HARPER PRESERVE

MASTER PLAN

TOWN OF KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

ZMA-2-22

ST. MATTHEW'S TOWNSHIP

SITE DATA

PROJECT:	HARPER PRESERVE
ENGINEER:	TIMMONS GROUP 5410 TRINITY ROAD, SUITE 102 RALEIGH, NC 27607 PHONE: 919-866-4509 FAX: 919-859-5663 BETH BLACKMON, PE EMAIL: BETH.BLACKMON@TIMMONS.COM
DEVELOPER:	OLD EAST PROPERTIES MARK EISENBEIS 16 W MARTIN ST, SUITE 805 RALEIGH, NC 27081 PHONE: (919)-825-1135 EMAIL: MARK@OLDEASTPROPERTIES.COM
PROPERTY LOCATION:	1032 FAYETTEVILLE ST. KNIGHTDALE, NC 27545
PIN:	1754-51-9021, & 1754-60-7948
EXISTING ZONING:	RT
PROPOSED ZONING:	GR-3, NMX PUD
TOWNSHIP:	ST . MATTHEWS
PROPOSED USE:	SINGLE FAMILY RESIDENTIAL & MIXED USE
TOTAL DEVELOPED TRACT AREA:	94.1 ACRES
AVERAGE LOT SIZES:	7,823 SF (FRONT LOADED LOTS) 4,930 SF (DETACHED LOTS) 2,390 SF (ATTACHED LOTS)
TOTAL PROPOSED UNITS:	231 68 FRONT LOAD SINGLE FAMILY + 76 REAR LOAD SINGLE FAMILY + 87 REAR LOAD TOWNHOMES
PROPOSED DENSITY:	2.45 DU/A
TOTAL OPEN SPACE:	50.31 ACRES (37.53 AC PASSIVE + 7.89 AC COMMON + 4.89 AC ACTIVE)
TOTAL ON STREET PARKING:	80 PARKING
CONNECTIVITY INDEX:	1.72
TREE SAVE:	440,668 SF
SETBACKS:	FRONT LOAD SINGLE FAIMLY FRONT: 10' DRIVEWAY LENGTH: 25' REAR: 20' SIDE: 5' REAR LOAD SINGLE FAMILY FRONT: 10' REAR: 20' DRIVEWAY LENGTH: 20' SIDE: 3' REAR LOAD TOWNHOME FRONT: 10' DRIVEWAY LENGTH: 20' REAR: 20' BUILDING SEPARATION: 10'



VICINITY MAP

SCALE 1" = 750'

Sheet List Table

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C1.0	EXISTING CONDITIONS
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C5.0	OVERALL PRELIMINARY LIGHTING PLAN
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C7.0	OVERALL SIGNS AND MARKINGS PLAN
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C7.4	DETAILED SIGNS AND MARKINGS PLAN SHEET 4 OF 5
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CONSTRUCTION DRAWING APPROVAL REQUIRED FOR DEVELOPMENT

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

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REVISION DESCRIPTION

DATE

DATE 9/27/2022

DRAWN BY C.CLARK

DESIGNED BY E.ANGE

CHECKED BY B.BLACKMON

SCALE NTS

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

COVER SHEET

JOB NO. 45530

SHEET NO. C0.0

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LINE TABLE		
LINE	BEARING	LENGTH
L1	S5°44'18"E	47.01'
L2	S71°31'16"E	26.75'
L3	S27°59'46"E	18.50'
L4	S4°55'19"W	17.04'
L5	S23°50'51"W	15.96'
L6	S9°59'55"E	29.89'
L7	S29°12'11"W	33.92'
L8	S72°34'31"W	9.93'
L9	S51°09'58"W	4.58'
L10	S8°23'11"W	5.52'
L11	S58°02'47"W	6.81'
L12	S1°11'42"W	12.17'
L13	S77°27'06"W	10.65'
L14	S56°01'27"W	5.64'
L15	S4°04'28"W	17.90'
L16	S46°19'50"W	10.12'
L17	S59°42'47"E	17.64'
L18	S15°13'01"W	6.78'
L19	S11°30'19"E	7.63'
L20	S46°59'40"W	20.07'
L21	S20°55'51"W	12.26'
L22	S10°13'25"W	12.33'
L23	S37°13'35"W	7.92'
L24	S4°43'28"W	9.98'
L25	S11°30'10"E	5.33'
L26	S53°28'39"E	6.17'
L27	S21°05'58"E	17.31'
L28	S3°02'24"W	6.69'
L29	S53°52'46"W	8.37'
L30	S2°13'06"W	13.79'
L31	S31°17'20"W	5.49'
L32	S5°54'31"W	12.20'
L33	S33°40'54"E	13.21'
L34	S20°03'18"E	33.82'
L35	S37°53'41"W	18.37'

LINE TABLE		
LINE	BEARING	LENGTH
L36	S1°45'21"E	11.67'
L37	S37°33'36"W	10.72'
L38	S64°33'11"W	4.16'
L39	S80°42'07"W	8.03'
L40	N89°31'14"W	8.12'
L41	S25°28'45"W	4.16'
L42	S8°35'05"E	7.79'
L43	S23°21'41"W	6.77'
L44	S15°39'27"W	22.26'
L45	S37°01'57"W	10.70'
L46	S10°06'56"W	10.45'
L47	S3°41'30"E	15.66'
L48	S24°31'10"E	17.16'
L49	S68°36'52"W	5.77'
L50	S15°15'53"W	6.62'
L51	S43°35'48"W	23.19'
L52	S4°01'47"E	8.19'
L53	S25°04'44"W	42.35'
L54	S76°24'12"W	18.80'
L55	S52°39'29"W	28.71'
L56	S22°53'42"W	8.62'
L57	S39°48'32"W	13.22'
L58	S61°04'16"W	18.82'
L59	S44°10'08"W	21.15'
L60	S20°51'19"W	15.35'
L61	S17°18'55"E	10.03'
L62	S31°33'35"E	30.95'
L63	S36°42'36"W	6.66'
L64	N89°10'07"W	3.78'
L65	S62°27'51"W	7.70'
L66	S8°02'59"W	3.73'
L67	S18°15'30"E	8.37'
L68	S7°05'29"W	19.05'
L69	S32°58'03"E	23.44'
L70	S50°54'12"E	6.91'

LINE TABLE		
LINE	BEARING	LENGTH
L71	S31°11'50"E	15.85'
L72	S41°51'03"E	33.34'
L73	S25°44'31"E	28.16'
L74	S9°51'00"E	20.32'
L75	S21°10'27"W	8.24'
L76	S19°20'10"E	20.24'
L77	S6°53'42"W	55.03'
L78	S14°49'34"W	17.89'
L79	S28°00'03"E	14.81'
L80	S47°49'57"E	10.15'
L81	S21°32'20"W	13.35'
L82	S81°39'16"W	27.24'
L83	S6°00'27"E	14.31'
L84	S32°16'26"E	9.61'
L85	S25°21'08"E	10.67'
L86	S79°08'45"E	8.77'
L87	N39°22'06"E	2.82'
L88	S70°20'52"E	6.66'
L89	S34°12'55"E	17.92'
L90	S14°24'50"W	9.50'
L91	S38°55'12"W	20.19'
L92	S7°47'55"W	26.72'
L93	S21°12'31"E	45.79'
L94	S16°42'48"W	30.62'
L95	S15°31'29"E	17.51'
L96	S3°35'04"W	9.55'
L97	S26°34'52"W	18.58'
L98	S2°51'55"W	14.54'
L99	S26°59'20"W	24.40'
L100	S0°55'16"W	30.39'
L101	S20°34'38"W	50.57'
L102	S41°55'26"W	11.34'
L103	S27°08'22"W	44.10'
L104	S87°05'57"E	15.22'

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REVISION DESCRIPTION	DATE

DATE 9/27/2022
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 150'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE
FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA
EXISTING CONDITIONS

JOB NO. 45530
SHEET NO. C1.0

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NAD 83

SCALE 1"=150'
0 150' 300'

LEGEND

- PROPERTY LINE
- FLOODWAY
- FEMA100 FEMA 100 YEAR FLOODLINE
- FEMA500 FEMA 500 YEAR FLOODLINE
- 24" SAN EXISTING SANITARY SEWER
- NEUSE RIPARIAN BUFFER
- EXISTING WETLANDS

NOTES:
1. BOUNDARY TAKEN FROM SURVEY BY TIMMONS GROUP, DATED JANURARY 21, 2022.
2. TOPOGRAPHIC INFORMATION TAKEN FROM GIS DATED DECEMBER 2021.
3. WETLAND AND STREAM DELINEATION BY TIMMONS GROUP DATED MARCH 31, 2022.
4. THE SUBJECT PROPERTY IS LOCATED WITHIN ZONE X AND ZONE AE, IN ACCORDANCE WITH FIRM MAP #3720175300K & #3720175400K WITH AN EFFECTIVE DATE OF JULY 19, 2022.



GENERAL SITE NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF KNIGHTDALE AND CITY OF RALEIGH STANDARDS AND SPECIFICATIONS.
2. ROADS AND DRIVEWAYS SHALL COMPLY WITH NCDOT AND TOWN OF KNIGHTDALE STANDARDS.
3. SIGN PERMITS SHALL BE REQUIRED FOR ANY ENTRANCE SIGNAGE. PERMITS SHALL BE REQUIRED PRIOR TO FABRICATION OR INSTALLATION OF SIGNS. SIGNAGE SHALL BE RESTRICTED TO AN ON-SITE LOCATION.
4. THE WATER AND SEWER SYSTEMS SHALL COMPLY WITH CITY OF RALEIGH STANDARDS.
5. ALL DESIGN AND CONSTRUCTION METHODS SHALL COMPLY WITH THE TOWN OF KNIGHTDALE'S SEDIMENTATION AND EROSION CONTROL REGULATIONS. AN EROSION CONTROL PLAN SHALL BE APPROVED BY THE TOWN OF KNIGHTDALE PRIOR TO ANY GRADING.
6. CONSTRUCTION DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE TOWN OF KNIGHTDALE AND CITY OF RALEIGH PRIOR TO CONSTRUCTION.
7. ALL STREETS WITHIN THE SUBDIVISION WILL HAVE A POSTED SPEED LIMIT OF 25 MPH.
8. RESTRICTIVE COVENANTS SHALL BE APPROVED AND RECORDED PRIOR TO RECORDING OF FINAL PLAT.
9. STORMWATER CONTROL MEASURES SHALL BE CONTAINED IN AND ACCESSED VIA OPEN SPACE MAINTAINED AND OWNED BY THE HOMEOWNER'S ASSOCIATION. A MAINTENANCE PLAN MUST BE DEVELOPED TO ADDRESS THE STORMWATER CONTROL MEASURES.
10. PRIVATE STORM DRAINAGE EASEMENTS SHALL BE MAINTAINED BY THE HOA.
11. SUBDIVISION LOTS MUST BE LOTS OF RECORD PRIOR TO RECEIVING A BUILDING PERMIT.
12. PER UDO SEC 10.5.H.2, ALL UTILITES SHALL BE PLACED UNDERGROUND.

STREET TABLE

STREET	ROW	LENGTH(LF)
ROAD A	54	2,822
ROAD B	54	271
ROAD C	54	252
ROAD D	54	592
ROAD E	74	1536
ROAD F	54	398
ROAD G	54	754
ROAD H	54	1292
ROAD I	64	429
FLOWERS STREET	54	825
RAINIER LAKE DRIVE	74	1,138
ALLEY A	20	294
ALLEY B	20	249
ALLEY C	20	234
ALLEY D	20	570
ALLEY E	20	624
ALLEY F	20	136
ALLEY G	20	730
ALLEY H	20	294
ALLEY I	20	973
ALLEY J	20	390
ALLEY K	20	887
ALLEY L	20	193
ALLEY M	20	629
TOTAL W/ ALLEYS		**16,512**
TOTAL W/O ALLEYS		**10,309**

MIXED USE AREA

MIXED USE 1	34,168	SF	0.78 AC
MIXED USE 2	51,297	SF	1.18 AC
TOTAL	**85,465**	**SF**	**1.96 AC**

LEGEND

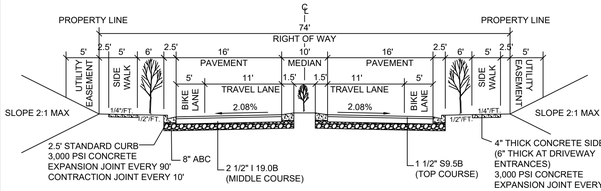
- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- PHASE LINE
- FEMA 100 YR FLOODPLAIN (FEMA100)

TYPICAL CROSS SECTION - REAR ALLEY

NOT TO SCALE

TYPICAL CROSS SECTION - 54' ROW

NOT TO SCALE



TYPICAL CROSS SECTION - 74' ROW

NOT TO SCALE

FUTURE BROADWAY STREET CONNECTION

THE MODIFICATION STANDARD FOR DRIVES, PARKING AND CIRCULATION SHALL BE UTILIZED TO JUSTIFY THE NEED FOR THIS CONNECTION HOWEVER IF THE PARCEL REQUIRED TO COMPLETE THE CONNECTION TO BROADWAY STREET IS NOT AVAILABLE TO THE DEVELOPER AT THE TIME OF PERMITTING THE DEVELOPER SHALL PAY THE TOWN OF KNIGHTDALE A FEE IN LIEU OF ROAD COMPLETION IN AN AMOUNT MUTUALLY AGREED UPON BY THE DEVELOPER AND THE TOWN OF KNIGHTDALE.

A HOMEOWNER'S ASSOCIATION (HOA) WILL OWN AND MAINTAIN ALL OPEN SPACE PARCELS, PRIVATE ALLEYS, AND WILL BE RESPONSIBLE FOR MAINTAINING ALL LANDSCAPING REQUIRED BY TOWN OF KNIGHTDALE UNIFIED DEVELOPMENT ORDINANCE (UDO).

SECTION 3.4 OF THE KNIGHTDALE UDO REQUIRES THAT ANY LOT LESS THAN 80' IN WIDTH BE ACCESSED VIA AN ALLEY OR REAR LANE ACCESS. ADDITIONALLY, THE SECTION 6.5 OF THE UDO REQUIRES THAT SIDE SETBACKS BE A MINIMUM OF 20% OF THE LOT WIDTH (TO A MINIMUM OF 5' FOR LOTS 60' & GREATER OR 3' FOR LOTS LESS THAN 60'), AND DRIVEWAY LENGTH BE A MINIMUM OF 35'. AN EXCEPTION TO THESE REQUIREMENTS IS REQUESTED TO ALLOW THE MINIMUM LOT WIDTH STANDARD TO BE REDUCED TO 60', SIDE SETBACKS BE REDUCED TO 5', REAR SETBACK BE REDUCED TO 20', AND DRIVEWAY LENGTHS BE REDUCED TO A MINIMUM OF 25' TO BE ADEQUATELY DEVELOPED WITHIN THE SITE CONSTRAINTS. PER SECTION 3.4, KNIGHTDALE REQUIRES TOWNHOMES TO HAVE A MINIMUM DRIVEWAY LENGTH OF 35'. AN EXCEPTION TO THIS REQUIREMENT IS REQUESTED TO ALLOW TOWNHOME DRIVEWAYS TO BE REDUCED TO 20'. THESE EXCEPTIONS ARE REQUESTED BASED ON THE BENEFICIAL COMMON OPEN SPACE, LANDSCAPE CONSERVATION AND VISUAL ENHANCEMENT AND INTEGRATED DESIGN MODIFICATION STANDARDS. COMPACT DEVELOPMENT BETTER PROTECTS THE NATURAL ENVIRONMENT, INCREASING THE AMOUNT OF OPEN SPACE AND CREATING A MORE INTEGRATED DESIGN FOR THE COMMUNITY.

TABLE 11.1.B IN THE KNIGHTDALE UDO REQUIRES A MIN. 10% / MAX. 40% DUPLEX / TOWNHOUSE, MIN. 5% / MAX. 40% MULTIFAMILY, MIN. 15% / MAX. 60% SINGLE FAMILY, AND MIN. 10% / MAX. 100% MIXED USE. AN EXCEPTION TO THESE REQUIREMENTS IS REQUESTED BASED ON THE INTEGRATED DESIGN MODIFICATION STANDARD TO EXCLUDE THE REQUIREMENT FOR MULTIFAMILY USE AND AN INCREASED PERCENTAGE OF SINGLE FAMILY TO PROVIDE A SAFE, EFFICIENT AND HARMONIOUS GROUPING OF USES WITHIN THIS AREA OF KNIGHTDALE. A MIXED-USE AREA HAS BEEN INCORPORATED HOWEVER NO STANDALONE MULTIFAMILY IS PROPOSED. PROPOSED DISTRIBUTION OF USES IS: 18% TOWNHOUSE, 75% SINGLE FAMILY, 7% MIXED-USE.

9.3.B OF THE KNIGHTDALE UNIFIED DEVELOPMENT ORDINANCE PROHIBITS MASS GRADING ON ALL FRONT-LOADED LOTS 60' OR GREATER IN WIDTH. ALL REAR LOADED UNITS INCLUDED IN THIS PUD ARE EXEMPT FROM THIS REQUIREMENT BY RIGHT, DUE TO THEIR NARROW LOT WIDTH. THE SINGLE FAMILY LOTS NOT EXEMPT, INCLUDE 30% OF THE TOTAL NUMBER OF LOTS. AN EXCEPTION TO THESE REQUIREMENTS IS REQUESTED TO ALLOW FOR 80% OF NOT EXEMPT LOTS TO BE ELIGIBLE FOR MASS GRADING. THIS MODIFICATION IS REQUESTED BASED ON THE SURFACE WATER DRAINAGE MODIFICATION STANDARD TO ENSURE PROPER SITE SURFACE DRAINAGE IS MAINTAINED. COLLECTING RUNOFF AND ENSURING RUNOFF DOES NOT ADVERSELY IMPACT NEIGHBORING PROPERTIES IS THE BASIS FOR THIS REQUEST.

SITE DATA

DEVELOPER:
OLD EAST PROPERTIES
MARK EISENBEIS
16 W MARTIN ST, SUITE 805
RALEIGH, NC 27081
PHONE: (919)-825-1135
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5410 TRINITY ROAD, STE 102
RALEIGH, NC 27607
PHONE: 919-866-4509
FAX: (919) 859-5663
EMAIL: BETH.BLACKMON@TIMMONS.COM

OWNER ON RECORD
CHARLES R HARPER & JOHN SCOTT HARPER
1032 FAYETTEVILLE ST
KNIGHTDALE, NC 27545

PIN # = 1754-51-9021 & 1754-60-7948
DB 16875 PG 2694
FIRM MAP# = 3720175300K & 3720175400K
EFF. 7/19/2022
TOTAL EXISTING TRACT = 94.1 ACRES
EXISTING ZONING = RT
PROPOSED ZONING = GR-3 & NMX PUD

TOTAL PROPOSED NUMBER OF LOTS = 231
PROPOSED DENSITY = 2.45 DU/A

FRONT LOADED SINGLE FAMILY LOTS = 68
MINIMUM LOT SIZE REQUIRED: 7,000 sq.ft.
MINMUM LOT SIZE PROVIDED: 7,044 sq.ft.
AVERAGE LOT SIZE PROVIDED: 7,823 sq.ft.
MINIMUM LOT WIDTH: 60'
FRONT SETBACK: 10'
SIDE SETBACK: 5'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

DETACHED SINGLE FAMILY LOTS = 76
MINIMUM LOT SIZE REQUIRED: 4,100 sq.ft.
MINIMUM LOT SIZE PROVIDED: 4,085 sq.ft.
AVERAGE LOT SIZE PROVIDED: 4,930 sq.ft.
MINIMUM LOT WIDTH: 38'
FRONT SETBACK: 10'
SIDE SETBACK: 3'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 26'

ATTACHED TOWNHOME LOTS = 87
MINIMUM LOT SIZE REQUIRED: 1,980 sq.ft.
MINIMUM LOT SIZE PROVIDED: 1,980 sq.ft.
AVERAGE LOT SIZE PROVIDED: 2,390 sq.ft.
MINIMUM LOT WIDTH: 22'
FRONT SETBACK: 10'
BUILDING SEPARATION: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

USPS NOTE

CLUSTER MAILBOXES TO BE LOCATED WITHIN NEIGHBORHOOD ACTIVE OS 1. KIOSK LOCATION SHALL BE APPROVED BY USPS PRIOR TO SUBDIVISION APPROVAL. IF TEMPORARY LOCATIONS ARE REQUIRED, APPROVAL OF LOCATIONS SHALL BE RECEIVED FROM USPS. MAIL KIOSK WILL HAVE ADA COMPLIANT RAMPS AND PARKING SPACES.

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REVISION DESCRIPTION	DATE
	9/27/2022

DRAWN BY: C.CLARK
DESIGNED BY: E.ANGE
CHECKED BY: B.BLACKMON
SCALE: 1" = 150'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL PRELIMINARY SITE PLAN

JOB NO. 45530
SHEET NO. C2.0

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PRELIMINARY DO NOT USE FOR CONSTRUCTION

SCALE 1"=60'
0 60' 120'

NAD 83

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- PHASE LINE
- FEMA 100 YR FLOODPLAIN (FEMA100)

ROBERTSON STREET (S.R. 2500)
74' ULTIMATE ROW

RETAINING WALL
TEMPORARY TURNAROUND WITH 5' EASEMENT
TEMPORARY TURNAROUND WITH 5' EASEMENT
COS 1 4,937 SF 0.11 AC
ROAD A 54' ROW - 27' B-B
ROAD B 54' ROW - 27' B-B
ALLEY A 20' ROW - 16' B-B
ALLEY B 20' ROW - 16' B-B
SCM
4.5' ROW DEDICATION
BENCH
POS 2 7,132 SF 0.16 AC
BENCHES
PASSIVE OS 3 222,415 SF 5.11 AC
ACTIVE OS 4 22,369 SF 0.51 AC
ROAD C 54' ROW - 27' B-B
ROAD D 54' ROW - 27' B-B
COS 2 4,423 SF 0.10 AC
PHASE 1
PHASE 2
RETAINING WALL
PASSIVE OS 4 304,300 SF 6.99 AC
MIXED USE 51,297 SF 1.18 AC
MIXED USE 1 34,168 SF

MATCHLINE SHEET C2.1
MATCHLINE SHEET C2.2
MATCHLINE SHEET C2.1
MATCHLINE SHEET C2.3

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NORTH CAROLINA LICENSE NO. C-1652

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REVISION DESCRIPTION

DATE

DATE 9/27/2022
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 60'

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 1 OF 5

JOB NO. 45530
SHEET NO. C2.1

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MATCHLINE SHEET C2.1
MATCHLINE SHEET C2.2

MATCHLINE SHEET C2.3
MATCHLINE SHEET C2.2

MATCHLINE SHEET C2.2
MATCHLINE SHEET C2.4

ROAD C
54' ROW - 27' B-B

ROAD D
54' ROW - 27' B-B

ROAD A
54' ROW - 27' B-B

FLOWERS STREET
54' ROW - 27' B-B

FLOWERS STREET
50' PUBLIC ROW

ROAD E
74' ROW - 47' B-B

RAINIER L
74' ROW - 4

FAYETTEVILLE ST
(S.R.2513)
ULTIMATE 64' ROW
MEDIAN DIVIDED

SCM

RETAINING WALL

PHASE 1
PHASE 2

PHASE 3

MIXED USE 1
34,168 SF
0.78 AC

MIXED USE 2
51,297 SF
1.18 AC

PASSIVE OS 4
304,300 SF
6.99 AC

ACTIVE OS 3
28,321 SF
0.65 AC

PASSIVE OS 5
130,897 SF
3.00 AC

COS 1
4,423 SF
0.10 AC

COS 3
11,264 SF
0.26 AC

COS 4
483 SF

COS 5
4,335 SF

COS 6
1,611 SF

COS 11
1,800 SF

POS 7
1,753 SF

POS 8
3,058 SF

BENCH

FIRE PLACE W/
SEATING

40 13,073 SF 0.30 AC
39 8,470 SF 0.19 AC
38 7,465 SF 0.17 AC
37 7,387 SF 0.17 AC
36 7,310 SF 0.17 AC
35 7,233 SF 0.17 AC
34 9,312 SF 0.21 AC
33 12,649 SF 0.29 AC
32 8,189 SF 0.19 AC
31 7,201 SF 0.17 AC
51 9,730 SF 0.22 AC
52 7,200 SF 0.17 AC
53 7,200 SF 0.17 AC
54 7,200 SF 0.17 AC
55 7,200 SF 0.17 AC
56 7,200 SF 0.17 AC
57 9,436 SF 0.22 AC
58 12,772 SF 0.29 AC
59 7,200 SF 0.17 AC
60 7,200 SF 0.17 AC
61 7,200 SF 0.17 AC
62 7,200 SF 0.17 AC
63 7,200 SF 0.17 AC
64 7,086 SF 0.16 AC
65 7,060 SF 0.16 AC
66 7,116 SF 0.16 AC
67 7,150 SF 0.16 AC
68 7,044 SF 0.16 AC
69 2,199 SF
70 2,160 SF
84 5,126 SF 0.12 AC
85 5,57 0.13
42 1,980 SF
43 1,980 SF
44 1,980 SF
45 1,980 SF
46 4,196 SF
47 4,112 SF
48 4,229 SF
49 4,167 SF
50 2,053 SF
41 4,393 SF
117 2,160 SF
118 2,160 SF
119 2,160 SF
120 3,060 SF
121 3,060 SF
122 2,160 SF
123 2,160 SF
124 2,160 SF
125 2,160 SF
126 2,160 SF
127 2,160 SF
128 3,060 SF
129 3,060 SF
130 2,160 SF
131 2,160 SF
132 2,181 SF
133 2,247 SF

SCALE 1"=60'
0 60' 120'

NAD 83

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- PHASE LINE
- FEMA100 FEMA 100 YR FLOODPLAIN

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DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
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TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

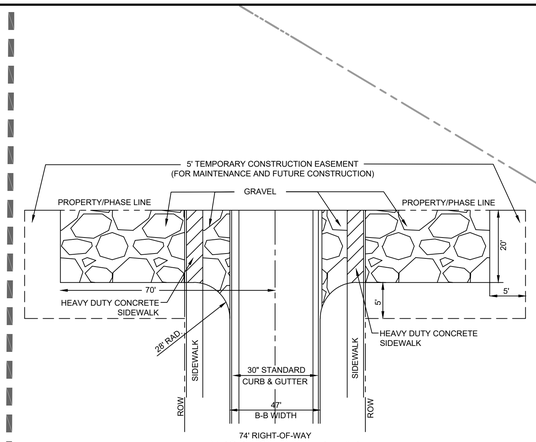
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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 2 OF 5

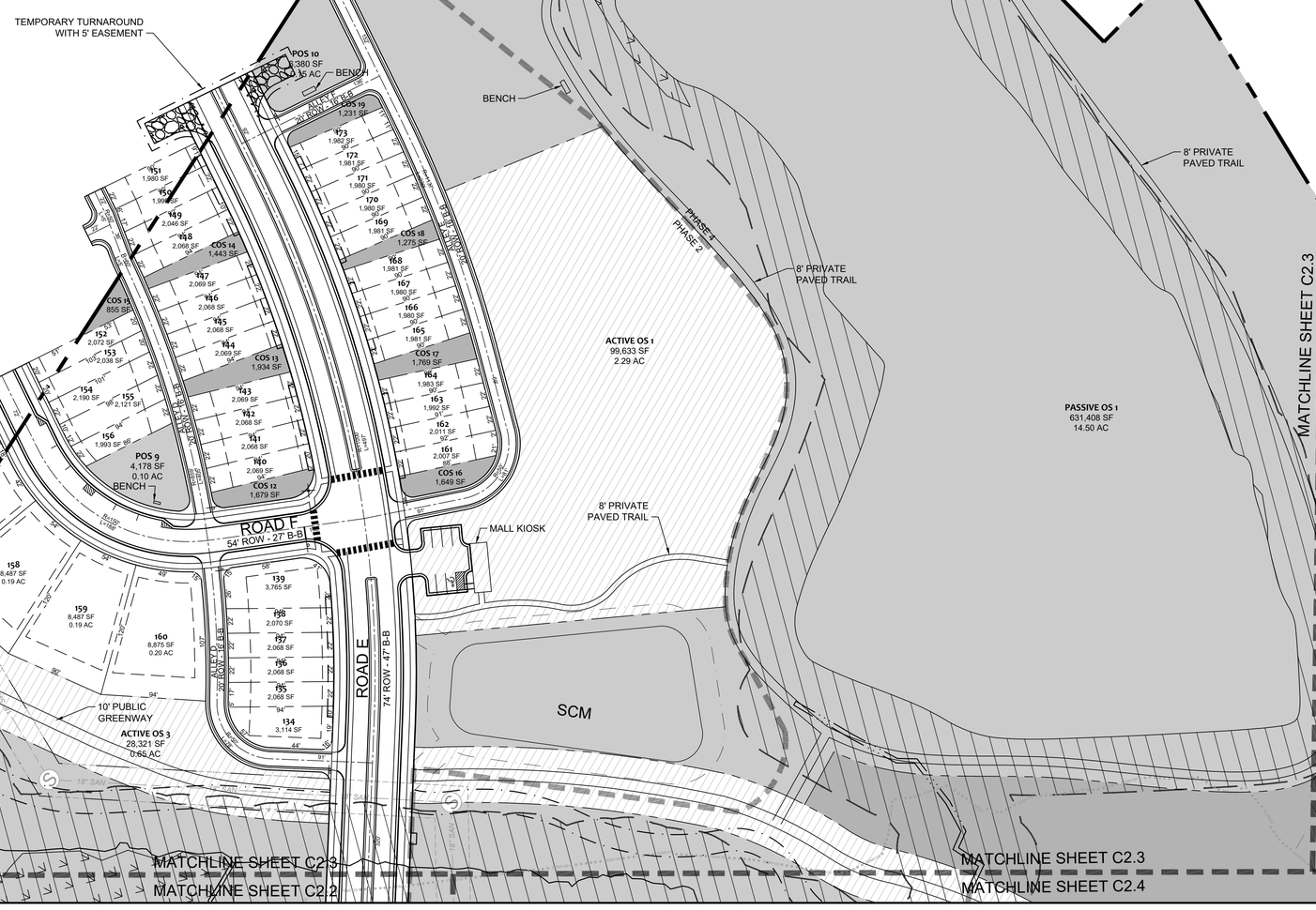
JOB NO. 45530
SHEET NO. C2.2

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TEMPORARY HAMMERHEAD TURNAROUND



NAD 83

SCALE 1"=60'

0 60' 120'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- PHASE LINE
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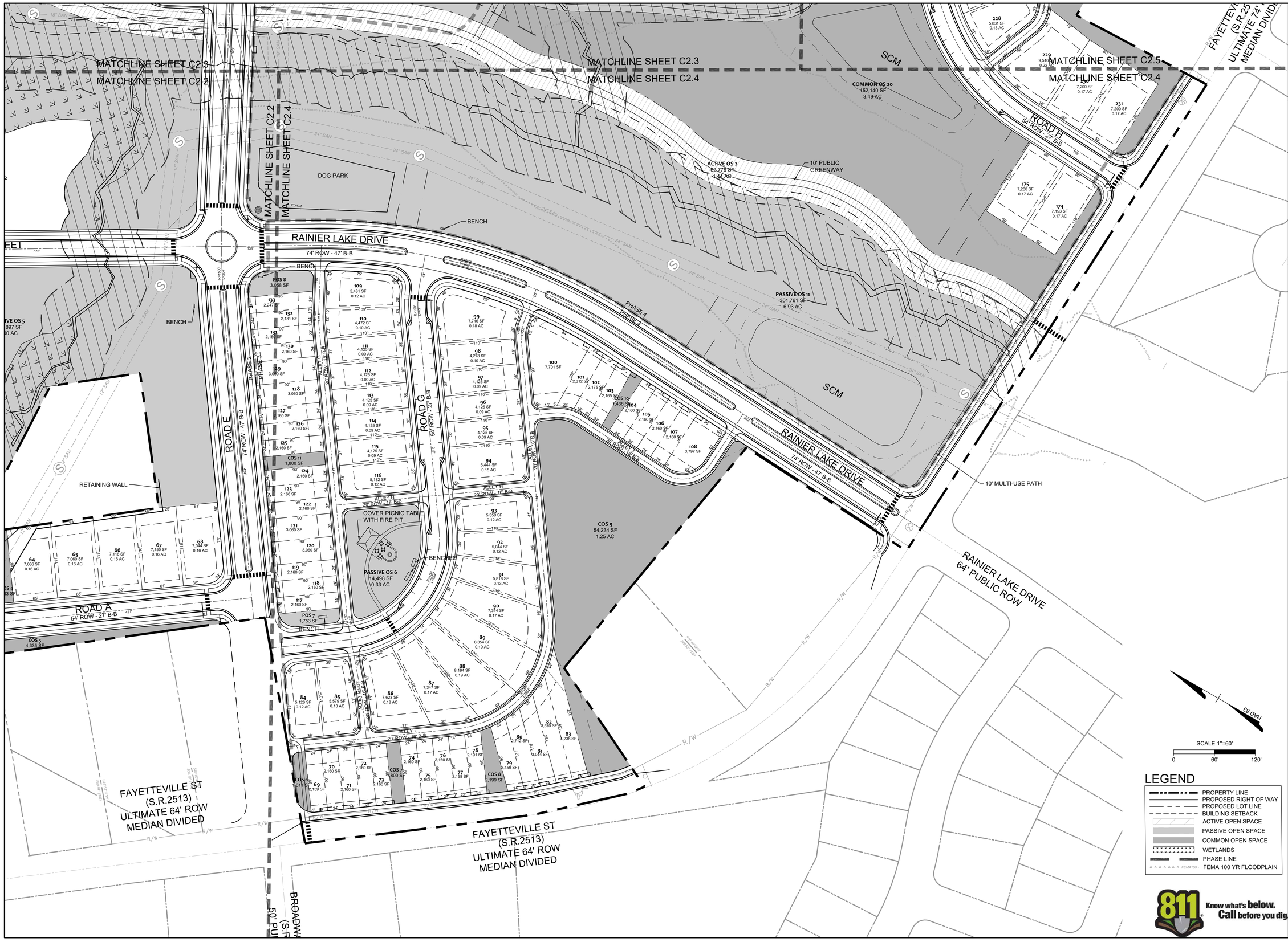
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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 3 OF 5

JOB NO. 45530
SHEET NO. C2.3

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SCALE: 1" = 60'

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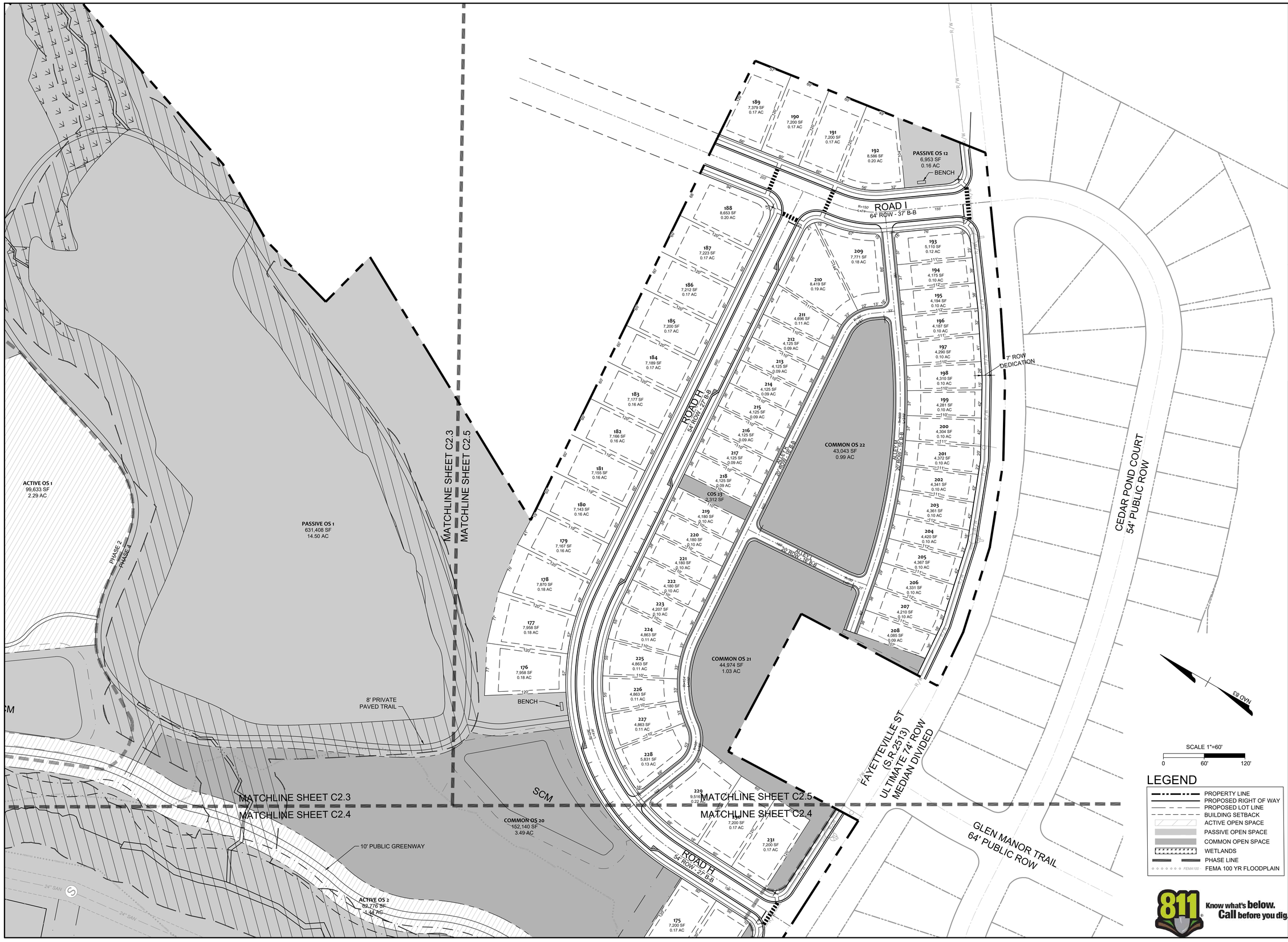
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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 4 OF 5

JOB NO. 45530
SHEET NO. C2.4

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DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 5 OF 5

JOB NO.
45530

SHEET NO.
C2.5

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NAD 83

SCALE 1"=150'
0 150' 300'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- PHASE LINE
- FEMA 100 YR FLOODPLAIN

COS 1
4,937 SF
0.11 AC

POS 2
7,132 SF
0.16 AC

PASSIVE OS 3
222,415 SF
5.11 AC

50' STREAM BUFFER (TYP.)

ACTIVE OS 3
22,869 SF
0.53 AC

COMMUNITY GARDEN

COS 2
10,233 SF
0.23 AC

PASSIVE OS 4
304,300 SF
6.99 AC

MIXED USE 1
34,168 SF
0.78 AC

MIXED USE 2
51,297 SF
1.18 AC

PASSIVE OS 5
130,897 SF
3.00 AC

PUBLIC ART TO BE APPROVED BY KNIGHTDALE

COS 3
11,264 SF
0.26 AC

COS 4
1,800 SF

COS 5
4,335 SF

8' PRIVATE PAVED TRAIL

POS 10
6,380 SF
0.15 AC

POS 9
4,178 SF
0.10 AC

POS 8
3,058 SF

COS 11
1,300 SF

COS 12
1,448 SF

COS 13
1,934 SF

COS 14
1,443 SF

COS 15
855 SF

COS 16
1,649 SF

COS 17
1,769 SF

COS 18
1,275 SF

COS 19
1,231 SF

ACTIVE OS 1
99,633 SF
2.29 AC
CLUBHOUSE / AMENITY AREA/ ADDITIONAL PARKING & MAIL KIOSK

ACTIVE OS 2
62,776 SF
1.44 AC

ACTIVE OS 3
28,321 SF
0.65 AC

PASSIVE OS 1
631,408 SF
14.50 AC

DOG PARK

PASSIVE OS 6
14,498 SF
0.33 AC

COS 6
1,649 SF

COS 7
1,769 SF

COS 8
1,699 SF

COS 9
54,234 SF
1.25 AC

10' NATURAL TURFED PATH

PASSIVE OS 11
301,761 SF
6.93 AC

10' PUBLIC GREENWAY

100 YR. FLOODPLAIN

PEDESTRIAN CONNECTION TO FAYETTEVILLE STREET

FUTURE CONNECTION

PASSIVE OS 12
6,953 SF
0.16 AC

COMMON OS 22
43,043 SF
0.99 AC

COS 23
2,312 SF
0.05 AC

COMMON OS 21
44,974 SF
1.03 AC

COMMON OS 20
152,140 SF
3.49 AC

ROBERTSON STREET (S.R.2500) 47' (+/-) R/W

FLOWERS STREET 50' PUBLIC R/W

ROMAN ARC ROAD

ROMAN ARC PLACE

ROMAN ARC COURT

ROMAN ARC DRIVE

ROMAN ARC STREET

FAYETTEVILLE ST (S.R.2519) ULTIMATE 64' ROW MEDIAN DIVIDED

FAYETTEVILLE ST (S.R.2519) ULTIMATE 64' ROW MEDIAN DIVIDED

CEDAR POINT COURT 54' PUBLIC ROW

FAYETTEVILLE ST (S.R.2519) ULTIMATE 64' ROW MEDIAN DIVIDED

GLEN MANOR TRAIL 64' PUBLIC ROW

WARNER LAKE DRIVE 54' PUBLIC ROW

SHADOWMOSS STREET 50' PUBLIC R/W

MIXED USE AREA

MIXED USE 1	34,168 SF	0.78 AC
MIXED USE 2	51,297 SF	1.18 AC
TOTAL	**85,465 SF**	**1.96 AC**

COMMON OPEN SPACE

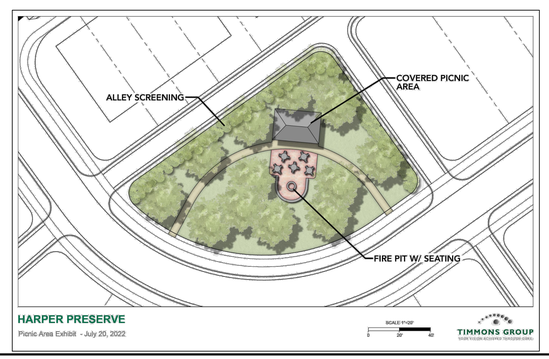
COMMON OS 1	4,937 SF	0.11 AC
COMMON OS 2	4,423 SF	0.10 AC
COMMON OS 3	11,264 SF	0.26 AC
COMMON OS 4	1,483 SF	0.03 AC
COMMON OS 5	4,335 SF	0.10 AC
COMMON OS 6	1,611 SF	0.04 AC
COMMON OS 7	1,800 SF	0.04 AC
COMMON OS 8	2,199 SF	0.05 AC
COMMON OS 9	54,234 SF	1.25 AC
COMMON OS 10	1,436 SF	0.03 AC
COMMON OS 11	1,800 SF	0.04 AC
COMMON OS 12	1,679 SF	0.04 AC
COMMON OS 13	1,934 SF	0.04 AC
COMMON OS 14	1,443 SF	0.03 AC
COMMON OS 15	855 SF	0.02 AC
COMMON OS 16	1,649 SF	0.04 AC
COMMON OS 17	1,769 SF	0.04 AC
COMMON OS 18	1,275 SF	0.03 AC
COMMON OS 19	1,231 SF	0.03 AC
COMMON OS 20	152,140 SF	3.49 AC
COMMON OS 21	44,974 SF	1.03 AC
COMMON OS 22	43,043 SF	0.99 AC
COMMON OS 23	2,312 SF	0.05 AC
TOTAL	**343,826 SF**	**7.89 AC**

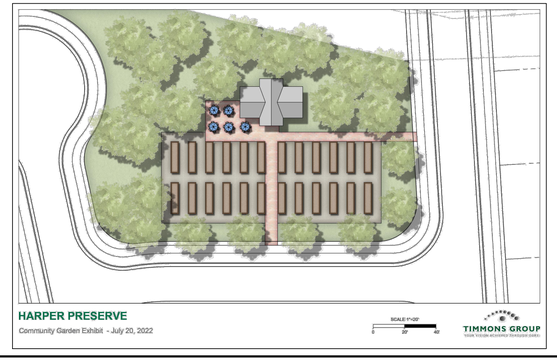
ACTIVE OPEN SPACE

ACTIVE OS 1	99,633 SF	2.29 AC
ACTIVE OS 2	62,776 SF	1.44 AC
ACTIVE OS 3	28,321 SF	0.65 AC
ACTIVE OS 4	22,369 SF	0.51 AC
TOTAL	**213,099 SF**	**4.89 AC**

PASSIVE OPEN SPACE

PASSIVE OS 1	631,408 SF	14.50 AC
PASSIVE OS 2	7,132 SF	0.16 AC
PASSIVE OS 3	222,415 SF	5.11 AC
PASSIVE OS 4	304,300 SF	6.99 AC
PASSIVE OS 5	130,897 SF	3.01 AC
PASSIVE OS 6	14,498 SF	0.33 AC
PASSIVE OS 7	1,753 SF	0.04 AC
PASSIVE OS 8	3,058 SF	0.07 AC
PASSIVE OS 9	4,178 SF	0.10 AC
PASSIVE OS 10	6,380 SF	0.15 AC
PASSIVE OS 11	301,761 SF	6.93 AC
PASSIVE OS 12	6,953 SF	0.16 AC
TOTAL	**1,634,733 sf**	**37.53 ac**





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SCALE 1" = 150'

HARPER PRESERVE

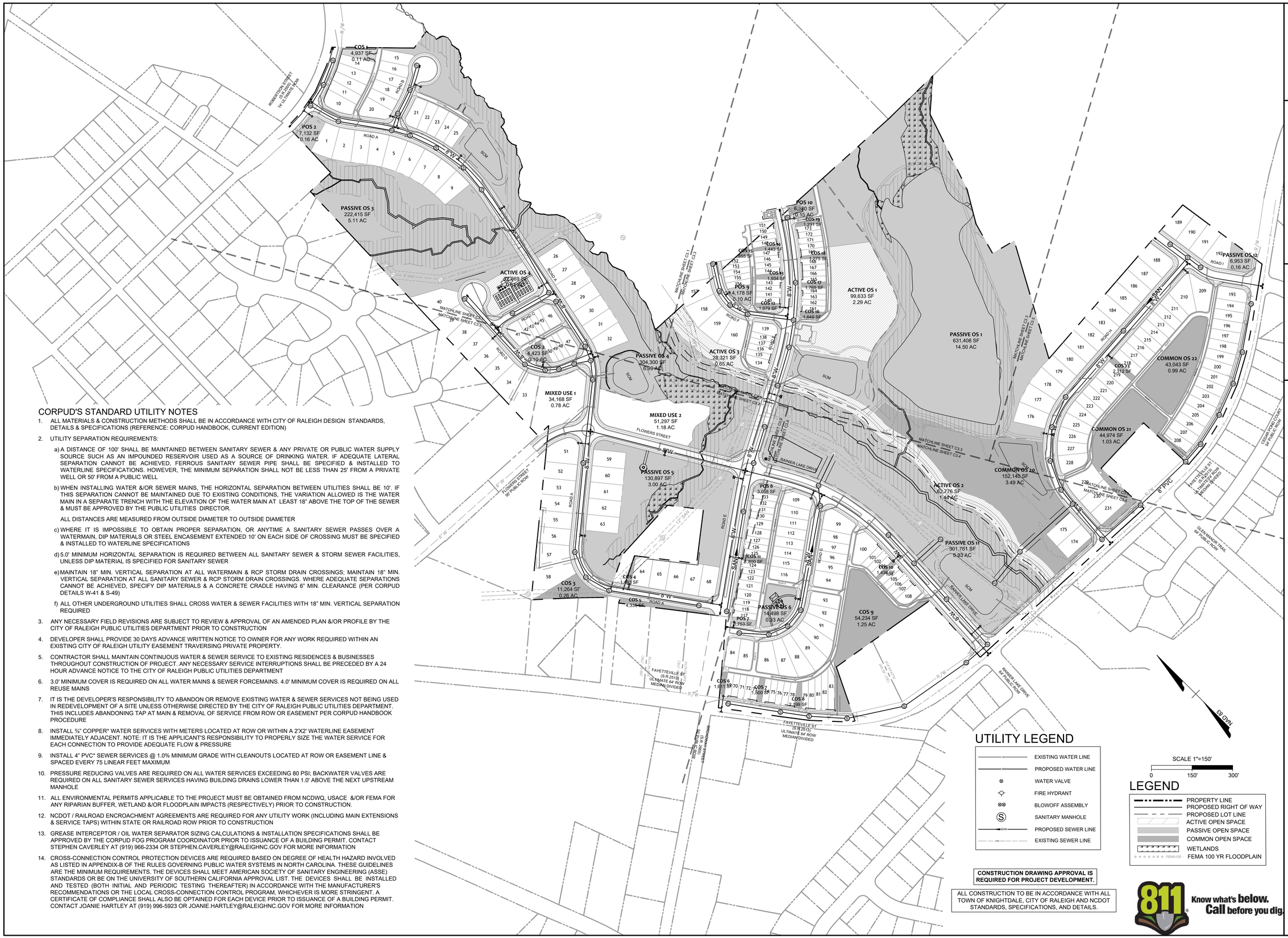
FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OPEN SPACE PLAN

JOB NO. 45530

SHEET NO. C2.6

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CORPUD'S STANDARD UTILITY NOTES

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
   a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
   b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR.
   ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
   c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
   d) 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49)
   f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT
6. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
7. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE
8. INSTALL ¾" COPPER* WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
9. INSTALL 4" PVC* SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM
10. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
11. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
12. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION
13. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT STEPHEN CAVERLEY AT (919) 966-2334 OR STEPHEN.CAVERLEY@RALEIGHNC.GOV FOR MORE INFORMATION
14. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. A CERTIFICATE OF COMPLIANCE SHALL ALSO BE OPTAINED FOR EACH DEVICE PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION

UTILITY LEGEND

- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY
- SANITARY MANHOLE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE

CONSTRUCTION DRAWING APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CITY OF RALEIGH AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS.

SCALE 1"=150'
0 150' 300'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

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SCALE 1" = 150'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL PRELIMINARY UTILITY PLAN

JOB NO. 45530
SHEET NO. C3.0

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UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

MAP 83

SCALE 1"=60'
0 60' 120'

UTILITY LEGEND

- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY
- SANITARY MANHOLE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

RETAINING WALL
8" BLOWOFF ASSEMBLY
COS 1
4,937 SF
0.11 AC
PROPOSED 8" DIP WATERMAIN
ROBERTSON STREET
(S.R.2500)
74' ULTIMATE R/W
ALLEY A
ROAD B
ALLEY B
FIRE HYDRANT ASSEMBLY (TYP.)
8" X 8" TEE (3) GV
ROAD A
SCM
POS 2
7,132 SF
0.16 AC
FIRE HYDRANT ASSEMBLY (TYP.)
PASSIVE OS 3
222,415 SF
5.11 AC
RETAINING WALL
ACTIVE OS 4
22,369 SF
0.51 AC
FIRE HYDRANT ASSEMBLY (TYP.)
8" X 8" TEE (3) GV
PROPOSED 8" WATERLINE
ROAD C
8" BLOWOFF ASSEMBLY
ALLEY C
COS 2
4,423 SF
0.10 AC
PASSIVE OS 4
304,300 SF
6.99 AC
SCM
RETAINING WALL
MATCHLINE SHEET C3.1
MATCHLINE SHEET C3.3
MATCHLINE SHEET C3.2

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REVISION DESCRIPTION	DATE

DATE 9/27/2022
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

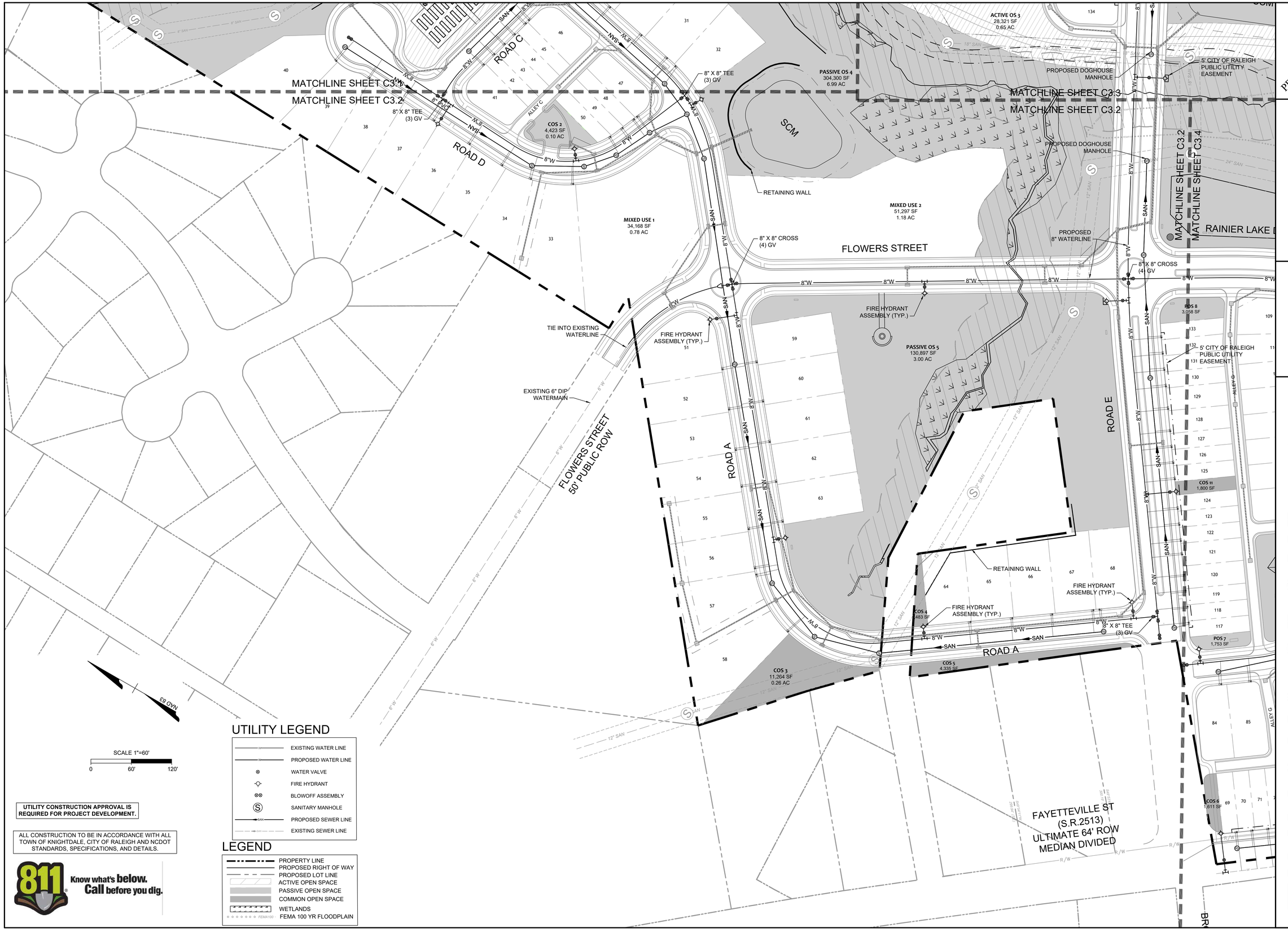
HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 1 OF 5

JOB NO. 45530
SHEET NO. C3.1

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SCALE 1"=60'
0 60' 120'

UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE, CITY OF RALEIGH AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS.

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UTILITY LEGEND

- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY
- SANITARY MANHOLE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

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SCALE 1" = 60'

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HARPER PRESERVE
FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 2 OF 5

JOB NO. 45530
SHEET NO. C3.2

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UTILITY CONSTRUCTION APPROVAL IS REQUIRED FOR PROJECT DEVELOPMENT.

NAD 83

SCALE 1"=60'
0 60' 120'

UTILITY LEGEND

- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY
- SANITARY MANHOLE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

8" BLOWOFF ASSEMBLY
FIRE HYDRANT ASSEMBLY (TYP.)
PROPOSED 8" WATERLINE
5' CITY OF RALEIGH PUBLIC UTILITY EASEMENT
SCM
ROAD E
ROAD F
ROAD H
ALLEY C
ALLEY D
ALLEY E
ALLEY F
POS 9 4,178 SF 0.10 AC
POS 10 8,380 SF 0.19 AC
ACTIVE OS 1 99,633 SF 2.29 AC
ACTIVE OS 3 28,321 SF 0.65 AC
PASSIVE OS 1 631,408 SF 14.50 AC
PASSIVE OS 4 304,300 SF 6.99 AC
COS 12 1,679 SF
COS 13 1,934 SF
COS 14 1,443 SF
COS 15 855 SF
COS 16 1,649 SF
COS 17 1,769 SF
COS 18 1,275 SF
COS 19 1,231 SF

MATCHLINE SHEET C3.1
MATCHLINE SHEET C3.3
MATCHLINE SHEET C3.2
MATCHLINE SHEET C3.4
MATCHLINE SHEET C3.5

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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 3 OF 5

JOB NO. 45530
SHEET NO. C3.3

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MATCHLINE SHEET C3.3
MATCHLINE SHEET C3.4
MATCHLINE SHEET C3.2
MATCHLINE SHEET C3.4
MATCHLINE SHEET C3.5
MATCHLINE SHEET C3.4
RAINIER LAKE DRIVE
ROAD G
ALLEY G
ALLEY H
ALLEY I
SCM
COMMON OS 20
152,140 SF
3.49 AC
ACTIVE OS 2
62,776 SF
1.44 AC
PROPOSED 30' CITY OF RALEIGH SANITARY SEWER EASEMENT
PASSIVE OS 11
301,761 SF
6.93 AC
RDS 8
3,058 SF
COS 11
1,800 SF
PASSIVE OS 6
14,498 SF
0.33 AC
POS 7
1,753 SF
COS 9
54,234 SF
1.25 AC
COS 10
1,436 SF
COS 6
1,611 SF
COS 7
1,800 SF
COS 8
2,199 SF
5' CITY OF RALEIGH PUBLIC UTILITY EASEMENT
FIRE HYDRANT ASSEMBLY (TYP.)
PROPOSED 8" WATERLINE
8" X 8" TEE (3) GV
EXISTING FIRE HYDRANT TO BE RELOCATED
GLEN MANOR TRAIL
64' PUBLIC ROW
RAINIER LAKE DRIVE
64' PUBLIC ROW
FAYETTEVILLE ST
(S.R.2513)
ULTIMATE 64' ROW
MEDIAN DIVIDED
BROADWAY
(S.R.2513)
50' PUBLIC ROW
NAD 83
SCALE 1"=60'
0
60'
120'

UTILITY LEGEND

- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY
- SANITARY MANHOLE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

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DESIGNED BY: E.ANGE
CHECKED BY: B.BLACKMON
SCALE: 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 4 OF 5

JOB NO. 45530
SHEET NO. C3.4

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UTILITY LEGEND

- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER VALVE
- FIRE HYDRANT
- BLOWOFF ASSEMBLY
- SANITARY MANHOLE
- PROPOSED SEWER LINE
- EXISTING SEWER LINE

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

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REVISION DESCRIPTION	DATE

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DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 5 OF 5

JOB NO. 45530
SHEET NO. C3.5

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NOTES

1. THE STORM DRAINAGE LAYOUT IS CONCEPTUAL AND SUBJECT TO CHANGE. APPROVAL BY TOWN STAFF IS REQUIRED.
2. THE STORM DRAINAGE SYSTEM SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH TOWN OF KNIGHTDALE UDO AND ENGINEERING STANDARDS & SPECIFICATIONS.
3. THE STORMWATER PLAN SHALL PROVIDE FOR ADEQUATE NITROGEN REDUCTION AND ATTENUATION OF STORMWATER RUNOFF.
4. FENCING AND LANDSCAPING FOR ALL PROPOSED STORMWATER CONTROL MEASURES SHALL MEET TOWN OF KNIGHTDALE REQUIREMENTS FOR EACH TYPE OF MEASURE PROPOSED.
5. STORMWATER CONTROL MEASURES SHALL BE LOCATED IN OPEN SPACE AREAS DEDICATED TO AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION (HOA).
6. A MAINTENANCE PLAN ALONG WITH A MEMORANDUM OF AGREEMENT MUST BE DEVELOPED FOR ALL STORMWATER CONTROL MEASURES (SCMS) INSTALLED TO ACHIEVE NITROGEN LOADING AND/OR FLOW ATTENUATING REQUIREMENTS AS PART OF THIS PROJECT. THIS MAINTENANCE PLAN IS REQUIRED TO BE RECORDED AT THE WAKE COUNTY REGISTER OF DEEDS PRIOR TO PLAT RECORDATION. PROOF OF SAID RECORDING WILL BE REQUIRED AT THE TIME OF PLAT RECORDATION.
7. MAINTENANCE AND ACCESS EASEMENTS ARE REQUIRED FOR ALL SCMS.
8. AT THE CONCLUSION OF THE PROJECT ALL SCMS INSTALLED ON-SITE MUST BE CERTIFIED BY A DESIGN PROFESSIONAL AND THE TOWN OF KNIGHTDALE ENGINEERING DEPT. MUST RECEIVE ALL AS-BUILT DRAWINGS PRIOR TO RECEIVING THE CERTIFICATE OF OCCUPANCY.

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL TOWN OF KNIGHTDALE AND NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS.

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REVISION DESCRIPTION	DATE

DATE	DRAWN BY	DESIGNED BY	CHECKED BY	SCALE
9/27/2022	C.CLARK	E.ANGE	B.BLACKMON	1" = 150'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL PRELIMINARY STORMWATER MANAGEMENT PLAN

JOB NO. 45530

SHEET NO. C4.0

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PRELIMINARY DO NOT USE FOR CONSTRUCTION

NAD 83

SCALE 1"=60'
0 60' 120'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- WETLANDS
- FEMA 100 YR FLOODPLAIN (FEMA100)

RETAINING WALL

COS 1
4,937 SF
0.11 AC

ROAD B

ALLEY A

ALLEY B

20' DRAINAGE AND MAINTENANCE ACCESS EASEMENT

SCM

ROBERTSON STREET
(S.R.2500)
74' ULTIMATE ROW

SAN

ROAD A

POS 2
7,132 SF
0.16 AC

PASSIVE OS 3
222,415 SF
5.11 AC

NWS

RETAINING WALL

ACTIVE OS 4
22,369 SF
0.51 AC

ROAD A

ROAD C

ALLEY C

COS 2
4,423 SF
0.10 AC

PASSIVE OS 4
304,300 SF
6.99 AC

SCM

MATCHLINE SHEET C4.1
MATCHLINE SHEET C4.3

MATCHLINE SHEET C4.4
MATCHLINE SHEET C4.2

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REVISION DESCRIPTION	DATE

DATE
9/27/2022

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C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

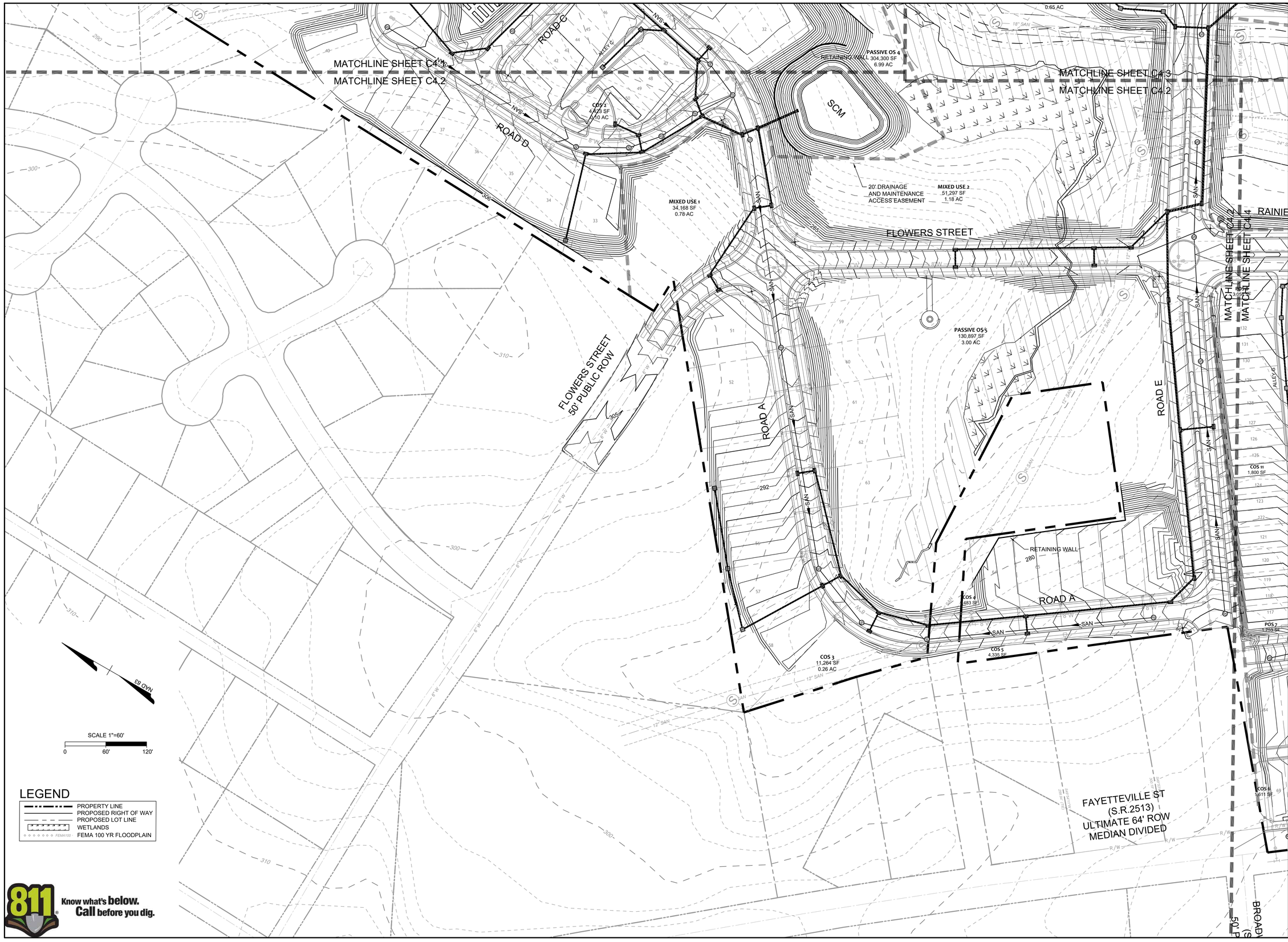
FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 1 OF 5

JOB NO.
45530

SHEET NO.
C4.1

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DESIGNED BY
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CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 2 OF 5

JOB NO.
45530

SHEET NO.
C4.2

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NAD 83

SCALE 1"=60'
0 60' 120'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- WETLANDS
- FEMA100 FEMA 100 YR FLOODPLAIN

POS 10
6,380 SF
0.15 AC

COS 19
1,231 SF

ALLEY E

COS 18
1,275 SF

COS 14
1,443 SF

COS 15
955 SF

COS 13
1,934 SF

COS 17
1,769 SF

COS 16
1,649 SF

POS 9
4,178 SF
0.10 AC

COS 12
1,679 SF

ALLEY C

ALLEY D

ROAD E

ROAD F

SAN

INLET

ACTIVE OS 1
99,633 SF
2.29 AC

PASSIVE OS 1
631,408 SF
14.50 AC

ACTIVE OS 3
28,321 SF
0.65 AC

PASSIVE OS 4
304,300 SF
6.99 AC

SCM

20' DRAINAGE AND MAINTENANCE ACCESS EASEMENT

COMMON OS 20
122,140 SF
2.80 AC

MATCHLINE SHEET C4.1
MATCHLINE SHEET C4.3

MATCHLINE SHEET C4.3
MATCHLINE SHEET C4.5

MATCHLINE SHEET C4.3
MATCHLINE SHEET C4.2

MATCHLINE SHEET C4.3
MATCHLINE SHEET C4.4

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SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

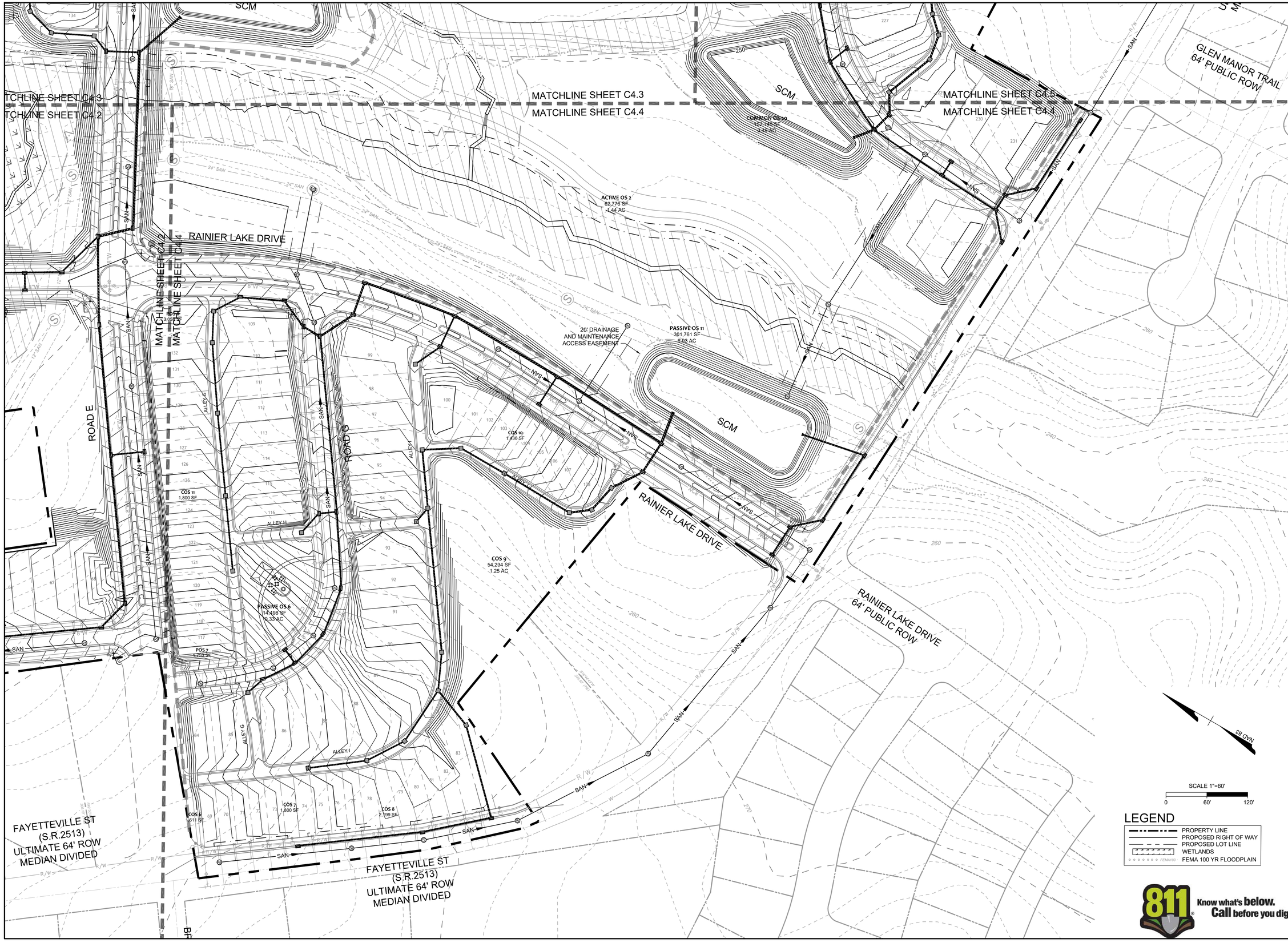
HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 3 OF 5

JOB NO. 45530
SHEET NO. C4.3

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DATE

DATE
9/27/2022

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 4 OF 5

JOB NO.
45530

SHEET NO.
C4.4

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CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 5 OF 5

JOB NO. 45530
SHEET NO. C4.5

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PASSIVE OS 12
6,953 SF
0.16 AC

ROAD I

COMMON OS 22
43,043 SF
0.99 AC

COS 23
2,312 SF

ROAD H

ALLEY K

ALLEY J

ALLEY L

ALLEY M

COMMON OS 21
44,974 SF
1.03 AC

PASSIVE OS 1
631,408 SF
14.50 AC

MATCHLINE SHEET C4.3
MATCHLINE SHEET C4.5

20' DRAINAGE AND MAINTENANCE ACCESS EASEMENT

SCM

COMMON OS 20
152,180 SF
3.49 AC

MATCHLINE SHEET C4.3
MATCHLINE SHEET C4.4

MATCHLINE SHEET C4.5
MATCHLINE SHEET C4.4

ACTIVE OS 2
62,776 SF
1.44 AC

CEDAR POND COURT
54' PUBLIC ROW

FAYETTEVILLE ST
(S.R.2513)
ULTIMATE 74' ROW
MEDIAN DIVIDED

GLEN MANOR TRAIL
64' PUBLIC ROW

NAD 83

SCALE 1"=60'
0 60' 120'

LEGEND
- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

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DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 150'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL PRELIMINARY LIGHTING PLAN

JOB NO.
45530

SHEET NO.
C5.0

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN (FEMA100)

LIGHTING LEGEND

LED STREET LIGHTS
(7,000 LUMENS LED 75 ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

NOTES

1. ALL FIXTURES SHALL HAVE A FULL CUTOFF CLASSIFICATION OR BE FULLY SHIELDED.
2. ALL POLE-MOUNTED FIXTURES CANNOT EXCEED 37' IN HEIGHT.
3. ALL STREET LIGHT POLES SHALL BE FIBERGLASS WITH A FULLY SHIELDED, ARM-MOUNTED LED FIXTURE.
4. AVERAGE SPACING FOR INTERNAL STREETS SHALL BE 250' APART AND 150' ALONG FAYETTEVILLE ST & ROBERTSON ST.
5. BUG RATING CANNOT EXCEED B1 U1 G2 FOR LOCAL STREETS AND B2 U2 G3 ON MAILMAN.
6. POLES SHALL BE PLACED ON ALTERNATIVE SIDES OF THE STREET.
7. LIGHTING FOR THE AMENITY CENTER PARKING LOT SHALL NOT EXCEED A BUG RATING OF B3 U0 G4.

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NAD 83

SCALE 1"=60'
0 60' 120'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA100 - FEMA 100 YR FLOODPLAIN

LIGHTING LEGEND

LED STREET LIGHTS
(7,000 LUMENS LED 75 ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

ROBERTSON STREET
(S.R.2500)
74' ULTIMATE ROW

ROAD A
ROAD B
ROAD C
ALLEY A
ALLEY B
ALLEY C

STREET LIGHT , TYP.

COS 1
4,937 SF
0.11 AC

POS 2
7,132 SF
0.16 AC

PASSIVE OS 3
222,415 SF
5.11 AC

ACTIVE OS 4
22,389 SF
0.51 AC

COS 2
4,423 SF
0.10 AC

PASSIVE OS 4
304,300 SF
6.99 AC

SCM

MATCHLINE SHEET C5.1
MATCHLINE SHEET C5.2
MATCHLINE SHEET C5.1
MATCHLINE SHEET C5.3

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REVISION DESCRIPTION

DATE

DATE 9/27/2022
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 1 OF 5

JOB NO. 45530
SHEET NO. C5.1

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MATCHLINE SHEET C5.1
MATCHLINE SHEET C5.2

MATCHLINE SHEET C5.3
MATCHLINE SHEET C5.2

MATCHLINE SHEET C5.2
MATCHLINE SHEET C5.4

ROAD C
ROAD D
ALLEY C
ROAD A
ROAD E
ALLEY G
FLOWERS STREET
FLOWERS STREET
50' PUBLIC ROW
RAINIER LAK

COS 2
4,423 SF
0.10 AC

PASSIVE OS 4
304,300 SF
6.99 AC

SCM

MIXED USE 1
34,168 SF
0.78 AC

MIXED USE 2
51,297 SF
1.18 AC

PASSIVE OS 5
130,897 SF
3.00 AC

COS 3
11,264 SF
0.26 AC

COS 4
1,283 SF

COS 5
2,500 SF

COS 8
3,058 SF

COS 11
1,800 SF

POS 7
1,753 SF

POS 6
1,111 SF

STREET LIGHT , TYP.

STREET LIGHT, TYP.

FAYETTEVILLE ST
(S.R.2513)
ULTIMATE 64' ROW
MEDIAN DIVIDED

BROADWA
(S.R
50' PU

LEGEND

- PROPERTY LINE
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- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA100 FEMA 100 YR FLOODPLAIN

LIGHTING LEGEND

LED STREET LIGHTS
(7,000 LUMENS LED 75 ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

NAD 83

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0 60' 120'

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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 2 OF 5

JOB NO.
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0 60' 120'

LEGEND

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- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA100 FEMA 100 YR FLOODPLAIN

LIGHTING LEGEND

LED STREET LIGHTS
(7,000 LUMENS LED 75 ROADWAY LIGHT)
ALUMINUM POLE - HEIGHT 30'

POS 10
1,380 SF
0.15 AC

POS 19
1,231 SF

ALLEY F

STREET LIGHT , TYP

COS 14
1,443 SF

COS 18
1,273 SF

ALLEY E

COS 15
956 SF

ALLEY D

COS 13
1,934 SF

COS 17
1,769 SF

POS 9
4,178 SF
0.10 AC

COS 12
1,679 SF

COS 16
1,649 SF

ROAD F

ROAD E

ACTIVE OS 1
99,633 SF
2.29 AC

PASSIVE OS 1
631,408 SF
14.50 AC

ACTIVE OS 3
28,321 SF
0.65 AC

SCM

PASSIVE OS 4
304,300 SF
6.99 AC

COMMON OS 20
152,140 SF

ROAD H

MATCHLINE SHEET C5.1
MATCHLINE SHEET C5.3

MATCHLINE SHEET C5.3
MATCHLINE SHEET C5.5

MATCHLINE SHEET C5.3
MATCHLINE SHEET C5.2

MATCHLINE SHEET C5.3
MATCHLINE SHEET C5.4

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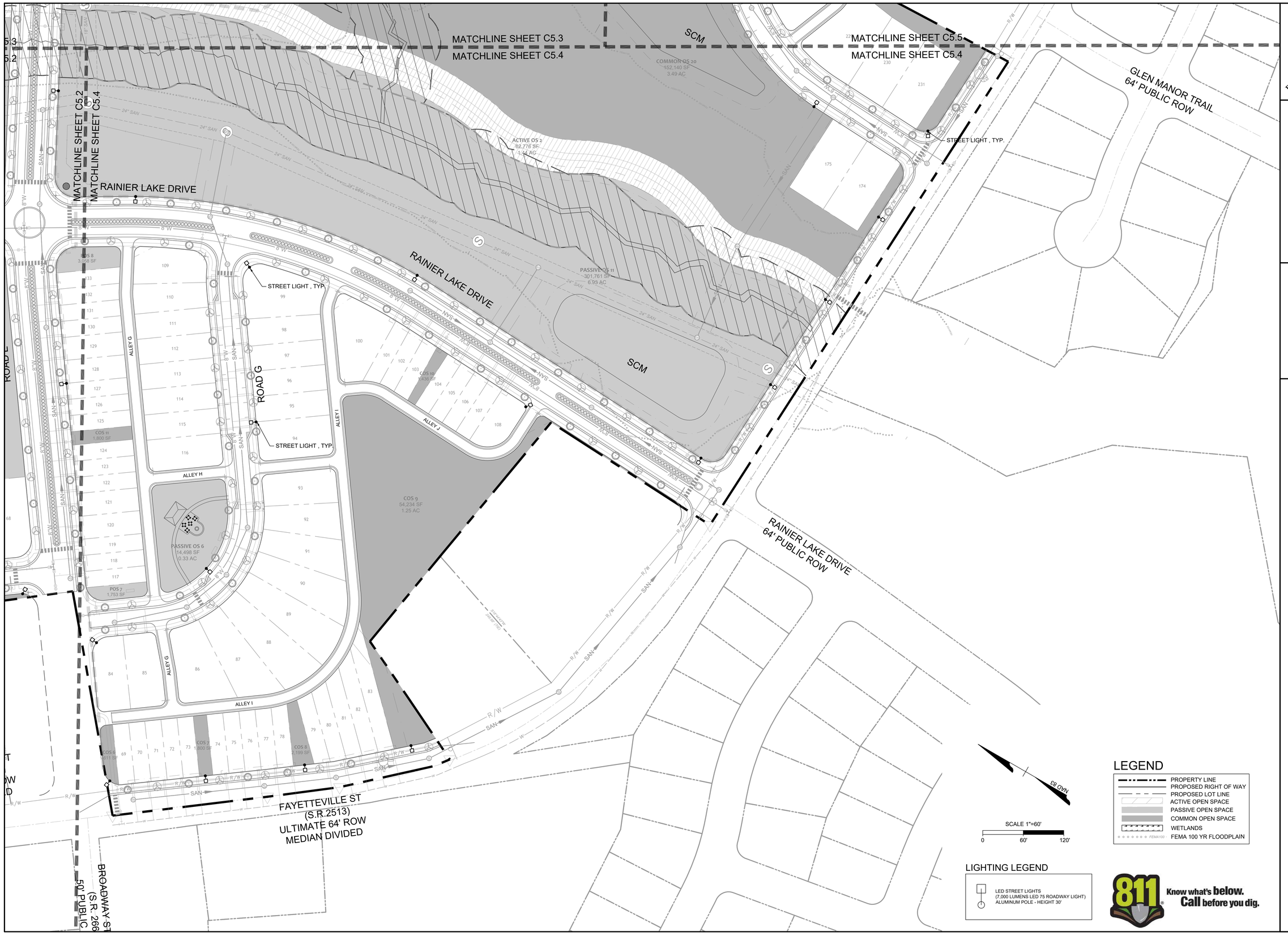
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DETAILED PRELIMINARY LIGHTING PLAN SHEET 3 OF 5

JOB NO.
45530

SHEET NO.
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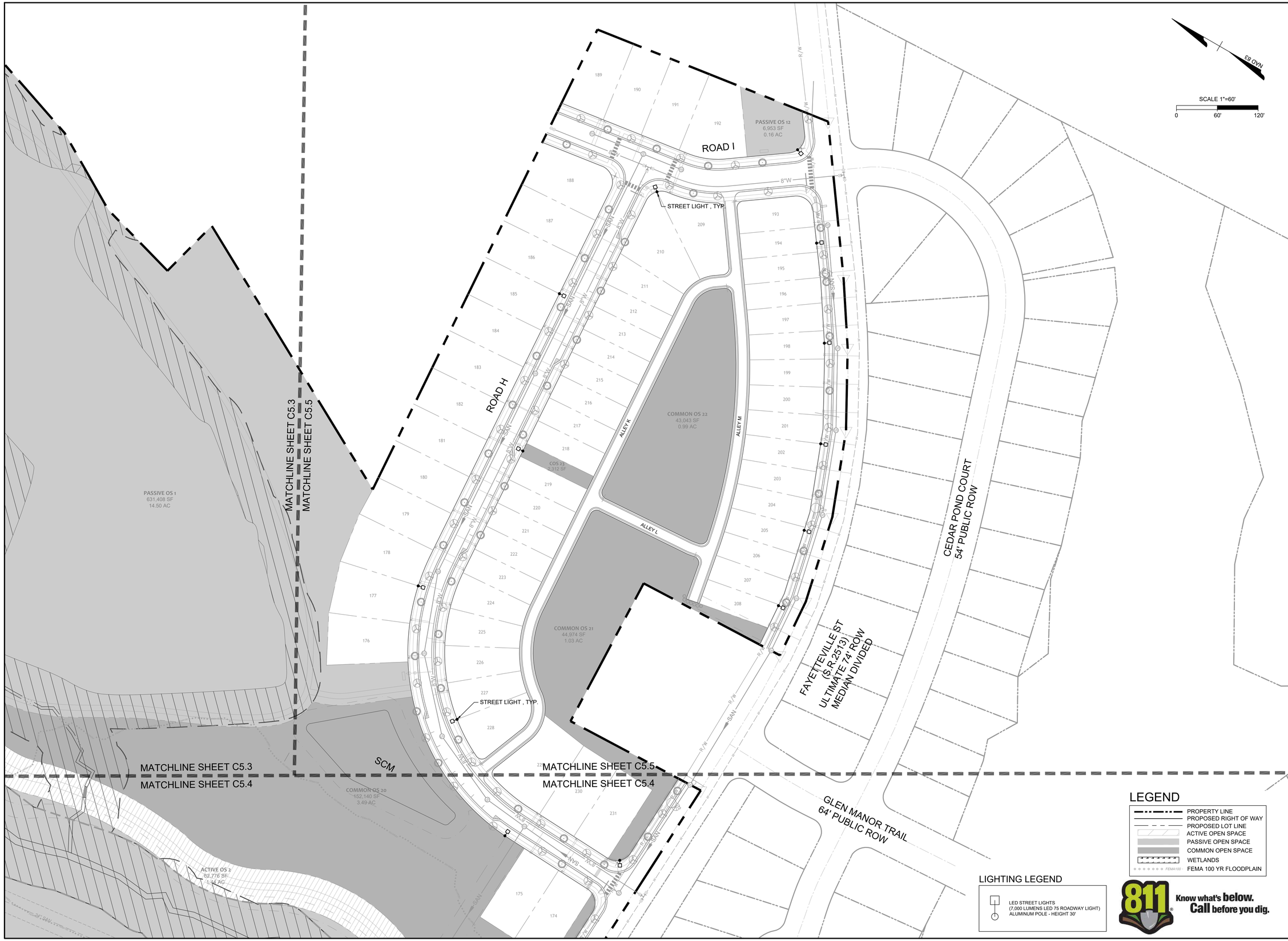
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DETAILED PRELIMINARY LIGHTING PLAN SHEET 4 OF 5

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C5.5

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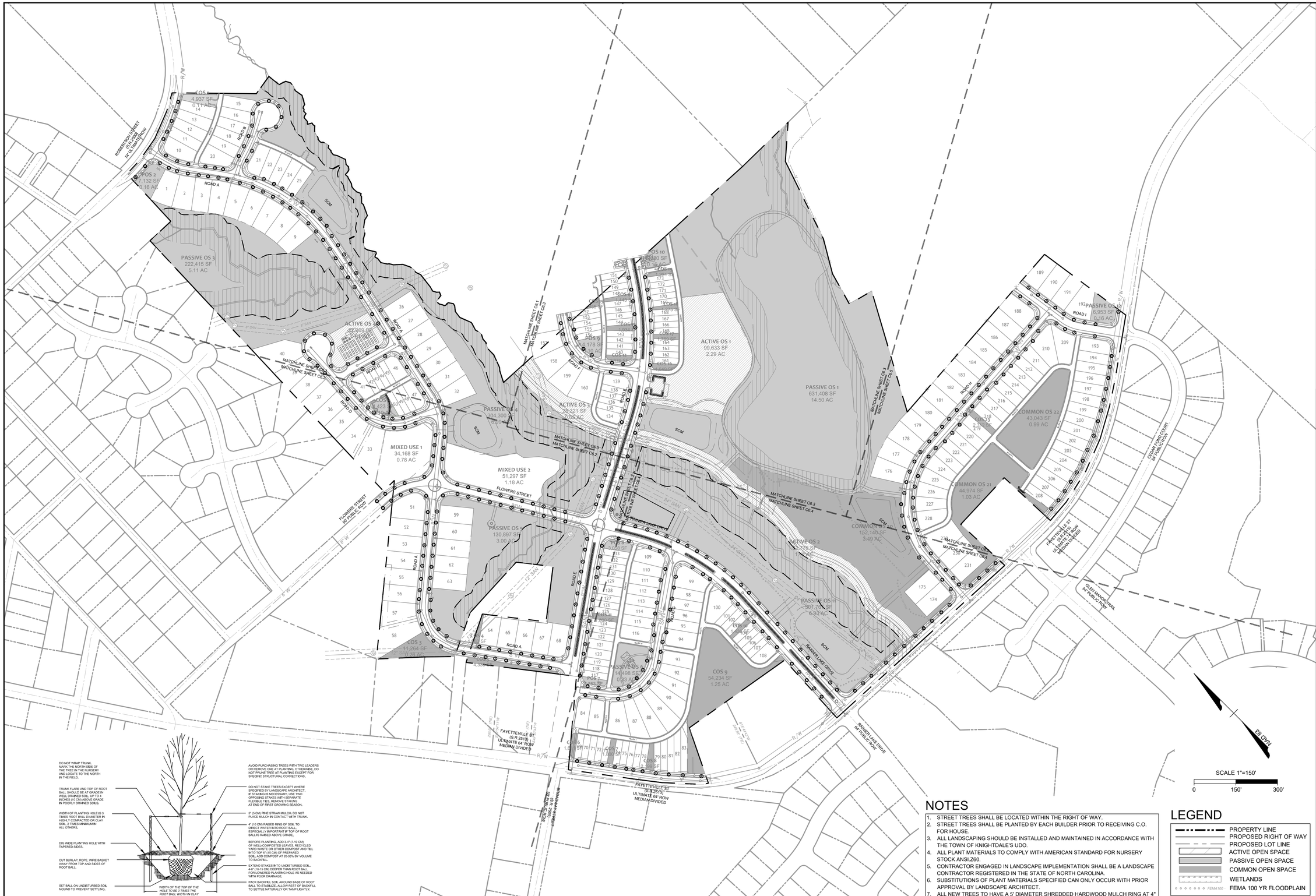
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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 5 OF 5

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TYPICAL TREE PLANTING
NOT TO SCALE

CANOPY SAVE DATA

CANOPY SAVE REQUIRED: 278,420 SF
CANOPY SAVE PROVIDED: 440,668 SF

NOTES

1. STREET TREES SHALL BE LOCATED WITHIN THE RIGHT OF WAY.
2. STREET TREES SHALL BE PLANTED BY EACH BUILDER PRIOR TO RECEIVING C.O. FOR HOUSE.
3. ALL LANDSCAPING SHOULD BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE'S UDO.
4. ALL PLANT MATERIALS TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK ANSI.Z60.
5. CONTRACTOR ENGAGED IN LANDSCAPE IMPLEMENTATION SHALL BE A LANDSCAPE CONTRACTOR REGISTERED IN THE STATE OF NORTH CAROLINA.
6. SUBSTITUTIONS OF PLANT MATERIALS SPECIFIED CAN ONLY OCCUR WITH PRIOR APPROVAL BY LANDSCAPE ARCHITECT.
7. ALL NEW TREES TO HAVE A 5' DIAMETER SHREDDED HARDWOOD MULCH RING AT 4" DEEP UNLESS OTHERWISE NOTED OR LOCATED IN A PLANT BED PER SITE PLAN.
8. LANDSCAPE CONTRACTOR TO GUARANTEE PLANT MATERIALS FOR A ONE YEAR PERIOD FOLLOWING SUBSTANTIAL COMPLETION.
9. AREAS DAMAGED BY LANDSCAPE CONTRACTOR TO BE REPAIRED TO PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO THE OWNER.
10. ALL LANDSCAPE ISLANDS SHALL BE GRADED FOR POSITIVE DRAINAGE WITH NO LOW SPOTS ALLOWING WATER TO BE TRAPPED.
11. ALL ABOVE GROUND UTILITIES MUST BE SCREENED.

