ROBERTSON CROSSING

MASTER PLAN

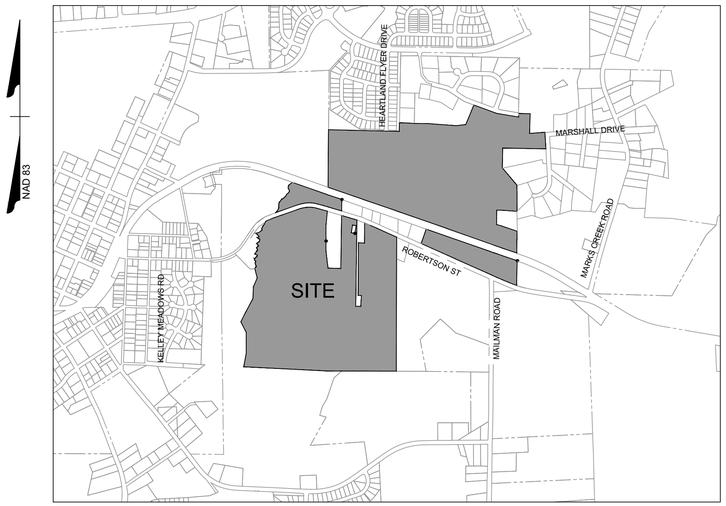
TOWN OF KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

ST. MATTHEW'S TOWNSHIP

ZMA-16-22

SITE DATA

PROJECT:	ROBERTSON CROSSING
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:	NATELLI COMMUNITIES BRIAN MASSENGILL 1903 N. HARRISON AVE. CARY, NC 27513 PHONE: (919)-888-3102 EMAIL: BRIAN@NATELLI.COM
PROPERTY LOCATION:	ROBERTSON ST.
PIN:	1754-83-4965, 1754-72-7141, 1754-81-0838, 1754-81-2900, 1754-81-4716, PORTION OF 1754-92-3372, 1754-93-6968, PORTION OF 1754-94-5547, 1764-04-3505, 1754-84-7374, 1754-84-7584, 1754-82-2951
EXISTING ZONING:	RT & GR3
PROPOSED ZONING:	GR-8 & NMX, PUD
TOWNSHIP:	ST . MATTHEWS
PROPOSED USE:	SINGLE FAMILY RESIDENTIAL & COMMERCIAL MIXED USE
TOTAL PROJECT AREA:	188.40 ACRES
AVERAGE LOT SIZES:	7,510 SF (FRONT LOADED SINGLE FAMILY LOTS) 4,745 SF (REAR LOAD SINGLE FAMILY LOTS) 2,389 SF (ATTACHED TOWNHOMES)
TOTAL PROPOSED UNITS:	644 LOTS (287 FRONT LOADED SINGLE FAMILY + 179 REAR LOADED SINGLE SINGLE FAMILY + 178 ATTACHED TOWNHOMES)
PROPOSED DENSITY:	3.42 DU/A
TOTAL ON-STREET PARKING:	204 SPACES
TOTAL OPEN SPACE:	53.85 AC (7.22 AC PASSIVE + 13.72 AC ACTIVE + 33.56 AC COMMON)
CONNECTIVITY INDEX:	1.6
TREE SAVE:	626,096 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" = 1000'

