# TECHNICAL APPENDIX

# APPENDIX A

## MEMORANDUM OF UNDERSTANDING

RAMEY KEMP & ASSOCIATES, INC.
5808 Faringdon Place
Raleigh, NC 27609
Phone: 919-872-5115
www.rameykemp.com

May 21, 2019

Danny Johnson, AICP
Town of Rolesville
502 Southtown Circle
Rolesville, NC 27571
919.554.6517
danny.johnson@rolesville.nc.gov

Reference: Wheeler Tract
Rolesville, North Carolina

Subject: Memorandum of Understanding for TIA Report

Dear Mr. Johnson:

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 Wheeler Tract residential development, to be along Rolesville Road, north of Mitchell Mill Road in Rolesville, North Carolina. This MOU reflects the assumptions outlined during initial coordination with 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 will be provided via one full movement driveway on Rolesville Road, one full movement connection on Mitchell Mill Road, and one connection to the existing subdivision along Taviswood Way. The proposed site, anticipated to be completed in 2026, is expected to consist of approximately 233 single family homes and 125 townhomes.

## Study Area

Based on coordination with the Town and the NCDOT, the study area is proposed to consist of the following intersections:

- Mitchell Mill Road and Rolesville Road
- Rolesville Road and Fowler Road
- Rolesville Road and Taviswood Way

## Existing Traffic Volumes and Traffic Signal Data

Peak hour turning movement counts were conducted by Ramey Kemp & Associates, Inc. at the existing study intersections in May of 2019 during weekday AM (7:00 to 9:00) and weekday PM (4:00 to 6:00) peak hours. Refer to the attached existing (2019) traffic volumes figure.

**Background Traffic Volumes**

Based on coordination with the Town and NCDOT, background traffic volumes will be determined by projecting existing (2019) traffic volumes to the year 2026 using a 2% annual growth rate and adding the traffic associated with the following two adjacent developments:

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

**Future Roadway Improvements**

Based on coordination with the Town and NCDOT, there are no future roadway improvements to consider at the study intersections.

**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,* 10th Edition for the 265 apartment units. Refer to Table 1 for a summary of the proposed site trip generation.

**Table 1: 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 (210) | 233 units | 2,300 | 42 | 128 | 144 | 85 |
| Multifamily Housing - Townhomes (220) | 125 units | 900 | 14 | 45 | 46 | 27 |
| **Total** | | **3,200** | **56** | **173** | **190** | **112** |

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 weekday AM peak hour and 302 (190 entering and 112 exiting) will occur during the weekday PM peak hour.

**Trip Distribution and Assignment**

The primary 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:

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

Refer to the attached site trip distribution figure.

**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:

- Existing (2019)
- Background (2026)
- Combined (2026)

**Report**

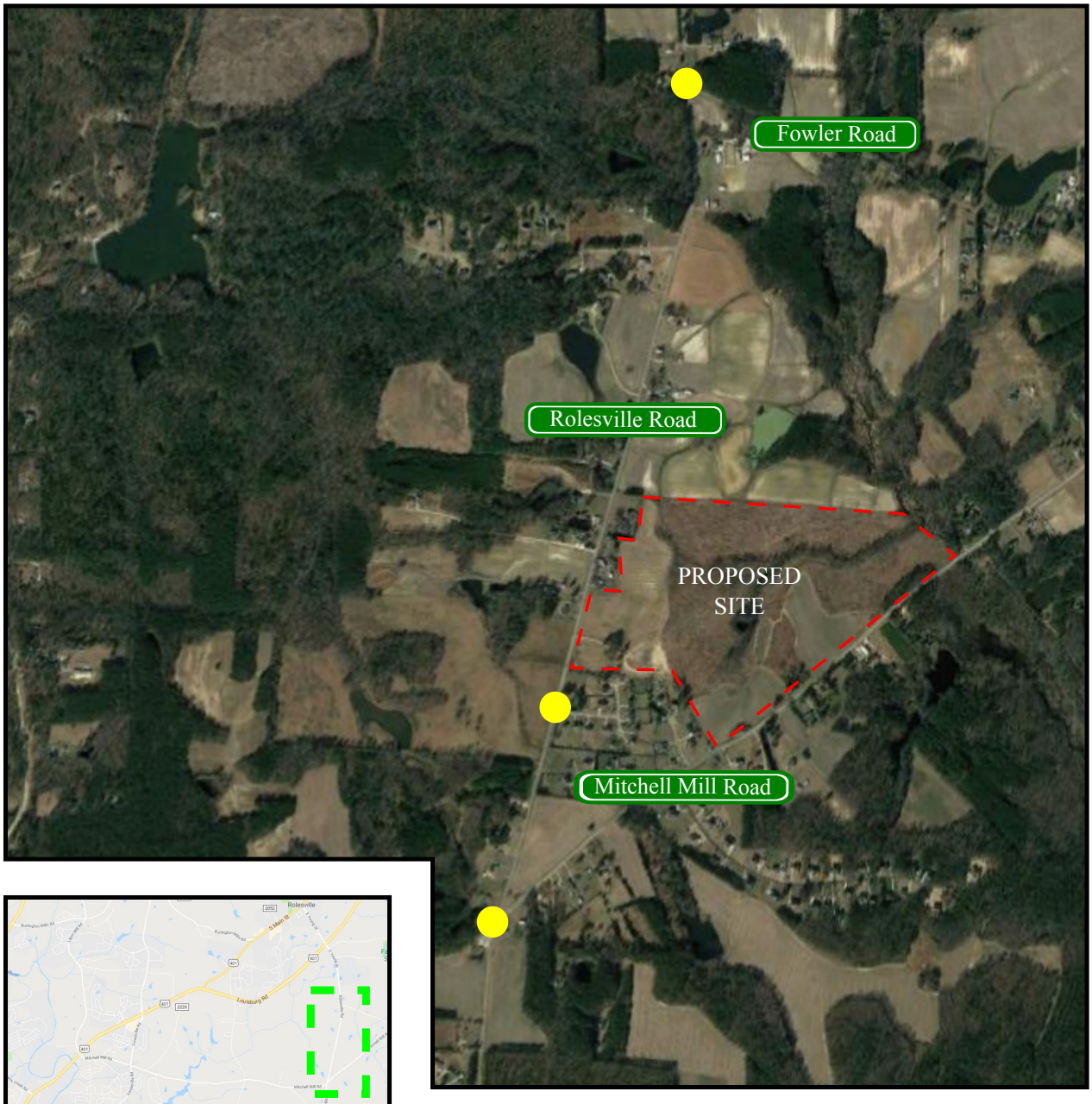
The TIA report will be prepared based on the Town and NCDOT requirements.

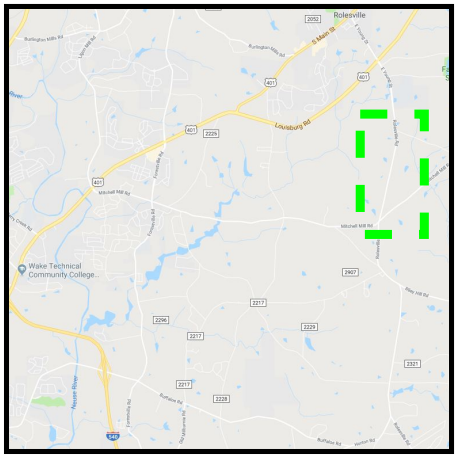
If you find this memorandum of understanding acceptable, please let me know so that we may include it in the TIA report. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,
***Ramey Kemp & Associates, Inc.***

Joshua Reinke, P.E.
Transportation Engineer

Attachments: Site Location Map
Site Plan
Existing (2019) Traffic Volumes Figure
Site Trip Distribution Figure



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

## SITE DATA

| | |
|---|---|
| PROPERTY OWNER | WHEELER |
| | 7400 FOWLER ROAD |
| WAKE COUNTY PIN(S) | 1767483143, 1767586083 |
| PROPOSED ZONING | REPUD |
| TRACT AREA | 92.57 AC (COMPUTED) |
| AREA IN R/W | 16.38 AC |
| NET TRACT AREA | 76.19 AC |
| MINIMUM LOT WIDTH | 50 FT |
| MINIMUM LOT SIZE | 5500 SF |
| PROPOSED NUMBER OF LOTS | 361 |
| NUMBER OF 50' WIDE LOTS | 149 |
| NUMBER OF 60' WIDE LOTS | 88 |
| NUMBER TOWNHOMES | 125 |
| PROPOSED DENSITY | 361 / 92.57 = 3.9 UN/AC |
| LENGTH OF 50' R/W | +/- 12,000 LF |


## GENERAL NOTES

1. BOUNDARY IS TAKEN FROM GIS INFORMATION ON FILE WITH WAKE COUNTY.
2. TOPOGRAPHIC DATA IS TAKEN FROM GIS DATA AVAILABLE FROM WAKE COUNTY.
3. THIS PLAN IS CONCEPTUAL IN NATURE AND HAS NOT BEEN REVIEWED BY ANY AGENCY.
4. UNIT COUNT IS SUBJECT TO CHANGE PENDING WETLAND AND NEUSE BUFFER DETERMINATIONS AND PERMITTING, GRADING, SEWER AND STORMWATER DESIGN.
5. THIS SITE IS LOCATED IN THE NEUSE RIVER BASIN.
6. THIS SITE WILL REQUIRE TOWN OF ROLESVILLE ZONING. THIS LAYOUT ASSUMES REPUD.
7. FEMA DESIGNATED FLOOD ZONES ARE LOCATED ON THIS SITE.

# WHEELER TRACT

SINGLE FAMILY DETACHED (85' WIDE)

TOWN OF ROLESVILLE NORTH CAROLINA

| | |
|---|---|
| SCALE: | 1"=100' |
| DATE: | 11/15/2018 |
| PROJECT NUMBER: | TBD |
| CLIENT: | HOPPER COMMUNITIES |
| PLAN TYPE: | CONCEPT PLAN |

## CONCEPT PLAN 3

RELEASED FOR CONSTRUCTION DATE (SEE COVER) ☐ NO ☐ YES


PRIEST, CRAVEN & ASSOCIATES, INC.

LAND USE CONSULTANTS PLANNERS / LANDSCAPE DESIGNERS / SURVEYORS / ENGINEERS

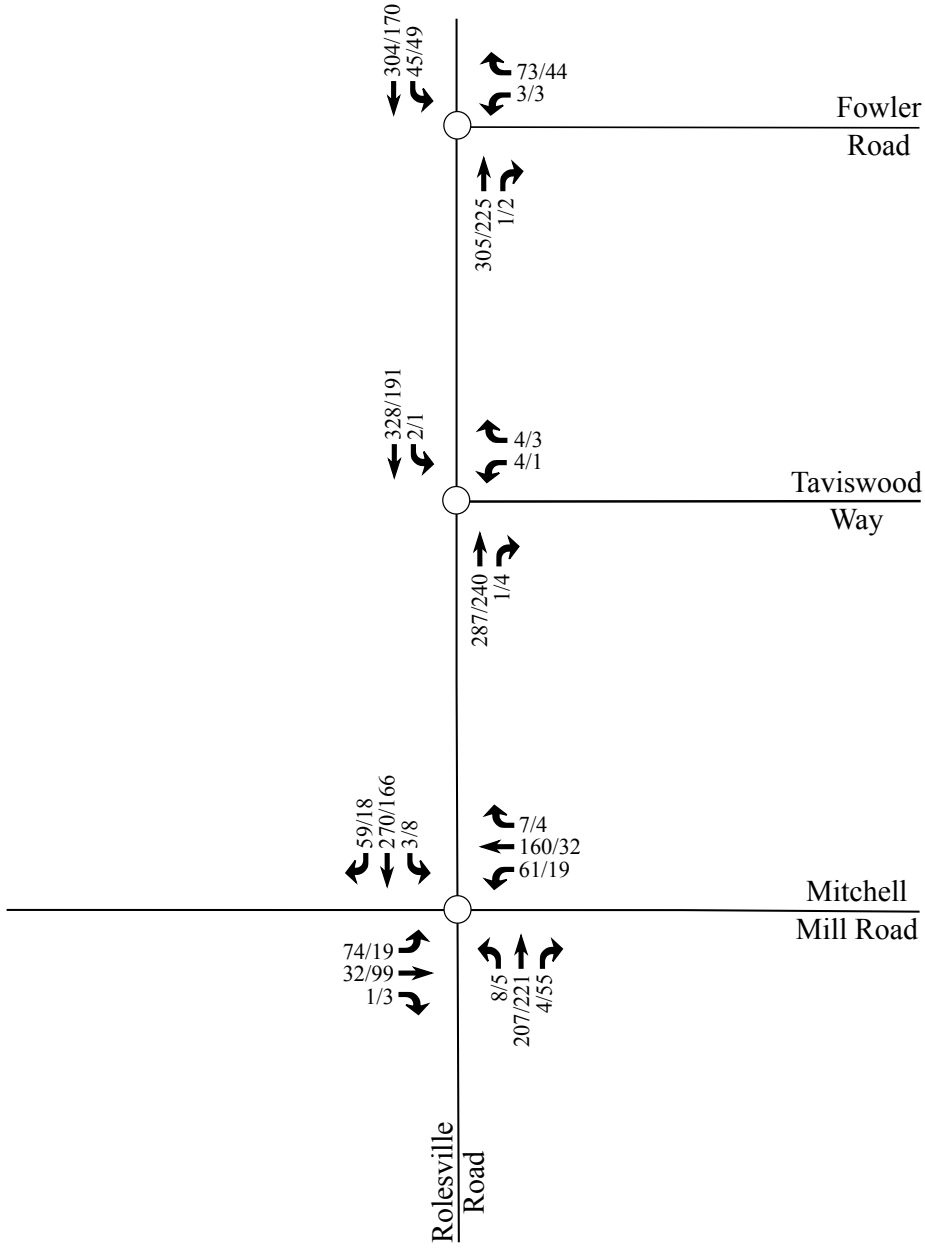
3803 - B Computer Drive, Suite 104 Raleigh, N.C. 27609 , Phone 919 / 781-5900 , Fax 919 / 782-1288 , Email PCA@PriestCraven.com / Firm #: C-0488