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN (FEMA100)

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CHECKED BY
B.BLACKMON

SCALE
1" = 150'

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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL LANDSCAPE PLAN

JOB NO.
45530

SHEET NO.
C6.0

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0 60' 120'

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- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA100 FEMA 100 YR FLOODPLAIN

DEVELOPER WILL PROVIDE ENHANCED FOUNDATION LANDSCAPING TO INCLUDE EVERGREEN BACKROUND SHRUBS AND FLOWERING PLANT MATERIAL IN THE FOREGROUND. THE PLANT MATERIAL WILL EXTEND ACROSS THE ENTIRE FRONT OF THE BUILDING FACADE, EXCLUSIVE OF WALKS AND ENTRANCES.

ROBERTSON STREET (S.R.2500) 74' ULTIMATE R/W

ROAD A

ROAD B

ROAD C

ALLEY A

ALLEY B

ALLEY C

SCM

COS 1
4,937 SF
0.11 AC

POS 2
7,132 SF
0.16 AC

PASSIVE OS 3
222,415 SF
5.11 AC

ACTIVE OS 4
22,369 SF
0.51 AC

COS 2
4,423 SF
0.10 AC

PASSIVE OS 4
304,300 SF
6.99 AC

MATCHLINE SHEET C6.1
MATCHLINE SHEET C6.3

MATCHLINE SHEET C6.1
MATCHLINE SHEET C6.2

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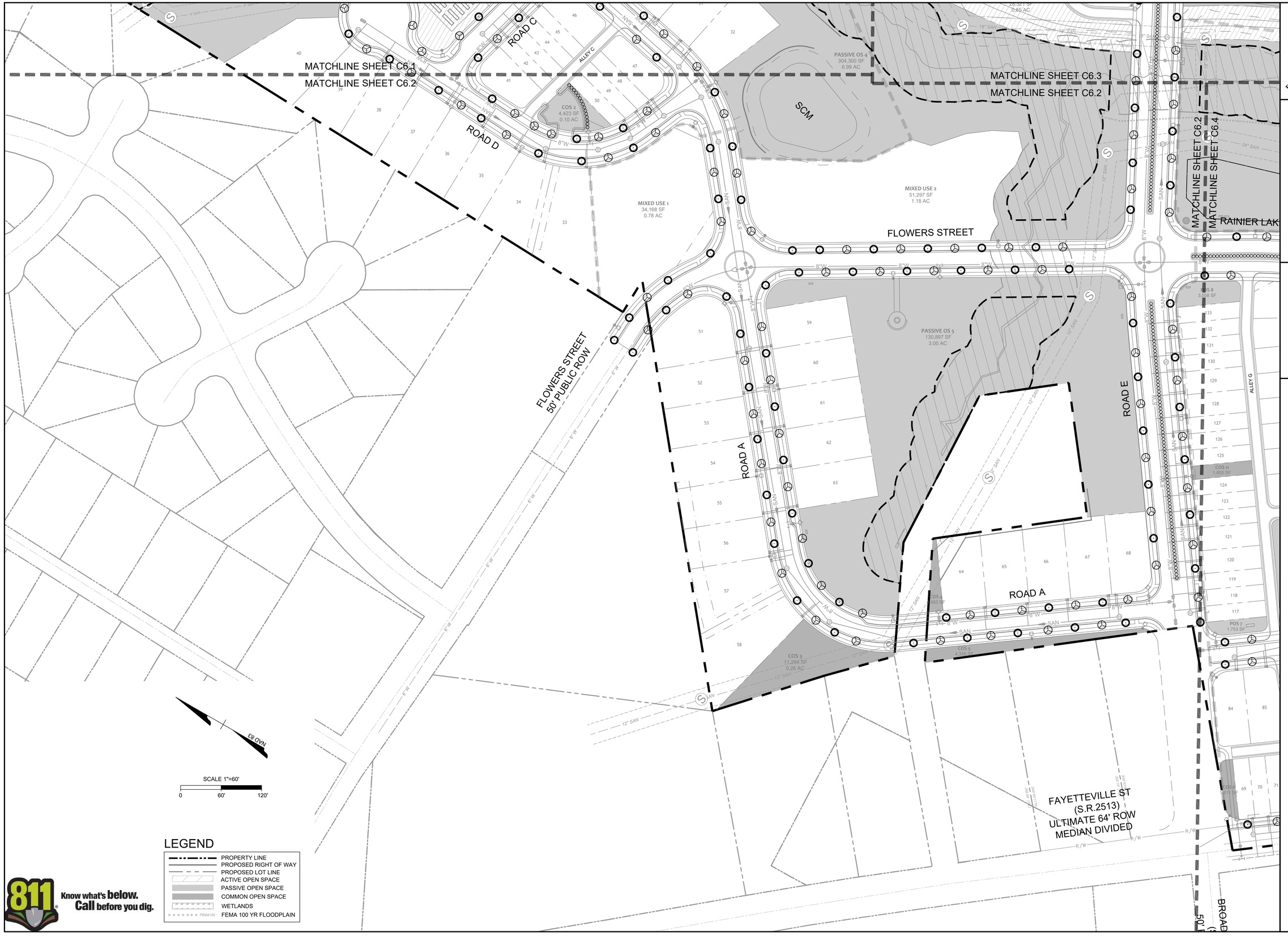
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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 1 OF 5

JOB NO. 45530
SHEET NO. C6.1

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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 2 OF 5

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45530

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C6.2

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SCALE 1"=60'
0 60' 120'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA100 FEMA 100 YR FLOODPLAIN

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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 3 OF 5

JOB NO. 45530
SHEET NO. C6.3

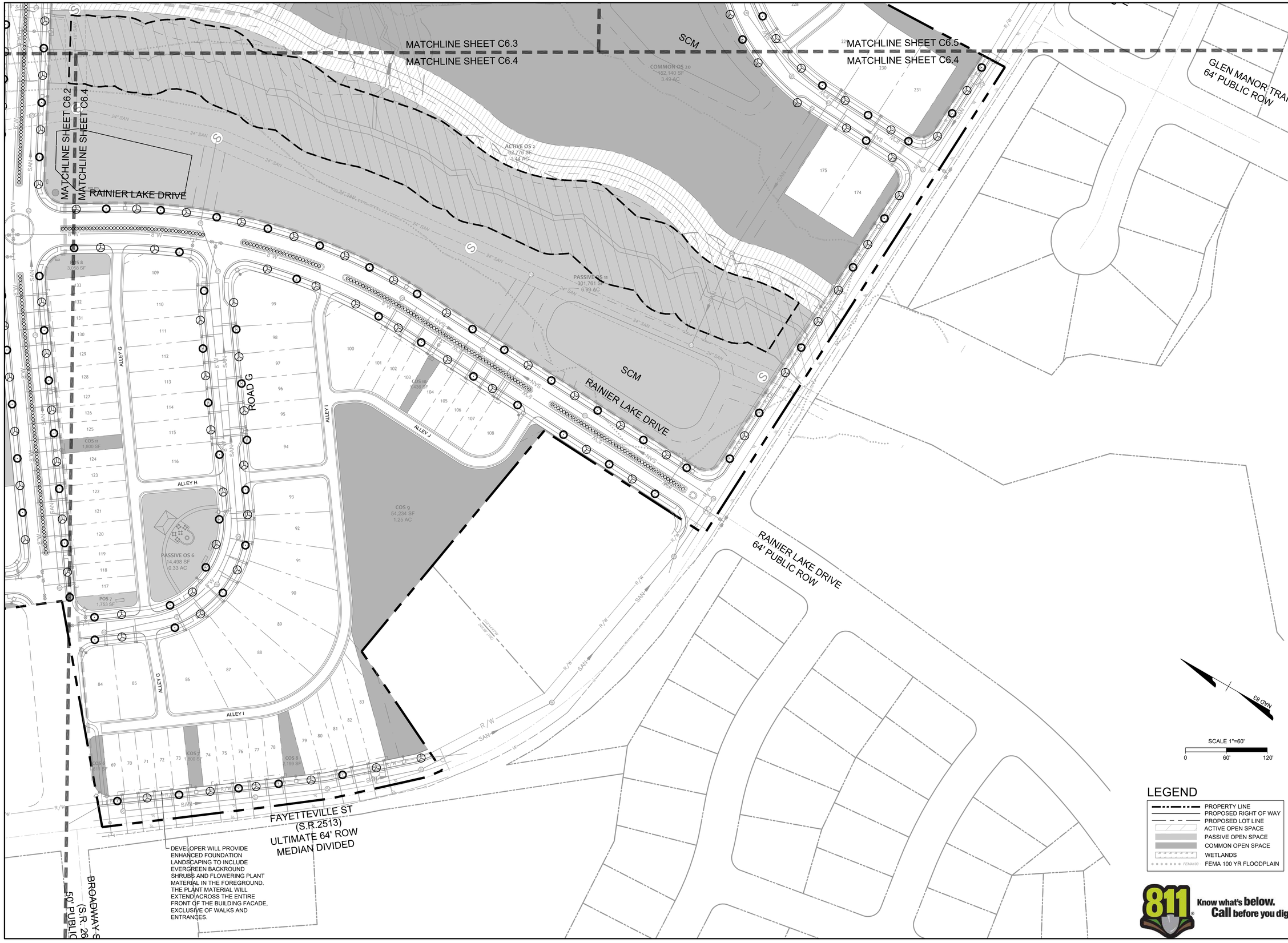
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MATCHLINE SHEET C6.1
MATCHLINE SHEET C6.3
MATCHLINE SHEET C6.2
MATCHLINE SHEET C6.4
MATCHLINE SHEET C6.5

POS 10
8,380 SF
0.19 AC
POS 9
4,178 SF
0.10 AC
POS 4
304,300 SF
6.99 AC
ACTIVE OS 1
99,633 SF
2.29 AC
ACTIVE OS 3
28,321 SF
0.65 AC
PASSIVE OS 1
631,408 SF
14.50 AC
COMMON OS 20
152,140 SF
3.49 AC
COS 11
1,231 SF
COS 12
1,679 SF
COS 13
1,934 SF
COS 14
1,443 SF
COS 15
855 SF
COS 16
1,648 SF
COS 17
1,769 SF
COS 18
1,075 SF

ROAD E
ROAD F
ROAD H
ALLEY B
ALLEY C
ALLEY D
ALLEY F

SCM



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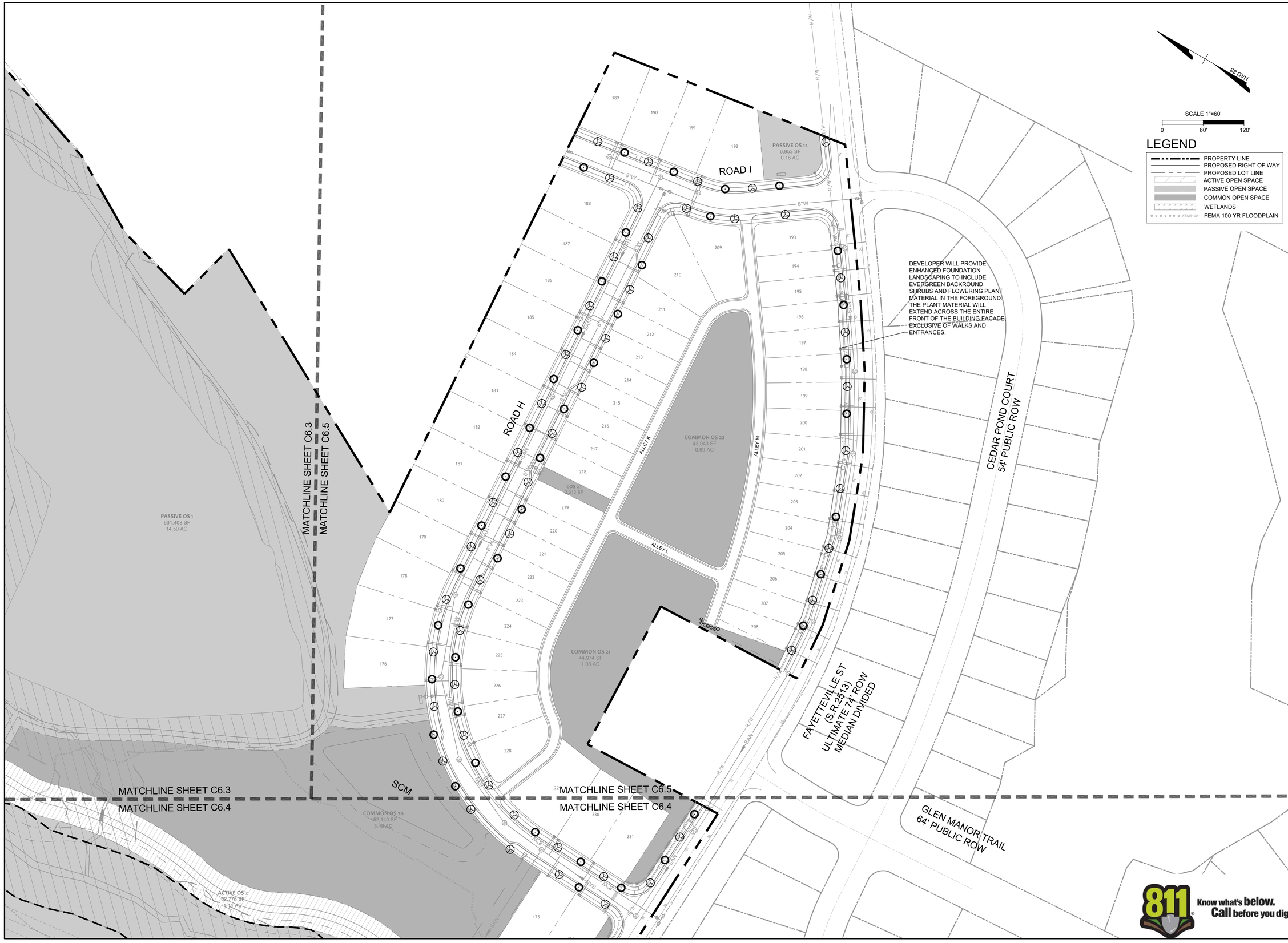
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FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 4 OF 5

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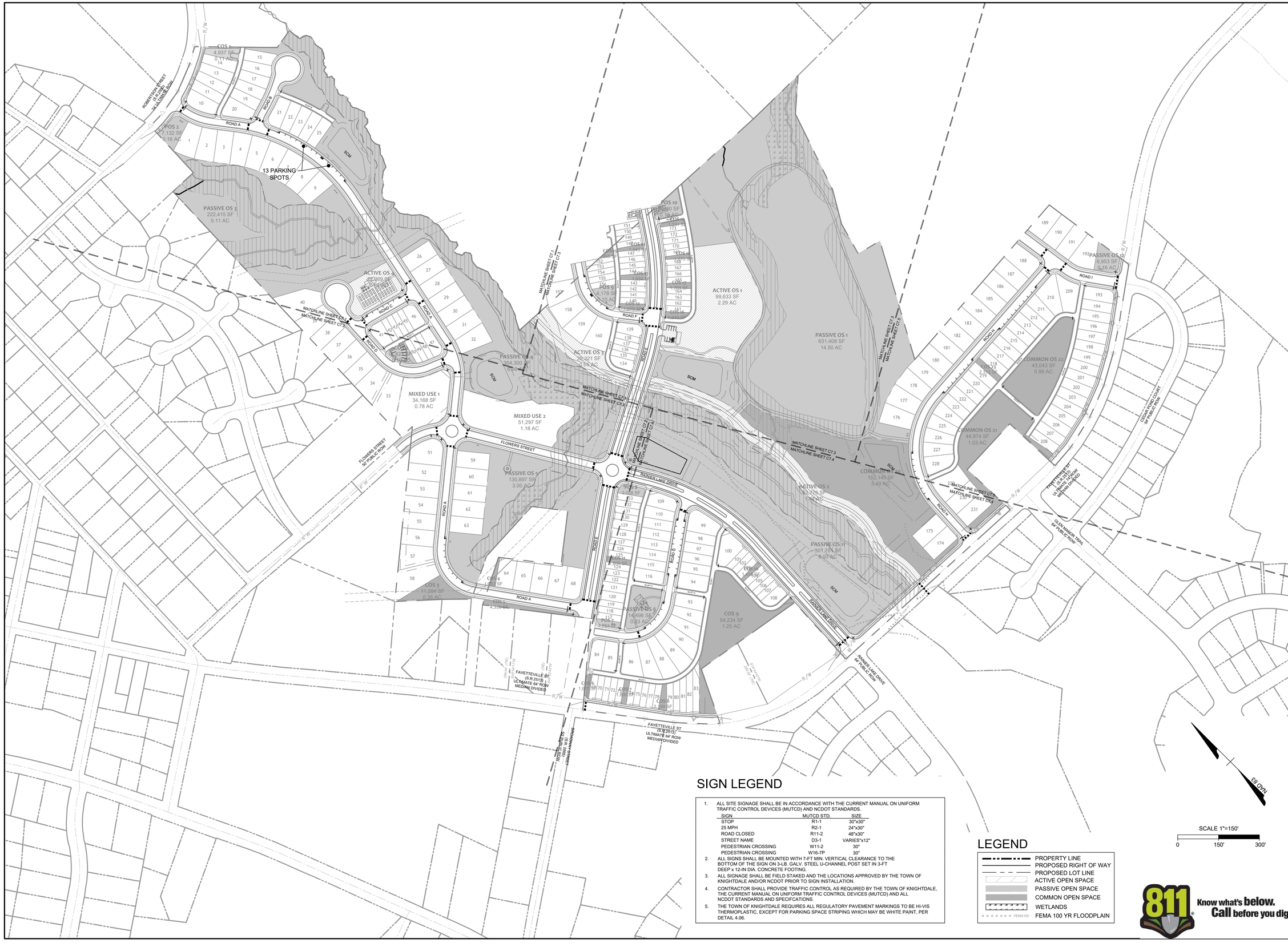
DETAILED LANDSCAPE PLAN SHEET 5 OF 5

JOB NO.
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SHEET NO.
C6.5

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SIGN LEGEND

1. ALL SITE SIGNAGE SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.

SIGN	MUTCD STD.	SIZE
STOP	R1-1	30"x30"
25 MPH	R2-1	24"x30"
ROAD CLOSED	R11-2	48"x30"
STREET NAME	D3-1	VARIES"x12"
PEDESTRIAN CROSSING	W11-2	30"
PEDESTRIAN CROSSING	W16-7P	30"

2. ALL SIGNS SHALL BE MOUNTED WITH 7-FT MIN. VERTICAL CLEARANCE TO THE BOTTOM OF THE SIGN ON 3-LB. GALV. STEEL U-CHANNEL POST SET IN 3-FT DEEP x 12-IN DIA. CONCRETE FOOTING.
3. ALL SIGNAGE SHALL BE FIELD STAKED AND THE LOCATIONS APPROVED BY THE TOWN OF KNIGHTDALE AND/OR NCDOT PRIOR TO SIGN INSTALLATION.
4. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS REQUIRED BY THE TOWN OF KNIGHTDALE, THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ALL NCDOT STANDARDS AND SPECIFICATIONS.
5. THE TOWN OF KNIGHTDALE REQUIRES ALL REGULATORY PAVEMENT MARKINGS TO BE HI-VIS THERMOPLASTIC, EXCEPT FOR PARKING SPACE STRIPING WHICH MAY BE WHITE PAINT, PER DETAIL 4.06.

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN (FEMA100)

NAD 83

SCALE 1"=150'

0 150' 300'

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OVERALL SIGNS AND MARKINGS PLAN

JOB NO. 45530
SHEET NO. C7.0

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SIGN	MUTCD STD.	SIZE
STOP	R1-1	30"x30"
25 MPH	R2-1	24"x30"
ROAD CLOSED	R11-2	48"x30"
STREET NAME	D3-1	VARIES"x12"
PEDESTRIAN CROSSING	W11-2	30"
PEDESTRIAN CROSSING	W16-7P	30"

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NAD 83

SCALE 1"=60'
0 60' 120'

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA100 FEMA 100 YR FLOODPLAIN

ROBERTSON STREET (S.R.2590) 74' ULTIMATE ROW

ROAD A
ROAD B
ROAD C
ROAD D
ALLEY A
ALLEY B
ALLEY C

STOP SIGN
STOP BAR
STREET SIGN
13 PARKING SPOTS
6 PARKING SPOTS

COS 1
4,937 SF
0.11 AC

POS 2
7,132 SF
0.16 AC

PASSIVE OS 3
222,415 SF
5.11 AC

ACTIVE OS 5
22,369 SF
0.51 AC

COS 4
4,423 SF
0.10 AC

PASSIVE OS 4
304,300 SF
6.99 AC

SCM

MATCHLINE SHEET C7.1
MATCHLINE SHEET C7.2
MATCHLINE SHEET C7.3

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REVISION DESCRIPTION	DATE

DATE: 9/27/2022
DRAWN BY: C.CLARK
DESIGNED BY: E.ANGE
CHECKED BY: B.BLACKMON
SCALE: 1" = 60'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

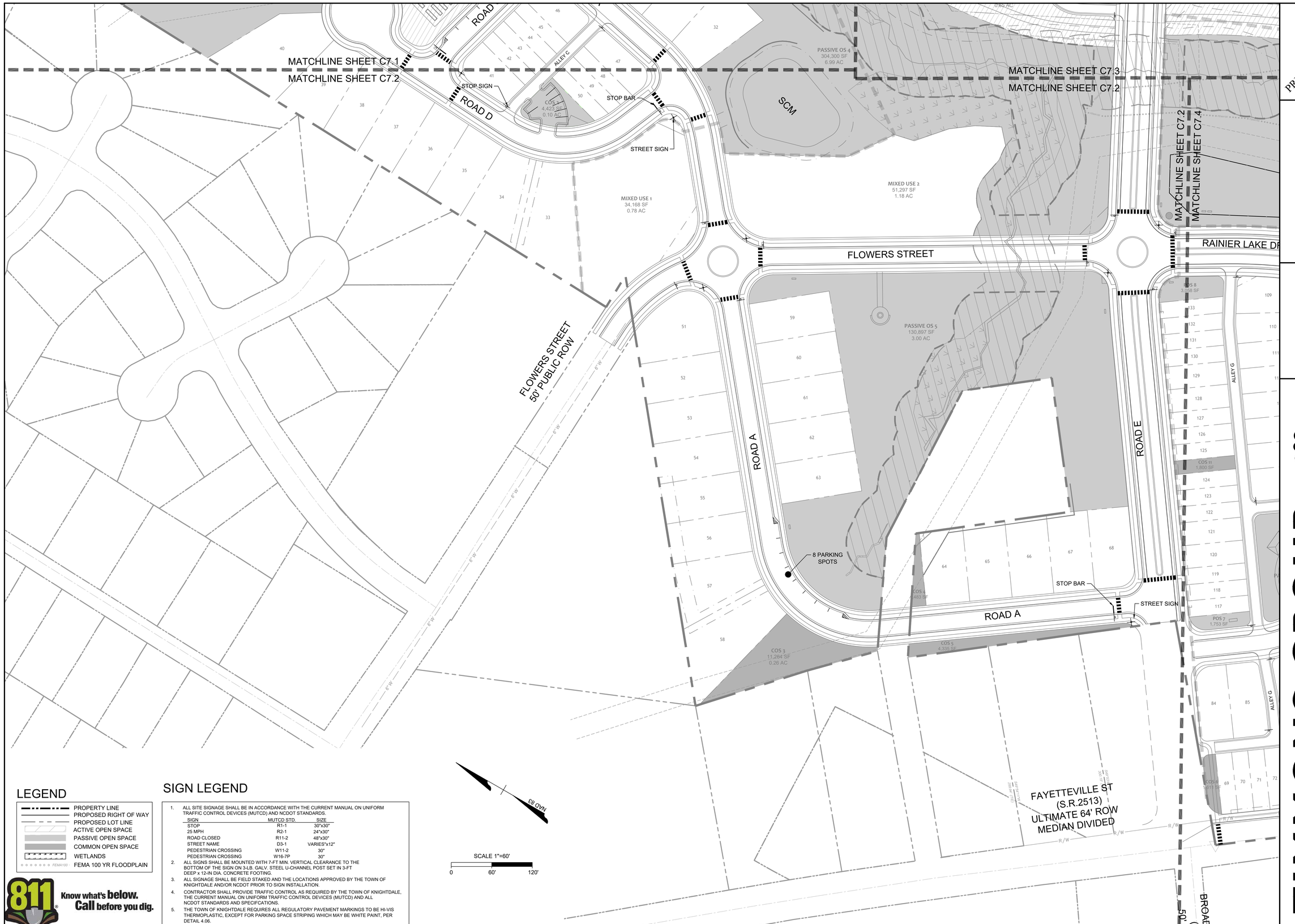
HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 1 OF 5

JOB NO. 45530
SHEET NO. C7.1

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
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- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

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REVISION DESCRIPTION	DATE

DATE 9/27/2022
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE
FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 2 OF 5

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SHEET NO. C7.2

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NAD 83

SCALE 1"=60'
0 60' 120'

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- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA100 FEMA 100 YR FLOODPLAIN

POS 10
8,380 SF
0.35 AC

STOP SIGN
ALLEY F

COS 19
1,231 SF

COS 14
1,443 SF

COS 18
1,275 SF

ALLEY E

COS 11
855 SF

COS 13
1,804 SF

COS 17
1,769 SF

ALLEY D

POS 9
4,178 SF
0.10 AC

STOP SIGN
STREET SIGN
STOP SIGN

COS 12
1,679 SF

COS 16
1,649 SF

ROAD F
STOP BAR

6 PARKING SPOTS

STOP SIGN

ALLEY D

ROAD E

STOP SIGN

ACTIVE OS 3
28,321 SF
0.65 AC

ACTIVE OS 1
99,633 SF
2.29 AC

PASSIVE OS 1
631,408 SF
14.50 AC

SCM

PASSIVE OS 4
304,300 SF
6.99 AC

COMMON OS 2

MATCHLINE SHEET C7.1
MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.5
MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.2
MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.4

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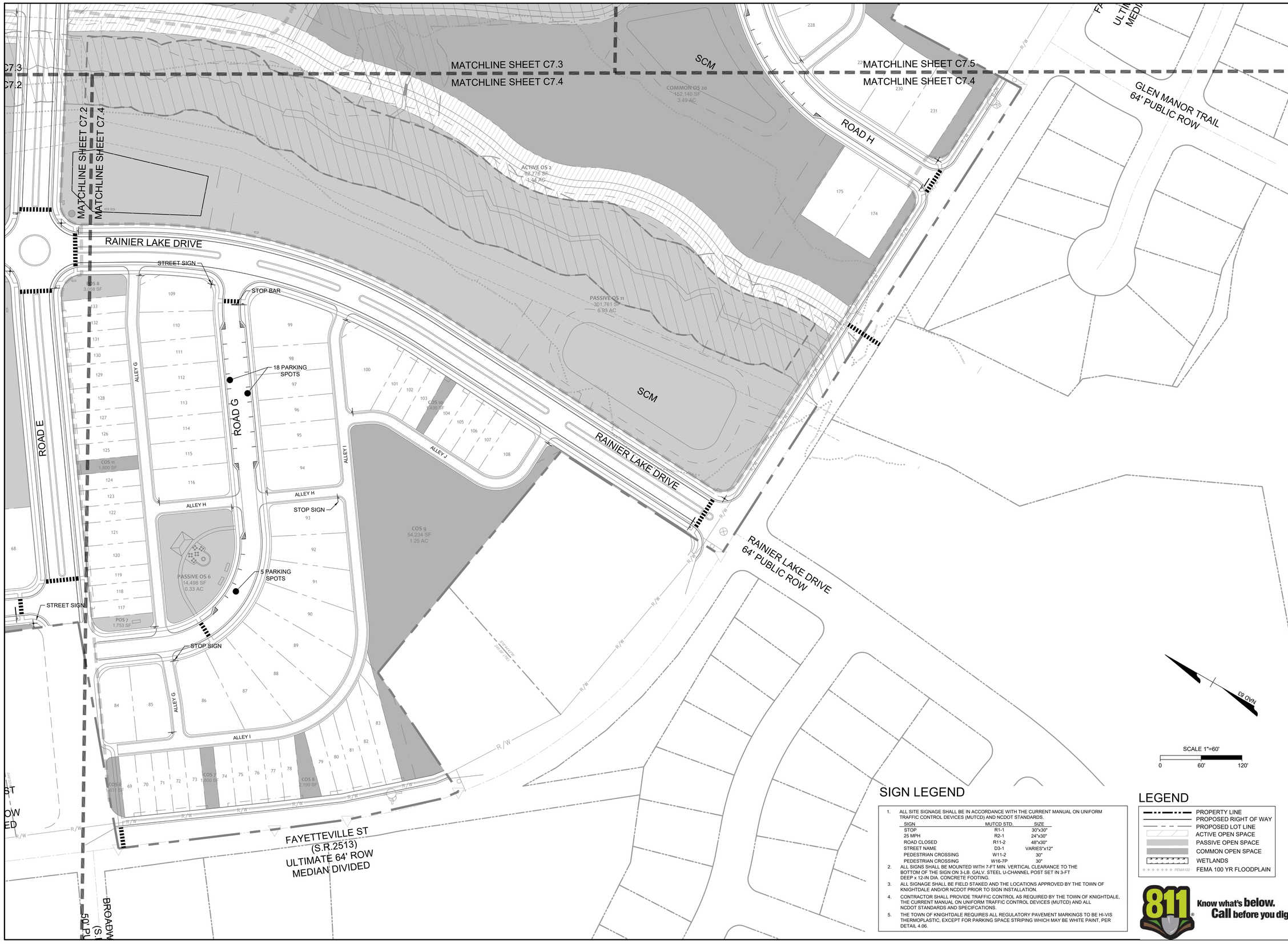
HARPER PRESERVE

FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 3 OF 5

JOB NO.
45530
SHEET NO.
C7.3

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- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN (FEMA100)

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CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE
FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 4 OF 5

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SHEET NO. C7.4

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NAD 83

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LEGEND

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- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS
- FEMA 100 YR FLOODPLAIN

PASSIVE OS 1
631,408 SF
14.50 AC

PASSIVE OS 12
6,953 SF
0.16 AC

COMMON OS 22
43,043 SF
0.99 AC

COS 33
2,312 SF

COMMON OS 21
44,974 SF
1.03 AC

COMMON OS 20
152,140 SF
3.49 AC

ACTIVE OS 2
83,776 SF
1.44 AC

STREET SIGN

STOP BAR

STOP SIGN

9 PARKING SPOTS

7 PARKING SPOTS

8 PARKING SPOTS

STOP SIGN

ROAD I

ROAD H

ALLEY K

ALLEY M

ALLEY L

SCM

MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.5

MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.4

MATCHLINE SHEET C7.5
MATCHLINE SHEET C7.4

FAYETTEVILLE ST
(S.R.2513)
ULTIMATE 74' ROW
MEDIAN DIVIDED

CEDAR POND COURT
54' PUBLIC ROW

GLEN MANOR TRAIL
64' PUBLIC ROW

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DATE

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DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

HARPER PRESERVE
FAYETTEVILLE STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 5 OF 5

JOB NO.
45530

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HARPER PRESERVE



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

ENGINEERING FIRM:
TIMMONS GROUP
5401 TRINITY RD, SUITE 102
RALEIGH | NC 27607

PUD SUBMITTAL
PREPARED FOR:
TOWN OF KNIGHTDALE
SEPTEMBER, 2022

Vision & Intent

Section 12.2.F.3.g of the Knightdale Unified Development Ordinance states that a Planned Unit Development Overlay district rezoning is a privilege and shall be considered by the Town based on the aggregated incremental benefits that the specific subdivision plans provide that over and above the standard zoning requirements. In return for the flexibility that the Planned Unit Development designation Harper Preserve's design has been based on the following:

KnightdaleNext 2035 Comprehensive Plan

- Harper Preserve is located within the Targeted Investment Area of the Growth Framework Map in the 2035 Comprehensive Plan, and as such, the design encourages active living with a comprehensive network of walkable streets. Compact design is a feature of the community, though, not at the expense of natural and large outdoor gathering areas. Incorporating a Mixed-Use area further contributes to the walkable lifestyle within one community.
- Consistent with the Growth and Conservation Map, Harper Preserve is a Mixed-Density Neighborhood with mixed housing types and densities. Product types differ depending on whether they are on one of the new collector roads running through the development, backing up to a neighboring parcel, or adjacent one of the many preservation areas. Multiple dwelling types, lot sizes and price points ensure diversity and appeal to a broad array of home buyer. The neighborhood contains a network of open spaces, trails, and natural preservation areas, a primary feature of Mixed-Density Neighborhoods.

Public Welfare

- With its generous natural buffers and copious untouched green spaces, Harper Preserve is designed to not impair the supply of light and air to adjacent properties and will not substantially increase the danger of fire or otherwise endanger the public health, safety and welfare.

Impact on Other Property

- Harper Preserve will ensure compatibility with surrounding land uses as a residential development located in a residential area of the Town of Knightdale. Harper Preserve is a natural extension of Knightdale Station and The Collection. The development has coordinated with other future developments adjacent to the property and will not impede the use and development of surrounding properties nor will it dimmish property values of the area.

Impact on Public Facilities and Resources

- Harper Preserve is designed to ensure adequate utilities, road connections, drainage and other facilities are existing or will be constructed with the development.

Archaeological, Historical or Cultural Impact

- The +/-94 acres of Harper Preserve includes some beautiful natural features such Poplar Creek, and its tributaries, and nearly a 6-acre lake. Not only are these elements retained for the enjoyment of the residents, but they are also fully integrated into the design of the development, creating a sense of space unique to Knightdale.
- Harper Preserve includes traditional modern high-end amenities such as pool, clubhouse, playground, and fire pit, but also preserves and incorporates natural features found on the property like open fields, streams, and ponds. Trails not only enable pedestrian connectivity throughout various sections of the community but serve as conduits for residents to enjoy the natural elements distributed throughout. Active open spaces are flexible community gathering spaces accommodating a wide array of uses.

Parking and Traffic

- Necessary parking and road connections are proposed with Harper Preserve to minimize traffic congestion on existing public streets and provide adequate access for emergency vehicles. Harper Preserve makes significant strides to fufill the Town's vision for the transportation network in this area.
- The layout of Harper Preserve seamlessly integrates various dwelling types into the beautiful landscape and a series of collector roads that fulfill the Town's Transportation Plan's goal of connecting parts of southeastern Knightdale. Rather than a discrete subdivision, Harper Preserve is designed to feel more like organic urban residential growth that occurred prior to the post World War II era. Preliminary designs for adjacent parcels were also developed to ensure that Harper Preserve fits into a larger design language for the area. The majority of the dwellings have rear-entry garages, places an emphasis on the person, not the car. This technique removes barriers to a sense of community, even in one as diverse as Harper Preserve.

Adequate Buffering

- Landscaping and open space areas are proposed throughout Harper Preserve for the enjoyment of residents and the Town. Adjacent property buffering is proposed through both preserved natural areas and proposed plantings.

Performance

- The applicant has a successful history with the Town of Knightdale in developing Haywood Glen Phase 3 as well as projects throughout the Triangle and North Carolina.

SITE DATA TABLE

PROJECT:	HARPER PRESERVE
ENGINEER:	TIMMONS GROUP BETH BLACKMON, PE 5410 TRINITY ROAD, STE. 102 RALEIGH, NC 27607 PHONE: (919) 866-4509 FAX: (919) 859-5663 EMAIL: BETH.BLACKMON@TIMMONS.COM
DEVELOPER:	OLD EAST PROPERTIES MARK EISENBEIS 16 W MARTIN ST, SUITE 805 RALEIGH, NC 27801 PHONE: (919) 825-1135 EMAIL: MARK@OLDEASTPROPERTIES.COM
LAND OWNER:	CHARLES R HARPER & JOHN SCOTT HARPER 1032 FAYETTEVILLE ST KNIGHTDALE, NC 27545
TAX ID:	1754-51-9021 & 1754-60-7948
DEED REFERENCE:	DB. 16875 PG. 2694
TOWNSHIP:	ST. MATTHEW'S
EXISTING ZONING:	RT
CURRENT USE:	SINGLE-FAMILY RESIDENTIAL & VACANT
PROPOSED USE:	SINGLE-FAMILY RESIDENTIAL & MIXED USE
PROPOSED ZONING:	GR-3 PUD GENERAL RESIDENTIAL-3 (GR-3), NEIGHBORHOOD MIXED-USE (NMX), PUD (PLANNED UNIT DEVELOPMENT)
TOTAL PROJECT AREA:	94.1 ACRES
PROPOSED DENSITY:	2.45 DU/A
RIVER BASIN:	NEUSE
SURFACE WATER CLASSIFICATION:	C; NSW
WATERSHED:	NONE
FIRM PANEL #:	3720175300K & 3720175400K EFF. 7/19/2022

FRONT LOAD SINGLE FAMILY LOT STANDARDS:	MINIMUM LOT SIZE: 7,000 SF LOT WIDTH: 60' FRONT SETBACK: 10' DRIVEWAY LENGTH: 25' SIDE SETBACK: 5' CORNER SIDE SETBACK: 10' REAR SETBACK: 20'
REAR LOAD SINGLE FAMILY LOT STANDARDS:	MINIMUM LOT SIZE: 4,100 SF LOT WIDTH: 38' FRONT SETBACK: 10' SIDE SETBACK: 3' CORNER SIDE SETBACK: 10' REAR SETBACK: 20' DRIVEWAY LENGTH: 20'
REAR LOAD TOWNHOME LOT STANDARDS:	MINIMUM LOT SIZE: 1,980 SF LOT WIDTH: 22' FRONT SETBACK:10' BUILDING SEPARATION: 10' REAR SETBACK: 20' DRIVEWAY LENGTH: 20'



SITE DEVIATIONS

SETBACKS AND DRIVEWAYS

Section 3.4 of the Knightdale UDO requires that any lot less than 80' in width be accessed via an alley or rear lane access. Additionally, the Section 6.5 of the UDO requires that side setbacks be a minimum of 20% of the lot width (to a minimum of 5' for lots 60' & greater or 3' for lots less than 60'), and driveway length be a minimum of 35'. An exception to these requirements is requested to allow the minimum lot width standard to be reduced to 60', side setbacks be reduced to 5', rear setback be reduced to 20', and driveway lengths be reduced to a minimum of 25' to be adequately developed within the site constraints. Per Section 3.4, Knightdale requires townhomes to have a minimum driveway length of 35'. An exception to this requirement is requested to allow townhome driveways to be reduced to 20'. These exceptions are requested based on the Beneficial Common Open Space, Landscape Conservation and Visual Enhancement and Integrated Design Modification Standards. Compact development better protects the natural environment, increasing the amount of open space and creating a more integrated design for the community.

DISTRIBUTION OF USES

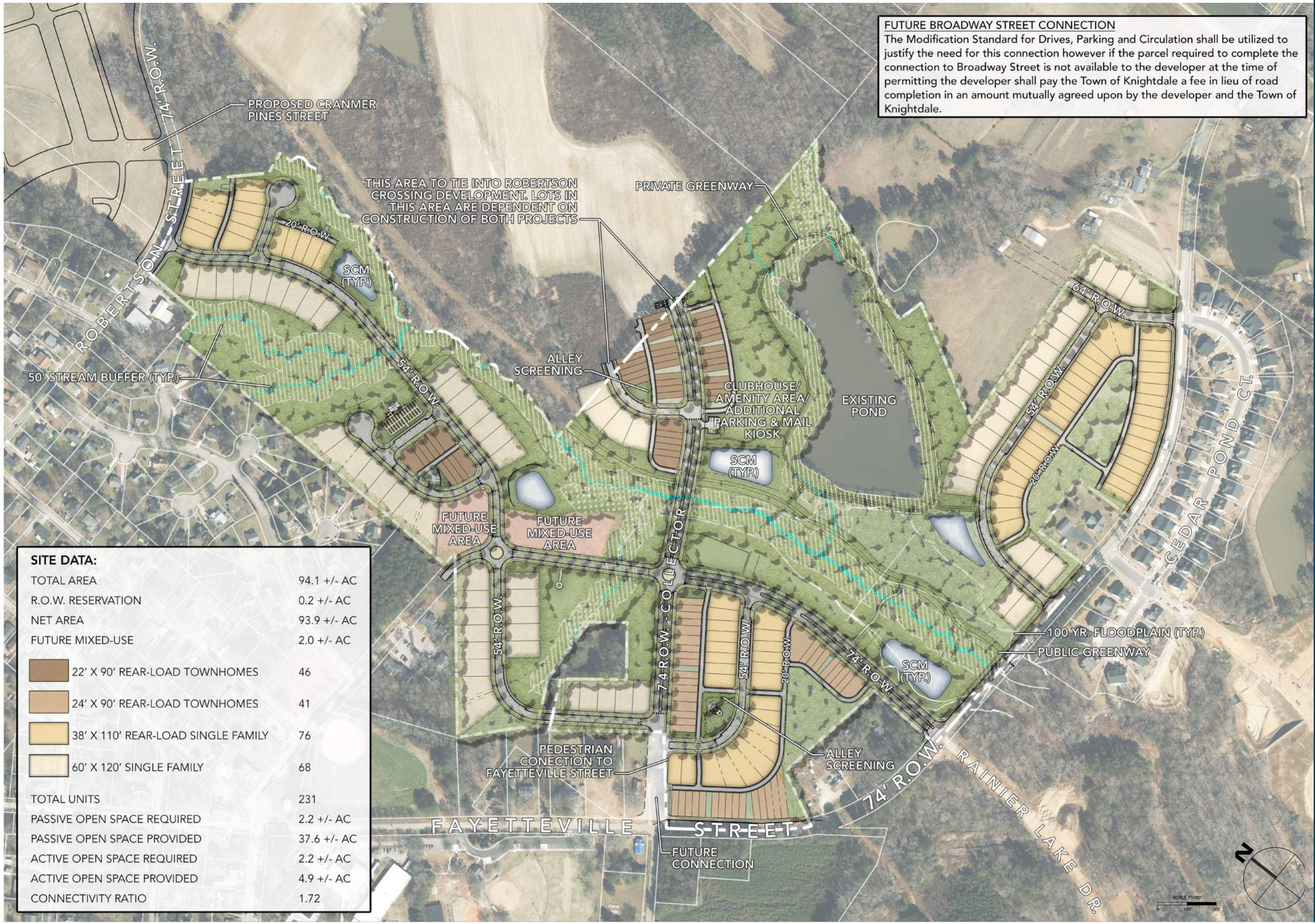
Table 11.1.B in the Knightdale UDO requires a Min. 10% / Max. 40% Duplex / Townhouse, Min. 5% / Max. 40% Multifamily, Min. 15% / Max. 60% Single Family, and Min. 10% / Max. 100% Mixed Use. An exception to these requirements is requested based on the Integrated Design Modification Standard to exclude the requirement for Multifamily use and an increased percentage of single family to provide a safe, efficient and harmonious grouping of uses within this area of Knightdale. A Mixed-Use area has been incorporated however no standalone multifamily is proposed. Proposed distribution of uses is: 17% Townhouse, 76% Single Family, 7% Mixed-Use.

GENERAL SITE MODIFICATIONS

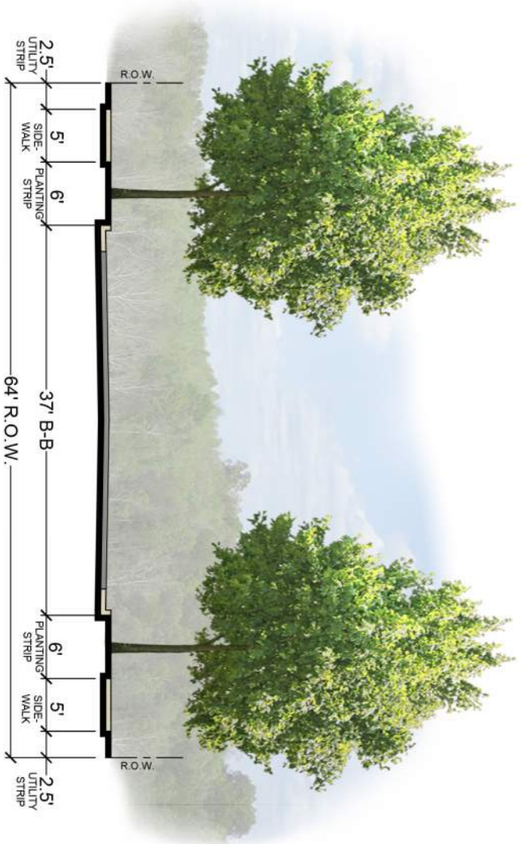
9.3.B of the Knightdale Unified Development Ordinance prohibits mass grading on all front-loaded lots 60' or greater in width. All rear loaded units included in this PUD are exempt from this requirement by right, due to their narrow lot width. The single family lots not exempt, include 30% of the total number of lots. An exception to these requirements is requested to allow for 80% of not exempt lots to be eligible for mass grading. This modification is requested based on the Surface Water Drainage Modification Standard to ensure proper site surface drainage is maintained. Collecting runoff and ensuring runoff does not adversely impact neighboring properties is the basis for this request.

COMMUNITY LOCATION

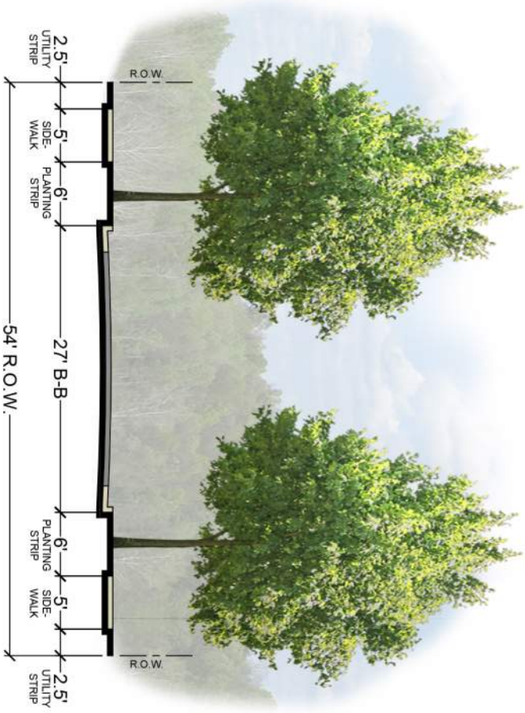
COMMUNITY MASTER PLAN



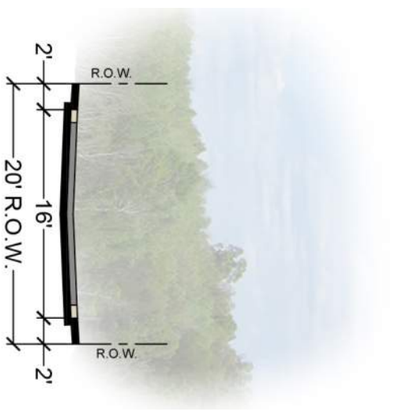
SECTION 2



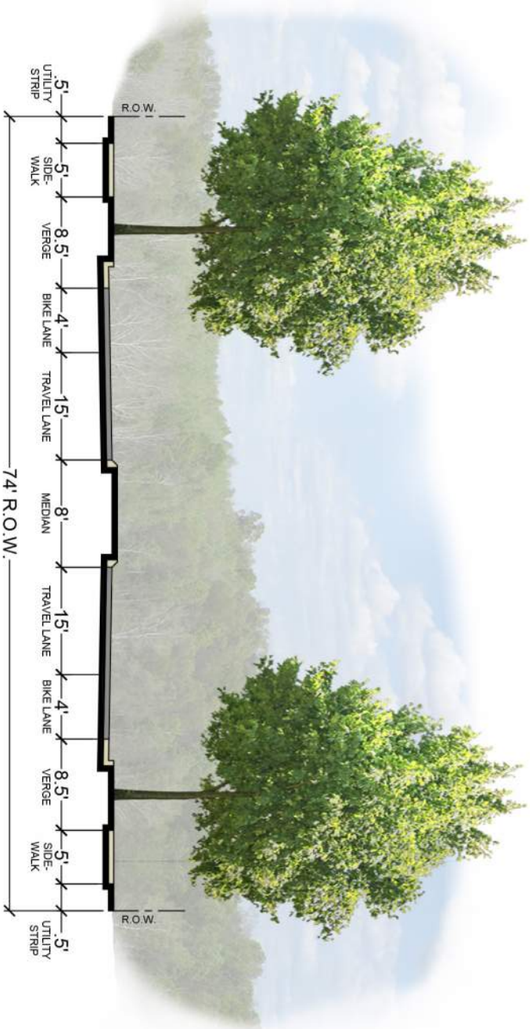
SECTION 1

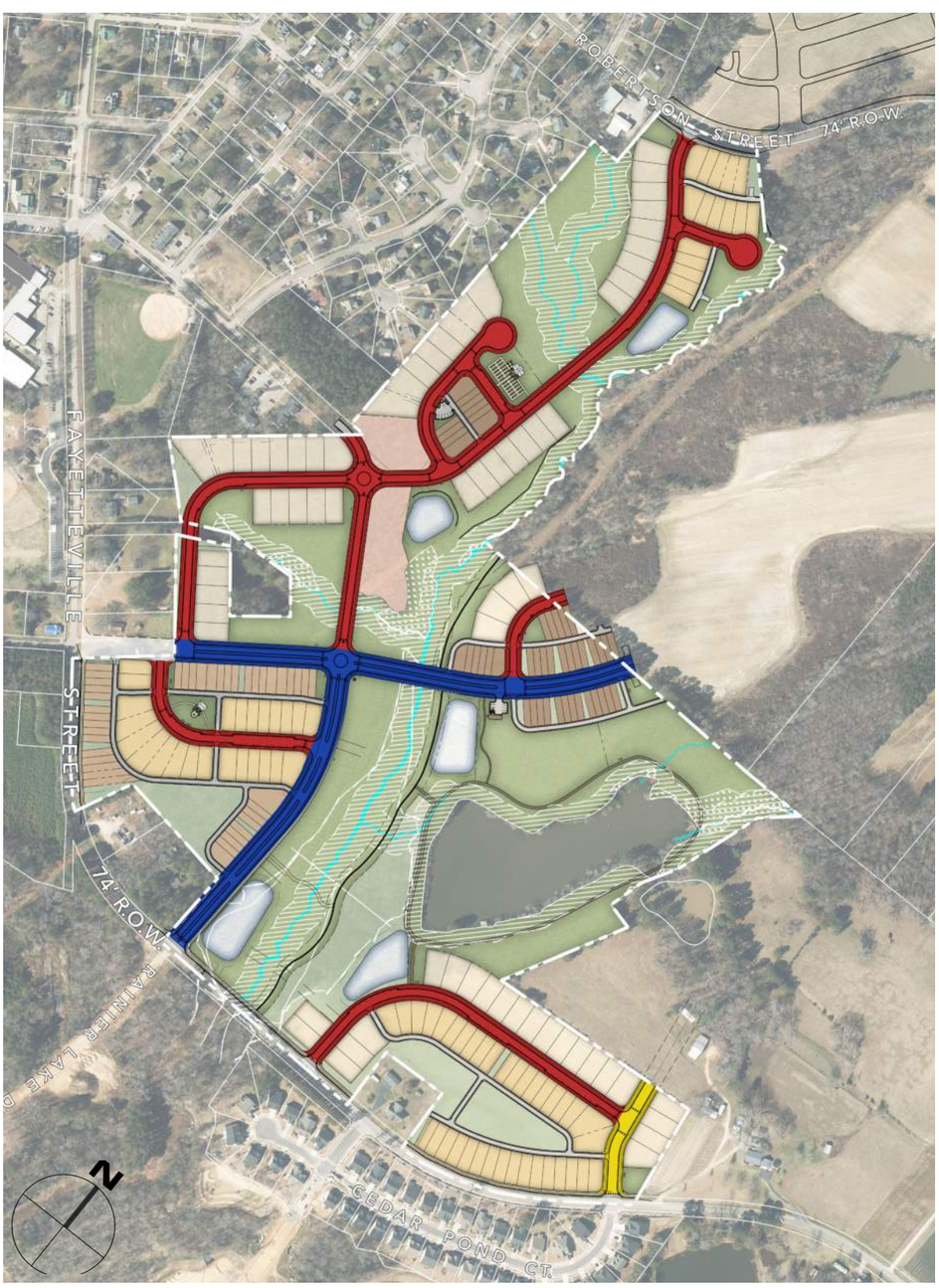


TYP. RESIDENTIAL ALLEY



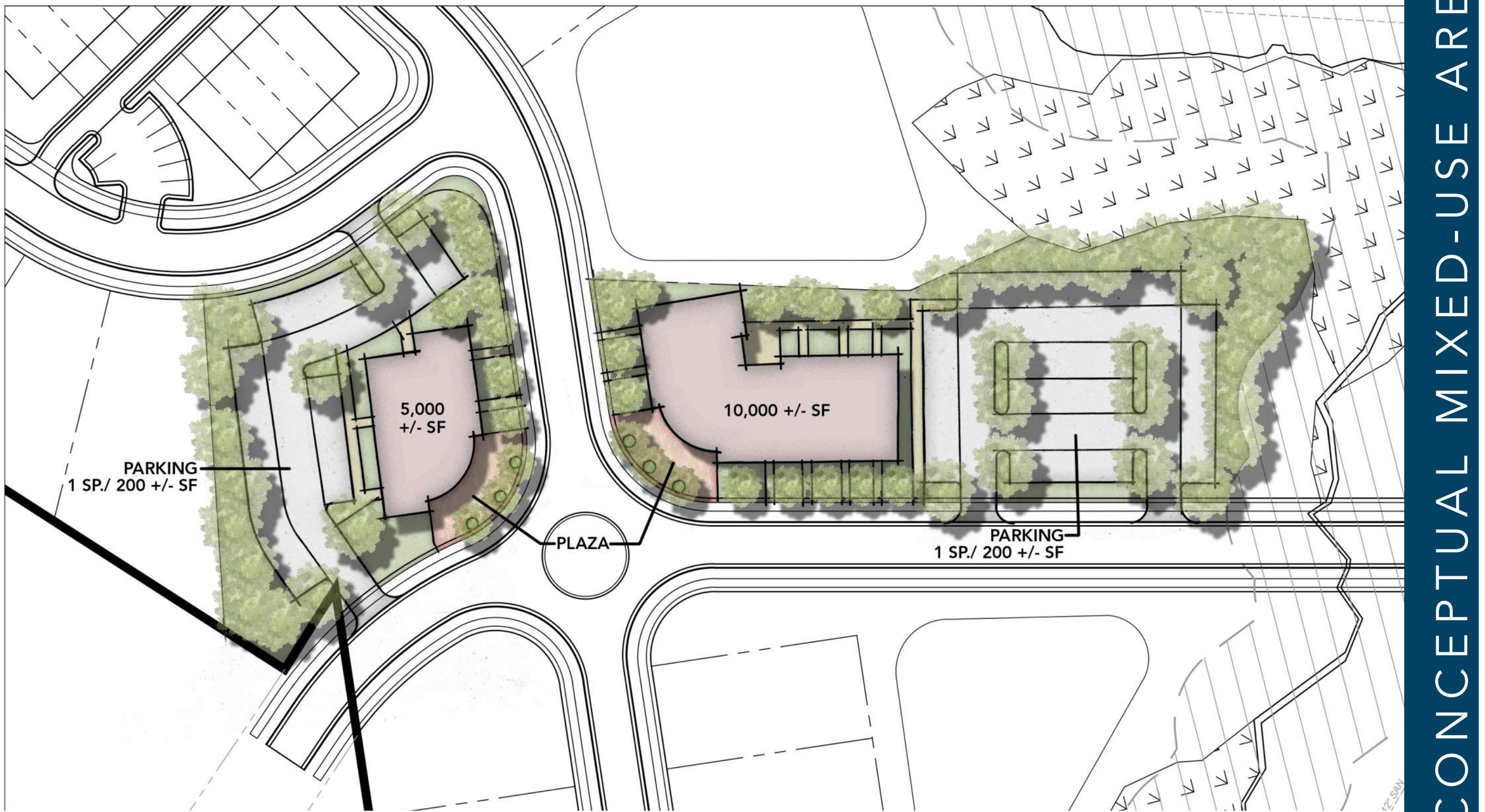
SECTION 3





STREET SECTIONS

MIXED-USE



CONCEPTUAL MIXED-USE AREAS

NMX MIXED-USE STANDARDS

A. USES

In addition to conditions of use listed in the Town of Knightdale's UDO the following uses are permitted and subject to the listed conditions:

- Amusements (5,000 SF or less)
- Animal Services
- No outdoor boarding or outdoor Doggie Day Care shall be permitted.
- Banks
- Child/Adult Day Care Center
- Civic
- Community Support Organizations
- Cultural Facility
- General Retail (under 10,000 SF per single user)
- Government Services
- Institutional
- Medical Services (Doctor, Dentist, Vision)
- No after-hour urgent care
- Office
- Personal Services (Hair, Nail)
- Professional Services (Tutoring, Therapy, CPA)
- Public Safety Facility
- Residential Uses
- Studio Services (Music, Dance, Martial Arts)
- Neighborhood Retail/Restaurants (2,000 SF or less)

Restricted Uses:

The following uses, although allowed under the zoning district NMX in the Town of Knightdale UDO, are hereby prohibited by condition of approval for the Harper Landing Planned Development District: PUD-NMX:

- Bed and Breakfasts
- Rooming or Boarding House
- Hotel/Motel or Inn
- Pet Daycare with outdoor play and/or boarding facility
- Business requiring Drive-Thru (Banks permitted)
- Neighborhood Shopping Center
- Auto Part Sales
- Indoor Amusements, greater than 5,000 sf
- Meeting Facilities
- Indoor or Outdoor Recreation Facilities
- Crematoriums/Funeral Homes
- Vehicle Services – Maintenance/Body Work/Repair
- Gas Stations/Convenience Store
- Big Box Retail
- Outdoor Amusements
- Theater, Live and/or Movie
- Manufacturing

B. ARCHITECTURAL STANDARDS

1.) Primary Façades: Primary façades are those which face a public or private street. All buildings shall have a primary façade that consists of a clearly discernible base, body, and cap as follows:
a. The lowest portion (base) of the building façade shall be built with masonry material to a height of at least 2 feet. The top of the base shall be constructed with a solider course (a complete course of masonry laid on end vertically with the narrow side exposed) or an equivalent cap, which projects further from the façade than the rest of the base.
b. The body of the building shall constitute a minimum of 50% of the total building height. A living wall or planted vegetative wall may be used to define the body of the building.
c. The highest portion (cap) of the building façade shall have a smaller vertical dimension than the base and shall consist of a cornice, parapet, awning, canopy, eave or other architectural treatment that demarcates the top of the structure.
d. Visually heavier materials shall be placed below lighter materials (e.g., stucco or siding over brick or stone) to give the sense of support and grounding.

2.) Primary Materials: At least 40% of the primary façades shall consist of one or more of the following approved materials:

- Brick or glazed brick;
- Wood;
- Cementitious fiber board;
- Stone, cast stone, stone masonry units, marble or similar material;

Secondary Materials: The secondary facades and the remaining area of the primary façades may also consist of the following materials:

- Concrete masonry units;
- Exterior insulation finishing systems;
- Split face block;
- Concrete (pre-cast or cast in place);
- Concrete block;
- Metal composite panels; and
- Rigid frame metal.

3.) Transparency: The first floor primary facades of non-residential buildings located less than 150 feet from a public right-of-way shall have a minimum transparency of 30%. Windows and glazing used to meet this standard must allow views from habitable areas inside the building to the street or property line, except where obstructed by the display of merchandise for retail uses. Glass block, spandrel and windows in vehicular garage doors do not count towards meeting this standard.
.
4.) Additional Standards
a. Building façades should include a clearly discernible base, body, and cap set apart with different colors, materials, patterns, profiles and/or textures.
b. Along street frontages, windows, main entrances, architectural treatments and other primary façade elements should be oriented toward the street.
c. New buildings should utilize the Town of Knightdale's predominant palette of materials (including brick, wood and stone), and should specifically reflect the colors, shades and textures of surrounding development. Glass, stucco and synthetic stucco may be used as a primary material where deemed appropriate.
d. High-quality materials should be used for all building walls visible from a public street, parking lot, park or civic space.

TOWNHOMES - 22’/24’ X 90’ LOTS

HAWTHORNE



POMELO



TWINBERRY



RESIDENTIAL PRODUCT

SINGLE FAMILY HOMES - 38’ X 110’ LOTS

FRITZ

JONESY

OLIVER

SYLVESTER

RESIDENTIAL PRODUCT

SINGLE FAMILY HOMES - 60' X 120' LOTS

TOPSAIL



RIVERBIRCH



WILMINGTON



ROOSEVELT



RESIDENTIAL PRODUCT

Townhouse Architectural Standards

- All townhouse units will have alley-loaded 2-car garages.
- All townhouse units shall be raised from the finished grade a minimum of 18" and have stem wall or raised slab foundations that shall be covered on all sides with brick or stone. Areas under porches may be enclosed with lattice.
- All townhouse units will have a combination of two or more of the following materials on the front facade (not counting the foundation): stone, brick, lap siding, fiber cement siding, shake or board and batten. All siding will be fiber cement. Vinyl may be used for soffits, fascias, and corner boards.
- Usable front porches shall be at least five (5) feet deep and extend more than 30% of the primary facade.
- All townhouse units shall provide detailed design elements using at least one (1) of the features from each of the four categories below:

  Entrance

  - Recessed entry with 6" minimum width door trim
  - Covered porch with 6" minimum width pillars/posts/columns

  Building Offset

  - Facade offset
  - Roofline offset

  Roof

  - Dormer
  - Gable
  - Cupola/Tower/Chimney
  - Decorative cornice of roof line (flat roof only)

  Facade - at least two (2) of the following elements:

  - Bay window
  - Balcony
  - Porch
  - Shutters
  - Window trim with 4" minimum width
  - Patterned finish (scales, shakes, wainscoting, brick, or stone)

- There shall be a 12" overhang on every gable roof end.
- Townhouse building walls shall be wood clapboard, cement fiber board or shingle, wood board and batten, brick, or stone.
- Main roofs on townhouse buildings shall have a pitch between 6:12 and 12:12. Monopitch (shed) roofs are allowed only if they are attached to the wall of the main building. Monopitch roofs shall have a pitch of at least 3:12.
- For every second and third story of the side elevations, there shall be a minimum of three windows added to the side elevation with at least 2 windows on the second floor and 1 window on the third floor. Any siding break on the side of the home such as a fireplace or wall offset can be used as an alternate to a window. On the ground floor there shall be a minimum of one window on the side elevations.
- The second and third stories of the rear elevation shall have either a balcony and door(s) or windows making up a minimum of 25% of the length of the rear elevation. The percentage is measured as the horizontal plane (lineal feet) containing a balcony and door(s) or windows divided by the total horizontal plane length.
- No two townhouse units in a building shall have the same exterior paint color scheme.

Single Family Architectural Standards

- Single-family 2-story homes built on lots at least 60-feet wide will have a minimum of 2,000 square feet and 1-story homes on such lots will be a minimum of 1,600 square feet. Lots that are at least 60-feet wide will have front-loaded two car garages.
- Single-family homes built on lots less than 60-feet wide will have a minimum of 1,450 square feet and have alley-loaded 2-car garages.
- All single-family homes shall be raised from the finished grade a minimum of 18" and shall have stem wall or raised slab foundations that shall be covered on all sides with brick or stone. Areas under porches may be enclosed with lattice.
- All single-family homes with a crawl space will be wrapped in brick or stone on all sides.
- All single-family homes will have a combination of two or more of the following materials on the front facade (not counting the foundation): stone, brick, lap siding, fiber cement siding, shake or board and batten. All siding will be fiber cement. Vinyl may only be used for soffits, fascia, and comer boards.
- All single-family homes will have a front porch with a minimum depth of five (5) feet. Front porch posts will be at least 6"x6".
- Main roof pitches (excluding porches) for 2-story homes shall be at least 8:12.
- There shall be a 12" overhang on every gable roof end.
- Main roof pitches for I-story and 1.5-story homes will be at least 6:12.
- Garages for lots that are at least 60-feet wide will not protrude more than six (6) feet from the front porch or stoop and all garage doors shall contain over window inserts and hardware.
- For every linear 30 feet (or fraction) of continuous side elevation per floor, there shall be one window or door added to the side elevation. Any siding break on the side of the home such as a fireplace, porch, wall offset can be used as an alternative to a window or door.
- Garages will not exceed 45% of the front facade width or will be split into two bays.

MASS GRADING EXHIBIT

LOTS NOT TO BE MASS GRADED

LOTS NOT TO BE MASS GRADED

N

SCALE 1"=100'

0 100' 200'

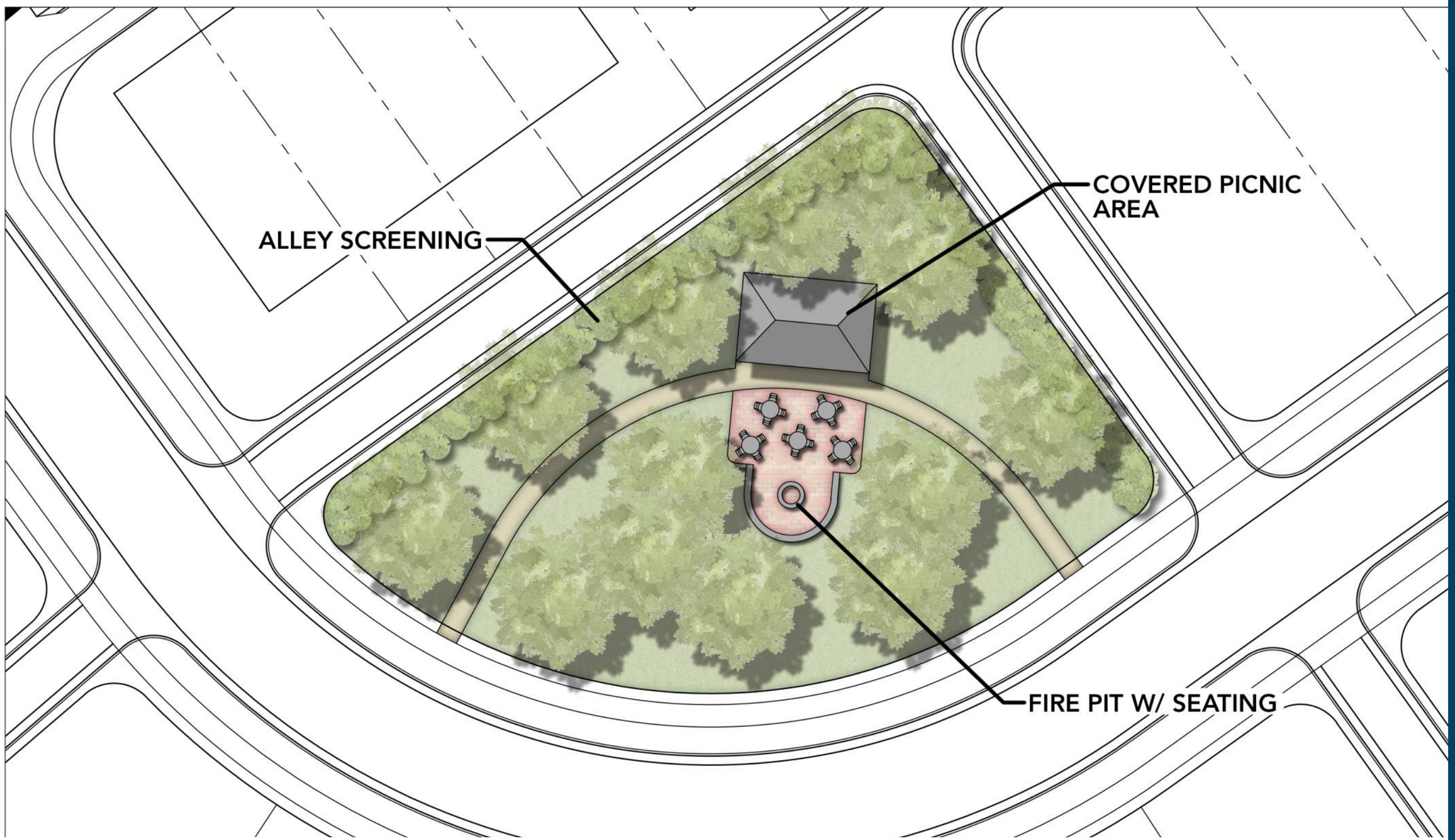
COMMUNITY AMENITIES



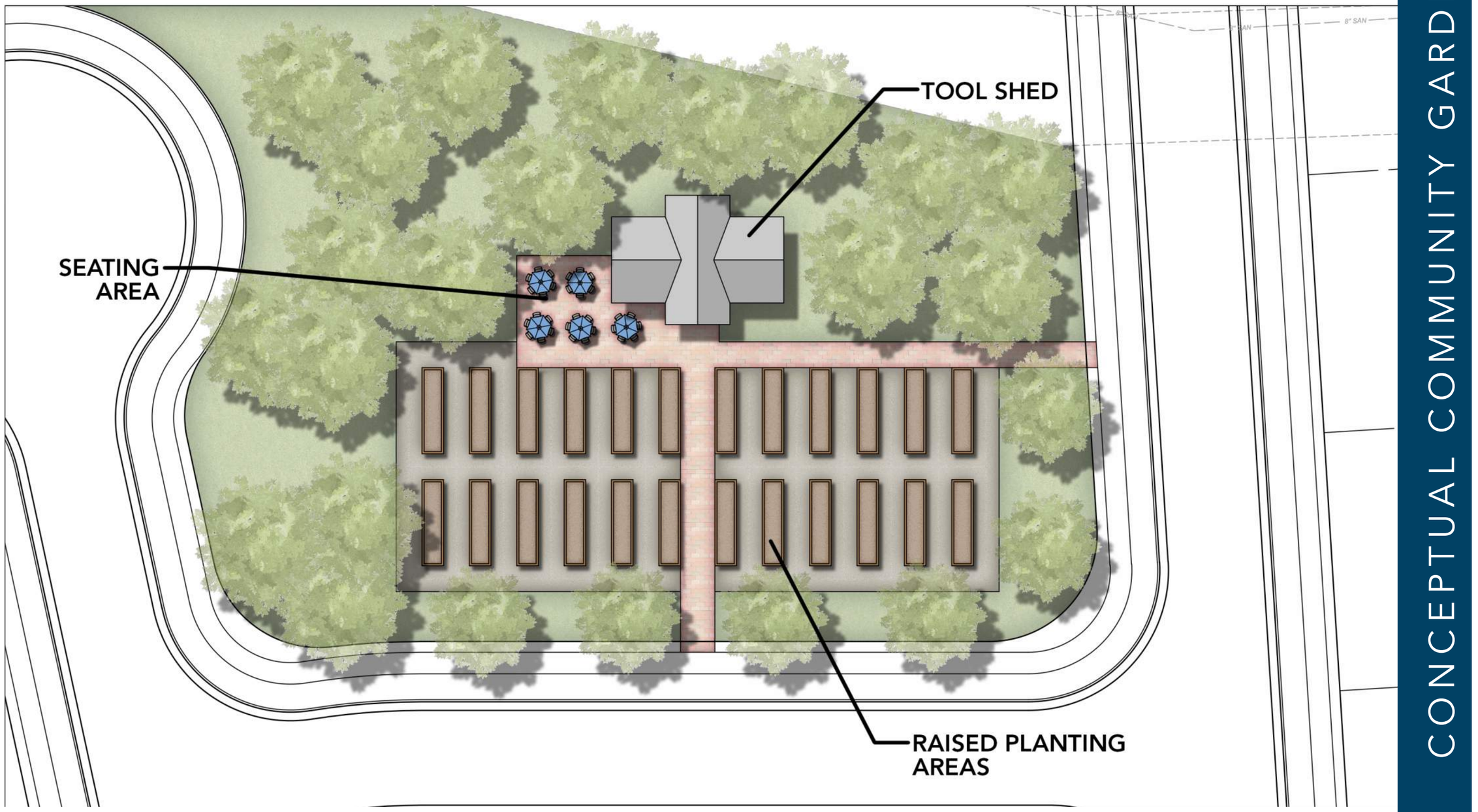
TOTAL BEDROOMS:
144 SF UNITS * 3.5 = 504 BEDROOMS
87 TH UNITS * 2.5 = 218 BEDROOMS
TOTAL BEDROOMS = 722

OPEN SPACE CALCULATIONS:
722 BDRMS. * 260 = 187,720 SF REQUIRED
PASSIVE OPEN SPACE REQUIRED = 93,860 SF
PASSIVE OPEN SPACE PROVIDED = 1,639,156 SF
ACTIVE OPEN SPACE REQUIRED = 93,860 SF
ACTIVE OPEN SPACE PROVIDED = 213,099 SF

CONCEPTUAL PICNIC AREA



CONCEPTUAL COMMUNITY GARDENS



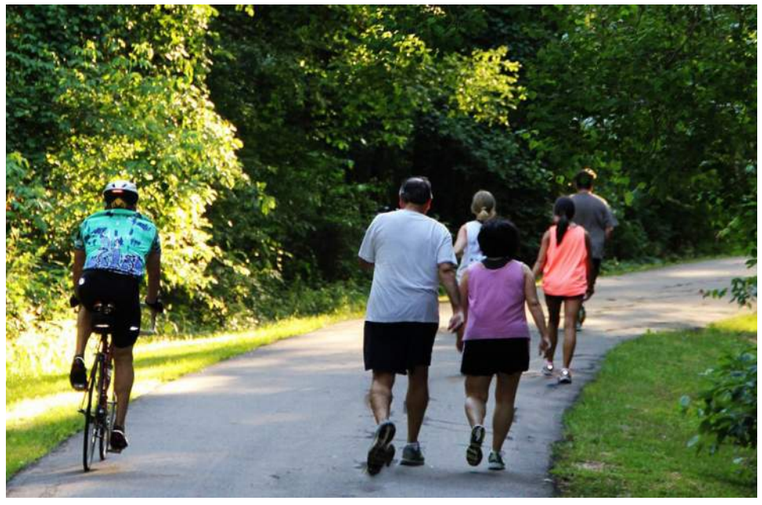
Harper Preserve Allocation Points:

ITEM	POINTS
Major Subdivision	15
Residential Architectural Standards	15
On-street Parking	4
Outdoor Display of Public Art	4
Clubhouse Space without kitchen 1,500-2,499 square feet	5
Resort Style Pool	2
IPEMA Certified Playground Equipment	4
Private greenway - more than 3000 LF of 6' wide path	3
Total	**52**











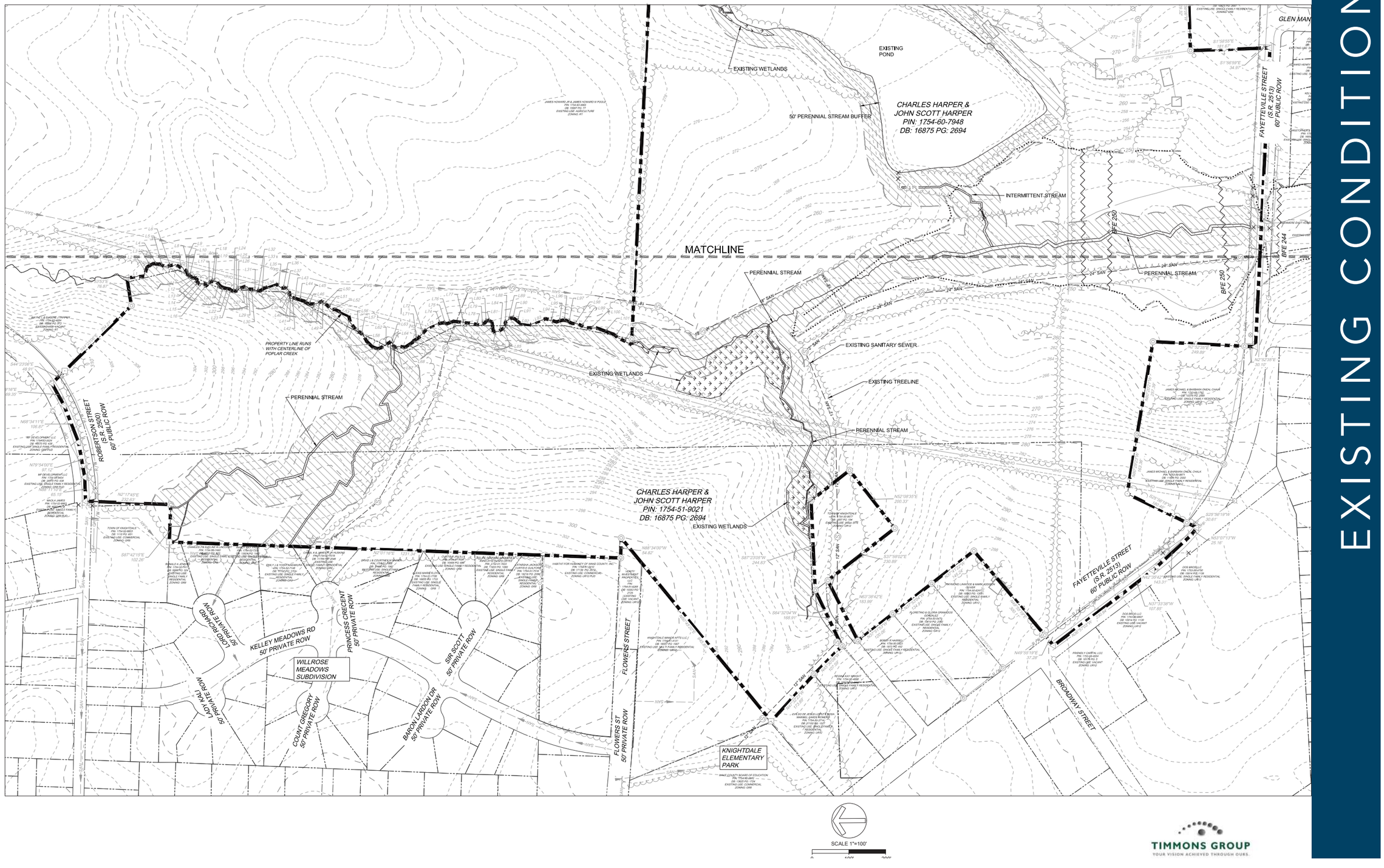






COMMUNITY AMENITIES

EXISTING CONDITIONS



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

EXISTING CONDITIONS

P.O.B
NAD83 (2011)
NORTH= 739873.82 FT
EAST= 2158120.45 FT

CEDAR POND CT
54' PUBLIC ROW

GLEN MANOR TRAIL
64' PUBLIC ROW

FAYETTEVILLE STREET
(S.R. 2513)
60' PUBLIC ROW

RAINER LAKE DRIVE
64' PUBLIC ROW

GLENMERE
SUBDIVISION

CHARLES HARPER &
JOHN SCOTT HARPER
PIN: 1754-60-7948
DB: 16875 PG: 2694

EXISTING TREELINE

EXISTING WETLANDS

EXISTING
POND

50' PERENNIAL STREAM BUFFER

INTERMITTENT STREAM

MATCHLINE

PERENNIAL STREAM

EXISTING SANITARY SEWER

PROPERTY LINE RUNS
WITH CENTERLINE OF
POPLAR CREEK

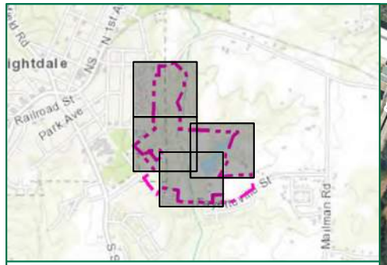
BFE 250

BFE 244

SCALE 1"=100'
0 100' 200'

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JOB NUMBER 49750-331

WETLAND EXHIBIT



Resource Identification	Confirmation								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (ft)	R4 (ft)	R6 (ft)	Ditch (ft)	Stream (sq ft)	
A					762				3,491	NTINV
B					596	129			3,378	NTINV
D					2,203				17,011	NTINV
E					655	8			2,156	NTINV
F					89	263			1,511	NTINV
G						221			516	NTINV
H					450				1,835	NTINV
I	98									NTIV
J	546									NTIV
K	936									NTIV
L	31,130									NTIV
M	457									NTIV
N	8,755									NTIV
O	155									NTIV
P				231,971						NTINV
Q			1,975							NTIV
R	42,866		5,331							NTIV
Total	**84,943**	**0**	**7,306**	**231,971**	**4,755**	**621**	**0**	**0**	**29,898**	
Total Wetland Area =				**324,220 sq ft**			**7.44 ac**			
Total Stream Area =				**29,898 sq ft**			**0.69 ac**			
Total Stream Length =				**6,376 lf**						

* T=Total; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EIW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams

Legend

- Project Study Limits- 94.1 Acres
- Stream Buffer (50ft)
- Stream Identifier
- Wetland Identifier
- Flag
- Field Data Station
- Perennial Stream Assessment
- Ditch
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Palustrine Emergent (PEM) Wetland
- Palustrine Forested (PFO) Wetland
- Palustrine Open Water (POW)

Stormwater Control Features

- RipRap

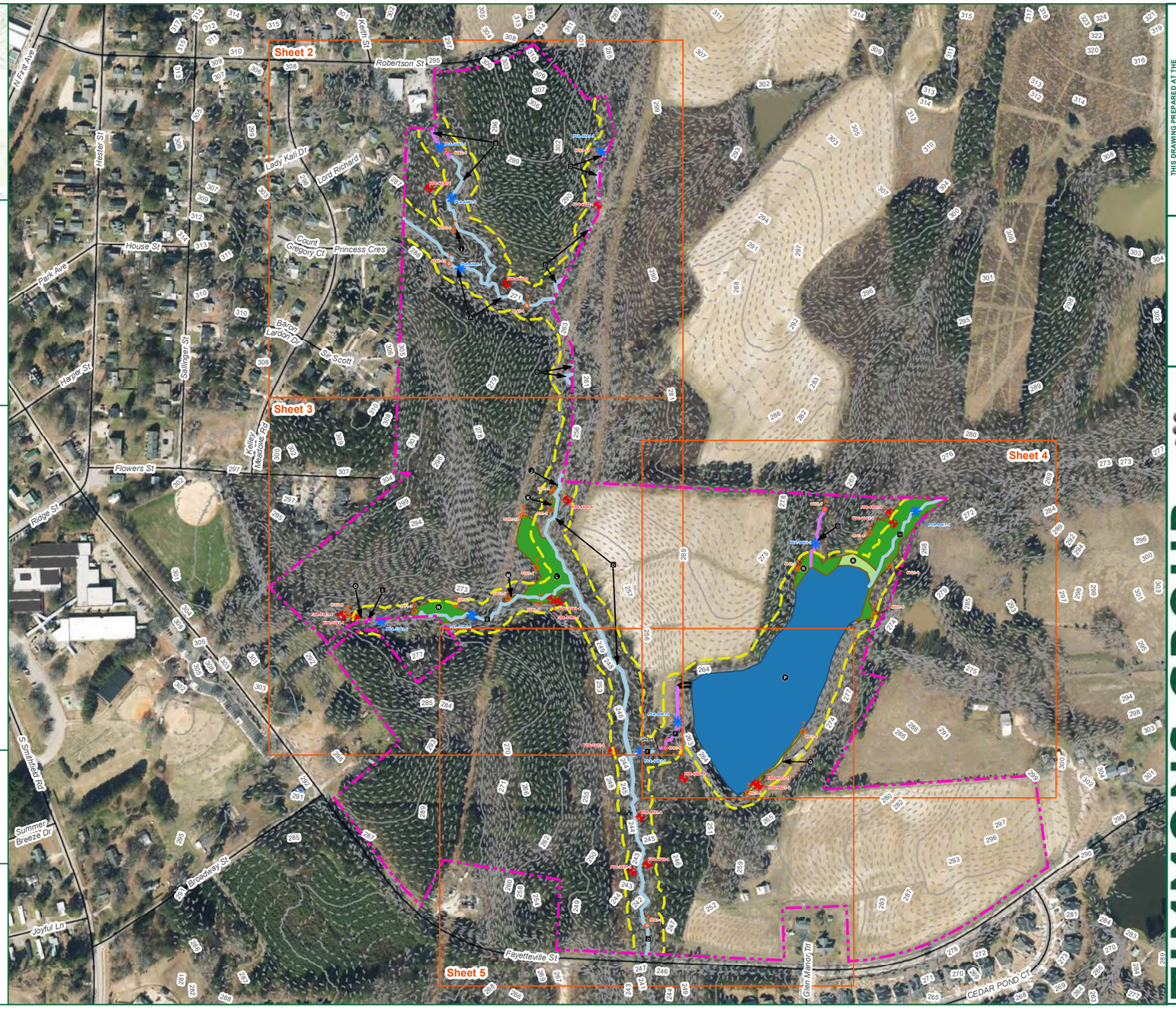
Topographic Contours

- Major - 10ft
- Minor - 1ft

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
2. Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers until stamped.
3. Project limits are approximate.
4. Topography based on USGS LiDAR.
5. Cowardin Stream Classifications are based on NC DWQ Stream Identification form version 4.11.