Sheet List Table

Sheet Number	Sheet Title
C0.0	COVER SHEET
C1.0	EXISTING CONDITIONS
C2.0	OVERALL PRELIMINARY SITE PLAN
C2.1	DETAILED SITE PLAN SHEET 1 OF 6
C2.2	DETAILED SITE PLAN SHEET 2 OF 6
C2.3	DETAILED SITE PLAN SHEET 3 OF 6
C2.4	DETAILED SITE PLAN SHEET 4 OF 6
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C2.7	OPEN SPACE PLAN
C3.0	OVERALL PRELIMINARY UTILITY PLAN
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C3.3	DETAILED UTILITY PLAN SHEET 3 OF 6
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C4.0	OVERALL PRELIMINARY STORMWATER MANAGEMENT PLAN
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C4.2	DETAILED STORMWATER MANAGEMENT PLAN SHEET 2 OF 6
C4.3	DETAILED STORMWATER MANAGEMENT PLAN SHEET 3 OF 6
C4.4	DETAILED STORMWATER MANAGEMENT PLAN SHEET 4 OF 6
C4.5	DETAILED STORMWATER MANAGEMENT PLAN SHEET 5 OF 6
C4.6	DETAILED STORMWATER MANAGEMENT PLAN SHEET 6 OF 6
C5.0	OVERALL PRELIMINARY LIGHTING PLAN
C5.1	DETAILED PRELIMINARY LIGHTING PLAN SHEET 1 OF 6
C5.2	DETAILED PRELIMINARY LIGHTING PLAN SHEET 2 OF 6
C5.3	DETAILED PRELIMINARY LIGHTING PLAN SHEET 3 OF 6
C5.4	DETAILED PRELIMINARY LIGHTING PLAN SHEET 4 OF 6
C5.5	DETAILED PRELIMINARY LIGHTING PLAN SHEET 5 OF 6
C5.6	DETAILED PRELIMINARY LIGHTING PLAN SHEET 6 OF 6
C6.0	OVERALL LANDSCAPE PLAN
C6.1	DETAILED LANDSCAPE PLAN SHEET 1 OF 6
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C6.3	DETAILED LANDSCAPE PLAN SHEET 3 OF 6
C6.4	DETAILED LANDSCAPE PLAN SHEET 4 OF 6
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C6.6	DETAILED LANDSCAPE PLAN SHEET 6 OF 6
C7.0	OVERALL SIGNS AND MARKINGS PLAN
C7.1	DETAILED SIGNS AND MARKINGS PLAN SHEET 1 OF 6
C7.2	DETAILED SIGNS AND MARKINGS PLAN SHEET 2 OF 6
C7.3	DETAILED SIGNS AND MARKINGS PLAN SHEET 3 OF 6
C7.4	DETAILED SIGNS AND MARKINGS PLAN SHEET 4 OF 6
C7.5	DETAILED SIGNS AND MARKINGS PLAN SHEET 5 OF 6
C7.6	DETAILED SIGNS AND MARKINGS PLAN SHEET 6 OF 6

CONSTRUCTION DRAWING APPROVAL REQUIRED FOR DEVELOPMENT

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RALEIGH OFFICE
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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

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REVISION DESCRIPTION

DATE

DATE 1/03/2023

DRAWN BY C.CLARK

DESIGNED BY E.ANGE

CHECKED BY B.BLACKMON

SCALE NTS

JOB NO. 48720

SHEET NO. C0.0

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

COVER SHEET

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CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD BEARING	CHORD
C4	37°00'55"	467.88'	302.27'	156.62'	N88°00'02"E	297.04'
C5	37°00'55"	527.88'	341.03'	176.71'	N88°00'02"E	335.13'

LINE TABLE

LINE	BEARING	LENGTH
L6	N4°01'47"W	8.19'
L7	N25°04'44"E	42.35'
L8	N76°24'12"E	18.80'
L9	N52°39'29"E	28.71'
L10	N22°53'42"E	8.62'
L11	N39°48'32"E	13.22'
L12	N61°04'16"E	18.82'
L13	N44°10'08"E	21.15'
L14	N20°51'19"E	15.35'
L15	N17°18'55"W	10.03'
L16	N31°33'35"W	30.95'
L17	N36°42'36"E	6.66'
L18	S89°10'07"E	3.78'
L19	N62°27'51"E	7.70'
L20	N8°02'59"E	3.73'
L21	N18°15'30"W	8.37'
L22	N7°05'29"E	19.05'
L23	N32°58'03"W	23.44'
L24	N50°54'12"W	6.91'

LINE TABLE

LINE	BEARING	LENGTH
L25	N31°11'50"W	15.85'
L26	N47°51'03"W	33.34'
L27	N25°44'31"W	28.16'
L28	N9°51'00"W	20.32'
L29	N21°10'27"E	8.24'
L30	N19°20'10"W	20.24'
L31	N6°53'42"E	55.03'
L32	N14°49'34"E	17.89'
L33	N28°00'03"W	14.81'
L34	N47°49'57"W	10.15'
L35	N21°32'20"E	13.35'
L36	N81°39'16"E	27.24'
L37	N6°00'27"W	14.31'
L38	N32°16'26"W	9.61'
L39	N25°21'08"W	10.67'
L40	N79°08'45"W	8.77'
L41	S39°22'06"W	2.82'
L42	N70°20'52"W	6.66'
L43	N34°12'55"W	17.92'