SHEET # CP-3

**LEGEND**

◯ Unsignalized Intersection

X / Y → AM / PM Peak Hour Traffic

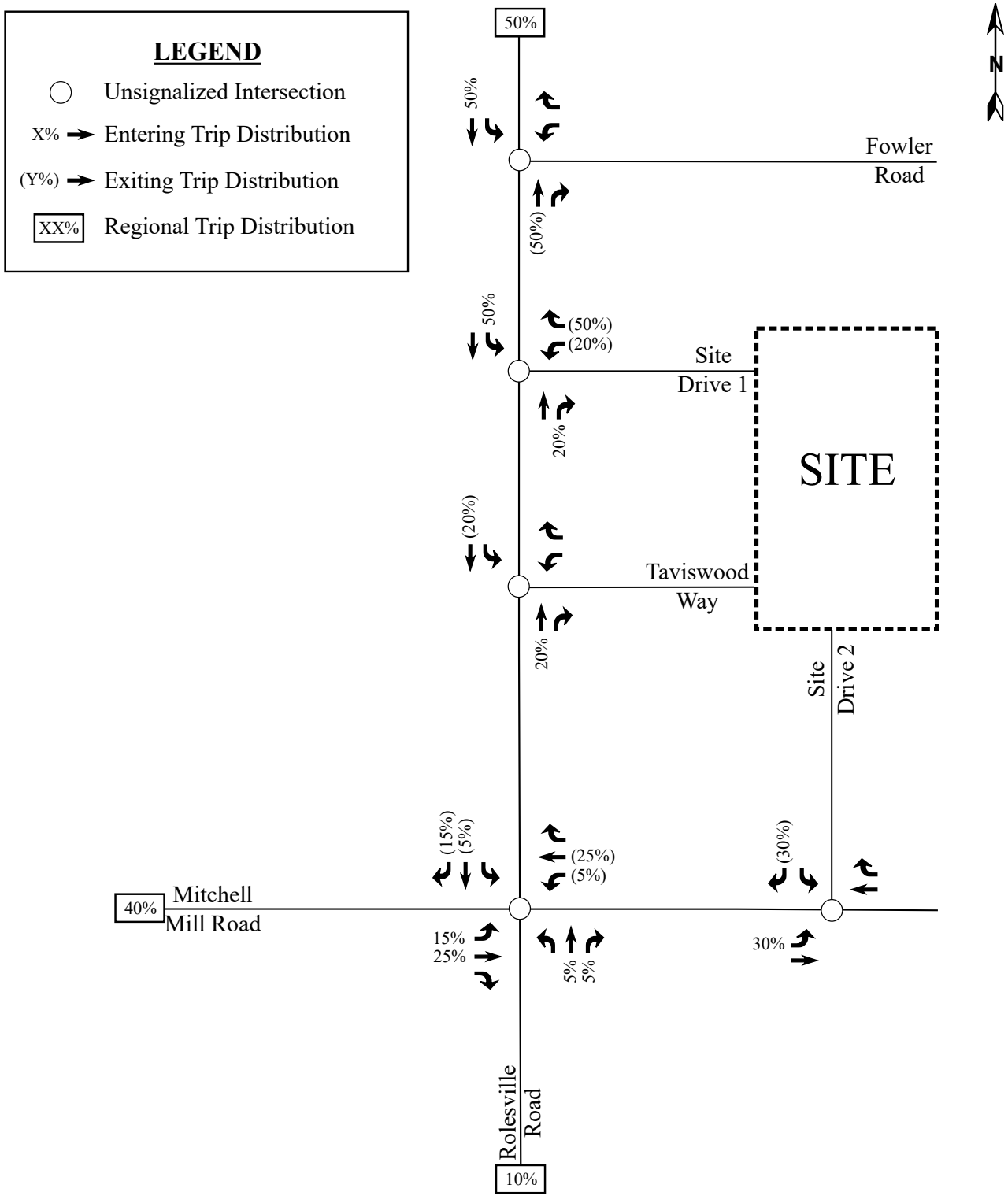



RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wheeler Tract
Rolesville, NC

Existing (2019)
Peak Hour Traffic

Scale: Not to Scale




RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

Wheeler Tract
Rolesville, NC

Site Trip Distribution

Scale: Not to Scale

# APPENDIX B

## COUNT DATA

TRAFFIC DATA COLLECTION

File Name : Rolesville(Mitchell Mill and Rolesville) AM Peak
Site Code :
Start Date : 5/2/2019
Page No : 1

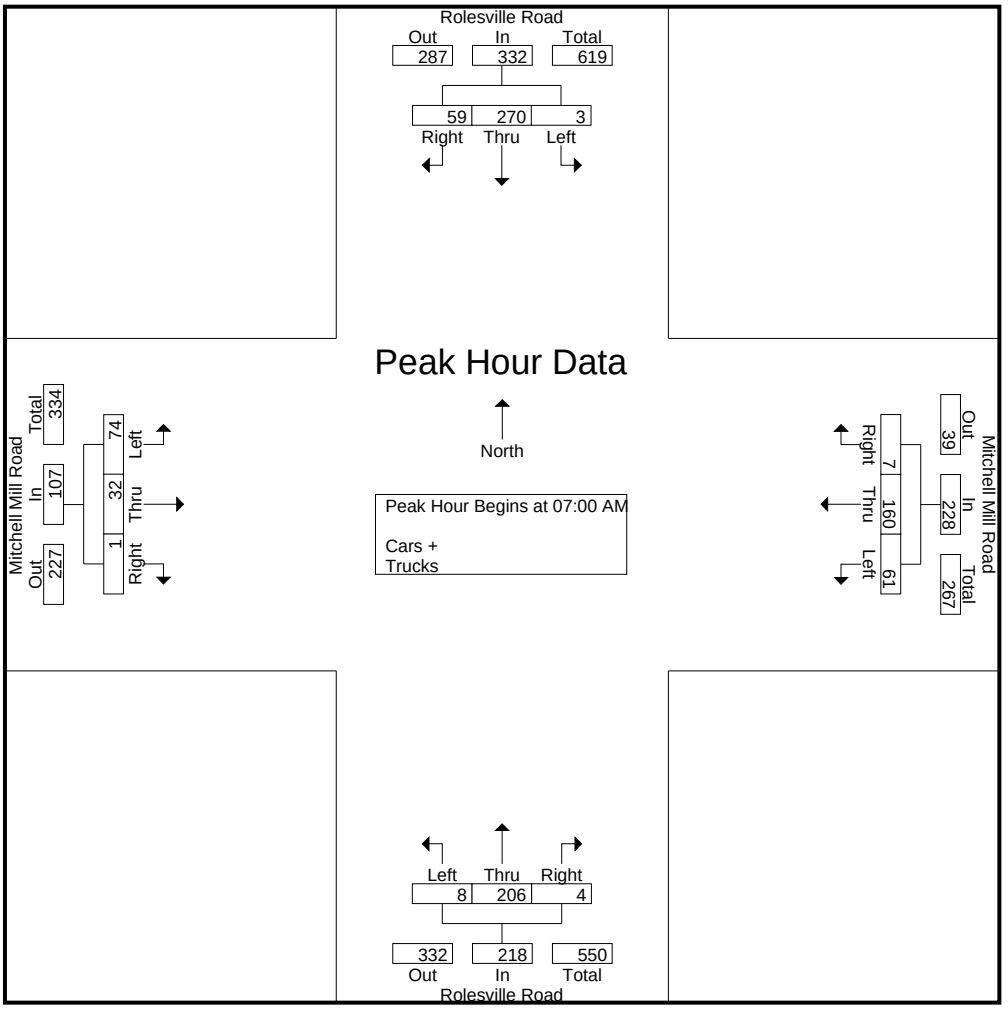
Groups Printed- Cars + - Trucks

| | Rolesville Road Southbound | | | | Mitchell Mill Road Westbound | | | | Rolesville Road Northbound | | | | Mitchell Mill Road 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 | 24 | 61 | 0 | 85 | 0 | 36 | 12 | 48 | 2 | 60 | 3 | 65 | 1 | 9 | 55 | 65 | 263 |
| 07:15 AM | 25 | 69 | 1 | 95 | 1 | 48 | 16 | 65 | 0 | 43 | 2 | 45 | 0 | 7 | 15 | 22 | 227 |
| 07:30 AM | 6 | 75 | 1 | 82 | 2 | 44 | 17 | 63 | 1 | 60 | 3 | 64 | 0 | 7 | 3 | 10 | 219 |
| 07:45 AM | 4 | 65 | 1 | 70 | 4 | 32 | 16 | 52 | 1 | 43 | 0 | 44 | 0 | 9 | 1 | 10 | 176 |
| Total | 59 | 270 | 3 | 332 | 7 | 160 | 61 | 228 | 4 | 206 | 8 | 218 | 1 | 32 | 74 | 107 | 885 |
| | | | | | | | | | | | | | | | | | |
| 08:00 AM | 7 | 69 | 3 | 79 | 2 | 22 | 9 | 33 | 6 | 25 | 1 | 32 | 1 | 8 | 1 | 10 | 154 |
| 08:15 AM | 6 | 41 | 1 | 48 | 2 | 19 | 9 | 30 | 3 | 23 | 2 | 28 | 1 | 5 | 0 | 6 | 112 |
| 08:30 AM | 2 | 24 | 0 | 26 | 2 | 18 | 11 | 31 | 4 | 30 | 2 | 36 | 2 | 8 | 3 | 13 | 106 |
| 08:45 AM | 0 | 32 | 0 | 32 | 2 | 11 | 8 | 21 | 4 | 22 | 0 | 26 | 1 | 4 | 1 | 6 | 85 |
| Total | 15 | 166 | 4 | 185 | 8 | 70 | 37 | 115 | 17 | 100 | 5 | 122 | 5 | 25 | 5 | 35 | 457 |
| | | | | | | | | | | | | | | | | | |
| Grand Total | 74 | 436 | 7 | 517 | 15 | 230 | 98 | 343 | 21 | 306 | 13 | 340 | 6 | 57 | 79 | 142 | 1342 |
| Apprch % | 14.3 | 84.3 | 1.4 | | 4.4 | 67.1 | 28.6 | | 6.2 | 90 | 3.8 | | 4.2 | 40.1 | 55.6 | | |
| Total % | 5.5 | 32.5 | 0.5 | 38.5 | 1.1 | 17.1 | 7.3 | 25.6 | 1.6 | 22.8 | 1 | 25.3 | 0.4 | 4.2 | 5.9 | 10.6 | |
| Cars + | 74 | 429 | 7 | 510 | 15 | 229 | 97 | 341 | 21 | 301 | 12 | 334 | 6 | 56 | 79 | 141 | 1326 |
| % Cars + | 100 | 98.4 | 100 | 98.6 | 100 | 99.6 | 99 | 99.4 | 100 | 98.4 | 92.3 | 98.2 | 100 | 98.2 | 100 | 99.3 | 98.8 |
| Trucks | 0 | 7 | 0 | 7 | 0 | 1 | 1 | 2 | 0 | 5 | 1 | 6 | 0 | 1 | 0 | 1 | 16 |
| % Trucks | 0 | 1.6 | 0 | 1.4 | 0 | 0.4 | 1 | 0.6 | 0 | 1.6 | 7.7 | 1.8 | 0 | 1.8 | 0 | 0.7 | 1.2 |

TRAFFIC DATA COLLECTION

File Name : Rolesville(Mitchell Mill and Rolesville) AM Peak
Site Code :
Start Date : 5/2/2019
Page No : 2

| | Rolesville Road Southbound | | | | Mitchell Mill Road Westbound | | | | Rolesville Road Northbound | | | | Mitchell Mill Road 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 | 24 | 61 | 0 | 85 | 0 | 36 | 12 | 48 | **2** | **60** | **3** | **65** | **1** | **9** | **55** | **65** | **263** |
| 07:15 AM | **25** | 69 | **1** | **95** | 1 | **48** | 16 | **65** | 0 | 43 | 2 | 45 | 0 | 7 | 15 | 22 | 227 |
| 07:30 AM | 6 | **75** | 1 | 82 | 2 | 44 | **17** | 63 | 1 | 60 | 3 | 64 | 0 | 7 | 3 | 10 | 219 |
| 07:45 AM | 4 | 65 | 1 | 70 | **4** | 32 | 16 | 52 | 1 | 43 | 0 | 44 | 0 | 9 | 1 | 10 | 176 |
| Total Volume | 59 | 270 | 3 | 332 | 7 | 160 | 61 | 228 | 4 | 206 | 8 | 218 | 1 | 32 | 74 | 107 | 885 |
| % App. Total | 17.8 | 81.3 | 0.9 | | 3.1 | 70.2 | 26.8 | | 1.8 | 94.5 | 3.7 | | 0.9 | 29.9 | 69.2 | | |
| PHF | .590 | .900 | .750 | .874 | .438 | .833 | .897 | .877 | .500 | .858 | .667 | .838 | .250 | .889 | .336 | .412 | .841 |



TRAFFIC DATA COLLECTION

File Name : Rolesville(Mitchell Mill and Rolesville) PM Peak
Site Code :
Start Date : 5/2/2019
Page No : 1