N

0 175 350 700
Feet



THIS DRAWING PREPARED AT THE CORPORATE OFFICE
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1648 www.timmons.com

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Site Development | Residential | Infrastructure | Technology | Environmental

DATE	REVISION DESCRIPTION
03/30/2022	Ephemeral Streams Removed

TIMMONS GROUP

HARPER FEYETTEVILLE STREET
WAKE COUNTY, NORTH CAROLINA

FIGURE 6: POTENTIAL WETLANDS AND WATERS DELINEATION MAP

DATE 10/05/2021
DRAWN BY C. LEATON
DESIGNED BY C. LEATON
CHECKED BY S. LAW
SCALE 1 " = 350 '

JOB NUMBER 45530
SHEET NO. 1 OF 5

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Path: \\timmons.com\tg\tk\90\80\945530 - Harper Fayetteville St\GIS\WTDM45530-JD-WTDM.mxd

OWNER	ADDR1	ADDR2	ADDR3
ADAMS, MOSES JR KNIGHT, VIVIAN S	431 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
ALFORD, JACKIE R	PO BOX 271	KNIGHTDALE NC 27545-0271	
ANGLE, JEFFREY ALAN ANGLE, KERRI GAIL	411 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
AUSTIN, JAMES AUSTIN, JO ANN	423 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
BAILLARGEON, PAUL A TRUSTEE BAILLARGEON, JOYCE E TRUSTEE	419 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
BLACK, JENNIFER MAY	476 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
BUNN, GREGORY P BUNN, CINDY H	471 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
CHALK, JAMES M CHALK, BARBARA O	801 FAYETTEVILLE ST	KNIGHTDALE NC 27545-8550	
DOS BROS LLC	7101 CREEDMOOR RD STE 142	RALEIGH NC 27613-1682	
DUNN, ANGEL R DUNN, BRIAN K	3537 MEADOW RIDGE DR	RALEIGH NC 27604-4274	
EVERTON, ROBERT E EVERTON, BONNYE C	435 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
FABRIZIO, LOUIS M	443 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
FASONE, PHILLIP KARLOS FASONE, PATRICIA HARRIS	415 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
FLOYD, ALEXIS MARIE	105 SIR SCOTT	KNIGHTDALE NC 27545-9695	
FULLER, ANDRE TAVENGWA, CHIEDZA	407 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
GLENMERE EAST HOMEOWNERS ASSOCIATION INC	C/O JOE LASSITER	8311 BANDFORD WAY STE 1	RALEIGH NC 27615-2761
GLENMERE LLC	5956 SHERRY LN STE 1000	DALLAS TX 75225-8021	
GONZALEZ, FLORETINO GONZALEZ, GLORIA GRANADOS	101 SIR SCOTT	KNIGHTDALE NC 27545-9695	
GOODWIN, LAURA S	103 SIR SCOTT	KNIGHTDALE NC 27545-9695	
GRAVES, JARROD A GRAVES, CHANDRA W	449 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
HABITAT FOR HUMANITY OF WAKE COUNTY, INC.	2420 N RALEIGH BLVD	RALEIGH NC 27604-2235	
HARPER, CHARLES R HARPER, JOHN SCOTT	1032 FAYETTEVILLE ST	KNIGHTDALE NC 27545-8553	
HARRELL, BOBBY R HARRELL, BARBARA FLOWERS	PO BOX 5	KNIGHTDALE NC 27545-0005	
HERNANDEZ, RIGOBERTO DELEON COLIN, PATRICIA OCANAS	300 KELLEY MEADOWS RD	KNIGHTDALE NC 27545-8284	
HORNE, REX HORNE, JOHNNY SUE	PO BOX 193	KNIGHTDALE NC 27545-0193	
HUNT, KENNETH HUNT, HAWLEY	472 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
HUSKINS, CAROL A HUSKINS, JAMES R JR	105 PRINCESS CRES	KNIGHTDALE NC 27545-9693	
JACKSON, LATARSHA GUILFORD, CURTIS E	106 SIR SCOTT	KNIGHTDALE NC 27545-9695	
JENKINS, RONALD A	105 LORD RICHARD	KNIGHTDALE NC 27545-9691	
JOJEN PROPERTIES LLC	308 DALE PL	KNIGHTDALE NC 27545-7815	
JONES, ABE JONES, MICHELLE	303 CEDAR POND CT	KNIGHTDALE NC 27545-6062	
JONES, MAOLA	8012 OLD DEER TRL	RALEIGH NC 27615-5121	
KELLY, JOANN M	319 CEDAR POND CT	KNIGHTDALE NC 27545-6062	
KNIGHTDALE MANOR APTS LLC	1042 E FORT UNION BLVD # 119	MIDVALE UT 84047-1800	
LILLY, CURTIS B JR	107 SIR SCOTT	KNIGHTDALE NC 27545-9695	
LINCOURT, CHARLES J LINCOURT, EVELINE R	104 LORD RICHARD	KNIGHTDALE NC 27545-9691	
LONGINOS, ENRIQUE DOMINGUEZ PEREZ, FLORINA LONGINOS	103 LORD RICHARD	KNIGHTDALE NC 27545-9691	
MCCLURE, VERNA M	427 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
MF DEVELOPMENT LLC	5448 APEX PEAKWAY # 196	APEX NC 27502-3924	
NAKAMURA, EMILY J NAKAMURA, YOSHI	103 PRINCESS CRES	KNIGHTDALE NC 27545-9693	
NAPIER, DAVID J NAPIER, COURTNEY M	104 PRINCESS CRES	KNIGHTDALE NC 27545-9693	
OLIVER, RAYMOND LINWOOD OLIVER, MARK ADDISON	652 MAILMAN RD	KNIGHTDALE NC 27545-8434	
OPENDOOR PROPERTY TRUST I	410 N SCOTTSDALE RD STE 1600	TEMPE AZ 85288-0976	
ORTEZ, FELIPE SERRANO ARGUETA, ANA DAYSI FUNES	108 SIR SCOTT	KNIGHTDALE NC 27545-9695	
PARKER, CHRISTOPHER PARKER, CANDACE	307 CEDAR POND CT	KNIGHTDALE NC 27545-6062	
PEARCE, BEVERLEY P	102 PRINCESS CRES	KNIGHTDALE NC 27545-9693	
POOLE, JAMES HOWARD JR POOLE, JAMES HOWARD III	52 BLEEKER DR	CLAYTON NC 27527-9776	
POPE, DAVID W POPE, RENEE G	1305 FAYETTEVILLE ST	KNIGHTDALE NC 27545-8560	
POPE, DAVID WAYNE POPE, RENEE G	1305 FAYETTEVILLE ST	KNIGHTDALE NC 27545-8560	
PRICE, RANDY RAY	102 LORD RICHARD	KNIGHTDALE NC 27545-9691	
PRIEST, LINDA F	302 KELLEY MEADOWS RD	KNIGHTDALE NC 27545-8284	
RESIDENTIAL HOME BUYER RALEIGH LLC	PO BOX 4090	SCOTTSDALE AZ 85261-4090	
ROMERO, OVILSO DE JESUS LOPEZ, ROSA MARIBEL CARDE	519 FAYETTEVILLE ST	KNIGHTDALE NC 27545-8544	
SCHACKER, EDWARD HENRY SCHACKER, VIRGINIA MAY	315 CEDAR POND CT	KNIGHTDALE NC 27545-6062	
SISK, JOHN EUGENE	PO BOX 1347	KNIGHTDALE NC 27545-1347	
SMITH, SPENCER LEE SMITH, CYNTHIA SEGRAVES	461 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
SUITTE, KELVIN SUITTE, KEVA	311 CEDAR POND CT	KNIGHTDALE NC 27545-6062	
TRIPP, DUSTIN MICHAEL TRIPP, AMANDA	468 CEDAR POND CT	KNIGHTDALE NC 27545-6063	
UPCHURCH, GAYNELL BASS	PO BOX 554	KNIGHTDALE NC 27545-0554	
WAKE CNTY BOARD OF EDUCATION	RE SERVICES DIRECTOR	1551 ROCK QUARRY RD	RALEIGH NC 27610-4145
WEATHERS, HILTON	170 ALMONT ST	MATTAPAN MA 02126-1480	
WRIGHT, REGINA KAY	523 FAYETTEVILLE ST	KNIGHTDALE NC 27545-8544	

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

NEIGHBORHOOD MEETING

Meeting Sign-in Sheet

Project:	Harper Preserve	**Meeting Date:**	14-Jul-22
Faciliator:	Timmons Group	**Place/ Room:**	Zoom 6pm

Name	Address	Phone	Email
Beth Blackmon	5410 Trinity Rd, Suite 102, Raleigh NC 27607	919-866-4509	beth.blackmon@timmons.com
Elizabeth Ange	5410 Trinity Rd, Suite 102, Raleigh NC 27607	984-255-2366	elizabeth.ange@timmons.com
Mark Eisenbeis	16 W Martin St, Suite 805, Raleigh NC 27081	919-825-1135	landalternativesNC@gmail.com
Kevin Lewis	Town of Knightdale Planning Department	919-217-2243	kevin.lewis@knightdalenc.gov
SCHACKER, EDWARD HENRY SCH	315 CEDAR POND CT		
KELLY, JOANN M	319 CEDAR POND CT, KNIGHTDALE NC 27545-6062		
HARPER, CHARLES R HARPER, JOH	1032 FAYETTEVILLE ST, KNIGHTDALE NC 27545-8553	9103895020	
		9195388839	
		9195388261	
John Harper	1032 FAYETTEVILLE ST, KNIGHTDALE NC 27545-8553		
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Louis Fabrizio	443 Cedar Pond Ct		
Hilton Jenkins	Robertson Street		

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MEETING MINUTES

Summary of Discussion From the Neighborhood Meeting			
Project:	Harper Preserve	**Meeting Date:**	Thursday, July 14, 2022
Applicant:	Timmons Group - Beth Blackmon	**Place/ Room:**	Zoom
Contact Information:	beth.blackmon@timmons.com 919-866-4509	**Time:**	6:00 PM

Summary of questions/ comments and responses from the neighborhood meeting:

Questions/ Concern #1: What is the buffer from the townhomes to the existing single family?

Applicant Response: Townhomes are more internal to site except along proposed collector. Natural buffers will be preserved to extent possible.

Questions/ Concern #2: Do the alleys have separate garages or rear entry?

Applicant Response: They will be rear entry

Questions/ Concern #3: Price range? Square footage? Brick or stone foundation?

Applicant Response: Market rate, we do not have a price right now. It will be comparable to what is around. Because we are still working with finding a builder, we 1300-1400 square foot. Single family is closer to 2k-3k. At least 18" masonry foundation

Questions/ Concern #4: If a property owner is close to it, can we connect to sewer?

Applicant Response: Raleigh's policy is to extend sewer to properties upstream and the property must be annexed into the Town.

Questions/ Concern #5: Where are the entrances on Fayetteville St?

Applicant Response: Following Fayetteville St, the first entrance is across from Cedar Pond Court, then adjacent to Glen Manor Trail, then across from Rainier Lake Drive, then a future connection at Broadway St. There is an extension to Flowers St. and the last one is off of Robertson St.

Questions/ Concern #6: Are you trying to get the glover properties?

Applicant Response: No, they were not willing to sell yet but we still planned for the future connection and we will allocate funds to the town so that the Town could finish the road.

Questions/ Concern #7: Are you getting the towns old well site?

Applicant Response: No, but there was a big desire to have a loop road and will build a road over the towns properties.

Questions/ Concern #8: What about the terrain? Any blasting?

Applicant Response: Blasting depends on how much rock there is. Other permits would have to be obtained if there was rock on site. The town recently took over erosion and sediment control review. There will be grading and clearing but hopefully no rock. We will grade the project but might have areas where we will not mass grade. The project has pockets of development because there is so much environmental features.

Questions/ Concern #9: Will we provide sidewalk on Fayetteville road?

Applicant Response: Yes, we are proposing sidewalk along our frontage

Questions/ Concern #10: Will we provide sidewalk on Robertson St?

Applicant Response: Yes, we are proposing sidewalk along our frontage

Questions/ Concern #11: Are we widening Fayetteville Road?

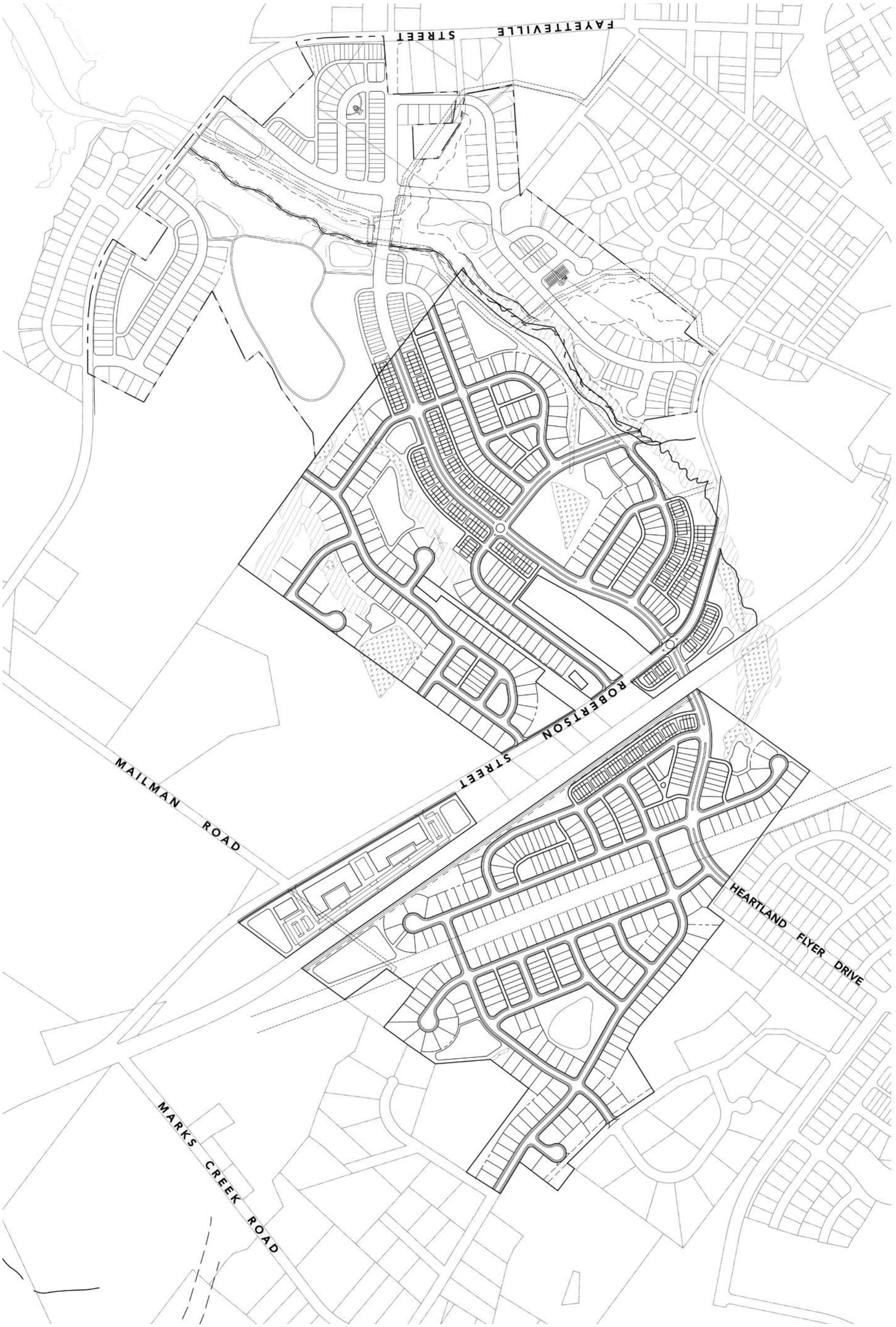
Applicant Response: A traffic study is being preformed and we are looking at specific intersections with traffic. Fayetteville and Robertson are classified as urban street with 2 lanes divided with a median. We would add curb and gutter and sidewalk. Our traffic engineer has included all of the proposed developments in the area and the study will be posted on the website. The study looks at proposed and approved developments and existing developments.

Questions/ Concern #12: Will you be fixing the railroad crossing?

Applicant Response: No, but NCDOT has plans to improve that railroad crossing and is being held up by funding.

Questions/ Concern #13: Will the bmps be maintained?

Applicant Response: Yes, the HOA will maintained them and they have scheduled inspections. Knightdale performs yearly inspections and will send notices if they are not maintained or operating properly.



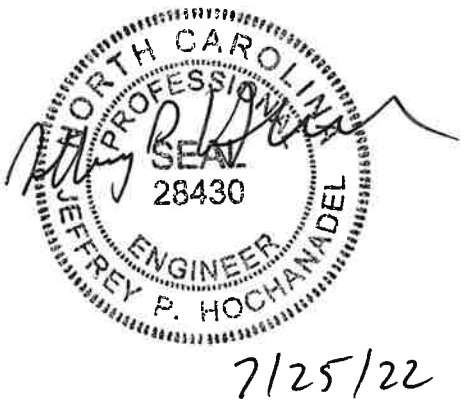
COMPOSITE PLAN

Harper Fayetteville Street

Traffic Impact Analysis

Knightdale, North Carolina

July 2022



7/25/22

Prepared for:

Old East Properties

TIMMONS GROUP
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Contact: Jeff Hochanadel, PE, PTOE

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1 INTRODUCTION

This report presents the proposed Harper Fayetteville Street residential development traffic impact analysis (TIA) findings. The development will be located on the northern side of Fayetteville Street in Knightdale, NC (see **Figure 1-1**) and will consist of 83 townhomes and 145 single-family residential units. To cover any potential site plan updates, 100 townhomes and 150 single-family residential units were analyzed in this study.

The proposed development is planned for construction in 2025. Per Town of Knightdale standards / guidelines, analyses were completed for the 2022 Existing traffic volumes, 2026 Background traffic volumes (2025 Build + 1 year), 2026 Build traffic volumes (Background + site trips), and 2036 Future Year traffic volumes (2026 Build + 10 years). At the Town's request, additional vehicular capacity analyses were provided for the 2026 Background and Build traffic volumes including non-approved area developments.

The purpose of this assessment is as follows:

1. Verify that the existing geometry provided within the study area is sufficient to accommodate the projected traffic volumes; and

2. Determine what, if any, improvements are necessary at the proposed site access connections to the Harper Fayetteville Street Development.

The following steps were taken to determine the potential traffic impacts associated with this project:

1. Data Collection – AM (7:00 – 9:00) and PM (4:00 – 6:00) peak period turning movement counts were collected in March 2022 at the following intersections:

   - SR-5270 (First Avenue) / SR-2500 (Robertson Street)
   - SR-2500 (Robertson Street) / Keith Street
   - SR-2500 (Robertson Street) / SR-2514 (Mailman Road)
   - Maple Street / SR-2513 (Fayetteville Street)
   - Maple Street / Ridge Street / SR-2513 (Fayetteville Street)
   - Flowers Street / Hester Street
   - SR-2513 (Fayetteville Street) / Broadway Street
   - SR-2513 (Fayetteville Street) / Rainier Lake Drive
   - SR-2513 (Fayetteville Street) / Cedar Pond Court
   - SR-2513 (Fayetteville Street) / SR-2514 (Mailman Road)
   - SR-5270 (First Avenue) / SR-2233 (Smithfield Road)
   - SR-2233 (Smithfield Road) / Broadway Street
   - SR-2233 (Smithfield Road) / Rainier Lake Drive
   - SR-2233 (Smithfield Road) / SR-2514 (Mailman Road)

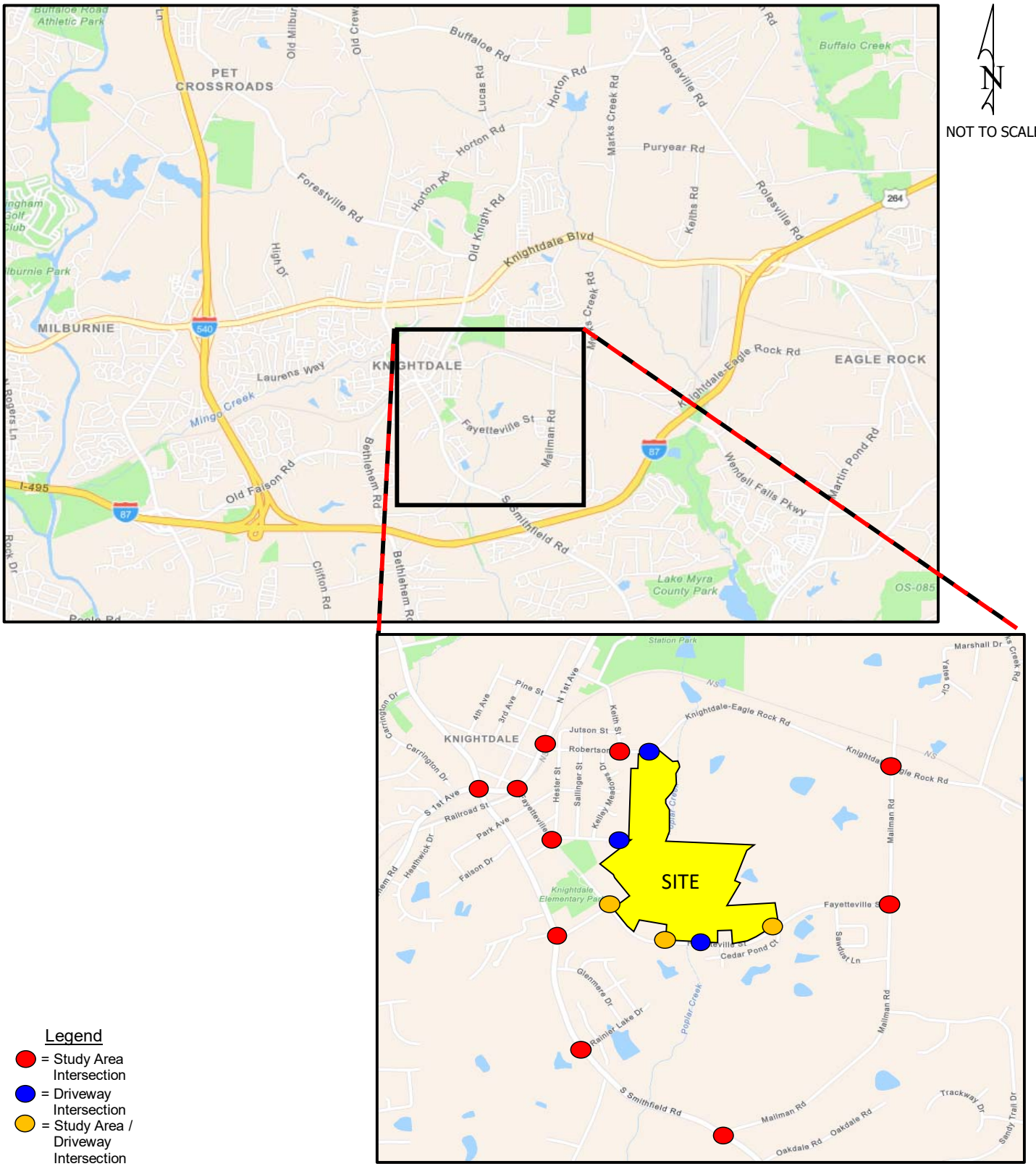
2. Trip Generation/Future Traffic – Traffic generated by the proposed development was estimated using the 10th Edition of the Institute of Transportation Engineers' *Trip Generation Manual*. Trip generation was calculated following the NCDOT trip generation standards and practices. Projected traffic volumes were calculated using a 3% ambient growth rate through 2026, and a 1% ambient growth rate between 2026 and 2036. Per the scoping document (see **Appendix A**), trips from the approved Smithfield Mixed-Use, Glenmere, and The Collection Developments were included with all future traffic.

3. Trip Distribution and Projections – The site-generated trip distribution was based on the existing area traffic distribution, direction from the Town of Knightdale, and Engineering judgement.

4. Traffic Capacity Analysis – Level of service analyses were performed using SYNCHRO Version 10.3 for the following intersections:

    - SR-5270 (First Avenue) / SR-2500 (Robertson Street);
    - SR-2500 (Robertson Street) / Keith Street;
    - SR-2500 (Robertson Street) / Site Access 1;
    - SR-2500 (Robertson Street) / SR-2514 (Mailman Road);
    - Maple Street / SR-2513 (Fayetteville Street) / SR-5270 (First Avenue);
    - Flowers Street / Ridge Street / SR-2513 (Fayetteville Street);
    - Flowers Street / Hester Street / Site Access 2;
    - SR-2513 (Fayetteville Street) / Broadway Street;
    - SR-2513 (Fayetteville Street) / Rainier Lake Drive / Site Access 3;
    - SR-2513 (Fayetteville Street) / Site Access 4;
    - SR-2513 (Fayetteville Street) / Cedar Pond Court / Site Access 5;
    - SR-2513 (Fayetteville Street) / SR-2514 (Mailman Road);
    - SR-5270 (First Avenue) / SR-2233 (Smithfield Road);
    - SR-2233 (Smithfield Road) / Broadway Street;
    - SR-2233 (Smithfield Road) / Rainier Lake Drive; and
    - SR-2233 (Smithfield Road) / SR-2514 (Mailman Road).

5. Review of Proposed Improvements – Roadway improvements proposed to accommodate projected site-generated traffic were evaluated.



NOT TO SCALE

Legend

- = Study Area Intersection
- = Driveway Intersection
- = Study Area / Driveway Intersection

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Harper Fayetteville Street Traffic Impact Analysis

Site Location Map

Figure 1-1

2 EXISTING INFORMATION

The proposed development will be located off Fayetteville Street in Knightdale, NC, as shown in **Figure 1-1**.

2.1 STUDY LIMITS

Access to the proposed site will be provided via full movement site accesses to SR-2500 (Robertson Street), Flowers Street, and SR-2513 (Fayetteville Street). Site Access 1 will connect to SR-2500 (Robertson Street) approximately 370-feet east Keith Street. Site Access 2 will connect to the existing Flowers Street. Site Access 3 will connect to SR-2513 (Fayetteville Street) opposite Rainier Lake Drive. Site Access 4 will connect to SR-2513 (Fayetteville Street) approximately 590-feet east of Rainier Lake Drive. Site Access 5 will connect to SR-2513 (Fayetteville Street) opposite Cedar Pond Court.

The entrances are shown graphically in **Figure 1-1** and on the preliminary proposed development site layout in **Figure 2-1** (all figures are located at the end of their respective chapter).

The study limits include the following intersections:

- SR-5270 (First Avenue) / SR-2500 (Robertson Street);
- SR-2500 (Robertson Street) / Keith Street;
- SR-2500 (Robertson Street) / Site Access 1;
- SR-2500 (Robertson Street) / SR-2514 (Mailman Road);
- Maple Street / SR-2513 (Fayetteville Street) / SR-5270 (First Avenue);
- Flowers Street / Ridge Street / SR-2513 (Fayetteville Street);
- Flowers Street / Hester Street / Site Access 2;
- SR-2513 (Fayetteville Street) / Broadway Street;
- SR-2513 (Fayetteville Street) / Rainier Lake Drive / Site Access 3;
- SR-2513 (Fayetteville Street) / Site Access 4;
- SR-2513 (Fayetteville Street) / Cedar Pond Court / Site Access 5;
- SR-2513 (Fayetteville Street) / SR-2514 (Mailman Road);
- SR-5270 (First Avenue) / SR-2233 (Smithfield Road);
- SR-2233 (Smithfield Road) / Broadway Street;
- SR-2233 (Smithfield Road) / Rainier Lake Drive; and
- SR-2233 (Smithfield Road) / SR-2514 (Mailman Road).

2.2 EXISTING ROADWAYS

Keith Street is a two-lane undivided facility that runs approximately north-south within the project study area. The facility is classified as a local roadway and has a posted 25-mph speed limit. Locally, Keith Street connects to Poplar Street (to the northwest) and Robertson Street (to the southeast). No Average Annual Daily Traffic (AADT) data is available for this facility.

Maple Street is a two-lane undivided facility that runs approximately east-west within the project study area. The facility is classified as a local roadway and has a posted 25-mph speed limit. Locally, Maple Street stretches between Smitfield Road and First Avenue. No AADT data is available for this facility.

Flowers Street is a two-lane undivided facility that runs approximately east-west in the project study area. The facility is classified as a local roadway and has a posted 25-mph speed limit. Locally, Flowers Street connects to Hester Street in the west. No AADT data is available for this facility.

Hester Street is a two-lane undivided facility that runs approximately north-south in the project study area. The facility, classified as a local roadway and has a posted 25-mph speed limit. Locally, Hester Street stretches between Jutson Street and Fayetteville Street. No AADT data is available for this facility.

Broadway Street is a two-lane undivided facility that runs approximately north-south in the project study area. The facility is classified as a local roadway and has a posted 25-mph speed limit. Locally, Broadway Street stretches between Fayetteville Street and Smithfield Road. No AADT data is available for this facility.

Rainier Lake Drive is a two-lane undivided facility that runs approximately north-south in the project study area. The facility is classified as a local roadway and has a posted 25-mph speed limit. Locally, Rainier Lake Drive stretches between Fayetteville Street and Smithfield Road. No AADT data is available for this facility.

Ridge Street is a one-lane undivided facility that runs southbound in the project study area. The facility is classified as a local roadway and has no posted speed limit. Locally, Rainier Lake Drive stretches from Fayetteville Street to Smithfield Road. No AADT data is available for this facility.

Cedar Pond Court is a two-lane undivided facility that runs approximately east-west in the project study area. The facility is classified as a local roadway and has a posted 25-mph speed limit. Locally, Cedar Pond Court connects to Fayetteville Street in the east. No AADT data is available for this facility.

SR-5270 (First Avenue) is a two-lane undivided facility that runs approximately north-south within the project study area. The facility is classified as a major collector and has a posted 25-mph speed limit. Locally, First Avenue connects to Knightdale Boulevard in the north and Crosstie Street in the south. Per 2020 NCDOT AADT count maps, First Avenue carries 7,700 vehicles per day (VPD) west of Smithfield Road.

SR-2500 (Robertson Street) is a two-lane undivided facility that runs approximately east-west in the project study area. The facility is classified as a major collector and has varying speed limit. Locally, Robertson Street connects to First Avenue to the west and Mailman Road to the east. Per 2020 NCDOT AADT count maps, Robertson Street carries 2,600 VPD east of First Avenue.

SR-2513 (Fayetteville Street) is a two-lane undivided facility that runs approximately east-west in the project study area. The facility is classified as a local roadway and has a posted 45-mph speed limit. Locally, Fayetteville Street connects to First Avenue in the west and Mailman Road in the east. Per 2020 NCDOT AADT count maps, Fayetteville Street carries 950 VPD east of First Avenue.

SR-2514 (Mailman Road) is a two-lane undivided facility that runs approximately north-south in the project study area. The facility is classified as a local roadway and has a 55-mph speed limit. Locally, Mailman Road connects to Knightdale Eagle Rock Road in the north and Smithfield Road in the south. Per 2020 NCDOT AADT count maps, Mailman Road carries 550 VPD north of Smithfield Road.

SR-2233 (Smithfield Road) is a two-lane undivided facility that runs approximately east-west in the project study area. The facility is classified as a minor arterial and has a varying speed limit. Locally, Smithfield Road connects to Forestville Road in the northwest and Pritchard Road in the southeast. Per 2020 NCDOT AADT count maps, Smithfield Road carries 7,000 VPD east of Old Ferrell Road.

2.3 EXISTING INTERSECTIONS

Using available aerial imagery and site visits, Timmons Group compiled the existing geometry for each study area intersection. The existing intersection geometry is shown in **Figure 2-2**.

First Avenue / Robertson Street is an unsignalized intersection with the westbound Robertson Street approach encountering the stop condition. The northbound approach includes a shared through / right-turn lane. The southbound approach includes a shared through / left-turn lane. The westbound Robertson Street approach consists of a shared left / right-turn lane.

Robertson Street / Keith Street is an unsignalized intersection with the southbound Keith Street approach encountering the stop condition. The southbound approach encountering includes a shared left / right-turn lane. The eastbound approach includes a shared through / left-turn lane. The westbound approach includes a shared through / right-turn lane.

Robertson Street / Mailman Road is an unsignalized intersection with the northbound Mailman Road approach encountering the stop condition. The northbound approach includes a shared left / right-turn lane. The eastbound approach includes a shared through / right-turn lane. The westbound approach includes a shared through / left-turn lane.

Maple Street / Fayetteville Street / First Avenue is an unsignalized intersection with the eastbound Maple Street and westbound Fayettville Street approach encountering the stop condition. Each intersection approach includes a shared left / through / right-turn lane.

Flowers Street / Ridge Street / Fayetteville Street is an unsignalized intersection with the southbound Flowers Street approach encountering the stop condition. The south, east, and westbouind intersection approaches each include a shared left / through / right-turn lane.

Flowers Street / Hester Street is an unsignalized intersection with the westbound Flowers Street approach encountering the stop condition. The northbound approach includes a shared through / right-turn lane. The southbound approach includes a shared through / left-turn lane. The westbound approach includes a shared left / right-turn lane.

Fayetteville Street / Broadway Street is an unsignalized intersection with the northbound Broadway Street approach encountering the stop condition. The northbound approach includes a shared left / right-turn lane. The eastbound approach includes a shared through / right-turn lane. The westbound approach consists of a shared / left-turn lane.

Fayetteville Street / Rainier Lake Drive is an unsignalized intersection with the northbound Rainier Lake Drive approach encountering the stop condition. The northbound approach includes a shared left / right-turn lane. The eastbound approach includes a shared through / right-turn lane. The westbound approach includes a shared through / left-turn lane.

Fayetteville Street / Cedar Pond Court is an unsignalized intersection with the northbound Cedar Pond Court approach encountering the stop condition. The northbound approach includes a shared left / right-turn lane. The eastbound approach includes a shared through / right-turn lane. The westbound approach includes a shared through / left-turn lane.

Fayetteville Street / Mailman Road is an unsignalized intersection with the eastbound Fayetteville Street approach encountering the stop condition. The northbound approach includes a shared through / left-turn lane. The southbound approach includes a shared through / right-turn lane. The eastbound approach includes a shared left / right-turn lane.

First Avenue / Smithfield Road is a two-phased signalized intersection. All four intersection approaches consist of a shared left / through / right-turn lane.

Smithfield Road / Broadway Street is an unsignalized intersection with the southbound Broadway Street approach encountering the stop condition. The southbound approach includes a shared left / right-turn lane. The eastbound approach includes a shared through / left-turn lane. The westbound approach includes a shared through / right-turn.

Smitfield Road / Rainier Lake Drive is an unsignalized intersection with the southbound Rainier Lake Drive approach encountering the stop condition. The southbound approach includes a shared left / right-turn lane. The eastbound approach includes a shared through / left-turn lane. The westbound approach includes a shared through / right-turn lane.

Smithfield Road / Mailman Road is an unsignalized intersection with the southbound Mailman Road approach encountering the stop condition. The southbound approach includes a shared left / right-turn lane. The eastbound approach includes a shared through / left-turn lane. The westbound approach includes a shared through / right-turn lane.

2.4 TRAFFIC VOLUMES

Timmons Group calculated peak hour volumes for the study area intersections using the AM (7:00 – 9:00) and PM (4:00 – 6:00) peak period turning movement counts undertaken in March 2022. Turning movement traffic count data is summarized in **Figure 2-3**. The complete traffic count data can be found in **Appendix B**.

2.5 CAPACITY ANALYSIS

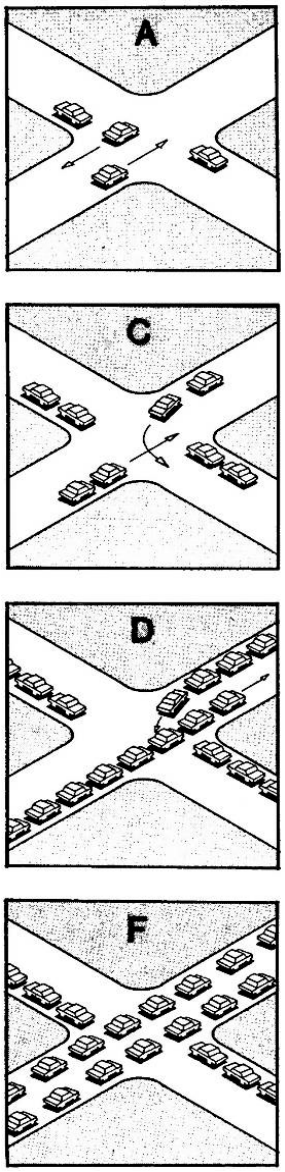
Using field observations, aerial photography, and traffic count data, traffic operations were analyzed during 2022 (existing), 2026 (without and with the proposed development site trips), and 2036 (future year).

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. The Transportation Research Board's (TRB) *Highway Capacity Manual* (HCM) methodologies govern how the capacity analyses are conducted and how the results are interpreted. There are six letter grades of Levels of Service (LOS) from A to F, with LOS A representing the best operating conditions and LOS F the worst operating conditions. At signalized intersections, an overall intersection LOS E is generally considered unacceptable. At unsignalized intersections, a LOS E is generally considered acceptable only if the side street encounters delay. Nevertheless, side streets typically function at a LOS F during peak traffic periods, because the traffic volumes often do not warrant a traffic signal to assist side street traffic. **Table 2-1** shows in detail how each of these levels of service are interpreted.

Table 2-1: Level of Service Definitions

Level of Service	Roadway Segments or Controlled Access Highways	Intersections
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion motorists wait through more than one signal indication.
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.
E	Actual capacity of the roadway invloves delay to all motorists due to congestion.	Very long queues may create lengthly delays, especially for left-turning vehicles.
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage ares during part or all of an hour.

SOURCE: *"A Policy on Design of Design of Urban Highways and Arterial Streets"* - AASHTO, 1973 based upon material published in *"Highway Capacity Manual"*, National Academy of Sciences, 1965.



For signalized and unsignalized intersections, level of service is defined in terms of **delay**, a measure of driver discomfort, frustration, fuel consumption and lost travel time. **Table 2-2** summarizes the delay associated with each LOS category:

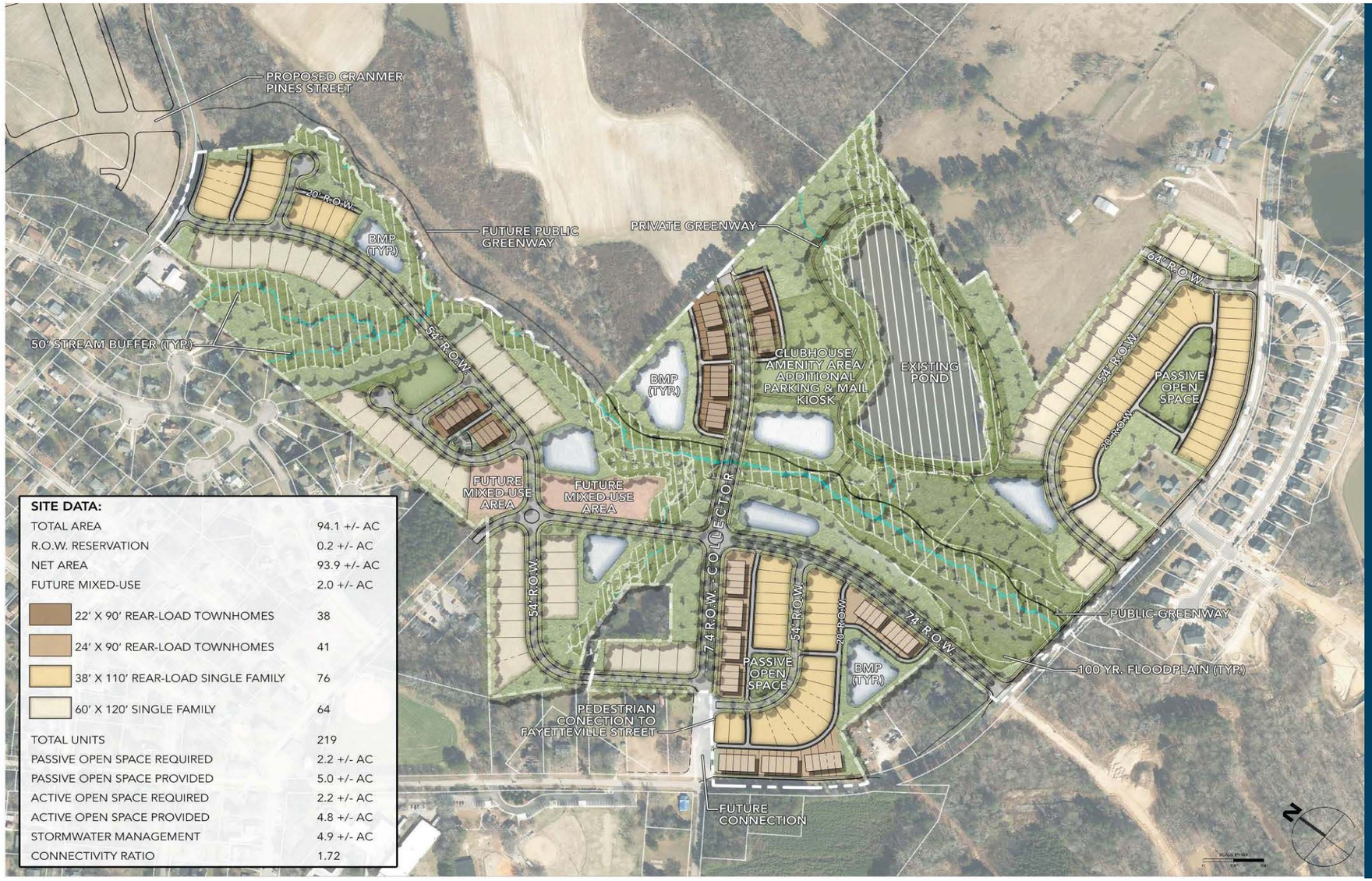
Table 2-2: Signalized and Unsignalized Intersection Level of Service Criteria

Signalized Intersections		Unsignalized Intersections	
Level of Service	Control Delay per Vehicle (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤ 10	A	0 to 10
B	> 10 to ≤ 20	B	> 10 to ≤ 15
C	> 20 to ≤ 35	C	> 15 to ≤ 25
D	> 35 to ≤ 55	D	> 25 to ≤ 35
E	> 55 to ≤ 80	E	> 35 to ≤ 50
F	> 80	F	> 50

Source: Exhibit 16-2 and Exhibit 17-2 from TRB's "Highway Capacity Manual 2000"

Capacity analyses were performed to assess operational conditions. Study area intersections were analyzed using SYNCHRO Version 10.3 based on Highway Capacity Manual (HCM) methodologies with the following assumptions:

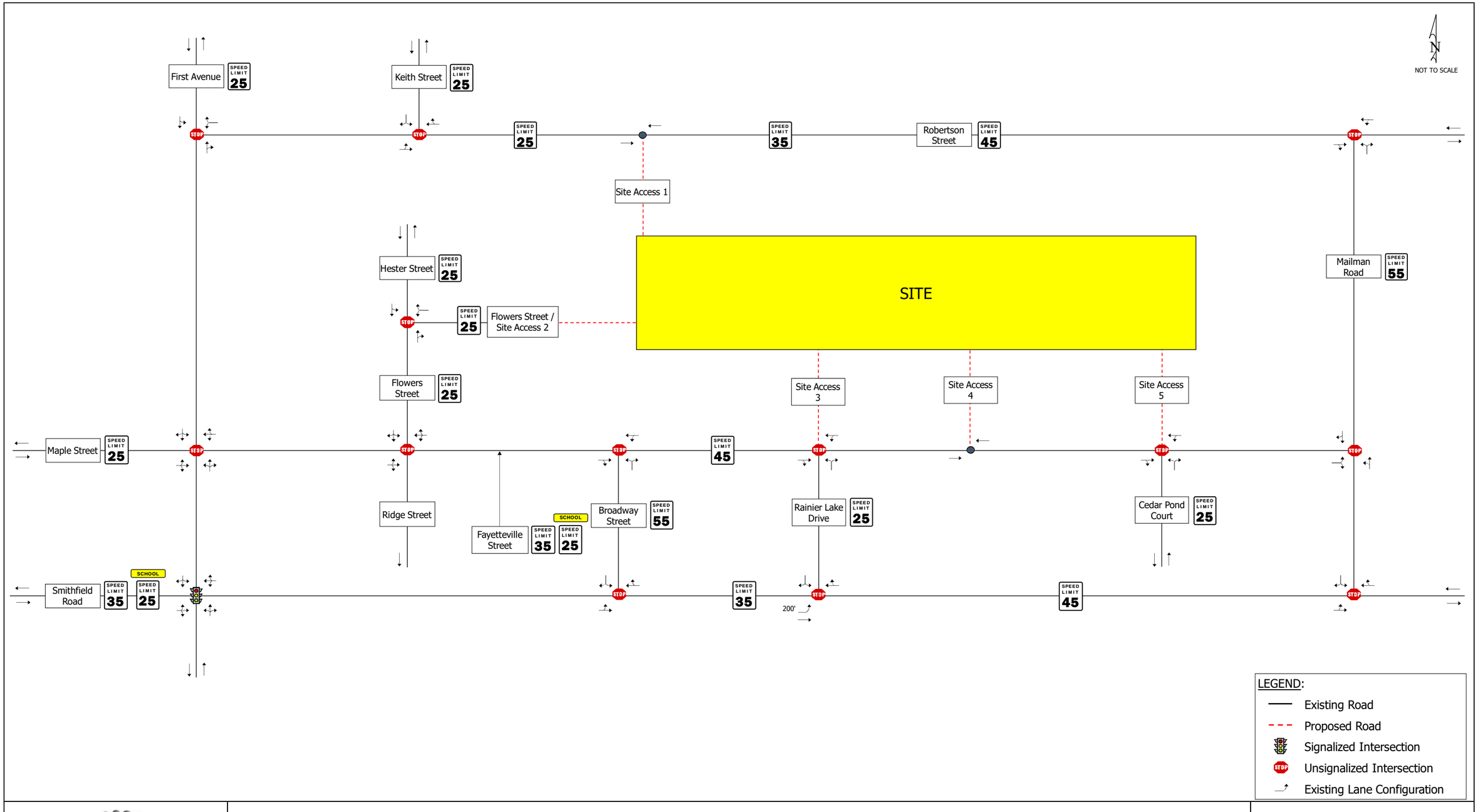
- Existing grades;
- 12-foot lane widths;
- No parking activity, bus stops, or pedestrians;
- Peak hour factor (PHF) of 0.90;
- Heavy vehicle percentages 2%;
- Minimum 4 vehicles per hour (VPH) for all allowed permissible movements; and
- Existing signal data found in the provided traffic signal plans (see **Appendix C**);



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Harper Fayetteville Street Traffic Impact Analysis
Conceptual Site Plan

Figure 2-1

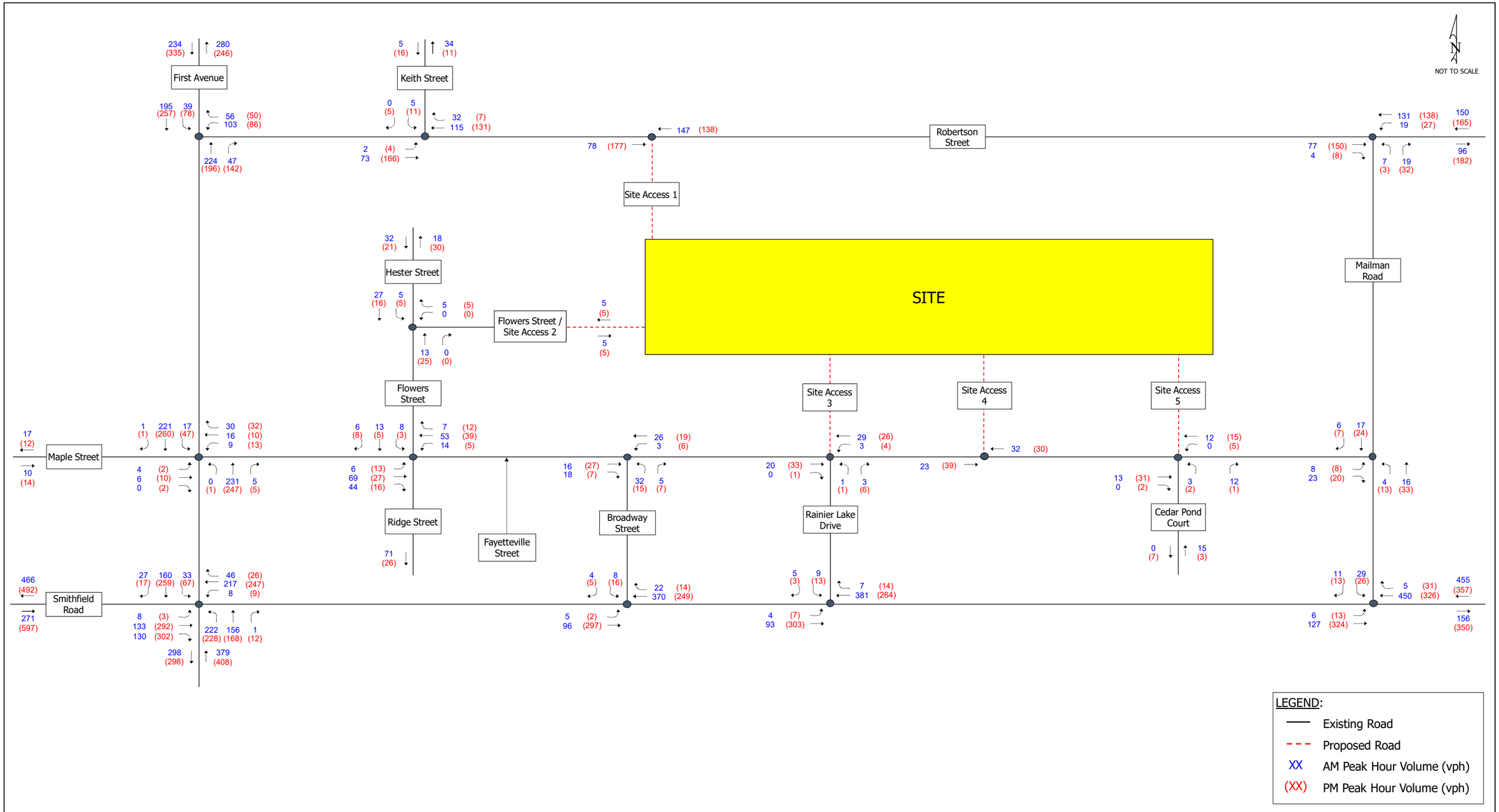


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Harper Fayetteville Street Traffic Impact Analysis

2022 Existing Lane Configuration

Figure 2-2



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Harper Fayetteville Street Traffic Impact Analysis

2022 Existing Traffic Volumes

Figure 2-3

3 EXISTING AND BACKGROUND CONDITIONS AND ANALYSIS

3.1 2022 EXISTING ANALYSES

Table 3-1 summarizes the 2022 Existing intersection LOS and delay based on the geometry shown in **Figure 2-2** and the 2022 Existing traffic volumes shown in **Figure 2-3**. The corresponding SYNCHRO output is included in **Appendix D**.

All unsignalized intersection movements are currently operating at a LOS C or better during both 2022 Existing AM and PM peak hours.

The signalized intersection of First Avenue / Smithfield Road is currently operating at a LOS B and LOS D during the 2022 Existing AM and PM peak hours, respectively. The northbound approach is currently operating unacceptably at LOS F during the PM peak hour. All other intersection approaches are currently operating at a LOS C or better during both peak hours.

Table 3-1: Intersection Level of Service and Delay Summary
2022 Existing Traffic Volumes

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
1: N First Avenue & Robertson Street	WB Approach	14.0	B	16.1	C
	NB Approach	0.0	A	0.0	A
	SB Approach	1.3	A	1.9	A
2: Robertson Street & Keith Street	EB Approach	0.4	A	0.2	A
	WB Approach	0.0	A	0.0	A
	SB Approach	9.4	A	9.9	A
4: Mailman Road & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.9	A	1.2	A
	NB Approach	9.2	A	9.6	A
5: N First Avenue & Maple Street/Fayetteville Street	EB Approach	13.5	B	15.9	C
	WB Approach	12.7	B	13.9	B
	NB Approach	0.1	A	0.1	A
	SB Approach	0.5	A	1.2	A
6: Ridge Street / School Driveway/Flowers Street & Fayetteville Street	EB Approach	7.5	A	7.2	A
	WB Approach	7.5	A	7.2	A
	SB Approach	7.5	A	7.0	A
7: Flowers Street & Hester Street	WB Approach	8.6	A	8.7	A
	NB Approach	0.0	A	0.0	A
	SB Approach	1.1	A	1.7	A
8: Broadway Street & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	1.0	A	1.8	A
	NB Approach	9.0	A	8.9	A
9: Rainier Lake Drive & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.9	A	1.0	A
	NB Approach	8.6	A	8.6	A
11: Cedar Pond Court & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	1.8	A	1.8	A
	NB Approach	8.5	A	8.7	A
12: Mailman Road & Fayetteville Street	EB Approach	8.6	A	9.1	A
	NB Approach	1.5	A	2.1	A
	SB Approach	0.0	A	0.0	A
13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road	EB Approach	22.7	C	30.0	C
	WB Approach	20.3	C	12.6	B
	NB Approach	15.3	B	***93.2***	***F***
	SB Approach	8.7	A	23.5	C
	Overall	16.9	B	41.4	D
14: S Smithfield Road & Broadway Street	EB Approach	0.4	A	0.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	11.9	B	12.6	B
15: S Smithfield Road & Rainier Lake Drive	EB Approach	0.3	A	0.2	A
	WB Approach	0.0	A	0.0	A
	SB Approach	11.4	B	12.1	B
16: S Smithfield Road & Mailman Road	EB Approach	0.4	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	13.1	B	13.6	B

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

3.2 2026 BACKGROUND TRAFFIC VOLUMES

Figure 3-1 and **Figure 3-2** show the 2026 and 2036 ambient traffic volumes, respectively, calculated using a 3% ambient growth rate through 2026 and a 1% ambient growth rate between 2026 to 2036.

Per the scoping information (see **Appendix A**), there are three (3) approved developments in the project study area that will be fully constructed by 2026: Smithfield Mixed Use Development, Glenmere Development, and The Collection Development (see **Appendix E**).

Listed below are the approved developments, site trip distribution assumptions, and proposed site improvements.

- Smithfield Mixed Use Development
    - TIA completed by Ramey Kemp Associates – Sealed 11/23/20
    - Located along Smithfield Road and Mailman Road
    - 97 Single-Family Detached Housing, 416 Multi-Family Housing (apartments), and 16,600 square foot retail space
    - Trip Distribution assumed to follow patterns in existing TIA and Engineering judgement
- Glenmere Development
    - TIA completed by Kimley-Horn and Associates – Sealed 02/22/13
    - Located along Smithfield Road and Fayetteville Street between Broadway Street and Mailman Road
    - 340 Single-Family Detached Housing
    - Currently 42% Constructed
    - Trip distribution assumed to follow patterns in existing TIA and Engineering judgement
- The Collection Development
    - No TIA completed
    - Memorandum completed by VHB (09/03/2019)
    - Located east of Keith Street and north of Robertson Street
    - 57 Single-Family Detached Housing, 32 Multi-Family Housing (townhomes)
    - Trip Distribution based on existing traffic patterns and Engineering judgement

Projected and distributed trips from the approved and proposed area developments (see **Appendix E**) are located in **Figure 3-3**. These trips were added to the 2026 ambient volumes (**Figure 3-1**) to determine the 2026 Background traffic volumes (see **Figure 3-4**).

3.3 2026 BACKGROUND ANALYSIS

Table 3-2 summarizes the 2026 Background intersection LOS and delay based on the geometry shown in **Figure 2-2**, and the 2026 Background traffic volumes shown in **Figure 3-4**. The corresponding SYNCHRO output is included in **Appendix D**.

All unsignalized intersection movements are projected to operate at a LOS D or better during the 2026 Background AM and PM peak hours.

The signalized intersection of First Avenue / Smithfield Road is projected to operate at a LOS C and LOS F during the 2026 Background AM and PM peak hours, respectively. The northbound intersection approach is projected to operate unacceptably at LOS F during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better.

Table 3-2: Intersection Level of Service and Delay Summary
2026 Background Traffic Volumes

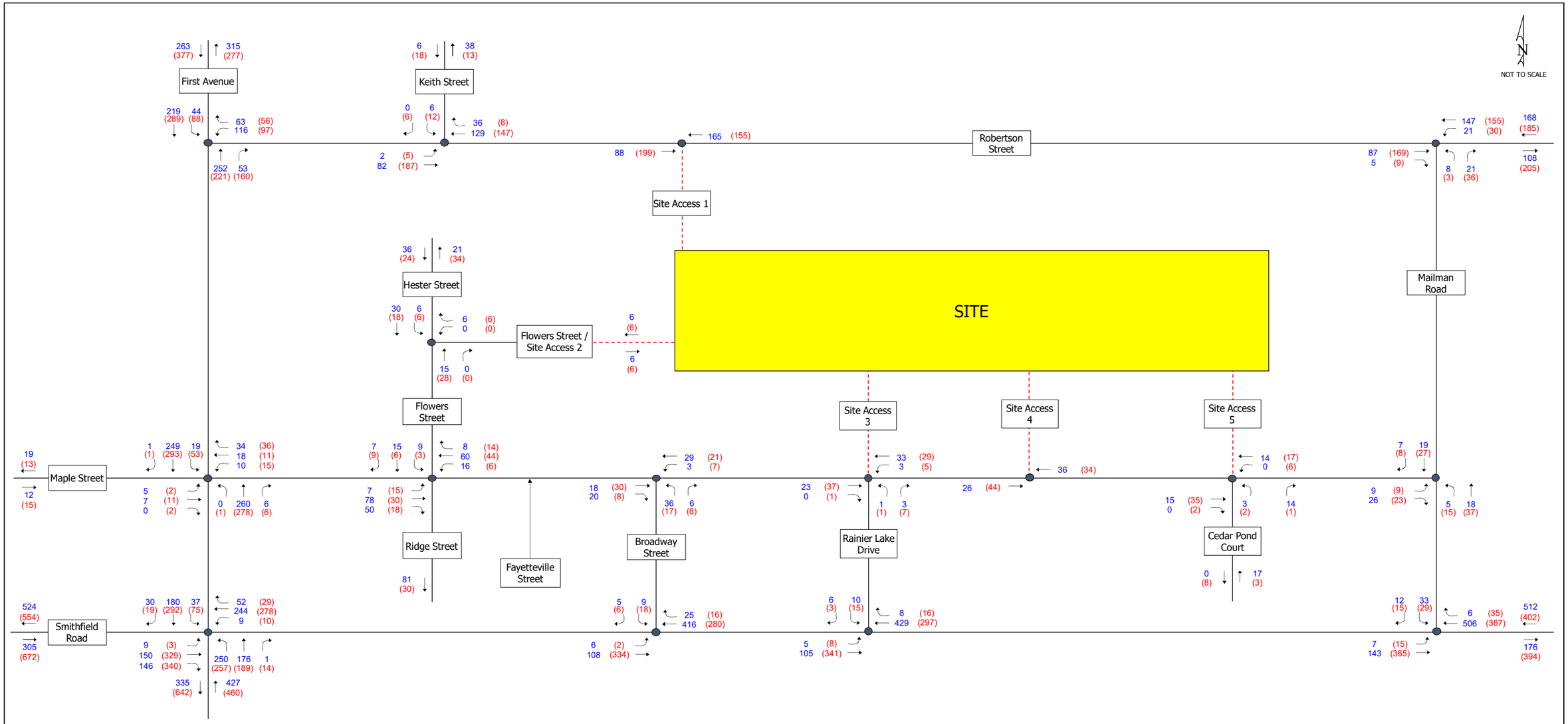
Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
1: N First Avenue & Robertson Street	WB Approach	18.0	C	22.9	C
	NB Approach	0.0	A	0.0	A
	SB Approach	1.6	A	2.2	A
2: Robertson Street & Keith Street	EB Approach	0.8	A	1.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	9.8	A	10.5	B
4: Mailman Road & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	1.0	A	1.3	A
	NB Approach	10.0	B	10.6	B
5: N First Avenue & Maple Street/Fayetteville	EB Approach	15.5	C	19.1	C
	WB Approach	14.0	B	16.5	C
	NB Approach	0.1	A	0.1	A
	SB Approach	0.5	A	1.2	A
6: Ridge Street / School Driveway/Flowers Street & Fayetteville Street	NB Approach	7.8	A	7.3	A
	SB Approach	7.8	A	7.4	A
	EB Approach	7.7	A	7.2	A
7: Flowers Street & Hester Street	WB Approach	8.7	A	8.7	A
	NB Approach	0.0	A	0.0	A
	SB Approach	1.0	A	1.6	A
8: Broadway Street & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.6	A	1.3	A
	NB Approach	9.3	A	9.1	A
9: Rainier Lake Drive & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.5	A	2.8	A
	NB Approach	8.7	A	8.8	A
11: Cedar Pond Court & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	1.5	A	1.8	A
	NB Approach	8.6	A	8.8	A
12: Mailman Road & Fayetteville Street	EB Approach	8.8	A	9.0	A
	NB Approach	1.0	A	1.6	A
	SB Approach	0.0	A	0.0	A
13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road	EB Approach	22.8	C	46.3	D
	WB Approach	23.3	C	12.5	B
	NB Approach	29.0	C	***369.7***	***F***
	SB Approach	12.4	B	41.7	D
	Overall	22.8	C	***114.5***	***F***
14: S Smithfield Road & Broadway Street	EB Approach	0.3	A	0.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	14.1	B	15.4	C
15: S Smithfield Road & Rainier Lake Drive	EB Approach	0.4	A	0.4	A
	WB Approach	0.0	A	0.0	A
	SB Approach	15.1	C	17.0	C
16: S Smithfield Road & Mailman Road	EB Approach	0.2	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	23.7	C	27.2	D

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

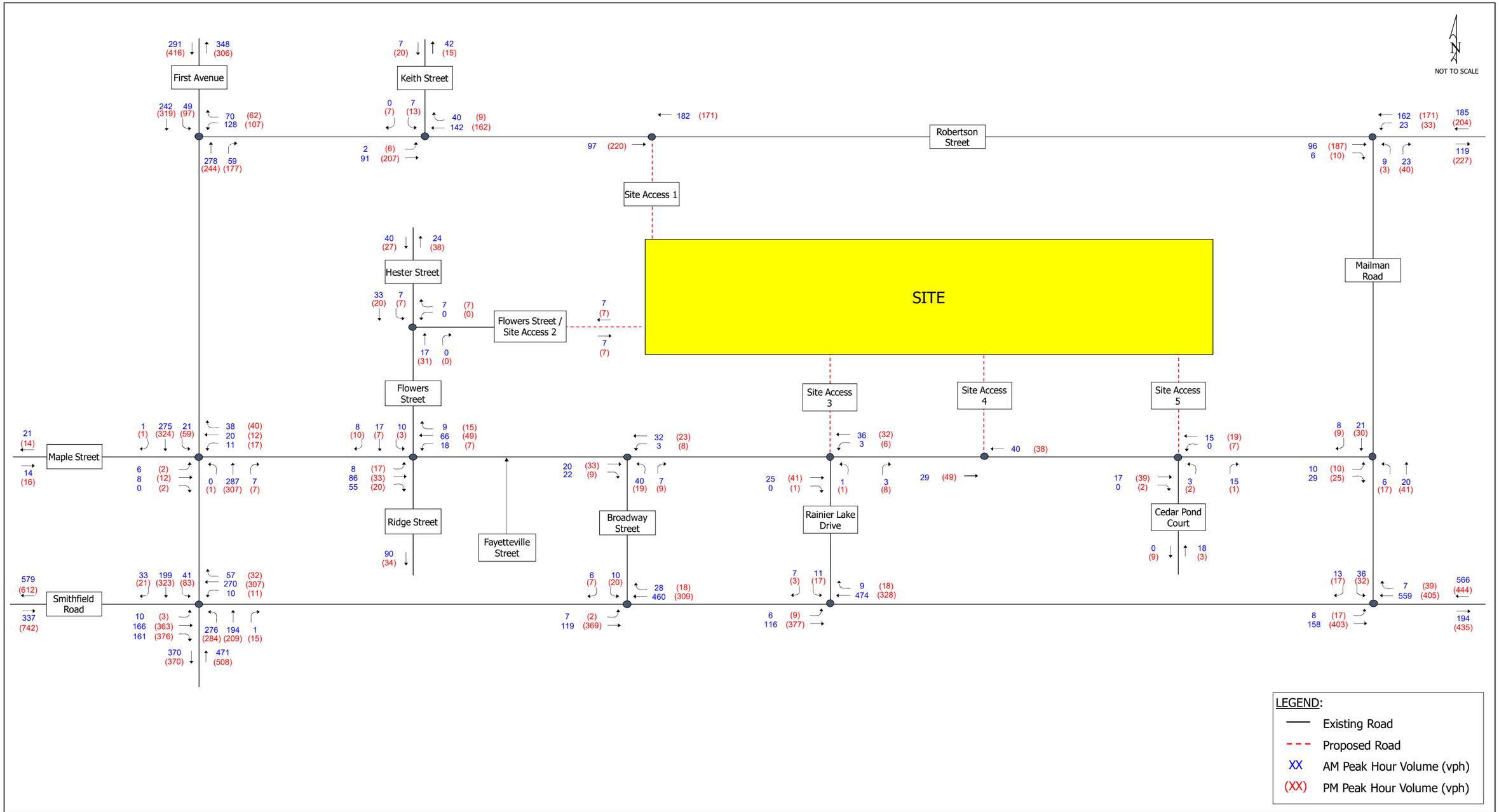


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Harper Fayetteville Street Traffic Impact Analysis

2026 Ambient Traffic Volumes

Figure 3-1



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Harper Fayetteville Street Traffic Impact Analysis

2036 Ambient Traffic Volumes

Figure 3-2

NOT TO SCALE

First Avenue
Keith Street
Robertson Street
Site Access 1
SITE
Hester Street
Flowers Street / Site Access 2
Flowers Street
Mailman Road
Site Access 3
Site Access 4
Site Access 5
Maple Street
Ridge Street
Fayetteville Street
Broadway Street
Rainier Lake Drive
Cedar Pond Court
Smithfield Road

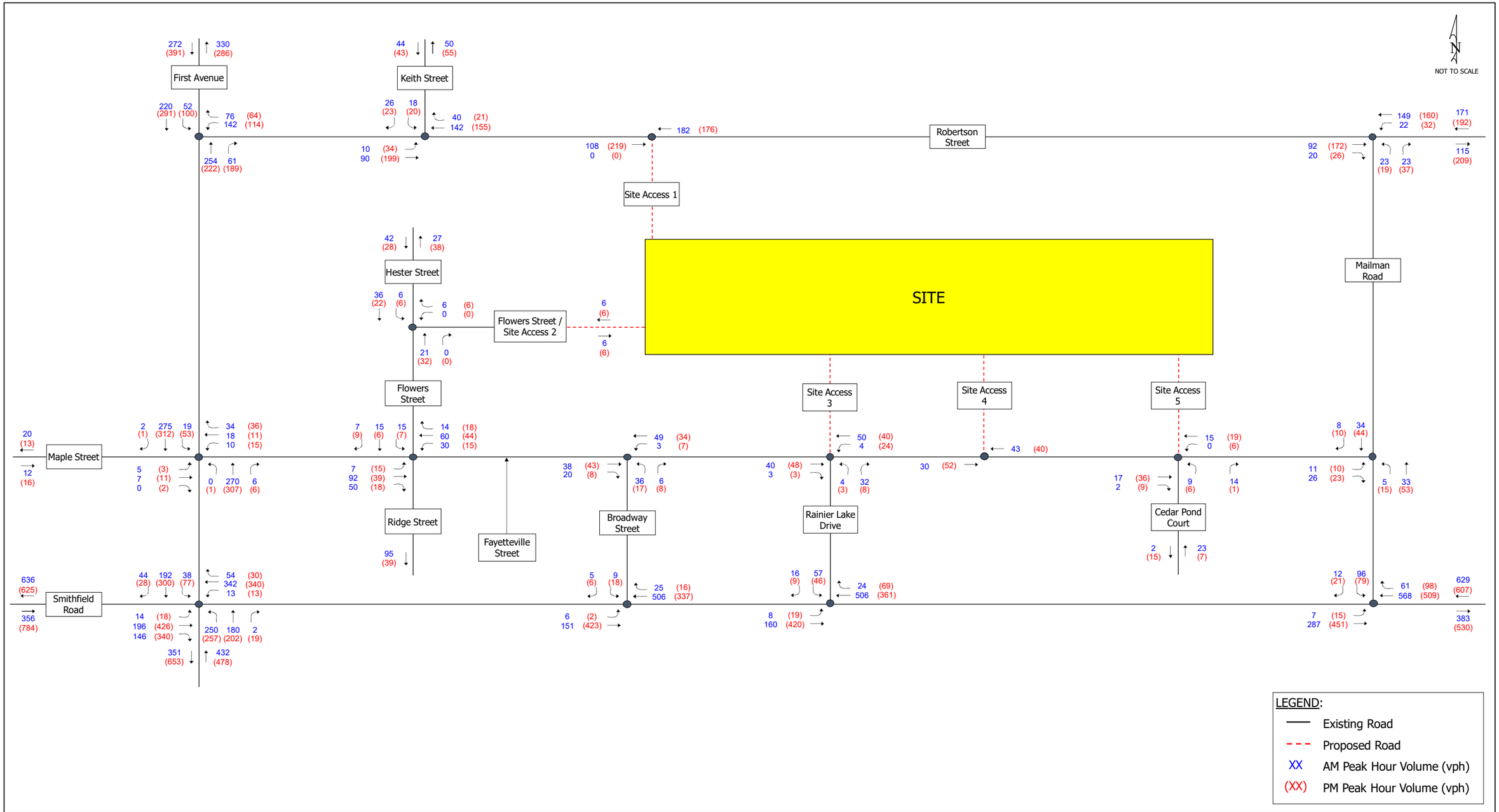
LEGEND:
- Existing Road
- Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

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Harper Fayetteville Street Traffic Impact Analysis

Approved Development Trip Distribution Volumes

Figure 3-3



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Harper Fayetteville Street Traffic Impact Analysis

2026 Background Traffic Volumes

Figure 3-4

4 SITE TRIP GENERATION AND DISTRIBUTION

Site trips for the Harper Fayetteville Street residential development were estimated based on the proposed land use supplied by the developer and subsequently distributed onto the surrounding roadway network.

4.1 TRIP GENERATION

The site-generated trips shown in **Table 4-1** are based on trip generation information provided in the 10th Edition of the Institute of Transportation Engineers' (ITE's) *Trip Generation Manual* and the anticipated residential development. The trip generation was calculated using the proposed number of residential units as the independent variable. The provided equation was used to help generate trips (per NCDOT standards).

Table 4-1: Trip Generation Summary

ITE Land Use Code	Independent Variable	Daily Traffic	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
210 – Single-Family Detached Housing	150 Units	1510	28	83	111	94	56	150
220 – Multifamily Housing (Low-Rise)	100 Units	715	11	37	48	37	22	59
Total:		2,225	39	120	159	131	78	209

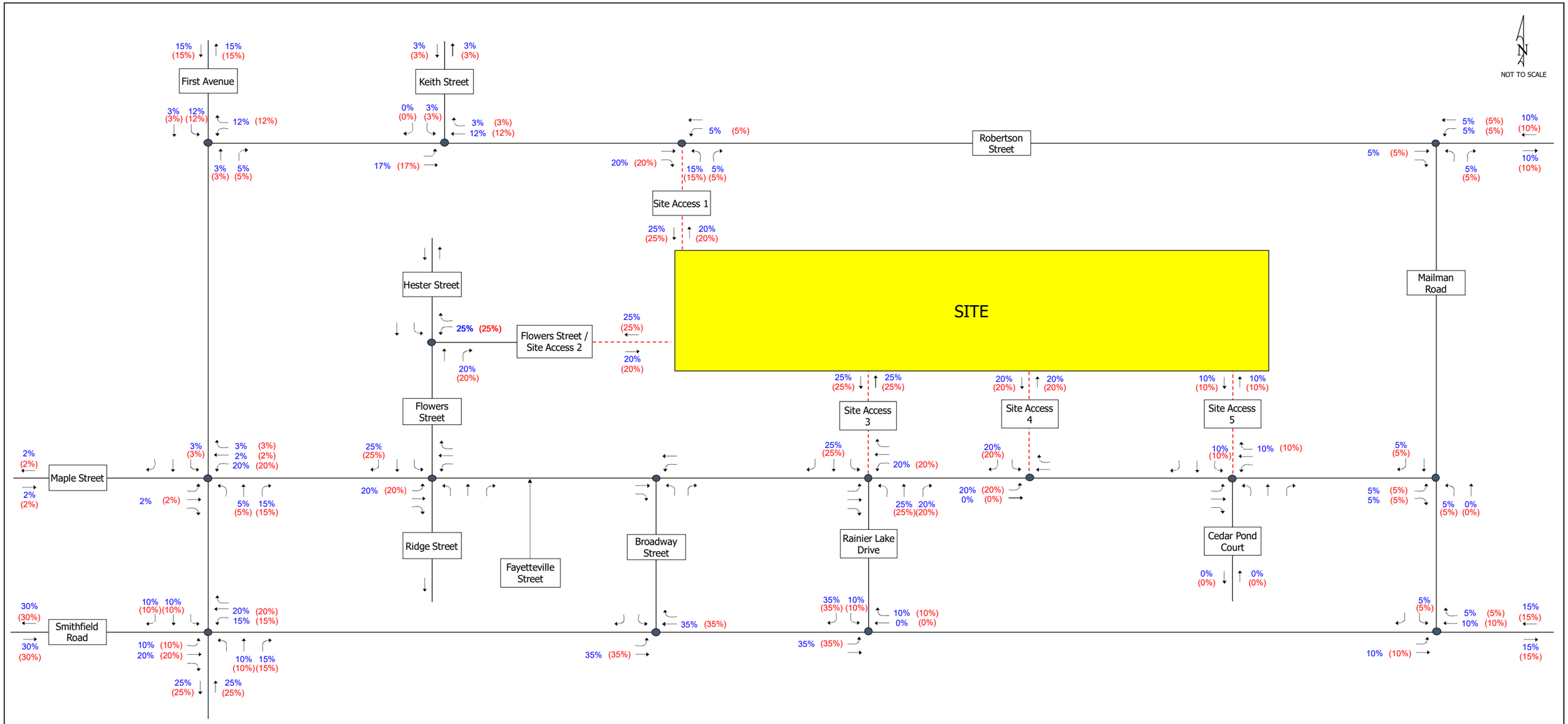
SOURCE: Institute of Transportation Engineers' *Trip Generation Manual* 10th Edition (2017)

AM peak hour trips generated totaled 39 incoming and 120 outgoing where PM peak hour trips totaled 131 incoming and 78 outgoing. Average daily traffic (ADT) volumes generated by the development totaled 2,225 VPD. No reduction in trips was included due to internal capture and/or pass-by trips.

4.2 TRIP DISTRIBUTION

The directional traffic patterns, or site trip distribution, was determined using the existing AM and PM peak hour traffic characteristics of the surrounding traffic network, discussions during the scoping meeting, and Engineering judgement. Total trips into and out of the study area using First Avenue, Keith Street, Robertson Street, Maple Street, and Smithfield Avenue form the basis for the percentage distribution. The percentages were routed, via shortest path, to and from the proposed development. The distribution percentages were then applied to the generated trips to predict routes and project 2026 Build traffic volumes.

Figure 4-1 shows the trip distribution percentages and **Figure 4-2** shows the trip distribution volumes. 2026 Build traffic volumes were determined by adding the total trip distribution volumes (**Figure 4-2**) to the 2026 Background traffic volumes (see **Figure 3-4**).



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Harper Fayetteville Street Traffic Impact Analysis

Trip Distribution Percentages

Figure 4-1

NOT TO SCALE

First Avenue
Keith Street
Robertson Street
Site Access 1
SITE
Mailman Road
Hester Street
Flowers Street / Site Access 2
Flowers Street
Site Access 3
Site Access 4
Site Access 5
Maple Street
Ridge Street
Fayetteville Street
Broadway Street
Rainier Lake Drive
Cedar Pond Court
Smithfield Road

LEGEND:
- Existing Road
- Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

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Harper Fayetteville Street Traffic Impact Analysis

Trip Distribution Volumes

Figure 4-2

5 2026 BUILD CONDITION AND ANALYSIS

To complete the 2026 Build analyses (including proposed development site traffic), the estimated site trips were added to the 2026 Background traffic volumes. The projected total volumes, along with the existing intersection geometry, were used to complete the capacity analyses.

5.1 2026 BUILD TRAFFIC VOLUMES

Background traffic volumes (**Figure 3-4**) were added to the projected Harper Fayetteville Street residential development site trips (**Figure 4-2**) to generate the 2026 Build traffic volumes (background + site) shown in **Figure 5-1**.

To summarize, the 2026 Build traffic volumes (**Figure 5-1**) contain the following:

- 2022 traffic volumes grown exponentially for four (4) years at a 3% ambient growth rate (**Figure 3-1**);
- Area approved development site trips (**Figure 3-3**); and
- Total site trips generated by the subject development (see **Figure 4-2**).

5.2 2026 BUILD ANALYSIS

Table 5-1 summarizes the intersection LOS and delay based on the geometry shown in **Figure 2-2** and the 2026 Build traffic volumes shown in **Figure 5-1**. The corresponding SYNCHRO output is included in **Appendix D**.

For the following intersections, all unsignalized intersection movements are projected to operate at a LOS D or better during the 2026 Build AM and PM peak hours. Because all intersection movements are projected to operate acceptably overall during both peak hours, no improvements are recommended at at any of the listed intersections.

- First Avenue / Robertson Street
- Robertson Street / Keith Street
- Robertson Street / Mailman Road
- Maple Street / Fayetteville Street / First Avenue
- Flowers Street / Ridge Street / Fayetteville Street
- Fayetteville Street / Broadway Street
- Fayetteville Street / Mailman Road
- Smithfield Road / Broadway Street
- Smithfield Road / Rainier Lake Drive
- Smithfield Road / Mailman Road

All Robertson Street / Site Access 1 unsignalized intersection movements are projected to operate at a LOS B or better during the 2026 Build AM and PM peak hours. Per the NCDOT Policy on Street and Driveway Access to North Carolina Highways Manual:

"Generally left and right turn lanes and tapers shall be considered when:

- *In accordance with G.S. 137-18(29), the average daily traffic meets or exceeds 4,000 vehicles per day on any secondary route (the average daily traffic should include both the existing traffic plus traffic generated by the proposed development)"*

With the addition of proposed development site traffic, the 2026 AADT along Robertson Street is projected to exceed 4,000 VPD. Because of this, turn lanes were considered at Site Access 1. Per the NCDOT Nomograph (see **Appendix F**) and projected 2026 peak hour volumes, a 50-foot westbound left-turn lane (with appropriate taper) is recommended. Per **Table 5-2**, following this improvement, all approaches are projected to continue to operate acceptably. No additional improvements are recommended at this intersection due to the proposed development's construction.

All Flowers Street / Hester Street / Site Access 2 unsignalized intersection movements are projected to operate at a LOS A during the 2026 Build AM and PM peak hours. Because 2026 AADT volumes along Flowers Street are not projected to exceed 4,000 VPD and all intersection movements are projected to operate acceptably overall during both peak hours, no improvements are recommended at this intersection due to the proposed development's construction.

All Fayetteville Street / Rainier Lake Drive / Site Access 3 unsignalized intersection movements are projected to operate at a LOS B or better during the 2026 Build AM and PM peak hours. Because 2026 AADT volumes along Flowers Street are not projected to exceed 4,000 VPD and all intersection movements are projected to operate acceptably overall during both peak hours, no improvements are recommended at this intersection due to the proposed development's construction.

All Fayetteville Street / Site Access 4 unsignalized intersection movements are projected to operate at a LOS A during the 2026 Build AM and PM peak hours. Because 2026 AADT volumes along Flowers Street are not projected to exceed 4,000 VPD and all intersection movements are projected to operate acceptably overall during both peak hours, no improvements are recommended at this intersection due to the proposed development's construction.

The signalized intersection of First Avenue / Smithfield Road is projected to operate at a LOS C and LOS F during the 2026 Build AM and PM peak hours, respectively. The eastbound intersection approach is projected to operate unacceptably at LOS E during the PM peak hour. The northbound intersection approach is projected to operate unacceptably at LOS F during the PM peak hour. All other intersection approaches are projected to operate at a LOS D or better. Heavy northbound (true eastbound) left-turn volumes from S First Aveneue onto Smithfield Road and eastbound (true southbound) right-turn volumes from Smithfield Road to S First Avenue cause the intersection to operate acceptably. To allow ths intersection to operate acceptably, an exclusive northbound (true eastbound) left-turn lane and eastbound (true southbound) right-turn lane are necessary. Existing right-of-way is not currently available to construct either movement. Additionally, the proposed development is not projected to add additional traffic to either movement during either peak hour. Because of this, no improvements are recommended at this intersection due to the proposed development's construction.

Table 5-1: Intersection Level of Service and Delay Summary
2026 Build Traffic Volumes

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
1: N First Avenue & Robertson Street	WB Approach	18.8	C	25.4	D
	NB Approach	0.0	A	0.0	A
	SB Approach	1.7	A	2.5	A
2: Robertson Street & Keith Street	EB Approach	0.7	A	1.0	A
	WB Approach	0.0	A	0.0	A
	SB Approach	9.9	A	10.9	B
3: Site Access 1 & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.2	A	0.3	A
	NB Approach	10.3	B	11.2	B
4: Mailman Road & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	1.0	A	1.5	A
	NB Approach	10.0	B	10.7	B
5: N First Avenue & Maple Street/Fayetteville Street	EB Approach	15.8	C	20.4	C
	WB Approach	16.5	C	20.6	C
	NB Approach	0.1	A	0.1	A
	SB Approach	0.5	A	1.3	A
6: Ridge Street / School Driveway/Flowers Street & Fayetteville Street	EB Approach	8.0	A	7.6	A
	WB Approach	7.9	A	7.5	A
	SB Approach	7.7	A	7.2	A
7: Flowers Street/Hester Street & Flowers Street / Site Access 2	WB Approach	9.1	A	9.1	A
	NB Approach	0.0	A	0.0	A
	SB Approach	1.0	A	1.6	A
8: Broadway Street & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.6	A	1.3	A
	NB Approach	9.3	A	9.1	A
9: Rainier Lake Drive/Site Access 3 & Fayetteville Street	EB Approach	0.6	A	0.5	A
	WB Approach	2.5	A	3.5	A
	NB Approach	9.1	A	9.8	A
	SB Approach	10.3	B	10.3	B
10: Fayetteville Street & Site Access 4	EB Approach	1.5	A	2.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	8.7	A	8.8	A
11: Cedar Pond Court/Site Access 5 & Fayetteville Street	EB Approach	1.2	A	0.6	A
	WB Approach	1.3	A	1.1	A
	NB Approach	8.8	A	9.2	A
	SB Approach	9.0	A	9.2	A
12: Mailman Road & Fayetteville Street	EB Approach	8.9	A	9.1	A
	NB Approach	1.3	A	2.2	A
	SB Approach	0.0	A	0.0	A
13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road	EB Approach	20.8	C	***61.9***	***E***
	WB Approach	24.2	C	13.5	B
	NB Approach	41.0	D	***422.5***	***F***
	SB Approach	14.5	B	47.1	D
	Overall	26.3	C	***135.1***	***F***
14: S Smithfield Road & Broadway Street	EB Approach	0.3	A	0.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	14.8	B	16.6	C
15: S Smithfield Road & Rainier Lake Drive	EB Approach	1.1	A	1.2	A
	WB Approach	0.0	A	0.0	A
	SB Approach	16.7	C	18.9	C
16: S Smithfield Road & Mailman Road	EB Approach	0.2	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	25.2	D	29.3	D

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

\+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

Table 5-2: Intersection Level of Service and Delay Summary
2026 Build + Improvement Traffic Volumes

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
3: Site Access 1 & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.2	A	0.3	A
	NB Approach	10.3	B	11.2	B

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

5.3 2036 BUILD ANALYSIS

To complete the 2036 Horizon Build Year analyses (including the proposed development), the 2022 Existing traffic volumes were grown at a 3% ambient growth rate from 2022 to 2026 and a 1% ambient growth rate from 2026 to 2036, and added to the estimated site trips. The projected total volumes, along with the proposed intersection geometry (see **Figure 7-1**), were used to complete the capacity analyses.