LINE TABLE

LINE	BEARING	LENGTH
L44	N14°24'50"E	9.50'
L45	N38°55'12"E	20.19'
L46	N7°47'55"E	26.72'
L47	N21°12'31"W	45.79'
L48	N16°42'48"E	30.62'
L49	N15°31'29"W	17.51'
L50	N3°35'04"E	9.55'
L51	N26°34'52"E	18.58'
L52	N2°51'55"E	14.54'
L53	N26°59'20"E	24.40'
L54	N0°55'16"E	30.39'
L55	N20°34'38"E	50.57'
L56	N41°55'26"E	11.34'
L57	N27°08'22"E	44.10'
L58	N87°05'57"W	15.22'
L59	S80°53'53"W	11.52'
L60	N5°44'18"W	47.01'
L61	N71°31'16"W	26.75'
L62	N27°59'46"W	18.50'

LINE TABLE

LINE	BEARING	LENGTH
L63	N4°55'19"E	17.04'
L64	N23°50'51"E	15.96'
L65	N9°59'55"W	29.89'
L66	N29°12'11"E	33.92'
L67	N72°34'31"E	9.93'
L68	N51°09'58"E	4.58'
L69	N8°23'11"E	5.52'
L70	N58°02'47"E	6.81'
L71	N11°11'42"E	12.17'
L72	N77°27'06"E	10.65'
L73	N56°01'27"E	5.64'
L74	N4°04'28"E	17.90'
L75	N46°19'50"E	10.12'
L76	N59°42'47"W	17.64'
L77	N15°13'01"E	6.78'
L78	N11°30'19"W	7.63'
L79	N46°59'40"E	20.07'
L80	N20°55'51"E	12.26'
L81	N10°13'25"E	12.33'

LINE TABLE

LINE	BEARING	LENGTH
L82	N37°13'35"E	7.92'
L83	N4°43'28"E	9.98'
L84	N11°30'10"W	5.33'
L85	N53°28'39"W	6.17'
L86	N21°05'58"W	17.31'
L87	N3°02'24"E	6.69'
L88	N53°52'46"E	8.37'
L89	N2°13'06"E	13.79'
L90	N31°17'20"E	5.49'
L91	N5°54'31"E	12.20'
L92	N33°40'54"W	13.21'
L93	N20°03'18"W	33.82'
L94	N37°53'41"E	18.37'
L95	N1°45'21"W	11.67'
L96	N37°33'36"E	10.72'
L97	N64°33'11"E	4.16'
L98	N80°42'07"E	8.03'
L99	S89°31'14"E	8.12'
L100	N25°28'45"E	4.16'

LINE TABLE

LINE	BEARING	LENGTH
L101	N8°35'05"W	7.79'
L102	N23°21'41"E	6.77'
L103	N15°39'27"E	22.26'
L104	N37°01'57"E	10.70'
L105	N10°06'56"E	10.45'
L106	N3°41'30"W	15.66'
L107	N24°31'10"W	17.16'
L108	N68°36'52"E	5.77'
L109	N15°15'53"E	6.62'
L110	N43°35'48"E	23.19'
L111	N88°57'09"W	45.00'
L112	S88°57'09"E	70.02'
L113	S67°01'40"E	55.03'
L114	S66°50'21"E	64.70'
L115	S65°24'50"E	371.43'
L116	N69°13'33"W	47.37'
L117	N67°31'43"W	47.51'
L118	N70°51'47"W	23.33'
L119	N72°15'04"W	4.61'

LEGEND

- PROPOSED BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- EXISTING SANITARY SEWER
- EXISTING POND
- CENTERLINE OF CREEK
- EXISTING CONTOUR
- WETLANDS
- NEUSE RIPARIAN BUFFER

NOTES:

1. BOUNDARY TAKEN FROM SURVEY BY TAYLOR LAND CONSULTING PLLC, DATED DECEMBER 1, 2022.
2. TOPOGRAPHIC INFORMATION TAKEN FROM GIS DATED DECEMBER 2021.
3. WETLAND AND STREAM DELINEATION BY SOIL & ENVIRONMENTAL CONSULTANTS DATED MARCH 08, 2022.
4. THE SUBJECT PROPERTY IS LOCATED WITHIN ZONE X, IN ACCORDANCE WITH FIRM MAP #3720175400K WITH AN EFFECTIVE DATE OF JULY 19, 2022.