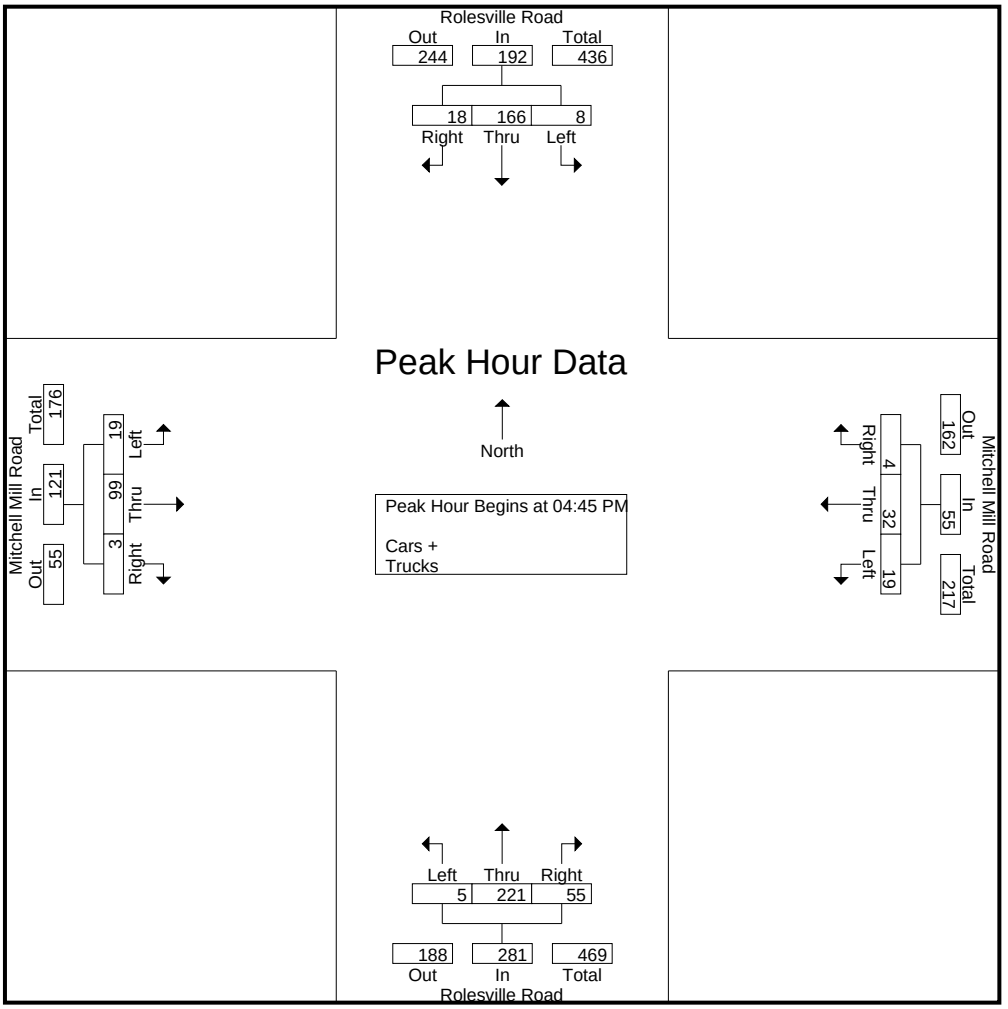
Groups Printed- Cars + - Trucks

| | Rolesville Road Southbound | | | | Mitchell Mill Road Westbound | | | | Rolesville Road Northbound | | | | Mitchell Mill Road 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 | 3 | 44 | 2 | 49 | 0 | 14 | 8 | 22 | 13 | 32 | 1 | 46 | 0 | 18 | 4 | 22 | 139 |
| 04:15 PM | 5 | 30 | 1 | 36 | 1 | 7 | 6 | 14 | 11 | 41 | 0 | 52 | 3 | 31 | 6 | 40 | 142 |
| 04:30 PM | 1 | 32 | 0 | 33 | 0 | 8 | 4 | 12 | 14 | 37 | 3 | 54 | 2 | 20 | 10 | 32 | 131 |
| 04:45 PM | 5 | 47 | 4 | 56 | 3 | 7 | 5 | 15 | 11 | 54 | 2 | 67 | 0 | 19 | 3 | 22 | 160 |
| Total | 14 | 153 | 7 | 174 | 4 | 36 | 23 | 63 | 49 | 164 | 6 | 219 | 5 | 88 | 23 | 116 | 572 |
| | | | | | | | | | | | | | | | | | |
| 05:00 PM | 6 | 39 | 1 | 46 | 1 | 9 | 6 | 16 | 10 | 52 | 1 | 63 | 1 | 29 | 5 | 35 | 160 |
| 05:15 PM | 5 | 44 | 2 | 51 | 0 | 13 | 6 | 19 | 15 | 58 | 1 | 74 | 1 | 26 | 4 | 31 | 175 |
| 05:30 PM | 2 | 36 | 1 | 39 | 0 | 3 | 2 | 5 | 19 | 57 | 1 | 77 | 1 | 25 | 7 | 33 | 154 |
| 05:45 PM | 6 | 37 | 1 | 44 | 2 | 12 | 3 | 17 | 9 | 31 | 4 | 44 | 1 | 28 | 5 | 34 | 139 |
| Total | 19 | 156 | 5 | 180 | 3 | 37 | 17 | 57 | 53 | 198 | 7 | 258 | 4 | 108 | 21 | 133 | 628 |
| | | | | | | | | | | | | | | | | | |
| Grand Total | 33 | 309 | 12 | 354 | 7 | 73 | 40 | 120 | 102 | 362 | 13 | 477 | 9 | 196 | 44 | 249 | 1200 |
| Apprch % | 9.3 | 87.3 | 3.4 | | 5.8 | 60.8 | 33.3 | | 21.4 | 75.9 | 2.7 | | 3.6 | 78.7 | 17.7 | | |
| Total % | 2.8 | 25.8 | 1 | 29.5 | 0.6 | 6.1 | 3.3 | 10 | 8.5 | 30.2 | 1.1 | 39.8 | 0.8 | 16.3 | 3.7 | 20.8 | |
| Cars + | 33 | 305 | 12 | 350 | 7 | 73 | 38 | 118 | 100 | 361 | 13 | 474 | 9 | 195 | 44 | 248 | 1190 |
| % Cars + | 100 | 98.7 | 100 | 98.9 | 100 | 100 | 95 | 98.3 | 98 | 99.7 | 100 | 99.4 | 100 | 99.5 | 100 | 99.6 | 99.2 |
| Trucks | 0 | 4 | 0 | 4 | 0 | 0 | 2 | 2 | 2 | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 10 |
| % Trucks | 0 | 1.3 | 0 | 1.1 | 0 | 0 | 5 | 1.7 | 2 | 0.3 | 0 | 0.6 | 0 | 0.5 | 0 | 0.4 | 0.8 |

TRAFFIC DATA COLLECTION

File Name : Rolesville(Mitchell Mill and Rolesville) PM Peak
Site Code :
Start Date : 5/2/2019
Page No : 2

| | Rolesville Road Southbound | | | | Mitchell Mill Road Westbound | | | | Rolesville Road Northbound | | | | Mitchell Mill Road 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 | 5 | **47** | **4** | **56** | **3** | 7 | 5 | 15 | 11 | 54 | **2** | 67 | 0 | 19 | 3 | 22 | 160 |
| 05:00 PM | **6** | 39 | 1 | 46 | 1 | 9 | **6** | 16 | 10 | 52 | 1 | 63 | **1** | **29** | 5 | **35** | 160 |
| 05:15 PM | 5 | 44 | 2 | 51 | 0 | **13** | 6 | **19** | 15 | **58** | 1 | 74 | 1 | 26 | 4 | 31 | **175** |
| 05:30 PM | 2 | 36 | 1 | 39 | 0 | 3 | 2 | 5 | **19** | 57 | 1 | **77** | 1 | 25 | **7** | 33 | 154 |
| Total Volume | 18 | 166 | 8 | 192 | 4 | 32 | 19 | 55 | 55 | 221 | 5 | 281 | 3 | 99 | 19 | 121 | 649 |
| % App. Total | 9.4 | 86.5 | 4.2 | | 7.3 | 58.2 | 34.5 | | 19.6 | 78.6 | 1.8 | | 2.5 | 81.8 | 15.7 | | |
| PHF | .750 | .883 | .500 | .857 | .333 | .615 | .792 | .724 | .724 | .953 | .625 | .912 | .750 | .853 | .679 | .864 | .927 |



TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Fowler)AM Peak
Site Code :
Start Date : 5/2/2019
Page No : 1

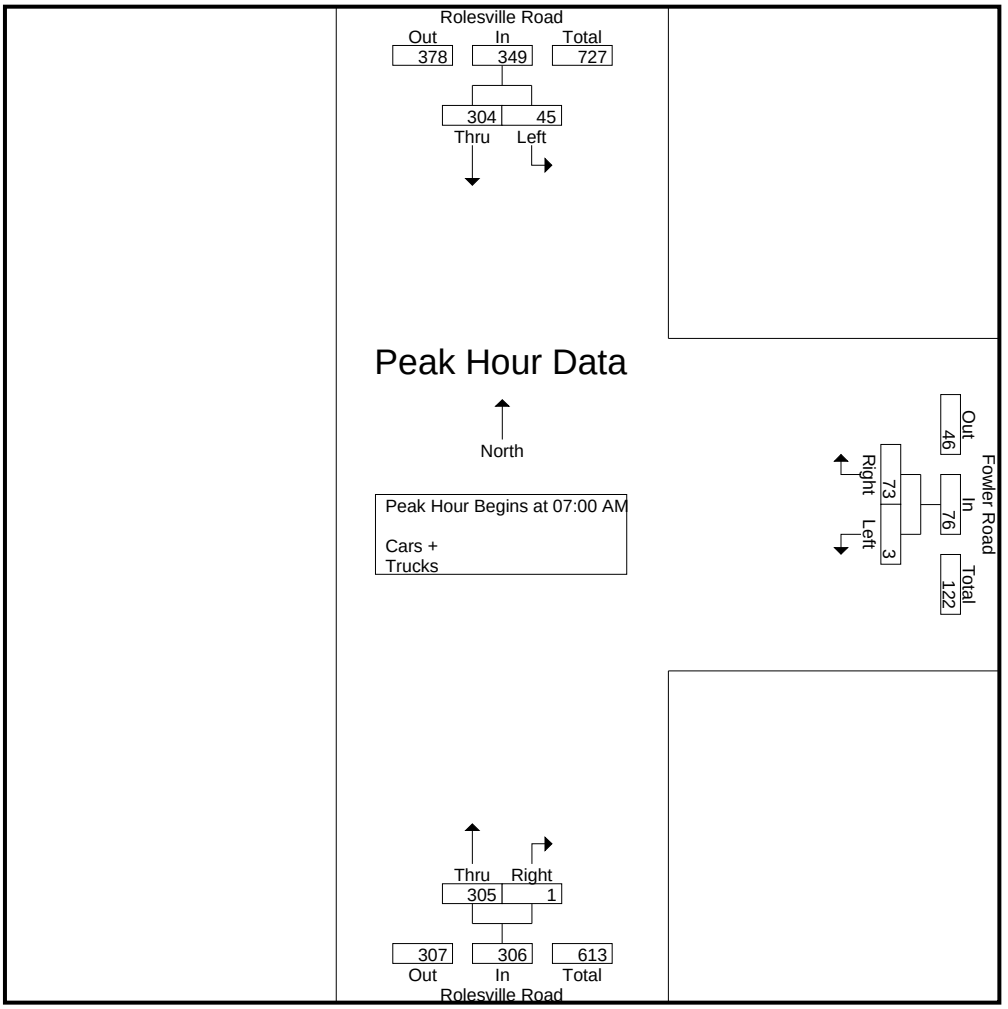
Groups Printed- Cars + - Trucks

| | Rolesville Road Southbound | | | Fowler Road Westbound | | | Rolesville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | App. Total | Int. Total |
| 07:00 AM | 69 | 6 | 75 | 25 | 0 | 25 | 0 | 107 | 107 | 207 |
| 07:15 AM | 93 | 13 | 106 | 22 | 1 | 23 | 1 | 86 | 87 | 216 |
| 07:30 AM | 75 | 12 | 87 | 11 | 0 | 11 | 0 | 53 | 53 | 151 |
| 07:45 AM | 67 | 14 | 81 | 15 | 2 | 17 | 0 | 59 | 59 | 157 |
| Total | 304 | 45 | 349 | 73 | 3 | 76 | 1 | 305 | 306 | 731 |
| | | | | | | | | | | |
| 08:00 AM | 72 | 19 | 91 | 10 | 0 | 10 | 0 | 26 | 26 | 127 |
| 08:15 AM | 38 | 14 | 52 | 9 | 1 | 10 | 0 | 27 | 27 | 89 |
| 08:30 AM | 32 | 11 | 43 | 8 | 0 | 8 | 0 | 34 | 34 | 85 |
| 08:45 AM | 29 | 5 | 34 | 18 | 0 | 18 | 0 | 25 | 25 | 77 |
| Total | 171 | 49 | 220 | 45 | 1 | 46 | 0 | 112 | 112 | 378 |
| | | | | | | | | | | |
| Grand Total | 475 | 94 | 569 | 118 | 4 | 122 | 1 | 417 | 418 | 1109 |
| Apprch % | 83.5 | 16.5 | | 96.7 | 3.3 | | 0.2 | 99.8 | | |
| Total % | 42.8 | 8.5 | 51.3 | 10.6 | 0.4 | 11 | 0.1 | 37.6 | 37.7 | |
| Cars + | 469 | 92 | 561 | 118 | 4 | 122 | 1 | 414 | 415 | 1098 |
| % Cars + | 98.7 | 97.9 | 98.6 | 100 | 100 | 100 | 100 | 99.3 | 99.3 | 99 |
| Trucks | 6 | 2 | 8 | 0 | 0 | 0 | 0 | 3 | 3 | 11 |
| % Trucks | 1.3 | 2.1 | 1.4 | 0 | 0 | 0 | 0 | 0.7 | 0.7 | 1 |

TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Fowler)AM Peak
Site Code :
Start Date : 5/2/2019


| | Rolesville Road Southbound | | | Fowler Road Westbound | | | Rolesville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | 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 | 69 | 6 | 75 | **25** | 0 | **25** | 0 | **107** | **107** | 207 |
| 07:15 AM | **93** | 13 | **106** | 22 | 1 | 23 | **1** | 86 | 87 | **216** |
| 07:30 AM | 75 | 12 | 87 | 11 | 0 | 11 | 0 | 53 | 53 | 151 |
| 07:45 AM | 67 | **14** | 81 | 15 | **2** | 17 | 0 | 59 | 59 | 157 |
| Total Volume | 304 | 45 | 349 | 73 | 3 | 76 | 1 | 305 | 306 | 731 |
| % App. Total | 87.1 | 12.9 | | 96.1 | 3.9 | | 0.3 | 99.7 | | |
| PHF | .817 | .804 | .823 | .730 | .375 | .760 | .250 | .713 | .715 | .846 |



TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Fowler)PM Peak
Site Code :
Start Date : 5/2/2019
Page No : 1

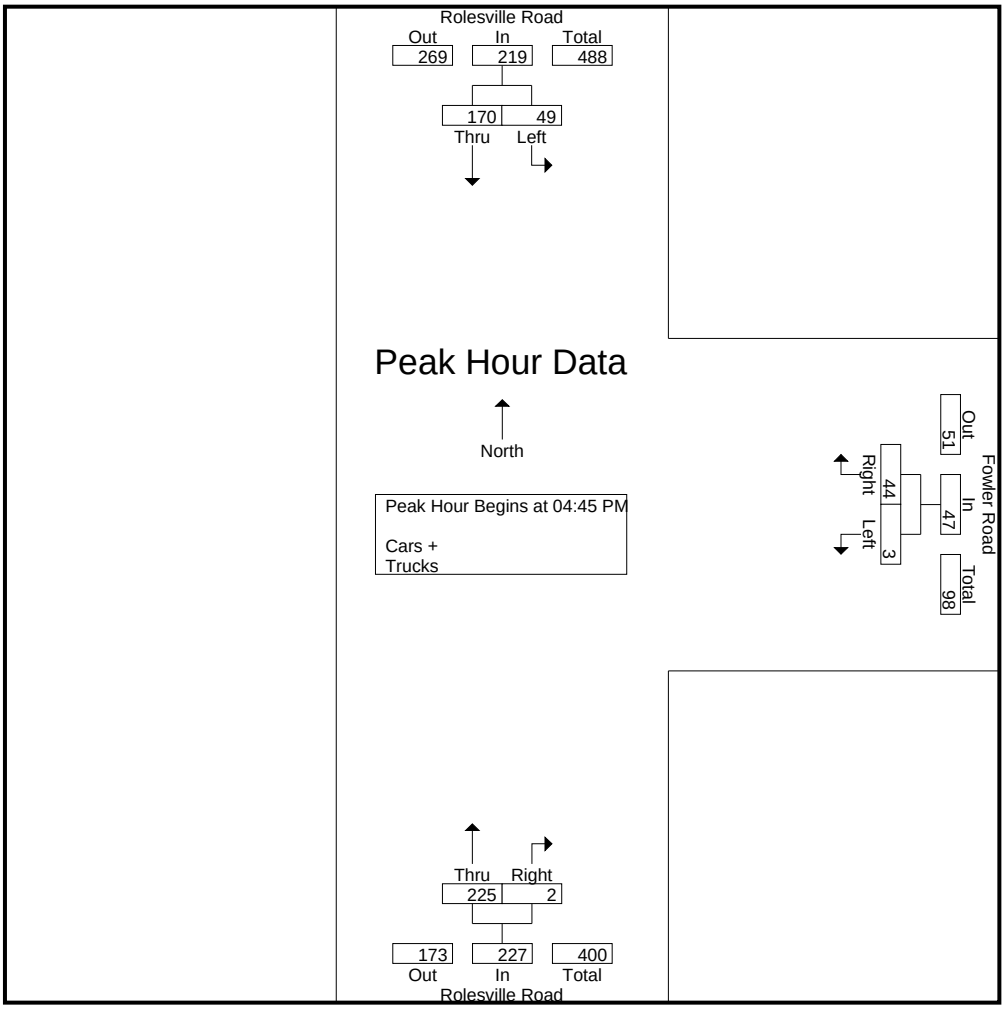
Groups Printed- Cars + - Trucks

| | Rolesville Road Southbound | | | Fowler Road Westbound | | | Rolesville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | App. Total | Int. Total |
| 04:00 PM | 38 | 17 | 55 | 10 | 1 | 11 | 1 | 31 | 32 | 98 |
| 04:15 PM | 32 | 8 | 40 | 12 | 1 | 13 | 1 | 37 | 38 | 91 |
| 04:30 PM | 33 | 13 | 46 | 7 | 0 | 7 | 0 | 32 | 32 | 85 |
| 04:45 PM | 54 | 11 | 65 | 11 | 2 | 13 | 0 | 57 | 57 | 135 |
| Total | 157 | 49 | 206 | 40 | 4 | 44 | 2 | 157 | 159 | 409 |
| | | | | | | | | | | |
| 05:00 PM | 34 | 15 | 49 | 8 | 1 | 9 | 1 | 46 | 47 | 105 |
| 05:15 PM | 43 | 8 | 51 | 14 | 0 | 14 | 1 | 55 | 56 | 121 |
| 05:30 PM | 39 | 15 | 54 | 11 | 0 | 11 | 0 | 67 | 67 | 132 |
| 05:45 PM | 41 | 14 | 55 | 8 | 0 | 8 | 0 | 38 | 38 | 101 |
| Total | 157 | 52 | 209 | 41 | 1 | 42 | 2 | 206 | 208 | 459 |
| | | | | | | | | | | |
| Grand Total | 314 | 101 | 415 | 81 | 5 | 86 | 4 | 363 | 367 | 868 |
| Apprch % | 75.7 | 24.3 | | 94.2 | 5.8 | | 1.1 | 98.9 | | |
| Total % | 36.2 | 11.6 | 47.8 | 9.3 | 0.6 | 9.9 | 0.5 | 41.8 | 42.3 | |
| Cars + | 311 | 100 | 411 | 80 | 5 | 85 | 4 | 362 | 366 | 862 |
| % Cars + | 99 | 99 | 99 | 98.8 | 100 | 98.8 | 100 | 99.7 | 99.7 | 99.3 |
| Trucks | 3 | 1 | 4 | 1 | 0 | 1 | 0 | 1 | 1 | 6 |
| % Trucks | 1 | 1 | 1 | 1.2 | 0 | 1.2 | 0 | 0.3 | 0.3 | 0.7 |

TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Fowler)PM Peak
Site Code :
Start Date : 5/2/2019
Page No : 2

| | Rolesville Road Southbound | | | Fowler Road Westbound | | | Rolesville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | 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 | **54** | 11 | **65** | 11 | **2** | 13 | 0 | 57 | 57 | **135** |
| 05:00 PM | 34 | **15** | 49 | 8 | 1 | 9 | **1** | 46 | 47 | 105 |
| 05:15 PM | 43 | 8 | 51 | **14** | 0 | **14** | 1 | 55 | 56 | 121 |
| 05:30 PM | 39 | 15 | 54 | 11 | 0 | 11 | 0 | **67** | **67** | 132 |
| Total Volume | 170 | 49 | 219 | 44 | 3 | 47 | 2 | 225 | 227 | 493 |
| % App. Total | 77.6 | 22.4 | | 93.6 | 6.4 | | 0.9 | 99.1 | | |
| PHF | .787 | .817 | .842 | .786 | .375 | .839 | .500 | .840 | .847 | .913 |



TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Traviswood)AM Peak
Site Code :
Start Date : 5/2/2019
Page No : 1

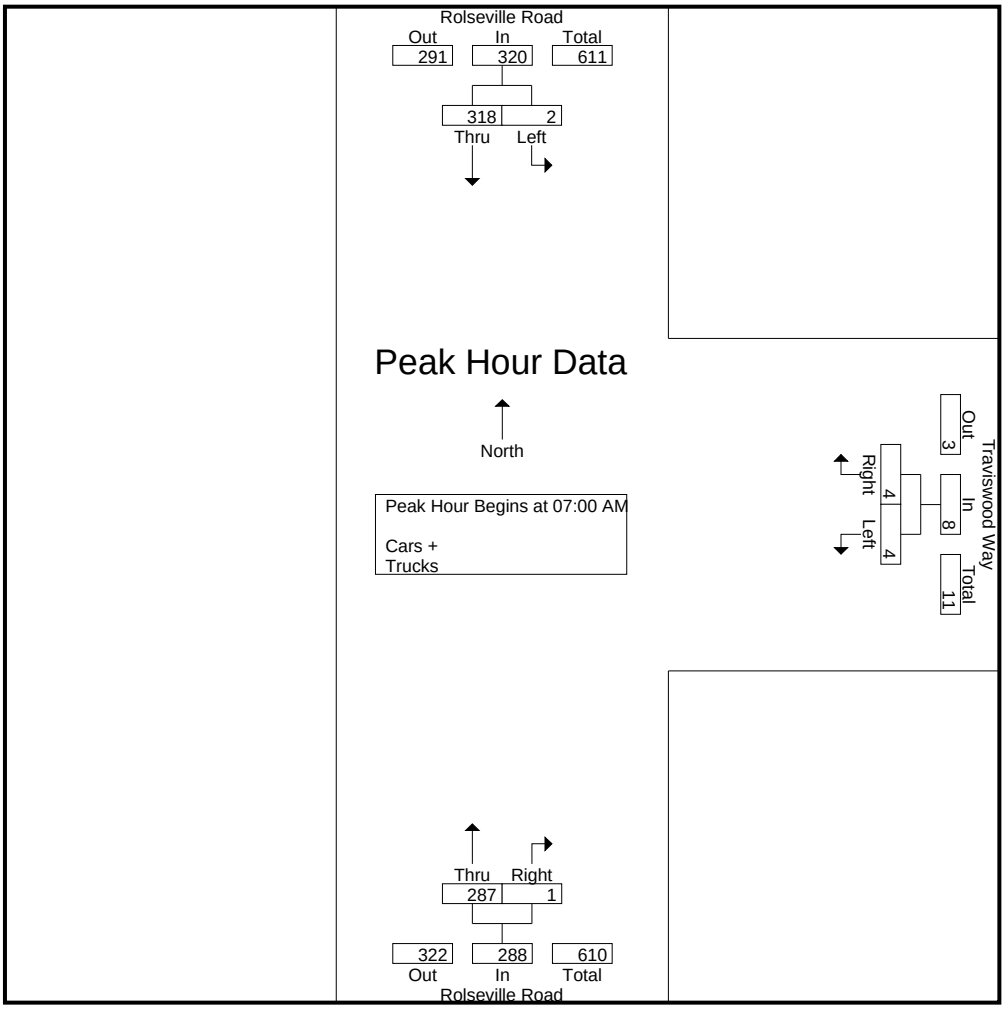
Groups Printed- Cars + - Trucks

| | Rolseville Road Southbound | | | Traviswood Way Westbound | | | Rolseville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | App. Total | Int. Total |
| 07:00 AM | 83 | 0 | 83 | 1 | 2 | 3 | 0 | 113 | 113 | 199 |
| 07:15 AM | 90 | 1 | 91 | 2 | 0 | 2 | 0 | 63 | 63 | 156 |
| 07:30 AM | 76 | 0 | 76 | 0 | 1 | 1 | 1 | 66 | 67 | 144 |
| 07:45 AM | 69 | 1 | 70 | 1 | 1 | 2 | 0 | 45 | 45 | 117 |
| Total | 318 | 2 | 320 | 4 | 4 | 8 | 1 | 287 | 288 | 616 |
| | | | | | | | | | | |
| 08:00 AM | 71 | 0 | 71 | 0 | 0 | 0 | 1 | 25 | 26 | 97 |
| 08:15 AM | 42 | 0 | 42 | 0 | 2 | 2 | 0 | 28 | 28 | 72 |
| 08:30 AM | 28 | 0 | 28 | 0 | 0 | 0 | 0 | 33 | 33 | 61 |
| 08:45 AM | 30 | 0 | 30 | 0 | 0 | 0 | 0 | 24 | 24 | 54 |
| Total | 171 | 0 | 171 | 0 | 2 | 2 | 1 | 110 | 111 | 284 |
| | | | | | | | | | | |
| Grand Total | 489 | 2 | 491 | 4 | 6 | 10 | 2 | 397 | 399 | 900 |
| Apprch % | 99.6 | 0.4 | | 40 | 60 | | 0.5 | 99.5 | | |
| Total % | 54.3 | 0.2 | 54.6 | 0.4 | 0.7 | 1.1 | 0.2 | 44.1 | 44.3 | |
| Cars + | 482 | 2 | 484 | 4 | 6 | 10 | 2 | 392 | 394 | 888 |
| % Cars + | 98.6 | 100 | 98.6 | 100 | 100 | 100 | 100 | 98.7 | 98.7 | 98.7 |
| Trucks | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 5 | 5 | 12 |
| % Trucks | 1.4 | 0 | 1.4 | 0 | 0 | 0 | 0 | 1.3 | 1.3 | 1.3 |

TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Traviswood)AM Peak
Site Code :
Start Date : 5/2/2019
Page No : 2

| | Rolseville Road Southbound | | | Traviswood Way Westbound | | | Rolseville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | 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 | 83 | 0 | 83 | 1 | **2** | **3** | 0 | **113** | **113** | **199** |
| 07:15 AM | **90** | **1** | **91** | **2** | 0 | 2 | 0 | 63 | 63 | 156 |
| 07:30 AM | 76 | 0 | 76 | 0 | 1 | 1 | **1** | 66 | 67 | 144 |
| 07:45 AM | 69 | 1 | 70 | 1 | 1 | 2 | 0 | 45 | 45 | 117 |
| Total Volume | 318 | 2 | 320 | 4 | 4 | 8 | 1 | 287 | 288 | 616 |
| % App. Total | 99.4 | 0.6 | | 50 | 50 | | 0.3 | 99.7 | | |
| PHF | .883 | .500 | .879 | .500 | .500 | .667 | .250 | .635 | .637 | .774 |



TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Traviswood)PM Peak
Site Code :
Start Date : 5/2/2019
Page No : 1

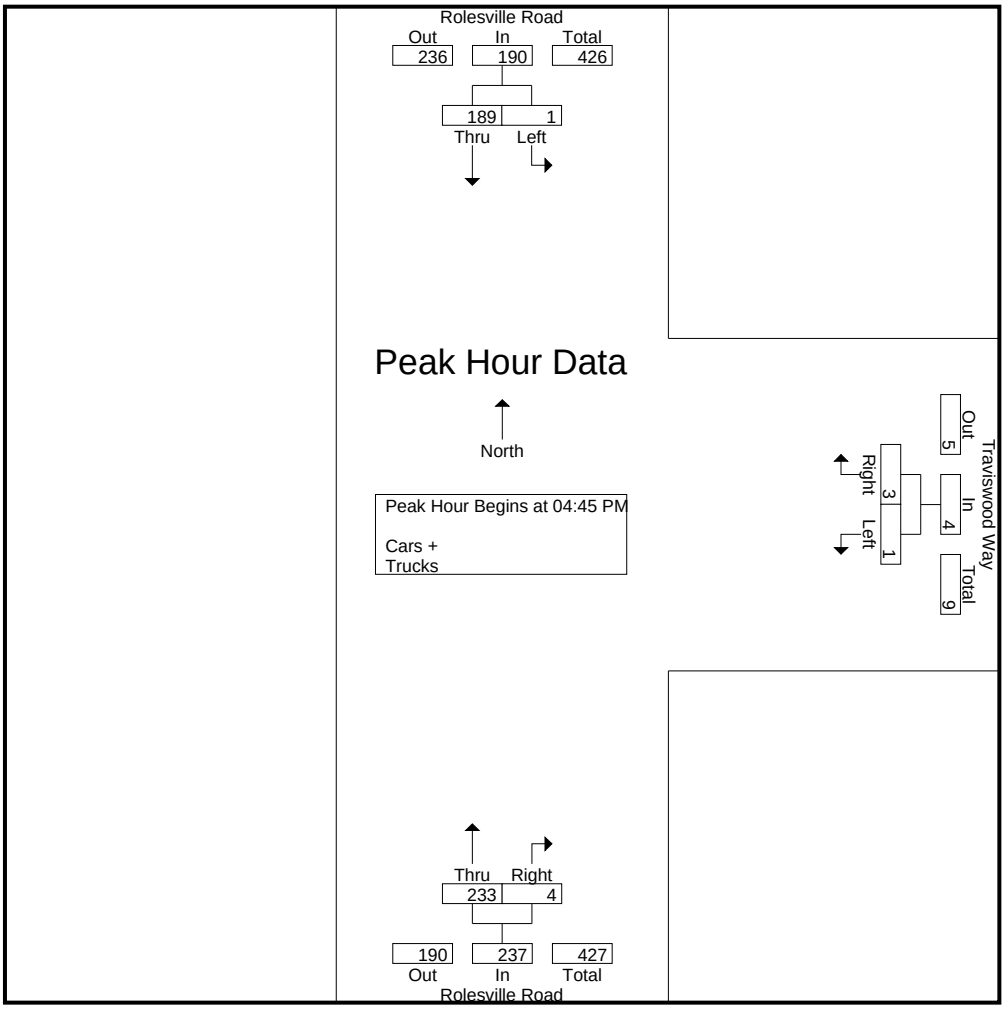
Groups Printed- Cars + - Trucks

| | Rolesville Road Southbound | | | Traviswood Way Westbound | | | Rolesville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | App. Total | Int. Total |
| 04:00 PM | 44 | 0 | 44 | 0 | 1 | 1 | 0 | 33 | 33 | 78 |
| 04:15 PM | 37 | 0 | 37 | 0 | 0 | 0 | 1 | 38 | 39 | 76 |
| 04:30 PM | 31 | 0 | 31 | 0 | 0 | 0 | 2 | 42 | 44 | 75 |
| 04:45 PM | 58 | 0 | 58 | 0 | 0 | 0 | 0 | 55 | 55 | 113 |
| Total | 170 | 0 | 170 | 0 | 1 | 1 | 3 | 168 | 171 | 342 |
| | | | | | | | | | | |
| 05:00 PM | 39 | 1 | 40 | 0 | 1 | 1 | 1 | 54 | 55 | 96 |
| 05:15 PM | 50 | 0 | 50 | 2 | 0 | 2 | 1 | 64 | 65 | 117 |
| 05:30 PM | 42 | 0 | 42 | 1 | 0 | 1 | 2 | 60 | 62 | 105 |
| 05:45 PM | 41 | 0 | 41 | 0 | 1 | 1 | 0 | 38 | 38 | 80 |
| Total | 172 | 1 | 173 | 3 | 2 | 5 | 4 | 216 | 220 | 398 |
| | | | | | | | | | | |
| Grand Total | 342 | 1 | 343 | 3 | 3 | 6 | 7 | 384 | 391 | 740 |
| Apprch % | 99.7 | 0.3 | | 50 | 50 | | 1.8 | 98.2 | | |
| Total % | 46.2 | 0.1 | 46.4 | 0.4 | 0.4 | 0.8 | 0.9 | 51.9 | 52.8 | |
| Cars + | 339 | 1 | 340 | 3 | 3 | 6 | 7 | 383 | 390 | 736 |
| % Cars + | 99.1 | 100 | 99.1 | 100 | 100 | 100 | 100 | 99.7 | 99.7 | 99.5 |
| Trucks | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 4 |
| % Trucks | 0.9 | 0 | 0.9 | 0 | 0 | 0 | 0 | 0.3 | 0.3 | 0.5 |