The 2036 Build traffic volumes shown on **Figure 5-2** contain the following:

- Existing 2022 turning movement traffic count volumes grown at a 3% ambient growth rate from 2022 to 2026 and a 1% ambient growth rate from 2026 to 2036 (**Figure 3-2**);
- Area approved development site trips (**Figure 3-3**); and
- Total site trips generated by the subject development (**Figure 4-2**).

Table 5-3 summarizes the intersection LOS and Delay based on the 2036 Build Year traffic volumes (see **Figure 5-2**). The corresponding SYNCHRO output is included in **Appendix D**.

For the following intersections, all unsignalized intersection movements are projected to operate at a LOS D or better during the 2036 Build AM and PM peak hours.

- First Avenue / Robertson Street
- Robertson Street / Keith Street
- Robertson Street / Site Access 1
- Robertson Street / Mailman Road
- Maple Street / Fayetteville Street / First Avenue
- Flowers Street / Ridge Street / Fayetteville Street
- Flowers Street / Hester Street / Site Access 2
- Fayetteville Street / Broadway Street
- Fayetteville Street / Rainier Lake Drive / Site Access 3
- Fayetteville Street / Site Access 4
- Fayetteville Street / Cedar Pond Court / Site Access 5
- Fayetteville Street / Mailman Road
- Smithfield Road / Broadway Street
- Smithfield Road / Rainier Lake Drive

The signalized intersection of First Avenue / Smithfield Road is projected to operate at a LOS D and LOS F during the 2036 Build AM and PM peak hours, respectively. The east and southbound intersection approach are projected to operate unacceptably during the PM peak hour. The northbound intersection approach is projected to operate unacceptably at LOS F during both the AM and PM peak hours. All other intersection approaches are projected to operate at a LOS C or better.

The southbound Smithfield Road / Mailman Road unsignalized intersection movement is projected to operate at a LOS E during the 2036 Build PM Peak hour. All other intersection movements are projected to operate at a LOS D or better during the 2036 Build AM and PM peak hours.

Table 5-3: Intersection Level of Service and Delay Summary
2036 Build Traffic Volumes

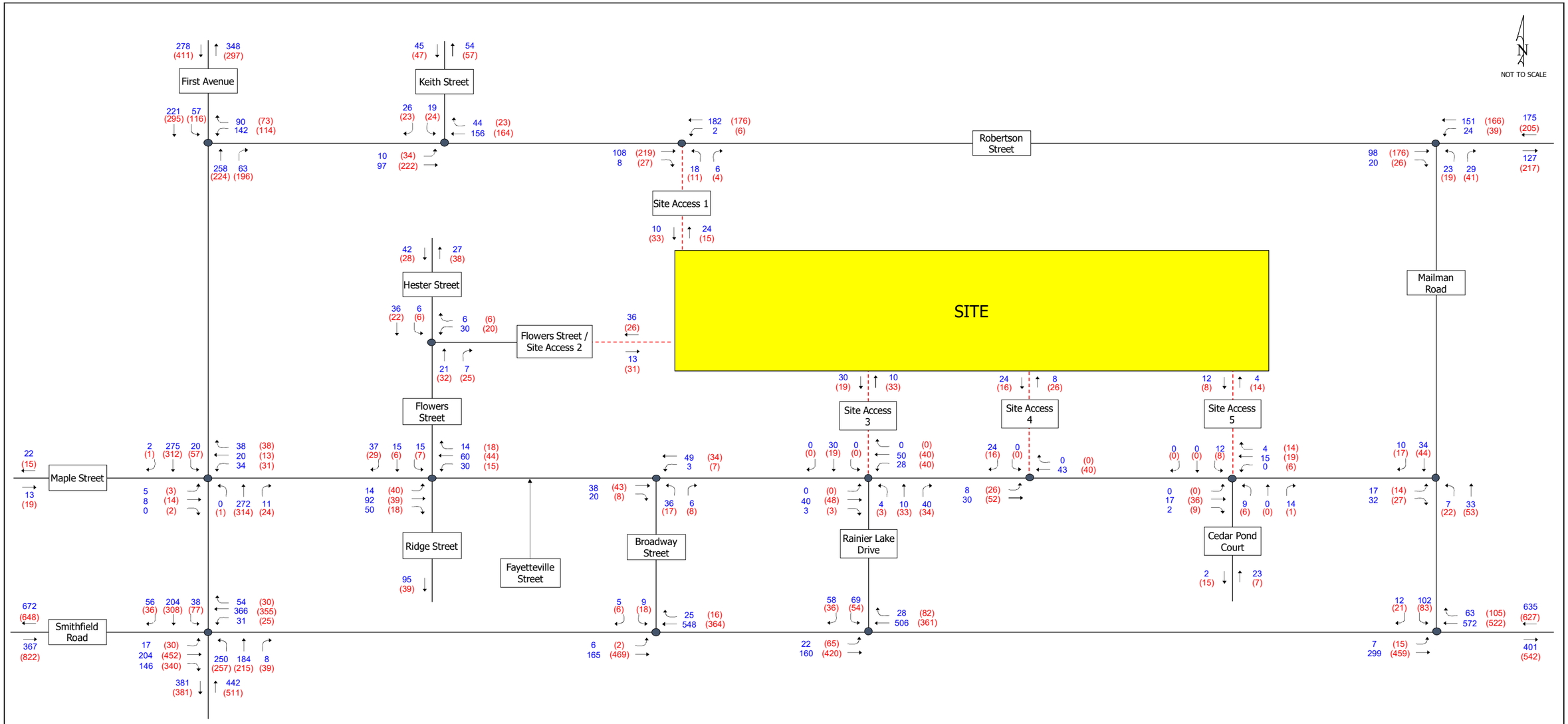
Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
1: N First Avenue & Robertson Street	WB Approach	22.9	C	34.6	D
	NB Approach	0.0	A	0.0	A
	SB Approach	1.7	A	2.5	A
2: Robertson Street & Keith Street	EB Approach	0.7	A	1.0	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.1	B	11.2	B
3: Site Access 1 & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.1	A	0.2	A
	NB Approach	10.5	B	11.5	B
4: Mailman Road & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	1.0	A	1.5	A
	NB Approach	10.2	B	10.9	B
5: N First Avenue & Maple Street/Fayetteville Street	EB Approach	17.4	C	23.1	C
	WB Approach	18.3	C	24.3	C
	NB Approach	0.1	A	0.1	A
	SB Approach	0.5	A	1.3	A
6: Ridge Street / School Driveway/Flowers Street & Fayetteville Street	EB Approach	8.1	A	7.7	A
	WB Approach	8.0	A	7.5	A
	SB Approach	7.8	A	7.2	A
7: Flowers Street/Hester Street & Flowers Street / Site Access 2	WB Approach	9.1	A	9.1	A
	NB Approach	0.0	A	0.0	A
	SB Approach	1.1	A	1.7	A
8: Broadway Street & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.5	A	1.3	A
	NB Approach	9.4	A	9.1	A
9: Rainier Lake Drive/Site Access 3 & Fayetteville Street	EB Approach	0.6	A	0.5	A
	WB Approach	2.4	A	3.5	A
	NB Approach	9.1	A	9.8	A
	SB Approach	10.3	B	10.4	B
10: Fayetteville Street & Site Access 4	EB Approach	1.4	A	2.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	8.7	A	8.8	A
11: Cedar Pond Court/Site Access 5 & Fayetteville Road/Fayetteville Street	EB Approach	1.1	A	0.6	A
	WB Approach	1.2	A	1.2	A
	NB Approach	8.8	A	9.2	A
	SB Approach	9.1	A	9.2	A
12: Mailman Road & Fayetteville Street	EB Approach	9.0	A	9.2	A
	NB Approach	1.4	A	2.2	A
	SB Approach	0.0	A	0.0	A
13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road	EB Approach	21.0	C	***94.0***	***F***
	WB Approach	24.4	C	14.2	B
	NB Approach	***85.2***	***F***	***558.7***	***F***
	SB Approach	16.6	B	***64.6***	***E***
	Overall	39.5	D	***183.4***	***F***
14: S Smithfield Road & Broadway Street	EB Approach	0.3	A	0.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	15.7	C	17.9	C
15: S Smithfield Road & Rainier Lake Drive	EB Approach	1.1	A	1.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	18.1	C	21.0	C
16: S Smithfield Road & Mailman Road	EB Approach	0.2	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	29.5	D	***35.8***	***E***

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

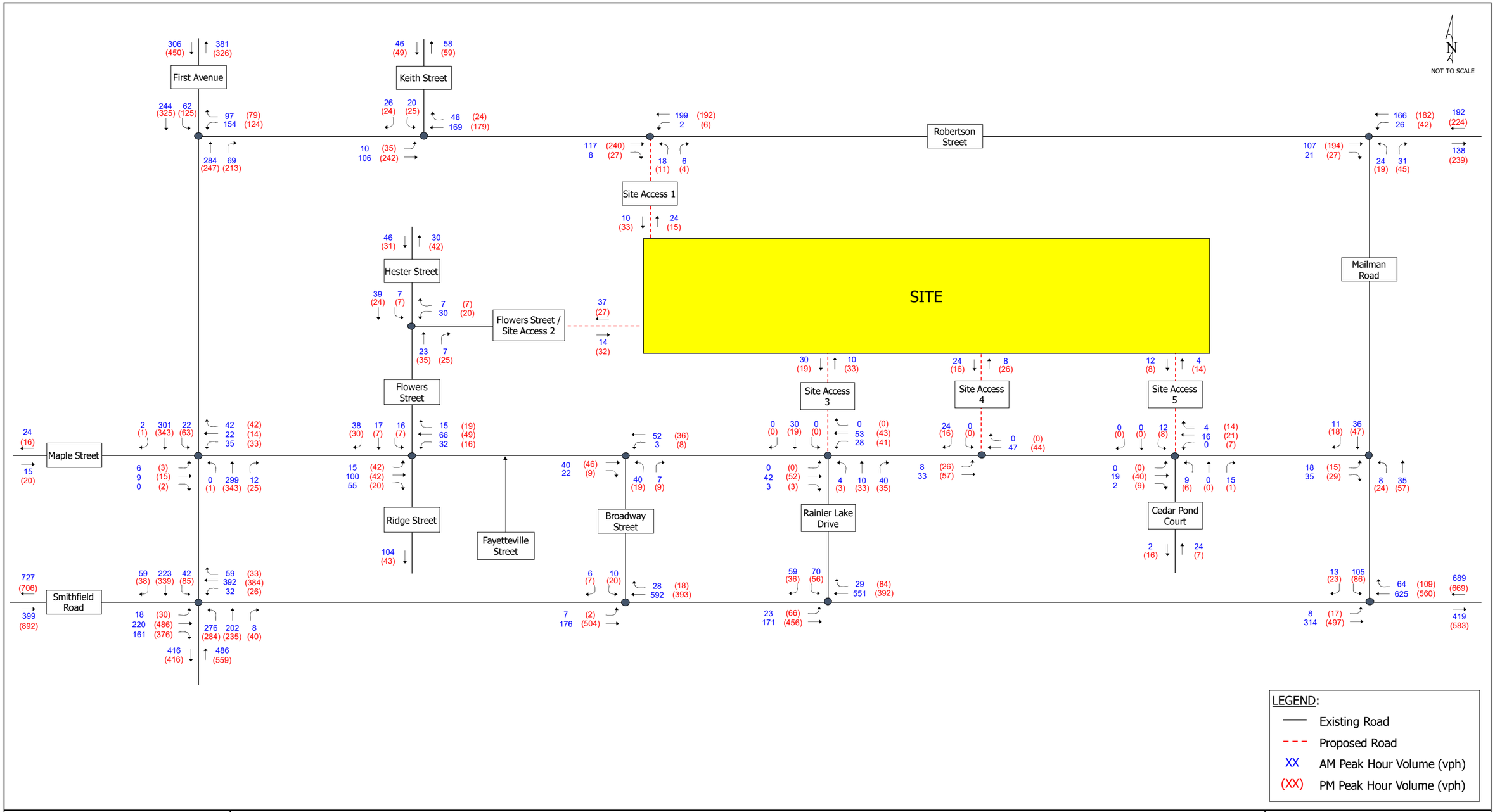


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Harper Fayetteville Street Traffic Impact Analysis

2026 Build Traffic Volumes

Figure 5-1



TIMMONS GROUP
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Harper Fayetteville Street Traffic Impact Analysis

2036 Build Traffic Volumes

Figure 5-2

6 BACKGROUND AND BUILD CONDITIONS (NON-APPROVED DEVELOPMENT TRAFFIC)

Per the scoping information (see **Appendix A**), the City of Knightdale requested that additional analyses be performed for Background and Build Conditions with the addition of non-approved development site traffic. Provided below are these additional analyses.

Currently there are three (3) known non-approved developments in the project study area: Mailman Post Development, Project Hope Development, and Baker Roofing HQ Development (see **Appendix G**). Listed below are the site trip distribution assumptions, and proposed offsite improvements.

- Mailman Post Development
  - TIA memorandum completed by VHB (March 15th, 2022)
  - Located east of Mailman Road
  - 150 Single-Family Housing
  - Trip Distribution assumed to follow patterns described in the memorandum and Engineering judgement
- Project Hope Development
  - Site plan developed by McAdams
  - Located east of Mailman Road and south of Knightdale Eagle Rock Road
  - 164 Single-Family Housing, 134 Multi-Family Housing (apartments), and 0.95 acre commercial space
  - Trip Distribution assumed to follow patterns based on existing traffic volumes and Engineering judgement
- Baker Roofing HQ Development
  - Memorandum completed by Kimley-Horn and Associates – Sealed 11/6/2021
  - Located east of Keith Street and north of Robertson Street
  - 220,000 square foot warehouse space, 145,000 square foot specialty trade contractor space, 200 hotel rooms, 20,000 square foot general office building space, 22,000 square-feet general commercial, 4,000 square-foot restaurant, and gas station with 16 fueling positions.
  - Trip Distribution assumed to follow patterns described in the memorandum and Engineering judgement

Projected and distributed trip volumes from the three non-approved area developments (see **Appendix G**) are located in **Figure 6-1**. These trips were added to the 2026 background volumes (**Figure 3-4**) to determine the 2026 Background with Non-Approved Developments traffic volumes (see **Figure 6-2**).

6.1 2026 BACKGROUND ANALYSIS (WITH NON- APPROVED DEVELOPMENT TRAFFIC)

Table 6-1 summarizes the 2026 Background with Non-Approved Developments intersection LOS and delay based on the geometry shown in **Figure 2-2**, and the 2026 Background with Non-Approved Developments traffic volumes shown in **Figure 6-2**. The corresponding SYNCHRO output is included in **Appendix D**.

For the following intersections, all unsignalized intersection movements are projected to operate at a LOS D or better during the 2026 Background with Non-Approved Developments AM and PM peak hours.

- Robertson Street / Keith Street
- Robertson Street / Mailman Road
- Maple Street / Fayetteville Street / First Avenue
- Flowers Street / Ridge Street / Fayetteville Street
- Flowers Street / Hester Street
- Fayetteville Street / Broadway Street
- Fayetteville Street / Rainier Lake Drive
- Fayetteville Street / Cedar Pond Court
- Fayetteville Street / Mailman Road
- Smithfield Road / Broadway Street
- Smithfield Road / Rainier Lake Drive

The westbound First Avenue / Robertson Street unsignalized intersection approach is projected to operate at a LOS F during the 2026 Background with Non-Approved Developments PM peak hour. All other intersection movements are projected to operate at a LOS D or better.

The signalized intersection of First Avenue / Smithfield Road is projected to operate at a LOS C and LOS F during the 2026 Background with Non-Approved Developments AM and PM peak hours, respectively. The east, north, and southbound intersection approaches are projected to operate unacceptably during one or both analyzed peak hours. All other intersection approaches are projected to operate at a LOS C or better.

The southbound Smithfield Road / Mailman Road unsignalized intersection movement is projected to operate unacceptably during the 2026 Background with Non-Approved Developments AM and PM peak hours. All other intersection movements are projected to operate at a LOS A.

Table 6-1: Intersection Level of Service and Delay Summary
2026 Background with Non-Approved Developments Traffic Volumes

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
1: N First Avenue & Robertson Street	WB Approach	28.4	D	***50.8***	***F***
	NB Approach	0.0	A	0.0	A
	SB Approach	1.8	A	2.9	A
2: Robertson Street & Keith Street	EB Approach	0.6	A	0.8	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.5	B	11.5	B
4: Mailman Road & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.9	A	1.7	A
	NB Approach	11.0	B	12.5	B
5: N First Avenue & Maple Street/Fayetteville Street	EB Approach	17.7	C	23.8	C
	WB Approach	17.4	C	23.1	C
	NB Approach	0.1	A	0.1	A
	SB Approach	0.7	A	1.5	A
6: Ridge Street / School Driveway/Flowers Street & Fayetteville Street	EB Approach	8.1	A	7.7	A
	WB Approach	8.2	A	7.6	A
	SB Approach	7.9	A	7.4	A
7: Flowers Street & Hester Street	WB Approach	8.7	A	8.7	A
	NB Approach	0.0	A	0.0	A
	SB Approach	1.0	A	1.6	A
8: Broadway Street & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.3	A	0.8	A
	NB Approach	9.7	A	9.5	A
9: Rainier Lake Drive & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.3	A	1.9	A
	NB Approach	8.8	A	9.1	A
11: Cedar Pond Court & Fayetteville Road/Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.5	A	0.8	A
	NB Approach	8.8	A	9.1	A
12: Mailman Road & Fayetteville Street	EB Approach	9.6	A	10.7	B
	NB Approach	1.0	A	1.2	A
	SB Approach	0.0	A	0.0	A
13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road	EB Approach	23.2	C	***96.1***	***F***
	WB Approach	23.9	C	14.6	B
	NB Approach	***60.8***	***E***	***469.8***	***F***
	SB Approach	16.3	B	***61.9***	***E***
	Overall	32.2	C	***158.1***	***F***
14: S Smithfield Road & Broadway Street	EB Approach	0.2	A	0.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	15.5	C	17.9	C
15: S Smithfield Road & Rainier Lake Drive	EB Approach	0.3	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	16.9	C	20.0	C
16: S Smithfield Road & Mailman Road	EB Approach	0.4	A	0.7	A
	WB Approach	0.0	A	0.0	A
	SB Approach	***44.5***	***E***	***63.6***	***F***

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections.

SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

6.2 2026 BUILD TRAFFIC VOLUMES (WITH NON- APPROVED DEVELOPMENT TRAFFIC)

Background with Non-Approved Development traffic volumes (**Figure 6-2**) were added to the projected Harper Fayetteville Street residential development site trips (**Figure 4-2**) to generate the 2026 Build with Non-Approved Developments traffic volumes shown in **Figure 6-3**.

To summarize, the 2026 Build with Non-Approved Development traffic volumes (**Figure 6-3**) contain the following:

- 2022 traffic volumes grown exponentially for four (4) years at a 3% ambient growth rate (**Figure 3-1**);
- Area approved development site trips (**Figure 3-3**);
- Total site trips generated by the subject development (**Figure 4-2**); and
- Non-Approved Development trip distribution volumes (**Figure 6-1**).

6.3 2026 BUILD ANALYSIS (NON-APPROVED DEVELOPMENT TRAFFIC)

Table 6-2 summarizes the intersection LOS and delay based on the geometry shown in **Figure 2-2** and the 2026 Build with Non-Approved Development traffic volumes shown in **Figure 6-3**. The corresponding SYNCHRO output is included in **Appendix D**.

For the following intersections, all unsignalized intersection movements are projected to operate at a LOS D or better during the 2026 Build with Non-Approved Developments AM and PM peak hours. Because all intersection movements are projected to operate acceptably overall during both peak hours, no improvements are recommended at any of the listed intersections.

- Robertson Street / Keith Street
- Robertson Street / Site Access 1
- Robertson Street / Mailman Road
- Maple Street / Fayetteville Street / First Avenue
- Flowers Street / Ridge Street / Fayetteville Street
- Flowers Street / Hester Street / Site Access 2
- Fayetteville Street / Broadway Street
- Fayetteville Street / Rainier Lake Drive / Site Access 3
- Fayetteville Street / Site Access 4
- Fayetteville Street / Cedar Pond Court / Site Access 5
- Fayetteville Street / Mailman Road
- Smithfield Road / Broadway Street
- Smithfield Road / Rainier Lake Drive

The westbound First Avenue / Robertson Street unsignalized intersection movement is projected to operate at a LOS F during the 2026 Build with Non-Approved Developments PM peak hour. All other intersection movements are projected to operate at a LOS D or better. Intersection approach volume / capacity ratios are not projected to exceed 0.90. No improvements are recommended at this intersection to the Development's construction.

The signalized intersection of First Avenue / Smithfield Road is projected to operate at a LOS D and LOS F during the 2026 Build with Non-Approved Developments AM and PM peak hours, respectively. The east and southbound intersection approaches are projected to operate unacceptably during the PM peak hour.

The northbound intersection approach is projected to operate unacceptably during the AM and PM peak hours. All other intersection approaches are projected to operate at a LOS C or better. For the reasons discussed in **Section 5.2** above, no improvements are recommended at this intersection due to the proposed development's construction.

The southbound Smithfield Road / Mailmain Road unsignalized intersection movement is projected to operate at a LOS E and LOS F during the 2026 Build with Non-Approved Developments AM and PM peak hours, respectively. All other intersection movements are projected to operate at a LOS A. Intersection approach volume / capacity ratios are not projected to exceed 0.90. No improvements are recommended at this intersection to the Development's construction.

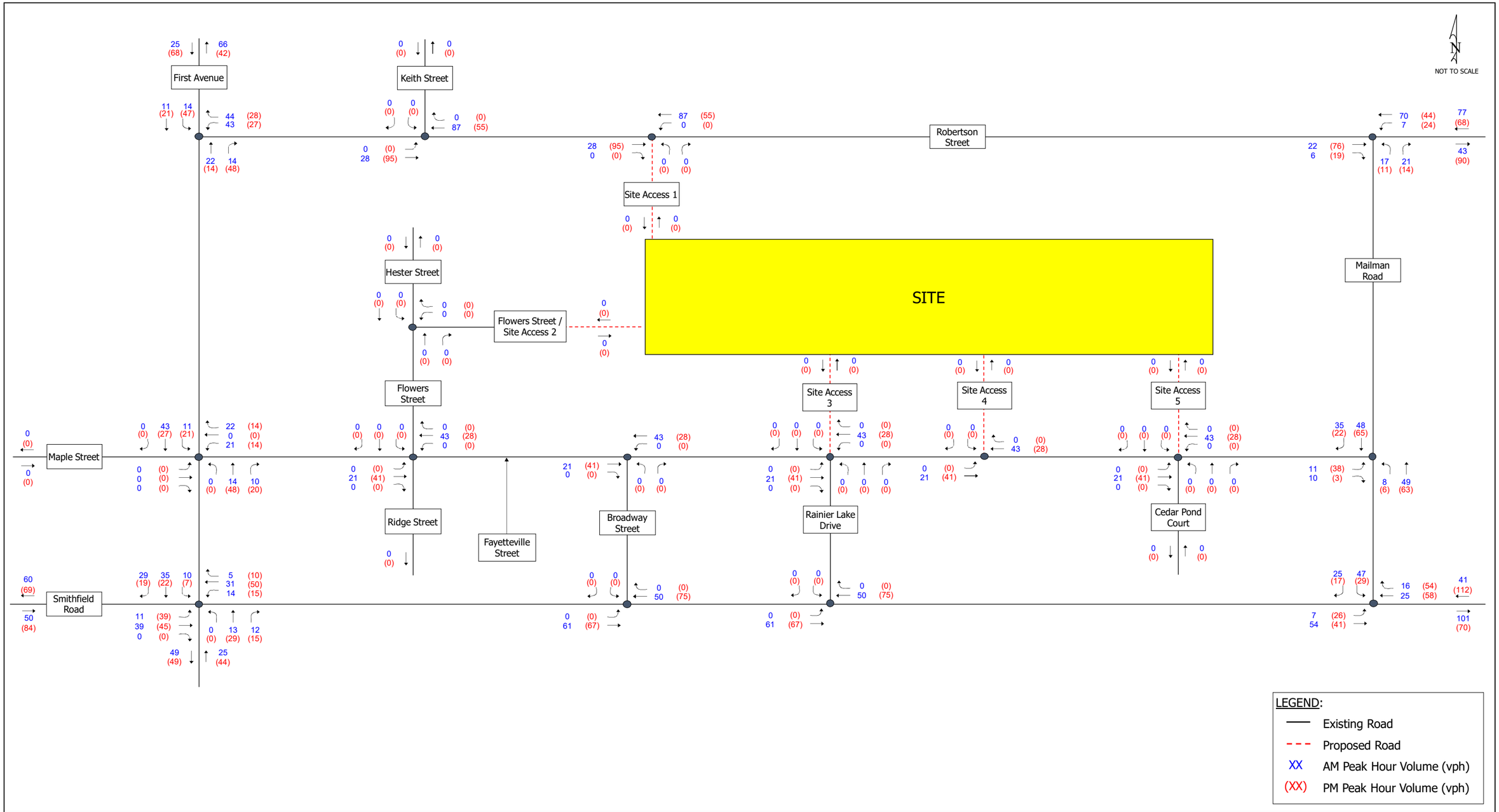
Table 6-2: Intersection Level of Service and Delay Summary
2026 Build with Non-Approved Developments Traffic Volumes

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
1: N First Avenue & Robertson Street	WB Approach	31.2	D	***65.6***	***F***
	NB Approach	0.0	A	0.0	A
	SB Approach	2.0	A	3.1	A
2: Robertson Street & Keith Street	EB Approach	0.6	A	0.8	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.7	B	12.0	B
3: Site Access 1 & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.1	A	0.2	A
	NB Approach	11.1	B	12.7	B
4: Mailman Road & Robertson Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.9	A	1.9	A
	NB Approach	11.0	B	12.7	B
5: N First Avenue & Maple Street/Fayetteville Street	EB Approach	18.0	C	25.8	D
	WB Approach	21.4	C	31.8	D
	NB Approach	0.1	A	0.1	A
	SB Approach	0.7	A	1.6	A
6: Ridge Street / School Driveway/Flowers Street & Fayetteville Street	EB Approach	8.3	A	8.0	A
	WB Approach	8.3	A	7.7	A
	SB Approach	7.9	A	7.4	A
7: Flowers Street/Hester Street & Flowers Street / Site Access 2	WB Approach	9.1	A	9.1	A
	NB Approach	0.0	A	0.0	A
	SB Approach	1.0	A	1.6	A
8: Broadway Street & Fayetteville Street	EB Approach	0.0	A	0.0	A
	WB Approach	0.3	A	0.8	A
	NB Approach	9.7	A	9.5	A
9: Rainier Lake Drive/Site Access 3 & Fayetteville Street	EB Approach	0.4	A	0.3	A
	WB Approach	1.7	A	2.7	A
	NB Approach	9.3	A	10.1	B
	SB Approach	10.8	B	10.9	B
10: Fayetteville Street & Site Access 4	EB Approach	1.0	A	1.6	A
	WB Approach	0.0	A	0.0	A
	SB Approach	9.0	A	9.0	A
11: Cedar Pond Court/Site Access 5 & Fayetteville Road/Fayetteville Street	EB Approach	0.6	A	0.3	A
	WB Approach	0.4	A	0.7	A
	NB Approach	9.1	A	9.6	A
	SB Approach	9.4	A	9.6	A
12: Mailman Road & Fayetteville Street	EB Approach	9.8	A	10.9	B
	NB Approach	1.2	A	1.5	A
	SB Approach	0.0	A	0.0	A
13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road	EB Approach	21.0	C	***123.7***	***F***
	WB Approach	24.7	C	15.9	B
	NB Approach	***103.0***	***F***	***523.3***	***F***
	SB Approach	19.7	B	***73.3***	***E***
	Overall	43.6	D	***184.2***	***F***
14: S Smithfield Road & Broadway Street	EB Approach	0.2	A	0.1	A
	WB Approach	0.0	A	0.0	A
	SB Approach	16.4	C	19.5	C
15: S Smithfield Road & Rainier Lake Drive	EB Approach	0.8	A	1.0	A
	WB Approach	0.0	A	0.0	A
	SB Approach	18.9	C	23.0	C
16: S Smithfield Road & Mailman Road	EB Approach	0.4	A	0.7	A
	WB Approach	0.0	A	0.0	A
	SB Approach	***49.5***	***E***	***74.8***	***F***

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

** Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for signalized intersections.

+ Delay greater than 9999.99 seconds cannot be calculated by SYNCHRO for unsignalized intersections. SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

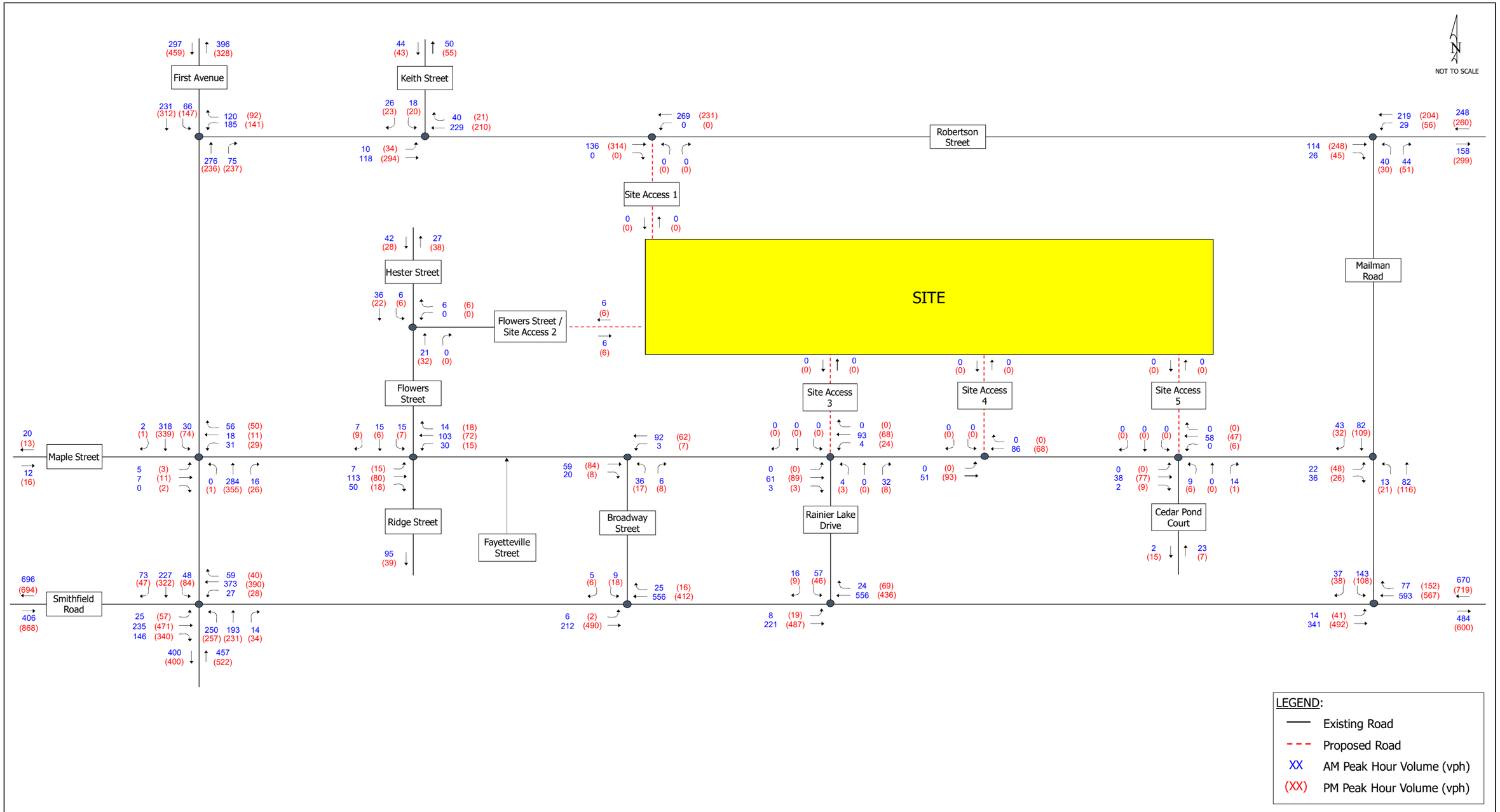


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Harper Fayetteville Street Traffic Impact Analysis

Non-Approved Development Trip Distribution Volumes

Figure 6-1

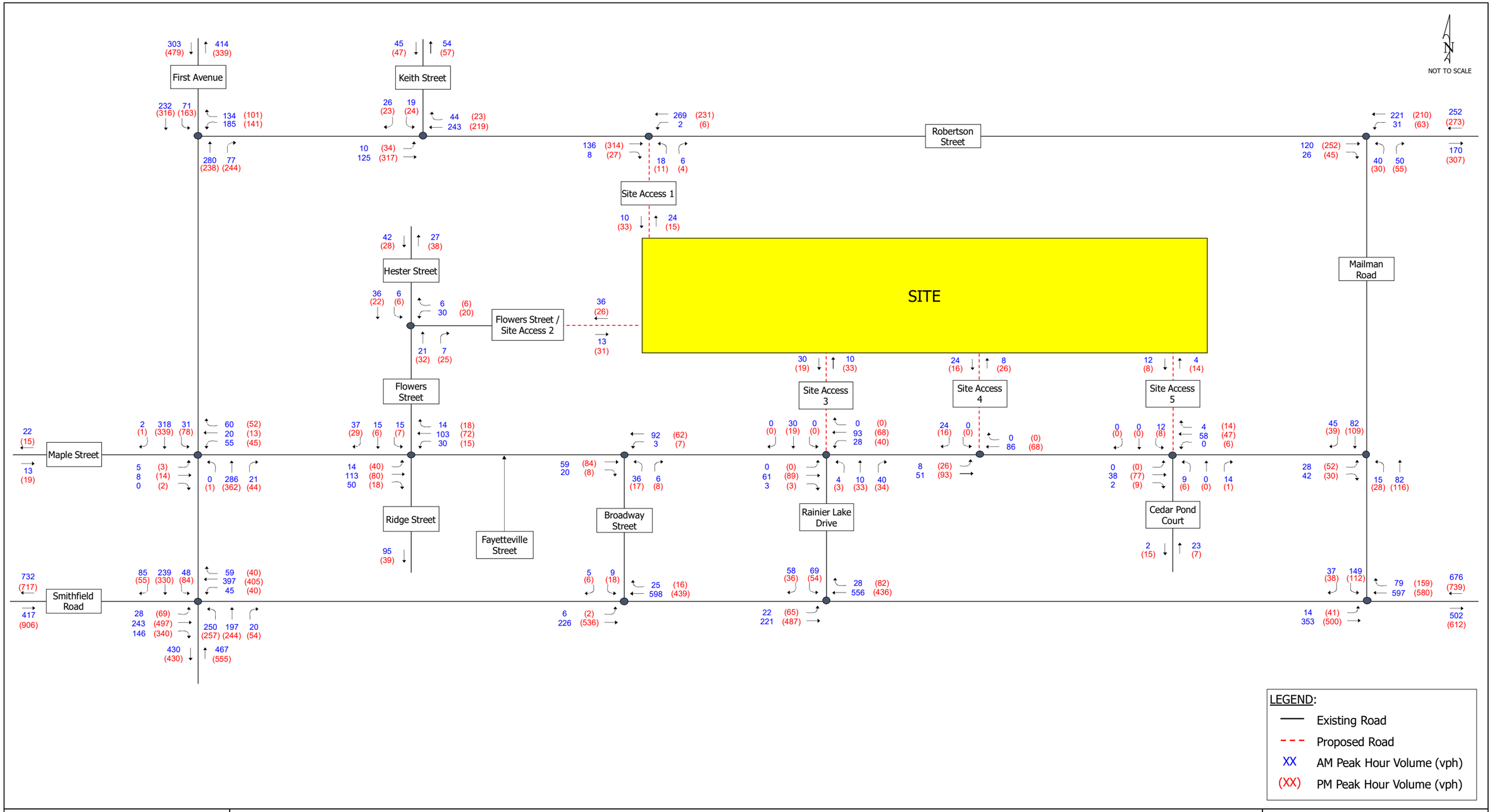


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Harper Fayetteville Street Traffic Impact Analysis

2026 Background with Non-Approved Development Traffic Volumes

Figure 6-2



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Harper Fayetteville Street Traffic Impact Analysis

2026 Build with Non-Approved Developments Traffic Volumes

Figure 6-3

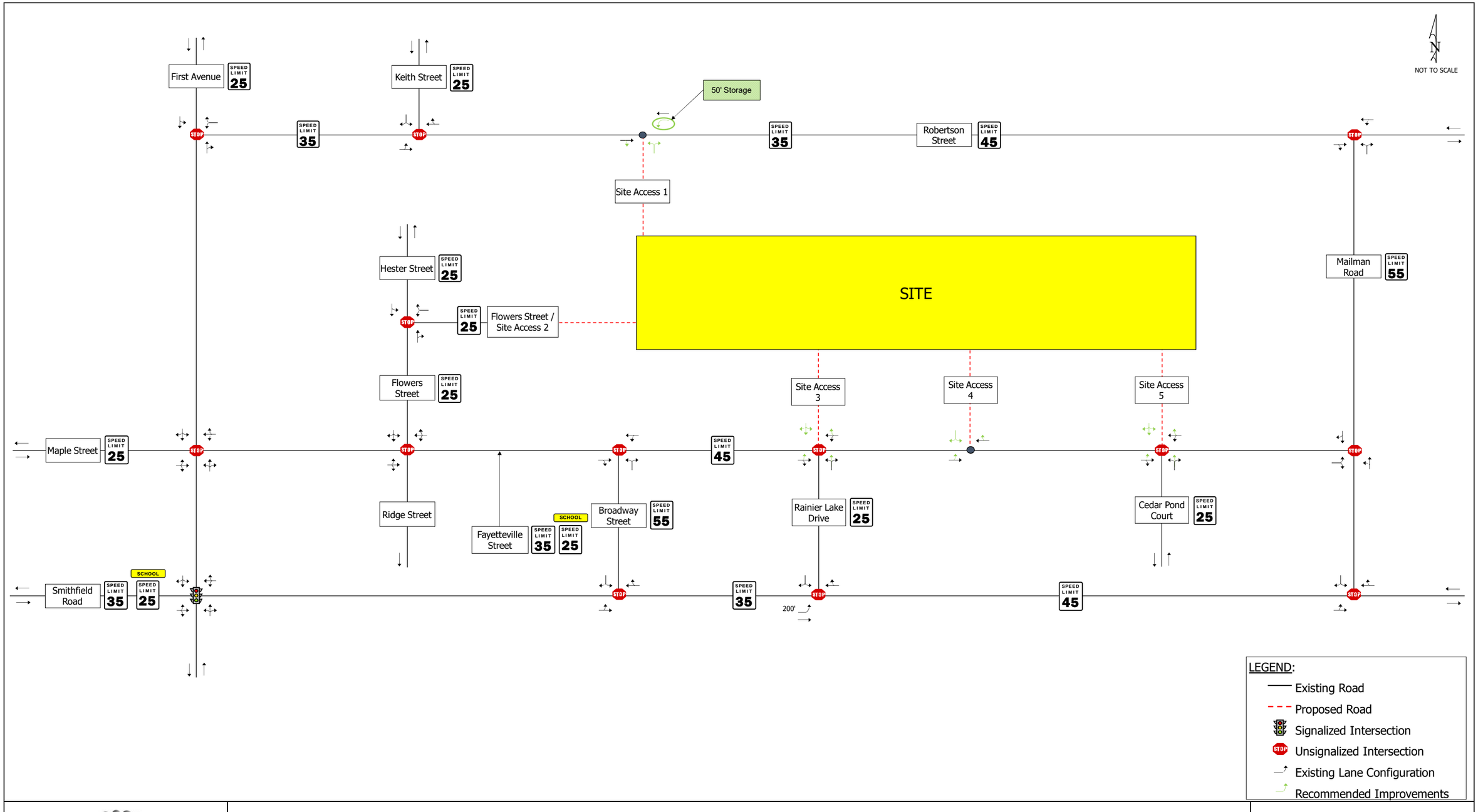
7 CONCLUSIONS AND RECOMMENDATIONS

Capacity analyses were performed for the following scenarios:

- 2022 Existing
- 2026 Background (existing + ambient growth + approved development traffic)
- 2026 Build (Background + site trips)
- 2036 Horizon Build (existing + ambient growth + approved development traffic)
- 2026 Background with Non-Approved Development Traffic
- 2026 Build with Non-Approved Development Traffic

In closing, the following improvements (see **Figure 7-1**) are recommended in conjunction with the construction of the proposed development:

- Robertson Street / Site Access 1
    - 50-foot westbound left-turn lane (with appropriate taper)



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Harper Fayetteville Street Traffic Impact Analysis

2026 Proposed Lane Configuration

Figure 7-1

Appendix A – Scoping Information

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Harper Fayetteville Street TIA Meeting Minutes (3/10/22)

Attendees:

Clarence Bunting	NCDOT	cbunting@ncdot.gov
Kevin Lewis	Town of Knightdale	kevin.lewis@knightdalenc.gov
Andrew Spiliotis	Town of Knightdale	andrew.spiliotis@knightdalenc.gov
Beth Blackmon	Timmons Group	beth.blackmon@timmons.com
Jeff Hochanadel	Timmons Group	jeff.hochanadel@timmons.com

Items Discussed:

- Meeting was held to discuss the Harper Fayetteville Street TIA scoping
- The project build-out will include:
  - 71 Townhomes
  - 145 single-family homes
- The project will be constructed by 2025
- Analyses will include:
  - 2021 Existing
  - 2026 Background
  - 2026 Build
  - 2026 Build (with non-approved development traffic)
  - 2036 Future
- The project study area intersections will include the following:
  - Robertson Street / N First Avenue
  - Robertson Street / Keith Street
  - Robertson Street / Site Access 1
  - Robertson Street / Mailman Road
  - Fayetteville Street / N First Avenue
  - Fayetteville Street / Hester Street / Flowers Street / Ridge Street
  - Fayetteville Street / Broadway Street / Heartland Flyer Drive Extension**
  - Fayetteville Street / Rainier Lake Drive / Site Access 2
  - Fayetteville Street / Site Access 3
  - Fayetteville Street / Cedar Pond Court / Site Access 4
  - Fayetteville Street / Mailman Road
  - Smithfield Road / S First Avenue / N First Avenue
  - Smithfield Road / Broadway Street

  ** Heartland Flyer Drive Extension currently shown on property unowned by development
- Flowers Street to be extended into site
- Traffic counts to be conducted when traditional calendar schools are in session (assumed – March 15th, 2022)
- 3% ambient growth rate through 2026 (Build + 1)
- 1% ambient growth rate between 2026 (Build + 1) and 2036 (Build + 10)
- There no approved developments within the study area:
- There are three non-approved developments within the study area:
  - Robertson TIA
    - TIA being completed by Timmons Group
  - Raleigh Rescue Mission
    - Town to provide information to Timmons Group
  - Mailman Post Development
    - Mailman Road / Sawdust Road
- Trip distribution suggestions:
  - Based on existing traffic patterns
- Town has counts at Smithfield Road / Mailman Road
  - Signal recommended by adjacent development

5410 Trinity Rd. Suite 102 | Raleigh, NC 27607
TEL 919.866.4952 FAX 919.859.5663
www.timmons.com
Site Development | Residential | Infrastructure | Technology

- Timmons Group to provide meeting minutes and MOU
- MOU will be provided in lieu of the NCDOT's TIA scoping checklist

March 24, 2022

Memorandum of Understanding (Harper Fayetteville Street TIA)

TO: Andrew Spiliotis
Senior Planner - Transportation
Development Services
Town of Knightdale

FROM: Jeff Hochanadel PE, PTOE
Principal | North Carolina Transportation Group Leader
Timmons Group

SUBJECT: Traffic Impact Analysis (TIA) Scope
Harper Fayetteville Street TIA

Scoping Meeting

A scoping meeting was held on March 10, 2022 between the NCDOT, Town of Knightdale, and Timmons Group to discuss project assumptions for the Harper Fayetteville Street TIA.

Introduction

The proposed development will be located off Fayetteville Street in Knightdale, NC. The proposed development will be built in one phase and is assumed to consist of the following:

- 73 Townhomes
- 143 single family homes

The purpose of this study is to determine the impacts of the proposed development on the existing traffic network.

Study Intersections

The Town of Knightdale recommended the following study area intersection(s):

- Robertson Street / N First Avenue
- Robertson Street / Keith Street
- Robertson Street / Site Access 1
- Robertson Street / Mailman Road
- Fayetteville Street / N First Avenue
- Fayetteville Street / Hester Street / Flowers Street / Ridge Street
- Fayetteville Street / Broadway Street
- Fayetteville Street / Rainier Lake Drive / Site Access 2

- Fayetteville Street / Site Access 3
- Fayetteville Street / Cedar Pond Court / Site Access 4
- Fayetteville Street / Mailman Road
- Smithfield Road / S First Avenue / N First Avenue
- Smithfield Road / Broadway Street
- Carolinian Avenue / Twin Star Lane / Heartland Flyer Drive

Study Scenarios

The study shall consist of the following scenarios as outlined in the scoping meeting.

1. Existing Year (2021)
2. Background + 1 Year (2026)
3. Build-Out + 1 (2026)
4. Build-Out + 1 (2026) with non-approved development traffic
5. Full Build-Out + 10 (2036)

Trip Generation

Provide assumptions pertaining to the following:

1. Existing Traffic Counts
    a. Peak hour assumptions: 7:00 a.m. – 9:00 a.m. and 4:00 p.m. to 6:00 p.m.
    b. Time of day / week / year assumptions: Tuesday – Thursday / School in session
        i. Count date: March 17th, 2022

2. Growth Rate assumptions
    a. 3% ambient growth rate through 2026 (Build + 1)
    b. 1% ambient growth rate between 2026 (Build + 1) and 2036 (Build + 10)

3. Background Developments
    b. Town of Knightdale will provide TIAs for all non-approved area developments
        i. Robertson TIA (Timmons Group to provide)
        ii. Raleigh Rescue Mission
        iii. Mailman Post Development

4. Proposed Development
    a. Trips generated will be determined using the ITE Trip Generation Manual (Institute of Transportation Engineers, 10th Edition, 2021). Trip generation calculated using the proposed number of residential units and provided equation (per NCDOT guidelines).
    b. AM peak hours trips generated total 34 incoming and 107 outgoing where PM peak hour trips totaled 118 incoming and 70 outgoing.

Table 1: Trip Generation Summary

ITE Land Use Code	Independent Variable	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
210 – Single Family Detached Housing	143 DU	1,445	26	80	106	90	53	143
220 – Multifamily Housing (Low-Rise)	73 DU	511	8	27	35	28	17	45
Total:		1,960	34	107	141	118	70	188

SOURCE: Institute of Transportation Engineers' *Trip Generation Manual* 10th Edition (2021)

Trip Distribution / Assignment

The site trip distribution used for this site is currently based on existing annual average daily traffic volumes (AADTs) and engineering judgement. Trip distributions are subject to change based on collection of peak hour counts.

Analysis Methods

General assumptions: All projected trips will follow the approved trip distribution patterns.

Software / Synchro assumptions: Vehicular levels of service analysis will be performed using Synchro, supplemented by SimTraffic (where necessary)

Internal capture assumptions: None

Multi-modal reduction assumptions: No reduction will be assumed due to multi-modal

Heavy Vehicle percentage assumptions: 2%

Signalized Intersections assumptions: Timings will be based on signal plans.

A PHF of 0.90 will be used for all AM and PM analyses.

Appendix B – Traffic Counts



File Name : Knightdale(Fayetteville and Broadway)
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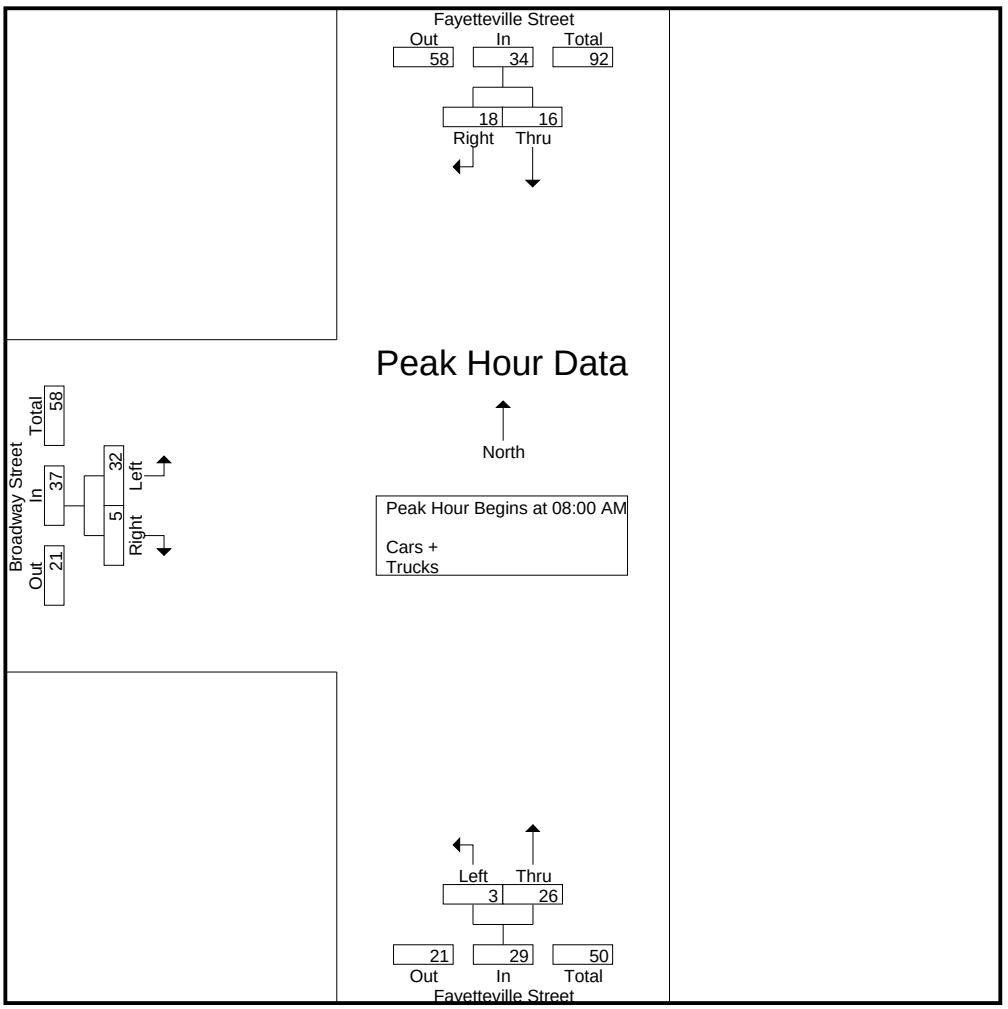
Groups Printed- Cars + - Trucks

	Fayetteville Street Southbound			Fayetteville Street Northbound			Broadway Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
07:00 AM	0	0	0	2	1	3	1	0	1	4
07:15 AM	1	1	2	5	0	5	1	1	2	9
07:30 AM	1	1	2	6	2	8	0	3	3	13
07:45 AM	4	3	7	5	0	5	0	2	2	14
Total	6	5	11	18	3	21	2	6	8	40
08:00 AM	1	3	4	4	2	6	1	5	6	16
08:15 AM	3	3	6	4	0	4	1	7	8	18
08:30 AM	1	3	4	5	0	5	1	10	11	20
08:45 AM	13	7	20	13	1	14	2	10	12	46
Total	18	16	34	26	3	29	5	32	37	100
Grand Total	24	21	45	44	6	50	7	38	45	140
Apprch %	53.3	46.7		88	12		15.6	84.4		
Total %	17.1	15	32.1	31.4	4.3	35.7	5	27.1	32.1	
Cars +	22	20	42	43	4	47	5	37	42	131
% Cars +	91.7	95.2	93.3	97.7	66.7	94	71.4	97.4	93.3	93.6
Trucks	2	1	3	1	2	3	2	1	3	9
% Trucks	8.3	4.8	6.7	2.3	33.3	6	28.6	2.6	6.7	6.4

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Broadway)
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	Fayetteville Street Southbound			Fayetteville Street Northbound			Broadway Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	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 08:00 AM										
08:00 AM	1	3	4	4	**2**	6	1	5	6	16
08:15 AM	3	3	6	4	0	4	1	7	8	18
08:30 AM	1	3	4	5	0	5	1	**10**	11	20
08:45 AM	**13**	**7**	**20**	**13**	1	**14**	**2**	10	**12**	**46**
Total Volume	18	16	34	26	3	29	5	32	37	100
% App. Total	52.9	47.1		89.7	10.3		13.5	86.5		
PHF	.346	.571	.425	.500	.375	.518	.625	.800	.771	.543



TRAFFIC DATA COLLECTION

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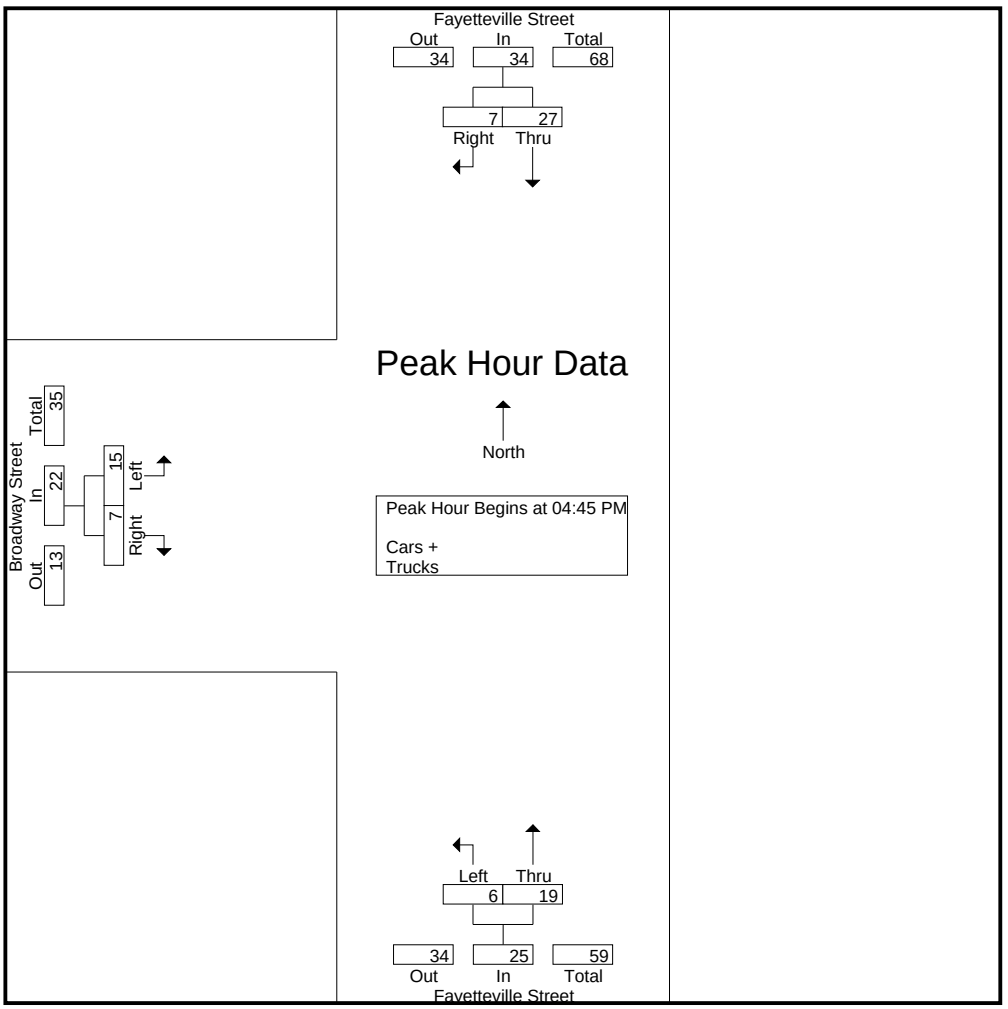
Groups Printed- Cars + - Trucks

	Fayetteville Street Southbound			Fayetteville Street Northbound			Broadway Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
04:00 PM	5	2	7	6	0	6	1	4	5	18
04:15 PM	9	4	13	3	2	5	1	2	3	21
04:30 PM	3	6	9	3	0	3	1	3	4	16
04:45 PM	1	5	6	7	3	10	3	3	6	22
Total	18	17	35	19	5	24	6	12	18	77
05:00 PM	0	4	4	4	0	4	1	3	4	12
05:15 PM	4	8	12	2	0	2	2	6	8	22
05:30 PM	2	10	12	6	3	9	1	3	4	25
05:45 PM	3	5	8	4	0	4	1	3	4	16
Total	9	27	36	16	3	19	5	15	20	75
Grand Total	27	44	71	35	8	43	11	27	38	152
Apprch %	38	62		81.4	18.6		28.9	71.1		
Total %	17.8	28.9	46.7	23	5.3	28.3	7.2	17.8	25	
Cars +	27	43	70	34	7	41	11	26	37	148
% Cars +	100	97.7	98.6	97.1	87.5	95.3	100	96.3	97.4	97.4
Trucks	0	1	1	1	1	2	0	1	1	4
% Trucks	0	2.3	1.4	2.9	12.5	4.7	0	3.7	2.6	2.6

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Broadway)
Site Code :
Start Date : 3/17/2022

	Fayetteville Street Southbound			Fayetteville Street Northbound			Broadway Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	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	1	5	6	**7**	**3**	**10**	**3**	3	6	22
05:00 PM	0	4	4	4	0	4	1	3	4	12
05:15 PM	**4**	8	**12**	2	0	2	2	**6**	**8**	22
05:30 PM	2	**10**	12	6	3	9	1	3	4	**25**
Total Volume	7	27	34	19	6	25	7	15	22	81
% App. Total	20.6	79.4		76	24		31.8	68.2		
PHF	.438	.675	.708	.679	.500	.625	.583	.625	.688	.810



TRAFFIC DATA COLLECTION

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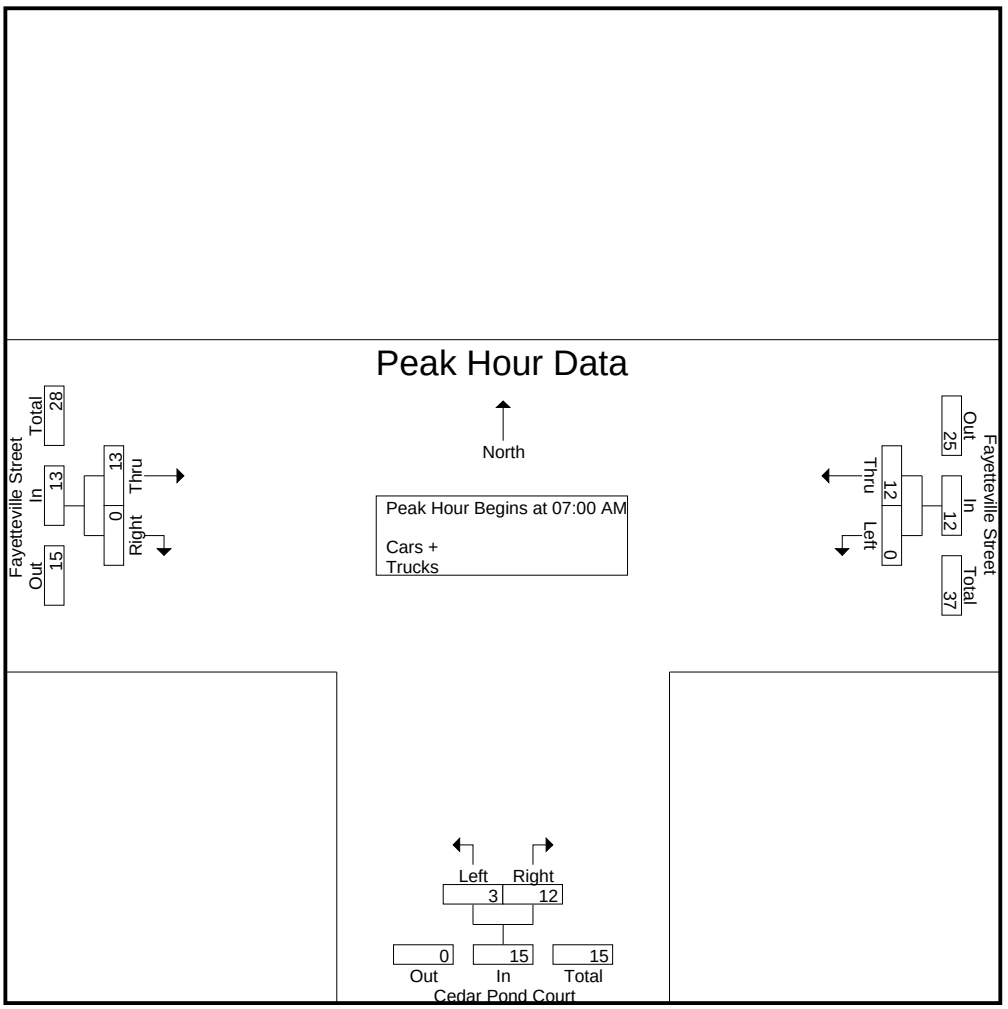
Groups Printed- Cars + - Trucks

	Fayetteville Street Westbound			Cedar Pond Court Northbound			Fayetteville Street Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	1	0	1	1	2	3	0	5	5	9
07:15 AM	2	0	2	4	0	4	0	3	3	9
07:30 AM	6	0	6	3	0	3	0	1	1	10
07:45 AM	3	0	3	4	1	5	0	4	4	12
Total	12	0	12	12	3	15	0	13	13	40
08:00 AM	4	0	4	0	0	0	0	2	2	6
08:15 AM	4	0	4	0	0	0	0	2	2	6
08:30 AM	4	0	4	0	0	0	0	3	3	7
08:45 AM	10	0	10	1	0	1	0	7	7	18
Total	22	0	22	1	0	1	0	14	14	37
Grand Total	34	0	34	13	3	16	0	27	27	77
Apprch %	100	0		81.2	18.8		0	100		
Total %	44.2	0	44.2	16.9	3.9	20.8	0	35.1	35.1	
Cars +	31	0	31	13	3	16	0	25	25	72
% Cars +	91.2	0	91.2	100	100	100	0	92.6	92.6	93.5
Trucks	3	0	3	0	0	0	0	2	2	5
% Trucks	8.8	0	8.8	0	0	0	0	7.4	7.4	6.5

TRAFFIC DATA COLLECTION

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	Fayetteville Street Westbound			Cedar Pond Court Northbound			Fayetteville Street Eastbound			
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	1	0	1	1	**2**	3	0	**5**	**5**	9
07:15 AM	2	0	2	**4**	0	4	0	3	3	9
07:30 AM	**6**	0	**6**	3	0	3	0	1	1	10
07:45 AM	3	0	3	4	1	**5**	0	4	4	**12**
Total Volume	12	0	12	12	3	15	0	13	13	40
% App. Total	100	0		80	20		0	100		
PHF	.500	.000	.500	.750	.375	.750	.000	.650	.650	.833



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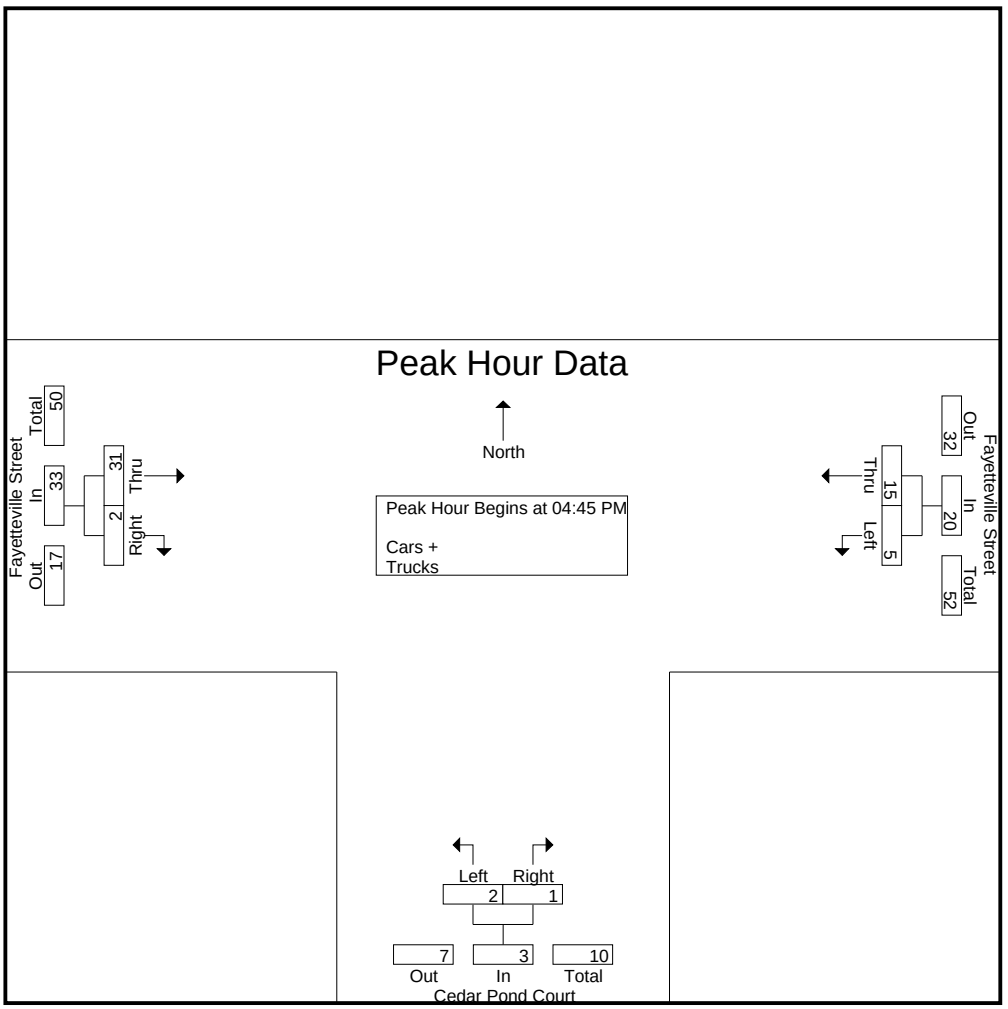
Groups Printed- Cars + - Trucks

	Fayetteville Street Westbound			Cedar Pond Court Northbound			Fayetteville Street Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	2	0	2	0	0	0	0	3	3	5
04:15 PM	3	1	4	0	0	0	0	4	4	8
04:30 PM	4	1	5	1	0	1	1	5	6	12
04:45 PM	6	4	10	1	1	2	1	4	5	17
Total	15	6	21	2	1	3	2	16	18	42
05:00 PM	5	0	5	0	0	0	0	6	6	11
05:15 PM	2	1	3	0	0	0	0	7	7	10
05:30 PM	2	0	2	0	1	1	1	14	15	18
05:45 PM	3	2	5	0	0	0	1	4	5	10
Total	12	3	15	0	1	1	2	31	33	49
Grand Total	27	9	36	2	2	4	4	47	51	91
Apprch %	75	25		50	50		7.8	92.2		
Total %	29.7	9.9	39.6	2.2	2.2	4.4	4.4	51.6	56	
Cars +	26	9	35	2	2	4	4	47	51	90
% Cars +	96.3	100	97.2	100	100	100	100	100	100	98.9
Trucks	1	0	1	0	0	0	0	0	0	1
% Trucks	3.7	0	2.8	0	0	0	0	0	0	1.1

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Cedar Pond)
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	Fayetteville Street Westbound			Cedar Pond Court Northbound			Fayetteville Street Eastbound			
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	**6**	**4**	**10**	**1**	**1**	**2**	**1**	4	5	17
05:00 PM	5	0	5	0	0	0	0	6	6	11
05:15 PM	2	1	3	0	0	0	0	7	7	10
05:30 PM	2	0	2	0	1	1	1	**14**	**15**	**18**
Total Volume	15	5	20	1	2	3	2	31	33	56
% App. Total	75	25		33.3	66.7		6.1	93.9		
PHF	.625	.313	.500	.250	.500	.375	.500	.554	.550	.778



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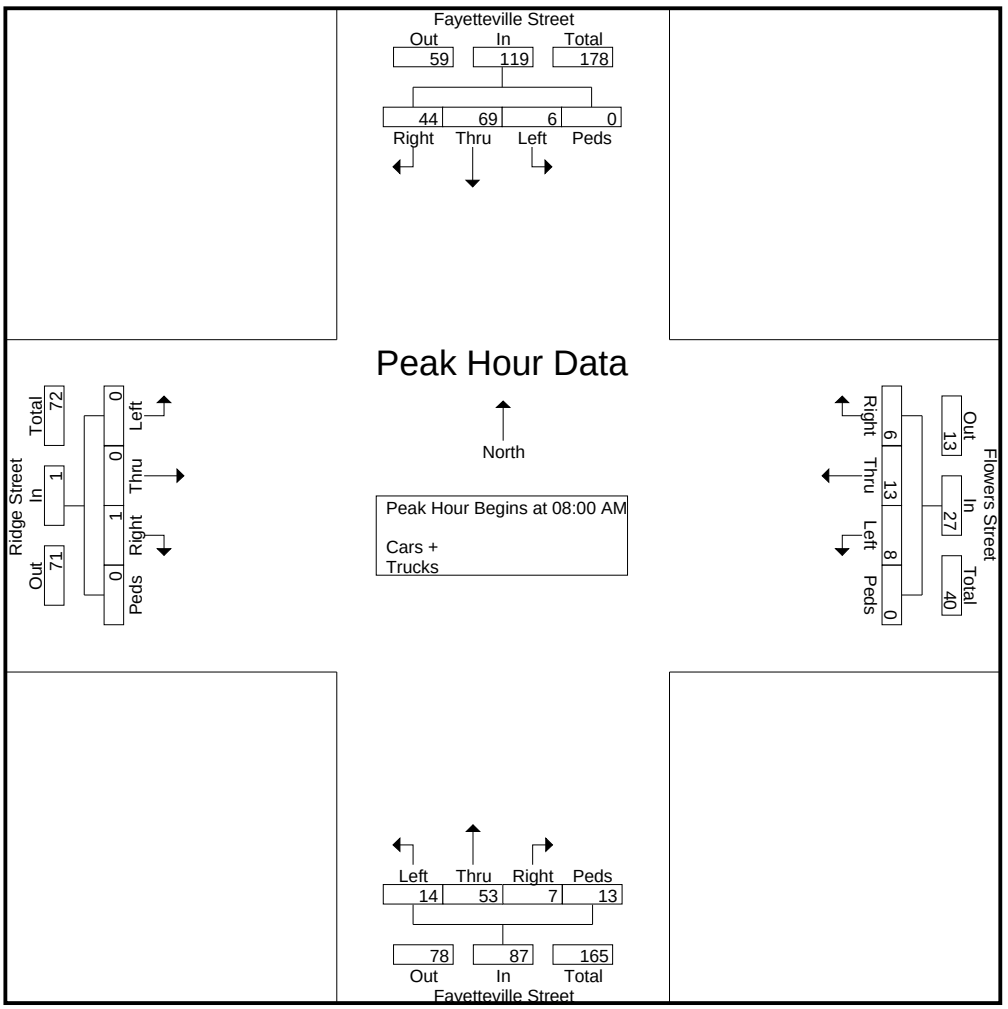
Groups Printed- Cars + - Trucks

	Fayetteville Street Southbound					Flowers Street Westbound					Fayetteville Street Northbound					Ridge Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	2	1	0	0	3	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	6
07:15 AM	1	2	1	0	4	1	3	0	0	4	0	6	0	0	6	0	0	0	0	0	14
07:30 AM	1	1	2	0	4	1	1	1	0	3	0	7	1	0	8	0	0	0	0	0	15
07:45 AM	4	12	1	0	17	3	1	3	0	7	2	4	1	0	7	0	0	0	0	0	31
Total	8	16	4	0	28	6	5	4	0	15	2	19	2	0	23	0	0	0	0	0	66
08:00 AM	8	5	1	0	14	2	2	1	0	5	0	4	2	0	6	0	0	0	0	0	25
08:15 AM	10	9	1	0	20	2	1	2	0	5	2	1	3	0	6	1	0	0	0	1	32
08:30 AM	7	20	1	0	28	1	5	2	0	8	2	2	3	0	7	0	0	0	0	0	43
08:45 AM	19	35	3	0	57	1	5	3	0	9	3	46	6	13	68	0	0	0	0	0	134
Total	44	69	6	0	119	6	13	8	0	27	7	53	14	13	87	1	0	0	0	1	234
Grand Total	52	85	10	0	147	12	18	12	0	42	9	72	16	13	110	1	0	0	0	1	300
Apprch %	35.4	57.8	6.8	0		28.6	42.9	28.6	0		8.2	65.5	14.5	11.8		100	0	0	0		
Total %	17.3	28.3	3.3	0	49	4	6	4	0	14	3	24	5.3	4.3	36.7	0.3	0	0	0	0.3	
Cars +	52	85	10	0	147	12	18	12	0	42	9	72	16	13	110	1	0	0	0	1	300
% Cars +	100	100	100	0	100	100	100	100	0	100	100	100	100	100	100	100	0	0	0	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TRAFFIC DATA COLLECTION

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	Fayetteville Street Southbound					Flowers Street Westbound					Fayetteville Street Northbound					Ridge Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	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 08:00 AM																					
08:00 AM	8	5	1	0	14	**2**	2	1	0	5	0	4	2	0	6	0	0	0	0	0	25
08:15 AM	10	9	1	0	20	2	1	2	0	5	2	1	3	0	6	**1**	0	0	0	**1**	32
08:30 AM	7	20	1	0	28	1	**5**	2	0	8	2	2	3	0	7	0	0	0	0	0	43
08:45 AM	**19**	**35**	**3**	0	**57**	1	5	**3**	0	**9**	**3**	**46**	**6**	**13**	**68**	0	0	0	0	0	**134**
Total Volume	44	69	6	0	119	6	13	8	0	27	7	53	14	13	87	1	0	0	0	1	234
% App. Total	37	58	5	0		22.2	48.1	29.6	0		8	60.9	16.1	14.9		100	0	0	0		
PHF	.579	.493	.500	.000	.522	.750	.650	.667	.000	.750	.583	.288	.583	.250	.320	.250	.000	.000	.000	.250	.437



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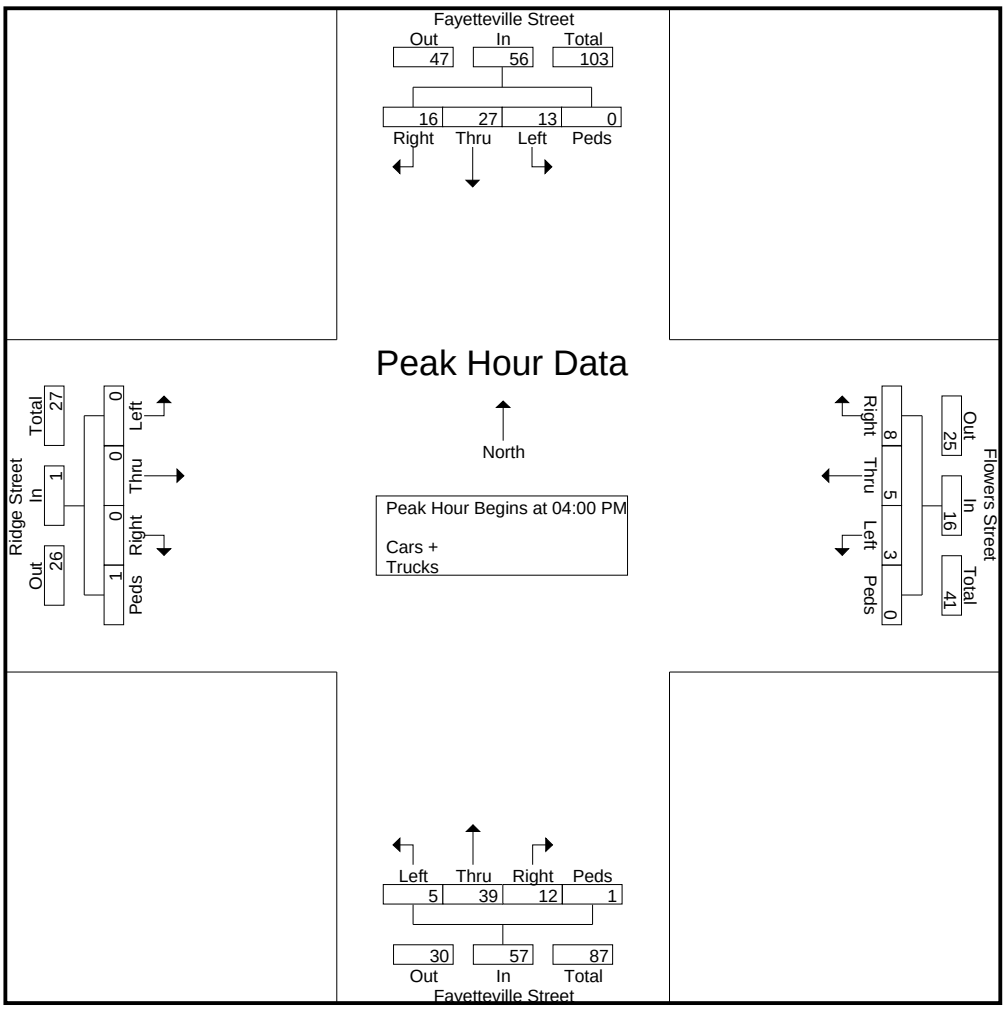
Groups Printed- Cars + - Trucks

	Fayetteville Street Southbound					Flowers Street Westbound					Fayetteville Street Northbound					Ridge Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	2	13	2	0	17	3	2	1	0	6	3	23	1	0	27	0	0	0	0	0	50
04:15 PM	3	3	1	0	7	1	1	1	0	3	1	6	3	1	11	0	0	0	1	1	22
04:30 PM	7	7	6	0	20	2	2	0	0	4	4	6	0	0	10	0	0	0	0	0	34
04:45 PM	4	4	4	0	12	2	0	1	0	3	4	4	1	0	9	0	0	0	0	0	24
Total	16	27	13	0	56	8	5	3	0	16	12	39	5	1	57	0	0	0	1	1	130
05:00 PM	1	4	1	0	6	1	1	0	0	2	1	7	0	0	8	0	0	0	1	1	17
05:15 PM	2	9	1	2	14	2	2	3	0	7	2	3	0	0	5	0	1	0	2	3	29
05:30 PM	3	8	4	0	15	3	0	3	0	6	1	6	1	0	8	0	0	0	0	0	29
05:45 PM	1	8	0	0	9	0	4	1	0	5	1	5	1	0	7	0	0	0	1	1	22
Total	7	29	6	2	44	6	7	7	0	20	5	21	2	0	28	0	1	0	4	5	97
Grand Total	23	56	19	2	100	14	12	10	0	36	17	60	7	1	85	0	1	0	5	6	227
Apprch %	23	56	19	2		38.9	33.3	27.8	0		20	70.6	8.2	1.2		0	16.7	0	83.3		
Total %	10.1	24.7	8.4	0.9	44.1	6.2	5.3	4.4	0	15.9	7.5	26.4	3.1	0.4	37.4	0	0.4	0	2.2	2.6	
Cars +	23	56	19	2	100	14	12	10	0	36	17	60	7	1	85	0	1	0	5	6	227
% Cars +	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	0	100	0	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Hester)
Site Code :
Start Date : 3/17/2022
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	Fayetteville Street Southbound					Flowers Street Westbound					Fayetteville Street Northbound					Ridge Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	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 04:00 PM																					
04:00 PM	2	**13**	2	0	17	**3**	**2**	**1**	0	**6**	3	**23**	1	0	**27**	0	0	0	0	0	**50**
04:15 PM	3	3	1	0	7	1	1	1	0	3	1	6	**3**	**1**	11	0	0	0	**1**	**1**	22
04:30 PM	**7**	7	**6**	0	**20**	2	2	0	0	4	**4**	6	0	0	10	0	0	0	0	0	34
04:45 PM	4	4	4	0	12	2	0	1	0	3	4	4	1	0	9	0	0	0	0	0	24
Total Volume	16	27	13	0	56	8	5	3	0	16	12	39	5	1	57	0	0	0	1	1	130
% App. Total	28.6	48.2	23.2	0		50	31.2	18.8	0		21.1	68.4	8.8	1.8		0	0	0	100		
PHF	.571	.519	.542	.000	.700	.667	.625	.750	.000	.667	.750	.424	.417	.250	.528	.000	.000	.000	.250	.250	.650



TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Mailman)
Site Code :
Start Date : 3/17/2022
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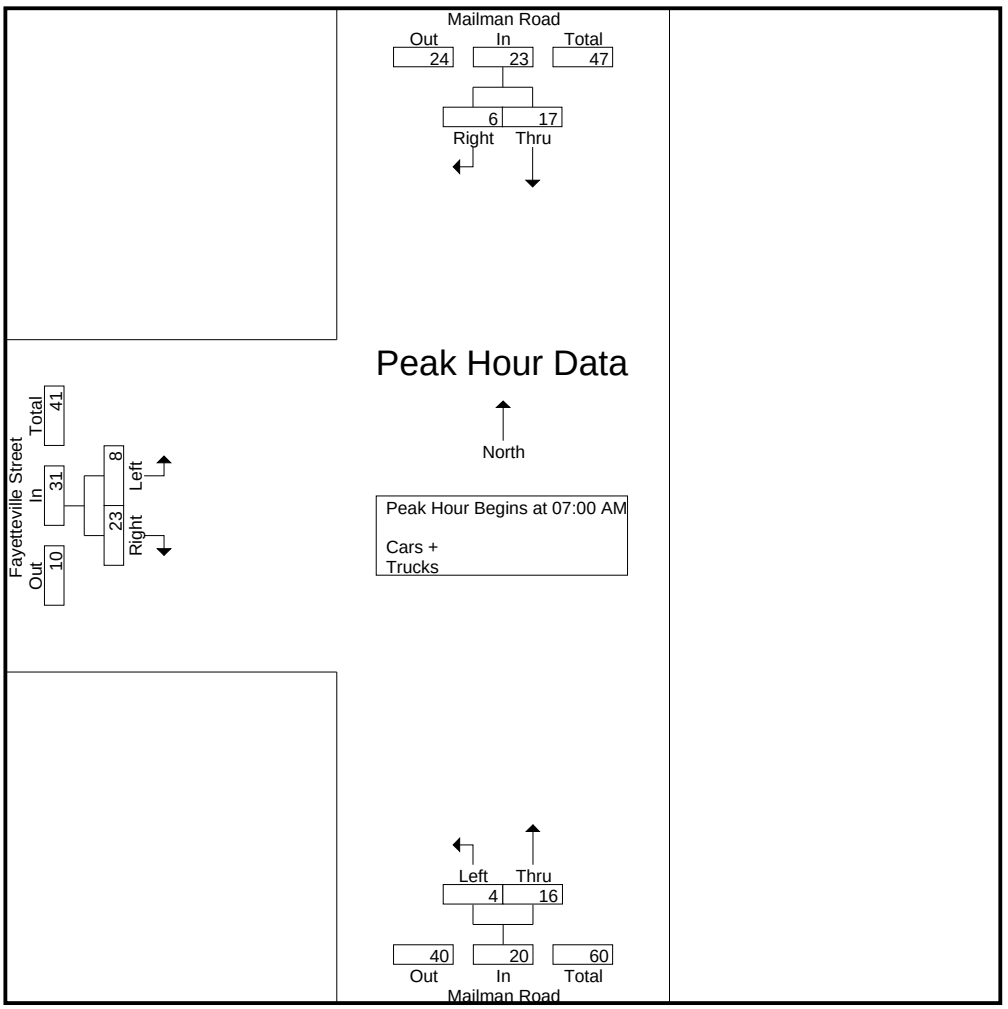
Groups Printed- Cars + - Trucks

	Mailman Road Southbound			Mailman Road Northbound			Fayetteville Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
07:00 AM	1	4	5	3	1	4	6	2	8	17
07:15 AM	0	2	2	2	0	2	6	3	9	13
07:30 AM	3	4	7	6	2	8	4	1	5	20
07:45 AM	2	7	9	5	1	6	7	2	9	24
Total	6	17	23	16	4	20	23	8	31	74
08:00 AM	1	5	6	5	0	5	2	2	4	15
08:15 AM	1	3	4	3	1	4	0	1	1	9
08:30 AM	1	1	2	2	2	4	2	1	3	9
08:45 AM	2	2	4	3	3	6	5	2	7	17
Total	5	11	16	13	6	19	9	6	15	50
Grand Total	11	28	39	29	10	39	32	14	46	124
Apprch %	28.2	71.8		74.4	25.6		69.6	30.4		
Total %	8.9	22.6	31.5	23.4	8.1	31.5	25.8	11.3	37.1	
Cars +	9	26	35	29	9	38	31	13	44	117
% Cars +	81.8	92.9	89.7	100	90	97.4	96.9	92.9	95.7	94.4
Trucks	2	2	4	0	1	1	1	1	2	7
% Trucks	18.2	7.1	10.3	0	10	2.6	3.1	7.1	4.3	5.6