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REVISION DESCRIPTION

DATE

DATE: 1/03/2023
DRAWN BY: C.CLARK
DESIGNED BY: E.ANGE
CHECKED BY: B.BLACKMON
SCALE: 1" = 200'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE
ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA
EXISTING CONDITIONS

JOB NO. 48720
SHEET NO. C1.0

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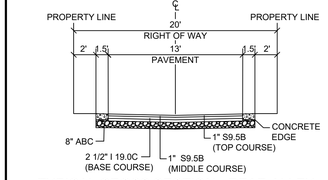
DISTRIBUTION OF USES
TABLE 11.1.B IN THE KNIGHTDALE UDO REQUIRES A MIN. 10% / MAX 40% DUPLEX / TOWNHOUSE, MIN. 5% / MAX. 40% MULTIFAMILY, AND MIN 15% / MAX 60% SINGLE FAMILY, AND MIN. 10% / MAX 100% MIXED USE. AN EXCEPTION TO THESE REQUIREMENTS IS REQUESTED BASED ON THE INTEGRATED DESIGN MODIFICATION 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 MULTIFAMILY IS PROPOSED. PROPOSED DISTRIBUTION OF USES IS: 11% TOWNHOUSE, 74% SINGLE FAMILY, 15% MIXED-USE.

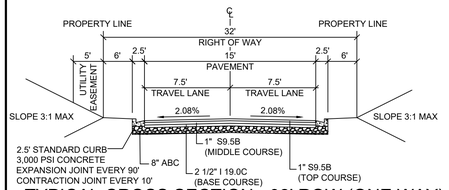
SETBACKS AND DRIVEWAYS
SECTION 3.4 OF THE KNIGHTDALE UDO REQUIRES THAT ANY LOT LESS THAN 80' IN WIDTH BE ACCESSED VIA AN ALLEY OR REAR LANE ACCESS. ADDITIONALLY, THE SECTION 6.5 OF THE UDO REQUIRES THAT SIDE SETBACKS BE A MINIMUM OF 20% OF THE LOT WIDTH (TO A MINIMUM OF 5'), AND DRIVEWAY LENGTH BE A MINIMUM OF 35'. AN EXCEPTION TO THESE REQUIREMENTS IS REQUESTED TO ALLOW THE MINIMUM LOT WIDTH STANDARD TO BE REDUCED TO 55', SIDE SETBACKS BE REDUCED TO 5', REAR SETBACK BE REDUCED TO 20', AND DRIVEWAY LENGTHS BE REDUCED TO A MINIMUM OF 25' FOR FRONT LOADED HOMES TO BE ADEQUATELY DEVELOPED WITHIN THE SITE CONSTRAINTS. PER SECTION 3.4, KNIGHTDALE REQUIRES A MINIMUM DRIVEWAY LENGTH OF 35'. AN EXCEPTION TO THIS REQUIREMENT IS REQUESTED TO ALLOW REAR LOADED HOMES & TOWNHOME DRIVEWAYS TO BE REDUCED TO 20'. THESE EXCEPTIONS ARE REQUESTED BASED ON THE BENEFICIAL COMMON OPEN SPACE, LANDSCAPE CONSERVATION, 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.

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 ALL LOTS SMALLER THAN 80' WIDE TO BE ELIGIBLE FOR MASS GRADING. ALL 80' LOTS HAVE BEEN DESIGNATED TO NOT BE MASS GRADED. THIS EXEMPTION WOULD ALLOW FOR A MORE EFFICIENT CONSTRUCTION PROCESS. THIS MODIFICATION IS REQUESTED BASED ON THE SURFACE WATER DRAINAGE MODIFICATION STANDARD TO ENSURE PROPER SITE SURFACE DRAINAGE IS MAINTAINED. COLLECTING RUNOFF DOES NOT ADVERSELY IMPACT NEIGHBORING PROPERTIES IS THE BASIS FOR THIS REQUEST.