TRAFFIC DATA COLLECTION

File Name : Rolesville(Rolesville and Traviswood)PM Peak
Site Code :
Start Date : 5/2/2019
Page No : 2

| | Rolesville Road Southbound | | | Traviswood Way Westbound | | | Rolesville Road Northbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Thru | Left | App. Total | Right | Left | App. Total | Right | Thru | 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 | **58** | 0 | **58** | 0 | 0 | 0 | 0 | 55 | 55 | 113 |
| 05:00 PM | 39 | **1** | 40 | 0 | **1** | 1 | 1 | 54 | 55 | 96 |
| 05:15 PM | 50 | 0 | 50 | **2** | 0 | **2** | 1 | **64** | **65** | **117** |
| 05:30 PM | 42 | 0 | 42 | 1 | 0 | 1 | **2** | 60 | 62 | 105 |
| Total Volume | 189 | 1 | 190 | 3 | 1 | 4 | 4 | 233 | 237 | 431 |
| % App. Total | 99.5 | 0.5 | | 75 | 25 | | 1.7 | 98.3 | | |
| PHF | .815 | .250 | .819 | .375 | .250 | .500 | .500 | .910 | .912 | .921 |



# APPENDIX C

## ADJACENT DEVELOPMENT INFORMATION

**Traffic Impact Analysis for**

# Young Street PUD

**Rolesville, North Carolina**

**Prepared for:**

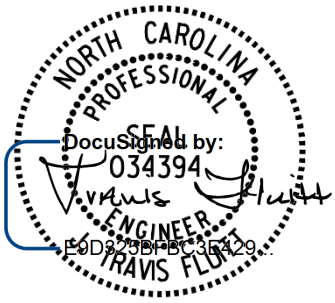
**Ashton Woods**
**Raleigh, North Carolina**

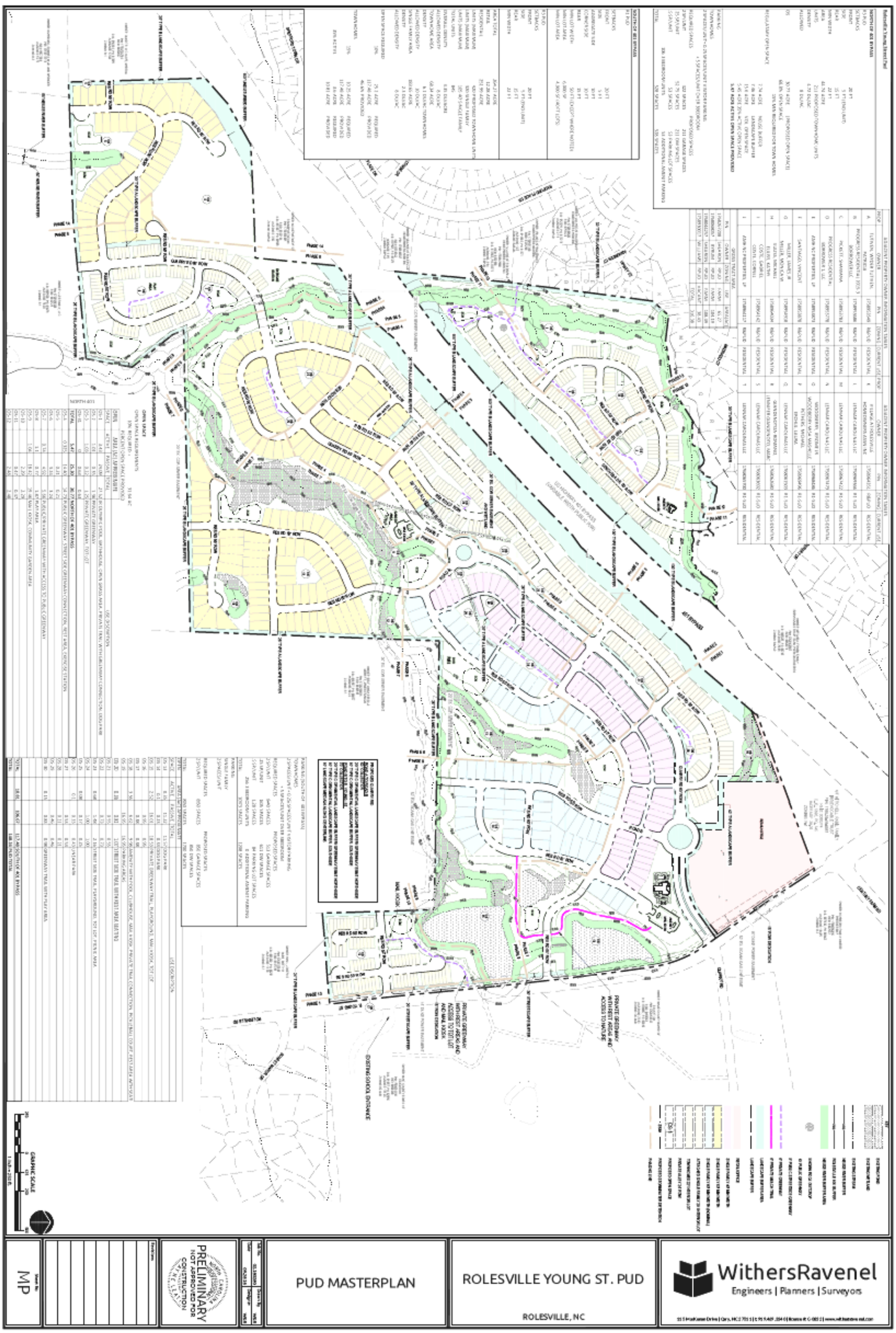
**Prepared by:**

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

**April 2019**

**015956012**






Kimley»Horn

YOUNG STREET PUD
ROLESVILLE, NC
TRAFFIC IMPACT ANALYSIS

PRELIMINARY SITE PLAN

FIGURE
2

NOT TO SCALE

YOUNG ST.

347 (0) <37> [384]
39 (58) <0> [97]

251 (14) <37> [302]
518 (0) <74> [592]
149 (0) <42> [191]

566 (7) <42> [615]

US-401 BYPASS EB

[487] <111> (7) 369
[1090] <25> (4) 1061

469 (7) <135> [611]

CENTURY FARM RD.

1 (0) <0> [1]
2 (0) <0> [2]

2 (0) <0> [2]
471 (7) <135> [613]

QUARRY RD.

88 (0) <0> [88]
0 (0) <0> [0]
43 (0) <0> [43]

YOUNG ST.

27 (0) <0> [27]
385 (7) <49> [441]
0 (0) <17> [17]

412 (7) <24> [443]
0 (0) <42> [42]

ROLESVILLE HIGH SCHOOL DRWY.

81 (0) <0> [81]
0 (0) <0> [0]
20 (0) <0> [20]

13 (0) <0> [13]
379 (7) <59> [445]
0 (0) <4> [4]

MITCHELL MILL RD.

17 (0) <0> [17]
44 (0) <0> [44]
15 (0) <0> [15]

46 (0) <0> [46]
259 (7) <63> [329]
8 (0) <0> [8]

[449] <63> (0) 386
[32] <0> (7) 25

[513] <63> (34) 416

[8] <0> (0) 8
[1037] <356> (4) 677

[135] <0> (0) 135
[660] <105> (4) 551
[250] <250> (0) 0

[664] <66> (4) 594
[88] <88> (0) 0

[80] <0> (0) 80
[565] <106> (4) 455
[17] <17> (0) 0

[15] <0> (0) 15
[297] <37> (4) 256
[110] <74> (0) 36

[21] <0> (4) 17
[64] <0> (34) 30

[177] <0> (43) 134
[908] <0> (4) 904
[853] <314> (4) 535

[53] <0> (0) 53
[116] <0> (0) 116
[8] <0> (0) 8

VIRGINIA WATER DR.

564 (25) <74> [663]
360 (8) <63> [431]

US-401 BYPASS WB

[1498] <251> (43) 1204

NORTHERN SITE DRWY.

[85] <85> (0) 0
[0] <0> (0) 0
[49] <49> (0) 0

CENTRAL SITE DRWY.

[42] <42> (0) 0
[57] <57> (0) 0

SOUTHERN SITE DRWY.

[7] <7> (0) 0
[0] <0> (0) 0
[5] <5> (0) 0

ROLESVILLE RD.

SOUTH SITE

GENOVESA DR.

3 (0) <0> [3]
34 (0) <0> [34]
5 (65) <0> [70]

7 (38) <0> [45]
0 (0) <0> [0]
3 (4) <0> [7]

[0] <0> (0) 0
[0] <0> (0) 0
[1] <0> (0) 1

[1] <0> (0) 1
[42] <0> (0) 42
[9] <0> (7) 2

NORTH SITE

LEGEND

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

FIGURE 13

PROJECTED (2025)
BUILD–OUT PM PEAK HOUR
TRAFFIC VOLUMES –
RESIDENTIAL BUILD–OUT

YOUNG STREET PUD
ROLESVILLE, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

NOT TO SCALE

ROLESVILLE RD.

385 (0) <70> [455]
27 (18) <0> [45]

320 (4) <70> [394]
1321 (0) <140> [1461]
181 (0) <25> [206]

1291 (2) <25> [1318]

US-401 BYPASS EB

[719] <211> (2) 506
[468] <47> (8) 413

695 (2) <257> [954]

6 (0) <0> [6]
1 (0) <0> [1]

CENTURY FARM RD.

1 (0) <0> [1]
685 (2) <257> [944]

157 (0) <0> [157]
0 (0) <0> [0]
34 (0) <0> [34]

QUARRY RD.

69 (0) <0> [69]
530 (2) <94> [626]
0 (0) <10> [10]

YOUNG ST.

600 (2) <24> [626]
0 (0) <25> [25]

195 (0) <0> [195]
0 (0) <0> [0]
91 (0) <0> [91]

ROLESVILLE HIGH SCHOOL DRWY.

213 (0) <0> [213]
418 (2) <35> [455]
0 (0) <3> [3]

16 (0) <0> [16]
184 (0) <0> [184]
52 (0) <0> [52]

MITCHELL MILL RD.

8 (0) <0> [8]
274 (2) <38> [314]
9 (0) <0> [9]

[511] <38> (0) 473
[5] <0> (2) 3

[617] <38> (60) 519

[33] <0> (8) 25
[125] <0> (60) 65

[489] (45) <140> [1674]
[349] (15) <38> [402]

[0] <0> (0) 0
[1062] <215> (8) 839

[213] <0> (0) 213
[701] <63> (8) 630
[152] <152> (0) 0

[163] <163> (0) 0
[0] <0> (0) 0
[94] <94> (0) 0

[777] <104> (8) 665
[53] <53> (0) 0

[80] <80> (0) 0
[108] <108> (0) 0

[299] <0> (0) 299
[521] <201> (8) 312
[10] <10> (0) 0

[14] <14> (0) 0
[0] <0> (0) 0
[9] <9> (0) 0

[16] <0> (0) 16
[372] <70> (8) 294
[237] <140> (0) 97

[124] <0> (0) 124
[17] <0> (0) 17
[2] <0> (0) 2

ROLESVILLE RD.

VIRGINIA WATER DR.

[67] <0> (13) 54
[266] <0> (8) 258
[864] <190> (8) 666

1489 (45)
349 (15) <38>

US-401 BYPASS WB

[810] <152> (13) 645

GENOVESA DR.

0 (0) <0> [0]
28 (0) <0> [28]
3 (20) <0> [23]

5 (68) <0> [73]
0 (0) <0> [0]
2 (7) <0> [9]

[1] <0> (0) 1
[0] <0> (0) 0
[5] <0> (0) 5

[2] <0> (0) 2
[41] <0> (0) 41
[2] <0> (2) 0

NORTH SITE

NORTHERN SITE DRWY.

CENTRAL SITE DRWY.

SOUTHERN SITE DRWY.

SOUTH SITE

LEGEND

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

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

FIGURE 14

YOUNG STREET PUD
ROLESVILLE, NC
TRAFFIC IMPACT ANALYSIS

Kimley»Horn

**Kalas Property Traffic Impact Analysis**

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

January 19, 2016

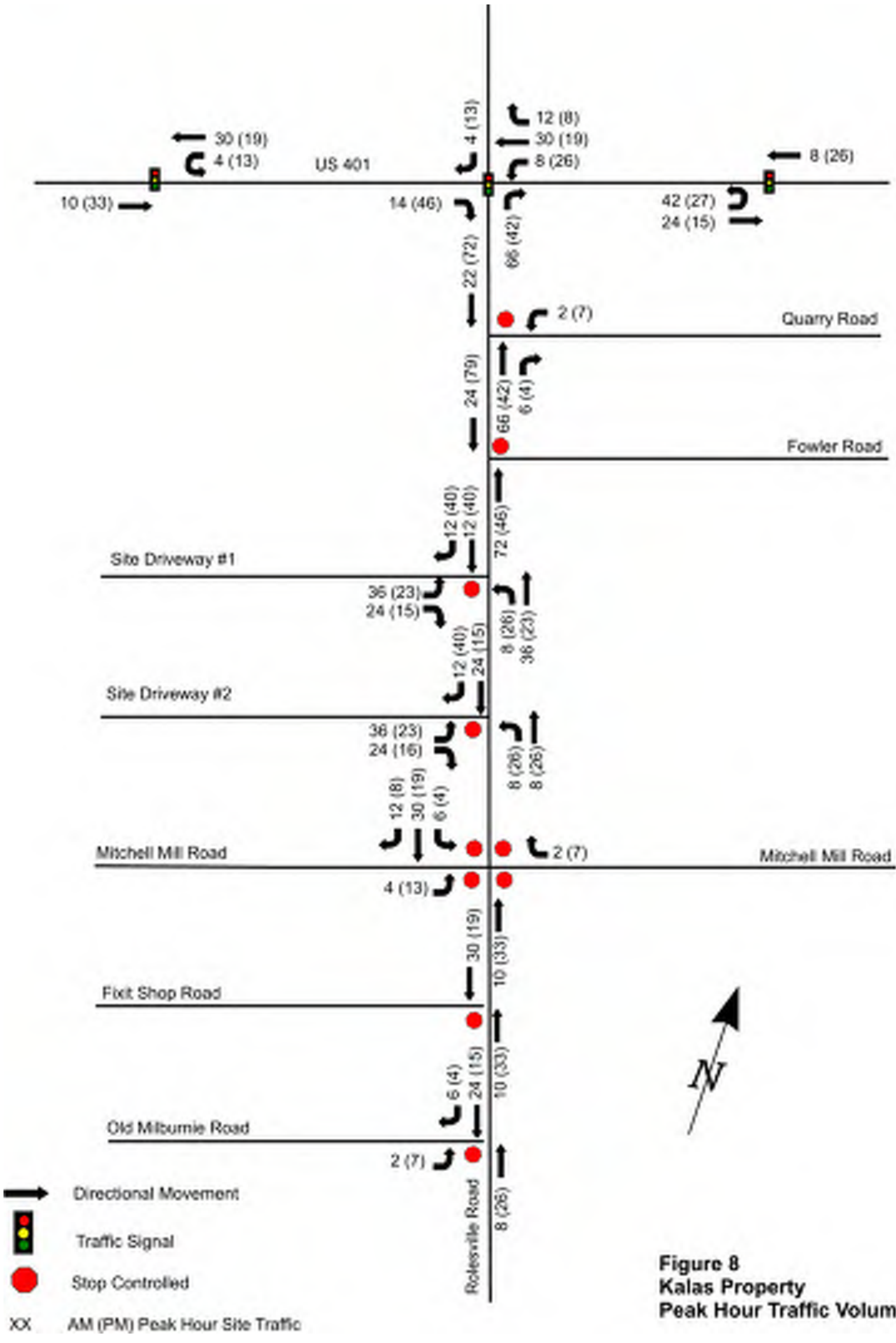



**Figure 8**
**Kalas Property**
**Peak Hour Traffic Volumes**

## 6.2 APPROVED DEVELOPMENT TRAFFIC

Approved development traffic is generated by specific approved, but not yet constructed, projects within the vicinity of the subject project. Based on coordination with the Town of Rolesville and NCDOT, the following approved developments were considered in the analyses of the Kalas Property development:

- Rogers Farm Subdivision

A traffic impact analysis report was not required by the Town of Rolesville for the Rogers Farm subdivision. With the information provided regarding the future development, trips generated by the development during the AM and PM peak hours were distributed in the same manner as the site traffic distributed in this report (see Figure 6).