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Mailman)
Site Code :
Start Date : 3/17/2022
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	Mailman Road Southbound			Mailman Road Northbound			Fayetteville Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	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	1	4	5	3	1	4	6	2	8	17
07:15 AM	0	2	2	2	0	2	6	**3**	**9**	13
07:30 AM	**3**	4	7	**6**	**2**	**8**	4	1	5	20
07:45 AM	2	**7**	**9**	5	1	6	**7**	2	9	**24**
Total Volume	6	17	23	16	4	20	23	8	31	74
% App. Total	26.1	73.9		80	20		74.2	25.8		
PHF	.500	.607	.639	.667	.500	.625	.821	.667	.861	.771



TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Mailman)
Site Code :
Start Date : 3/17/2022
Page No : 1

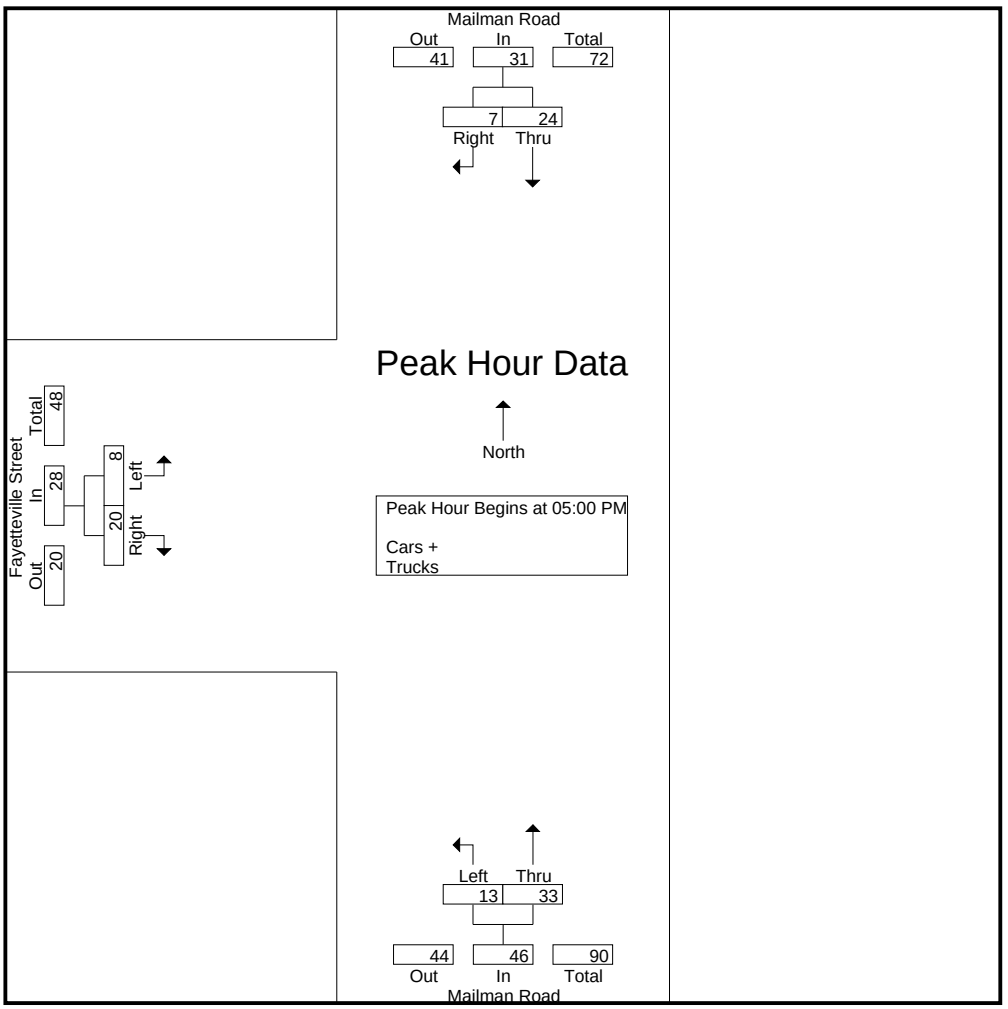
Groups Printed- Cars + - Trucks

	Mailman Road Southbound			Mailman Road Northbound			Fayetteville Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
04:00 PM	1	8	9	5	3	8	1	2	3	20
04:15 PM	2	10	12	9	3	12	3	1	4	28
04:30 PM	1	9	10	7	3	10	3	0	3	23
04:45 PM	4	4	8	5	4	9	1	5	6	23
Total	8	31	39	26	13	39	8	8	16	94
05:00 PM	2	4	6	6	2	8	1	2	3	17
05:15 PM	2	8	10	10	1	11	5	0	5	26
05:30 PM	1	5	6	10	5	15	8	4	12	33
05:45 PM	2	7	9	7	5	12	6	2	8	29
Total	7	24	31	33	13	46	20	8	28	105
Grand Total	15	55	70	59	26	85	28	16	44	199
Apprch %	21.4	78.6		69.4	30.6		63.6	36.4		
Total %	7.5	27.6	35.2	29.6	13.1	42.7	14.1	8	22.1	
Cars +	15	52	67	58	25	83	28	16	44	194
% Cars +	100	94.5	95.7	98.3	96.2	97.6	100	100	100	97.5
Trucks	0	3	3	1	1	2	0	0	0	5
% Trucks	0	5.5	4.3	1.7	3.8	2.4	0	0	0	2.5

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Mailman)
Site Code :
Start Date : 3/17/2022
Page No : 2

	Mailman Road Southbound			Mailman Road Northbound			Fayetteville Street Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	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 05:00 PM										
05:00 PM	**2**	4	6	6	2	8	1	2	3	17
05:15 PM	2	**8**	**10**	**10**	1	11	5	0	5	26
05:30 PM	1	5	6	10	**5**	**15**	**8**	**4**	**12**	**33**
05:45 PM	2	7	9	7	5	12	6	2	8	29
Total Volume	7	24	31	33	13	46	20	8	28	105
% App. Total	22.6	77.4		71.7	28.3		71.4	28.6		
PHF	.875	.750	.775	.825	.650	.767	.625	.500	.583	.795



TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and N 1st)
Site Code :
Start Date : 3/17/2022
Page No : 1

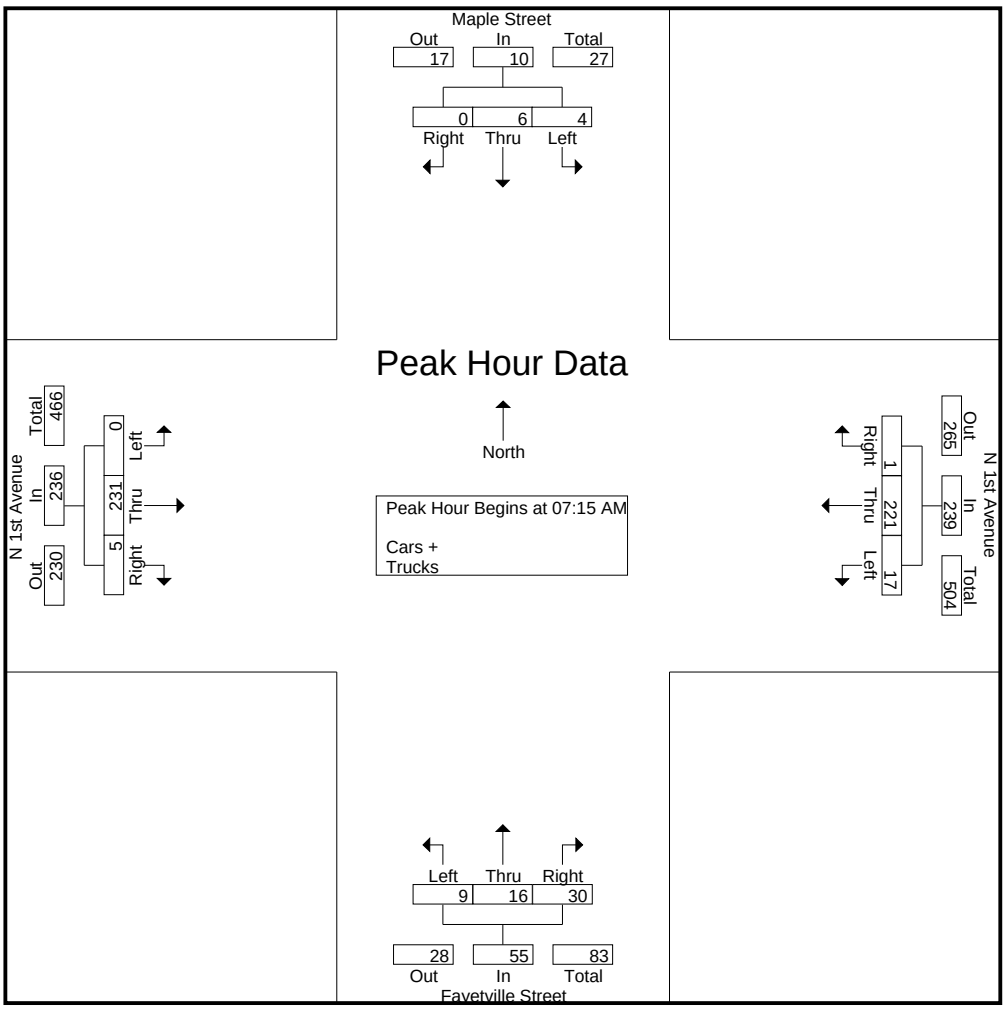
Groups Printed- Cars + - Trucks

	Maple Street Southbound				N 1st Avenue Westbound				Fayetville Street Northbound				N 1st Avenue 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	0	1	0	1	0	19	2	21	7	4	2	13	0	27	0	27	62
07:15 AM	0	2	1	3	0	29	3	32	7	5	4	16	0	71	0	71	122
07:30 AM	0	2	2	4	0	62	4	66	8	5	1	14	0	77	0	77	161
07:45 AM	0	1	0	1	0	61	5	66	8	3	0	11	2	51	0	53	131
Total	0	6	3	9	0	171	14	185	30	17	7	54	2	226	0	228	476
08:00 AM	0	1	1	2	1	69	5	75	7	3	4	14	3	32	0	35	126
08:15 AM	1	2	0	3	1	37	4	42	2	2	2	6	4	40	0	44	95
08:30 AM	0	2	1	3	1	47	5	53	5	2	2	9	8	32	0	40	105
08:45 AM	1	6	2	9	3	30	5	38	16	8	16	40	10	53	2	65	152
Total	2	11	4	17	6	183	19	208	30	15	24	69	25	157	2	184	478
Grand Total	2	17	7	26	6	354	33	393	60	32	31	123	27	383	2	412	954
Apprch %	7.7	65.4	26.9		1.5	90.1	8.4		48.8	26	25.2		6.6	93	0.5		
Total %	0.2	1.8	0.7	2.7	0.6	37.1	3.5	41.2	6.3	3.4	3.2	12.9	2.8	40.1	0.2	43.2	
Cars +	2	17	7	26	6	354	33	393	60	32	31	123	27	383	2	412	954
% Cars +	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and N 1st)
Site Code :
Start Date : 3/17/2022
Page No : 2

	Maple Street Southbound				N 1st Avenue Westbound				Fayetville Street Northbound				N 1st Avenue 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 07:15 AM																	
07:15 AM	0	**2**	1	3	0	29	3	32	7	**5**	**4**	**16**	0	71	0	71	122
07:30 AM	0	2	**2**	**4**	0	62	4	66	**8**	5	1	14	0	**77**	0	**77**	**161**
07:45 AM	0	1	0	1	0	61	**5**	66	8	3	0	11	2	51	0	53	131
08:00 AM	0	1	1	2	**1**	**69**	5	**75**	7	3	4	14	**3**	32	0	35	126
Total Volume	0	6	4	10	1	221	17	239	30	16	9	55	5	231	0	236	540
% App. Total	0	60	40		0.4	92.5	7.1		54.5	29.1	16.4		2.1	97.9	0		
PHF	.000	.750	.500	.625	.250	.801	.850	.797	.938	.800	.563	.859	.417	.750	.000	.766	.839



TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and N 1st)
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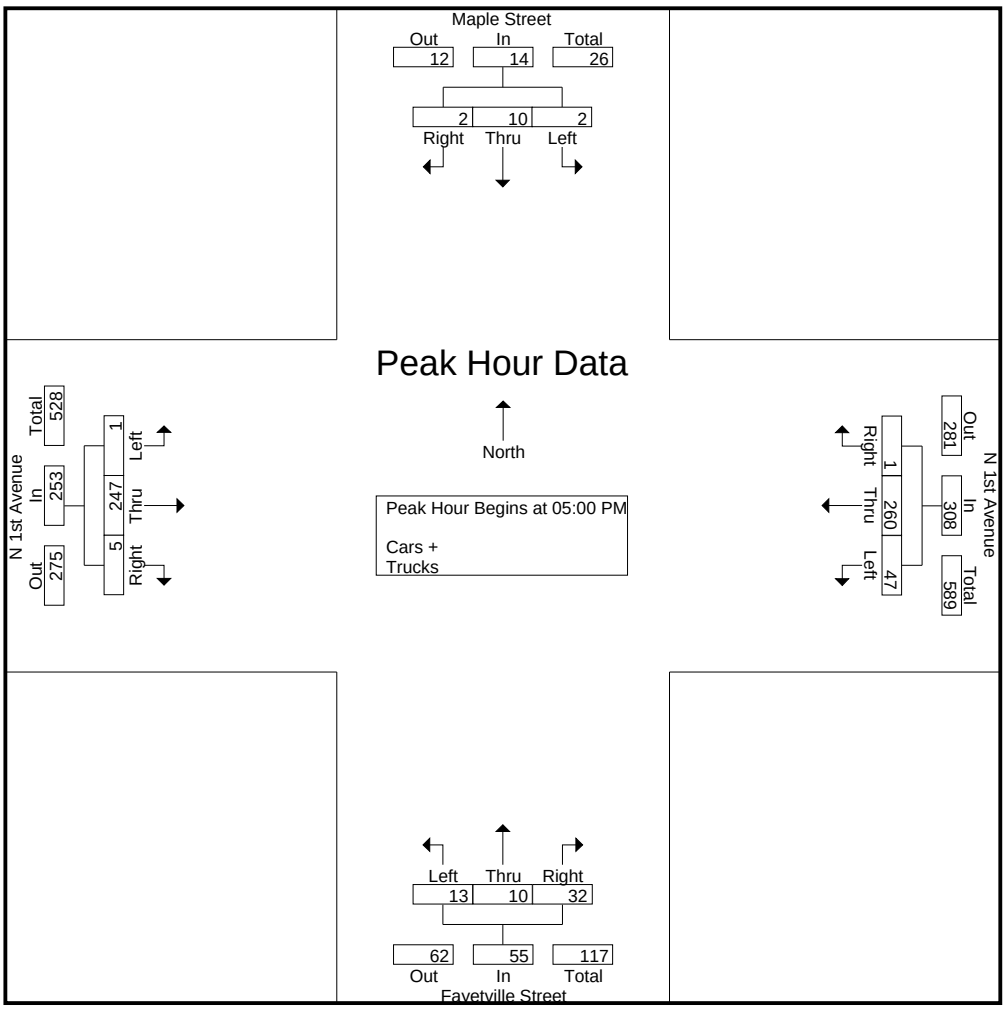
Groups Printed- Cars + - Trucks

	Maple Street Southbound				N 1st Avenue Westbound				Fayetville Street Northbound				N 1st Avenue 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	1	4	2	7	1	50	8	59	10	9	16	35	4	46	0	50	151
04:15 PM	0	1	2	3	1	63	8	72	12	3	2	17	0	46	0	46	138
04:30 PM	1	3	1	5	1	52	12	65	7	0	3	10	3	56	0	59	139
04:45 PM	0	3	1	4	1	53	8	62	5	3	4	12	1	58	0	59	137
Total	2	11	6	19	4	218	36	258	34	15	25	74	8	206	0	214	565
05:00 PM	1	4	1	6	1	62	8	71	10	6	3	19	2	54	1	57	153
05:15 PM	1	1	0	2	0	59	16	75	3	2	0	5	2	63	0	65	147
05:30 PM	0	5	0	5	0	74	14	88	13	0	7	20	0	71	0	71	184
05:45 PM	0	0	1	1	0	65	9	74	6	2	3	11	1	59	0	60	146
Total	2	10	2	14	1	260	47	308	32	10	13	55	5	247	1	253	630
Grand Total	4	21	8	33	5	478	83	566	66	25	38	129	13	453	1	467	1195
Apprch %	12.1	63.6	24.2		0.9	84.5	14.7		51.2	19.4	29.5		2.8	97	0.2		
Total %	0.3	1.8	0.7	2.8	0.4	40	6.9	47.4	5.5	2.1	3.2	10.8	1.1	37.9	0.1	39.1	
Cars +	4	21	8	33	5	478	83	566	66	25	38	129	13	453	1	467	1195
% Cars +	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and N 1st)
Site Code :
Start Date : 3/17/2022
Page No : 2

	Maple Street Southbound				N 1st Avenue Westbound				Fayetville Street Northbound				N 1st Avenue 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 05:00 PM																	
05:00 PM	**1**	4	**1**	**6**	**1**	62	8	71	10	**6**	3	19	**2**	54	**1**	57	153
05:15 PM	1	1	0	2	0	59	**16**	75	3	2	0	5	2	63	0	65	147
05:30 PM	0	**5**	0	5	0	**74**	14	**88**	**13**	0	**7**	**20**	0	**71**	0	**71**	**184**
05:45 PM	0	0	1	1	0	65	9	74	6	2	3	11	1	59	0	60	146
Total Volume	2	10	2	14	1	260	47	308	32	10	13	55	5	247	1	253	630
% App. Total	14.3	71.4	14.3		0.3	84.4	15.3		58.2	18.2	23.6		2	97.6	0.4		
PHF	.500	.500	.500	.583	.250	.878	.734	.875	.615	.417	.464	.688	.625	.870	.250	.891	.856



TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Raineer Lake)
Site Code :
Start Date : 3/17/2022
Page No : 1

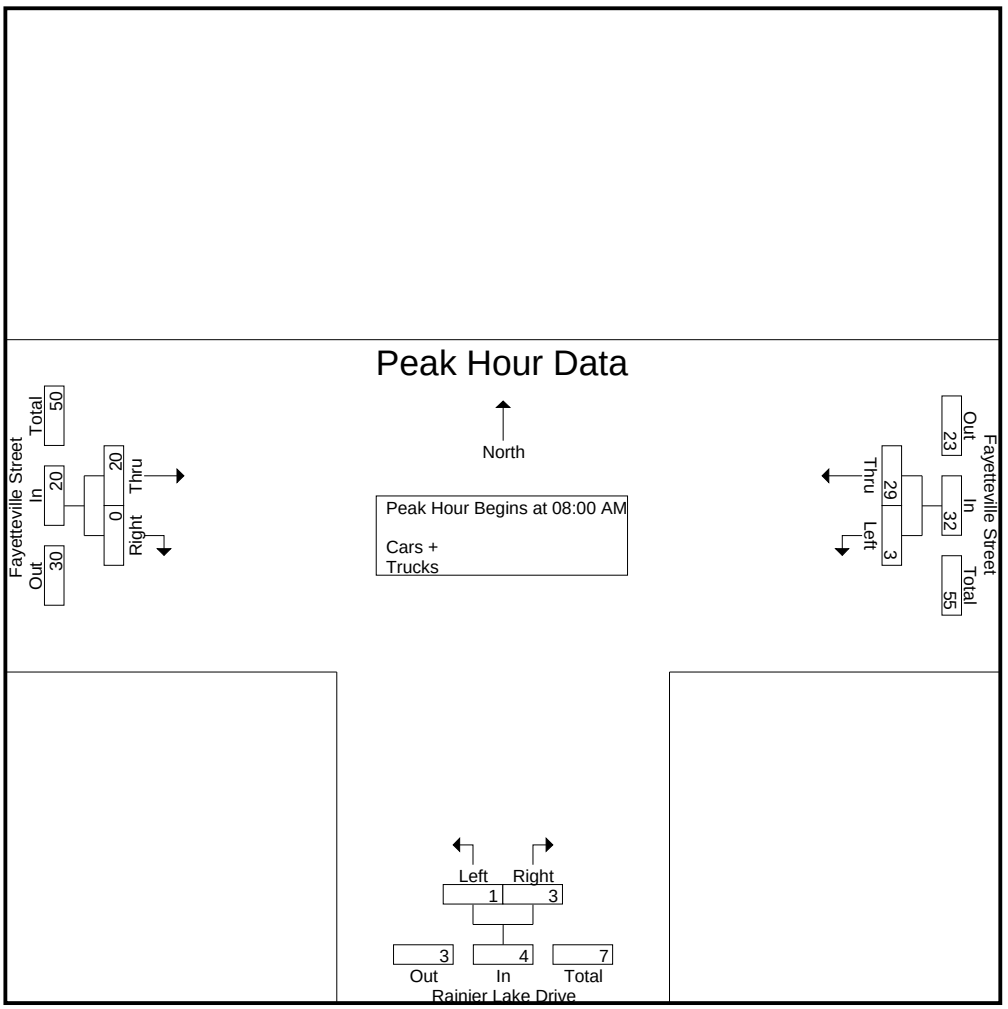
Groups Printed- Cars + - Trucks

	Fayetteville Street Westbound			Rainier Lake Drive Northbound			Fayetteville Street Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	3	2	5	2	0	2	0	1	1	8
07:15 AM	5	1	6	0	0	0	0	2	2	8
07:30 AM	7	1	8	0	0	0	0	2	2	10
07:45 AM	5	1	6	0	0	0	0	3	3	9
Total	20	5	25	2	0	2	0	8	8	35
08:00 AM	5	1	6	0	0	0	0	4	4	10
08:15 AM	4	1	5	1	0	1	0	4	4	10
08:30 AM	6	0	6	2	0	2	0	4	4	12
08:45 AM	14	1	15	0	1	1	0	8	8	24
Total	29	3	32	3	1	4	0	20	20	56
Grand Total	49	8	57	5	1	6	0	28	28	91
Apprch %	86	14		83.3	16.7		0	100		
Total %	53.8	8.8	62.6	5.5	1.1	6.6	0	30.8	30.8	
Cars +	47	8	55	5	1	6	0	25	25	86
% Cars +	95.9	100	96.5	100	100	100	0	89.3	89.3	94.5
Trucks	2	0	2	0	0	0	0	3	3	5
% Trucks	4.1	0	3.5	0	0	0	0	10.7	10.7	5.5

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Raineer Lake)
Site Code :
Start Date : 3/17/2022
Page No : 2

	Fayetteville Street Westbound			Rainier Lake Drive Northbound			Fayetteville Street Eastbound			
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 08:00 AM										
08:00 AM	5	**1**	6	0	0	0	0	4	4	10
08:15 AM	4	1	5	1	0	1	0	4	4	10
08:30 AM	6	0	6	**2**	0	**2**	0	4	4	12
08:45 AM	**14**	1	**15**	0	**1**	1	0	**8**	**8**	**24**
Total Volume	29	3	32	3	1	4	0	20	20	56
% App. Total	90.6	9.4		75	25		0	100		
PHF	.518	.750	.533	.375	.250	.500	.000	.625	.625	.583



TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Raineer Lake)
Site Code :
Start Date : 3/17/2022
Page No : 1

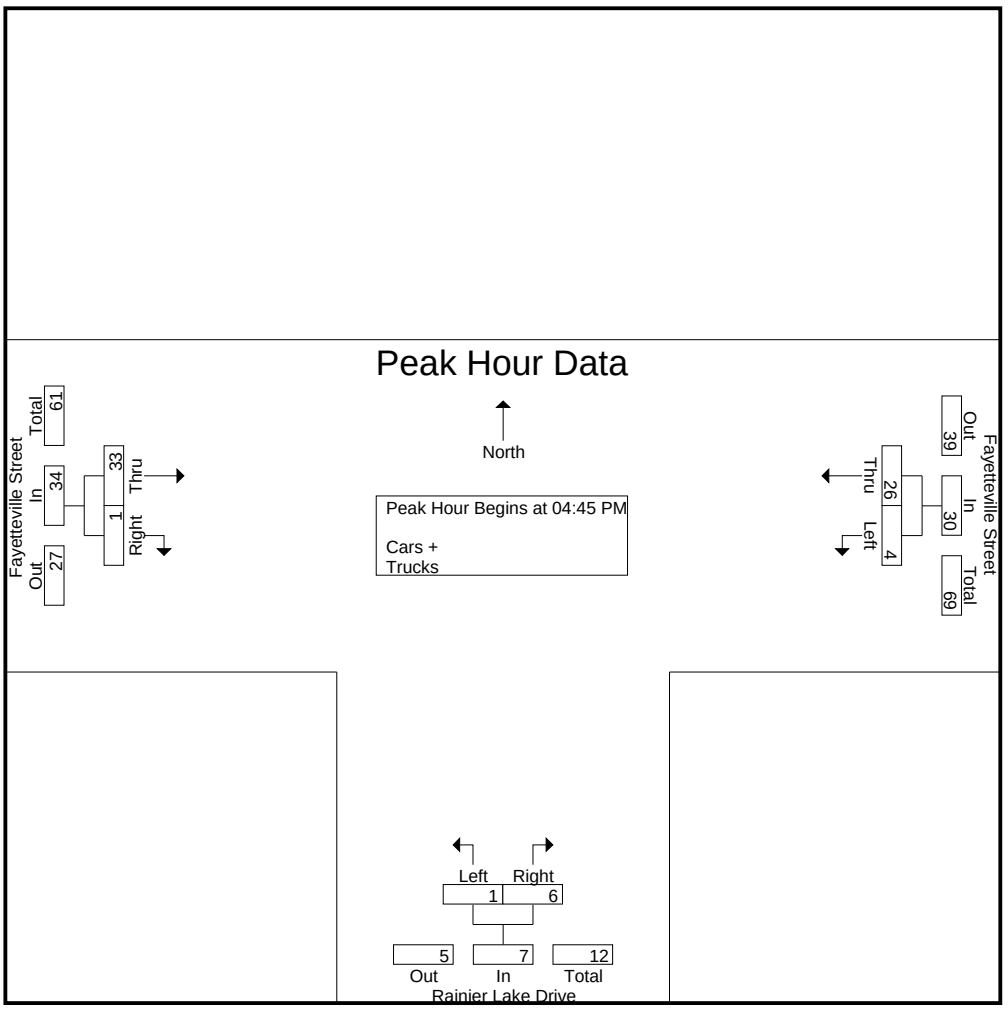
Groups Printed- Cars + - Trucks

	Fayetteville Street Westbound			Rainier Lake Drive Northbound			Fayetteville Street Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	3	0	3	1	1	2	2	2	4	9
04:15 PM	5	0	5	0	0	0	0	4	4	9
04:30 PM	3	1	4	3	0	3	0	7	7	14
04:45 PM	10	1	11	1	0	1	0	7	7	19
Total	21	2	23	5	1	6	2	20	22	51
05:00 PM	5	3	8	1	1	2	0	5	5	15
05:15 PM	1	0	1	0	0	0	0	10	10	11
05:30 PM	10	0	10	4	0	4	1	11	12	26
05:45 PM	3	1	4	2	0	2	0	5	5	11
Total	19	4	23	7	1	8	1	31	32	63
Grand Total	40	6	46	12	2	14	3	51	54	114
Apprch %	87	13		85.7	14.3		5.6	94.4		
Total %	35.1	5.3	40.4	10.5	1.8	12.3	2.6	44.7	47.4	
Cars +	38	6	44	12	2	14	3	51	54	112
% Cars +	95	100	95.7	100	100	100	100	100	100	98.2
Trucks	2	0	2	0	0	0	0	0	0	2
% Trucks	5	0	4.3	0	0	0	0	0	0	1.8

TRAFFIC DATA COLLECTION

File Name : Knightdale(Fayetteville and Raineer Lake)
Site Code :
Start Date : 3/17/2022
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	Fayetteville Street Westbound			Rainier Lake Drive Northbound			Fayetteville Street Eastbound			
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	**10**	1	**11**	1	0	1	0	7	7	19
05:00 PM	5	**3**	8	1	**1**	2	0	5	5	15
05:15 PM	1	0	1	0	0	0	0	10	10	11
05:30 PM	10	0	10	**4**	0	**4**	**1**	**11**	**12**	**26**
Total Volume	26	4	30	6	1	7	1	33	34	71
% App. Total	86.7	13.3		85.7	14.3		2.9	97.1		
PHF	.650	.333	.682	.375	.250	.438	.250	.750	.708	.683



TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Robertson) AM Peak
Site Code :
Start Date : 12/16/2021
Page No : 1

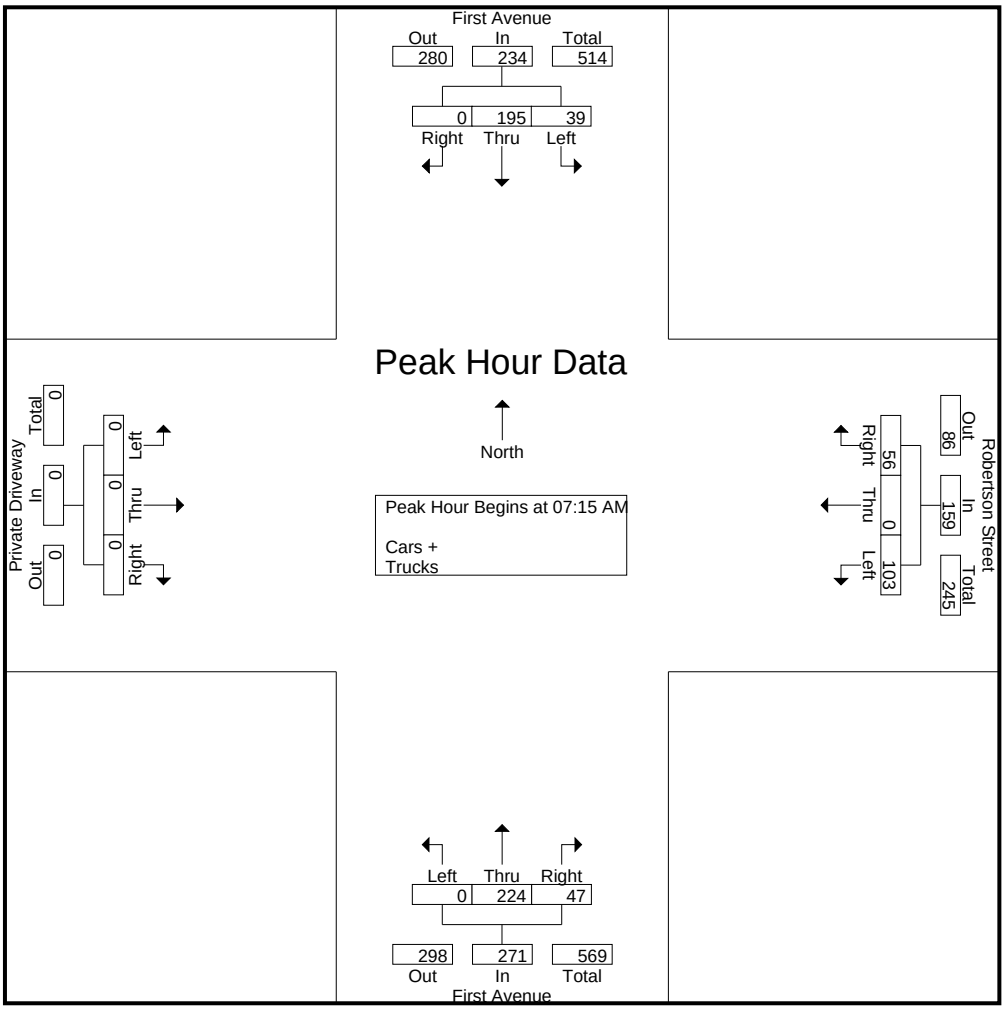
Groups Printed- Cars + - Trucks

	First Avenue Southbound				Robertson Street Westbound				First Avenue Northbound				Private Driveway 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	0	35	9	44	10	0	19	29	7	66	0	73	0	0	0	0	146
07:15 AM	0	44	13	57	7	0	20	27	11	60	0	71	0	0	0	0	155
07:30 AM	0	56	10	66	13	0	24	37	10	80	0	90	0	0	0	0	193
07:45 AM	0	54	11	65	18	0	25	43	14	41	0	55	0	0	0	0	163
Total	0	189	43	232	48	0	88	136	42	247	0	289	0	0	0	0	657
08:00 AM	0	41	5	46	18	0	34	52	12	43	0	55	0	0	0	0	153
08:15 AM	0	48	5	53	10	0	30	40	8	40	0	48	0	0	0	0	141
08:30 AM	0	42	9	51	8	0	14	22	13	27	0	40	0	0	0	0	113
08:45 AM	0	34	5	39	10	0	18	28	17	42	1	60	0	0	0	0	127
Total	0	165	24	189	46	0	96	142	50	152	1	203	0	0	0	0	534
Grand Total	0	354	67	421	94	0	184	278	92	399	1	492	0	0	0	0	1191
Apprch %	0	84.1	15.9		33.8	0	66.2		18.7	81.1	0.2		0	0	0		
Total %	0	29.7	5.6	35.3	7.9	0	15.4	23.3	7.7	33.5	0.1	41.3	0	0	0	0	
Cars +	0	346	66	412	94	0	184	278	91	392	1	484	0	0	0	0	1174
% Cars +	0	97.7	98.5	97.9	100	0	100	100	98.9	98.2	100	98.4	0	0	0	0	98.6
Trucks	0	8	1	9	0	0	0	0	1	7	0	8	0	0	0	0	17
% Trucks	0	2.3	1.5	2.1	0	0	0	0	1.1	1.8	0	1.6	0	0	0	0	1.4

TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Robertson) AM Peak
Site Code :
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	First Avenue Southbound				Robertson Street Westbound				First Avenue Northbound				Private Driveway 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 07:15 AM																	
07:15 AM	0	44	**13**	57	7	0	20	27	11	60	0	71	0	0	0	0	155
07:30 AM	0	**56**	10	**66**	13	0	24	37	10	**80**	0	**90**	0	0	0	0	**193**
07:45 AM	0	54	11	65	**18**	0	25	43	**14**	41	0	55	0	0	0	0	163
08:00 AM	0	41	5	46	18	0	**34**	**52**	12	43	0	55	0	0	0	0	153
Total Volume	0	195	39	234	56	0	103	159	47	224	0	271	0	0	0	0	664
% App. Total	0	83.3	16.7		35.2	0	64.8		17.3	82.7	0		0	0	0		
PHF	.000	.871	.750	.886	.778	.000	.757	.764	.839	.700	.000	.753	.000	.000	.000	.000	.860



TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Robertson) PM Peak
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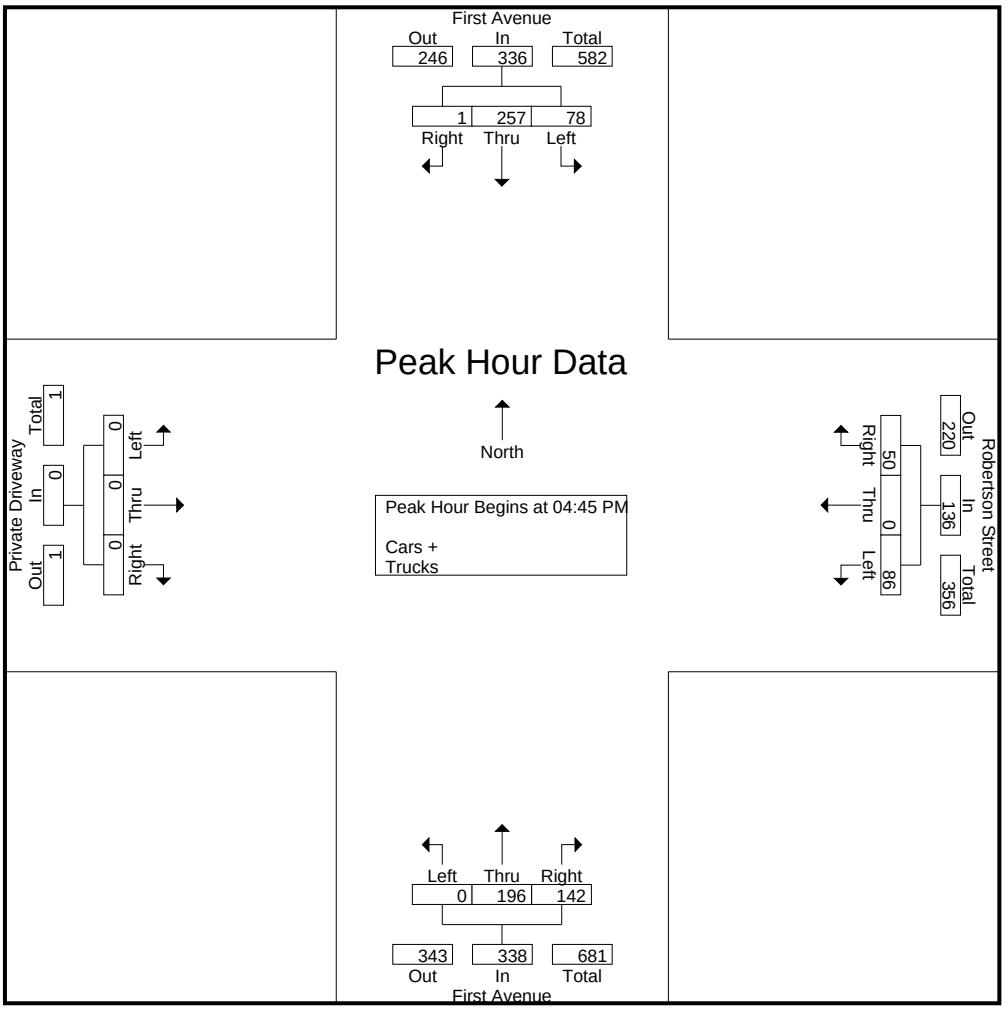
Groups Printed- Cars + - Trucks

	First Avenue Southbound				Robertson Street Westbound				First Avenue Northbound				Private Driveway 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	0	55	9	64	13	0	28	41	27	49	0	76	0	0	0	0	181
04:15 PM	0	51	15	66	15	0	19	34	25	58	0	83	0	0	0	0	183
04:30 PM	0	64	14	78	5	0	37	42	34	53	0	87	0	0	0	0	207
04:45 PM	0	59	25	84	15	0	20	35	32	54	0	86	0	0	0	0	205
Total	0	229	63	292	48	0	104	152	118	214	0	332	0	0	0	0	776
05:00 PM	0	53	16	69	10	0	20	30	52	40	0	92	0	0	0	0	191
05:15 PM	1	71	16	88	13	0	27	40	22	51	0	73	0	0	0	0	201
05:30 PM	0	74	21	95	12	0	19	31	36	51	0	87	0	0	0	0	213
05:45 PM	0	57	16	73	12	0	18	30	26	37	0	63	0	0	0	0	166
Total	1	255	69	325	47	0	84	131	136	179	0	315	0	0	0	0	771
Grand Total	1	484	132	617	95	0	188	283	254	393	0	647	0	0	0	0	1547
Apprch %	0.2	78.4	21.4		33.6	0	66.4		39.3	60.7	0		0	0	0		
Total %	0.1	31.3	8.5	39.9	6.1	0	12.2	18.3	16.4	25.4	0	41.8	0	0	0	0	
Cars +	1	483	132	616	95	0	188	283	253	389	0	642	0	0	0	0	1541
% Cars +	100	99.8	100	99.8	100	0	100	100	99.6	99	0	99.2	0	0	0	0	99.6
Trucks	0	1	0	1	0	0	0	0	1	4	0	5	0	0	0	0	6
% Trucks	0	0.2	0	0.2	0	0	0	0	0.4	1	0	0.8	0	0	0	0	0.4

TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Robertson) PM Peak
Site Code :
Start Date : 12/16/2021
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	First Avenue Southbound				Robertson Street Westbound				First Avenue Northbound				Private Driveway 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	0	59	**25**	84	**15**	0	20	35	32	**54**	0	86	0	0	0	0	205
05:00 PM	0	53	16	69	10	0	20	30	**52**	40	0	**92**	0	0	0	0	191
05:15 PM	**1**	71	16	88	13	0	**27**	**40**	22	51	0	73	0	0	0	0	201
05:30 PM	0	**74**	21	**95**	12	0	19	31	36	51	0	87	0	0	0	0	**213**
Total Volume	1	257	78	336	50	0	86	136	142	196	0	338	0	0	0	0	810
% App. Total	0.3	76.5	23.2		36.8	0	63.2		42	58	0		0	0	0		
PHF	.250	.868	.780	.884	.833	.000	.796	.850	.683	.907	.000	.918	.000	.000	.000	.000	.951



TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Smithfield) AM Peak
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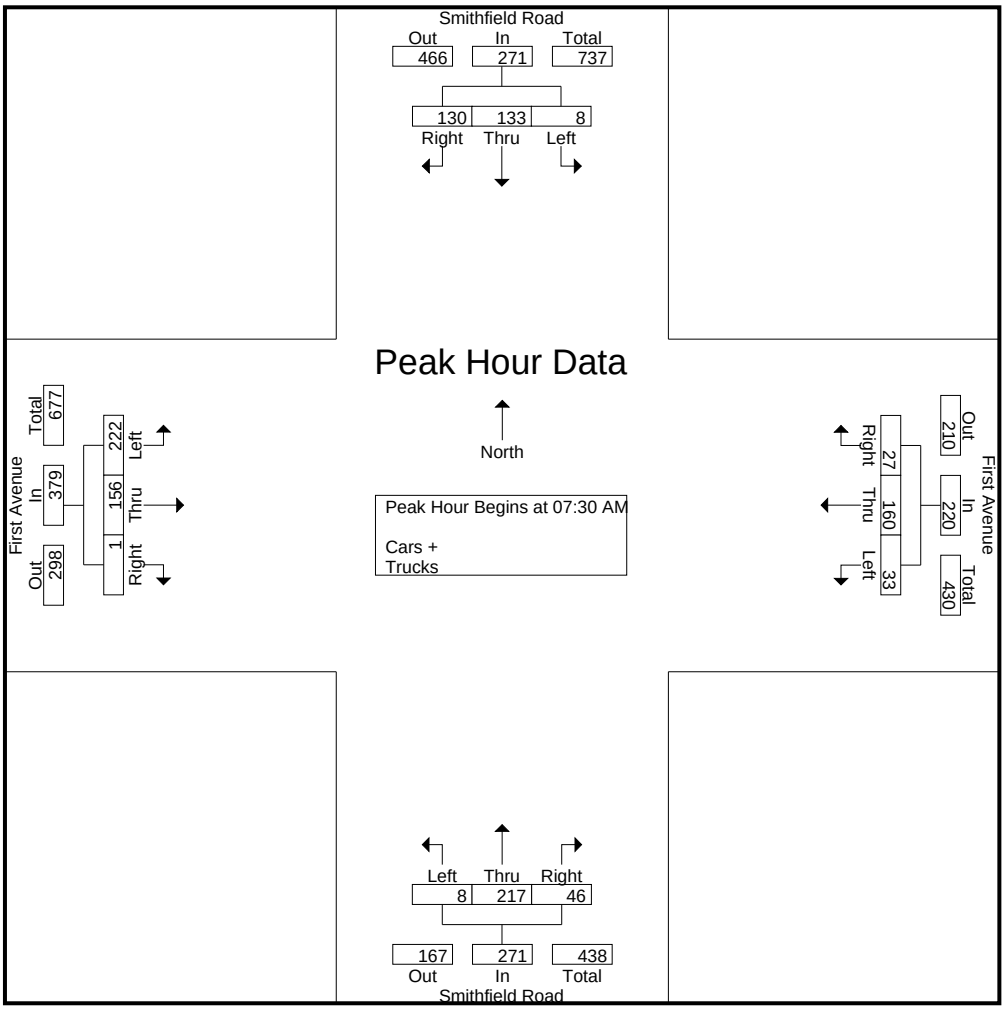
Groups Printed- Cars + - Trucks

	Smithfield Road Southbound				First Avenue Westbound				Smithfield Road Northbound				First Avenue 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	16	16	0	32	3	24	6	33	12	44	1	57	1	51	41	93	215
07:15 AM	23	35	1	59	7	35	5	47	12	37	1	50	0	50	48	98	254
07:30 AM	33	27	1	61	9	50	12	71	9	50	0	59	1	59	62	122	313
07:45 AM	38	27	3	68	6	40	5	51	19	75	3	97	0	32	63	95	311
Total	110	105	5	220	25	149	28	202	52	206	5	263	2	192	214	408	1093
08:00 AM	26	40	2	68	7	32	8	47	11	48	3	62	0	28	55	83	260
08:15 AM	33	39	2	74	5	38	8	51	7	44	2	53	0	37	42	79	257
08:30 AM	21	33	5	59	3	30	5	38	2	51	0	53	2	33	65	100	250
08:45 AM	32	39	3	74	14	30	3	47	4	82	3	89	4	49	54	107	317
Total	112	151	12	275	29	130	24	183	24	225	8	257	6	147	216	369	1084
Grand Total	222	256	17	495	54	279	52	385	76	431	13	520	8	339	430	777	2177
Apprch %	44.8	51.7	3.4		14	72.5	13.5		14.6	82.9	2.5		1	43.6	55.3		
Total %	10.2	11.8	0.8	22.7	2.5	12.8	2.4	17.7	3.5	19.8	0.6	23.9	0.4	15.6	19.8	35.7	
Cars +	220	242	17	479	53	277	52	382	75	416	11	502	8	337	427	772	2135
% Cars +	99.1	94.5	100	96.8	98.1	99.3	100	99.2	98.7	96.5	84.6	96.5	100	99.4	99.3	99.4	98.1
Trucks	2	14	0	16	1	2	0	3	1	15	2	18	0	2	3	5	42
% Trucks	0.9	5.5	0	3.2	1.9	0.7	0	0.8	1.3	3.5	15.4	3.5	0	0.6	0.7	0.6	1.9

TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Smithfield) AM Peak
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	Smithfield Road Southbound				First Avenue Westbound				Smithfield Road Northbound				First Avenue 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 07:30 AM																	
07:30 AM	33	27	1	61	**9**	**50**	**12**	**71**	9	50	0	59	**1**	**59**	62	**122**	**313**
07:45 AM	**38**	27	**3**	68	6	40	5	51	**19**	**75**	**3**	**97**	0	32	**63**	95	311
08:00 AM	26	**40**	2	68	7	32	8	47	11	48	3	62	0	28	55	83	260
08:15 AM	33	39	2	**74**	5	38	8	51	7	44	2	53	0	37	42	79	257
Total Volume	130	133	8	271	27	160	33	220	46	217	8	271	1	156	222	379	1141
% App. Total	48	49.1	3		12.3	72.7	15		17	80.1	3		0.3	41.2	58.6		
PHF	.855	.831	.667	.916	.750	.800	.688	.775	.605	.723	.667	.698	.250	.661	.881	.777	.911





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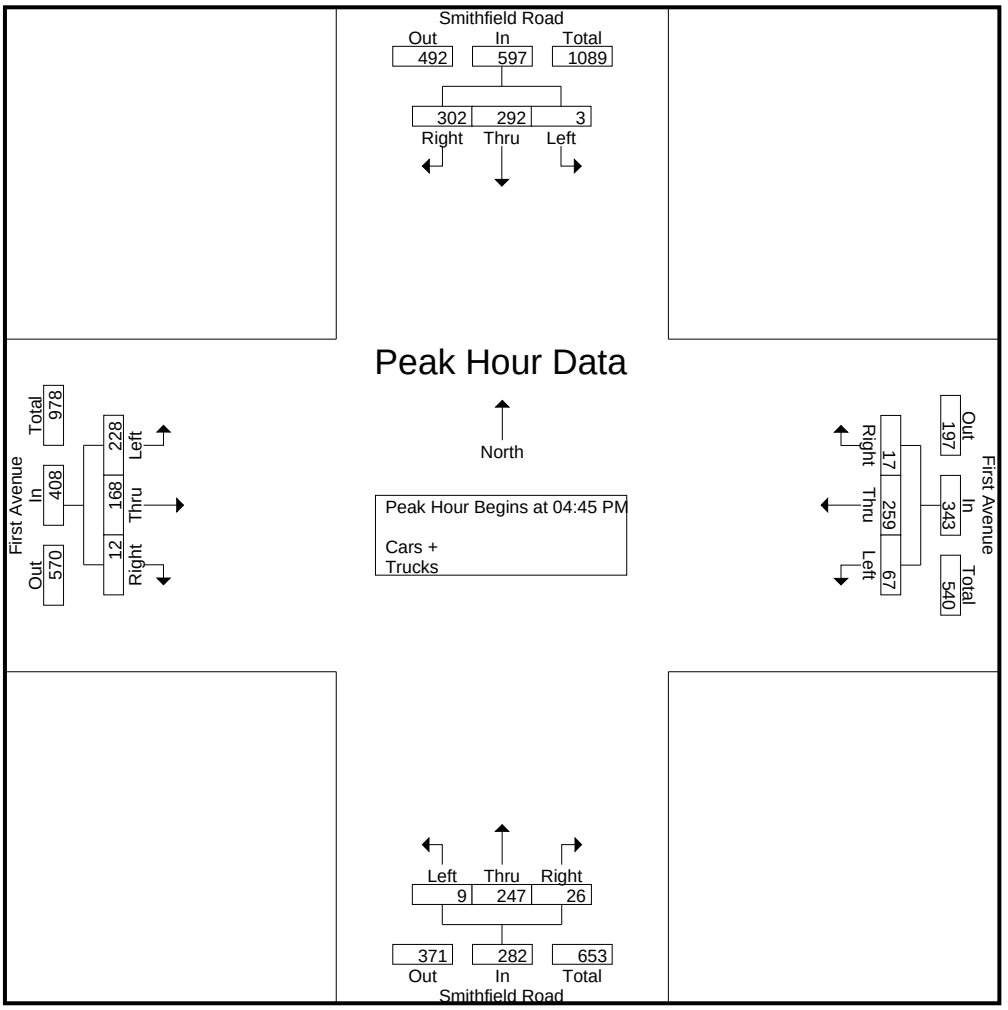
Groups Printed- Cars + - Trucks

	Smithfield Road Southbound				First Avenue Westbound				Smithfield Road Northbound				First Avenue 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	49	71	2	122	16	63	22	101	6	48	5	59	7	47	54	108	390
04:15 PM	68	80	1	149	6	48	14	68	6	74	4	84	4	43	62	109	410
04:30 PM	67	61	2	130	12	56	15	83	7	62	5	74	2	35	64	101	388
04:45 PM	73	64	1	138	7	60	15	82	4	68	3	75	4	46	70	120	415
Total	257	276	6	539	41	227	66	334	23	252	17	292	17	171	250	438	1603
05:00 PM	73	73	1	147	5	72	12	89	8	67	1	76	4	43	57	104	416
05:15 PM	78	77	0	155	0	72	19	91	6	55	0	61	2	40	57	99	406
05:30 PM	78	78	1	157	5	55	21	81	8	57	5	70	2	39	44	85	393
05:45 PM	69	68	0	137	8	56	16	80	3	55	4	62	2	36	65	103	382
Total	298	296	2	596	18	255	68	341	25	234	10	269	10	158	223	391	1597
Grand Total	555	572	8	1135	59	482	134	675	48	486	27	561	27	329	473	829	3200
Apprch %	48.9	50.4	0.7		8.7	71.4	19.9		8.6	86.6	4.8		3.3	39.7	57.1		
Total %	17.3	17.9	0.2	35.5	1.8	15.1	4.2	21.1	1.5	15.2	0.8	17.5	0.8	10.3	14.8	25.9	
Cars +	553	571	8	1132	59	481	134	674	48	486	27	561	27	327	473	827	3194
% Cars +	99.6	99.8	100	99.7	100	99.8	100	99.9	100	100	100	100	100	99.4	100	99.8	99.8
Trucks	2	1	0	3	0	1	0	1	0	0	0	0	0	2	0	2	6
% Trucks	0.4	0.2	0	0.3	0	0.2	0	0.1	0	0	0	0	0	0.6	0	0.2	0.2

TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Smithfield) PM Peak
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	Smithfield Road Southbound				First Avenue Westbound				Smithfield Road Northbound				First Avenue 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	73	64	**1**	138	**7**	60	15	82	4	**68**	3	75	**4**	**46**	**70**	**120**	415
05:00 PM	73	73	1	147	5	**72**	12	89	**8**	67	1	**76**	4	43	57	104	**416**
05:15 PM	**78**	77	0	155	0	72	19	**91**	6	55	0	61	2	40	57	99	406
05:30 PM	78	**78**	1	**157**	5	55	**21**	81	8	57	**5**	70	2	39	44	85	393
Total Volume	302	292	3	597	17	259	67	343	26	247	9	282	12	168	228	408	1630
% App. Total	50.6	48.9	0.5		5	75.5	19.5		9.2	87.6	3.2		2.9	41.2	55.9		
PHF	.968	.936	.750	.951	.607	.899	.798	.942	.813	.908	.450	.928	.750	.913	.814	.850	.980



TRAFFIC DATA COLLECTION

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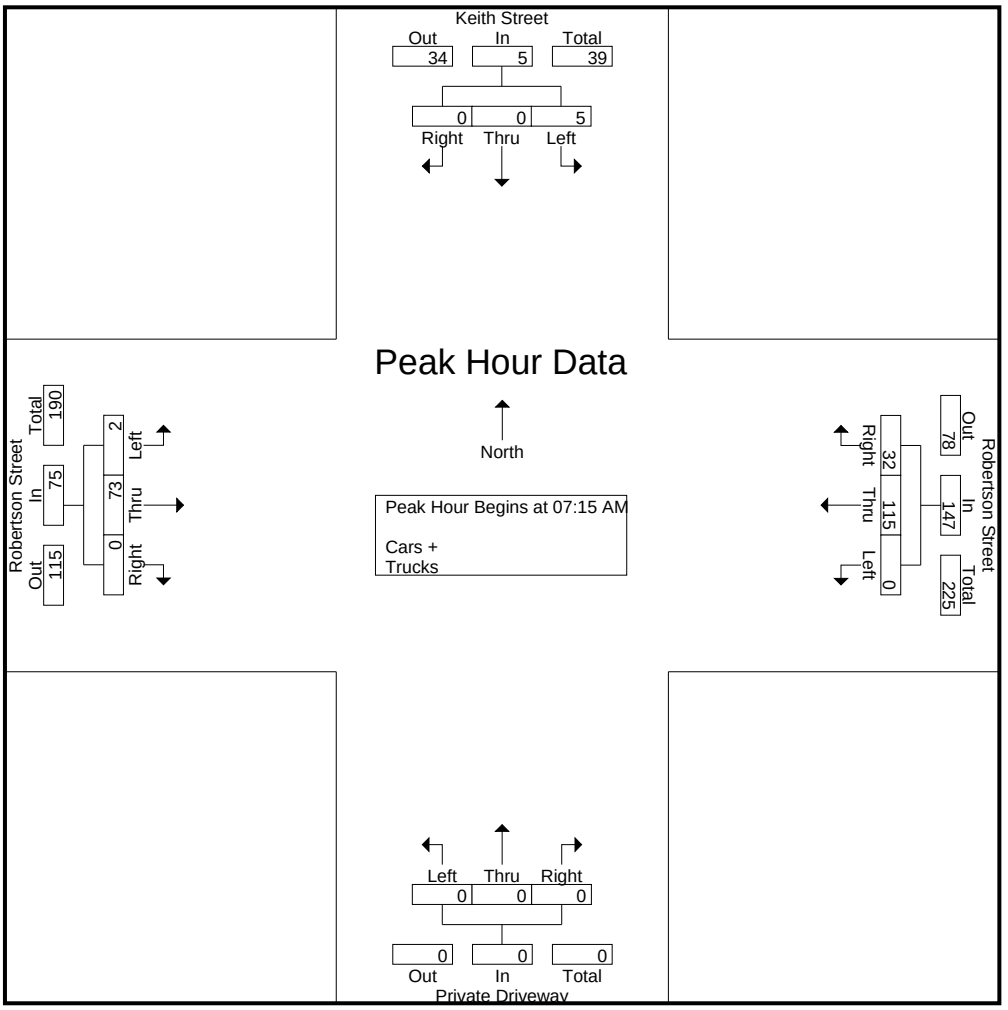
Groups Printed- Cars + - Trucks

	Keith Street Southbound				Robertson Street Westbound				Private Driveway Northbound				Robertson Street 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	1	0	2	3	8	16	0	24	0	0	0	0	0	12	0	12	39
07:15 AM	0	0	2	2	14	13	0	27	0	0	0	0	0	19	0	19	48
07:30 AM	0	0	0	0	11	36	0	47	0	0	0	0	0	20	1	21	68
07:45 AM	0	0	2	2	4	33	0	37	0	0	0	0	0	24	0	24	63
Total	1	0	6	7	37	98	0	135	0	0	0	0	0	75	1	76	218
08:00 AM	0	0	1	1	3	33	0	36	0	0	0	0	0	10	1	11	48
08:15 AM	1	0	0	1	2	25	0	27	0	0	0	0	0	10	1	11	39
08:30 AM	0	0	1	1	4	18	0	22	0	0	0	0	0	13	0	13	36
08:45 AM	0	0	1	1	4	24	0	28	0	0	0	0	0	13	0	13	42
Total	1	0	3	4	13	100	0	113	0	0	0	0	0	46	2	48	165
Grand Total	2	0	9	11	50	198	0	248	0	0	0	0	0	121	3	124	383
Apprch %	18.2	0	81.8		20.2	79.8	0		0	0	0		0	97.6	2.4		
Total %	0.5	0	2.3	2.9	13.1	51.7	0	64.8	0	0	0	0	0	31.6	0.8	32.4	
Cars +	2	0	9	11	49	195	0	244	0	0	0	0	0	119	3	122	377
% Cars +	100	0	100	100	98	98.5	0	98.4	0	0	0	0	0	98.3	100	98.4	98.4
Trucks	0	0	0	0	1	3	0	4	0	0	0	0	0	2	0	2	6
% Trucks	0	0	0	0	2	1.5	0	1.6	0	0	0	0	0	1.7	0	1.6	1.6

TRAFFIC DATA COLLECTION

File Name : Knightdale (Robertson and Keith)
Site Code :
Start Date : 1/13/2022
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	Keith Street Southbound				Robertson Street Westbound				Private Driveway Northbound				Robertson Street 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 07:15 AM																	
07:15 AM	0	0	**2**	**2**	**14**	13	0	27	0	0	0	0	0	19	0	19	48
07:30 AM	0	0	0	0	11	**36**	0	**47**	0	0	0	0	0	20	**1**	21	**68**
07:45 AM	0	0	2	2	4	33	0	37	0	0	0	0	0	**24**	0	**24**	63
08:00 AM	0	0	1	1	3	33	0	36	0	0	0	0	0	10	1	11	48
Total Volume	0	0	5	5	32	115	0	147	0	0	0	0	0	73	2	75	227
% App. Total	0	0	100		21.8	78.2	0		0	0	0		0	97.3	2.7		
PHF	.000	.000	.625	.625	.571	.799	.000	.782	.000	.000	.000	.000	.000	.760	.500	.781	.835



TRAFFIC DATA COLLECTION

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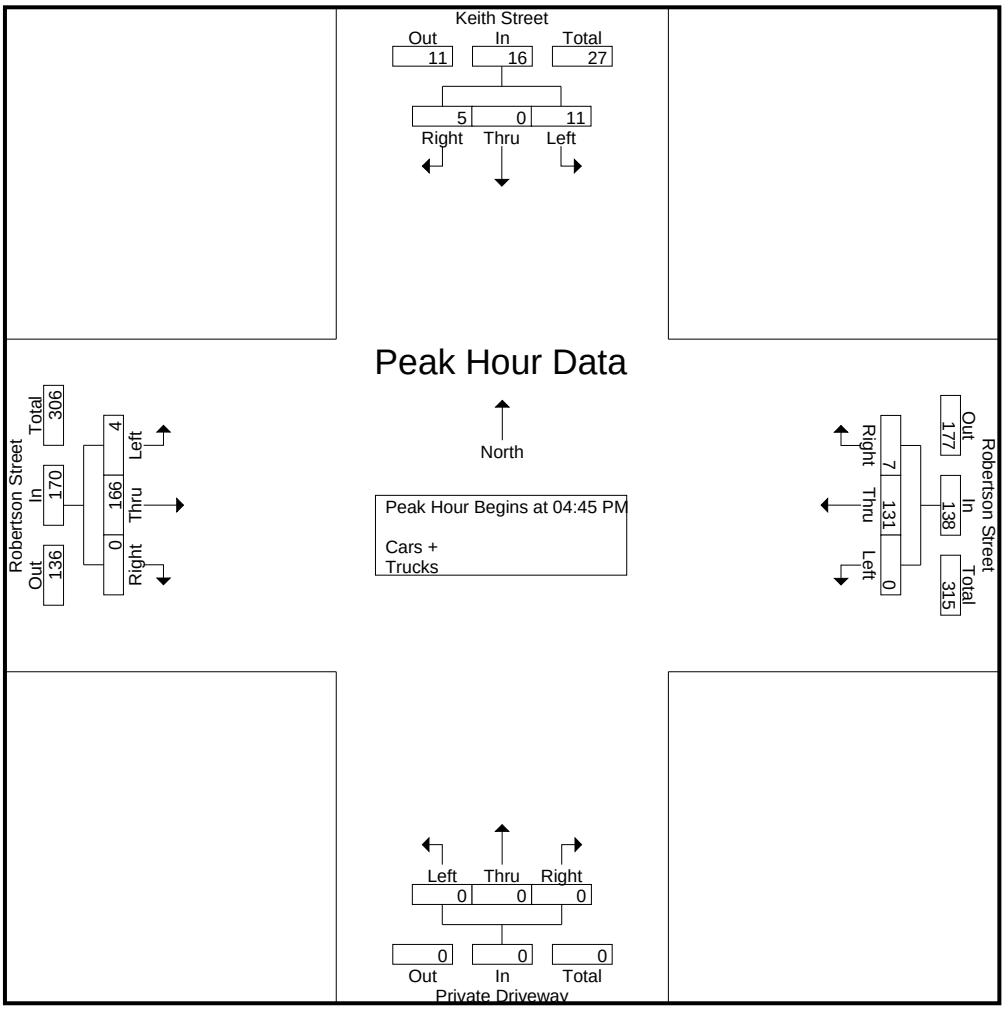
Groups Printed- Cars + - Trucks

	Keith Street Southbound				Robertson Street Westbound				Private Driveway Northbound				Robertson Street 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	1	0	4	5	1	24	0	25	0	0	0	0	0	27	1	28	58
04:15 PM	1	0	5	6	3	21	0	24	0	0	0	0	0	31	0	31	61
04:30 PM	0	0	2	2	2	22	0	24	0	0	1	1	0	36	2	38	65
04:45 PM	0	0	2	2	3	29	0	32	0	0	0	0	0	39	2	41	75
Total	2	0	13	15	9	96	0	105	0	0	1	1	0	133	5	138	259
05:00 PM	4	0	3	7	0	29	0	29	0	0	0	0	0	42	0	42	78
05:15 PM	0	0	0	0	1	36	0	37	0	0	0	0	0	48	1	49	86
05:30 PM	1	0	6	7	3	37	0	40	0	0	0	0	0	37	1	38	85
05:45 PM	0	0	3	3	6	21	0	27	0	0	0	0	0	33	1	34	64
Total	5	0	12	17	10	123	0	133	0	0	0	0	0	160	3	163	313
Grand Total	7	0	25	32	19	219	0	238	0	0	1	1	0	293	8	301	572
Apprch %	21.9	0	78.1		8	92	0		0	0	100		0	97.3	2.7		
Total %	1.2	0	4.4	5.6	3.3	38.3	0	41.6	0	0	0.2	0.2	0	51.2	1.4	52.6	
Cars +	7	0	24	31	19	216	0	235	0	0	1	1	0	289	8	297	564
% Cars +	100	0	96	96.9	100	98.6	0	98.7	0	0	100	100	0	98.6	100	98.7	98.6
Trucks	0	0	1	1	0	3	0	3	0	0	0	0	0	4	0	4	8
% Trucks	0	0	4	3.1	0	1.4	0	1.3	0	0	0	0	0	1.4	0	1.3	1.4

TRAFFIC DATA COLLECTION

File Name : Knightdale (Robertson and Keith)
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	Keith Street Southbound				Robertson Street Westbound				Private Driveway Northbound				Robertson Street 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	0	0	2	2	**3**	29	0	32	0	0	0	0	0	39	**2**	41	75
05:00 PM	**4**	0	3	**7**	0	29	0	29	0	0	0	0	0	42	0	42	78
05:15 PM	0	0	0	0	1	36	0	37	0	0	0	0	0	**48**	1	**49**	**86**
05:30 PM	1	0	**6**	7	3	**37**	0	**40**	0	0	0	0	0	37	1	38	85
Total Volume	5	0	11	16	7	131	0	138	0	0	0	0	0	166	4	170	324
% App. Total	31.2	0	68.8		5.1	94.9	0		0	0	0		0	97.6	2.4		
PHF	.313	.000	.458	.571	.583	.885	.000	.863	.000	.000	.000	.000	.000	.865	.500	.867	.942





File Name : Knightdale(Robertson and Mailman)
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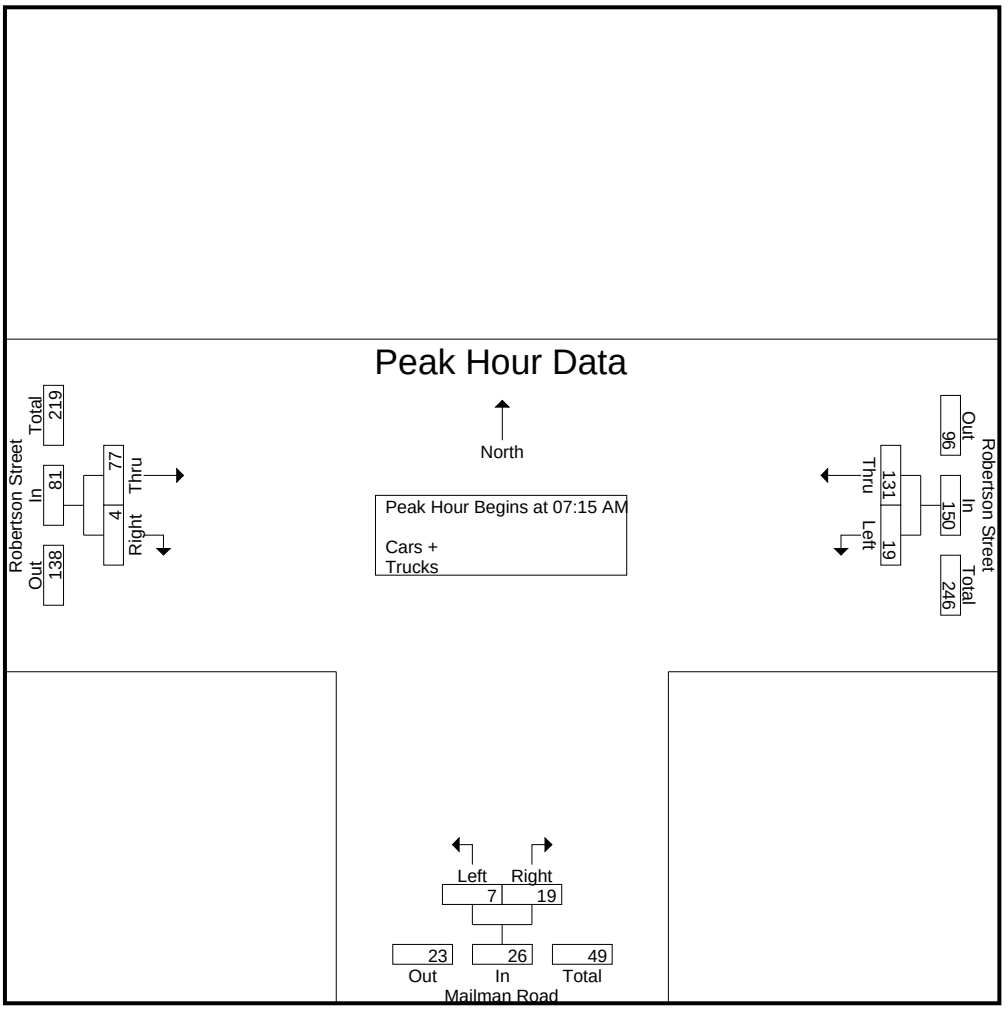
Groups Printed- Cars + - Trucks

	Robertson Street Westbound			Mailman Road Northbound			Robertson Street Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	15	1	16	3	3	6	1	11	12	34
07:15 AM	25	4	29	3	1	4	2	20	22	55
07:30 AM	39	4	43	5	1	6	0	20	20	69
07:45 AM	35	4	39	8	1	9	2	27	29	77
Total	114	13	127	19	6	25	5	78	83	235
08:00 AM	32	7	39	3	4	7	0	10	10	56
08:15 AM	26	5	31	4	0	4	0	13	13	48
08:30 AM	17	9	26	6	0	6	3	12	15	47
08:45 AM	22	1	23	5	2	7	0	14	14	44
Total	97	22	119	18	6	24	3	49	52	195
Grand Total	211	35	246	37	12	49	8	127	135	430
Apprch %	85.8	14.2		75.5	24.5		5.9	94.1		
Total %	49.1	8.1	57.2	8.6	2.8	11.4	1.9	29.5	31.4	
Cars +	210	32	242	35	11	46	8	127	135	423
% Cars +	99.5	91.4	98.4	94.6	91.7	93.9	100	100	100	98.4
Trucks	1	3	4	2	1	3	0	0	0	7
% Trucks	0.5	8.6	1.6	5.4	8.3	6.1	0	0	0	1.6

TRAFFIC DATA COLLECTION

File Name : Knightdale(Robertson and Mailman)
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	Robertson Street Westbound			Mailman Road Northbound			Robertson Street Eastbound			
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 07:15 AM										
07:15 AM	25	4	29	3	1	4	**2**	20	22	55
07:30 AM	**39**	4	**43**	5	1	6	0	20	20	69
07:45 AM	35	4	39	**8**	1	**9**	2	**27**	**29**	**77**
08:00 AM	32	**7**	39	3	**4**	7	0	10	10	56
Total Volume	131	19	150	19	7	26	4	77	81	257
% App. Total	87.3	12.7		73.1	26.9		4.9	95.1		
PHF	.840	.679	.872	.594	.438	.722	.500	.713	.698	.834



TRAFFIC DATA COLLECTION

File Name : Knightdale(Robertson and Mailman)
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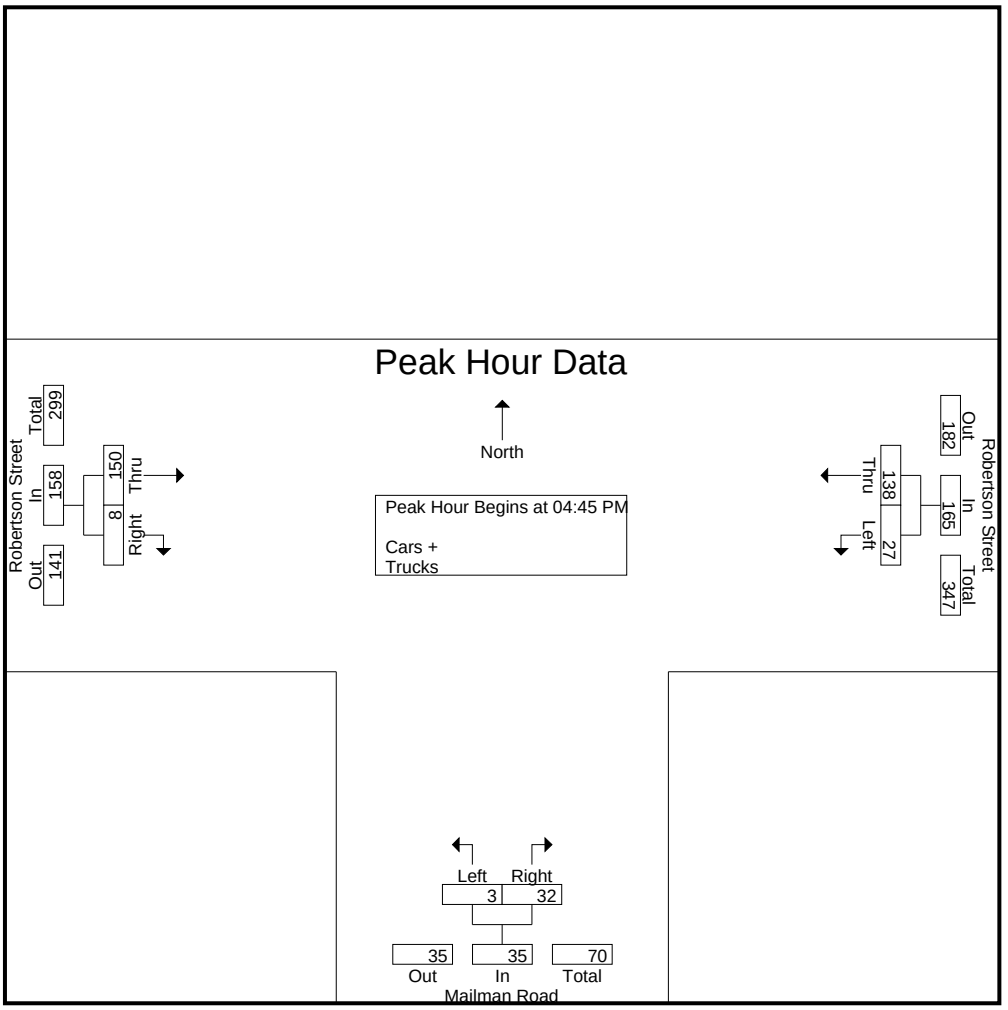
Groups Printed- Cars + - Trucks

	Robertson Street Westbound			Mailman Road Northbound			Robertson Street Eastbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	19	12	31	4	3	7	3	28	31	69
04:15 PM	24	4	28	8	0	8	1	33	34	70
04:30 PM	27	6	33	8	0	8	2	39	41	82
04:45 PM	35	4	39	5	1	6	1	28	29	74
Total	105	26	131	25	4	29	7	128	135	295
05:00 PM	36	8	44	7	0	7	1	38	39	90
05:15 PM	31	7	38	10	2	12	2	50	52	102
05:30 PM	36	8	44	10	0	10	4	34	38	92
05:45 PM	23	7	30	6	1	7	2	32	34	71
Total	126	30	156	33	3	36	9	154	163	355
Grand Total	231	56	287	58	7	65	16	282	298	650
Apprch %	80.5	19.5		89.2	10.8		5.4	94.6		
Total %	35.5	8.6	44.2	8.9	1.1	10	2.5	43.4	45.8	
Cars +	231	54	285	56	7	63	15	279	294	642
% Cars +	100	96.4	99.3	96.6	100	96.9	93.8	98.9	98.7	98.8
Trucks	0	2	2	2	0	2	1	3	4	8
% Trucks	0	3.6	0.7	3.4	0	3.1	6.2	1.1	1.3	1.2

TRAFFIC DATA COLLECTION

File Name : Knightdale(Robertson and Mailman)
Site Code :
Start Date : 1/13/2022

	Robertson Street Westbound			Mailman Road Northbound			Robertson Street Eastbound			
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	35	4	39	5	1	6	1	28	29	74
05:00 PM	**36**	**8**	**44**	7	0	7	1	38	39	90
05:15 PM	31	7	38	**10**	**2**	**12**	2	**50**	**52**	**102**
05:30 PM	36	8	44	10	0	10	**4**	34	38	92
Total Volume	138	27	165	32	3	35	8	150	158	358
% App. Total	83.6	16.4		91.4	8.6		5.1	94.9		
PHF	.958	.844	.938	.800	.375	.729	.500	.750	.760	.877



TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and Broadway)
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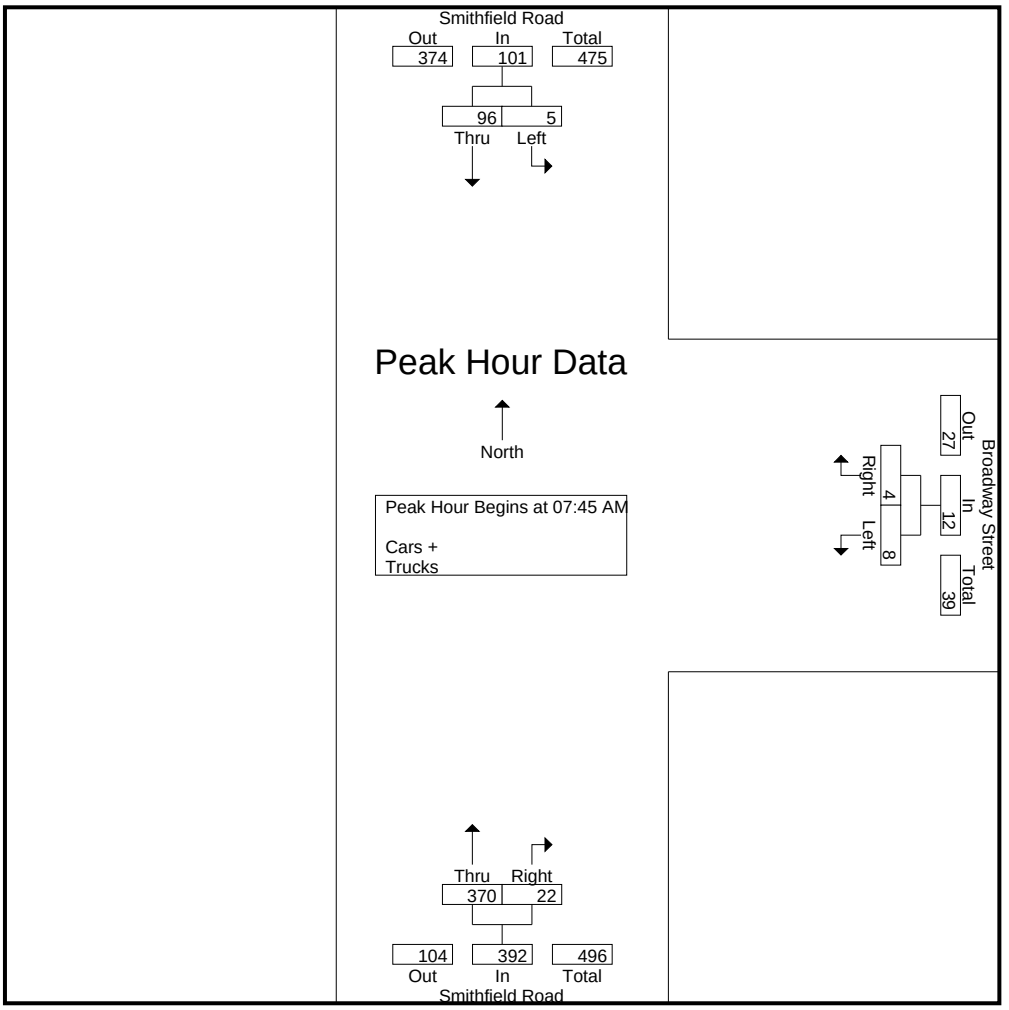
Groups Printed- Cars + - Trucks

	Smithfield Road Southbound			Broadway Street Westbound			Smithfield Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	18	1	19	0	2	2	0	33	33	54
07:15 AM	22	1	23	1	0	1	2	47	49	73
07:30 AM	27	1	28	2	1	3	2	55	57	88
07:45 AM	28	1	29	1	3	4	1	100	101	134
Total	95	4	99	4	6	10	5	235	240	349
08:00 AM	22	1	23	0	2	2	6	105	111	136
08:15 AM	27	3	30	2	2	4	5	88	93	127
08:30 AM	19	0	19	1	1	2	10	77	87	108
08:45 AM	39	7	46	8	6	14	5	57	62	122
Total	107	11	118	11	11	22	26	327	353	493
Grand Total	202	15	217	15	17	32	31	562	593	842
Apprch %	93.1	6.9		46.9	53.1		5.2	94.8		
Total %	24	1.8	25.8	1.8	2	3.8	3.7	66.7	70.4	
Cars +	201	15	216	15	17	32	30	561	591	839
% Cars +	99.5	100	99.5	100	100	100	96.8	99.8	99.7	99.6
Trucks	1	0	1	0	0	0	1	1	2	3
% Trucks	0.5	0	0.5	0	0	0	3.2	0.2	0.3	0.4

TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and Broadway)
Site Code :
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	Smithfield Road Southbound			Broadway Street Westbound			Smithfield 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 07:45 AM										
07:45 AM	**28**	1	29	1	**3**	**4**	1	100	101	134
08:00 AM	22	1	23	0	2	2	6	**105**	**111**	**136**
08:15 AM	27	**3**	**30**	**2**	2	4	5	88	93	127
08:30 AM	19	0	19	1	1	2	**10**	77	87	108
Total Volume	96	5	101	4	8	12	22	370	392	505
% App. Total	95	5		33.3	66.7		5.6	94.4		
PHF	.857	.417	.842	.500	.667	.750	.550	.881	.883	.928





File Name : Knightdale(Smithfield and Broadway)
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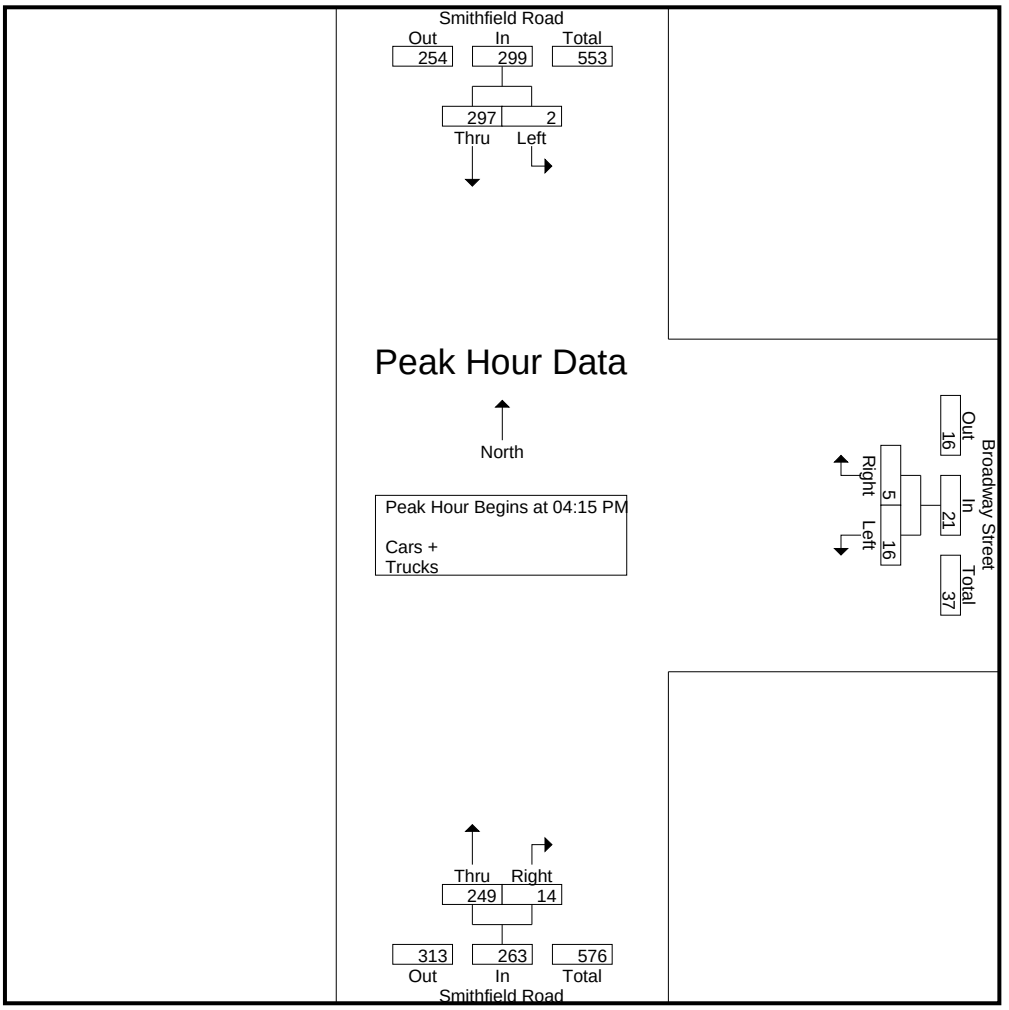
Groups Printed- Cars + - Trucks

	Smithfield Road Southbound			Broadway Street Westbound			Smithfield Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	59	1	60	1	3	4	5	66	71	135
04:15 PM	77	0	77	4	10	14	4	59	63	154
04:30 PM	80	1	81	0	3	3	2	54	56	140
04:45 PM	72	1	73	1	3	4	6	65	71	148
Total	288	3	291	6	19	25	17	244	261	577
05:00 PM	68	0	68	0	0	0	2	71	73	141
05:15 PM	80	1	81	2	2	4	7	57	64	149
05:30 PM	81	1	82	2	3	5	3	52	55	142
05:45 PM	81	1	82	0	3	3	2	62	64	149
Total	310	3	313	4	8	12	14	242	256	581
Grand Total	598	6	604	10	27	37	31	486	517	1158
Apprch %	99	1		27	73		6	94		
Total %	51.6	0.5	52.2	0.9	2.3	3.2	2.7	42	44.6	
Cars +	597	6	603	10	27	37	31	486	517	1157
% Cars +	99.8	100	99.8	100	100	100	100	100	100	99.9
Trucks	1	0	1	0	0	0	0	0	0	1
% Trucks	0.2	0	0.2	0	0	0	0	0	0	0.1

TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and Broadway)
Site Code :
Start Date : 3/17/2022
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	Smithfield Road Southbound			Broadway Street Westbound			Smithfield 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 04:15 PM										
04:15 PM	77	0	77	**4**	**10**	**14**	4	59	63	**154**
04:30 PM	**80**	**1**	**81**	0	3	3	2	54	56	140
04:45 PM	72	1	73	1	3	4	**6**	65	71	148
05:00 PM	68	0	68	0	0	0	2	**71**	**73**	141
Total Volume	297	2	299	5	16	21	14	249	263	583
% App. Total	99.3	0.7		23.8	76.2		5.3	94.7		
PHF	.928	.500	.923	.313	.400	.375	.583	.877	.901	.946



TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and mailman)
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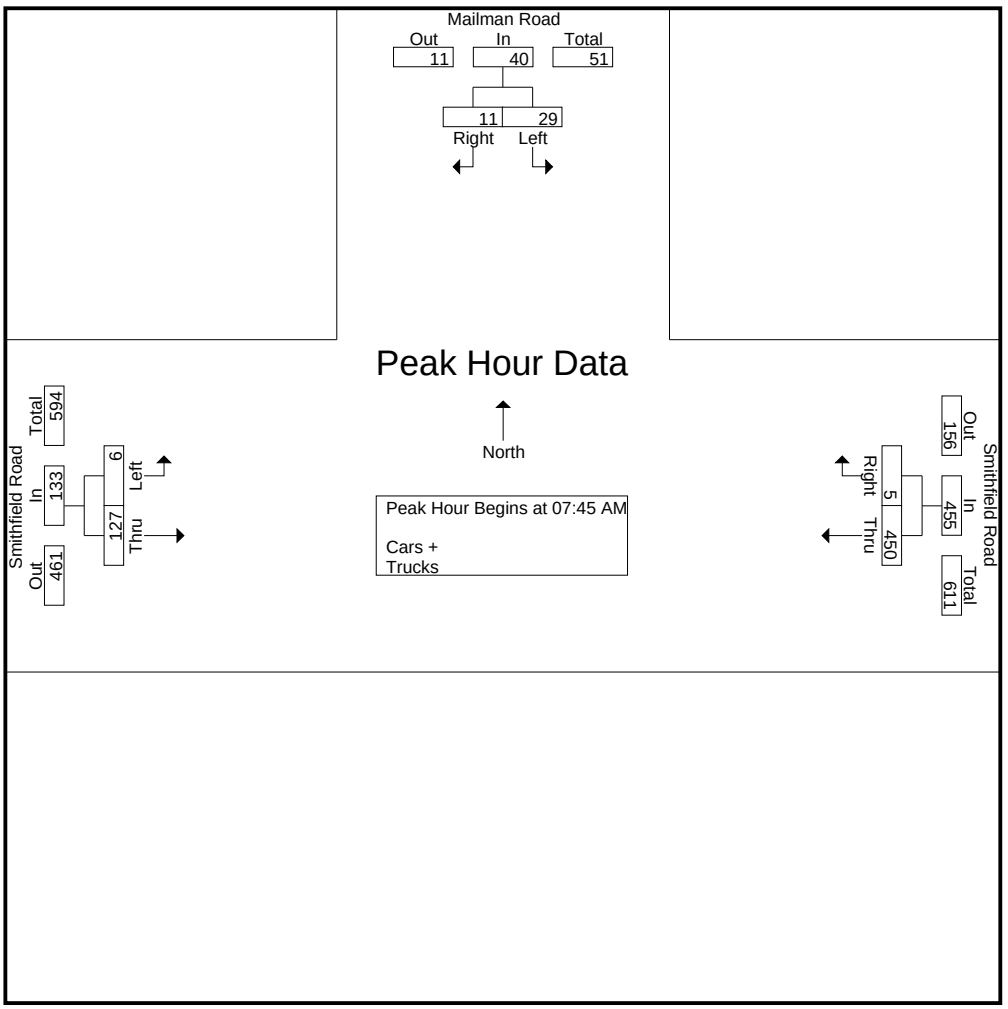
Groups Printed- Cars + - Trucks

	Mailman Road Southbound			Smithfield Road Westbound			Smithfield Road Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
07:00 AM	3	16	19	4	37	41	28	5	33	93
07:15 AM	2	10	12	1	42	43	35	0	35	90
07:30 AM	3	8	11	2	64	66	50	2	52	129
07:45 AM	4	15	19	1	103	104	34	1	35	158
Total	12	49	61	8	246	254	147	8	155	470
08:00 AM	6	8	14	2	127	129	34	1	35	178
08:15 AM	1	2	3	2	113	115	34	2	36	154
08:30 AM	0	4	4	0	107	107	25	2	27	138
08:45 AM	5	4	9	0	75	75	54	4	58	142
Total	12	18	30	4	422	426	147	9	156	612
Grand Total	24	67	91	12	668	680	294	17	311	1082
Apprch %	26.4	73.6		1.8	98.2		94.5	5.5		
Total %	2.2	6.2	8.4	1.1	61.7	62.8	27.2	1.6	28.7	
Cars +	24	67	91	12	666	678	292	17	309	1078
% Cars +	100	100	100	100	99.7	99.7	99.3	100	99.4	99.6
Trucks	0	0	0	0	2	2	2	0	2	4
% Trucks	0	0	0	0	0.3	0.3	0.7	0	0.6	0.4

TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and mailman)
Site Code :
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	Mailman Road Southbound			Smithfield Road Westbound			Smithfield Road Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	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 07:45 AM										
07:45 AM	4	**15**	**19**	1	103	104	**34**	1	35	158
08:00 AM	**6**	8	14	**2**	**127**	**129**	34	1	35	**178**
08:15 AM	1	2	3	2	113	115	34	**2**	**36**	154
08:30 AM	0	4	4	0	107	107	25	2	27	138
Total Volume	11	29	40	5	450	455	127	6	133	628
% App. Total	27.5	72.5		1.1	98.9		95.5	4.5		
PHF	.458	.483	.526	.625	.886	.882	.934	.750	.924	.882



TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and mailman)
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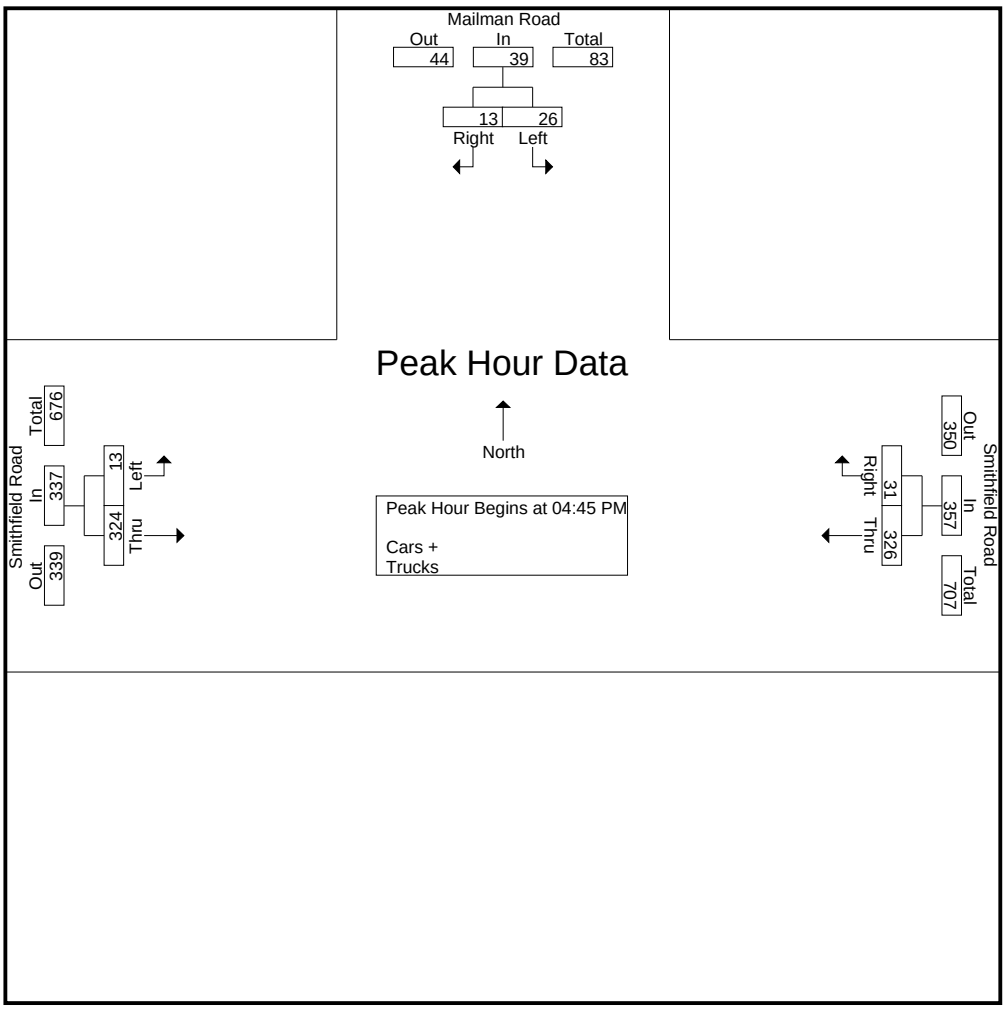
Groups Printed- Cars + - Trucks

	Mailman Road Southbound			Smithfield Road Westbound			Smithfield Road Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
04:00 PM	4	3	7	7	68	75	61	3	64	146
04:15 PM	4	9	13	8	66	74	90	7	97	184
04:30 PM	4	4	8	7	71	78	75	4	79	165
04:45 PM	4	1	5	8	86	94	87	3	90	189
Total	16	17	33	30	291	321	313	17	330	684
05:00 PM	4	6	10	6	92	98	74	6	80	188
05:15 PM	3	8	11	6	72	78	83	3	86	175
05:30 PM	2	11	13	11	76	87	80	1	81	181
05:45 PM	5	6	11	7	75	82	86	5	91	184
Total	14	31	45	30	315	345	323	15	338	728
Grand Total	30	48	78	60	606	666	636	32	668	1412
Apprch %	38.5	61.5		9	91		95.2	4.8		
Total %	2.1	3.4	5.5	4.2	42.9	47.2	45	2.3	47.3	
Cars +	30	48	78	60	606	666	636	32	668	1412
% Cars +	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0

TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and mailman)
Site Code :
Start Date : 3/17/2022

	Mailman Road Southbound			Smithfield Road Westbound			Smithfield Road Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	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	**4**	1	5	8	86	94	**87**	3	**90**	**189**
05:00 PM	4	6	10	6	**92**	**98**	74	**6**	80	188
05:15 PM	3	8	11	6	72	78	83	3	86	175
05:30 PM	2	**11**	**13**	**11**	76	87	80	1	81	181
Total Volume	13	26	39	31	326	357	324	13	337	733
% App. Total	33.3	66.7		8.7	91.3		96.1	3.9		
PHF	.813	.591	.750	.705	.886	.911	.931	.542	.936	.970



TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and Rainer Lake)
Site Code :
Start Date : 3/17/2022
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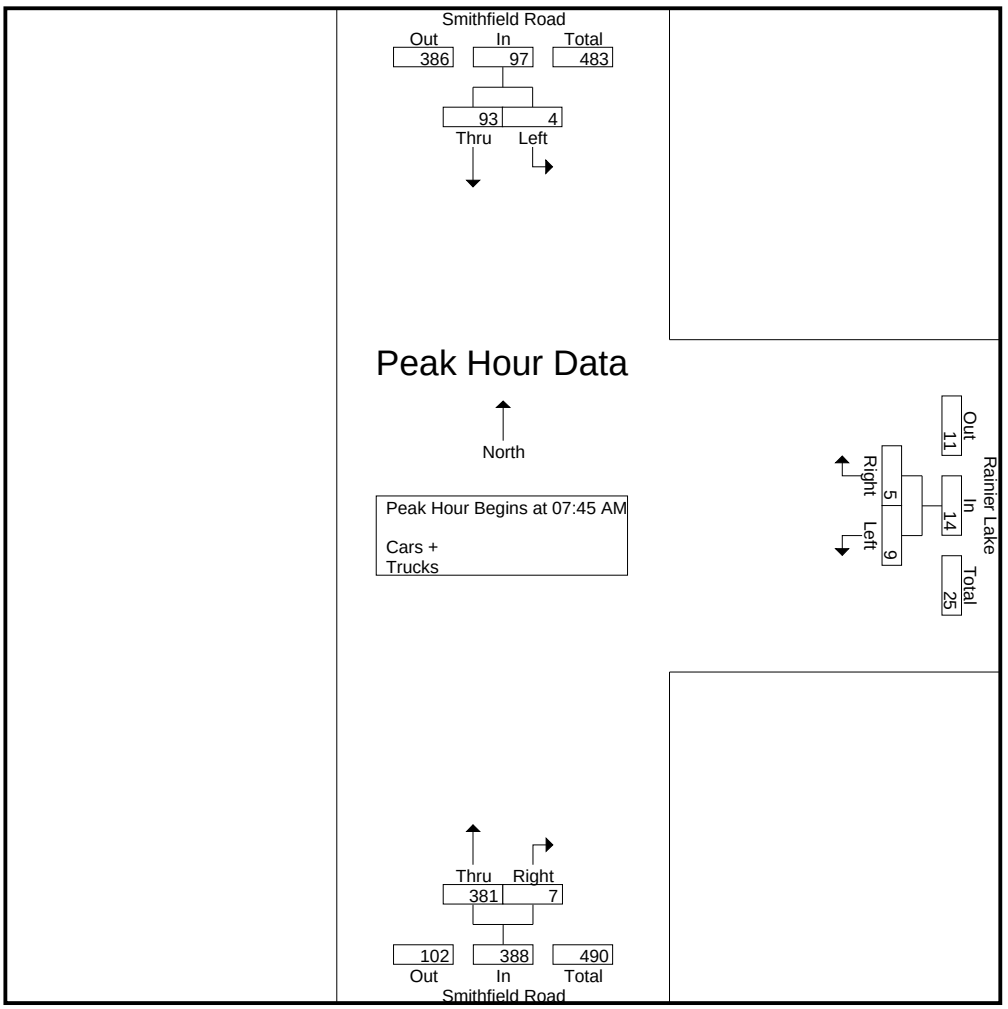
Groups Printed- Cars + - Trucks

	Smithfield Road Southbound			Rainier Lake Westbound			Smithfield Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	22	2	24	1	4	5	2	36	38	67
07:15 AM	28	0	28	1	3	4	1	38	39	71
07:30 AM	24	1	25	0	4	4	0	52	52	81
07:45 AM	29	1	30	2	2	4	1	101	102	136
Total	103	4	107	4	13	17	4	227	231	355
08:00 AM	20	0	20	0	4	4	2	113	115	139
08:15 AM	26	1	27	1	0	1	0	83	83	111
08:30 AM	18	2	20	2	3	5	4	84	88	113
08:45 AM	44	3	47	0	2	2	2	62	64	113
Total	108	6	114	3	9	12	8	342	350	476
Grand Total	211	10	221	7	22	29	12	569	581	831
Apprch %	95.5	4.5		24.1	75.9		2.1	97.9		
Total %	25.4	1.2	26.6	0.8	2.6	3.5	1.4	68.5	69.9	
Cars +	200	9	209	7	22	29	12	551	563	801
% Cars +	94.8	90	94.6	100	100	100	100	96.8	96.9	96.4
Trucks	11	1	12	0	0	0	0	18	18	30
% Trucks	5.2	10	5.4	0	0	0	0	3.2	3.1	3.6

TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and Rainier Lake)
Site Code :
Start Date : 3/17/2022
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	Smithfield Road Southbound			Rainier Lake Westbound			Smithfield 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 07:45 AM										
07:45 AM	**29**	1	**30**	**2**	2	4	1	101	102	136
08:00 AM	20	0	20	0	**4**	4	2	**113**	**115**	**139**
08:15 AM	26	1	27	1	0	1	0	83	83	111
08:30 AM	18	**2**	20	2	3	**5**	**4**	84	88	113
Total Volume	93	4	97	5	9	14	7	381	388	499
% App. Total	95.9	4.1		35.7	64.3		1.8	98.2		
PHF	.802	.500	.808	.625	.563	.700	.438	.843	.843	.897



TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and Rainer Lake) 2
Site Code :
Start Date : 3/17/2022
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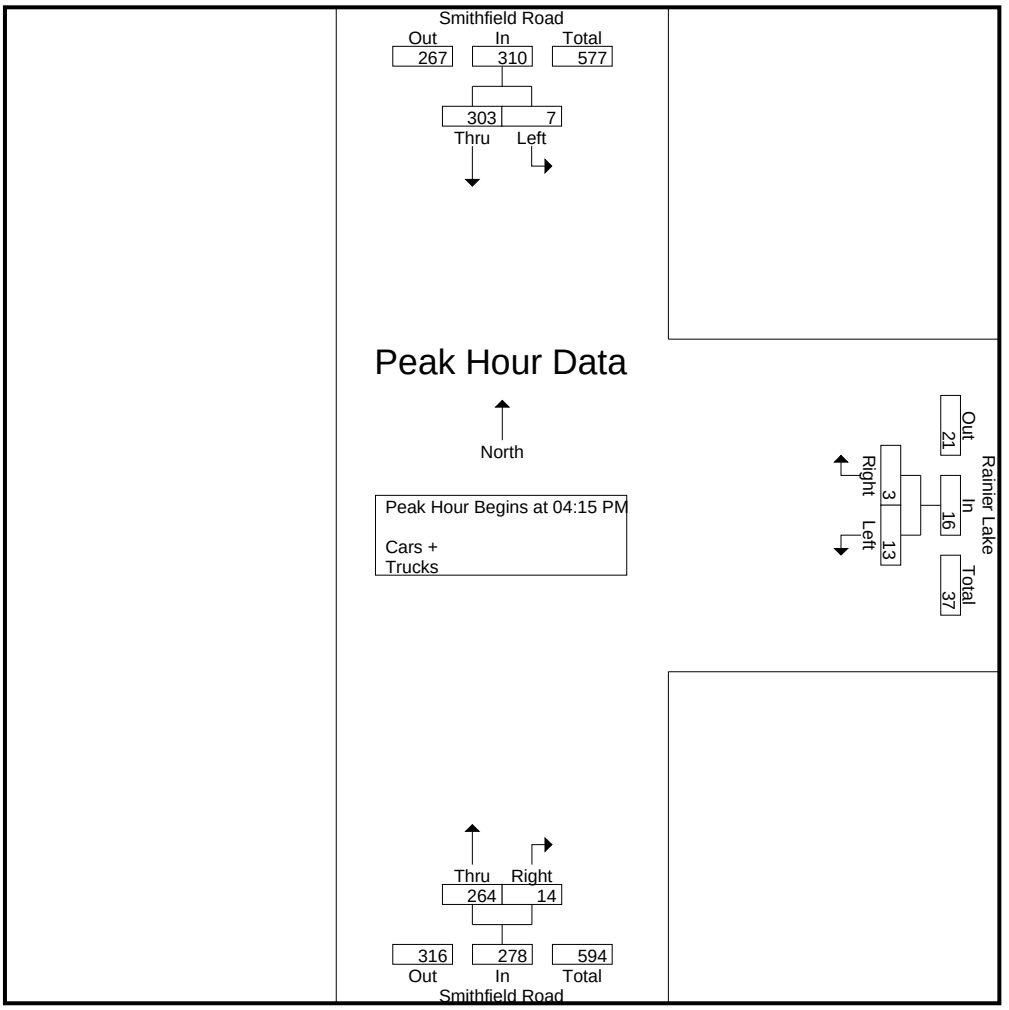
Groups Printed- Cars + - Trucks

	Smithfield Road Southbound			Rainier Lake Westbound			Smithfield Road Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	56	1	57	1	2	3	1	67	68	128
04:15 PM	85	1	86	0	3	3	4	57	61	150
04:30 PM	77	3	80	1	0	1	6	59	65	146
04:45 PM	76	2	78	1	8	9	3	74	77	164
Total	294	7	301	3	13	16	14	257	271	588
05:00 PM	65	1	66	1	2	3	1	74	75	144
05:15 PM	75	3	78	2	2	4	4	59	63	145
05:30 PM	77	1	78	4	4	8	2	51	53	139
05:45 PM	78	2	80	1	2	3	6	67	73	156
Total	295	7	302	8	10	18	13	251	264	584
Grand Total	589	14	603	11	23	34	27	508	535	1172
Apprch %	97.7	2.3		32.4	67.6		5	95		
Total %	50.3	1.2	51.5	0.9	2	2.9	2.3	43.3	45.6	
Cars +	581	14	595	11	21	32	25	500	525	1152
% Cars +	98.6	100	98.7	100	91.3	94.1	92.6	98.4	98.1	98.3
Trucks	8	0	8	0	2	2	2	8	10	20
% Trucks	1.4	0	1.3	0	8.7	5.9	7.4	1.6	1.9	1.7

TRAFFIC DATA COLLECTION

File Name : Knightdale(Smithfield and Rainer Lake) 2
Site Code :
Start Date : 3/17/2022

	Smithfield Road Southbound			Rainier Lake Westbound			Smithfield 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 04:15 PM										
04:15 PM	**85**	1	**86**	0	3	3	4	57	61	150
04:30 PM	77	**3**	80	**1**	0	1	**6**	59	65	146
04:45 PM	76	2	78	1	**8**	**9**	3	**74**	**77**	**164**
05:00 PM	65	1	66	1	2	3	1	74	75	144
Total Volume	303	7	310	3	13	16	14	264	278	604
% App. Total	97.7	2.3		18.8	81.2		5	95		
PHF	.891	.583	.901	.750	.406	.444	.583	.892	.903	.921

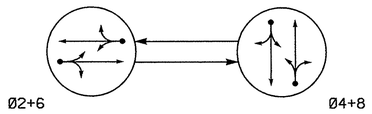


Appendix C – Traffic Signal Plans

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PROJECT REFERENCE NO.	SHEET NO.
WOE	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

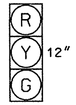
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	PHASE Ø4+8	FLASH
21, 22	G	R	Y
41, 42	R	G	R
61, 62	G	R	Y
81, 82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22
41, 42
61, 62
81, 82

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X60	+5	EXISTING	-	2	Y	Y	-	-	-	-	Y
4A	6X60	0	2-4-2	-	4	Y	Y	-	-	10	-	Y
6A	6X60	+5	EXISTING	-	6	Y	Y	-	-	-	-	Y
8A	6X60	+5	EXISTING	-	8	Y	Y	-	-	10	-	Y

2 Phase
Fully Actuated
(Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Pavement markings are existing.

OASIS 2070L TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	2.0	3.0	2.0
Max Green 1 *	45	30	45	30
Yellow Clearance	3.1	3.4	3.3	4.0
Red Clearance	1.4	1.7	1.5	1.2
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	-	-	-
Dual Entry	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Railroad Gate and Flasher	
N/A	Railroad Tracks	

Signal Upgrade

Prepared In the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2049 (First Avenue) at SR 2233 (Smithfield Road)

Division 5 Wake County Knightdale

PLAN DATE: January 2010 REVIEWED BY:

PREPARED BY: C.E. Carter REVIEWED BY:

SCALE 0 20 1"=20'

REVISIONS	INIT.	DATE

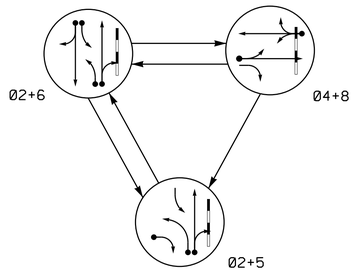
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NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA
SIGNATURE 2/10/10 DATE

SIG. INVENTORY NO. 05-1403

10-FEB-2010 14:57
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PROJECT REFERENCE NO.	SHEET NO.
Y-4805F	Sig. 1

PHASING DIAGRAM



RAIL PREEMPT PHASES

(High Priority)

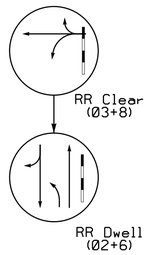


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4+8	RR CLEAR	RR DWELL	FLASH
21, 22	G	G	R	R	G	Y
41	R	R	G	R	R	R
42	R/→	R	G	R	R	R
51	←	F/Y	~~R~~	~~R~~	F/Y	~~Y~~
61	F/Y	F/Y	~~R~~	~~R~~	~~R~~	~~Y~~
62, 63	R	G	R	R	G	Y
81	R	R	G	G/→	R	R
82	R	R	G	G	R	R
SIGN A	OFF	OFF	OFF	ON	ON	*

*See Note 6

ASC/3 DETECTOR INSTALLATION CHART

DETECTOR LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
2A	6X6	70	4	X	2	Yes	-	-	-	S	-	X
4A	6X40	0	2-4-2	X	4	Yes	-	3	-	S	-	X
5A	6X40	0	2-4-2	X	5	Yes	-	15	-	S	-	X
					2	Yes	-	-	-	S	-	X
5B	6X40	0	2-4-2	X	5	Yes	-	15	-	S	-	X
5C	6X6	0	4	X	5	Yes	-	15	-	S	-	X
6A	6X6	70	4	X	6	Yes	-	-	-	S	-	X
6B	6X40	0	2-4-2	X	6	Yes	-	-	-	S	-	X
8A	6X40	0	2-4-2	X	8	Yes	-	10	-	S	-	X

3 Phase
w/ Railroad Preemption
Fully Actualted
(Knightdale Signal System)

NOTES

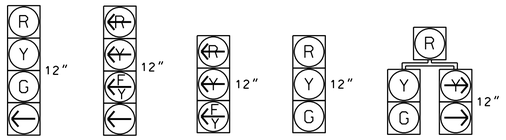
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
3. Phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Ensure flashing operation does not alter operation of blankout signs.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Program parent phases for Overlap "P" for all phases used in normal operation.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 RR PREEMPT

FUNCTION	PRE 1
Exit Phase(s)	4+8
Preempt Override	ON
Delay Time	0
Ped Clear Trough Yellow	N
Terminate Phases	N
Track Clear Reservice	Y
Entrance Walk	-
Entrance Ped Clear	-
Entrance Min Green	1
Entrance Yellow Change	25.5*
Entrance Red Clear	25.5*
Track Clear Min Green	30
Track Clear Yellow Change	4.0
Track Clear Red Clear	2.2
Min Dwell Time	7
Exit Yellow Change	25.5*
Exit Red Clear	25.5*
Omit Overlaps	A, P

* Allows normal phase times to be used.

This signal was designed for advanced preemption.

Proposed Stopbar Locations

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
⊠	Controller & Cabinet	
□	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
→	Directional Arrow	→
N/A	Railroad Tracks	
N/A	Railroad Gate and Flasher	
Ⓐ	"NO RIGHT TURN - TRAIN" L.E.D. Blankout Sign	Ⓐ
Ⓑ	"DO NOT STOP ON TRACKS" Sign (R8-8)	Ⓑ
Ⓒ	"ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN" Sign (W25-2)	Ⓒ

ASC/3 TIMING CHART

FEATURE	PHASE 2	4	5	6	8
Min Green *	10	7	7	10	7
Walk *	0	0	0	0	0
Ped Clear	0	0	0	0	0
Veh. Extension *	3.0	2.0	2.0	3.0	2.0
Max 1 *	45	30	15	45	30
Yellow	3.3	3.4	3.0	3.3	4.0
Red Clear	1.7	2.7	1.8	1.7	2.2
Red Revert	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-
Seconds /Actuation *	-	-	-	-	-
Max Initial *	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-
Time To Reduce *	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Locking Detector	X	-	-	X	-
Recall Position	VEH. RECALL	-	-	VEH. RECALL	-
Dual Entry	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

This plan supersedes the plans signed and sealed on 4/19/16 and 10/10/18.

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared In the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SR 2049 (First Ave.)
at
SR 2233 (S. Smithfield Road)

Division 5 | Wake County | Knightdale

PLAN DATE: March 2019 | REVIEWED BY:
PREPARED BY: C.E. Carter | REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA
DocuSigned by: Robert J. Ziemba 4/5/2019
SIGNATURE DATE

SIG. INVENTORY NO. 05-1403

05-APR-2019 15:17
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rziemba

Appendix D – Synchro Output

2022 Existing Traffic Volumes



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	103	56	224	47	39	195
Future Volume (vph)	103	56	224	47	39	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		0%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.952		0.977			
Flt Protected	0.969					0.992
Satd. Flow (prot)	1744	0	1820	0	0	1857
Flt Permitted	0.969					0.992
Satd. Flow (perm)	1744	0	1820	0	0	1857
Link Speed (mph)	25		25			25
Link Distance (ft)	1206		863			993
Travel Time (s)	32.9		23.5			27.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	114	62	249	52	43	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	0	301	0	0	260
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.00	1.00	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.2%		ICU Level of Service A	
Analysis Period (min) 15			

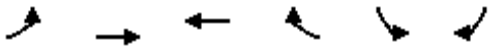
Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	103	56	224	47	39	195
Future Vol, veh/h	103	56	224	47	39	195
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	62	249	52	43	217

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	578	275	0	0	301	0
Stage 1	275	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	526	781	-	-	1260	-
Stage 1	808	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	505	781	-	-	1260	-
Mov Cap-2 Maneuver	505	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	577	1260	-
HCM Lane V/C Ratio	-	-	0.306	0.034	-
HCM Control Delay (s)	-	-	14	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	73	115	32	5	4
Future Volume (vph)	4	73	115	32	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-4%	2%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.970		0.946	
Flt Protected		0.998			0.971	
Satd. Flow (prot)	0	1896	1789	0	1737	0
Flt Permitted		0.998			0.971	
Satd. Flow (perm)	0	1896	1789	0	1737	0
Link Speed (mph)		35	25		25	
Link Distance (ft)		1206	372		759	
Travel Time (s)		23.5	10.1		20.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	81	128	36	6	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	85	164	0	10	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.97	0.97	1.01	1.01	0.98	0.98
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	73	115	32	5	4
Future Vol, veh/h	4	73	115	32	5	4
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	81	128	36	6	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	164	0	-	0	235	146
Stage 1	-	-	-	-	146	-
Stage 2	-	-	-	-	89	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1414	-	-	-	783	912
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1414	-	-	-	781	912
Mov Cap-2 Maneuver	-	-	-	-	781	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1414	-	-	-	834
HCM Lane V/C Ratio	0.003	-	-	-	0.012
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	77	4	19	131	7	19
Future Volume (vph)	77	4	19	131	7	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.902	
Flt Protected				0.994	0.986	
Satd. Flow (prot)	1852	0	0	1852	1657	0
Flt Permitted				0.994	0.986	
Satd. Flow (perm)	1852	0	0	1852	1657	0
Link Speed (mph)	45			45	55	
Link Distance (ft)	2613			492	2309	
Travel Time (s)	39.6			7.5	28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	86	4	21	146	8	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	167	29	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.6%		ICU Level of Service A	
Analysis Period (min) 15			

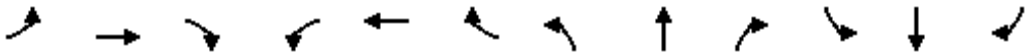
Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	77	4	19	131	7	19
Future Vol, veh/h	77	4	19	131	7	19
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	86	4	21	146	8	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	90	0	276	88
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	188	-
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	-	-	1505	-	714	970
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1505	-	703	970
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	880	-	-	1505	-
HCM Lane V/C Ratio	0.033	-	-	0.014	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	6	4	9	16	30	4	231	5	17	221	4
Future Volume (vph)	4	6	4	9	16	30	4	231	5	17	221	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			3%			-1%			0%	
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		0.964			0.927			0.997			0.998	
Flt Protected		0.987			0.992			0.999			0.996	
Satd. Flow (prot)	0	1746	0	0	1687	0	0	1865	0	0	1852	0
Flt Permitted		0.987			0.992			0.999			0.996	
Satd. Flow (perm)	0	1746	0	0	1687	0	0	1865	0	0	1852	0
Link Speed (mph)		25			35			25			25	
Link Distance (ft)		590			1101			557			863	
Travel Time (s)		16.1			21.4			15.2			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	7	4	10	18	33	4	257	6	19	246	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	0	61	0	0	267	0	0	269	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		-30			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.8%		ICU Level of Service A	
Analysis Period (min) 15			

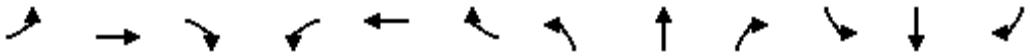
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	6	4	9	16	30	4	231	5	17	221	4
Future Vol, veh/h	4	6	4	9	16	30	4	231	5	17	221	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	7	4	10	18	33	4	257	6	19	246	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	580	557	248	560	556	260	250	0	0	263	0	0
Stage 1	286	286	-	268	268	-	-	-	-	-	-	-
Stage 2	294	271	-	292	288	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	386	400	775	400	400	762	1316	-	-	1301	-	-
Stage 1	688	644	-	705	657	-	-	-	-	-	-	-
Stage 2	680	655	-	682	642	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	350	392	775	386	392	762	1316	-	-	1301	-	-
Mov Cap-2 Maneuver	350	392	-	386	392	-	-	-	-	-	-	-
Stage 1	685	633	-	702	654	-	-	-	-	-	-	-
Stage 2	630	652	-	660	631	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.5	12.7	0.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1316	-	-	439	531	1301	-	-
HCM Lane V/C Ratio	0.003	-	-	0.035	0.115	0.015	-	-
HCM Control Delay (s)	7.7	0	-	13.5	12.7	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	69	44	14	53	7	0	0	0	8	13	6
Future Volume (vph)	6	69	44	14	53	7	0	0	0	8	13	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			2%			2%			0%	
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		0.950			0.987						0.968	
Flt Protected		0.997			0.990						0.985	
Satd. Flow (prot)	0	1747	0	0	1802	0	0	0	0	0	1776	0
Flt Permitted		0.997			0.990						0.985	
Satd. Flow (perm)	0	1747	0	0	1802	0	0	0	0	0	1776	0
Link Speed (mph)		35			35			10			25	
Link Distance (ft)		1101			1374			361			92	
Travel Time (s)		21.4			26.8			24.6			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	77	49	16	59	8	0	0	0	9	14	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	133	0	0	83	0	0	0	0	0	30	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.6%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	5	13	4	5	27
Future Volume (vph)	4	5	13	4	5	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%		0%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.970			
Flt Protected	0.980					0.992
Satd. Flow (prot)	1644	0	1807	0	0	1829
Flt Permitted	0.980					0.992
Satd. Flow (perm)	1644	0	1807	0	0	1829
Link Speed (mph)	25		25			25
Link Distance (ft)	667		92			816
Travel Time (s)	18.2		2.5			22.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	6	14	4	6	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	18	0	0	36
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	5	13	4	5	27
Future Vol, veh/h	4	5	13	4	5	27
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	6	14	4	6	30

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	58	16	0	0	18	0
Stage 1	16	-	-	-	-	-
Stage 2	42	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	937	1061	-	-	1599	-
Stage 1	1003	-	-	-	-	-
Stage 2	971	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	933	1061	-	-	1599	-
Mov Cap-2 Maneuver	933	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	967	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1000	1599	-
HCM Lane V/C Ratio	-	-	0.01	0.003	-
HCM Control Delay (s)	-	-	8.6	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	16	18	4	26	32	5
Future Volume (vph)	16	18	4	26	32	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-3%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.929				0.981	
Flt Protected				0.994	0.959	
Satd. Flow (prot)	1756	0	0	1879	1735	0
Flt Permitted				0.994	0.959	
Satd. Flow (perm)	1756	0	0	1879	1735	0
Link Speed (mph)	45			45	55	
Link Distance (ft)	1374			1093	971	
Travel Time (s)	20.8			16.6	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	20	4	29	36	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	33	42	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.98	0.98	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	16	18	4	26	32	5
Future Vol, veh/h	16	18	4	26	32	5
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	20	4	29	36	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	38	0	65	28
Stage 1	-	-	-	-	28	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1572	-	934	1046
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	981	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1572	-	931	1046
Mov Cap-2 Maneuver	-	-	-	-	931	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	978	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	945	-	-	1572	-
HCM Lane V/C Ratio	0.044	-	-	0.003	-
HCM Control Delay (s)	9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	20	4	4	29	4	4
Future Volume (vph)	20	4	4	29	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			5%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.932	
Flt Protected				0.994	0.976	
Satd. Flow (prot)	1860	0	0	1805	1737	0
Flt Permitted				0.994	0.976	
Satd. Flow (perm)	1860	0	0	1805	1737	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1093			637	1210	
Travel Time (s)	16.6			9.7	33.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	4	4	32	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	0	36	8	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.97	0.97	1.03	1.03	0.97	0.97
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	4	4	29	4	4
Future Vol, veh/h	20	4	4	29	4	4
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, %	-4	-	-	5	-5	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	4	4	32	4	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	26	0	64	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	40	-
Critical Hdwy	-	-	4.12	-	5.42	5.72
Critical Hdwy Stg 1	-	-	-	-	4.42	-
Critical Hdwy Stg 2	-	-	-	-	4.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1588	-	959	1056
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	993	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1588	-	956	1056
Mov Cap-2 Maneuver	-	-	-	-	956	-
Stage 1	-	-	-	-	1005	-
Stage 2	-	-	-	-	990	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1004	-	-	1588	-
HCM Lane V/C Ratio	0.009	-	-	0.003	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	13	4	4	12	4	12
Future Volume (vph)	13	4	4	12	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.970				0.897	
Flt Protected				0.988	0.988	
Satd. Flow (prot)	1807	0	0	1840	1651	0
Flt Permitted				0.988	0.988	
Satd. Flow (perm)	1807	0	0	1840	1651	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	408			801	557	
Travel Time (s)	6.2			12.1	15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	4	4	13	4	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	17	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.1%		ICU Level of Service A	
Analysis Period (min) 15			

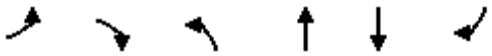
Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	13	4	4	12	4	12
Future Vol, veh/h	13	4	4	12	4	12
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	14	4	4	13	4	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	18	0	37	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	21	-
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	-	-	1599	-	975	1063
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1599	-	972	1063
Mov Cap-2 Maneuver	-	-	-	-	972	-
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	8.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1039	-	-	1599	-
HCM Lane V/C Ratio	0.017	-	-	0.003	-
HCM Control Delay (s)	8.5	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	23	4	16	17	6
Future Volume (vph)	8	23	4	16	17	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			1%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.900				0.964	
Flt Protected	0.987			0.991		
Satd. Flow (prot)	1638	0	0	1837	1832	0
Flt Permitted	0.987			0.991		
Satd. Flow (perm)	1638	0	0	1837	1832	0
Link Speed (mph)	45			55	55	
Link Distance (ft)	1059			3153	2309	
Travel Time (s)	16.0			39.1	28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	26	4	18	19	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	22	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	0.97	0.97
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

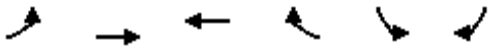
Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	23	4	16	17	6
Future Vol, veh/h	8	23	4	16	17	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	26	4	18	19	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	49	23	26	0	-	0
Stage 1	23	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	955	1052	1588	-	-	-
Stage 1	997	-	-	-	-	-
Stage 2	994	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	952	1052	1588	-	-	-
Mov Cap-2 Maneuver	952	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	994	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1588	-	1024	-	-
HCM Lane V/C Ratio	0.003	-	0.034	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	96	370	22	8	4
Future Volume (vph)	5	96	370	22	8	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.958	
Flt Protected		0.997			0.967	
Satd. Flow (prot)	0	1857	1850	0	1726	0
Flt Permitted		0.997			0.967	
Satd. Flow (perm)	0	1857	1850	0	1726	0
Link Speed (mph)		35	35		55	
Link Distance (ft)		1430	932		971	
Travel Time (s)		27.9	18.2		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	107	411	24	9	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	113	435	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.8%		ICU Level of Service A	
Analysis Period (min) 15			

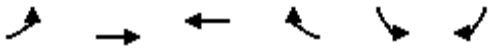
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	96	370	22	8	4
Future Vol, veh/h	5	96	370	22	8	4
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	6	107	411	24	9	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	435	0	-	0	542	423
Stage 1	-	-	-	-	423	-
Stage 2	-	-	-	-	119	-
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	1125	-	-	-	501	631
Stage 1	-	-	-	-	661	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1125	-	-	-	498	631
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	906	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1125	-	-	-	536
HCM Lane V/C Ratio	0.005	-	-	-	0.025
HCM Control Delay (s)	8.2	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	93	381	7	9	5
Future Volume (vph)	4	93	381	7	9	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-2%	0%		-3%	
Storage Length (ft)	200			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.949	
Flt Protected	0.950				0.970	
Satd. Flow (prot)	1787	1881	1857	0	1740	0
Flt Permitted	0.950				0.970	
Satd. Flow (perm)	1787	1881	1857	0	1740	0
Link Speed (mph)		45	35		25	
Link Distance (ft)		997	2607		1098	
Travel Time (s)		15.1	50.8		29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	103	423	8	10	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	103	431	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.00	1.00	0.98	0.98
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.5%		ICU Level of Service A	
Analysis Period (min) 15			

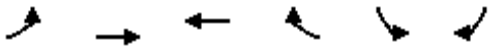
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	93	381	7	9	5
Future Vol, veh/h	4	93	381	7	9	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	103	423	8	10	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	431	0	-	0	538	427
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1129	-	-	-	551	650
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	931	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1129	-	-	-	549	650
Mov Cap-2 Maneuver	-	-	-	-	549	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	931	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1129	-	-	-	581
HCM Lane V/C Ratio	0.004	-	-	-	0.027
HCM Control Delay (s)	8.2	-	-	-	11.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	127	450	5	29	11
Future Volume (vph)	6	127	450	5	29	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-2%		-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.963	
Flt Protected		0.998			0.965	
Satd. Flow (prot)	0	1831	1878	0	1748	0
Flt Permitted		0.998			0.965	
Satd. Flow (perm)	0	1831	1878	0	1748	0
Link Speed (mph)		45	45		55	
Link Distance (ft)		2607	1003		2102	
Travel Time (s)		39.5	15.2		26.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	141	500	6	32	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	148	506	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.99	0.99	0.99	0.99
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

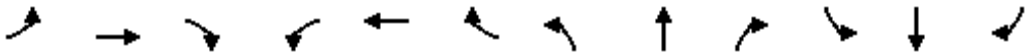
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	127	450	5	29	11
Future Vol, veh/h	6	127	450	5	29	11
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	141	500	6	32	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	506	0	-	0	658	503
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	155	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1059	-	-	-	462	585
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	888	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1059	-	-	-	459	585
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	888	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1059	-	-	-	488
HCM Lane V/C Ratio	0.006	-	-	-	0.091
HCM Control Delay (s)	8.4	0	-	-	13.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	133	130	8	217	46	222	156	4	33	160	27
Future Volume (vph)	8	133	130	8	217	46	222	156	4	33	160	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.935			0.977			0.999			0.983	
Flt Protected		0.999			0.999			0.972			0.993	
Satd. Flow (prot)	0	1670	0	0	1836	0	0	1791	0	0	1836	0
Flt Permitted		0.986			0.986			0.713			0.908	
Satd. Flow (perm)	0	1649	0	0	1812	0	0	1314	0	0	1679	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	148	144	9	241	51	247	173	4	37	178	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	301	0	0	301	0	0	424	0	0	245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		13.6			13.6			25.1			25.1	
Actuated g/C Ratio		0.28			0.28			0.51			0.51	
v/c Ratio		0.65			0.59			0.63			0.28	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		22.7			20.3			15.3			8.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		22.7			20.3			15.3			8.7	
LOS		C			C			B			A	
Approach Delay		22.7			20.3			15.3			8.7	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)		74			73			75			34	
Queue Length 95th (ft)		137			132			#208			87	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		1357			1491			676			863	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.22			0.20			0.63			0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 48.8			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 16.9		Intersection LOS: B	
Intersection Capacity Utilization 63.8%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	86	50	196	142	78	257
Future Vol, veh/h	86	50	196	142	78	257
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	56	218	158	87	286

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	757	297	0	0	376	0
Stage 1	297	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	426	761	-	-	1182	-
Stage 1	792	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	389	761	-	-	1182	-
Mov Cap-2 Maneuver	389	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	1.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	474	1182	-
HCM Lane V/C Ratio	-	-	0.319	0.073	-
HCM Control Delay (s)	-	-	16.1	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0.2	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	166	131	7	11	5
Future Vol, veh/h	4	166	131	7	11	5
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	184	146	8	12	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	154	0	-	0	342	150
Stage 1	-	-	-	-	150	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1426	-	-	-	693	908
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1426	-	-	-	691	908
Mov Cap-2 Maneuver	-	-	-	-	691	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1426	-	-	-	747
HCM Lane V/C Ratio	0.003	-	-	-	0.024
HCM Control Delay (s)	7.5	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	8	27	138	4	32
Future Vol, veh/h	150	8	27	138	4	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	167	9	30	153	4	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	176	0	385	172
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	213	-
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	-	-	1400	-	618	872
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1400	-	604	872
Mov Cap-2 Maneuver	-	-	-	-	604	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	804	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	831	-	-	1400	-
HCM Lane V/C Ratio	0.048	-	-	0.021	-
HCM Control Delay (s)	9.6	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	10	4	13	10	32	4	247	5	47	260	4
Future Vol, veh/h	4	10	4	13	10	32	4	247	5	47	260	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	11	4	14	11	36	4	274	6	52	289	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	704	683	291	688	682	277	293	0	0	280	0	0
Stage 1	395	395	-	285	285	-	-	-	-	-	-	-
Stage 2	309	288	-	403	397	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	313	332	730	321	332	744	1269	-	-	1283	-	-
Stage 1	590	566	-	689	644	-	-	-	-	-	-	-
Stage 2	666	642	-	583	565	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	279	315	730	298	315	744	1269	-	-	1283	-	-
Mov Cap-2 Maneuver	279	315	-	298	315	-	-	-	-	-	-	-
Stage 1	588	539	-	686	641	-	-	-	-	-	-	-
Stage 2	621	639	-	540	538	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.9	13.9	0.1	1.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1269	-	-	349	465	1283	-	-
HCM Lane V/C Ratio	0.004	-	-	0.057	0.131	0.041	-	-
HCM Control Delay (s)	7.8	0	-	15.9	13.9	7.9	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	5	25	4	5	16
Future Vol, veh/h	4	5	25	4	5	16
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	6	28	4	6	18

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	60	30	0	0	32	0
Stage 1	30	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	934	1041	-	-	1580	-
Stage 1	986	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	930	1041	-	-	1580	-
Mov Cap-2 Maneuver	930	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	982	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	989	1580	-
HCM Lane V/C Ratio	-	-	0.01	0.004	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	7	6	19	15	7
Future Vol, veh/h	27	7	6	19	15	7
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	8	7	21	17	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	38	0	69	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1572	-	929	1037
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1572	-	924	1037
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	985	-
Stage 2	-	-	-	-	979	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	957	-	-	1572	-
HCM Lane V/C Ratio	0.026	-	-	0.004	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	33	4	4	26	4	6
Future Vol, veh/h	33	4	4	26	4	6
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, %	-4	-	-	5	-5	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	4	4	29	4	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	41	0	76	39
Stage 1	-	-	-	-	39	-
Stage 2	-	-	-	-	37	-
Critical Hdwy	-	-	4.12	-	5.42	5.72
Critical Hdwy Stg 1	-	-	-	-	4.42	-
Critical Hdwy Stg 2	-	-	-	-	4.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1568	-	947	1038
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1568	-	944	1038
Mov Cap-2 Maneuver	-	-	-	-	944	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	993	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	998	-	-	1568	-
HCM Lane V/C Ratio	0.011	-	-	0.003	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	4	5	15	4	4
Future Vol, veh/h	31	4	5	15	4	4
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	34	4	6	17	4	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	38	0	65	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	29	-
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	-	-	1572	-	941	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	994	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1572	-	937	1037
Mov Cap-2 Maneuver	-	-	-	-	937	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	990	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	984	-	-	1572	-
HCM Lane V/C Ratio	0.009	-	-	0.004	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	0	13	33	24	7
Future Vol, veh/h	8	0	13	33	24	7
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	0	14	37	27	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	96	31	35	0	-	0
Stage 1	31	-	-	-	-	-
Stage 2	65	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	894	1041	1576	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	886	1041	1576	-	-	-
Mov Cap-2 Maneuver	886	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1576	-	886	-	-
HCM Lane V/C Ratio	0.009	-	0.01	-	-
HCM Control Delay (s)	7.3	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	297	249	14	16	5
Future Vol, veh/h	4	297	249	14	16	5
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	4	330	277	16	18	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	293	0	-	0	623	285
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	338	-
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	1269	-	-	-	450	754
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1269	-	-	-	448	754
Mov Cap-2 Maneuver	-	-	-	-	448	-
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	722	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1269	-	-	-	496
HCM Lane V/C Ratio	0.004	-	-	-	0.047
HCM Control Delay (s)	7.8	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	303	264	14	13	4
Future Vol, veh/h	7	303	264	14	13	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	337	293	16	14	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	309	0	-	0	654	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1252	-	-	-	481	757
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	754	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1252	-	-	-	478	757
Mov Cap-2 Maneuver	-	-	-	-	478	-
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	754	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1252	-	-	-	523
HCM Lane V/C Ratio	0.006	-	-	-	0.036
HCM Control Delay (s)	7.9	-	-	-	12.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

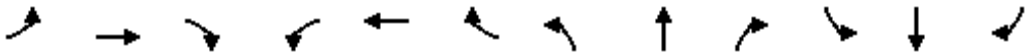
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	324	326	31	26	13
Future Vol, veh/h	13	324	326	31	26	13
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	360	362	34	29	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	396	0	-	0	767	379
Stage 1	-	-	-	-	379	-
Stage 2	-	-	-	-	388	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1163	-	-	-	403	682
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1163	-	-	-	397	682
Mov Cap-2 Maneuver	-	-	-	-	397	-
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	716	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1163	-	-	-	461
HCM Lane V/C Ratio	0.012	-	-	-	0.094
HCM Control Delay (s)	8.1	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	292	302	9	247	26	228	168	12	67	259	17
Future Volume (vph)	4	292	302	9	247	26	228	168	12	67	259	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.932			0.987			0.996			0.993	
Flt Protected					0.998			0.973			0.990	
Satd. Flow (prot)	0	1667	0	0	1853	0	0	1787	0	0	1850	0
Flt Permitted		0.998			0.978			0.587			0.860	
Satd. Flow (perm)	0	1663	0	0	1816	0	0	1078	0	0	1607	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	324	336	10	274	29	253	187	13	74	288	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	664	0	0	313	0	0	453	0	0	381	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		29.6			29.6			25.4			25.4	
Actuated g/C Ratio		0.45			0.45			0.39			0.39	
v/c Ratio		0.88			0.38			1.08			0.61	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		30.0			12.6			93.2			23.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		30.0			12.6			93.2			23.5	
LOS		C			B			F			C	
Approach Delay		30.0			12.6			93.2			23.5	
Approach LOS		C			B			F			C	
Queue Length 50th (ft)		223			76			~213			121	
Queue Length 95th (ft)		361			126			#440			#256	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		1036			1132			420			626	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.64			0.28			1.08			0.61	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 65.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 41.4		Intersection LOS: D	
Intersection Capacity Utilization 88.7%		ICU Level of Service E	
Analysis Period (min) 15			

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

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



2026 Background Traffic Volumes



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	142	76	254	61	52	220
Future Volume (vph)	142	76	254	61	52	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		0%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.953		0.974			
Flt Protected	0.968					0.990
Satd. Flow (prot)	1744	0	1814	0	0	1853
Flt Permitted	0.968					0.990
Satd. Flow (perm)	1744	0	1814	0	0	1853
Link Speed (mph)	35		25			25
Link Distance (ft)	1206		863			993
Travel Time (s)	23.5		23.5			27.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	158	84	282	68	58	244
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	0	350	0	0	302
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.00	1.00	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.0%		ICU Level of Service A	
Analysis Period (min) 15			

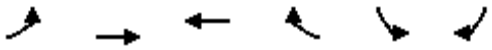
Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	142	76	254	61	52	220
Future Vol, veh/h	142	76	254	61	52	220
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	84	282	68	58	244

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	676	316	0	0	350	0
Stage 1	316	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	469	744	-	-	1209	-
Stage 1	779	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	744	-	-	1209	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	516	1209	-
HCM Lane V/C Ratio	-	-	0.469	0.048	-
HCM Control Delay (s)	-	-	18	8.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.5	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	90	142	40	18	26
Future Volume (vph)	10	90	142	40	18	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-4%	2%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.971		0.920	
Flt Protected		0.995			0.980	
Satd. Flow (prot)	0	1890	1791	0	1705	0
Flt Permitted		0.995			0.980	
Satd. Flow (perm)	0	1890	1791	0	1705	0
Link Speed (mph)		35	25		25	
Link Distance (ft)		1206	372		759	
Travel Time (s)		23.5	10.1		20.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	100	158	44	20	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	111	202	0	49	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.97	0.97	1.01	1.01	0.98	0.98
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	90	142	40	18	26
Future Vol, veh/h	10	90	142	40	18	26
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	100	158	44	20	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	202	0	-	0	302	180
Stage 1	-	-	-	-	180	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1370	-	-	-	725	876
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	922	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1370	-	-	-	718	876
Mov Cap-2 Maneuver	-	-	-	-	718	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	922	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1370	-	-	-	804
HCM Lane V/C Ratio	0.008	-	-	-	0.061
HCM Control Delay (s)	7.6	0	-	-	9.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	92	20	22	149	23	23
Future Volume (vph)	92	20	22	149	23	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.976				0.932	
Flt Protected				0.994	0.976	
Satd. Flow (prot)	1818	0	0	1852	1694	0
Flt Permitted				0.994	0.976	
Satd. Flow (perm)	1818	0	0	1852	1694	0
Link Speed (mph)	45			45	55	
Link Distance (ft)	2613			492	2309	
Travel Time (s)	39.6			7.5	28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	102	22	24	166	26	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	0	190	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.7%		ICU Level of Service A	
Analysis Period (min) 15			

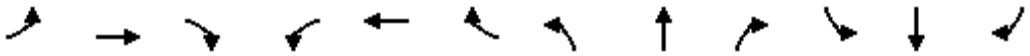
Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	92	20	22	149	23	23
Future Vol, veh/h	92	20	22	149	23	23
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	102	22	24	166	26	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	124	0	327	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	214	-
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	-	-	1463	-	667	940
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1463	-	655	940
Mov Cap-2 Maneuver	-	-	-	-	655	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	807	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	772	-	-	1463	-
HCM Lane V/C Ratio	0.066	-	-	0.017	-
HCM Control Delay (s)	10	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	7	4	10	18	34	4	270	6	19	275	4
Future Volume (vph)	5	7	4	10	18	34	4	270	6	19	275	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			3%			-1%			0%	
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		0.970			0.926			0.997			0.998	
Flt Protected		0.984			0.992			0.999			0.997	
Satd. Flow (prot)	0	1751	0	0	1685	0	0	1865	0	0	1853	0
Flt Permitted		0.984			0.992			0.999			0.997	
Satd. Flow (perm)	0	1751	0	0	1685	0	0	1865	0	0	1853	0
Link Speed (mph)		25			35			25			25	
Link Distance (ft)		590			1101			557			863	
Travel Time (s)		16.1			21.4			15.2			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	8	4	11	20	38	4	300	7	21	306	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	69	0	0	311	0	0	331	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		-30			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.6%		ICU Level of Service A	
Analysis Period (min) 15			

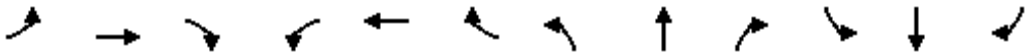
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	7	4	10	18	34	4	270	6	19	275	4
Future Vol, veh/h	5	7	4	10	18	34	4	270	6	19	275	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	8	4	11	20	38	4	300	7	21	306	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	691	665	308	668	664	304	310	0	0	307	0	0
Stage 1	350	350	-	312	312	-	-	-	-	-	-	-
Stage 2	341	315	-	356	352	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	320	341	713	333	341	717	1250	-	-	1254	-	-
Stage 1	629	597	-	663	624	-	-	-	-	-	-	-
Stage 2	637	622	-	623	596	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	284	333	713	319	333	717	1250	-	-	1254	-	-
Mov Cap-2 Maneuver	284	333	-	319	333	-	-	-	-	-	-	-
Stage 1	626	585	-	660	622	-	-	-	-	-	-	-
Stage 2	582	620	-	599	584	-	-	-	-	-	-	-

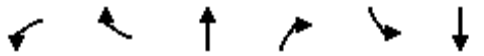
Approach	EB	WB	NB	SB
HCM Control Delay, s	15.5	14	0.1	0.5
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1250	-	-	362	467	1254	-	-
HCM Lane V/C Ratio	0.004	-	-	0.049	0.148	0.017	-	-
HCM Control Delay (s)	7.9	0	-	15.5	14	7.9	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.1	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	92	50	30	60	14	0	0	0	15	15	7
Future Volume (vph)	7	92	50	30	60	14	0	0	0	15	15	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			2%			2%			0%	
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		0.954			0.981						0.974	
Flt Protected		0.998			0.986						0.980	
Satd. Flow (prot)	0	1756	0	0	1784	0	0	0	0	0	1778	0
Flt Permitted		0.998			0.986						0.980	
Satd. Flow (perm)	0	1756	0	0	1784	0	0	0	0	0	1778	0
Link Speed (mph)		35			35			10			25	
Link Distance (ft)		1101			1374			361			92	
Travel Time (s)		21.4			26.8			24.6			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	102	56	33	67	16	0	0	0	17	17	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	166	0	0	116	0	0	0	0	0	42	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	6	21	4	6	36
Future Volume (vph)	4	6	21	4	6	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%		0%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.914		0.980			
Flt Protected	0.982					0.993
Satd. Flow (prot)	1638	0	1825	0	0	1831
Flt Permitted	0.982					0.993
Satd. Flow (perm)	1638	0	1825	0	0	1831
Link Speed (mph)	25		25			25
Link Distance (ft)	667		92			816
Travel Time (s)	18.2		2.5			22.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	7	23	4	7	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	27	0	0	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	21	4	6	36
Future Vol, veh/h	4	6	21	4	6	36
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	7	23	4	7	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	79	25	0	0	27	0
Stage 1	25	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	908	1048	-	-	1587	-
Stage 1	992	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	903	1048	-	-	1587	-
Mov Cap-2 Maneuver	903	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	985	1587	-
HCM Lane V/C Ratio	-	-	0.011	0.004	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	38	20	4	49	36	6
Future Volume (vph)	38	20	4	49	36	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-3%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.954				0.980	
Flt Protected				0.997	0.959	
Satd. Flow (prot)	1804	0	0	1885	1733	0
Flt Permitted				0.997	0.959	
Satd. Flow (perm)	1804	0	0	1885	1733	0
Link Speed (mph)	45			45	55	
Link Distance (ft)	1374			1093	971	
Travel Time (s)	20.8			16.6	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	42	22	4	54	40	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	0	58	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.98	0.98	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	20	4	49	36	6
Future Vol, veh/h	38	20	4	49	36	6
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	22	4	54	40	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	64	0	115	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1538	-	870	1011
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1538	-	867	1011
Mov Cap-2 Maneuver	-	-	-	-	867	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	951	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1538	-
HCM Lane V/C Ratio	0.053	-	-	0.003	-
HCM Control Delay (s)	9.3	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	40	4	4	50	4	32
Future Volume (vph)	40	4	4	50	4	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			5%	-5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989				0.878	
Flt Protected				0.997	0.995	
Satd. Flow (prot)	1879	0	0	1811	1668	0
Flt Permitted				0.997	0.995	
Satd. Flow (perm)	1879	0	0	1811	1668	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	1093			637	1210	
Travel Time (s)	16.6			9.7	33.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	4	4	56	4	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	60	40	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.97	0.97	1.03	1.03	0.97	0.97
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	4	4	50	4	32
Future Vol, veh/h	40	4	4	50	4	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	5	-5	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	4	4	56	4	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	48	0	110	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	64	-
Critical Hdwy	-	-	4.12	-	5.42	5.72
Critical Hdwy Stg 1	-	-	-	-	4.42	-
Critical Hdwy Stg 2	-	-	-	-	4.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1559	-	915	1030
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1559	-	912	1030
Mov Cap-2 Maneuver	-	-	-	-	912	-
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1015	-	-	1559	-
HCM Lane V/C Ratio	0.039	-	-	0.003	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	17	4	4	15	9	14
Future Volume (vph)	17	4	4	15	9	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.977				0.917	
Flt Protected				0.991	0.981	
Satd. Flow (prot)	1820	0	0	1846	1676	0
Flt Permitted				0.991	0.981	
Satd. Flow (perm)	1820	0	0	1846	1676	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	408			801	557	
Travel Time (s)	6.2			12.1	15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	4	4	17	10	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	0	21	26	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.3%		ICU Level of Service A	
Analysis Period (min) 15			

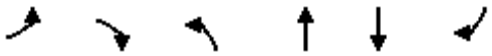
Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	17	4	4	15	9	14
Future Vol, veh/h	17	4	4	15	9	14
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	4	4	17	10	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	23	0	46	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	25	-
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	-	-	1592	-	964	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1592	-	961	1056
Mov Cap-2 Maneuver	-	-	-	-	961	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	995	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1017	-	-	1592	-
HCM Lane V/C Ratio	0.025	-	-	0.003	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	26	5	33	34	8
Future Volume (vph)	11	26	5	33	34	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			1%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905				0.974	
Flt Protected	0.986			0.993		
Satd. Flow (prot)	1646	0	0	1840	1851	0
Flt Permitted	0.986			0.993		
Satd. Flow (perm)	1646	0	0	1840	1851	0
Link Speed (mph)	45			55	55	
Link Distance (ft)	1059			3153	2309	
Travel Time (s)	16.0			39.1	28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	29	6	37	38	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	0	43	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	0.97	0.97
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.0%		ICU Level of Service A	
Analysis Period (min) 15			

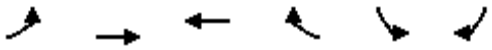
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	26	5	33	34	8
Future Vol, veh/h	11	26	5	33	34	8
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	29	6	37	38	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	92	43	47	0	-	0
Stage 1	43	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	899	1025	1560	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	895	1025	1560	-	-	-
Mov Cap-2 Maneuver	895	-	-	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	968	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1560	-	983	-	-
HCM Lane V/C Ratio	0.004	-	0.042	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	151	506	25	9	5
Future Volume (vph)	6	151	506	25	9	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.949	
Flt Protected		0.998			0.970	
Satd. Flow (prot)	0	1859	1852	0	1715	0
Flt Permitted		0.998			0.970	
Satd. Flow (perm)	0	1859	1852	0	1715	0
Link Speed (mph)		35	35		55	
Link Distance (ft)		1430	932		971	
Travel Time (s)		27.9	18.2		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	168	562	28	10	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	175	590	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.1%		ICU Level of Service A	
Analysis Period (min) 15			

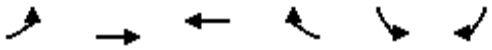
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	151	506	25	9	5
Future Vol, veh/h	6	151	506	25	9	5
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	7	168	562	28	10	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	590	0	-	0	758	576
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	182	-
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	985	-	-	-	375	517
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	849	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	985	-	-	-	372	517
Mov Cap-2 Maneuver	-	-	-	-	372	-
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	849	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	985	-	-	-	413
HCM Lane V/C Ratio	0.007	-	-	-	0.038
HCM Control Delay (s)	8.7	0	-	-	14.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	160	506	24	57	16
Future Volume (vph)	8	160	506	24	57	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-2%	0%		-3%	
Storage Length (ft)	200			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.970	
Flt Protected	0.950				0.963	
Satd. Flow (prot)	1787	1881	1852	0	1766	0
Flt Permitted	0.950				0.963	
Satd. Flow (perm)	1787	1881	1852	0	1766	0
Link Speed (mph)		45	35		25	
Link Distance (ft)		997	2607		1098	
Travel Time (s)		15.1	50.8		29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	178	562	27	63	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	178	589	0	81	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.00	1.00	0.98	0.98
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			

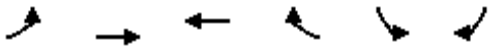
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	160	506	24	57	16
Future Vol, veh/h	8	160	506	24	57	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	178	562	27	63	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	589	0	-	0	772	576
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	986	-	-	-	418	542
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	865	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	986	-	-	-	414	542
Mov Cap-2 Maneuver	-	-	-	-	414	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	865	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	986	-	-	-	437
HCM Lane V/C Ratio	0.009	-	-	-	0.186
HCM Control Delay (s)	8.7	-	-	-	15.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	287	568	61	96	12
Future Volume (vph)	7	287	568	61	96	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-2%		-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.985	
Flt Protected		0.999			0.957	
Satd. Flow (prot)	0	1833	1857	0	1773	0
Flt Permitted		0.999			0.957	
Satd. Flow (perm)	0	1833	1857	0	1773	0
Link Speed (mph)		45	45		55	
Link Distance (ft)		2607	1003		2102	
Travel Time (s)		39.5	15.2		26.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	319	631	68	107	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	327	699	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.99	0.99	0.99	0.99
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.3%		ICU Level of Service A	
Analysis Period (min) 15			

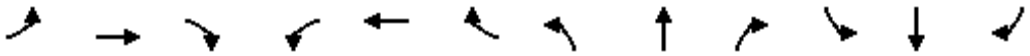
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	287	568	61	96	12
Future Vol, veh/h	7	287	568	61	96	12
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	319	631	68	107	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	699	0	-	0	1000	665
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	335	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	898	-	-	-	301	477
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	898	-	-	-	298	477
Mov Cap-2 Maneuver	-	-	-	-	298	-
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	898	-	-	-	311
HCM Lane V/C Ratio	0.009	-	-	-	0.386
HCM Control Delay (s)	9	0	-	-	23.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	1.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	196	146	13	342	54	250	180	4	38	192	44
Future Volume (vph)	14	196	146	13	342	54	250	180	4	38	192	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.945			0.982			0.999			0.978	
Flt Protected		0.998			0.998			0.972			0.993	
Satd. Flow (prot)	0	1687	0	0	1844	0	0	1791	0	0	1827	0
Flt Permitted		0.977			0.983			0.679			0.900	
Satd. Flow (perm)	0	1651	0	0	1816	0	0	1251	0	0	1656	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	218	162	14	380	60	278	200	4	42	213	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	396	0	0	454	0	0	482	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		18.1			18.1			25.2			25.2	
Actuated g/C Ratio		0.34			0.34			0.47			0.47	
v/c Ratio		0.71			0.74			0.82			0.39	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		22.8			23.3			29.0			12.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		22.8			23.3			29.0			12.4	
LOS		C			C			C			B	
Approach Delay		22.8			23.3			29.0			12.4	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		105			122			118			56	
Queue Length 95th (ft)		181			204			#344			141	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		1248			1373			591			782	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.32			0.33			0.82			0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 53.4			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



Intersection	
Int Delay, s/veh	5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	64	222	189	100	291
Future Vol, veh/h	114	64	222	189	100	291
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	71	247	210	111	323

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	897	352	0	0	457	0
Stage 1	352	-	-	-	-	-
Stage 2	545	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	360	712	-	-	1104	-
Stage 1	755	-	-	-	-	-
Stage 2	636	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	316	712	-	-	1104	-
Mov Cap-2 Maneuver	316	-	-	-	-	-
Stage 1	755	-	-	-	-	-
Stage 2	558	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.9	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	395	1104	-
HCM Lane V/C Ratio	-	-	0.501	0.101	-
HCM Control Delay (s)	-	-	22.9	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.7	0.3	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	199	155	21	20	23
Future Vol, veh/h	34	199	155	21	20	23
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	221	172	23	22	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	195	0	-	0	481	184
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	297	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1378	-	-	-	589	872
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1378	-	-	-	571	872
Mov Cap-2 Maneuver	-	-	-	-	571	-
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1378	-	-	-	700
HCM Lane V/C Ratio	0.027	-	-	-	0.068
HCM Control Delay (s)	7.7	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	172	26	32	160	19	37
Future Vol, veh/h	172	26	32	160	19	37
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	191	29	36	178	21	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	220	0	456	206
Stage 1	-	-	-	-	206	-
Stage 2	-	-	-	-	250	-
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	-	-	1349	-	562	835
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1349	-	545	835
Mov Cap-2 Maneuver	-	-	-	-	545	-
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	707	-	-	1349	-
HCM Lane V/C Ratio	0.088	-	-	0.026	-
HCM Control Delay (s)	10.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	11	4	15	11	36	4	307	6	53	312	4
Future Vol, veh/h	4	11	4	15	11	36	4	307	6	53	312	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	12	4	17	12	40	4	341	7	59	347	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	846	823	349	828	822	345	351	0	0	348	0	0
Stage 1	467	467	-	353	353	-	-	-	-	-	-	-
Stage 2	379	356	-	475	469	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	245	269	674	253	269	678	1208	-	-	1211	-	-
Stage 1	533	520	-	626	595	-	-	-	-	-	-	-
Stage 2	604	593	-	527	519	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	211	252	674	230	252	678	1208	-	-	1211	-	-
Mov Cap-2 Maneuver	211	252	-	230	252	-	-	-	-	-	-	-
Stage 1	531	488	-	623	593	-	-	-	-	-	-	-
Stage 2	554	591	-	479	487	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.1	16.5	0.1	1.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1208	-	-	277	383	1211	-	-
HCM Lane V/C Ratio	0.004	-	-	0.076	0.18	0.049	-	-
HCM Control Delay (s)	8	0	-	19.1	16.5	8.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.6	0.2	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	32	4	6	22
Future Vol, veh/h	4	6	32	4	6	22
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	7	36	4	7	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	76	38	0	0	40	0
Stage 1	38	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	912	1030	-	-	1570	-
Stage 1	976	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	907	1030	-	-	1570	-
Mov Cap-2 Maneuver	907	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	977	1570	-
HCM Lane V/C Ratio	-	-	0.011	0.004	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	8	7	34	17	8
Future Vol, veh/h	43	8	7	34	17	8
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	9	8	38	19	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	107	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1547	-	880	1011
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	963	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1547	-	876	1011
Mov Cap-2 Maneuver	-	-	-	-	876	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	958	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	915	-	-	1547	-
HCM Lane V/C Ratio	0.03	-	-	0.005	-
HCM Control Delay (s)	9.1	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	4	24	40	4	8
Future Vol, veh/h	48	4	24	40	4	8
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, %	-4	-	-	5	-5	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	4	27	44	4	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	153	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	98	-
Critical Hdwy	-	-	4.12	-	5.42	5.72
Critical Hdwy Stg 1	-	-	-	-	4.42	-
Critical Hdwy Stg 2	-	-	-	-	4.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1547	-	875	1020
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1547	-	859	1020
Mov Cap-2 Maneuver	-	-	-	-	859	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	934	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	960	-	-	1547	-
HCM Lane V/C Ratio	0.014	-	-	0.017	-
HCM Control Delay (s)	8.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	36	9	6	19	6	4
Future Vol, veh/h	36	9	6	19	6	4
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	40	10	7	21	7	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	50	0	80	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	35	-
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	-	-	1557	-	922	1025
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	987	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1557	-	917	1025
Mov Cap-2 Maneuver	-	-	-	-	917	-
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	982	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	957	-	-	1557	-
HCM Lane V/C Ratio	0.012	-	-	0.004	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	23	15	53	44	10
Future Vol, veh/h	10	23	15	53	44	10
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	26	17	59	49	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	148	55	60	0	-	0
Stage 1	55	-	-	-	-	-
Stage 2	93	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	830	1009	1544	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	821	1009	1544	-	-	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1544	-	944	-	-
HCM Lane V/C Ratio	0.011	-	0.039	-	-
HCM Control Delay (s)	7.4	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	423	337	16	18	6
Future Vol, veh/h	4	423	337	16	18	6
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	4	470	374	18	20	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	392	0	-	0	861	383
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	478	-
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	1167	-	-	-	326	664
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1167	-	-	-	324	664
Mov Cap-2 Maneuver	-	-	-	-	324	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	624	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1167	-	-	-	372
HCM Lane V/C Ratio	0.004	-	-	-	0.072
HCM Control Delay (s)	8.1	0	-	-	15.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	420	361	69	46	9
Future Vol, veh/h	19	420	361	69	46	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	467	401	77	51	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	478	0	-	0	949	440
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	509	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1084	-	-	-	339	640
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	657	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1084	-	-	-	333	640
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	657	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	17
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1084	-	-	-	361
HCM Lane V/C Ratio	0.019	-	-	-	0.169
HCM Control Delay (s)	8.4	-	-	-	17
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

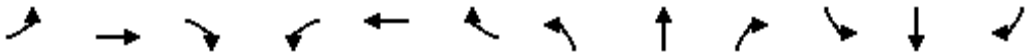
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	451	509	98	79	21
Future Vol, veh/h	15	451	509	98	79	21
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	501	566	109	88	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	675	0	-	0	1156	621
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	535	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	916	-	-	-	247	504
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	623	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	916	-	-	-	241	504
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	623	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	27.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	916	-	-	-	271
HCM Lane V/C Ratio	0.018	-	-	-	0.41
HCM Control Delay (s)	9	0	-	-	27.2
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	1.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	426	340	13	340	30	257	202	19	77	300	28
Future Volume (vph)	18	426	340	13	340	30	257	202	19	77	300	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.941			0.990			0.995			0.991	
Flt Protected		0.999			0.998			0.974			0.991	
Satd. Flow (prot)	0	1681	0	0	1859	0	0	1787	0	0	1848	0
Flt Permitted		0.987			0.968			0.500			0.846	
Satd. Flow (perm)	0	1661	0	0	1803	0	0	917	0	0	1577	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	473	378	14	378	33	286	224	21	86	333	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	871	0	0	425	0	0	531	0	0	450	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		40.0			40.0			25.0			25.0	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		0.98			0.44			1.74			0.86	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		46.3			12.5			369.7			41.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		46.3			12.5			369.7			41.7	
LOS		D			B			F			D	
Approach Delay		46.3			12.5			369.7			41.7	
Approach LOS		D			B			F			D	
Queue Length 50th (ft)		369			112			~373			192	
Queue Length 95th (ft)		#635			178			#555			#355	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		885			961			305			525	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.98			0.44			1.74			0.86	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.74			
Intersection Signal Delay: 114.5		Intersection LOS: F	
Intersection Capacity Utilization 111.2%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



2026 Build Traffic Volumes

Intersection	
Int Delay, s/veh	5.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	142	90	258	63	57	221
Future Vol, veh/h	142	90	258	63	57	221
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	158	100	287	70	63	246

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	694	322	0	0	357	0
Stage 1	322	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	459	738	-	-	1202	-
Stage 1	775	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	431	738	-	-	1202	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	697	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	514	1202	-
HCM Lane V/C Ratio	-	-	0.502	0.053	-
HCM Control Delay (s)	-	-	18.8	8.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.8	0.2	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	97	156	44	19	26
Future Vol, veh/h	10	97	156	44	19	26
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	108	173	49	21	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	222	0	-	0	328	198
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1347	-	-	-	704	857
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1347	-	-	-	698	857
Mov Cap-2 Maneuver	-	-	-	-	698	-
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1347	-	-	-	782
HCM Lane V/C Ratio	0.008	-	-	-	0.064
HCM Control Delay (s)	7.7	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	8	4	182	18	6
Future Vol, veh/h	108	8	4	182	18	6
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	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	9	4	202	20	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	129	0	335	125
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	210	-
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	-	-	1457	-	660	926
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1457	-	658	926
Mov Cap-2 Maneuver	-	-	-	-	658	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	823	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	709	-	-	1457	-
HCM Lane V/C Ratio	0.038	-	-	0.003	-
HCM Control Delay (s)	10.3	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	98	20	24	151	23	29
Future Vol, veh/h	98	20	24	151	23	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	22	27	168	26	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	131	0	342	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	222	-
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	-	-	1454	-	654	931
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	815	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1454	-	641	931
Mov Cap-2 Maneuver	-	-	-	-	641	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	799	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	776	-	-	1454	-
HCM Lane V/C Ratio	0.074	-	-	0.018	-
HCM Control Delay (s)	10	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	8	4	34	20	38	4	272	11	20	275	4
Future Vol, veh/h	5	8	4	34	20	38	4	272	11	20	275	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	9	4	38	22	42	4	302	12	22	306	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	700	674	308	675	670	308	310	0	0	314	0	0
Stage 1	352	352	-	316	316	-	-	-	-	-	-	-
Stage 2	348	322	-	359	354	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	315	336	713	329	338	713	1250	-	-	1246	-	-
Stage 1	627	596	-	659	621	-	-	-	-	-	-	-
Stage 2	630	617	-	621	594	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	276	328	713	314	330	713	1250	-	-	1246	-	-
Mov Cap-2 Maneuver	276	328	-	314	330	-	-	-	-	-	-	-
Stage 1	624	583	-	656	619	-	-	-	-	-	-	-
Stage 2	569	615	-	595	582	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	16.5	0.1	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1250	-	-	353	414	1246	-	-
HCM Lane V/C Ratio	0.004	-	-	0.054	0.247	0.018	-	-
HCM Control Delay (s)	7.9	0	-	15.8	16.5	7.9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1	0.1	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	6	21	7	6	36
Future Vol, veh/h	30	6	21	7	6	36
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	7	23	8	7	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	81	27	0	0	31	0
Stage 1	27	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	905	1045	-	-	1582	-
Stage 1	990	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	900	1045	-	-	1582	-
Mov Cap-2 Maneuver	900	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	921	1582	-
HCM Lane V/C Ratio	-	-	0.043	0.004	-
HCM Control Delay (s)	-	-	9.1	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	20	4	49	36	6
Future Vol, veh/h	38	20	4	49	36	6
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	22	4	54	40	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	64	0	115	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1538	-	870	1011
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1538	-	867	1011
Mov Cap-2 Maneuver	-	-	-	-	867	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	951	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	885	-	-	1538	-
HCM Lane V/C Ratio	0.053	-	-	0.003	-
HCM Control Delay (s)	9.3	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	40	4	28	50	4	4	10	40	4	30	4
Future Vol, veh/h	4	40	4	28	50	4	4	10	40	4	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	5	-	-	-5	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	44	4	31	56	4	4	11	44	4	33	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	60	0	0	48	0	0	193	176	46	202	176	58
Stage 1	-	-	-	-	-	-	54	54	-	120	120	-
Stage 2	-	-	-	-	-	-	139	122	-	82	56	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.12	5.52	5.72	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1544	-	-	1559	-	-	809	753	1030	756	717	1008
Stage 1	-	-	-	-	-	-	973	863	-	884	796	-
Stage 2	-	-	-	-	-	-	898	822	-	926	848	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1559	-	-	762	735	1030	702	700	1008
Mov Cap-2 Maneuver	-	-	-	-	-	-	762	735	-	702	700	-
Stage 1	-	-	-	-	-	-	970	860	-	881	779	-
Stage 2	-	-	-	-	-	-	838	805	-	872	845	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	2.5	9.1	10.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	936	1544	-	-	1559	-	-	723
HCM Lane V/C Ratio	0.064	0.003	-	-	0.02	-	-	0.058
HCM Control Delay (s)	9.1	7.3	0	-	7.4	0	-	10.3
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	30	43	4	4	24
Future Vol, veh/h	8	30	43	4	4	24
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	5	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	33	48	4	4	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	52	0	-	0	101	50
Stage 1	-	-	-	-	50	-
Stage 2	-	-	-	-	51	-
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	1554	-	-	-	898	1018
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	971	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1554	-	-	-	893	1018
Mov Cap-2 Maneuver	-	-	-	-	893	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	971	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1554	-	-	-	998
HCM Lane V/C Ratio	0.006	-	-	-	0.031
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	17	4	4	15	4	9	4	14	12	4	4
Future Vol, veh/h	4	17	4	4	15	4	9	4	14	12	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	19	4	4	17	4	10	4	16	13	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	21	0	0	23	0	0	60	58	21	66	58	19
Stage 1	-	-	-	-	-	-	29	29	-	27	27	-
Stage 2	-	-	-	-	-	-	31	29	-	39	31	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1595	-	-	1592	-	-	936	833	1056	927	833	1059
Stage 1	-	-	-	-	-	-	988	871	-	990	873	-
Stage 2	-	-	-	-	-	-	986	871	-	976	869	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1595	-	-	1592	-	-	924	828	1056	906	828	1059
Mov Cap-2 Maneuver	-	-	-	-	-	-	924	828	-	906	828	-
Stage 1	-	-	-	-	-	-	985	868	-	987	870	-
Stage 2	-	-	-	-	-	-	974	868	-	954	866	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	1.3	8.8	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	970	1595	-	-	1592	-	-	915
HCM Lane V/C Ratio	0.031	0.003	-	-	0.003	-	-	0.024
HCM Control Delay (s)	8.8	7.3	0	-	7.3	0	-	9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	32	7	33	34	10
Future Vol, veh/h	17	32	7	33	34	10
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	36	8	37	38	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	97	44	49	0	-	0
Stage 1	44	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	893	1024	1558	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	889	1024	1558	-	-	-
Mov Cap-2 Maneuver	889	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	964	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1558	-	973	-	-
HCM Lane V/C Ratio	0.005	-	0.056	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	165	548	25	9	5
Future Vol, veh/h	6	165	548	25	9	5
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	7	183	609	28	10	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	637	0	-	0	820	623
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	197	-
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	947	-	-	-	345	486
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	836	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	947	-	-	-	342	486
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	836	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	947	-	-	-	382
HCM Lane V/C Ratio	0.007	-	-	-	0.041
HCM Control Delay (s)	8.8	0	-	-	14.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	160	506	28	69	58
Future Vol, veh/h	22	160	506	28	69	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	178	562	31	77	64

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	593	0	-	0	804	578
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	226	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	983	-	-	-	403	541
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	843	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	983	-	-	-	393	541
Mov Cap-2 Maneuver	-	-	-	-	393	-
Stage 1	-	-	-	-	603	-
Stage 2	-	-	-	-	843	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	983	-	-	-	449
HCM Lane V/C Ratio	0.025	-	-	-	0.314
HCM Control Delay (s)	8.8	-	-	-	16.7
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

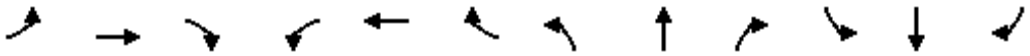
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	299	572	63	102	12
Future Vol, veh/h	7	299	572	63	102	12
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	332	636	70	113	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	706	0	-	0	1019	671
Stage 1	-	-	-	-	671	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	892	-	-	-	294	474
Stage 1	-	-	-	-	547	-
Stage 2	-	-	-	-	743	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	892	-	-	-	291	474
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	743	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	25.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	892	-	-	-	303
HCM Lane V/C Ratio	0.009	-	-	-	0.418
HCM Control Delay (s)	9.1	0	-	-	25.2
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	204	146	31	366	54	250	184	8	38	204	56
Future Volume (vph)	17	204	146	31	366	54	250	184	8	38	204	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.946			0.984			0.998			0.975	
Flt Protected		0.998			0.997			0.972			0.994	
Satd. Flow (prot)	0	1688	0	0	1846	0	0	1789	0	0	1823	0
Flt Permitted		0.970			0.957			0.654			0.905	
Satd. Flow (perm)	0	1641	0	0	1772	0	0	1204	0	0	1660	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	227	162	34	407	60	278	204	9	42	227	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	408	0	0	501	0	0	491	0	0	331	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		20.5			20.5			25.3			25.3	
Actuated g/C Ratio		0.37			0.37			0.45			0.45	
v/c Ratio		0.68			0.77			0.90			0.44	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		20.8			24.2			41.0			14.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.8			24.2			41.0			14.5	
LOS		C			C			D			B	
Approach Delay		20.8			24.2			41.0			14.5	
Approach LOS		C			C			D			B	
Queue Length 50th (ft)		110			141			139			69	
Queue Length 95th (ft)		185			232			#391			171	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		1188			1283			545			751	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.34			0.39			0.90			0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 55.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 26.3		Intersection LOS: C	
Intersection Capacity Utilization 86.6%		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: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	73	224	196	116	295
Future Vol, veh/h	114	73	224	196	116	295
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	81	249	218	129	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	944	358	0	0	467	0
Stage 1	358	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	341	707	-	-	1094	-
Stage 1	751	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	292	707	-	-	1094	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	751	-	-	-	-	-
Stage 2	525	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.4	0	2.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	379	1094	-
HCM Lane V/C Ratio	-	-	0.548	0.118	-
HCM Control Delay (s)	-	-	25.4	8.7	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	3.2	0.4	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	222	164	23	24	23
Future Vol, veh/h	34	222	164	23	24	23
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	247	182	26	27	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	208	0	-	0	518	195
Stage 1	-	-	-	-	195	-
Stage 2	-	-	-	-	323	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1363	-	-	-	564	860
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1363	-	-	-	546	860
Mov Cap-2 Maneuver	-	-	-	-	546	-
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1363	-	-	-	665
HCM Lane V/C Ratio	0.028	-	-	-	0.079
HCM Control Delay (s)	7.7	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	219	27	6	176	11	4
Future Vol, veh/h	219	27	6	176	11	4
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	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	243	30	7	196	12	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	273	0	468	258
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	210	-
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	-	-	1290	-	553	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1290	-	550	781
Mov Cap-2 Maneuver	-	-	-	-	550	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	820	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	597	-	-	1290	-
HCM Lane V/C Ratio	0.028	-	-	0.005	-
HCM Control Delay (s)	11.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	176	26	39	166	19	41
Future Vol, veh/h	176	26	39	166	19	41
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	196	29	43	184	21	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	225	0	481	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	270	-
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	-	-	1344	-	544	829
Stage 1	-	-	-	-	824	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1344	-	524	829
Mov Cap-2 Maneuver	-	-	-	-	524	-
Stage 1	-	-	-	-	824	-
Stage 2	-	-	-	-	747	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	700	-	-	1344	-
HCM Lane V/C Ratio	0.095	-	-	0.032	-
HCM Control Delay (s)	10.7	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	14	4	31	13	38	4	314	24	57	312	4
Future Vol, veh/h	4	14	4	31	13	38	4	314	24	57	312	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	16	4	34	14	42	4	349	27	63	347	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	874	859	349	856	848	363	351	0	0	376	0	0
Stage 1	475	475	-	371	371	-	-	-	-	-	-	-
Stage 2	399	384	-	485	477	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	234	255	674	241	259	662	1208	-	-	1182	-	-
Stage 1	527	515	-	610	582	-	-	-	-	-	-	-
Stage 2	587	573	-	520	514	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	198	237	674	215	241	662	1208	-	-	1182	-	-
Mov Cap-2 Maneuver	198	237	-	215	241	-	-	-	-	-	-	-
Stage 1	525	481	-	608	580	-	-	-	-	-	-	-
Stage 2	534	571	-	467	480	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.4	20.6	0.1	1.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1208	-	-	258	321	1182	-	-
HCM Lane V/C Ratio	0.004	-	-	0.095	0.284	0.054	-	-
HCM Control Delay (s)	8	0	-	20.4	20.6	8.2	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	1.1	0.2	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	6	32	25	6	22
Future Vol, veh/h	20	6	32	25	6	22
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	7	36	28	7	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	88	50	0	0	64	0
Stage 1	50	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	895	1013	-	-	1538	-
Stage 1	962	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	891	1013	-	-	1538	-
Mov Cap-2 Maneuver	891	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1538	-
HCM Lane V/C Ratio	-	-	0.032	0.004	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	8	7	34	17	8
Future Vol, veh/h	43	8	7	34	17	8
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	9	8	38	19	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	57	0	107	53
Stage 1	-	-	-	-	53	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1547	-	880	1011
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	963	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1547	-	876	1011
Mov Cap-2 Maneuver	-	-	-	-	876	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	958	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	915	-	-	1547	-
HCM Lane V/C Ratio	0.03	-	-	0.005	-
HCM Control Delay (s)	9.1	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	48	4	40	40	4	4	33	34	4	19	4
Future Vol, veh/h	4	48	4	40	40	4	4	33	34	4	19	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	5	-	-	-5	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	53	4	44	44	4	4	37	38	4	21	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	48	0	0	57	0	0	210	199	55	235	199	46
Stage 1	-	-	-	-	-	-	63	63	-	134	134	-
Stage 2	-	-	-	-	-	-	147	136	-	101	65	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.12	5.52	5.72	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1559	-	-	1547	-	-	792	736	1020	720	697	1023
Stage 1	-	-	-	-	-	-	965	857	-	869	785	-
Stage 2	-	-	-	-	-	-	891	814	-	905	841	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1559	-	-	1547	-	-	751	712	1020	650	675	1023
Mov Cap-2 Maneuver	-	-	-	-	-	-	751	712	-	650	675	-
Stage 1	-	-	-	-	-	-	962	854	-	866	762	-
Stage 2	-	-	-	-	-	-	838	790	-	832	838	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	3.5	9.8	10.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	835	1559	-	-	1547	-	-	707
HCM Lane V/C Ratio	0.094	0.003	-	-	0.029	-	-	0.042
HCM Control Delay (s)	9.8	7.3	0	-	7.4	0	-	10.3
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	52	40	4	4	16
Future Vol, veh/h	26	52	40	4	4	16
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	5	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	58	44	4	4	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	48	0	-	0	162	46
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	116	-
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	1559	-	-	-	829	1023
Stage 1	-	-	-	-	976	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1559	-	-	-	813	1023
Mov Cap-2 Maneuver	-	-	-	-	813	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	909	-