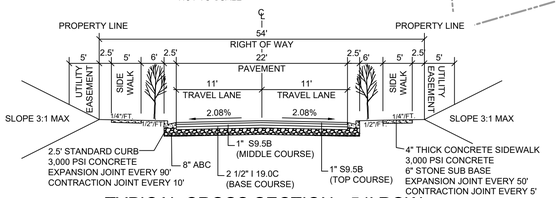
CUL-DE-SAC LENGTH
PER SEC 11.3.E.5 OF THE KNIGHTDALE UNIFIED DEVELOPMENT ORDINANCE, MAXIMUM CUL-DE-SAC LENGTH IS 300'. TO AVOID ADDITIONAL ENVIRONMENTAL IMPACTS ROAD R CUL-DE-SAC LENGTH WILL EXCEED THE MAXIMUM ALLOWED.



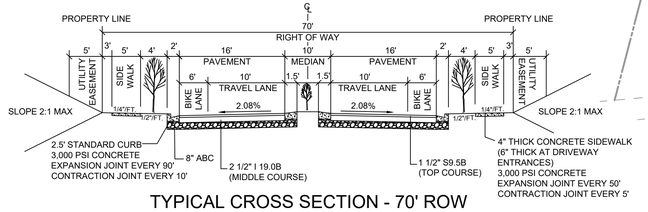
TYPICAL CROSS SECTION - REAR ALLEY
NOT TO SCALE



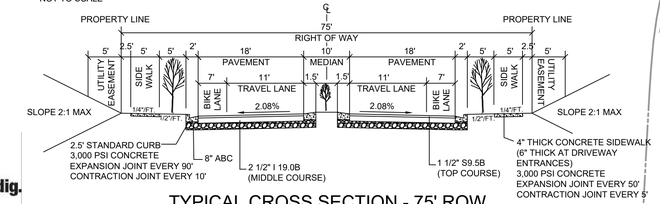
TYPICAL CROSS SECTION - 32' ROW (ONE WAY)
NOT TO SCALE



TYPICAL CROSS SECTION - 54' ROW
NOT TO SCALE



TYPICAL CROSS SECTION - 70' ROW
NOT TO SCALE



TYPICAL CROSS SECTION - 75' ROW
NOT TO SCALE

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NAD 83

SCALE 1"=200'
0 200' 400'

LEGEND

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

SITE DATA

DEVELOPER:
NATELLI COMMUNITIES
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11903 N. HARRISON AVE.
CARY, NC 27513
PHONE: (919)-888-3102
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RALEIGH, NC 27607
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FAX: (919) 859-5663
EMAIL: BETH.BLACKMON@TIMMONS.COM

PIN # = 1754-83-4965, 1754-72-7141, 1754-81-0838, 1754-81-2900, 1754-81-4716, PORTION OF 1754-92-3372, 1754-93-6968, PORTION OF 1754-94-5547, 1764-04-3505

FIRM MAP# = 3720175400K
EFF. 7/19/2022
TOTAL EXISTING TRACT = 188.0 ACRES
EXISTING ZONING = RT & GR3
PROPOSED ZONING = GR-R & NMX, PUD
TOTAL PROPOSED NUMBER OF LOTS = 644
PROPOSED DENSITY = 3.42 DU/A

FRONT LOADED SINGLE FAMILY LOTS = 287
MINIMUM LOT SIZE REQUIRED: 6,050 sq.ft.
MINIMUM LOT SIZE PROVIDED: 5,681 sq.ft.
AVERAGE LOT SIZE PROVIDED:7,510 sq.ft.
MINIMUM LOT WIDTH: 55'
FRONT SETBACK: 10'
SIDE SETBACK: 5'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 25'

REAR LOADED SINGLE FAMILY LOTS = 179
MINIMUM LOT SIZE REQUIRED: 3,400 sq.ft.
MINIMUM LOT SIZE PROVIDED: 3,598 sq.ft.
AVERAGE LOT SIZE PROVIDED: 4,745 sq.ft.
MINIMUM LOT WIDTH: 30'
FRONT SETBACK: 10'
SIDE SETBACK: 3'
CORNER SIDE SETBACK: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