The following is the ITE trip generation information used for the Rogers Farm subdivision:

**Table 2: ITE Trip Generation**
Rogers Farm Subdivision

| Land Use | ITE Site Code | Size | 24 Hour Two-Way Volume | AM Peak | | PM Peak | |
|---|---|---|---|---|---|---|---|
| | | | | Enter | Exit | Enter | Exit |
| Single-Family Detached Housing | 210 | 98 units | 1,030 | 20 | 59 | 65 | 38 |

A summary of all traffic from the above mentioned approved developments is illustrated in Figure 6A.

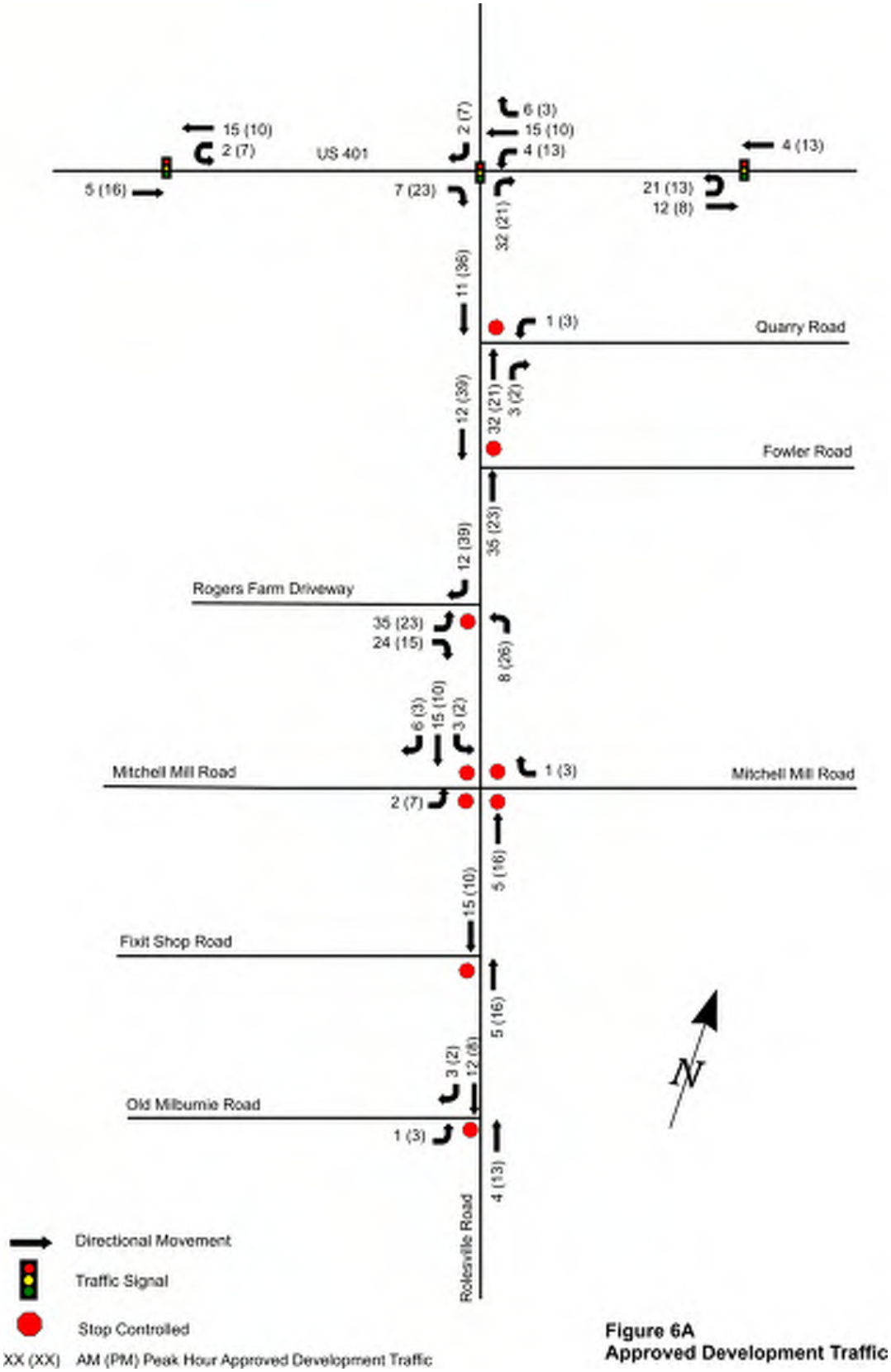



**Figure 6A**
**Approved Development Traffic**

# Executive Summary

The proposed Watkins Family Property Development is located on the west side of Rolesville Road just north of Mitchell Mill Road in Rolesville, NC. The proposed development will consist of a maximum 145 single family homes. At full build out, the development is expected to generate 1464 new trips per average weekday. In the AM and PM peak hours, the development will generate approximately 108 AM peak hour trips (27 entering and 81 exiting) and 145 PM peak hour trips (91 entering and 54 exiting), respectively. The project completion date is expected to be 2025.

Access to the site is envisioned to be provided via the approved but not yet constructed access points for the Kalas Property on Rolesville Road. The first access is approximately 1,500 feet and the other approximately 2,300 feet north of the intersection of Rolesville Road at Mitchell Mill Road.

The purpose of this report is to evaluate the proposed development in terms of projected traffic conditions, evaluate the ability of the adjacent roadways to accommodate the additional traffic volumes, and to recommend transportation improvements needed to mitigate congestion that may result from the additional site traffic. This report presents trip generation, trip distribution, traffic analyses, and recommendations for transportation improvements needed to meet anticipated traffic demands. This report examines the following scenarios for the AM and PM peak hours:

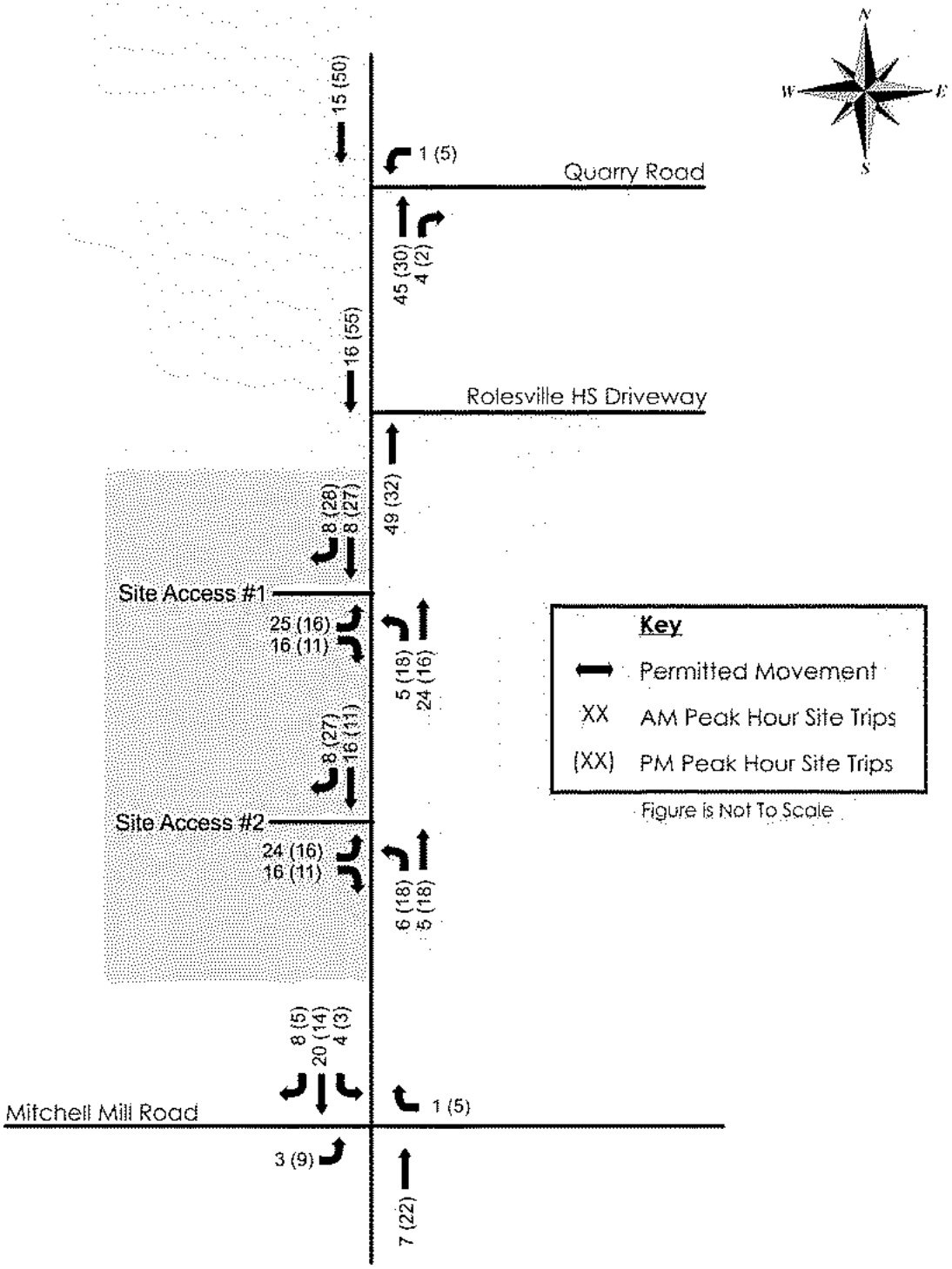
- 2018 Existing
- 2025 No-Build
- 2025 Build Out
- 2025 Build Out with Improvements

Capacity analyses for the AM and PM peak hours in each scenario were performed for the following intersections:

- Rolesville Road at Mitchell Mill Road;
- Rolesville Road at Rolesville High School Driveway;
- Rolesville Road at Quarry Road;
- Rolesville Road at Site Access 1; and
- Rolesville Road at Site Access 2.

**Table ES-1** shows a summary of the capacity analyses results included in this Traffic Impact Analysis (TIA).

**Figure 6: Proposed Site Trips**



# APPENDIX D

## CAPACITY ANALYSIS CALCULATIONS

## ROLESVILLE ROAD

## &

## MITCHELL MILL ROAD

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 14 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 74 | 32 | 1 | 61 | 160 | 7 | 8 | 207 | 4 | 3 | 270 | 59 |
| Future Vol, veh/h | 74 | 32 | 1 | 61 | 160 | 7 | 8 | 207 | 4 | 3 | 270 | 59 |
| 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 | 82 | 36 | 1 | 68 | 178 | 8 | 9 | 230 | 4 | 3 | 300 | 66 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 1 |
| HCM Control Delay | 11.3 | 14.5 | 12.6 | 15.4 |
| HCM LOS | B | B | B | C |

| Lane | NBLn1 | EBLn1 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 4% | 69% | 28% | 0% | 1% |
| Vol Thru, % | 95% | 30% | 72% | 0% | 81% |
| Vol Right, % | 2% | 1% | 0% | 100% | 18% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 219 | 107 | 221 | 7 | 332 |
| LT Vol | 8 | 74 | 61 | 0 | 3 |
| Through Vol | 207 | 32 | 160 | 0 | 270 |
| RT Vol | 4 | 1 | 0 | 7 | 59 |
| Lane Flow Rate | 243 | 119 | 246 | 8 | 369 |
| Geometry Grp | 2 | 5 | 7 | 7 | 2 |
| Degree of Util (X) | 0.391 | 0.214 | 0.45 | 0.012 | 0.561 |
| Departure Headway (Hd) | 5.78 | 6.472 | 6.599 | 5.745 | 5.476 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 618 | 550 | 543 | 619 | 657 |
| Service Time | 3.856 | 4.565 | 4.372 | 3.518 | 3.544 |
| HCM Lane V/C Ratio | 0.393 | 0.216 | 0.453 | 0.013 | 0.562 |
| HCM Control Delay | 12.6 | 11.3 | 14.7 | 8.6 | 15.4 |
| HCM Lane LOS | B | B | B | A | C |
| HCM 95th-tile Q | 1.9 | 0.8 | 2.3 | 0 | 3.5 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 10.2 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 19 | 99 | 3 | 19 | 32 | 4 | 5 | 221 | 55 | 8 | 166 | 18 |
| Future Vol, veh/h | 19 | 99 | 3 | 19 | 32 | 4 | 5 | 221 | 55 | 8 | 166 | 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 | 21 | 110 | 3 | 21 | 36 | 4 | 6 | 246 | 61 | 9 | 184 | 20 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 1 |
| HCM Control Delay | 9.8 | 9.5 | 10.7 | 9.8 |
| HCM LOS | A | A | B | A |

| Lane | NBLn1 | EBLn1 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 2% | 16% | 37% | 0% | 4% |
| Vol Thru, % | 79% | 82% | 63% | 0% | 86% |
| Vol Right, % | 20% | 2% | 0% | 100% | 9% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 281 | 121 | 51 | 4 | 192 |
| LT Vol | 5 | 19 | 19 | 0 | 8 |
| Through Vol | 221 | 99 | 32 | 0 | 166 |
| RT Vol | 55 | 3 | 0 | 4 | 18 |
| Lane Flow Rate | 312 | 134 | 57 | 4 | 213 |
| Geometry Grp | 2 | 5 | 7 | 7 | 2 |
| Degree of Util (X) | 0.4 | 0.2 | 0.096 | 0.006 | 0.284 |
| Departure Headway (Hd) | 4.614 | 5.361 | 6.107 | 5.209 | 4.788 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 774 | 663 | 581 | 679 | 745 |
| Service Time | 2.671 | 3.448 | 3.905 | 3.006 | 2.852 |
| HCM Lane V/C Ratio | 0.403 | 0.202 | 0.098 | 0.006 | 0.286 |
| HCM Control Delay | 10.7 | 9.8 | 9.6 | 8 | 9.8 |
| HCM Lane LOS | B | A | A | A | A |
| HCM 95th-tile Q | 1.9 | 0.7 | 0.3 | 0 | 1.2 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 108.7 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 94 | 37 | 1 | 70 | 184 | 12 | 9 | 299 | 5 | 16 | 448 | 225 |
| Future Vol, veh/h | 94 | 37 | 1 | 70 | 184 | 12 | 9 | 299 | 5 | 16 | 448 | 225 |
| 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 | 104 | 41 | 1 | 78 | 204 | 13 | 10 | 332 | 6 | 18 | 498 | 250 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 1 |
| HCM Control Delay | 16.8 | 24.2 | 25.3 | 196.8 |
| HCM LOS | C | C | D | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 3% | 71% | 28% | 0% | 2% |
| Vol Thru, % | 96% | 28% | 72% | 0% | 65% |
| Vol Right, % | 2% | 1% | 0% | 100% | 33% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 313 | 132 | 254 | 12 | 689 |
| LT Vol | 9 | 94 | 70 | 0 | 16 |
| Through Vol | 299 | 37 | 184 | 0 | 448 |
| RT Vol | 5 | 1 | 0 | 12 | 225 |
| Lane Flow Rate | 348 | 147 | 282 | 13 | 766 |
| Geometry Grp | 2 | 5 | 7 | 7 | 2 |
| Degree of Util (X) | 0.677 | 0.335 | 0.619 | 0.026 | 1.369 |
| Departure Headway (Hd) | 7.674 | 9.229 | 8.803 | 7.933 | 6.44 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 473 | 392 | 412 | 454 | 567 |
| Service Time | 5.674 | 7.229 | 6.503 | 5.633 | 4.464 |
| HCM Lane V/C Ratio | 0.736 | 0.375 | 0.684 | 0.029 | 1.351 |
| HCM Control Delay | 25.3 | 16.8 | 24.8 | 10.8 | 196.8 |
| HCM Lane LOS | D | C | C | B | F |
| HCM 95th-tile Q | 5 | 1.4 | 4 | 0.1 | 34.1 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 26.7 |
| Intersection LOS | D |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 51 | 114 | 3 | 22 | 37 | 20 | 6 | 405 | 63 | 18 | 291 | 144 |
| Future Vol, veh/h | 51 | 114 | 3 | 22 | 37 | 20 | 6 | 405 | 63 | 18 | 291 | 144 |
| 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 | 57 | 127 | 3 | 24 | 41 | 22 | 7 | 450 | 70 | 20 | 323 | 160 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 1 |
| HCM Control Delay | 14.6 | 11.8 | 32.5 | 27.8 |
| HCM LOS | B | B | D | D |