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1559	-	-	-	973
HCM Lane V/C Ratio	0.019	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	36	9	6	19	14	6	4	4	8	4	4
Future Vol, veh/h	4	36	9	6	19	14	6	4	4	8	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	40	10	7	21	16	7	4	4	9	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	37	0	0	50	0	0	100	104	45	100	101	29
Stage 1	-	-	-	-	-	-	53	53	-	43	43	-
Stage 2	-	-	-	-	-	-	47	51	-	57	58	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1574	-	-	1557	-	-	881	786	1025	881	789	1046
Stage 1	-	-	-	-	-	-	960	851	-	971	859	-
Stage 2	-	-	-	-	-	-	967	852	-	955	847	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1574	-	-	1557	-	-	868	780	1025	868	783	1046
Mov Cap-2 Maneuver	-	-	-	-	-	-	868	780	-	868	783	-
Stage 1	-	-	-	-	-	-	957	848	-	968	855	-
Stage 2	-	-	-	-	-	-	953	848	-	943	844	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.1	9.2	9.2
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	878	1574	-	-	1557	-	-	882
HCM Lane V/C Ratio	0.018	0.003	-	-	0.004	-	-	0.02
HCM Control Delay (s)	9.2	7.3	0	-	7.3	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	27	22	53	44	17
Future Vol, veh/h	14	27	22	53	44	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	30	24	59	49	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	166	59	68	0	-	0
Stage 1	59	-	-	-	-	-
Stage 2	107	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	809	1003	1533	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	1003	1533	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1533	-	921	-	-
HCM Lane V/C Ratio	0.016	-	0.049	-	-
HCM Control Delay (s)	7.4	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	469	364	16	18	6
Future Vol, veh/h	4	469	364	16	18	6
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	4	521	404	18	20	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	422	0	-	0	942	413
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	529	-
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	1137	-	-	-	292	639
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1137	-	-	-	291	639
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	591	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1137	-	-	-	337
HCM Lane V/C Ratio	0.004	-	-	-	0.079
HCM Control Delay (s)	8.2	0	-	-	16.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	420	361	82	54	36
Future Vol, veh/h	65	420	361	82	54	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	467	401	91	60	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	492	0	-	0	1058	447
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	611	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1071	-	-	-	297	635
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	600	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1071	-	-	-	277	635
Mov Cap-2 Maneuver	-	-	-	-	277	-
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	600	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	18.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1071	-	-	-	358
HCM Lane V/C Ratio	0.067	-	-	-	0.279
HCM Control Delay (s)	8.6	-	-	-	18.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.1

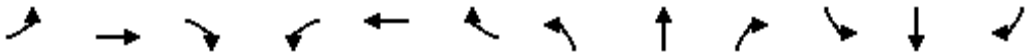
Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	459	522	105	83	21
Future Vol, veh/h	15	459	522	105	83	21
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	510	580	117	92	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	697	0	-	0	1183	639
Stage 1	-	-	-	-	639	-
Stage 2	-	-	-	-	544	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	899	-	-	-	239	493
Stage 1	-	-	-	-	564	-
Stage 2	-	-	-	-	618	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	899	-	-	-	233	493
Mov Cap-2 Maneuver	-	-	-	-	233	-
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	618	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	29.3
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	899	-	-	-	261
HCM Lane V/C Ratio	0.019	-	-	-	0.443
HCM Control Delay (s)	9.1	0	-	-	29.3
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	2.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	452	340	25	355	30	257	215	39	77	308	36
Future Volume (vph)	30	452	340	25	355	30	257	215	39	77	308	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.944			0.990			0.990			0.988	
Flt Protected		0.998			0.997			0.975			0.991	
Satd. Flow (prot)	0	1685	0	0	1857	0	0	1780	0	0	1842	0
Flt Permitted		0.975			0.924			0.501			0.841	
Satd. Flow (perm)	0	1646	0	0	1721	0	0	915	0	0	1563	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	502	378	28	394	33	286	239	43	86	342	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	913	0	0	455	0	0	568	0	0	468	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		40.0			40.0			25.0			25.0	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		1.04			0.50			1.86			0.90	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		61.9			13.5			422.5			47.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		61.9			13.5			422.5			47.1	
LOS		E			B			F			D	
Approach Delay		61.9			13.5			422.5			47.1	
Approach LOS		E			B			F			D	
Queue Length 50th (ft)		~468			125			~410			204	
Queue Length 95th (ft)		#683			200			#596			#379	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		877			917			305			521	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.04			0.50			1.86			0.90	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.86			
Intersection Signal Delay: 135.1		Intersection LOS: F	
Intersection Capacity Utilization 116.9%		ICU Level of Service H	
Analysis Period (min) 15			

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

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



2026 Build + Improvements Traffic Volumes

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	8	4	182	18	6
Future Vol, veh/h	108	8	4	182	18	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	9	4	202	20	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	129	0	335	125
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	210	-
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	-	-	1457	-	660	926
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1457	-	658	926
Mov Cap-2 Maneuver	-	-	-	-	658	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	823	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	709	-	-	1457	-
HCM Lane V/C Ratio	0.038	-	-	0.003	-
HCM Control Delay (s)	10.3	-	-	7.5	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	219	27	6	176	11	4
Future Vol, veh/h	219	27	6	176	11	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	243	30	7	196	12	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	273	0	468	258
Stage 1	-	-	-	-	258	-
Stage 2	-	-	-	-	210	-
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	-	-	1290	-	553	781
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1290	-	550	781
Mov Cap-2 Maneuver	-	-	-	-	550	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	821	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	597	-	-	1290	-
HCM Lane V/C Ratio	0.028	-	-	0.005	-
HCM Control Delay (s)	11.2	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

2036 Horizon Year Traffic Volumes

Intersection	
Int Delay, s/veh	6.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	154	97	284	69	62	244
Future Vol, veh/h	154	97	284	69	62	244
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	171	108	316	77	69	271

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	764	355	0	0	393	0
Stage 1	355	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	422	710	-	-	1166	-
Stage 1	753	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	392	710	-	-	1166	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	753	-	-	-	-	-
Stage 2	668	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.9	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	474	1166	-
HCM Lane V/C Ratio	-	-	0.588	0.059	-
HCM Control Delay (s)	-	-	22.9	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.7	0.2	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	106	169	48	20	26
Future Vol, veh/h	10	106	169	48	20	26
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	118	188	53	22	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	241	0	-	0	355	215
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1326	-	-	-	682	840
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1326	-	-	-	676	840
Mov Cap-2 Maneuver	-	-	-	-	676	-
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	908	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1326	-	-	-	760
HCM Lane V/C Ratio	0.008	-	-	-	0.067
HCM Control Delay (s)	7.7	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	117	8	4	199	18	6
Future Vol, veh/h	117	8	4	199	18	6
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	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	9	4	221	20	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	139	0	364	135
Stage 1	-	-	-	-	135	-
Stage 2	-	-	-	-	229	-
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	-	-	1445	-	635	914
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	633	914
Mov Cap-2 Maneuver	-	-	-	-	633	-
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	807	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	686	-	-	1445	-
HCM Lane V/C Ratio	0.039	-	-	0.003	-
HCM Control Delay (s)	10.5	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	107	21	26	166	24	31
Future Vol, veh/h	107	21	26	166	24	31
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	119	23	29	184	27	34

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	142	0	373	131
Stage 1	-	-	-	-	131	-
Stage 2	-	-	-	-	242	-
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	-	-	1441	-	628	919
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	798	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1441	-	614	919
Mov Cap-2 Maneuver	-	-	-	-	614	-
Stage 1	-	-	-	-	895	-
Stage 2	-	-	-	-	780	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	755	-	-	1441	-
HCM Lane V/C Ratio	0.081	-	-	0.02	-
HCM Control Delay (s)	10.2	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	6	9	4	35	22	42	4	299	12	22	301	4
Future Vol, veh/h	6	9	4	35	22	42	4	299	12	22	301	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	10	4	39	24	47	4	332	13	24	334	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	766	737	336	738	733	339	338	0	0	345	0	0
Stage 1	384	384	-	347	347	-	-	-	-	-	-	-
Stage 2	382	353	-	391	386	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	281	306	687	295	308	684	1221	-	-	1214	-	-
Stage 1	599	573	-	631	599	-	-	-	-	-	-	-
Stage 2	601	595	-	593	572	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	240	297	687	279	299	684	1221	-	-	1214	-	-
Mov Cap-2 Maneuver	240	297	-	279	299	-	-	-	-	-	-	-
Stage 1	597	559	-	628	597	-	-	-	-	-	-	-
Stage 2	535	593	-	565	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.4	18.3	0.1	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1221	-	-	311	380	1214	-	-
HCM Lane V/C Ratio	0.004	-	-	0.068	0.289	0.02	-	-
HCM Control Delay (s)	8	0	-	17.4	18.3	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	7	23	7	7	39
Future Vol, veh/h	30	7	23	7	7	39
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	8	26	8	8	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	89	30	0	0	34	0
Stage 1	30	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	894	1041	-	-	1578	-
Stage 1	986	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	890	1041	-	-	1578	-
Mov Cap-2 Maneuver	890	-	-	-	-	-
Stage 1	986	-	-	-	-	-
Stage 2	946	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	915	1578	-
HCM Lane V/C Ratio	-	-	0.045	0.005	-
HCM Control Delay (s)	-	-	9.1	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	40	22	4	52	40	7
Future Vol, veh/h	40	22	4	52	40	7
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	24	4	58	44	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	68	0	122	56
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1533	-	862	1007
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1533	-	859	1007
Mov Cap-2 Maneuver	-	-	-	-	859	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	947	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	878	-	-	1533	-
HCM Lane V/C Ratio	0.059	-	-	0.003	-
HCM Control Delay (s)	9.4	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	42	4	28	53	4	4	10	40	4	30	4
Future Vol, veh/h	4	42	4	28	53	4	4	10	40	4	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	5	-	-	-5	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	47	4	31	59	4	4	11	44	4	33	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	63	0	0	51	0	0	199	182	49	208	182	61
Stage 1	-	-	-	-	-	-	57	57	-	123	123	-
Stage 2	-	-	-	-	-	-	142	125	-	85	59	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.12	5.52	5.72	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1540	-	-	1555	-	-	803	749	1027	749	712	1004
Stage 1	-	-	-	-	-	-	970	861	-	881	794	-
Stage 2	-	-	-	-	-	-	896	820	-	923	846	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1540	-	-	1555	-	-	756	731	1027	695	695	1004
Mov Cap-2 Maneuver	-	-	-	-	-	-	756	731	-	695	695	-
Stage 1	-	-	-	-	-	-	967	858	-	878	777	-
Stage 2	-	-	-	-	-	-	836	803	-	869	843	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	2.4	9.1	10.3
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	932	1540	-	-	1555	-	-	718
HCM Lane V/C Ratio	0.064	0.003	-	-	0.02	-	-	0.059
HCM Control Delay (s)	9.1	7.3	0	-	7.4	0	-	10.3
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	33	47	4	4	24
Future Vol, veh/h	8	33	47	4	4	24
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	5	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	37	52	4	4	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	56	0	-	0	109	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	55	-
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	1549	-	-	-	888	1013
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	968	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1549	-	-	-	883	1013
Mov Cap-2 Maneuver	-	-	-	-	883	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	968	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1549	-	-	-	992
HCM Lane V/C Ratio	0.006	-	-	-	0.031
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	19	4	4	16	4	9	4	15	12	4	4
Future Vol, veh/h	4	19	4	4	16	4	9	4	15	12	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	21	4	4	18	4	10	4	17	13	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	25	0	0	63	61	23	70	61	20
Stage 1	-	-	-	-	-	-	31	31	-	28	28	-
Stage 2	-	-	-	-	-	-	32	30	-	42	33	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1593	-	-	1589	-	-	932	830	1054	922	830	1058
Stage 1	-	-	-	-	-	-	986	869	-	989	872	-
Stage 2	-	-	-	-	-	-	984	870	-	972	868	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1593	-	-	1589	-	-	920	825	1054	900	825	1058
Mov Cap-2 Maneuver	-	-	-	-	-	-	920	825	-	900	825	-
Stage 1	-	-	-	-	-	-	983	866	-	986	869	-
Stage 2	-	-	-	-	-	-	972	867	-	949	865	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1.2	8.8	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	970	1593	-	-	1589	-	-	911
HCM Lane V/C Ratio	0.032	0.003	-	-	0.003	-	-	0.024
HCM Control Delay (s)	8.8	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	35	8	35	36	11
Future Vol, veh/h	18	35	8	35	36	11
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	39	9	39	40	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	103	46	52	0	-	0
Stage 1	46	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	885	1021	1554	-	-	-
Stage 1	971	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	880	1021	1554	-	-	-
Mov Cap-2 Maneuver	880	-	-	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	959	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1554	-	968	-	-
HCM Lane V/C Ratio	0.006	-	0.061	-	-
HCM Control Delay (s)	7.3	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	176	592	28	10	6
Future Vol, veh/h	7	176	592	28	10	6
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	8	196	658	31	11	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	689	0	-	0	886	674
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	212	-
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	905	-	-	-	315	455
Stage 1	-	-	-	-	506	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	905	-	-	-	312	455
Mov Cap-2 Maneuver	-	-	-	-	312	-
Stage 1	-	-	-	-	501	-
Stage 2	-	-	-	-	823	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	905	-	-	-	354
HCM Lane V/C Ratio	0.009	-	-	-	0.05
HCM Control Delay (s)	9	0	-	-	15.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	171	551	29	70	59
Future Vol, veh/h	23	171	551	29	70	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	190	612	32	78	66

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	644	0	-	0	870	628
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	242	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	941	-	-	-	372	509
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	941	-	-	-	362	509
Mov Cap-2 Maneuver	-	-	-	-	362	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	941	-	-	-	417
HCM Lane V/C Ratio	0.027	-	-	-	0.344
HCM Control Delay (s)	8.9	-	-	-	18.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

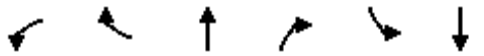
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	314	625	64	105	13
Future Vol, veh/h	8	314	625	64	105	13
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	349	694	71	117	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	765	0	-	0	1097	730
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	848	-	-	-	266	440
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	730	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	848	-	-	-	263	440
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	730	-

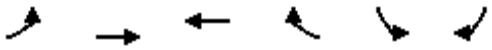
Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	29.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	848	-	-	-	275
HCM Lane V/C Ratio	0.01	-	-	-	0.477
HCM Control Delay (s)	9.3	0	-	-	29.5
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	2.4



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	154	97	284	69	62	244
Future Volume (vph)	154	97	284	69	62	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%		0%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.948		0.974			
Flt Protected	0.970					0.990
Satd. Flow (prot)	1739	0	1814	0	0	1853
Flt Permitted	0.970					0.990
Satd. Flow (perm)	1739	0	1814	0	0	1853
Link Speed (mph)	35		25			25
Link Distance (ft)	1206		863			993
Travel Time (s)	23.5		23.5			27.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	171	108	316	77	69	271
Shared Lane Traffic (%)						
Lane Group Flow (vph)	279	0	393	0	0	340
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.98	0.98	1.00	1.00	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.9%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	106	169	48	20	26
Future Volume (vph)	10	106	169	48	20	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-4%	2%		-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.970		0.923	
Flt Protected		0.996			0.979	
Satd. Flow (prot)	0	1892	1789	0	1708	0
Flt Permitted		0.996			0.979	
Satd. Flow (perm)	0	1892	1789	0	1708	0
Link Speed (mph)		35	25		25	
Link Distance (ft)		1206	372		759	
Travel Time (s)		23.5	10.1		20.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	118	188	53	22	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	129	241	0	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.97	0.97	1.01	1.01	0.98	0.98
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.9%		ICU Level of Service A	
Analysis Period (min) 15			



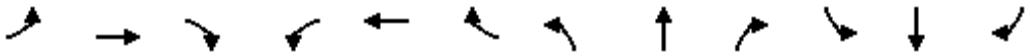
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	117	8	4	199	18	6
Future Volume (vph)	117	8	4	199	18	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.965	
Flt Protected				0.999	0.964	
Satd. Flow (prot)	1846	0	0	1842	1733	0
Flt Permitted				0.999	0.964	
Satd. Flow (perm)	1846	0	0	1842	1733	0
Link Speed (mph)	35			35	10	
Link Distance (ft)	372			549	738	
Travel Time (s)	7.2			10.7	50.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	130	9	4	221	20	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	139	0	0	225	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.01	1.01	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.7%		ICU Level of Service A	
Analysis Period (min) 15			



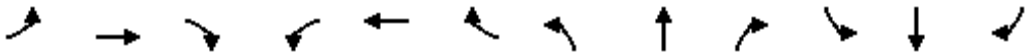
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	107	21	26	166	24	31
Future Volume (vph)	107	21	26	166	24	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978				0.925	
Flt Protected				0.993	0.978	
Satd. Flow (prot)	1822	0	0	1850	1685	0
Flt Permitted				0.993	0.978	
Satd. Flow (perm)	1822	0	0	1850	1685	0
Link Speed (mph)	45			45	55	
Link Distance (ft)	2613			492	2309	
Travel Time (s)	39.6			7.5	28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	119	23	29	184	27	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	0	0	213	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.4%		ICU Level of Service A	
Analysis Period (min) 15			



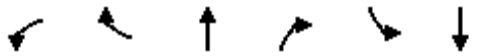
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	9	4	35	22	42	4	299	12	22	301	4
Future Volume (vph)	6	9	4	35	22	42	4	299	12	22	301	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			3%			-1%			0%	
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		0.974			0.942			0.995			0.999	
Flt Protected		0.984			0.983			0.999			0.997	
Satd. Flow (prot)	0	1759	0	0	1699	0	0	1861	0	0	1855	0
Flt Permitted		0.984			0.983			0.999			0.997	
Satd. Flow (perm)	0	1759	0	0	1699	0	0	1861	0	0	1855	0
Link Speed (mph)		25			35			25			25	
Link Distance (ft)		590			1101			557			863	
Travel Time (s)		16.1			21.4			15.2			23.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	10	4	39	24	47	4	332	13	24	334	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	0	0	110	0	0	349	0	0	362	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		-30			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.02	1.02	1.02	1.02	1.02	1.02	0.99	0.99	0.99	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	100	55	32	66	15	0	0	0	16	17	38
Future Volume (vph)	15	100	55	32	66	15	0	0	0	16	17	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			2%			2%			0%	
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		0.956			0.982						0.928	
Flt Protected		0.996			0.986						0.989	
Satd. Flow (prot)	0	1756	0	0	1786	0	0	0	0	0	1710	0
Flt Permitted		0.996			0.986						0.989	
Satd. Flow (perm)	0	1756	0	0	1786	0	0	0	0	0	1710	0
Link Speed (mph)		35			35			10			25	
Link Distance (ft)		1101			1374			361			92	
Travel Time (s)		21.4			26.8			24.6			2.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	111	61	36	73	17	0	0	0	18	19	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	0	0	126	0	0	0	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.5%		ICU Level of Service A	
Analysis Period (min) 15			



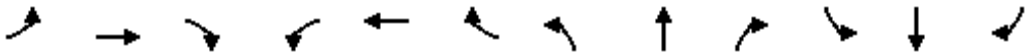
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	7	23	7	7	39
Future Volume (vph)	30	7	23	7	7	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	4%		0%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974		0.968			
Flt Protected	0.961					0.992
Satd. Flow (prot)	1709	0	1803	0	0	1829
Flt Permitted	0.961					0.992
Satd. Flow (perm)	1709	0	1803	0	0	1829
Link Speed (mph)	25		25			25
Link Distance (ft)	667		92			816
Travel Time (s)	18.2		2.5			22.3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	8	26	8	8	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	34	0	0	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.00	1.00	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.0%		ICU Level of Service A	
Analysis Period (min) 15			



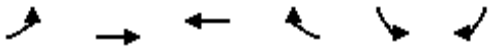
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	40	22	4	52	40	7
Future Volume (vph)	40	22	4	52	40	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-3%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.952				0.979	
Flt Protected				0.997	0.959	
Satd. Flow (prot)	1800	0	0	1885	1731	0
Flt Permitted				0.997	0.959	
Satd. Flow (perm)	1800	0	0	1885	1731	0
Link Speed (mph)	45			45	55	
Link Distance (ft)	1374			1093	971	
Travel Time (s)	20.8			16.6	12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	24	4	58	44	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	62	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.98	0.98	0.98	0.98	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.0%		ICU Level of Service A	
Analysis Period (min) 15			



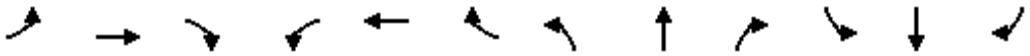
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	42	4	28	53	4	4	10	40	4	30	4
Future Volume (vph)	4	42	4	28	53	4	4	10	40	4	30	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			5%			-5%			0%	
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		0.990			0.994			0.899			0.987	
Flt Protected		0.996			0.984			0.997			0.995	
Satd. Flow (prot)	0	1873	0	0	1776	0	0	1711	0	0	1829	0
Flt Permitted		0.996			0.984			0.997			0.995	
Satd. Flow (perm)	0	1873	0	0	1776	0	0	1711	0	0	1829	0
Link Speed (mph)		45			45			25			10	
Link Distance (ft)		1093			637			1210			731	
Travel Time (s)		16.6			9.7			33.0			49.8	
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)	4	47	4	31	59	4	4	11	44	4	33	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	94	0	0	59	0	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.97	0.97	0.97	1.03	1.03	1.03	0.97	0.97	0.97	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.8%		ICU Level of Service A	
Analysis Period (min) 15			



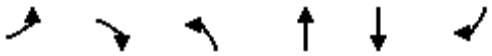
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	33	47	4	4	24
Future Volume (vph)	8	33	47	4	4	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		0%	5%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.990		0.882	
Flt Protected		0.990			0.994	
Satd. Flow (prot)	0	1844	1798	0	1633	0
Flt Permitted		0.990			0.994	
Satd. Flow (perm)	0	1844	1798	0	1633	0
Link Speed (mph)		45	45		10	
Link Distance (ft)		637	713		654	
Travel Time (s)		9.7	10.8		44.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	37	52	4	4	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	46	56	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.03	1.03	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.6%		ICU Level of Service A	
Analysis Period (min) 15			



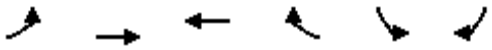
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	19	4	4	16	4	9	4	15	12	4	4
Future Volume (vph)	4	19	4	4	16	4	9	4	15	12	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981			0.979			0.926			0.974	
Flt Protected		0.993			0.992			0.984			0.970	
Satd. Flow (prot)	0	1815	0	0	1809	0	0	1697	0	0	1760	0
Flt Permitted		0.993			0.992			0.984			0.970	
Satd. Flow (perm)	0	1815	0	0	1809	0	0	1697	0	0	1760	0
Link Speed (mph)		45			45			25			10	
Link Distance (ft)		408			801			557			658	
Travel Time (s)		6.2			12.1			15.2			44.9	
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)	4	21	4	4	18	4	10	4	17	13	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	26	0	0	31	0	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			



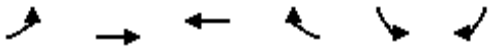
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	35	8	35	36	11
Future Volume (vph)	18	35	8	35	36	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			1%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.911				0.969	
Flt Protected	0.983			0.991		
Satd. Flow (prot)	1651	0	0	1837	1841	0
Flt Permitted	0.983			0.991		
Satd. Flow (perm)	1651	0	0	1837	1841	0
Link Speed (mph)	45			55	55	
Link Distance (ft)	1059			3153	2309	
Travel Time (s)	16.0			39.1	28.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	39	9	39	40	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	0	48	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	0.97	0.97
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.7%		ICU Level of Service A	
Analysis Period (min) 15			



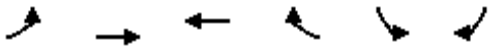
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	176	592	28	10	6
Future Volume (vph)	7	176	592	28	10	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.947	
Flt Protected		0.998			0.970	
Satd. Flow (prot)	0	1859	1852	0	1711	0
Flt Permitted		0.998			0.970	
Satd. Flow (perm)	0	1859	1852	0	1711	0
Link Speed (mph)		35	35		55	
Link Distance (ft)		1430	932		971	
Travel Time (s)		27.9	18.2		12.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	196	658	31	11	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	204	689	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	171	551	29	70	59
Future Volume (vph)	23	171	551	29	70	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-2%	0%		-3%	
Storage Length (ft)	200			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.938	
Flt Protected	0.950				0.974	
Satd. Flow (prot)	1787	1881	1850	0	1727	0
Flt Permitted	0.950				0.974	
Satd. Flow (perm)	1787	1881	1850	0	1727	0
Link Speed (mph)		45	35		25	
Link Distance (ft)		997	2607		1098	
Travel Time (s)		15.1	50.8		29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	190	612	32	78	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	190	644	0	144	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	1.00	1.00	0.98	0.98
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	314	625	64	105	13
Future Volume (vph)	8	314	625	64	105	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		3%	-2%		-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.986	
Flt Protected		0.999			0.957	
Satd. Flow (prot)	0	1833	1857	0	1775	0
Flt Permitted		0.999			0.957	
Satd. Flow (perm)	0	1833	1857	0	1775	0
Link Speed (mph)		45	45		55	
Link Distance (ft)		2607	1003		2102	
Travel Time (s)		39.5	15.2		26.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	349	694	71	117	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	358	765	0	131	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.02	1.02	0.99	0.99	0.99	0.99
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	124	79	247	213	125	325
Future Vol, veh/h	124	79	247	213	125	325
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	138	88	274	237	139	361

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1032	393	0	0	511	0
Stage 1	393	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	306	678	-	-	1054	-
Stage 1	728	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	256	678	-	-	1054	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	488	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.6	0	2.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	338	1054	-
HCM Lane V/C Ratio	-	-	0.667	0.132	-
HCM Control Delay (s)	-	-	34.6	8.9	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	4.5	0.5	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	242	179	24	25	24
Future Vol, veh/h	35	242	179	24	25	24
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	269	199	27	28	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	226	0	-	0	560	213
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1342	-	-	-	537	842
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1342	-	-	-	519	842
Mov Cap-2 Maneuver	-	-	-	-	519	-
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	758	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1342	-	-	-	639
HCM Lane V/C Ratio	0.029	-	-	-	0.085
HCM Control Delay (s)	7.8	0	-	-	11.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	240	27	6	192	11	4
Future Vol, veh/h	240	27	6	192	11	4
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	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	30	7	213	12	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	297	0	509	282
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	227	-
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	-	-	1264	-	524	757
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	811	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1264	-	521	757
Mov Cap-2 Maneuver	-	-	-	-	521	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	806	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	568	-	-	1264	-
HCM Lane V/C Ratio	0.029	-	-	0.005	-
HCM Control Delay (s)	11.5	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	27	42	182	19	45
Future Vol, veh/h	194	27	42	182	19	45
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	216	30	47	202	21	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	246	0	527	231
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	296	-
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	-	-	1320	-	512	808
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1320	-	492	808
Mov Cap-2 Maneuver	-	-	-	-	492	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	725	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	679	-	-	1320	-
HCM Lane V/C Ratio	0.105	-	-	0.035	-
HCM Control Delay (s)	10.9	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	15	4	33	14	42	4	343	25	63	343	4
Future Vol, veh/h	4	15	4	33	14	42	4	343	25	63	343	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	17	4	37	16	47	4	381	28	70	381	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	958	940	383	937	928	395	385	0	0	409	0	0
Stage 1	523	523	-	403	403	-	-	-	-	-	-	-
Stage 2	435	417	-	534	525	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	202	225	644	209	230	633	1173	-	-	1150	-	-
Stage 1	492	486	-	583	561	-	-	-	-	-	-	-
Stage 2	558	552	-	485	485	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	166	207	644	183	211	633	1173	-	-	1150	-	-
Mov Cap-2 Maneuver	166	207	-	183	211	-	-	-	-	-	-	-
Stage 1	490	448	-	581	559	-	-	-	-	-	-	-
Stage 2	500	550	-	428	447	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.1	24.3	0.1	1.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1173	-	-	224	284	1150	-	-
HCM Lane V/C Ratio	0.004	-	-	0.114	0.348	0.061	-	-
HCM Control Delay (s)	8.1	0	-	23.1	24.3	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	1.5	0.2	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	7	35	25	7	24
Future Vol, veh/h	20	7	35	25	7	24
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	8	39	28	8	27

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	96	53	0	0	67	0
Stage 1	53	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	884	1008	-	-	1535	-
Stage 1	958	-	-	-	-	-
Stage 2	970	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	880	1008	-	-	1535	-
Mov Cap-2 Maneuver	880	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	910	1535	-
HCM Lane V/C Ratio	-	-	0.033	0.005	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	46	9	8	36	19	9
Future Vol, veh/h	46	9	8	36	19	9
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	10	9	40	21	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	61	0	114	56
Stage 1	-	-	-	-	56	-
Stage 2	-	-	-	-	58	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1542	-	871	1007
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	958	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1542	-	866	1007
Mov Cap-2 Maneuver	-	-	-	-	866	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	952	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	907	-	-	1542	-
HCM Lane V/C Ratio	0.034	-	-	0.006	-
HCM Control Delay (s)	9.1	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	52	4	41	43	4	4	33	35	4	19	4
Future Vol, veh/h	4	52	4	41	43	4	4	33	35	4	19	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	5	-	-	-5	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	58	4	46	48	4	4	37	39	4	21	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	52	0	0	62	0	0	223	212	60	248	212	50
Stage 1	-	-	-	-	-	-	68	68	-	142	142	-
Stage 2	-	-	-	-	-	-	155	144	-	106	70	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.12	5.52	5.72	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1554	-	-	1541	-	-	780	727	1014	706	685	1018
Stage 1	-	-	-	-	-	-	960	854	-	861	779	-
Stage 2	-	-	-	-	-	-	885	809	-	900	837	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1554	-	-	1541	-	-	738	702	1014	635	662	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	738	702	-	635	662	-
Stage 1	-	-	-	-	-	-	957	851	-	858	755	-
Stage 2	-	-	-	-	-	-	830	784	-	826	834	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	3.5	9.8	10.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	828	1554	-	-	1541	-	-	694
HCM Lane V/C Ratio	0.097	0.003	-	-	0.03	-	-	0.043
HCM Control Delay (s)	9.8	7.3	0	-	7.4	0	-	10.4
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	57	44	4	4	16
Future Vol, veh/h	26	57	44	4	4	16
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	5	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	63	49	4	4	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	53	0	-	0	172	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	121	-
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	1553	-	-	-	818	1017
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	904	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1553	-	-	-	802	1017
Mov Cap-2 Maneuver	-	-	-	-	802	-
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	904	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1553	-	-	-	965
HCM Lane V/C Ratio	0.019	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	40	9	7	21	14	6	4	4	8	4	4
Future Vol, veh/h	4	40	9	7	21	14	6	4	4	8	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	44	10	8	23	16	7	4	4	9	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	39	0	0	54	0	0	108	112	49	108	109	31
Stage 1	-	-	-	-	-	-	57	57	-	47	47	-
Stage 2	-	-	-	-	-	-	51	55	-	61	62	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1571	-	-	1551	-	-	871	778	1020	871	781	1043
Stage 1	-	-	-	-	-	-	955	847	-	967	856	-
Stage 2	-	-	-	-	-	-	962	849	-	950	843	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1571	-	-	1551	-	-	858	772	1020	858	775	1043
Mov Cap-2 Maneuver	-	-	-	-	-	-	858	772	-	858	775	-
Stage 1	-	-	-	-	-	-	952	844	-	964	852	-
Stage 2	-	-	-	-	-	-	948	845	-	938	840	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.2	9.2	9.2
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	870	1571	-	-	1551	-	-	873
HCM Lane V/C Ratio	0.018	0.003	-	-	0.005	-	-	0.02
HCM Control Delay (s)	9.2	7.3	0	-	7.3	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	29	24	57	47	18
Future Vol, veh/h	15	29	24	57	47	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	32	27	63	52	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	179	62	72	0	-	0
Stage 1	62	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	795	999	1528	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	781	999	1528	-	-	-
Mov Cap-2 Maneuver	781	-	-	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1528	-	912	-	-
HCM Lane V/C Ratio	0.017	-	0.054	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	504	393	18	20	7
Future Vol, veh/h	4	504	393	18	20	7
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	4	560	437	20	22	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	457	0	-	0	1015	447
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	568	-
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	1104	-	-	-	264	612
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	567	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1104	-	-	-	263	612
Mov Cap-2 Maneuver	-	-	-	-	263	-
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	567	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1104	-	-	-	309
HCM Lane V/C Ratio	0.004	-	-	-	0.097
HCM Control Delay (s)	8.3	0	-	-	17.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	66	456	392	84	56	36
Future Vol, veh/h	66	456	392	84	56	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	507	436	93	62	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	529	0	-	0	1136	483
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	653	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1038	-	-	-	270	608
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	577	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1038	-	-	-	251	608
Mov Cap-2 Maneuver	-	-	-	-	251	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	577	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	21
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1038	-	-	-	326
HCM Lane V/C Ratio	0.071	-	-	-	0.314
HCM Control Delay (s)	8.7	-	-	-	21
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.3

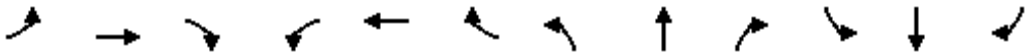
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	497	560	109	86	23
Future Vol, veh/h	17	497	560	109	86	23
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	19	552	622	121	96	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	743	0	-	0	1273	683
Stage 1	-	-	-	-	683	-
Stage 2	-	-	-	-	590	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	864	-	-	-	213	467
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	864	-	-	-	206	467
Mov Cap-2 Maneuver	-	-	-	-	206	-
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	591	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	35.8
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	864	-	-	-	234
HCM Lane V/C Ratio	0.022	-	-	-	0.518
HCM Control Delay (s)	9.3	0	-	-	35.8
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	2.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	486	376	26	384	33	284	235	40	85	339	38
Future Volume (vph)	30	486	376	26	384	33	284	235	40	85	339	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.943			0.990			0.990			0.989	
Flt Protected		0.998			0.997			0.975			0.991	
Satd. Flow (prot)	0	1683	0	0	1857	0	0	1780	0	0	1844	0
Flt Permitted		0.975			0.922			0.471			0.838	
Satd. Flow (perm)	0	1644	0	0	1717	0	0	860	0	0	1559	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	540	418	29	427	37	316	261	44	94	377	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	991	0	0	493	0	0	621	0	0	513	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		40.0			40.0			25.0			25.0	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		1.13			0.54			2.17			0.99	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		94.0			14.2			558.7			64.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		94.0			14.2			558.7			64.6	
LOS		F			B			F			E	
Approach Delay		94.0			14.2			558.7			64.6	
Approach LOS		F			B			F			E	
Queue Length 50th (ft)		~545			139			~471			234	
Queue Length 95th (ft)		#766			222			#663			#429	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		876			915			286			519	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.13			0.54			2.17			0.99	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.17			
Intersection Signal Delay: 183.4		Intersection LOS: F	
Intersection Capacity Utilization 125.9%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



2026 Background with Non-Approved Developments

Intersection	
Int Delay, s/veh	9.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	185	120	276	75	66	231
Future Vol, veh/h	185	120	276	75	66	231
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	206	133	307	83	73	257

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	752	349	0	0	390	0
Stage 1	349	-	-	-	-	-
Stage 2	403	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	428	715	-	-	1169	-
Stage 1	757	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	397	715	-	-	1169	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.4	0	1.8
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	481	1169	-
HCM Lane V/C Ratio	-	-	0.705	0.063	-
HCM Control Delay (s)	-	-	28.4	8.3	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	5.5	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	118	229	40	18	26
Future Vol, veh/h	10	118	229	40	18	26
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	131	254	44	20	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	298	0	-	0	429	276
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	153	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1263	-	-	-	626	781
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1263	-	-	-	620	781
Mov Cap-2 Maneuver	-	-	-	-	620	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	898	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1263	-	-	-	706
HCM Lane V/C Ratio	0.009	-	-	-	0.069
HCM Control Delay (s)	7.9	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	114	26	29	219	40	44
Future Vol, veh/h	114	26	29	219	40	44
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	127	29	32	243	44	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	449	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	307	-
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	-	-	1424	-	568	906
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	746	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1424	-	553	906
Mov Cap-2 Maneuver	-	-	-	-	553	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	727	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	695	-	-	1424	-
HCM Lane V/C Ratio	0.134	-	-	0.023	-
HCM Control Delay (s)	11	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	7	4	31	18	56	4	284	16	30	318	4
Future Vol, veh/h	5	7	4	31	18	56	4	284	16	30	318	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	8	4	34	20	62	4	316	18	33	353	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	795	763	355	760	756	325	357	0	0	334	0	0
Stage 1	421	421	-	333	333	-	-	-	-	-	-	-
Stage 2	374	342	-	427	423	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	268	294	669	284	297	697	1202	-	-	1225	-	-
Stage 1	569	549	-	644	609	-	-	-	-	-	-	-
Stage 2	608	603	-	564	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	224	283	669	268	286	697	1202	-	-	1225	-	-
Mov Cap-2 Maneuver	224	283	-	268	286	-	-	-	-	-	-	-
Stage 1	567	530	-	641	607	-	-	-	-	-	-	-
Stage 2	533	601	-	533	529	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.7	17.4	0.1	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1202	-	-	302	405	1225	-	-
HCM Lane V/C Ratio	0.004	-	-	0.059	0.288	0.027	-	-
HCM Control Delay (s)	8	0	-	17.7	17.4	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	21	4	6	36
Future Vol, veh/h	4	6	21	4	6	36
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	7	23	4	7	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	79	25	0	0	27	0
Stage 1	25	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	908	1048	-	-	1587	-
Stage 1	992	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	903	1048	-	-	1587	-
Mov Cap-2 Maneuver	903	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	985	1587	-
HCM Lane V/C Ratio	-	-	0.011	0.004	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	59	20	4	92	36	6
Future Vol, veh/h	59	20	4	92	36	6
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	22	4	102	40	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	88	0	187	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1508	-	786	980
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1508	-	784	980
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	807	-	-	1508	-
HCM Lane V/C Ratio	0.058	-	-	0.003	-
HCM Control Delay (s)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	4	4	93	4	32
Future Vol, veh/h	61	4	4	93	4	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-4	-	-	5	-5	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	4	4	103	4	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	72	0	181	70
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	-	-	4.12	-	5.42	5.72
Critical Hdwy Stg 1	-	-	-	-	4.42	-
Critical Hdwy Stg 2	-	-	-	-	4.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1528	-	850	1002
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1528	-	847	1002
Mov Cap-2 Maneuver	-	-	-	-	847	-
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	939	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	982	-	-	1528	-
HCM Lane V/C Ratio	0.041	-	-	0.003	-
HCM Control Delay (s)	8.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	4	4	58	9	14
Future Vol, veh/h	38	4	4	58	9	14
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	42	4	4	64	10	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	46	0	116	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	72	-
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	-	-	1562	-	880	1026
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	951	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1562	-	877	1026
Mov Cap-2 Maneuver	-	-	-	-	877	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	962	-	-	1562	-
HCM Lane V/C Ratio	0.027	-	-	0.003	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	36	13	82	82	43
Future Vol, veh/h	22	36	13	82	82	43
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	40	14	91	91	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	234	115	139	0	-	0
Stage 1	115	-	-	-	-	-
Stage 2	119	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	735	931	1445	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	728	931	1445	-	-	-
Mov Cap-2 Maneuver	728	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	894	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1445	-	842	-	-
HCM Lane V/C Ratio	0.01	-	0.077	-	-
HCM Control Delay (s)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	212	556	25	9	5
Future Vol, veh/h	6	212	556	25	9	5
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	7	236	618	28	10	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	646	0	-	0	882	632
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	250	-
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	939	-	-	-	317	480
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	939	-	-	-	314	480
Mov Cap-2 Maneuver	-	-	-	-	314	-
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	939	-	-	-	358
HCM Lane V/C Ratio	0.007	-	-	-	0.043
HCM Control Delay (s)	8.9	0	-	-	15.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	221	556	24	57	16
Future Vol, veh/h	8	221	556	24	57	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	246	618	27	63	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	645	0	-	0	896	632
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	264	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	940	-	-	-	361	506
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	815	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	940	-	-	-	357	506
Mov Cap-2 Maneuver	-	-	-	-	357	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	815	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	940	-	-	-	382
HCM Lane V/C Ratio	0.009	-	-	-	0.212
HCM Control Delay (s)	8.9	-	-	-	16.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.8

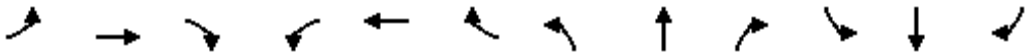
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	341	593	77	143	37
Future Vol, veh/h	14	341	593	77	143	37
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	379	659	86	159	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	745	0	-	0	1113	702
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	411	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	863	-	-	-	261	456
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	863	-	-	-	255	456
Mov Cap-2 Maneuver	-	-	-	-	255	-
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	700	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	44.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	863	-	-	-	280
HCM Lane V/C Ratio	0.018	-	-	-	0.714
HCM Control Delay (s)	9.2	0	-	-	44.5
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	235	146	27	373	59	250	193	14	48	227	73
Future Volume (vph)	25	235	146	27	373	59	250	193	14	48	227	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.952			0.983			0.996			0.972	
Flt Protected		0.997			0.997			0.973			0.993	
Satd. Flow (prot)	0	1697	0	0	1844	0	0	1787	0	0	1816	0
Flt Permitted		0.960			0.962			0.621			0.896	
Satd. Flow (perm)	0	1634	0	0	1779	0	0	1141	0	0	1639	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	261	162	30	414	66	278	214	16	53	252	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	451	0	0	510	0	0	508	0	0	386	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		21.0			21.0			25.3			25.3	
Actuated g/C Ratio		0.37			0.37			0.45			0.45	
v/c Ratio		0.74			0.77			0.99			0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		23.2			23.9			60.8			16.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		23.2			23.9			60.8			16.3	
LOS		C			C			E			B	
Approach Delay		23.2			23.9			60.8			16.3	
Approach LOS		C			C			E			B	
Queue Length 50th (ft)		125			144			155			86	
Queue Length 95th (ft)		211			236			#422			209	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		1173			1277			511			735	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.38			0.40			0.99			0.53	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 56.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 87.8%		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: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



Intersection	
Int Delay, s/veh	11.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	141	92	236	237	147	312
Future Vol, veh/h	141	92	236	237	147	312
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	102	262	263	163	347

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1067	394	0	0	525	0
Stage 1	394	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	294	677	-	-	1042	-
Stage 1	728	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	237	677	-	-	1042	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	457	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	50.8	0	2.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	319	1042	-
HCM Lane V/C Ratio	-	-	0.812	0.157	-
HCM Control Delay (s)	-	-	50.8	9.1	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	6.8	0.6	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	294	210	21	20	23
Future Vol, veh/h	34	294	210	21	20	23
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	327	233	23	22	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	256	0	-	0	648	245
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	403	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1309	-	-	-	485	810
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1309	-	-	-	468	810
Mov Cap-2 Maneuver	-	-	-	-	468	-
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	722	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1309	-	-	-	605
HCM Lane V/C Ratio	0.029	-	-	-	0.079
HCM Control Delay (s)	7.8	0	-	-	11.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	248	45	56	204	30	51
Future Vol, veh/h	248	45	56	204	30	51
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	276	50	62	227	33	57

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	326	0	652	301
Stage 1	-	-	-	-	301	-
Stage 2	-	-	-	-	351	-
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	-	-	1234	-	433	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1234	-	408	739
Mov Cap-2 Maneuver	-	-	-	-	408	-
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	672	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	568	-	-	1234	-
HCM Lane V/C Ratio	0.158	-	-	0.05	-
HCM Control Delay (s)	12.5	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	11	4	29	11	50	4	355	26	74	339	4
Future Vol, veh/h	4	11	4	29	11	50	4	355	26	74	339	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	12	4	32	12	56	4	394	29	82	377	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	994	974	379	968	962	409	381	0	0	423	0	0
Stage 1	543	543	-	417	417	-	-	-	-	-	-	-
Stage 2	451	431	-	551	545	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	190	214	647	199	218	621	1177	-	-	1136	-	-
Stage 1	479	475	-	572	552	-	-	-	-	-	-	-
Stage 2	545	542	-	473	474	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	153	193	647	175	197	621	1177	-	-	1136	-	-
Mov Cap-2 Maneuver	153	193	-	175	197	-	-	-	-	-	-	-
Stage 1	477	431	-	570	550	-	-	-	-	-	-	-
Stage 2	483	540	-	414	430	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.8	23.1	0.1	1.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1177	-	-	213	298	1136	-	-
HCM Lane V/C Ratio	0.004	-	-	0.099	0.336	0.072	-	-
HCM Control Delay (s)	8.1	0	-	23.8	23.1	8.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	1.4	0.2	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	6	32	4	6	22
Future Vol, veh/h	4	6	32	4	6	22
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	7	36	4	7	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	76	38	0	0	40	0
Stage 1	38	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	912	1030	-	-	1570	-
Stage 1	976	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	907	1030	-	-	1570	-
Mov Cap-2 Maneuver	907	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	977	1570	-
HCM Lane V/C Ratio	-	-	0.011	0.004	-
HCM Control Delay (s)	-	-	8.7	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	84	8	7	62	17	8
Future Vol, veh/h	84	8	7	62	17	8
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	9	8	69	19	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	183	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	85	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	790	953
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	785	953
Mov Cap-2 Maneuver	-	-	-	-	785	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	923	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	832	-	-	1490	-
HCM Lane V/C Ratio	0.033	-	-	0.005	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	89	4	24	68	4	8
Future Vol, veh/h	89	4	24	68	4	8
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, %	-4	-	-	5	-5	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	4	27	76	4	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	231	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	-	-	4.12	-	5.42	5.72
Critical Hdwy Stg 1	-	-	-	-	4.42	-
Critical Hdwy Stg 2	-	-	-	-	4.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1489	-	807	968
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1489	-	792	968
Mov Cap-2 Maneuver	-	-	-	-	792	-
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	911	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	901	-	-	1489	-
HCM Lane V/C Ratio	0.015	-	-	0.018	-
HCM Control Delay (s)	9.1	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	77	9	6	47	6	4
Future Vol, veh/h	77	9	6	47	6	4
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	86	10	7	52	7	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	96	0	157	91
Stage 1	-	-	-	-	91	-
Stage 2	-	-	-	-	66	-
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	-	-	1498	-	834	967
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1498	-	830	967
Mov Cap-2 Maneuver	-	-	-	-	830	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	952	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	880	-	-	1498	-
HCM Lane V/C Ratio	0.013	-	-	0.004	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	48	26	21	116	109	32
Future Vol, veh/h	48	26	21	116	109	32
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	29	23	129	121	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	314	139	157	0	-	0
Stage 1	139	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	656	902	1423	-	-	-
Stage 1	874	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	645	902	1423	-	-	-
Mov Cap-2 Maneuver	645	-	-	-	-	-
Stage 1	859	-	-	-	-	-
Stage 2	839	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1423	-	717	-	-
HCM Lane V/C Ratio	0.016	-	0.115	-	-
HCM Control Delay (s)	7.6	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	490	412	16	18	6
Future Vol, veh/h	4	490	412	16	18	6
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	4	544	458	18	20	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	476	0	-	0	1019	467
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	552	-
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	1086	-	-	-	263	596
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	577	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1086	-	-	-	262	596
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	577	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1086	-	-	-	305
HCM Lane V/C Ratio	0.004	-	-	-	0.087
HCM Control Delay (s)	8.3	0	-	-	17.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	487	436	69	46	9
Future Vol, veh/h	19	487	436	69	46	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	541	484	77	51	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	561	0	-	0	1106	523
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	583	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1010	-	-	-	280	579
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	615	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1010	-	-	-	274	579
Mov Cap-2 Maneuver	-	-	-	-	274	-
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	615	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1010	-	-	-	300
HCM Lane V/C Ratio	0.021	-	-	-	0.204
HCM Control Delay (s)	8.6	-	-	-	20
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

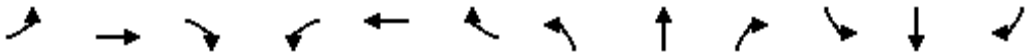
Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	41	492	567	152	108	38
Future Vol, veh/h	41	492	567	152	108	38
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	547	630	169	120	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	799	0	-	0	1354	715
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	824	-	-	-	192	448
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	824	-	-	-	177	448
Mov Cap-2 Maneuver	-	-	-	-	177	-
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	564	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	63.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	824	-	-	-	210
HCM Lane V/C Ratio	0.055	-	-	-	0.772
HCM Control Delay (s)	9.6	0	-	-	63.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	5.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	471	340	28	390	40	257	231	34	84	322	47
Future Volume (vph)	57	471	340	28	390	40	257	231	34	84	322	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.947			0.988			0.991			0.986	
Flt Protected		0.997			0.997			0.976			0.991	
Satd. Flow (prot)	0	1688	0	0	1853	0	0	1784	0	0	1838	0
Flt Permitted		0.940			0.921			0.485			0.833	
Satd. Flow (perm)	0	1592	0	0	1712	0	0	886	0	0	1545	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	63	523	378	31	433	44	286	257	38	93	358	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	964	0	0	508	0	0	581	0	0	503	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		40.0			40.0			25.0			25.0	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		1.14			0.56			1.97			0.98	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		96.1			14.6			469.8			61.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		96.1			14.6			469.8			61.9	
LOS		F			B			F			E	
Approach Delay		96.1			14.6			469.8			61.9	
Approach LOS		F			B			F			E	
Queue Length 50th (ft)		~532			146			~428			228	
Queue Length 95th (ft)		#751			232			#614			#420	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		849			913			295			515	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.14			0.56			1.97			0.98	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.97			
Intersection Signal Delay: 158.1		Intersection LOS: F	
Intersection Capacity Utilization 129.1%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



2026 Build with Non-Approved Developments

Intersection	
Int Delay, s/veh	10.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	185	134	280	77	71	232
Future Vol, veh/h	185	134	280	77	71	232
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	206	149	311	86	79	258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	770	354	0	0	397	0
Stage 1	354	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	419	710	-	-	1162	-
Stage 1	754	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	386	710	-	-	1162	-
Mov Cap-2 Maneuver	386	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.2	0	2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	1162	-
HCM Lane V/C Ratio	-	-	0.742	0.068	-
HCM Control Delay (s)	-	-	31.2	8.3	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	6.2	0.2	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	125	243	44	19	26
Future Vol, veh/h	10	125	243	44	19	26
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	139	270	49	21	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	319	0	-	0	456	295
Stage 1	-	-	-	-	295	-
Stage 2	-	-	-	-	161	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1241	-	-	-	607	763
Stage 1	-	-	-	-	794	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1241	-	-	-	601	763
Mov Cap-2 Maneuver	-	-	-	-	601	-
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1241	-	-	-	685
HCM Lane V/C Ratio	0.009	-	-	-	0.073
HCM Control Delay (s)	7.9	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	136	8	4	269	18	6
Future Vol, veh/h	136	8	4	269	18	6
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	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	151	9	4	299	20	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	160	0	463	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	307	-
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	-	-	1419	-	557	890
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	746	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1419	-	555	890
Mov Cap-2 Maneuver	-	-	-	-	555	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	744	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	613	-	-	1419	-
HCM Lane V/C Ratio	0.044	-	-	0.003	-
HCM Control Delay (s)	11.1	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	120	26	31	221	40	50
Future Vol, veh/h	120	26	31	221	40	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	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	133	29	34	246	44	56

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	162	0	462	148
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	314	-
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	-	-	1417	-	558	899
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1417	-	542	899
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	720	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	695	-	-	1417	-
HCM Lane V/C Ratio	0.144	-	-	0.024	-
HCM Control Delay (s)	11	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	8	4	55	20	60	4	286	21	31	318	4
Future Vol, veh/h	5	8	4	55	20	60	4	286	21	31	318	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	9	4	61	22	67	4	318	23	34	353	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	805	772	355	768	763	330	357	0	0	341	0	0
Stage 1	423	423	-	338	338	-	-	-	-	-	-	-
Stage 2	382	349	-	430	425	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	263	290	669	280	294	692	1202	-	-	1218	-	-
Stage 1	567	548	-	639	605	-	-	-	-	-	-	-
Stage 2	601	598	-	562	546	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	217	279	669	263	283	692	1202	-	-	1218	-	-
Mov Cap-2 Maneuver	217	279	-	263	283	-	-	-	-	-	-	-
Stage 1	565	529	-	636	603	-	-	-	-	-	-	-
Stage 2	521	596	-	530	527	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18	21.4	0.1	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1202	-	-	295	368	1218	-	-
HCM Lane V/C Ratio	0.004	-	-	0.064	0.408	0.028	-	-
HCM Control Delay (s)	8	0	-	18	21.4	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.9	0.1	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	6	21	7	6	36
Future Vol, veh/h	30	6	21	7	6	36
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	7	23	8	7	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	81	27	0	0	31	0
Stage 1	27	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	905	1045	-	-	1582	-
Stage 1	990	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	900	1045	-	-	1582	-
Mov Cap-2 Maneuver	900	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	921	1582	-
HCM Lane V/C Ratio	-	-	0.043	0.004	-
HCM Control Delay (s)	-	-	9.1	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	59	20	4	92	36	6
Future Vol, veh/h	59	20	4	92	36	6
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	22	4	102	40	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	88	0	187	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1508	-	786	980
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	903	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1508	-	784	980
Mov Cap-2 Maneuver	-	-	-	-	784	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	807	-	-	1508	-
HCM Lane V/C Ratio	0.058	-	-	0.003	-
HCM Control Delay (s)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	61	4	28	93	4	4	10	40	4	30	4
Future Vol, veh/h	4	61	4	28	93	4	4	10	40	4	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	5	-	-	-5	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	68	4	31	103	4	4	11	44	4	33	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	107	0	0	72	0	0	264	247	70	273	247	105
Stage 1	-	-	-	-	-	-	78	78	-	167	167	-
Stage 2	-	-	-	-	-	-	186	169	-	106	80	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.12	5.52	5.72	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1484	-	-	1528	-	-	741	702	1002	679	655	949
Stage 1	-	-	-	-	-	-	951	848	-	835	760	-
Stage 2	-	-	-	-	-	-	859	795	-	900	828	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1484	-	-	1528	-	-	695	684	1002	629	639	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	695	684	-	629	639	-
Stage 1	-	-	-	-	-	-	948	845	-	832	743	-
Stage 2	-	-	-	-	-	-	799	778	-	846	826	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.7	9.3	10.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	896	1484	-	-	1528	-	-	661
HCM Lane V/C Ratio	0.067	0.003	-	-	0.02	-	-	0.064
HCM Control Delay (s)	9.3	7.4	0	-	7.4	0	-	10.8
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	51	86	4	4	24
Future Vol, veh/h	8	51	86	4	4	24
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	5	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	57	96	4	4	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	100	0	-	0	173	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	75	-
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	1493	-	-	-	817	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	812	958
Mov Cap-2 Maneuver	-	-	-	-	812	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	934
HCM Lane V/C Ratio	0.006	-	-	-	0.033
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	38	4	4	58	4	9	4	14	12	4	4
Future Vol, veh/h	4	38	4	4	58	4	9	4	14	12	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	42	4	4	64	4	10	4	16	13	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	68	0	0	46	0	0	130	128	44	136	128	66
Stage 1	-	-	-	-	-	-	52	52	-	74	74	-
Stage 2	-	-	-	-	-	-	78	76	-	62	54	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1533	-	-	1562	-	-	843	763	1026	835	763	998
Stage 1	-	-	-	-	-	-	961	852	-	935	833	-
Stage 2	-	-	-	-	-	-	931	832	-	949	850	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1533	-	-	1562	-	-	832	758	1026	815	758	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	832	758	-	815	758	-
Stage 1	-	-	-	-	-	-	958	849	-	932	831	-
Stage 2	-	-	-	-	-	-	919	830	-	927	847	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	9.1	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	908	1533	-	-	1562	-	-	833
HCM Lane V/C Ratio	0.033	0.003	-	-	0.003	-	-	0.027
HCM Control Delay (s)	9.1	7.4	0	-	7.3	0	-	9.4
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	42	15	82	82	45
Future Vol, veh/h	28	42	15	82	82	45
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	47	17	91	91	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	241	116	141	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	728	930	1442	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	719	930	1442	-	-	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	888	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1442	-	832	-	-
HCM Lane V/C Ratio	0.012	-	0.093	-	-
HCM Control Delay (s)	7.5	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	226	598	25	9	5
Future Vol, veh/h	6	226	598	25	9	5
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	7	251	664	28	10	6

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	692	0	-	0	943	678
Stage 1	-	-	-	-	678	-
Stage 2	-	-	-	-	265	-
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	903	-	-	-	291	452
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	779	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	903	-	-	-	288	452
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	779	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	903	-	-	-	331
HCM Lane V/C Ratio	0.007	-	-	-	0.047
HCM Control Delay (s)	9	0	-	-	16.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	221	556	28	69	58
Future Vol, veh/h	22	221	556	28	69	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	246	618	31	77	64

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	649	0	-	0	928	634
Stage 1	-	-	-	-	634	-
Stage 2	-	-	-	-	294	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	937	-	-	-	347	505
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	794	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	937	-	-	-	338	505
Mov Cap-2 Maneuver	-	-	-	-	338	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	794	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	18.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	937	-	-	-	398
HCM Lane V/C Ratio	0.026	-	-	-	0.355
HCM Control Delay (s)	8.9	-	-	-	18.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.6

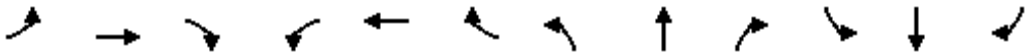
Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	353	597	79	149	37
Future Vol, veh/h	14	353	597	79	149	37
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	392	663	88	166	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	751	0	-	0	1131	707
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	858	-	-	-	255	453
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	692	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	858	-	-	-	249	453
Mov Cap-2 Maneuver	-	-	-	-	249	-
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	49.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	858	-	-	-	274
HCM Lane V/C Ratio	0.018	-	-	-	0.754
HCM Control Delay (s)	9.3	0	-	-	49.5
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	5.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	243	146	45	397	59	250	197	20	48	239	85
Future Volume (vph)	28	243	146	45	397	59	250	197	20	48	239	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.953			0.984			0.994			0.969	
Flt Protected		0.997			0.996			0.974			0.994	
Satd. Flow (prot)	0	1699	0	0	1844	0	0	1785	0	0	1812	0
Flt Permitted		0.952			0.936			0.592			0.903	
Satd. Flow (perm)	0	1622	0	0	1733	0	0	1085	0	0	1646	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	31	270	162	50	441	66	278	219	22	53	266	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	463	0	0	557	0	0	519	0	0	413	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		23.9			23.9			25.4			25.4	
Actuated g/C Ratio		0.40			0.40			0.43			0.43	
v/c Ratio		0.71			0.80			1.12			0.59	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		21.0			24.7			103.0			19.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		21.0			24.7			103.0			19.7	
LOS		C			C			F			B	
Approach Delay		21.0			24.7			103.0			19.7	
Approach LOS		C			C			F			B	
Queue Length 50th (ft)		130			165			~216			104	
Queue Length 95th (ft)		215			267			#483			#261	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		1107			1183			463			703	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.42			0.47			1.12			0.59	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 59.5			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 43.6		Intersection LOS: D	
Intersection Capacity Utilization 96.2%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



Intersection	
Int Delay, s/veh	14.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	141	101	238	244	163	316
Future Vol, veh/h	141	101	238	244	163	316
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, %	-3	-	0	-	-	-1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	112	264	271	181	351

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1113	400	0	0	535	0
Stage 1	400	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Critical Hdwy	5.82	5.92	-	-	4.12	-
Critical Hdwy Stg 1	4.82	-	-	-	-	-
Critical Hdwy Stg 2	4.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	278	672	-	-	1033	-
Stage 1	724	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	217	672	-	-	1033	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	724	-	-	-	-	-
Stage 2	428	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	65.6	0	3.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	302	1033	-
HCM Lane V/C Ratio	-	-	0.89	0.175	-
HCM Control Delay (s)	-	-	65.6	9.2	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	8.2	0.6	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	317	219	23	24	23
Future Vol, veh/h	34	317	219	23	24	23
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, %	-	-4	2	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	352	243	26	27	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	269	0	-	0	684	256
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	428	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1295	-	-	-	464	800
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	706	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1295	-	-	-	447	800
Mov Cap-2 Maneuver	-	-	-	-	447	-
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	706	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1295	-	-	-	570
HCM Lane V/C Ratio	0.029	-	-	-	0.092
HCM Control Delay (s)	7.9	0	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	314	27	6	231	11	4
Future Vol, veh/h	314	27	6	231	11	4
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	-	-	2	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	349	30	7	257	12	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	379	0	635	364
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	271	-
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	-	-	1179	-	443	681
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1179	-	440	681
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	770	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	486	-	-	1179	-
HCM Lane V/C Ratio	0.034	-	-	0.006	-
HCM Control Delay (s)	12.7	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	252	45	63	210	30	55
Future Vol, veh/h	252	45	63	210	30	55
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	280	50	70	233	33	61

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	330	0	678	305
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	373	-
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	-	-	1229	-	418	735
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1229	-	391	735
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	651	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	561	-	-	1229	-
HCM Lane V/C Ratio	0.168	-	-	0.057	-
HCM Control Delay (s)	12.7	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	14	4	45	13	52	4	362	44	78	339	4
Future Vol, veh/h	4	14	4	45	13	52	4	362	44	78	339	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	3	-	-	-1	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	16	4	50	14	58	4	402	49	87	377	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1024	1012	379	998	990	427	381	0	0	451	0	0
Stage 1	553	553	-	435	435	-	-	-	-	-	-	-
Stage 2	471	459	-	563	555	-	-	-	-	-	-	-
Critical Hdwy	7.72	7.12	6.52	7.72	7.12	6.52	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.72	6.12	-	6.72	6.12	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	180	202	647	188	209	606	1177	-	-	1109	-	-
Stage 1	472	469	-	558	540	-	-	-	-	-	-	-
Stage 2	530	525	-	465	468	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	141	181	647	161	187	606	1177	-	-	1109	-	-
Mov Cap-2 Maneuver	141	181	-	161	187	-	-	-	-	-	-	-
Stage 1	470	422	-	555	537	-	-	-	-	-	-	-
Stage 2	464	522	-	400	421	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.8	31.8	0.1	1.6
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1177	-	-	197	253	1109	-	-
HCM Lane V/C Ratio	0.004	-	-	0.124	0.483	0.078	-	-
HCM Control Delay (s)	8.1	0	-	25.8	31.8	8.5	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	2.4	0.3	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	6	32	25	6	22
Future Vol, veh/h	20	6	32	25	6	22
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, %	4	-	0	-	-	2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	7	36	28	7	24

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	88	50	0	0	64	0
Stage 1	50	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	7.22	6.62	-	-	4.12	-
Critical Hdwy Stg 1	6.22	-	-	-	-	-
Critical Hdwy Stg 2	6.22	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	895	1013	-	-	1538	-
Stage 1	962	-	-	-	-	-
Stage 2	976	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	891	1013	-	-	1538	-
Mov Cap-2 Maneuver	891	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	971	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1538	-
HCM Lane V/C Ratio	-	-	0.032	0.004	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	84	8	7	62	17	8
Future Vol, veh/h	84	8	7	62	17	8
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, %	-3	-	-	-3	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	9	8	69	19	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	183	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	85	-
Critical Hdwy	-	-	4.12	-	6.82	6.42
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	790	953
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	785	953
Mov Cap-2 Maneuver	-	-	-	-	785	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	923	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	832	-	-	1490	-
HCM Lane V/C Ratio	0.033	-	-	0.005	-
HCM Control Delay (s)	9.5	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	89	4	40	68	4	4	33	34	4	19	4
Future Vol, veh/h	4	89	4	40	68	4	4	33	34	4	19	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-4	-	-	5	-	-	-5	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	99	4	44	76	4	4	37	38	4	21	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	80	0	0	103	0	0	288	277	101	313	277	78
Stage 1	-	-	-	-	-	-	109	109	-	166	166	-
Stage 2	-	-	-	-	-	-	179	168	-	147	111	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.12	5.52	5.72	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.12	4.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1518	-	-	1489	-	-	720	681	968	640	631	983
Stage 1	-	-	-	-	-	-	924	830	-	836	761	-
Stage 2	-	-	-	-	-	-	865	796	-	856	804	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1518	-	-	1489	-	-	680	658	968	573	610	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	680	658	-	573	610	-
Stage 1	-	-	-	-	-	-	921	828	-	833	737	-
Stage 2	-	-	-	-	-	-	810	771	-	784	802	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	2.7	10.1	10.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	779	1518	-	-	1489	-	-	640
HCM Lane V/C Ratio	0.101	0.003	-	-	0.03	-	-	0.047
HCM Control Delay (s)	10.1	7.4	0	-	7.5	0	-	10.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	26	93	68	4	4	16
Future Vol, veh/h	26	93	68	4	4	16
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	5	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	103	76	4	4	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	80	0	-	0	239	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	161	-
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	1518	-	-	-	749	983
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1518	-	-	-	734	983
Mov Cap-2 Maneuver	-	-	-	-	734	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1518	-	-	-	921
HCM Lane V/C Ratio	0.019	-	-	-	0.024
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	77	9	6	47	14	6	4	4	8	4	4
Future Vol, veh/h	4	77	9	6	47	14	6	4	4	8	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	86	10	7	52	16	7	4	4	9	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	68	0	0	96	0	0	177	181	91	177	178	60
Stage 1	-	-	-	-	-	-	99	99	-	74	74	-
Stage 2	-	-	-	-	-	-	78	82	-	103	104	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1533	-	-	1498	-	-	785	713	967	785	716	1005
Stage 1	-	-	-	-	-	-	907	813	-	935	833	-
Stage 2	-	-	-	-	-	-	931	827	-	903	809	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1533	-	-	1498	-	-	773	707	967	773	710	1005
Mov Cap-2 Maneuver	-	-	-	-	-	-	773	707	-	773	710	-
Stage 1	-	-	-	-	-	-	904	811	-	932	829	-
Stage 2	-	-	-	-	-	-	917	823	-	891	807	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	9.6	9.6
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	797	1533	-	-	1498	-	-	801
HCM Lane V/C Ratio	0.02	0.003	-	-	0.004	-	-	0.022
HCM Control Delay (s)	9.6	7.4	0	-	7.4	0	-	9.6
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	52	30	28	116	109	39
Future Vol, veh/h	52	30	28	116	109	39
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, %	2	-	-	1	-4	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	33	31	129	121	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	334	143	164	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	191	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	637	897	1414	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	622	897	1414	-	-	-
Mov Cap-2 Maneuver	622	-	-	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	824	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1414	-	701	-	-
HCM Lane V/C Ratio	0.022	-	0.13	-	-
HCM Control Delay (s)	7.6	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	536	439	16	18	6
Future Vol, veh/h	4	536	439	16	18	6
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	4	596	488	18	20	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	506	0	-	0	1101	497
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	604	-
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	1059	-	-	-	235	573
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	546	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1059	-	-	-	234	573
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	546	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	19.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1059	-	-	-	275
HCM Lane V/C Ratio	0.004	-	-	-	0.097
HCM Control Delay (s)	8.4	0	-	-	19.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	487	436	82	54	36
Future Vol, veh/h	65	487	436	82	54	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-2	0	-	-3	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	541	484	91	60	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	575	0	-	0	1215	530
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	685	-
Critical Hdwy	4.12	-	-	-	5.82	5.92
Critical Hdwy Stg 1	-	-	-	-	4.82	-
Critical Hdwy Stg 2	-	-	-	-	4.82	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	998	-	-	-	245	574
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	561	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	998	-	-	-	227	574
Mov Cap-2 Maneuver	-	-	-	-	227	-
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	561	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	23
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	998	-	-	-	299
HCM Lane V/C Ratio	0.072	-	-	-	0.334
HCM Control Delay (s)	8.9	-	-	-	23
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	1.4

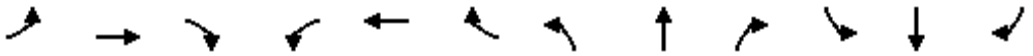
Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	41	500	580	159	112	38
Future Vol, veh/h	41	500	580	159	112	38
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, %	-	3	-2	-	-2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	556	644	177	124	42

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	821	0	-	0	1381	733
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	4.12	-	-	-	6.02	6.02
Critical Hdwy Stg 1	-	-	-	-	5.02	-
Critical Hdwy Stg 2	-	-	-	-	5.02	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	808	-	-	-	185	438
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	560	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	808	-	-	-	170	438
Mov Cap-2 Maneuver	-	-	-	-	170	-
Stage 1	-	-	-	-	474	-
Stage 2	-	-	-	-	560	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	74.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	808	-	-	-	201
HCM Lane V/C Ratio	0.056	-	-	-	0.829
HCM Control Delay (s)	9.7	0	-	-	74.8
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.2	-	-	-	6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	497	340	40	405	40	257	244	54	84	330	55
Future Volume (vph)	69	497	340	40	405	40	257	244	54	84	330	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		8%			-2%			2%			-2%	
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		0.949			0.989			0.987			0.984	
Flt Protected		0.996			0.996			0.977			0.991	
Satd. Flow (prot)	0	1690	0	0	1853	0	0	1778	0	0	1835	0
Flt Permitted		0.926			0.886			0.486			0.827	
Satd. Flow (perm)	0	1571	0	0	1649	0	0	885	0	0	1531	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		745			1351			710			557	
Travel Time (s)		14.5			26.3			19.4			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	77	552	378	44	450	44	286	271	60	93	367	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1007	0	0	538	0	0	617	0	0	521	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.05	1.05	1.05	0.99	0.99	0.99	1.01	1.01	1.01	0.99	0.99	0.99
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.5	22.5		22.8	22.8		23.2	23.2		23.1	23.1	
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	40.5	40.5		40.2	40.2		24.8	24.8		24.9	24.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
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		2.0	2.0		2.0	2.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Act Effct Green (s)		40.0			40.0			25.0			25.0	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		1.20			0.61			2.09			1.02	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		123.7			15.9			523.3			73.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		123.7			15.9			523.3			73.3	
LOS		F			B			F			E	
Approach Delay		123.7			15.9			523.3			73.3	
Approach LOS		F			B			F			E	
Queue Length 50th (ft)		~580			161			~463			~249	
Queue Length 95th (ft)		#802			259			#654			#442	
Internal Link Dist (ft)		665			1271			630			477	
Turn Bay Length (ft)												
Base Capacity (vph)		837			879			295			510	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.20			0.61			2.09			1.02	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.09			
Intersection Signal Delay: 184.2		Intersection LOS: F	
Intersection Capacity Utilization 133.3%		ICU Level of Service H	
Analysis Period (min) 15			
~ Volume exceeds capacity, queue is theoretically infinite.			
Queue shown is maximum after two cycles.			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 13: S First Avenue/N First Avenue & N Smithfield Road/S Smithfield Road



Appendix E – Approved Area Development

4.0 Trip Generation

To determine the projected traffic volumes at the site driveways, the traffic generation potential of the proposed development was determined using the traffic generation rates published in *Trip Generation* (Institute of Transportation Engineers, Eighth Edition, 2008). The Glenmere development is expected to consist of approximately 340 single-family homes. Table 1 summarizes the estimated traffic generation for the proposed development.

Table 1
ITE Trip Generation

Land Use (LUC)	Size	Daily		AM		PM	
		In	Out	In	Out	In	Out
Single Family Detached Housing (210)	340 d.u.	1,603	1,603	62	186	199	117

Pass-by trips are vehicles already on the roadway network that will make a trip to the site as they pass-by on the adjacent street. Due to the residential nature of the development, no pass-by capture was applied.

Table 1 shows that the site has the potential to generate approximately 1,603 new daily trips in and 1,603 new daily trips out with 62 new trips entering and 186 new trips exiting in the AM peak hour and 199 new trips entering and 117 new trips exiting in the PM peak hour.

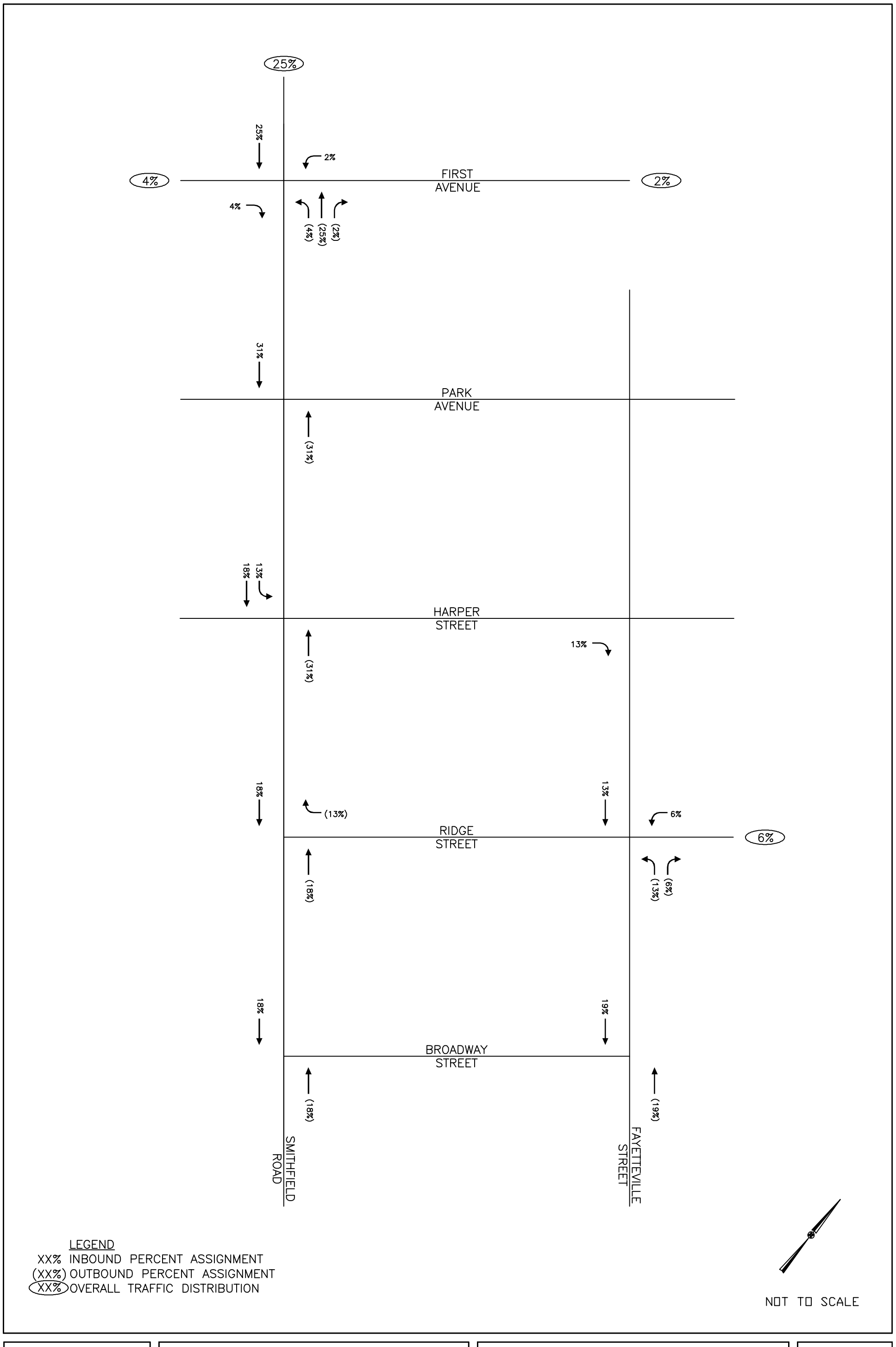
5.0 Site Traffic Distribution/Assignment

The proposed site generated trips were assigned to the surrounding roadway network. The directional distribution and assignment of new external vehicle trips are based on anticipated travel patterns, land uses and population densities in the area, and discussions with NCDOT and Town of Knightdale staff:

- 60% to/from the south on Smithfield Road
- 25% to/from the north on Smithfield Road
- 8% to/from the east on First Avenue
- 4% to/from the west on First Avenue
- 2% to/from the north on Mailman Road
- 1% to/from the south on Old Ferrell Road

The site traffic distribution is shown in Figure 3 and Figure 4. Site traffic was assigned to the network based on the distribution shown above and added to the background traffic to obtain total traffic volumes.

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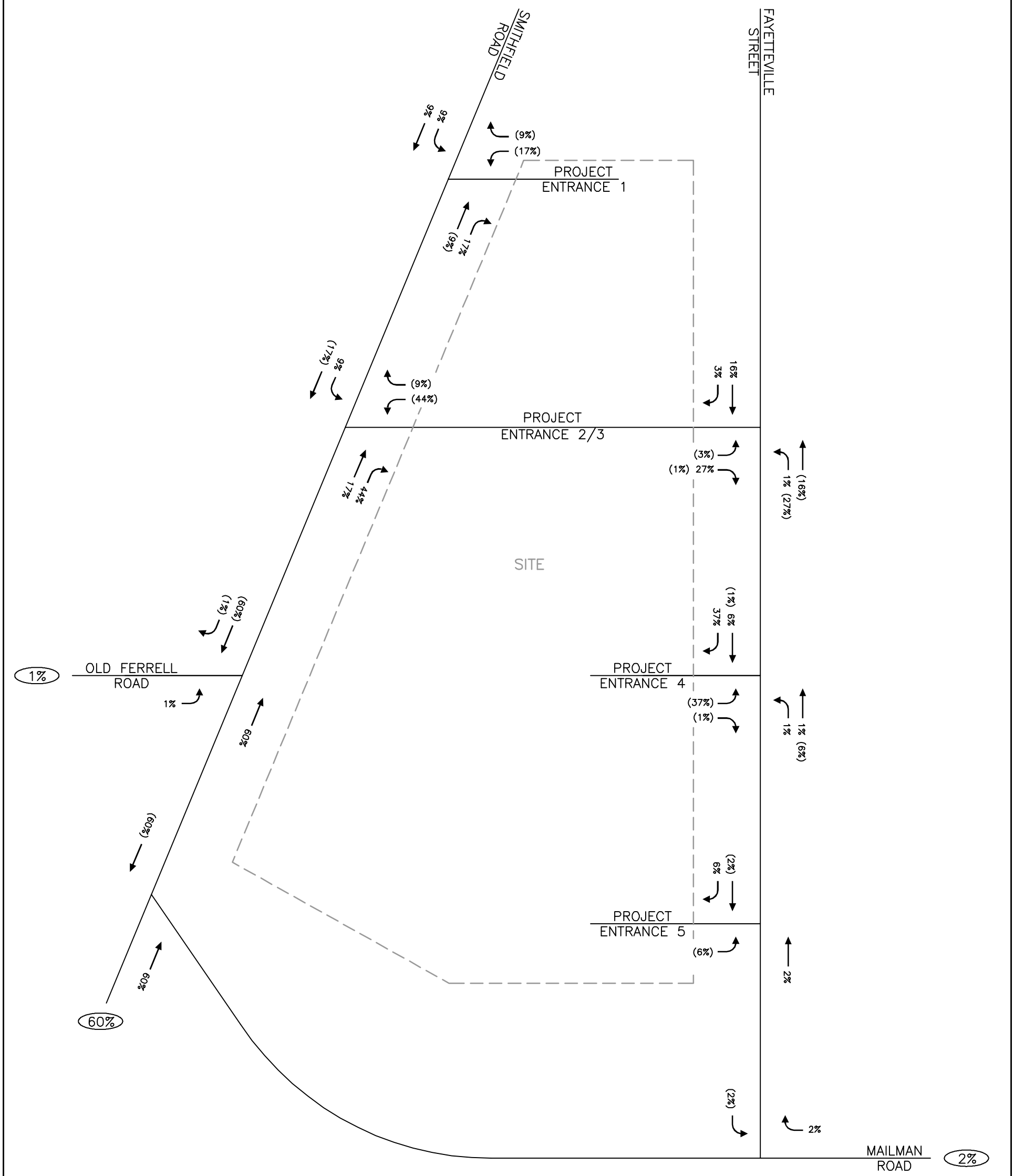
GLENMERE
TRAFFIC IMPACT ANALYSIS

SITE TRAFFIC DISTRIBUTION
AND PERCENT ASSIGNMENT (2018)

FIGURE
3a

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY–HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY–HORN AND ASSOCIATES, INC.

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Kimley-Horn and Associates, Inc.	GLENMERE TRAFFIC IMPACT ANALYSIS	SITE TRAFFIC DISTRIBUTION AND PERCENT ASSIGNMENT (2018)	FIGURE 3b

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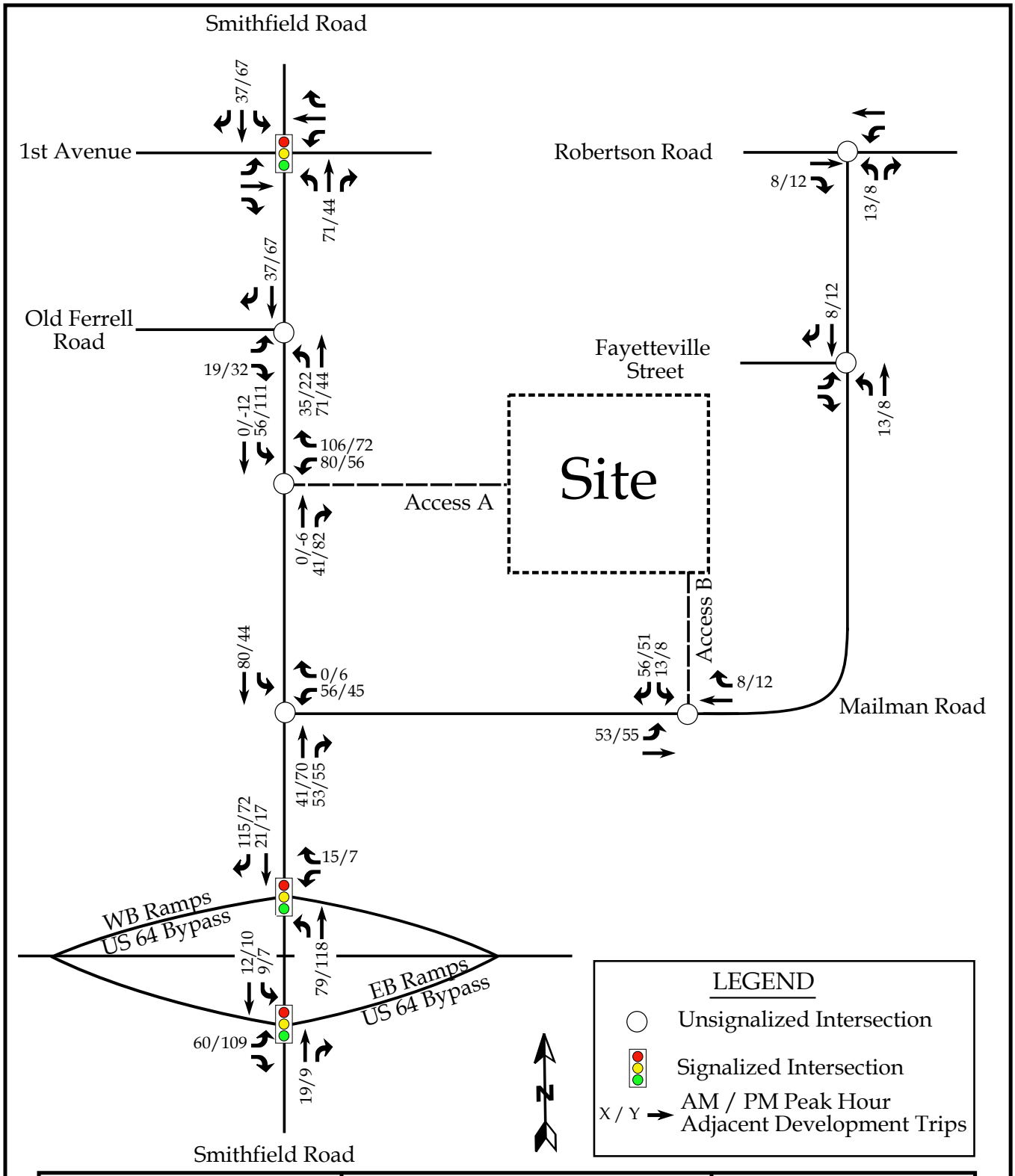
4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

The proposed development is assumed to consist of 97 single-family detached housing units, 416 multifamily housing (low-rise) units and 16,600 s.f. of shopping center. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the ITE *Trip Generation Manual*, 10th Edition. Table 3 provides a summary of the trip generation potential for the site.