ATTACHED TOWNHOME LOTS = 178
MINIMUM LOT SIZE REQUIRED: 1,800 sq.ft.
MINIMUM LOT SIZE PROVIDED: 1,794 sq.ft.
AVERAGE LOT SIZE PROVIDED: 2,388 sq.ft.
MINIMUM LOT WIDTH: 20'
FRONT SETBACK: 10'
BUILDING SEPARATION: 10'
REAR SETBACK: 20'
DRIVEWAY LENGTH: 20'

STREET TABLE

STREET	ROW	LENGTH(LF)
ROAD A	70	3,470
ROAD A	54	424
ROAD B	54	1,224
ROAD C	54	2,014
ROAD D	54	1,944
ROAD E	54	560
ROAD F	54	332
ROAD G	54	264
ROAD H	54	394
ROAD I	32	253
ROAD J	54	660
ROAD K	54	380
ROAD L	70	2,408
ROAD M	54	691
ROAD N	54	1,087
ROAD O	54	1,709
MARSHALL DR	54	2,810
MARSHALL DR	60	1,030
ROAD Q	54	307
ROAD R	54	2,396
ROAD S	54	1,709
ROAD T	54	2,060
ROAD U	54	385
ROAD V	54	670
ROAD W	54	279
ROAD X	54	636
ROAD Y	54	205
ROAD Z	54	52

ALLEY A	20	137
ALLEY B	20	1,210
ALLEY C	20	337
ALLEY D	20	1,151
ALLEY E	20	100
ALLEY F	20	481
ALLEY G	20	2582
ALLEY H	20	329
ALLEY I	20	557
ALLEY J	20	415
ALLEY K	20	771
ALLEY L	20	321
ALLEY M	20	863
ALLEY N	20	253
ALLEY O	20	127
ALLEY P	20	334
ALLEY Q	20	306
ALLEY R	20	469
ALLEY S	20	319
ALLEY T	20	396
ALLEY U	20	279
ALLEY V	20	279
TOTAL W/ ALLEYS		41,398
TOTAL W/O ALLEYS		29,382

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).

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.

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REVISION DESCRIPTION	DATE

DATE 04/18/2023
DRAWN BY 331
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 200'

TIMMONS GROUP
NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE
ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA
OVERALL PRELIMINARY SITE PLAN

JOB NO. 48720
SHEET NO. C2.0

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ION OF BOTH PROJECTS.

ROAD A
70' ROW - 46' B-B

ROAD A
70' ROW - 46' B-B

MATCHLINE SHEET C2.2

MATCHLINE SHEET C2.1

SCM

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

COMMON 2
68,220 SF
1.57 AC

20' PRIVATE DRAINAGE EASEMENT

ALLEY D
20' ROW - 16' B-B

ROAD L
54' ROW - 27' B-B

ALLEY E
20' ROW - 16' B-B

ALLEY F
20' ROW - 16' B-B

PHASE 1A
PHASE 1B

COMMON 4
293,006 SF
6.73 AC

SCM

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

ROAD D
54' ROW - 27' B-B

20' PRIVATE DRAINAGE EASEMENT

ROAD C
54' ROW - 27' B-B

ROAD G
54' ROW - 27' B-B

ACTIVE OS 5
14,899 SF
0.34 AC

GATED DOG PARK

ROAD C
54' ROW - 27' B-B

COMMON 3
148,254 SF
3.40 AC

VARIABLE WIDTH PRIVATE DRAINAGE EASEMENT

ROAD E
54' ROW - 27' B-B

SCM

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

ROAD H
54' ROW - 27' B-B

ROAD I
32' ROW - 20' B-B

PASSIVE OS 5
27,989 SF
0.64 AC

PARK WITH SEATING

ROAD J
54' ROW - 27' B-B

MATCHLINE SHEET C2.1

MATCHLINE SHEET C2.4

COMMON 5
169,262 SF
3.89 AC

EXISTING POND

ROAD F
54' ROW - 27' B-B

COMMON 6
1,605 SF
0.04 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

NAD 83

SCALE 1"=60'

0 60' 120'

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NORTH CAROLINA LICENSE NO. C-1652

REVISION DESCRIPTION

DATE

DATE
1/03/2023

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 1 OF 6

JOB NO.
48720

SHEET NO.
C2.1

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NAD 83

SCALE 1"=60'

0 60' 120'