| Lane | NBLn1 | EBLn1 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 1% | 30% | 37% | 0% | 4% |
| Vol Thru, % | 85% | 68% | 63% | 0% | 64% |
| Vol Right, % | 13% | 2% | 0% | 100% | 32% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 474 | 168 | 59 | 20 | 453 |
| LT Vol | 6 | 51 | 22 | 0 | 18 |
| Through Vol | 405 | 114 | 37 | 0 | 291 |
| RT Vol | 63 | 3 | 0 | 20 | 144 |
| Lane Flow Rate | 527 | 187 | 66 | 22 | 503 |
| Geometry Grp | 2 | 5 | 7 | 7 | 2 |
| Degree of Util (X) | 0.845 | 0.374 | 0.148 | 0.045 | 0.8 |
| Departure Headway (Hd) | 5.777 | 7.217 | 8.131 | 7.216 | 5.721 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 627 | 498 | 441 | 495 | 634 |
| Service Time | 3.819 | 5.275 | 5.896 | 4.981 | 3.763 |
| HCM Lane V/C Ratio | 0.841 | 0.376 | 0.15 | 0.044 | 0.793 |
| HCM Control Delay | 32.5 | 14.6 | 12.3 | 10.3 | 27.8 |
| HCM Lane LOS | D | B | B | B | D |
| HCM 95th-tile Q | 9.2 | 1.7 | 0.5 | 0.1 | 8 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 151.4 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 102 | 51 | 1 | 79 | 227 | 12 | 9 | 302 | 8 | 16 | 457 | 251 |
| Future Vol, veh/h | 102 | 51 | 1 | 79 | 227 | 12 | 9 | 302 | 8 | 16 | 457 | 251 |
| 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 | 113 | 57 | 1 | 88 | 252 | 13 | 10 | 336 | 9 | 18 | 508 | 279 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 1 |
| HCM Control Delay | 20.2 | 36.7 | 32.5 | 282.1 |
| HCM LOS | C | E | D | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 3% | 66% | 26% | 0% | 2% |
| Vol Thru, % | 95% | 33% | 74% | 0% | 63% |
| Vol Right, % | 3% | 1% | 0% | 100% | 35% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 319 | 154 | 306 | 12 | 724 |
| LT Vol | 9 | 102 | 79 | 0 | 16 |
| Through Vol | 302 | 51 | 227 | 0 | 457 |
| RT Vol | 8 | 1 | 0 | 12 | 251 |
| Lane Flow Rate | 354 | 171 | 340 | 13 | 804 |
| Geometry Grp | 2 | 5 | 7 | 7 | 2 |
| Degree of Util (X) | 0.74 | 0.411 | 0.773 | 0.027 | 1.564 |
| Departure Headway (Hd) | 8.644 | 10.228 | 9.403 | 8.538 | 7 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 422 | 354 | 388 | 422 | 523 |
| Service Time | 6.644 | 8.228 | 7.103 | 6.238 | 5.062 |
| HCM Lane V/C Ratio | 0.839 | 0.483 | 0.876 | 0.031 | 1.537 |
| HCM Control Delay | 32.5 | 20.2 | 37.7 | 11.5 | 282.1 |
| HCM Lane LOS | D | C | E | B | F |
| HCM 95th-tile Q | 5.9 | 1.9 | 6.4 | 0.1 | 42.9 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 55.2 |
| Intersection LOS | F |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 79 | 161 | 3 | 28 | 65 | 20 | 6 | 415 | 73 | 18 | 297 | 160 |
| Future Vol, veh/h | 79 | 161 | 3 | 28 | 65 | 20 | 6 | 415 | 73 | 18 | 297 | 160 |
| 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 | 88 | 179 | 3 | 31 | 72 | 22 | 7 | 461 | 81 | 20 | 330 | 178 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 2 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 2 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 2 | 1 |
| HCM Control Delay | 22.6 | 14.5 | 76.7 | 59.2 |
| HCM LOS | C | B | F | F |

| Lane | NBLn1 | EBLn1 | WBLn1 | WBLn2 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 1% | 33% | 30% | 0% | 4% |
| Vol Thru, % | 84% | 66% | 70% | 0% | 63% |
| Vol Right, % | 15% | 1% | 0% | 100% | 34% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 494 | 243 | 93 | 20 | 475 |
| LT Vol | 6 | 79 | 28 | 0 | 18 |
| Through Vol | 415 | 161 | 65 | 0 | 297 |
| RT Vol | 73 | 3 | 0 | 20 | 160 |
| Lane Flow Rate | 549 | 270 | 103 | 22 | 528 |
| Geometry Grp | 2 | 5 | 7 | 7 | 2 |
| Degree of Util (X) | 1.042 | 0.598 | 0.26 | 0.05 | 0.975 |
| Departure Headway (Hd) | 6.837 | 8.171 | 9.27 | 8.384 | 6.82 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 532 | 445 | 390 | 430 | 538 |
| Service Time | 4.837 | 6.171 | 6.97 | 6.084 | 4.82 |
| HCM Lane V/C Ratio | 1.032 | 0.607 | 0.264 | 0.051 | 0.981 |
| HCM Control Delay | 76.7 | 22.6 | 15.2 | 11.5 | 59.2 |
| HCM Lane LOS | F | C | C | B | F |
| HCM 95th-tile Q | 15.8 | 3.8 | 1 | 0.2 | 13.1 |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 102 | 51 | 1 | 79 | 227 | 12 | 9 | 302 | 8 | 16 | 457 | 251 |
| Future Volume (vph) | 102 | 51 | 1 | 79 | 227 | 12 | 9 | 302 | 8 | 16 | 457 | 251 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 0 | | 325 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 0 | | 1 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.999 | | | | 0.850 | | 0.997 | | | 0.953 | |
| Flt Protected | | 0.968 | | | 0.987 | | | 0.999 | | | 0.999 | |
| Satd. Flow (prot) | 0 | 1801 | 0 | 0 | 1839 | 1583 | 0 | 1855 | 0 | 0 | 1773 | 0 |
| Flt Permitted | | 0.448 | | | 0.874 | | | 0.975 | | | 0.988 | |
| Satd. Flow (perm) | 0 | 834 | 0 | 0 | 1628 | 1583 | 0 | 1811 | 0 | 0 | 1754 | 0 |
| Right Turn on Red | | | No | | | No | | | No | | | No |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Link Speed (mph) | | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | | 1309 | | | 1418 | | | 1475 | | | 1783 | |
| Travel Time (s) | | 19.8 | | | 21.5 | | | 22.3 | | | 27.0 | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 113 | 57 | 1 | 88 | 252 | 13 | 10 | 336 | 9 | 18 | 508 | 279 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 171 | 0 | 0 | 340 | 13 | 0 | 355 | 0 | 0 | 805 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Free | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | Free | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | |
| Minimum Split (s) | 14.0 | 14.0 | | 14.0 | 14.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Total Split (s) | 22.0 | 22.0 | | 22.0 | 22.0 | | 38.0 | 38.0 | | 38.0 | 38.0 | |
| Total Split (%) | 36.7% | 36.7% | | 36.7% | 36.7% | | 63.3% | 63.3% | | 63.3% | 63.3% | |
| Maximum Green (s) | 15.0 | 15.0 | | 15.0 | 15.0 | | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | | | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | Min | Min | | Min | Min | |
| Act Effct Green (s) | | 16.0 | | | 16.0 | 56.1 | | 29.9 | | | 29.9 | |
| Actuated g/C Ratio | | 0.29 | | | 0.29 | 1.00 | | 0.53 | | | 0.53 | |
| v/c Ratio | | 0.72 | | | 0.73 | 0.01 | | 0.37 | | | 0.86 | |
| Control Delay | | 40.2 | | | 30.7 | 0.0 | | 9.0 | | | 23.3 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 40.2 | | | 30.7 | 0.0 | | 9.0 | | | 23.3 | |
| LOS | | D | | | C | A | | A | | | C | |
| Approach Delay | | 40.2 | | | 29.6 | | | 9.0 | | | 23.3 | |
| Approach LOS | | D | | | C | | | A | | | C | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Queue Length 50th (ft) | | 55 | | | 110 | 0 | | 65 | | | 218 | |
| Queue Length 95th (ft) | | #145 | | | #224 | 0 | | 111 | | | #442 | |
| Internal Link Dist (ft) | | 1229 | | | 1338 | | | 1395 | | | 1703 | |
| Turn Bay Length (ft) | | | | | | 325 | | | | | | |
| Base Capacity (vph) | | 257 | | | 502 | 1583 | | 1085 | | | 1050 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.67 | | | 0.68 | 0.01 | | 0.33 | | | 0.77 | |

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 56.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 83.9% ICU Level of Service E
Analysis Period (min) 15
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Rolesville Road & Mitchell Mill Road

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 79 | 161 | 3 | 28 | 65 | 20 | 6 | 415 | 73 | 18 | 297 | 160 |
| Future Volume (vph) | 79 | 161 | 3 | 28 | 65 | 20 | 6 | 415 | 73 | 18 | 297 | 160 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 0 | | 325 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 0 | | 1 | 0 | | 0 | 0 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.998 | | | | 0.850 | | 0.980 | | | 0.954 | |
| Flt Protected | | 0.984 | | | 0.985 | | | 0.999 | | | 0.998 | |
| Satd. Flow (prot) | 0 | 1829 | 0 | 0 | 1835 | 1583 | 0 | 1824 | 0 | 0 | 1774 | 0 |
| Flt Permitted | | 0.852 | | | 0.863 | | | 0.992 | | | 0.970 | |
| Satd. Flow (perm) | 0 | 1584 | 0 | 0 | 1608 | 1583 | 0 | 1811 | 0 | 0 | 1724 | 0 |
| Right Turn on Red | | | No | | | No | | | No | | | No |
| Satd. Flow (RTOR) | | | | | | | | | | | | |
| Link Speed (mph) | | 45 | | | 45 | | | 45 | | | 45 | |
| Link Distance (ft) | | 1309 | | | 1418 | | | 1475 | | | 1783 | |
| Travel Time (s) | | 19.8 | | | 21.5 | | | 22.3 | | | 27.0 | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 88 | 179 | 3 | 31 | 72 | 22 | 7 | 461 | 81 | 20 | 330 | 178 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 270 | 0 | 0 | 103 | 22 | 0 | 549 | 0 | 0 | 528 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Free | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | Free | 2 | | | 6 | | |
| Detector Phase | 4 | 4 | | 8 | 8 | | 2 | 2 | | 6 | 6 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | 12.0 | 12.0 | | 12.0 | 12.0 | |
| Minimum Split (s) | 14.0 | 14.0 | | 14.0 | 14.0 | | 19.0 | 19.0 | | 19.0 | 19.0 | |
| Total Split (s) | 23.0 | 23.0 | | 23.0 | 23.0 | | 37.0 | 37.0 | | 37.0 | 37.0 | |
| Total Split (%) | 38.3% | 38.3% | | 38.3% | 38.3% | | 61.7% | 61.7% | | 61.7% | 61.7% | |
| Maximum Green (s) | 16.0 | 16.0 | | 16.0 | 16.0 | | 30.0 | 30.0 | | 30.0 | 30.0 | |
| Yellow Time (s) | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | | 5.0 | 5.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | | -2.0 | | | -2.0 | | | -2.0 | | | -2.0 | |
| Total Lost Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | | Min | Min | | Min | Min | |
| Act Effct Green (s) | | 14.5 | | | 13.5 | 47.2 | | 22.3 | | | 22.3 | |
| Actuated g/C Ratio | | 0.31 | | | 0.29 | 1.00 | | 0.47 | | | 0.47 | |
| v/c Ratio | | 0.56 | | | 0.22 | 0.01 | | 0.64 | | | 0.65 | |
| Control Delay | | 20.1 | | | 15.4 | 0.0 | | 13.7 | | | 14.0 | |
| Queue Delay | | 0.0 | | | 0.0 | 0.0 | | 0.0 | | | 0.0 | |
| Total Delay | | 20.1 | | | 15.4 | 0.0 | | 13.7 | | | 14.0 | |
| LOS | | C | | | B | A | | B | | | B | |
| Approach Delay | | 20.1 | | | 12.7 | | | 13.7 | | | 14.0 | |
| Approach LOS | | C | | | B | | | B | | | B | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Queue Length 50th (ft) | | 57 | | | 19 | 0 | | 104 | | | 100 | |
| Queue Length 95th (ft) | | 148 | | | 60 | 0 | | 202 | | | 198 | |
| Internal Link Dist (ft) | | 1229 | | | 1338 | | | 1395 | | | 1703 | |
| Turn Bay Length (ft) | | | | | | 325 | | | | | | |
| Base Capacity (vph) | | 626 | | | 636 | 1583 | | 1273 | | | 1212 | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | 0 | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.43 | | | 0.16 | 0.01 | | 0.43 | | | 0.44 | |

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 47.2
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 64.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Rolesville Road & Mitchell Mill Road