Table 3: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single-Family Detached Housing (210)	97 DU	1,010	19	55	62	37
Multifamily Housing (LowRise) (220)	416 DU	3,110	43	142	132	78
Shopping Center (820)	16,600 s.f.	1,770	99	61	69	75
Total Trips		5,890	161	258	263	190
Internal Capture (1% AM and 7% PM)			*-2*	*-3*	*-18*	*-13*
Total External Trips			**159**	**255**	**245**	**177**
Pass-By Trips (0% AM, 34% PM)			---	---	*-23*	*-23*
Total Primary Trips			**159**	**255**	**222**	**154**

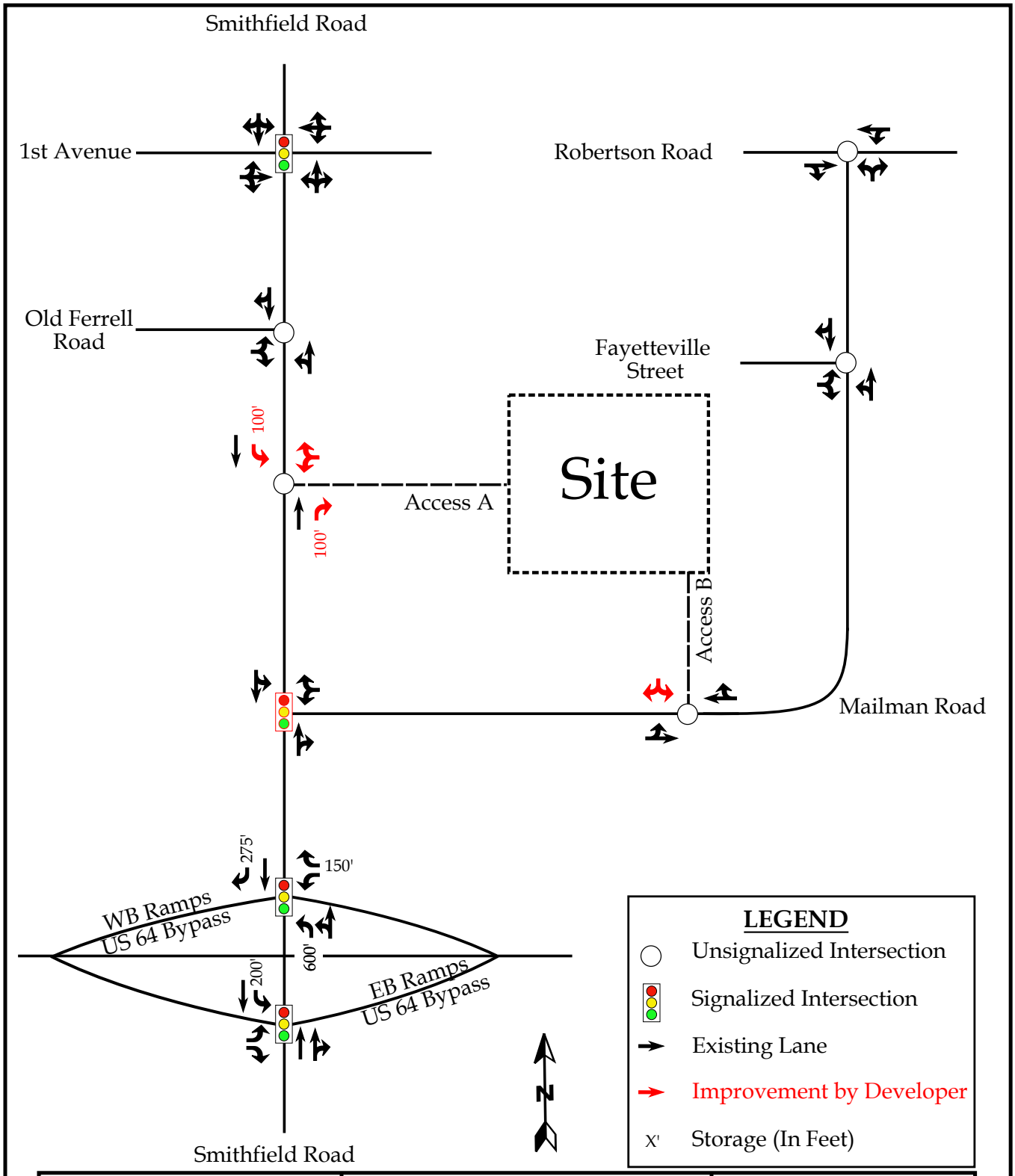


Moving forward.
RKA
RAMEY KEMP ASSOCIATES

Smithfield Road Mixed Use Development
Knightdale, NC

Total Site Trip Assignment

Scale: Not to Scale | Figure 13



Moving forward.
RKA
RAMEY KEMP ASSOCIATES

Smithfield Road Mixed Use Development
Knightdale, NC

Recommended Lane Configuration

Scale: Not to Scale | Figure 17

Memorandum

To: Michael Foley
MF Development LLC
5448 Apex Peakway
Apex, North Carolina 27502

Date: September 3, 2019

Project #: 38930.01

From: Andrew Topp, PE, PTOE

Re: The Collection – Trip Generation Memorandum

MF Development LLC requested VHB perform a trip generation calculation for a new housing development at 614 Keith Street in Knightdale, NC. Based on the sketch plan prepared by McAdams dated August 2, 2019, the proposed development is expected to consist of 57 single-family homes and 32 townhomes. The *ITE Trip Generation Manual, 10th Edition* was utilized to calculate the expected weekday trips during the AM and PM peak hours. The trip generation results for the proposed housing development are located in Table 1.

Table 1: Trip Generation Results

Land Use Code[1]	Land Use	Unit	ADT	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Total Site Trips[2]									
210	Single-Family Detached Housing	57 du	620	11	34	45	37	22	59
220	Multifamily Housing (Low-Rise)	32 du	201	4	12	16	13	8	21
Development Total			*821*	*15*	*46*	*61*	*50*	*30*	*80*

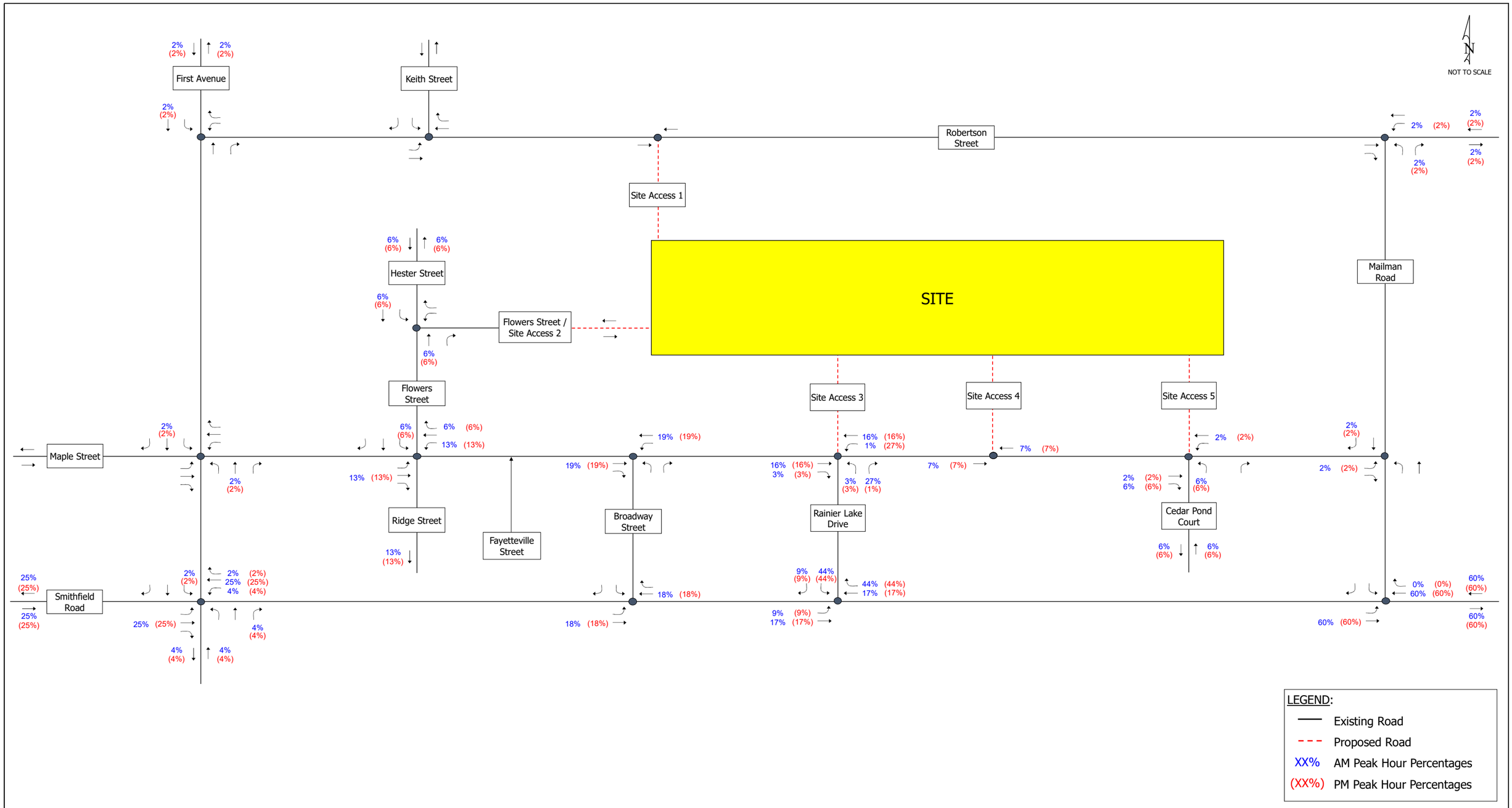
Notes:

1. Land Use Code and trip generation rates are determined based on *ITE Trip Generation, 10th Edition*
2. Total site trips are determined based on the suggested method in the NCDOT Rate Vs Equation Spreadsheet

As shown in Table 1, the development is expected to generate 821 daily trips with 61 trips (15 entering, 46 exiting) occurring during the AM peak hour, and 80 trips (50 entering, 30 exiting) occurring during the PM peak hour.

The Town of Knightdale requires a Traffic Impact Analysis (TIA) for any development that is expected to generate at least 150 trips during one peak hour. This development will generate a maximum of 80 trips during a single peak hour. Therefore, since the maximum number of generated peak hour site trips is less than 150, a TIA is not required for this development.

VHB Engineering NC, P.C.
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

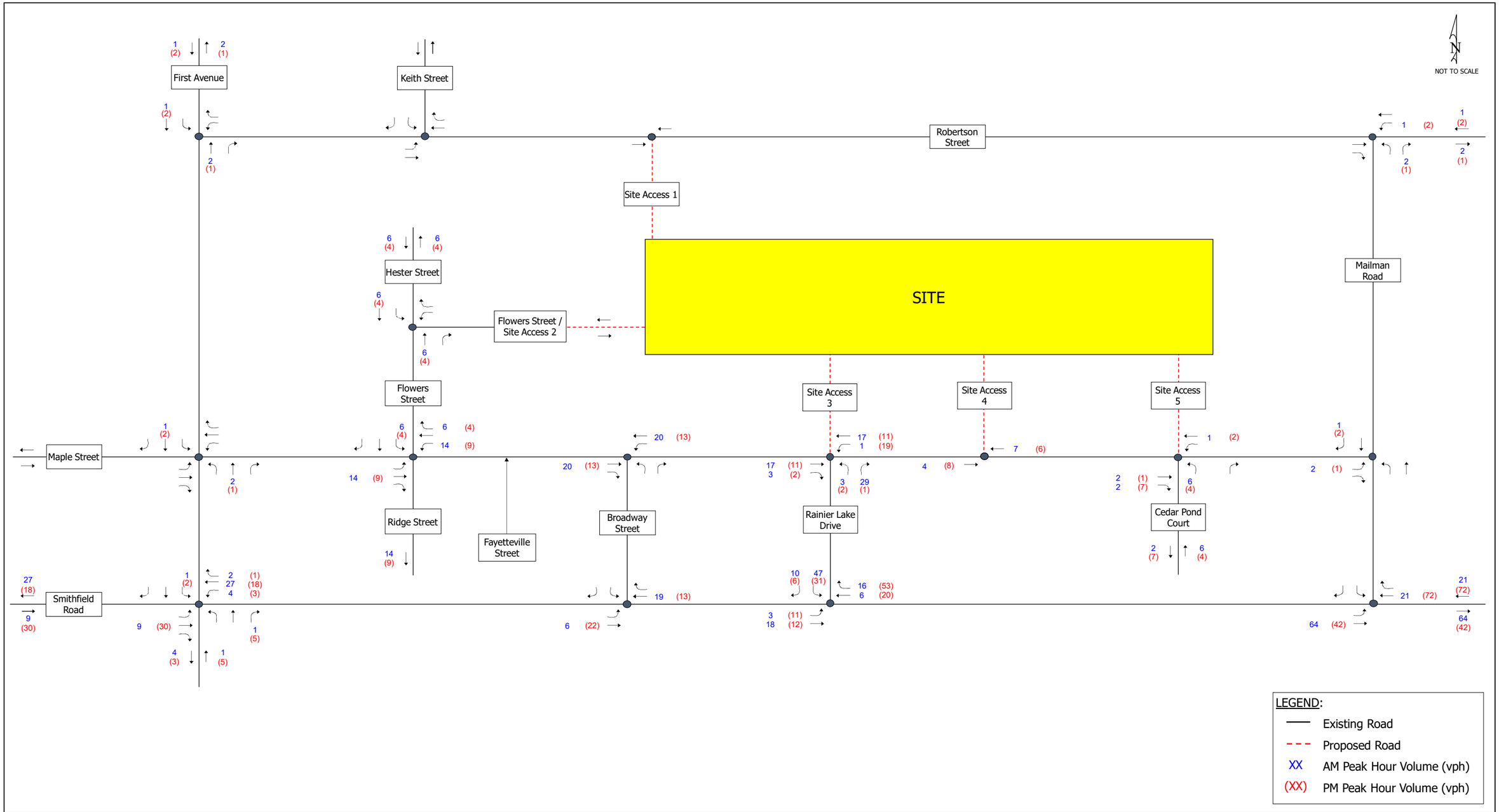


TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Harper Fayetteville Street Traffic Impact Analysis

Glenmere Development Trip Distribution Percentages

Figure D-1A

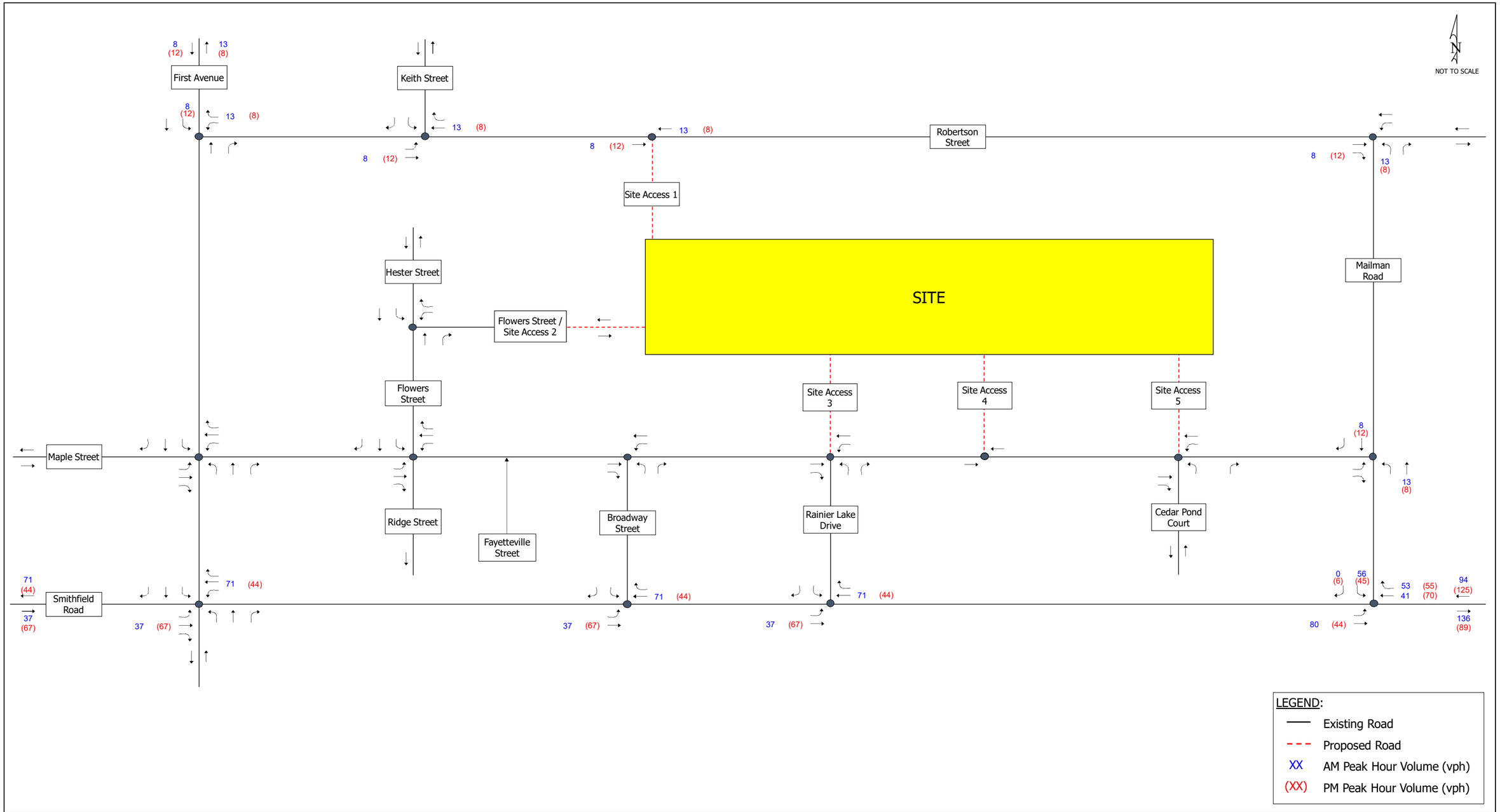


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Harper Fayetteville Street Traffic Impact Analysis

Glenmere Development Trip Distribution Volumes

Figure D-1B



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Harper Fayetteville Street Traffic Impact Analysis

Smithfield Mixed Use Development Trip Distribution Volumes

Figure D-2

NOT TO SCALE

First Avenue
Keith Street
Robertson Street
Site Access 1
SITE
Hester Street
Flowers Street / Site Access 2
Flowers Street
Site Access 3
Site Access 4
Site Access 5
Mailman Road
Maple Street
Ridge Street
Fayetteville Street
Broadway Street
Rainier Lake Drive
Cedar Pond Court
Smithfield Road

LEGEND:
- Existing Road
- Proposed Road
- XX% AM Peak Hour Percentages
- (XX%) PM Peak Hour Percentages

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Harper Fayetteville Street Traffic Impact Analysis

The Collection Development Trip Distribution Percentages

Figure D-3A

NOT TO SCALE

First Avenue
Keith Street
Robertson Street
Site Access 1
Hester Street
Flowers Street / Site Access 2
SITE
Mailman Road
Flowers Street
Site Access 3
Site Access 4
Site Access 5
Maple Street
Ridge Street
Fayetteville Street
Broadway Street
Rainier Lake Drive
Cedar Pond Court
Smithfield Road

LEGEND:
- Existing Road
- Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

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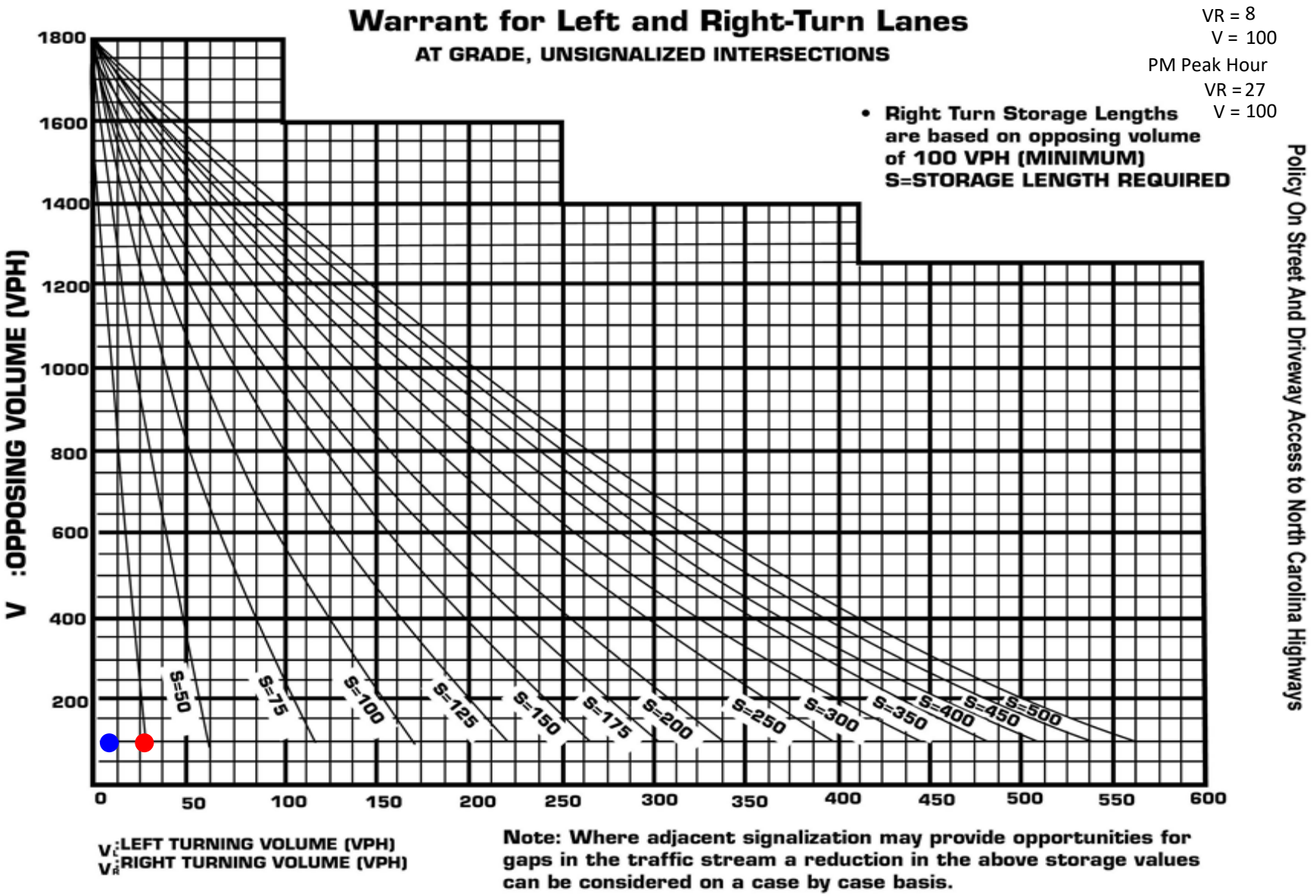
Harper Fayetteville Street Traffic Impact Analysis

The Collection Development Trip Distribution Volumes

Figure D-3B

Appendix F – NCDOT Nomographs

AM Peak Hour
VR = 8
V = 100
PM Peak Hour
VR = 27
V = 100



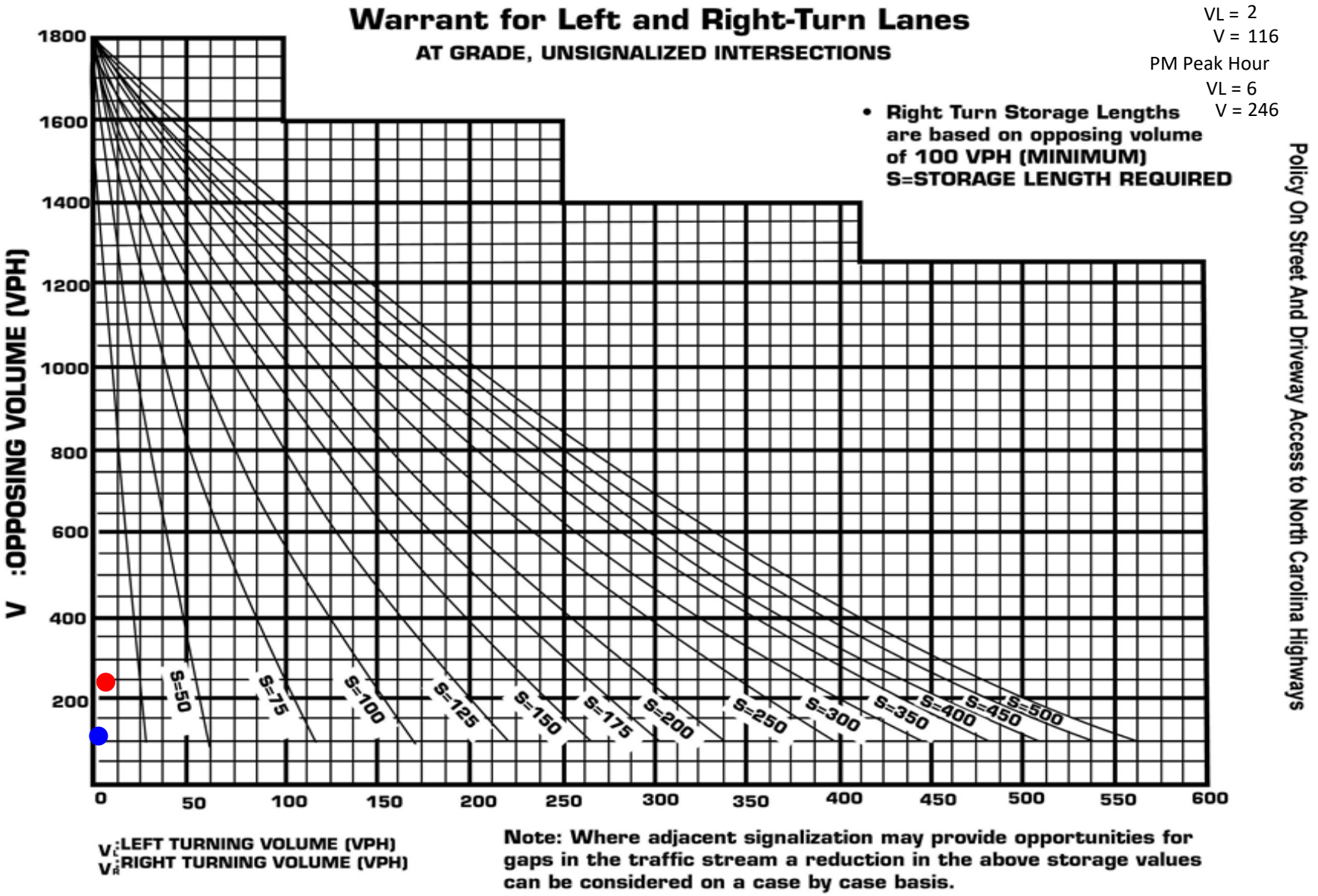
Robertson Street / Site Access 1

Eastbound Right-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VL = 2
V = 116
PM Peak Hour
VL = 6
V = 246



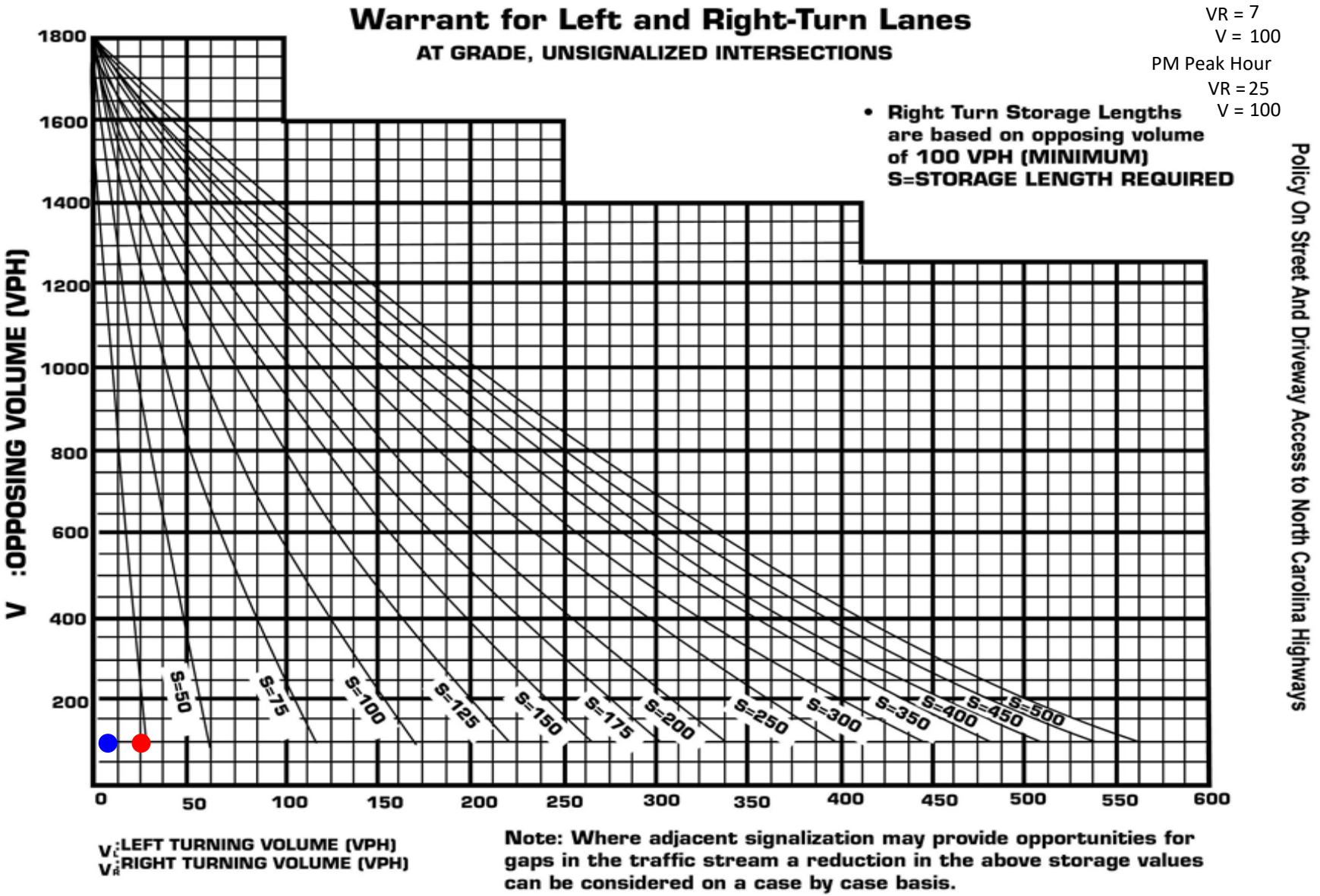
Robertson Street / Site Access 1

Westbound Left-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VR = 7
V = 100
PM Peak Hour
VR = 25
V = 100



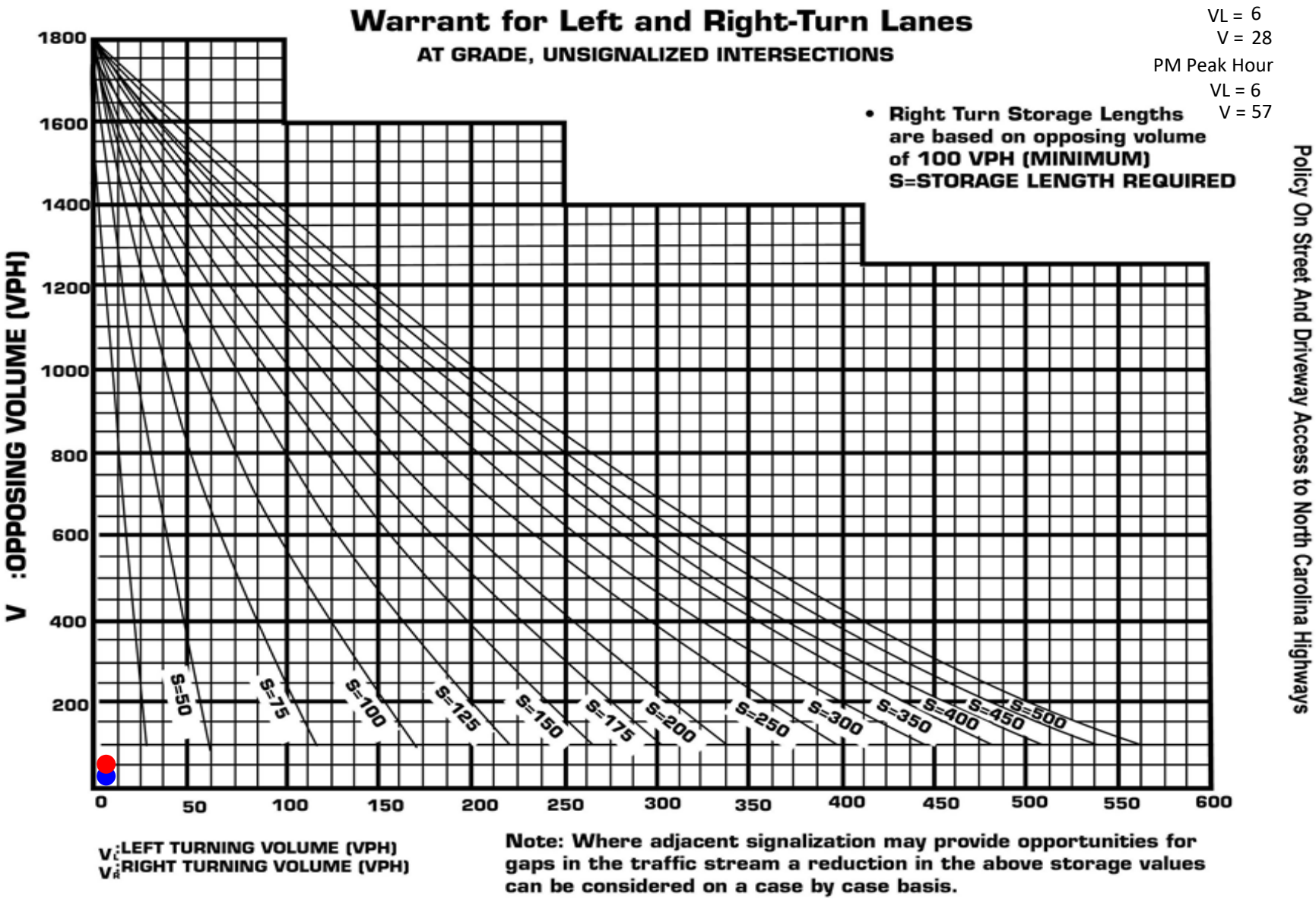
Hester Street / Ridge Street / Flowers Street / Site Access 2

Northbound Right-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VL = 6
V = 28
PM Peak Hour
VL = 6
V = 57



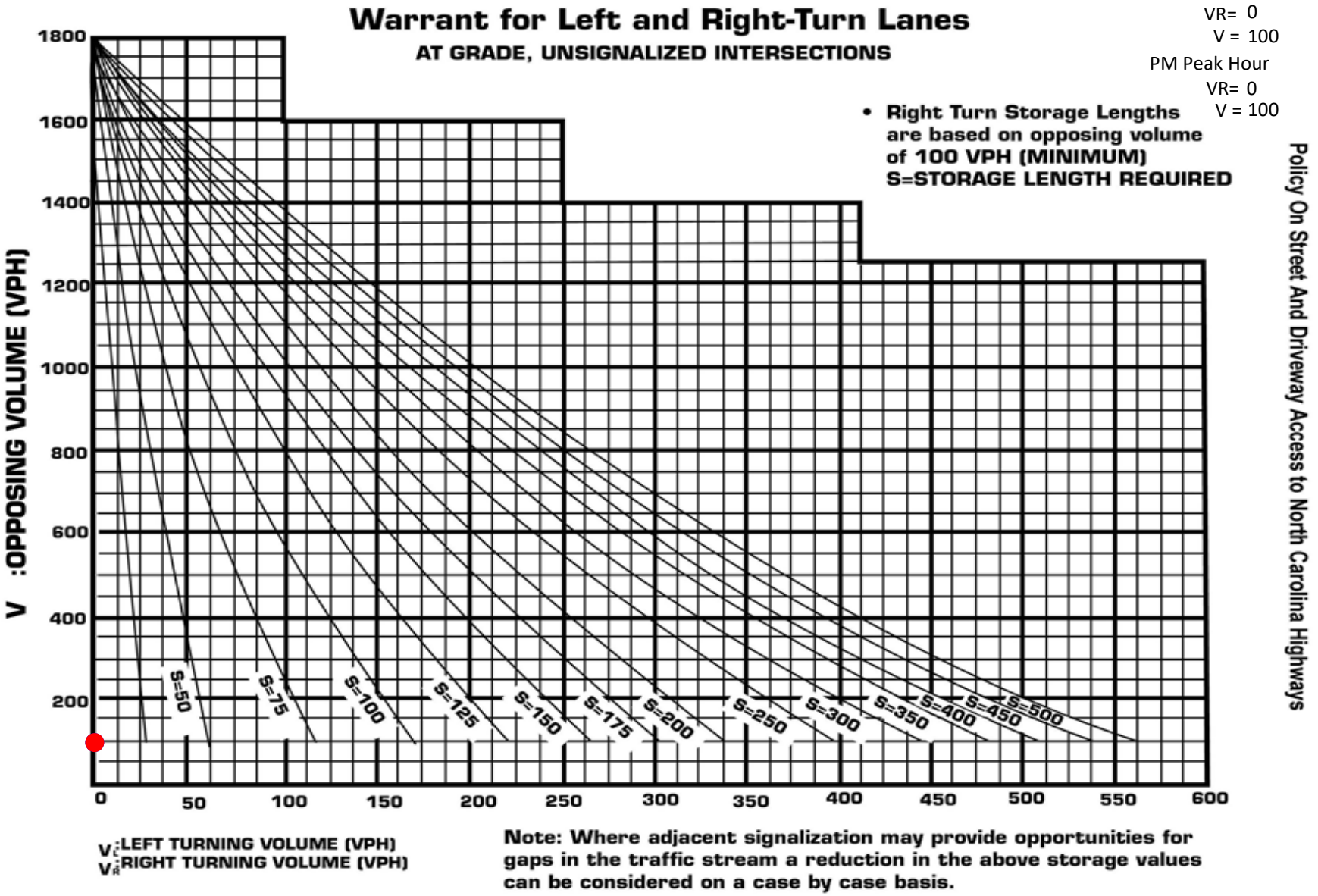
Hester Street / Ridge Street / Flowers Street / Site Access 2

Southbound Left-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VR= 0
V = 100
PM Peak Hour
VR= 0
V = 100



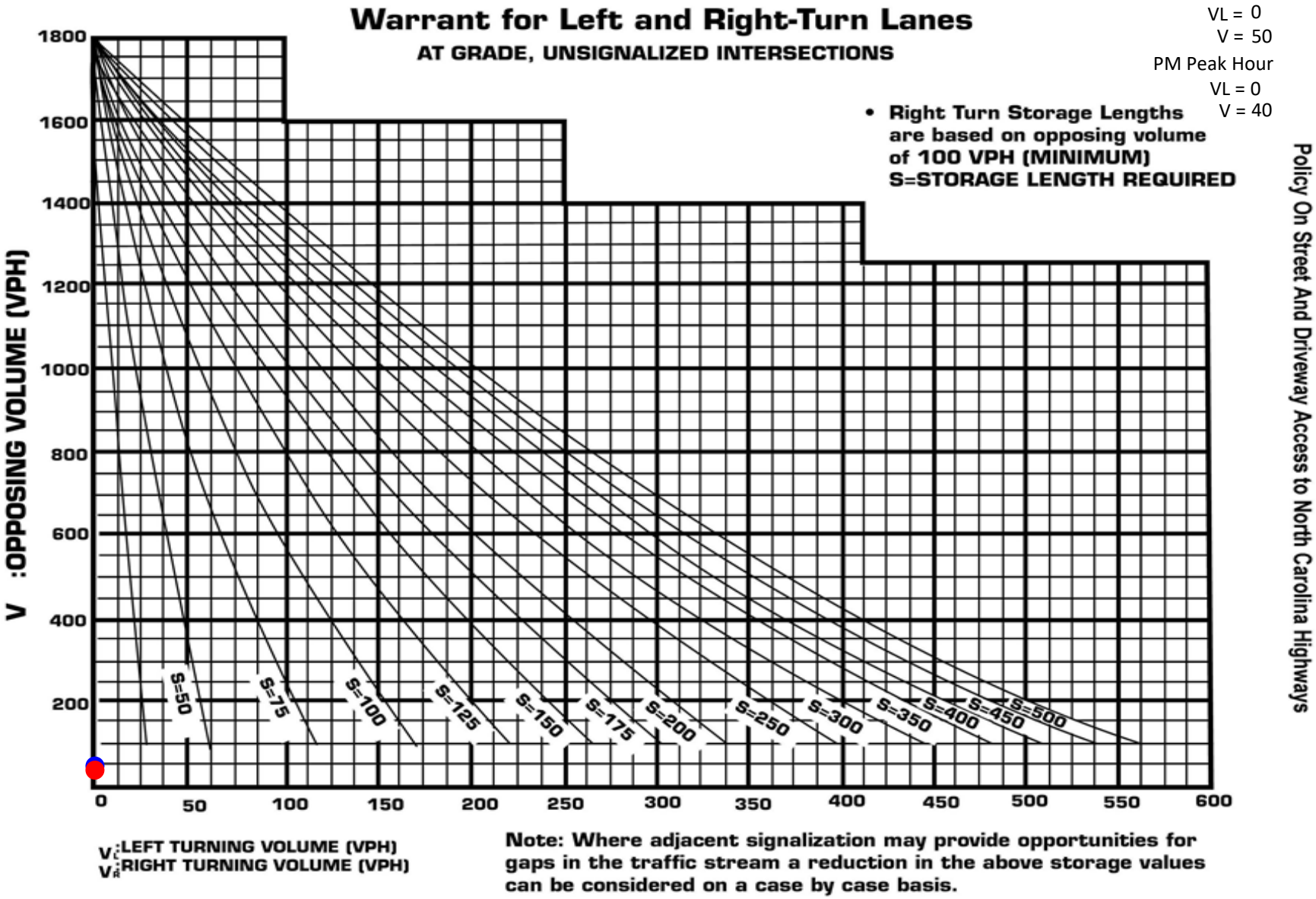
Rainier Lake Drive / Fayetteville Street / Site Access 3

Westbound Right-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VL = 0
V = 50
PM Peak Hour
VL = 0
V = 40



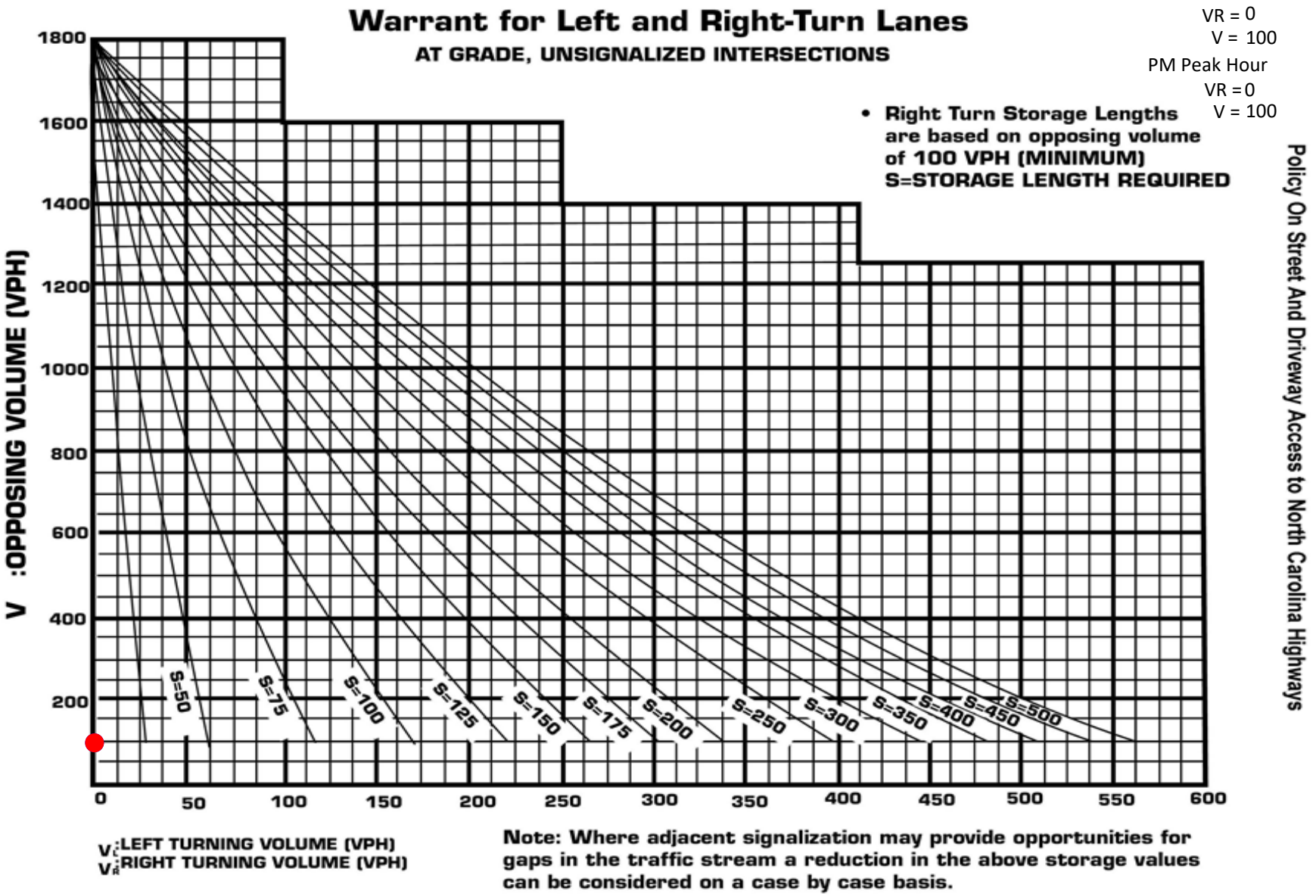
Rainier Lake Drive / Fayetteville Street / Site Access 3

Eastbound Left-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VR = 0
V = 100
PM Peak Hour
VR = 0
V = 100



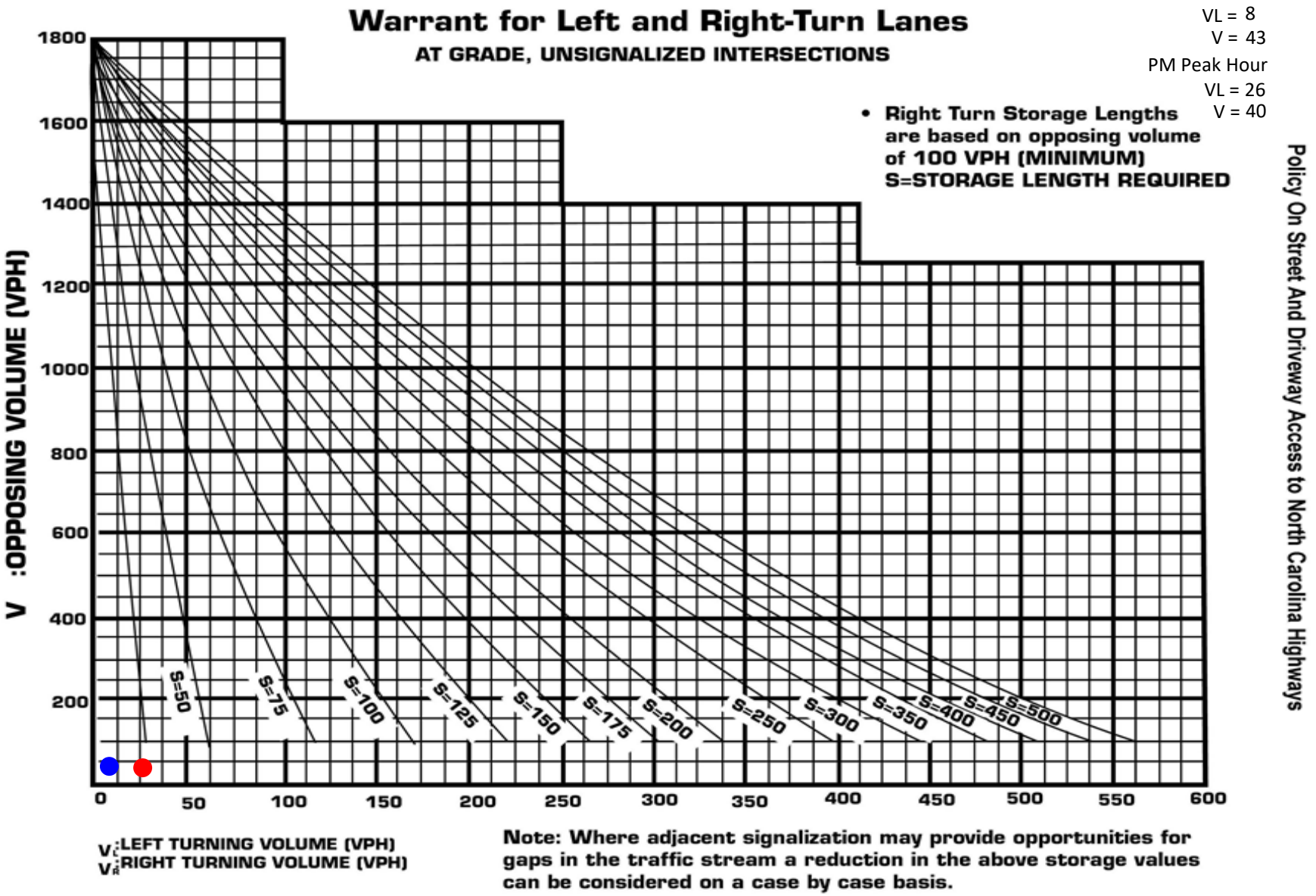
Fayetteville Street / Site Access 4

Westbound Right-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VL = 8
V = 43
PM Peak Hour
VL = 26
V = 40



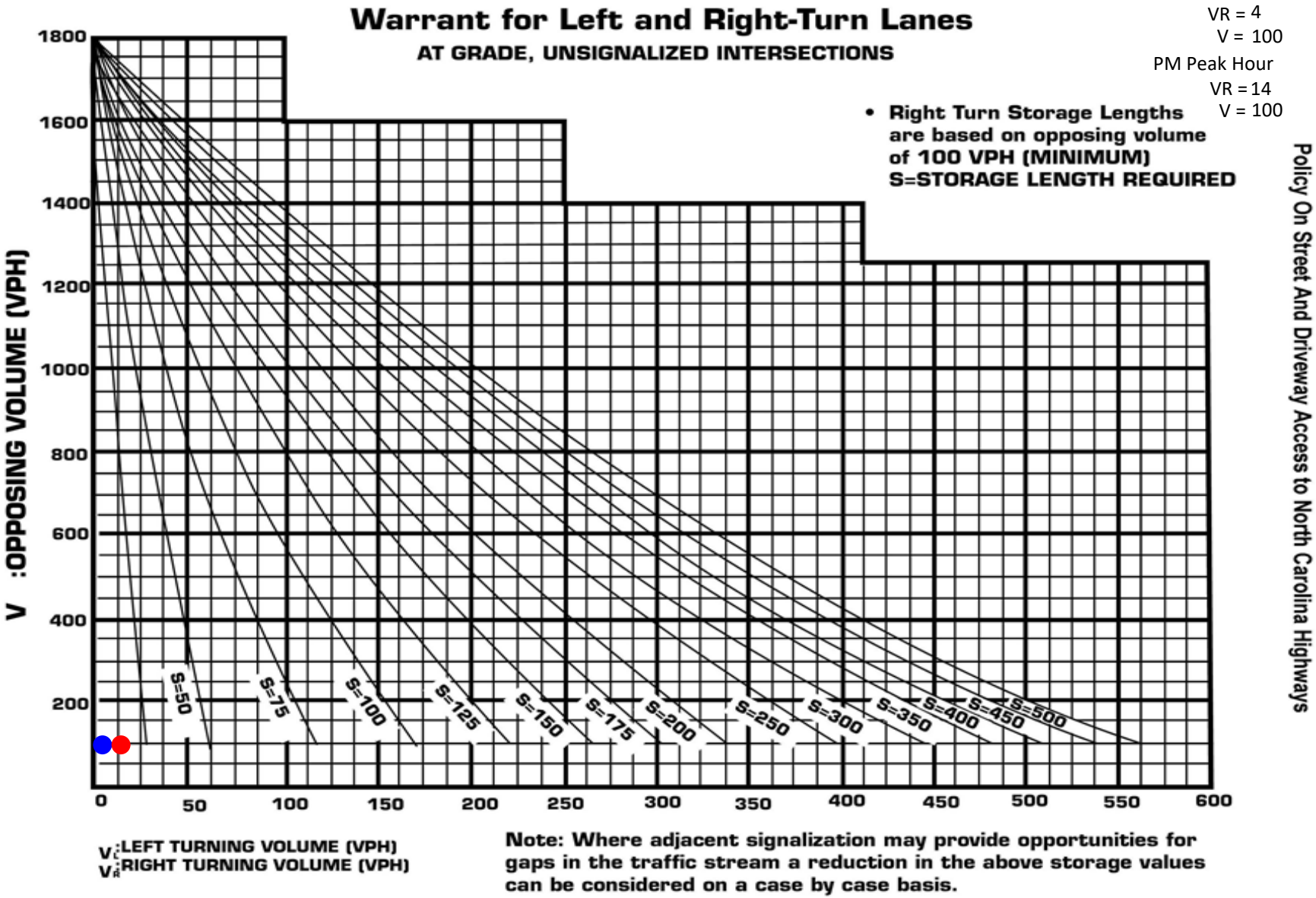
Fayetteville Street / Site Access 4

Eastbound Left-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VR = 4
V = 100
PM Peak Hour
VR = 14
V = 100



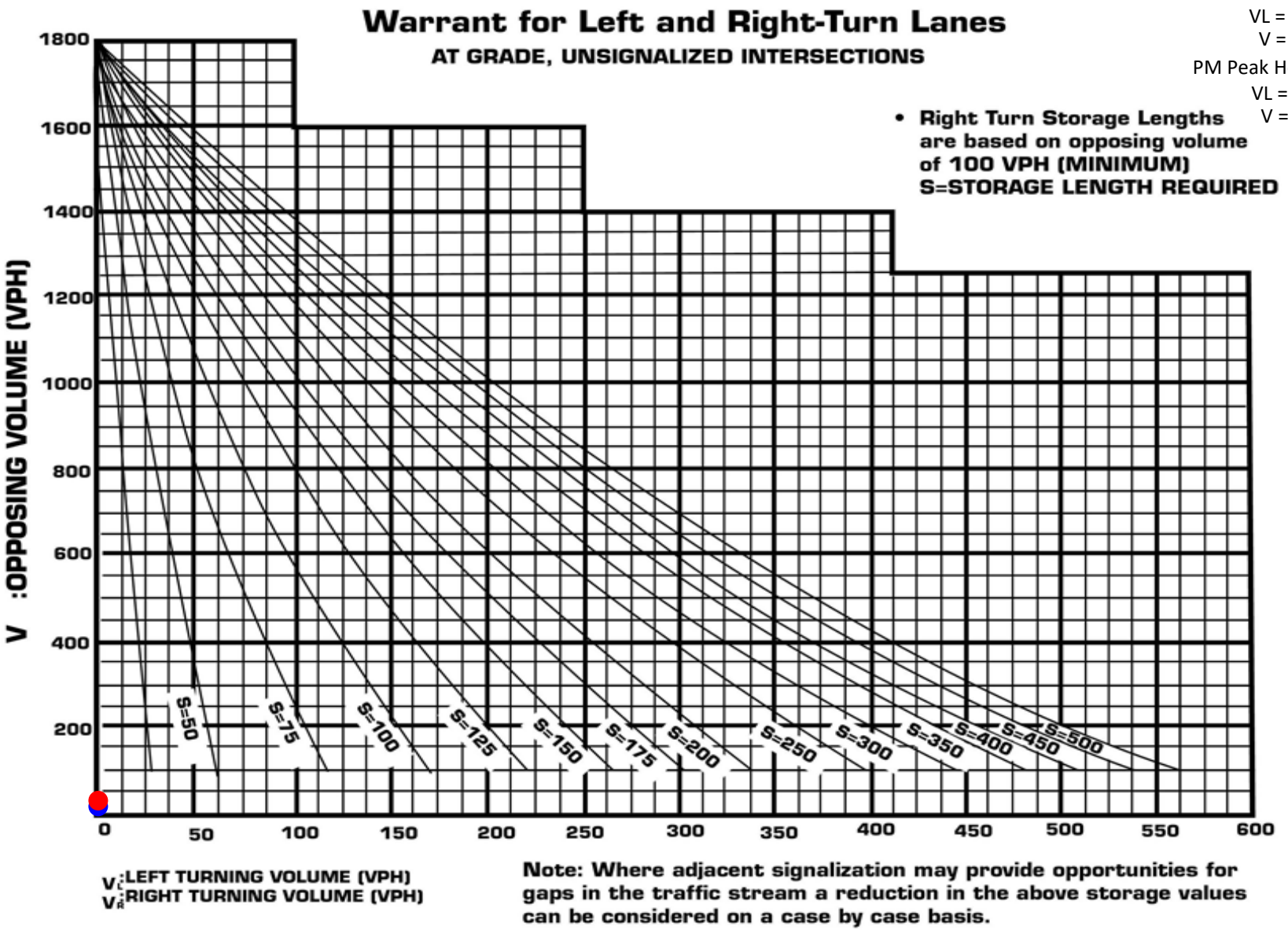
Cedar Pond Court / Fayetteville Street / Site Access 5

Westbound Right-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VL = 0
V = 19
PM Peak Hour
VL = 0
V = 33



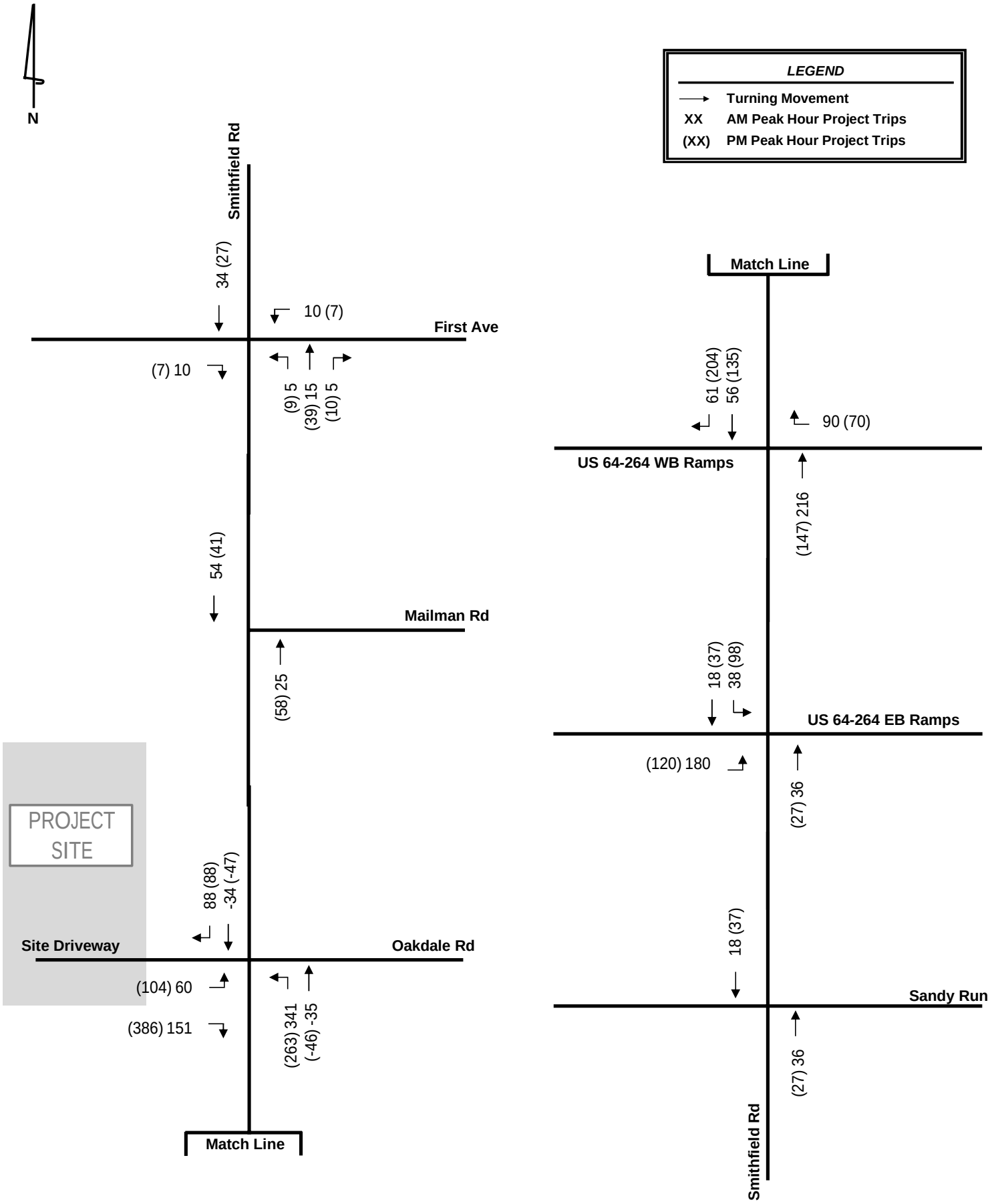
Cedar Pond Court / Fayetteville Street / Site Access 5

Eastbound Left-Turn

2026 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

Appendix G – Non-Approved Area Developments



Kimley»Horn	Baker Roofing HQ Knightdale, NC Transportation Analysis	Total Project Trips - Baker Roofing Headquarters and Outparcels	Figure 5.8 Page 20

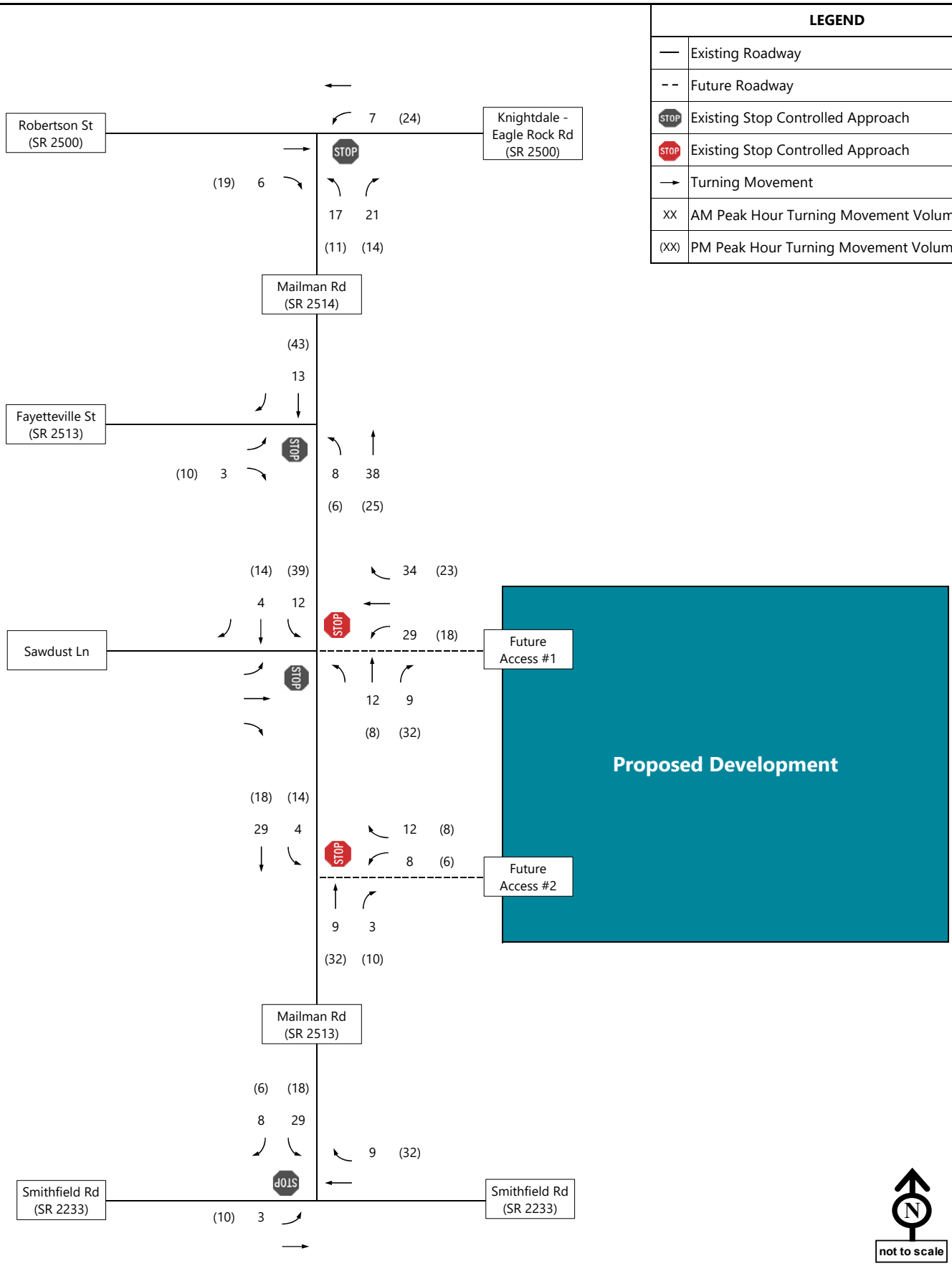
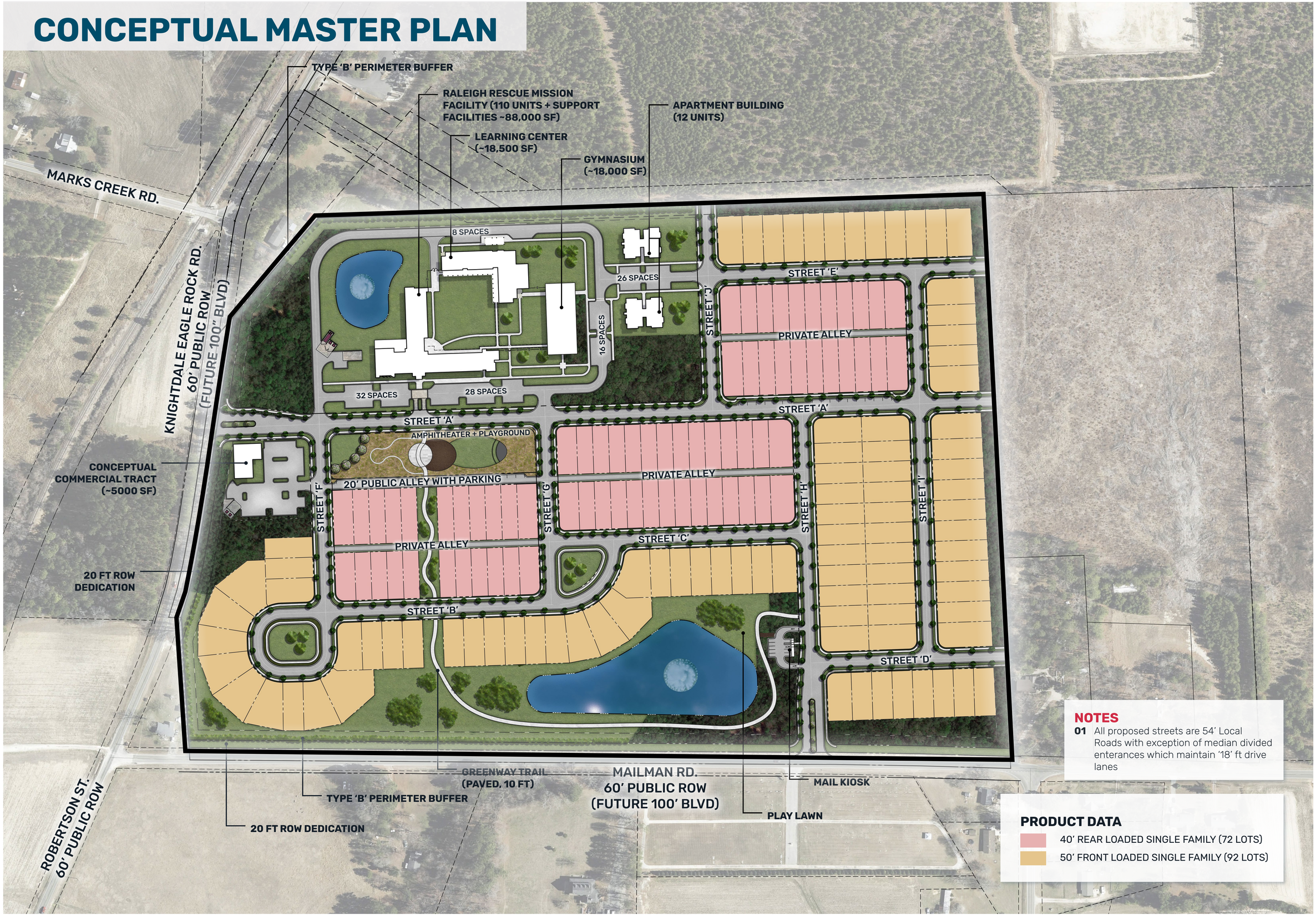


Figure MOU-5
AM and PM Peak Hour Site Trips

Mailman Post TIA
Knightdale, NC

CONCEPTUAL MASTER PLAN



NOTES

01 All proposed streets are 54' Local Roads with exception of median divided enterances which maintain '18' ft drive lanes

PRODUCT DATA

- 40' REAR LOADED SINGLE FAMILY (72 LOTS)
- 50' FRONT LOADED SINGLE FAMILY (92 LOTS)

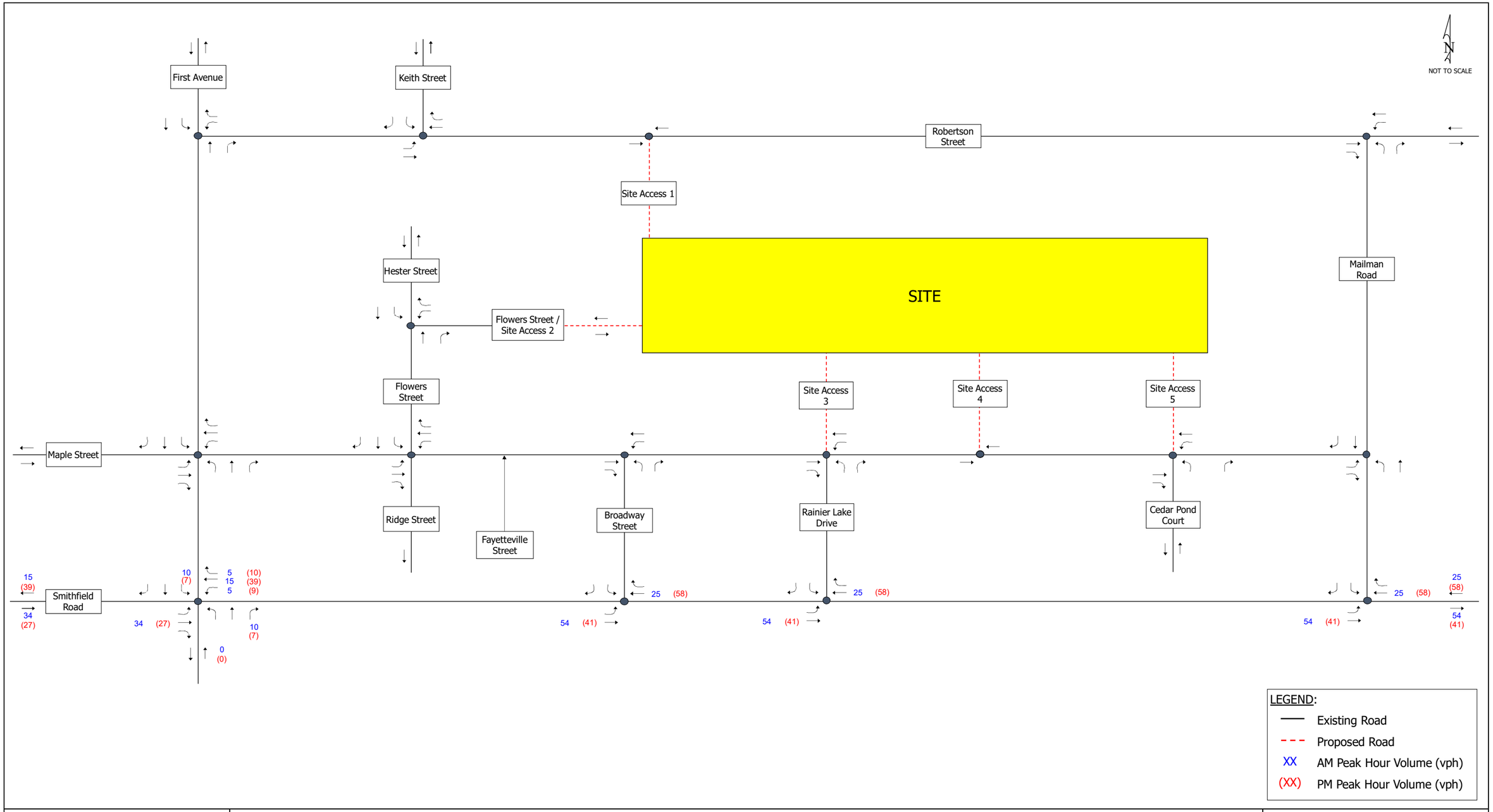
SCALE: 1" = 100'

McADAMS

PREPARED FOR: LENAR

PROJECT HOPE (RALEIGH RESCUE MISSION)
PLANNED UNIT DEVELOPMENT
KNIGHTDALE, NORTH CAROLINA

LEN21006
02. 11. 2022

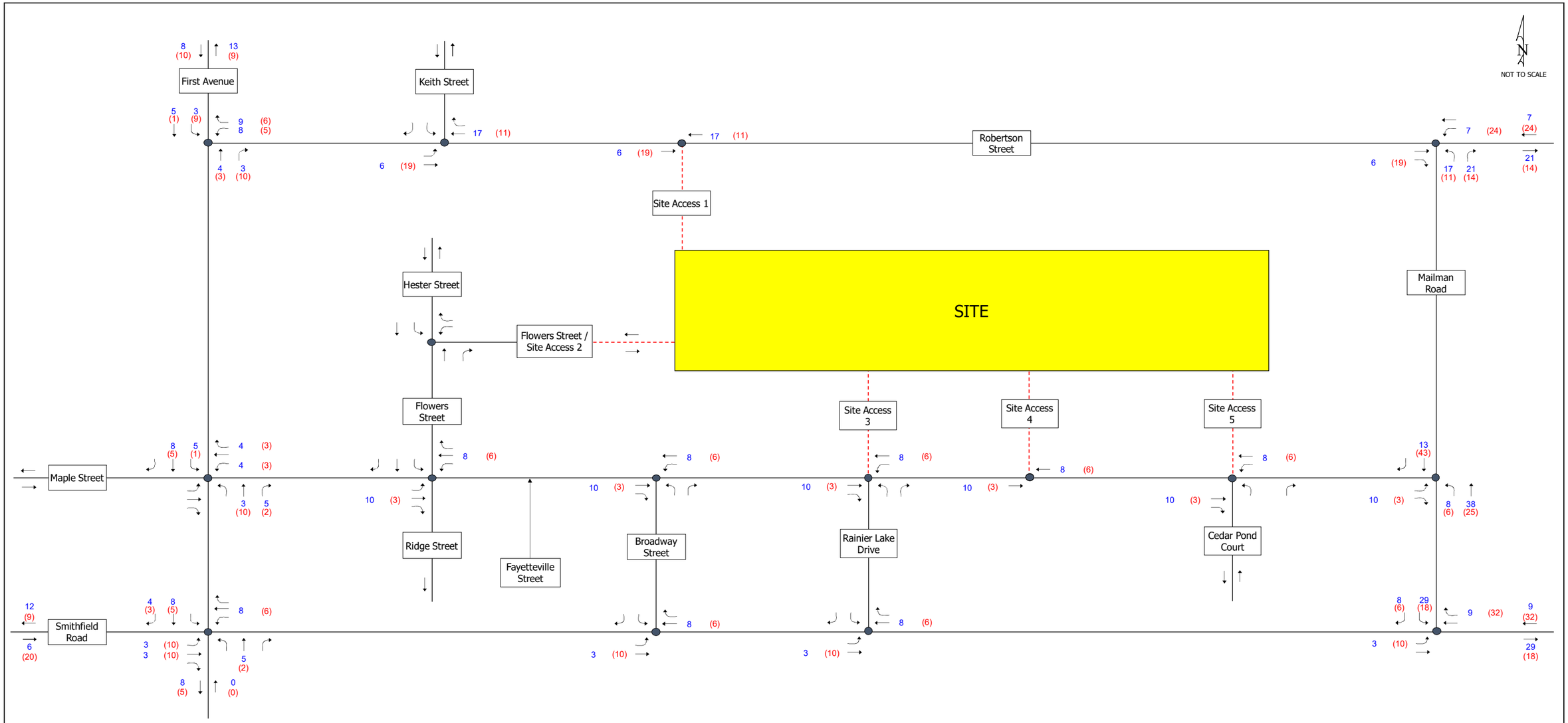


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Harper Fayetteville Street Traffic Impact Analysis

Baker Roofing HQ Development Trip Distribution Volumes

Figure D-4

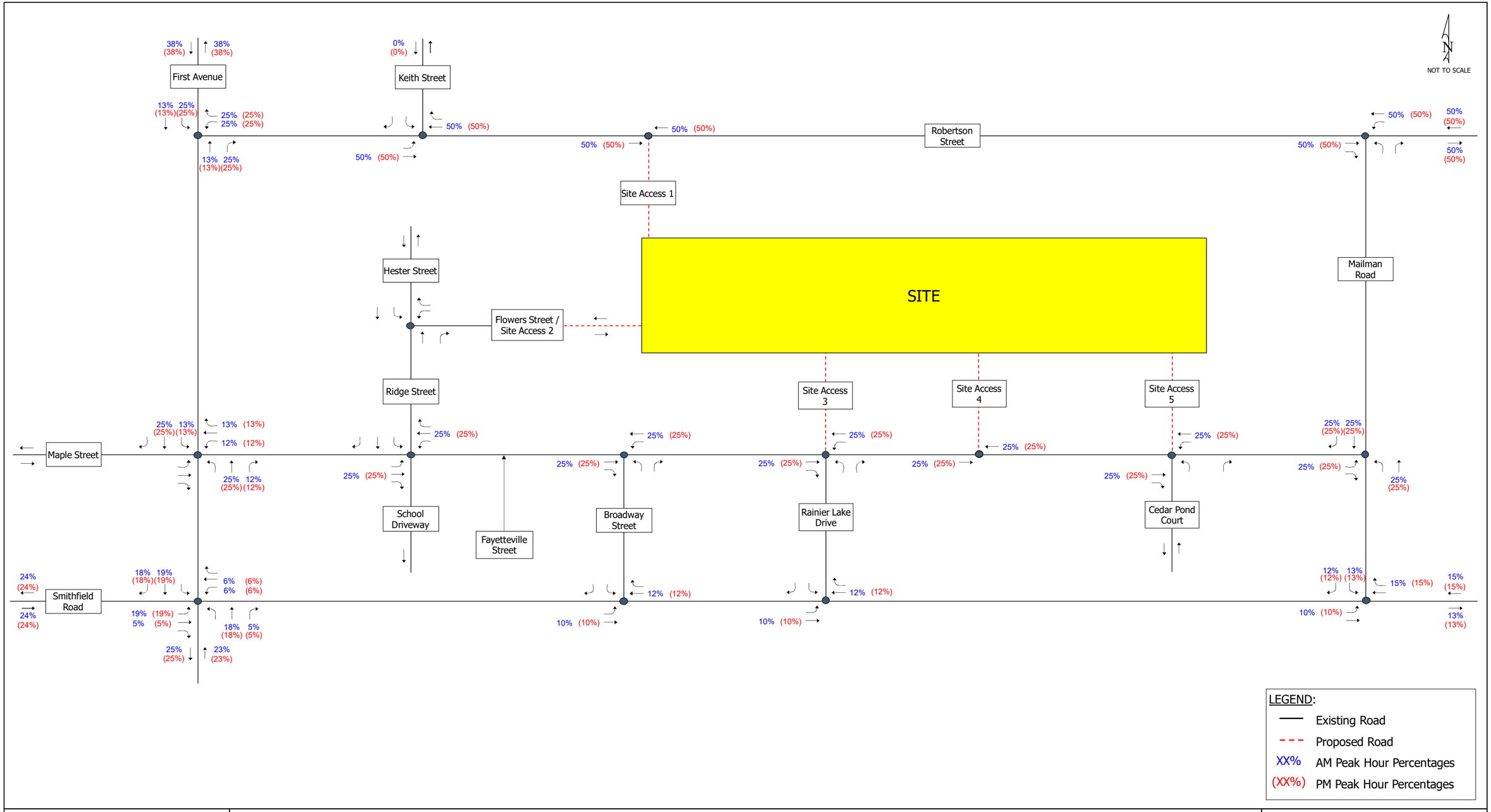


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Harper Fayetteville Street Traffic Impact Analysis

Mailman Post Development Trip Distribution Volumes

Figure D-5



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Harper Fayetteville Street Traffic Impact Analysis

Project Hope Development Trip Distribution Percentages

Figure D-6A

NOT TO SCALE

SITE

First Avenue
Keith Street
Robertson Street
Mailman Road
Site Access 1
Hester Street
Flowers Street / Site Access 2
Site Access 3
Site Access 4
Site Access 5
Ridge Street
Maple Street
School Driveway
Fayetteville Street
Broadway Street
Rainier Lake Drive
Cedar Pond Court
Smithfield Road

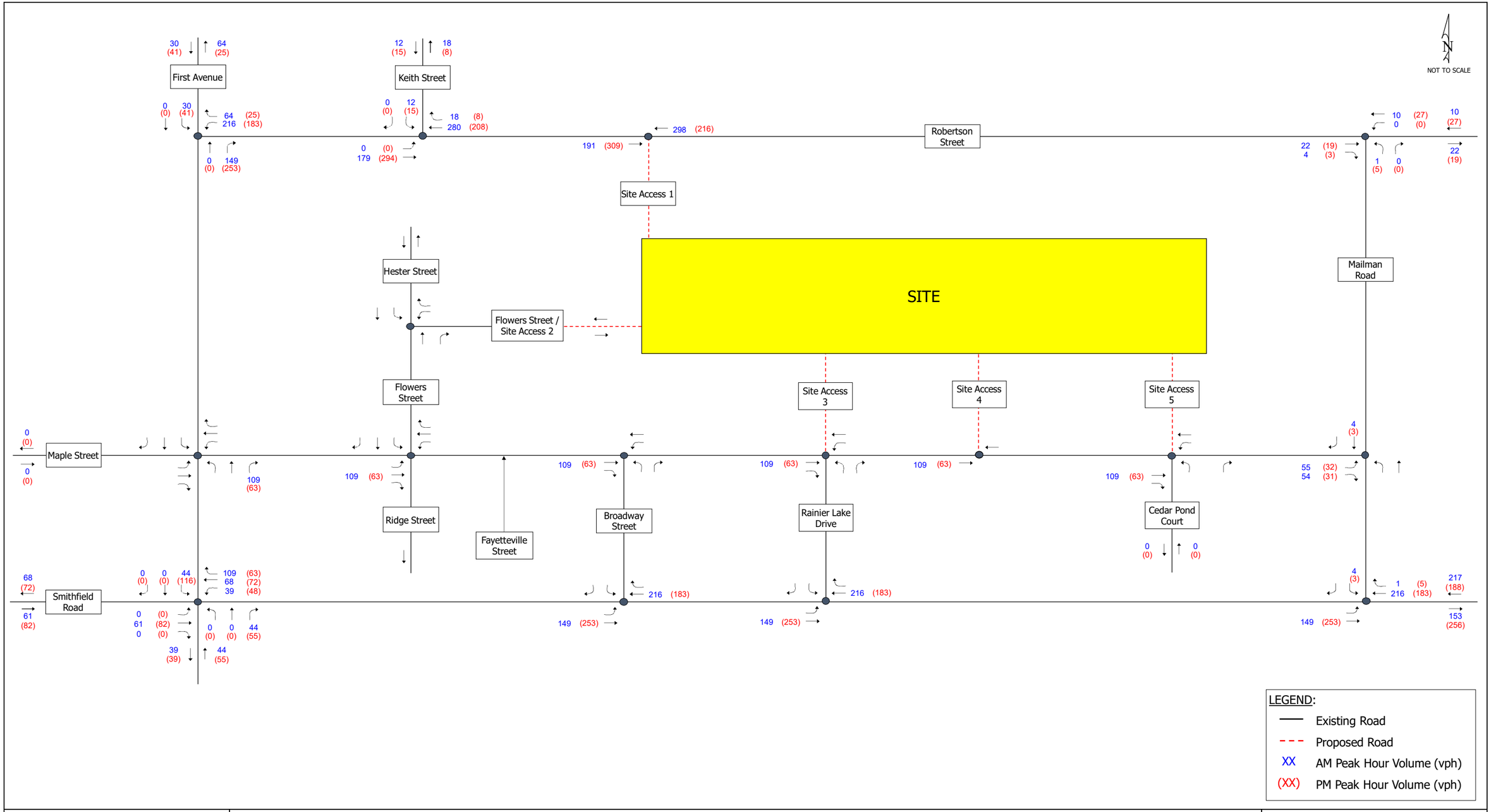
LEGEND:
- Existing Road
- Proposed Road
- XX AM Peak Hour Volume (vph)
- (XX) PM Peak Hour Volume (vph)

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YOUR VISION ACHIEVED THROUGH OURS.

Harper Fayetteville Street Traffic Impact Analysis

Project Hope Development Trip Distribution Volumes

Figure D-6B



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Harper Fayetteville Street Traffic Impact Analysis

Robertson Development Trip Distribution Volumes

Figure D-7