LEGEND

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- ACTIVE OPEN SPACE
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DRAWN BY
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DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 2 OF 6

JOB NO.
48720

SHEET NO.
C2.2

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ACTIVE OS 2
108,598 SF
2.49 AC

COMMON 1
156,974 SF
3.60 AC
SCM
20' PRIVATE ACCESS & MAINTENANCE EASEMENT

20' PRIVATE ACCESS & MAINTENANCE EASEMENT
SCM

ACTIVE OS 3
10,044 SF
0.23 AC

PLAY GROUND
ACTIVE OS 4
0.16 AC

ROAD N
54' ROW - 27' B-B

ROAD D
54' ROW - 27' B-B

ROAD B
54' ROW - 27' B-B

ROAD A
74' ROW - 47' B-B

ROAD A
70' ROW - 46' B-B

ROAD L
70' ROW - 46' B-B

ROAD M
54' ROW - 27' B-B

ROAD K
54' ROW - 27' B-B

ALLEY F
20' ROW - 16' B-B

ALLEY G
20' ROW - 16' B-B

ALLEY E
20' ROW - 16' B-B

ALLEY B
20' ROW - 16' B-B

ALLEY C
20' ROW - 16' B-B

ACTIVE OS 1
216,228 SF
4.96 AC

EXISTING POND

PHASE 1A
PHASE 1C

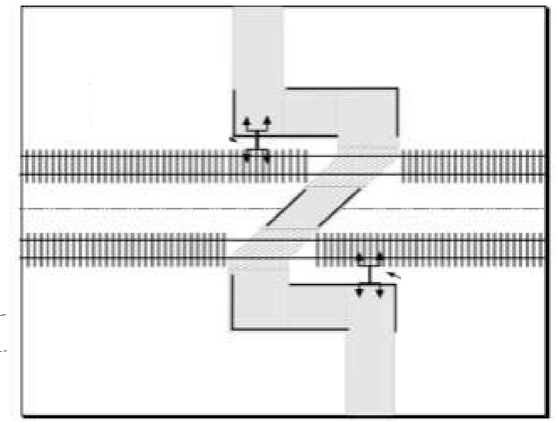
MAIL KIOSK
POOL
CLUB HOUSE

THIS AREA TO TIE INTO HARPER PRESERVE DEVELOPMENT. LOTS IN THIS AREA ARE DEPENDENT ON CONSTRUCTION OF BOTH PROJECTS.

SCM
20' PRIVATE ACCESS & MAINTENANCE EASEMENT

COMMON 2
68,220 SF
1.57 AC
20' PRIVATE

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



PEDESTRIAN - ONLY CROSSING

*IF NECESSARY APPROVALS CAN BE OBTAINED FROM THE RAILROAD AND NCDOT

NAD 83

SCALE 1"=60'

0 60' 120'

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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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DATE 04/18/2023
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DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 60'
JOB NO. 48720
SHEET NO. C2.3