# APPENDIX E

## CAPACITY ANALYSIS CALCULATIONS

## ROLESVILLE ROAD

## &

## FOWLER ROAD

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 3 | 73 | 305 | 1 | 45 | 304 |
| Future Vol, veh/h | 3 | 73 | 305 | 1 | 45 | 304 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 3 | 81 | 339 | 1 | 50 | 338 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 778 | 340 | 0 | 0 | 340 | 0 |
| Stage 1 | 340 | - | - | - | - | - |
| Stage 2 | 438 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 365 | 702 | - | - | 1219 | - |
| Stage 1 | 721 | - | - | - | - | - |
| Stage 2 | 651 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 347 | 702 | - | - | 1219 | - |
| Mov Cap-2 Maneuver | 347 | - | - | - | - | - |
| Stage 1 | 721 | - | - | - | - | - |
| Stage 2 | 618 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.1 | 0 | 1 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 675 | 1219 | - |
| HCM Lane V/C Ratio | - | - | 0.125 | 0.041 | - |
| HCM Control Delay (s) | - | - | 11.1 | 8.1 | 0 |
| HCM Lane LOS | - | - | B | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.4 | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.8 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 3 | 44 | 225 | 2 | 49 | 170 |
| Future Vol, veh/h | 3 | 44 | 225 | 2 | 49 | 170 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 3 | 49 | 250 | 2 | 54 | 189 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 548 | 251 | 0 | 0 | 252 | 0 |
| Stage 1 | 251 | - | - | - | - | - |
| Stage 2 | 297 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 497 | 788 | - | - | 1313 | - |
| Stage 1 | 791 | - | - | - | - | - |
| Stage 2 | 754 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 474 | 788 | - | - | 1313 | - |
| Mov Cap-2 Maneuver | 474 | - | - | - | - | - |
| Stage 1 | 791 | - | - | - | - | - |
| Stage 2 | 719 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.1 | 0 | 1.8 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 756 | 1313 | - |
| HCM Lane V/C Ratio | - | - | 0.069 | 0.041 | - |
| HCM Control Delay (s) | - | - | 10.1 | 7.9 | 0 |
| HCM Lane LOS | - | - | B | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.2 | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 3 | 84 | 424 | 1 | 52 | 657 |
| Future Vol, veh/h | 3 | 84 | 424 | 1 | 52 | 657 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 3 | 93 | 471 | 1 | 58 | 730 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1318 | 472 | 0 | 0 | 472 | 0 |
| Stage 1 | 472 | - | - | - | - | - |
| Stage 2 | 846 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 173 | 592 | - | - | 1090 | - |
| Stage 1 | 628 | - | - | - | - | - |
| Stage 2 | 421 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 157 | 592 | - | - | 1090 | - |
| Mov Cap-2 Maneuver | 157 | - | - | - | - | - |
| Stage 1 | 628 | - | - | - | - | - |
| Stage 2 | 383 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 13.1 | 0 | 0.6 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 540 | 1090 | - |
| HCM Lane V/C Ratio | - | - | 0.179 | 0.053 | - |
| HCM Control Delay (s) | - | - | 13.1 | 8.5 | 0 |
| HCM Lane LOS | - | - | B | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.6 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 3 | 51 | 453 | 2 | 56 | 427 |
| Future Vol, veh/h | 3 | 51 | 453 | 2 | 56 | 427 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 3 | 57 | 503 | 2 | 62 | 474 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1102 | 504 | 0 | 0 | 505 | 0 |
| Stage 1 | 504 | - | - | - | - | - |
| Stage 2 | 598 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 234 | 568 | - | - | 1060 | - |
| Stage 1 | 607 | - | - | - | - | - |
| Stage 2 | 549 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 216 | 568 | - | - | 1060 | - |
| Mov Cap-2 Maneuver | 216 | - | - | - | - | - |
| Stage 1 | 607 | - | - | - | - | - |
| Stage 2 | 506 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 12.8 | 0 | 1 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 521 | 1060 | - |
| HCM Lane V/C Ratio | - | - | 0.115 | 0.059 | - |
| HCM Control Delay (s) | - | - | 12.8 | 8.6 | 0 |
| HCM Lane LOS | - | - | B | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.4 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 3 | 84 | 510 | 1 | 52 | 685 |
| Future Vol, veh/h | 3 | 84 | 510 | 1 | 52 | 685 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 3 | 93 | 567 | 1 | 58 | 761 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1445 | 568 | 0 | 0 | 568 | 0 |
| Stage 1 | 568 | - | - | - | - | - |
| Stage 2 | 877 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 145 | 522 | - | - | 1004 | - |
| Stage 1 | 567 | - | - | - | - | - |
| Stage 2 | 407 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 131 | 522 | - | - | 1004 | - |
| Mov Cap-2 Maneuver | 131 | - | - | - | - | - |
| Stage 1 | 567 | - | - | - | - | - |
| Stage 2 | 366 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 14.6 | 0 | 0.6 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 473 | 1004 | - |
| HCM Lane V/C Ratio | - | - | 0.204 | 0.058 | - |
| HCM Control Delay (s) | - | - | 14.6 | 8.8 | 0 |
| HCM Lane LOS | - | - | B | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.8 | 0.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 3 | 51 | 509 | 2 | 56 | 522 |
| Future Vol, veh/h | 3 | 51 | 509 | 2 | 56 | 522 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 3 | 57 | 566 | 2 | 62 | 580 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1271 | 567 | 0 | 0 | 568 | 0 |
| Stage 1 | 567 | - | - | - | - | - |
| Stage 2 | 704 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 185 | 523 | - | - | 1004 | - |
| Stage 1 | 568 | - | - | - | - | - |
| Stage 2 | 490 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 168 | 523 | - | - | 1004 | - |
| Mov Cap-2 Maneuver | 168 | - | - | - | - | - |
| Stage 1 | 568 | - | - | - | - | - |
| Stage 2 | 445 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 13.8 | 0 | 0.9 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 468 | 1004 | - |
| HCM Lane V/C Ratio | - | - | 0.128 | 0.062 | - |
| HCM Control Delay (s) | - | - | 13.8 | 8.8 | 0 |
| HCM Lane LOS | - | - | B | A | A |
| HCM 95th %tile Q(veh) | - | - | 0.4 | 0.2 | - |

# APPENDIX F

## CAPACITY ANALYSIS CALCULATIONS

## ROLESVILLE ROAD

## &

## TAVISWOOD WAY

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 4 | 287 | 1 | 2 | 328 |
| Future Vol, veh/h | 4 | 4 | 287 | 1 | 2 | 328 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 150 | - |
| 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 | 4 | 4 | 319 | 1 | 2 | 364 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 688 | 320 | 0 | 0 | 320 | 0 |
| Stage 1 | 320 | - | - | - | - | - |
| Stage 2 | 368 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 412 | 721 | - | - | 1240 | - |
| Stage 1 | 736 | - | - | - | - | - |
| Stage 2 | 700 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 411 | 721 | - | - | 1240 | - |
| Mov Cap-2 Maneuver | 411 | - | - | - | - | - |
| Stage 1 | 736 | - | - | - | - | - |
| Stage 2 | 699 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 12 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 524 | 1240 | - |
| HCM Lane V/C Ratio | - | - | 0.017 | 0.002 | - |
| HCM Control Delay (s) | - | - | 12 | 7.9 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 3 | 240 | 4 | 1 | 191 |
| Future Vol, veh/h | 1 | 3 | 240 | 4 | 1 | 191 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 150 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 3 | 267 | 4 | 1 | 212 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 483 | 269 | 0 | 0 | 271 | 0 |
| Stage 1 | 269 | - | - | - | - | - |
| Stage 2 | 214 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 542 | 770 | - | - | 1292 | - |
| Stage 1 | 776 | - | - | - | - | - |
| Stage 2 | 822 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 541 | 770 | - | - | 1292 | - |
| Mov Cap-2 Maneuver | 541 | - | - | - | - | - |
| Stage 1 | 776 | - | - | - | - | - |
| Stage 2 | 821 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.2 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 696 | 1292 | - |
| HCM Lane V/C Ratio | - | - | 0.006 | 0.001 | - |
| HCM Control Delay (s) | - | - | 10.2 | 7.8 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 5 | 404 | 1 | 2 | 685 |
| Future Vol, veh/h | 5 | 5 | 404 | 1 | 2 | 685 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 150 | - |
| 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 | 6 | 6 | 449 | 1 | 2 | 761 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1215 | 450 | 0 | 0 | 450 | 0 |
| Stage 1 | 450 | - | - | - | - | - |
| Stage 2 | 765 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 200 | 609 | - | - | 1110 | - |
| Stage 1 | 642 | - | - | - | - | - |
| Stage 2 | 459 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 200 | 609 | - | - | 1110 | - |
| Mov Cap-2 Maneuver | 200 | - | - | - | - | - |
| Stage 1 | 642 | - | - | - | - | - |
| Stage 2 | 458 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 17.4 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 301 | 1110 | - |
| HCM Lane V/C Ratio | - | - | 0.037 | 0.002 | - |
| HCM Control Delay (s) | - | - | 17.4 | 8.2 | - |
| HCM Lane LOS | - | - | C | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 3 | 471 | 5 | 1 | 451 |
| Future Vol, veh/h | 1 | 3 | 471 | 5 | 1 | 451 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 150 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 3 | 523 | 6 | 1 | 501 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1029 | 526 | 0 | 0 | 529 | 0 |
| Stage 1 | 526 | - | - | - | - | - |
| Stage 2 | 503 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 259 | 552 | - | - | 1038 | - |
| Stage 1 | 593 | - | - | - | - | - |
| Stage 2 | 607 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 259 | 552 | - | - | 1038 | - |
| Mov Cap-2 Maneuver | 259 | - | - | - | - | - |
| Stage 1 | 593 | - | - | - | - | - |
| Stage 2 | 606 | - | - | - | - | - |

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

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 430 | 1038 | - |
| HCM Lane V/C Ratio | - | - | 0.01 | 0.001 | - |
| HCM Control Delay (s) | - | - | 13.5 | 8.5 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 5 | 415 | 1 | 2 | 720 |
| Future Vol, veh/h | 5 | 5 | 415 | 1 | 2 | 720 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 150 | - |
| 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 | 6 | 6 | 461 | 1 | 2 | 800 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1266 | 462 | 0 | 0 | 462 | 0 |
| Stage 1 | 462 | - | - | - | - | - |
| Stage 2 | 804 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 187 | 600 | - | - | 1099 | - |
| Stage 1 | 634 | - | - | - | - | - |
| Stage 2 | 440 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 187 | 600 | - | - | 1099 | - |
| Mov Cap-2 Maneuver | 187 | - | - | - | - | - |
| Stage 1 | 634 | - | - | - | - | - |
| Stage 2 | 439 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 18.1 | 0 | 0 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 285 | 1099 | - |
| HCM Lane V/C Ratio | - | - | 0.039 | 0.002 | - |
| HCM Control Delay (s) | - | - | 18.1 | 8.3 | - |
| HCM Lane LOS | - | - | C | A | - |
| HCM 95th %tile Q(veh) | - | - | 0.1 | 0 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 3 | 509 | 5 | 1 | 473 |
| Future Vol, veh/h | 1 | 3 | 509 | 5 | 1 | 473 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 150 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 3 | 566 | 6 | 1 | 526 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1097 | 569 | 0 | 0 | 572 | 0 |
| Stage 1 | 569 | - | - | - | - | - |
| Stage 2 | 528 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 236 | 522 | - | - | 1001 | - |
| Stage 1 | 566 | - | - | - | - | - |
| Stage 2 | 592 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 236 | 522 | - | - | 1001 | - |
| Mov Cap-2 Maneuver | 236 | - | - | - | - | - |
| Stage 1 | 566 | - | - | - | - | - |
| Stage 2 | 591 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 14.1 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 401 | 1001 | - |
| HCM Lane V/C Ratio | - | - | 0.011 | 0.001 | - |
| HCM Control Delay (s) | - | - | 14.1 | 8.6 | - |
| HCM Lane LOS | - | - | B | A | - |
| HCM 95th %tile Q(veh) | - | - | 0 | 0 | - |

# APPENDIX G

## CAPACITY ANALYSIS CALCULATIONS

## ROLESVILLE ROAD

## &

## SITE DRIVE 1

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 35 | 86 | 404 | 11 | 28 | 685 |
| Future Vol, veh/h | 35 | 86 | 404 | 11 | 28 | 685 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 100 | - |
| 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 | 39 | 96 | 449 | 12 | 31 | 761 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1278 | 455 | 0 | 0 | 461 | 0 |
| Stage 1 | 455 | - | - | - | - | - |
| Stage 2 | 823 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 183 | 605 | - | - | 1100 | - |
| Stage 1 | 639 | - | - | - | - | - |
| Stage 2 | 431 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 178 | 605 | - | - | 1100 | - |
| Mov Cap-2 Maneuver | 178 | - | - | - | - | - |
| Stage 1 | 639 | - | - | - | - | - |
| Stage 2 | 419 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 21 | 0 | 0.3 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 357 | 1100 | - |
| HCM Lane V/C Ratio | - | - | 0.377 | 0.028 | - |
| HCM Control Delay (s) | - | - | 21 | 8.4 | - |
| HCM Lane LOS | - | - | C | A | - |
| HCM 95th %tile Q(veh) | - | - | 1.7 | 0.1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 22 | 56 | 471 | 38 | 95 | 451 |
| Future Vol, veh/h | 22 | 56 | 471 | 38 | 95 | 451 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | 100 | - |
| 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 | 24 | 62 | 523 | 42 | 106 | 501 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 1257 | 544 | 0 | 0 | 565 | 0 |
| Stage 1 | 544 | - | - | - | - | - |
| Stage 2 | 713 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 189 | 539 | - | - | 1007 | - |
| Stage 1 | 582 | - | - | - | - | - |
| Stage 2 | 486 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 169 | 539 | - | - | 1007 | - |
| Mov Cap-2 Maneuver | 169 | - | - | - | - | - |
| Stage 1 | 582 | - | - | - | - | - |
| Stage 2 | 435 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 19.6 | 0 | 1.6 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 333 | 1007 | - |
| HCM Lane V/C Ratio | - | - | 0.26 | 0.105 | - |
| HCM Control Delay (s) | - | - | 19.6 | 9 | - |
| HCM Lane LOS | - | - | C | A | - |
| HCM 95th %tile Q(veh) | - | - | 1 | 0.3 | - |

# APPENDIX H

## CAPACITY ANALYSIS CALCULATIONS

## MITCHELL MILL ROAD

## &

## SITE DRIVE 2

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 17 | 58 | 266 | 4 | 4 | 52 |
| Future Vol, veh/h | 17 | 58 | 266 | 4 | 4 | 52 |
| 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 | 19 | 64 | 296 | 4 | 4 | 58 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 300 | 0 | - | 0 | 400 | 298 |
| Stage 1 | - | - | - | - | 298 | - |
| Stage 2 | - | - | - | - | 102 | - |
| 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 | 1261 | - | - | - | 606 | 741 |
| Stage 1 | - | - | - | - | 753 | - |
| Stage 2 | - | - | - | - | 922 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1261 | - | - | - | 596 | 741 |
| Mov Cap-2 Maneuver | - | - | - | - | 596 | - |
| Stage 1 | - | - | - | - | 741 | - |
| Stage 2 | - | - | - | - | 922 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.8 | 0 | 10.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1261 | - | - | - | 728 |
| HCM Lane V/C Ratio | 0.015 | - | - | - | 0.085 |
| HCM Control Delay (s) | 7.9 | 0 | - | - | 10.4 |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 57 | 195 | 78 | 4 | 4 | 34 |
| Future Vol, veh/h | 57 | 195 | 78 | 4 | 4 | 34 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| 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 | 63 | 217 | 87 | 4 | 4 | 38 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 91 | 0 | - | 0 | 432 | 89 |
| Stage 1 | - | - | - | - | 89 | - |
| Stage 2 | - | - | - | - | 343 | - |
| 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 | 1504 | - | - | - | 581 | 969 |
| Stage 1 | - | - | - | - | 934 | - |
| Stage 2 | - | - | - | - | 719 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1504 | - | - | - | 553 | 969 |
| Mov Cap-2 Maneuver | - | - | - | - | 553 | - |
| Stage 1 | - | - | - | - | 889 | - |
| Stage 2 | - | - | - | - | 719 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 1.7 | 0 | 9.2 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1504 | - | - | - | 898 |
| HCM Lane V/C Ratio | 0.042 | - | - | - | 0.047 |
| HCM Control Delay (s) | 7.5 | 0 | - | - | 9.2 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.1 |