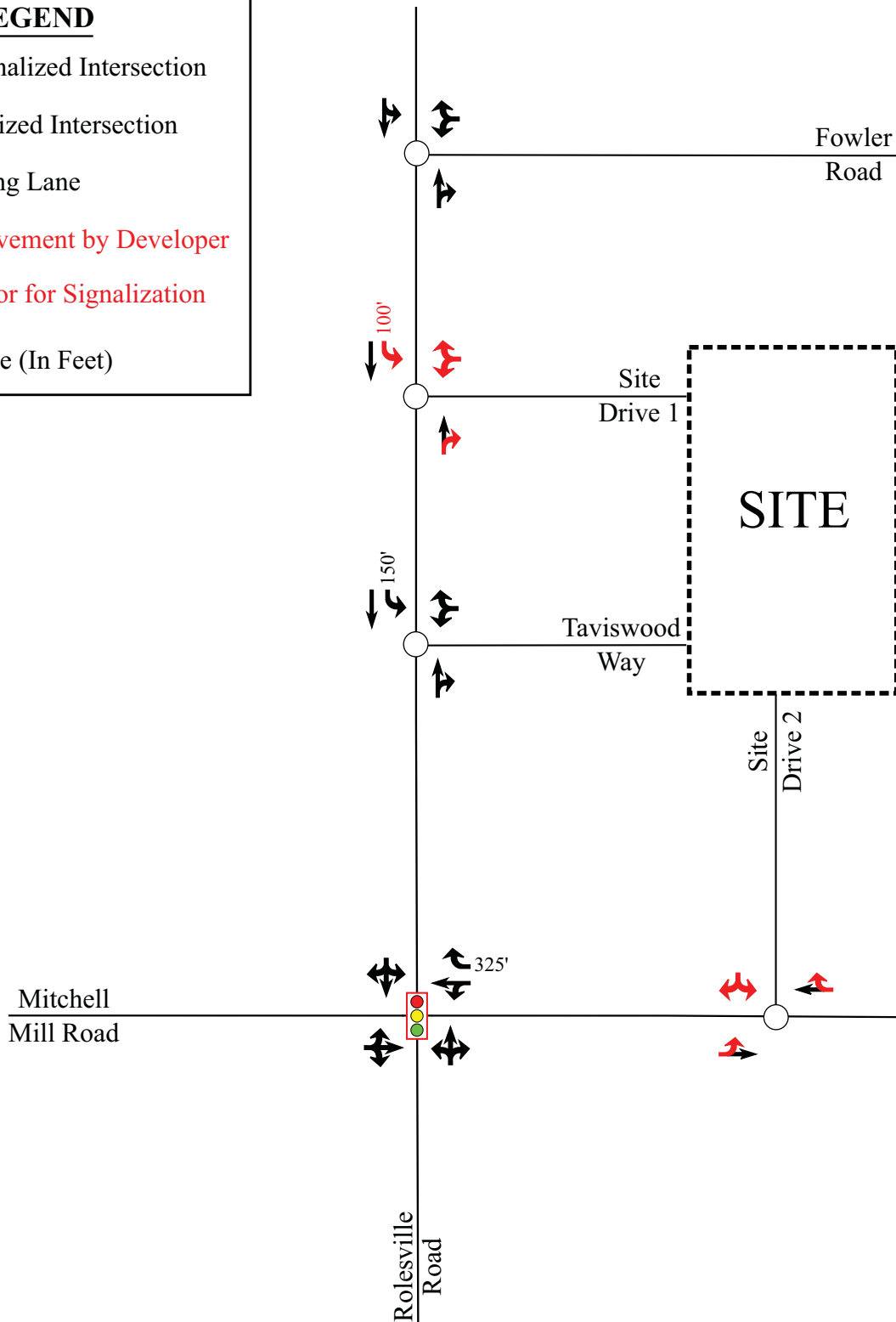
#### Mitchell Mill Road and Site Drive 2

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



**LEGEND**

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



Wheeler Tract  
Rolesville, NC

Recommended  
Lane Configurations

Scale: Not to Scale

Figure 11