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 3 OF 6

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MATCHLINE SHEET C2.2

MATCHLINE SHEET C2.3

MATCHLINE SHEET C2.3

MATCHLINE SHEET C2.4

COMMON 9
69,330 SF
1.59 AC

OVERHEAD POWER TO BE RELOCATED, IF NECESSARY

ALLEY A
20' ROW - 16' B-B

ROAD N
54' ROW - 27' B-B

ALLEY B
20' ROW - 16' B-B

ALLEY C
20' ROW - 16' B-B

ALLEY D
20' ROW - 16' B-B

ALLEY E
20' ROW - 16' B-B

ALLEY F
20' ROW - 16' B-B

ALLEY G
20' ROW - 16' B-B

ALLEY H
20' ROW - 16' B-B

ALLEY I
20' ROW - 16' B-B

ALLEY J
20' ROW - 16' B-B

ALLEY K
20' ROW - 16' B-B

ALLEY L
20' ROW - 16' B-B

ALLEY M
20' ROW - 16' B-B

ALLEY N
20' ROW - 16' B-B

ALLEY O
20' ROW - 16' B-B

ALLEY P
20' ROW - 16' B-B

ALLEY Q
20' ROW - 16' B-B

ALLEY R
20' ROW - 16' B-B

ROAD A
70' ROW - 46' B-B

ROAD O
54' ROW - 27' B-B

ROAD R
54' ROW - 27' B-B

75' ULTIMATE RIGHT-OF-WAY

COMMON 7
93,002 SF
2.14 AC

COMMON 8
12,753 SF
0.29 AC

COMMERCIAL 1
117,235 SF
2.69 AC

COMMERCIAL 2
36,110 SF
0.83 AC

COMMON 10
80,599 SF
1.85 AC

COMMON 11
85,968 SF
1.97 AC

SLOPE EASEMENT

SIDEWALK EASEMENT

SCM
20' PRIVATE ACCESS & MAINTENANCE EASEMENT

UTILITY & SIDEWALK EASEMENT

PEDESTRIAN CROSSING, SEE DETAIL SHEET C2.3

FENCE

MULTI USE PATH

10' SIDEPATH

EXTENDED MULTI-USE PATH

CONNECT TO EXISTING TRAIL

KNIGHTDALE STATION PARK

MATCHLINE SHEET C2.3
MATCHLINE SHEET C2.4

MATCHLINE SHEET C2.4
MATCHLINE SHEET C2.5

MATCHLINE SHEET C2.4
MATCHLINE SHEET C2.6

Know what's below. Call before you dig.

PRELIMINARY DO NOT USE FOR CONSTRUCTION

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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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 4 OF 6

REVISION DESCRIPTION	DATE

DATE: 1/03/2023
DRAWN BY: C.CLARK
DESIGNED BY: E.ANGE
CHECKED BY: B.BLACKMON
SCALE: 1" = 60'
JOB NO.: 48720
SHEET NO.: C2.4

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MATCHLINE SHEET C2.4
MATCHLINE SHEET C2.5

MATCHLINE SHEET C2.5
MATCHLINE SHEET C2.6

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

Know what's **below.** **Call** before you dig.

EX. PK NAIL IN CENTERLINE OF TRACKS

CENTERLINE OF RAILROAD TRACKS

MAILMAN ROAD
50' PUBLIC ROW

ROAD R
54' ROW - 27' B-B

ROAD S
54' ROW - 27' B-B

ROAD T
54' ROW - 27' B-B

ROAD S
54' ROW - 27' B-B

ROAD Z
54' ROW - 27' B-B

458 6,318 SF
459 5,898 SF
460 5,932 SF
461 4,644 SF
470 7,460 SF
471 6,282 SF
472 7,566 SF
473 6,050 SF
474 6,050 SF
475 6,050 SF
476 6,050 SF
477 9,040 SF
478 12,678 SF
479 11,034 SF
480 6,859 SF
481 8,672 SF
482 7,221 SF
483 5,958 SF
484 7,376 SF
485 7,246 SF
486 5,938 SF
487 5,885 SF
488 5,834 SF
489 5,804 SF
490 5,790 SF
491 5,775 SF
492 5,761 SF
493 5,747 SF
494 5,733 SF
515 6,390 SF
516 6,386 SF
517 6,382 SF
518 6,378 SF
519 6,374 SF
520 6,370 SF
521 6,349 SF
522 6,309 SF
523 6,265 SF
524 7,284 SF
525 6,981 SF
526 6,958 SF
527 6,951 SF
528 6,736 SF
529 6,289 SF
530 10,959 SF
531 14,363 SF
532 8,930 SF
533 9,772 SF
534 8,189 SF
535 9,256 SF
536 8,793 SF
537 10,981 SF
538 6,900 SF
539 6,912 SF
541 5,160 SF
542 5,160 SF
543 5,160 SF
544 5,431 SF
545 3,600 SF
546 3,600 SF
547 3,600 SF

PASSIVE OS 3
134,325 SF
3.08 AC

PROPOSED TRAIL

BENCH

20' PRIVATE DRAINAGE EASEMENT

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

20' PRIVATE ACCESS EASEMENT

20' PRIVATE DRAINAGE EASEMENT

20' LANDSCAPE EASEMENT

PHASE 2A
PHASE 2B

SCM

COMMERCIAL 3
368,910 SF
8.47 AC

COMMON 12
173,160 SF
3.98 AC

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REVISION DESCRIPTION

DATE

DATE
1/03/2023

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 5 OF 6

JOB NO.
48720

SHEET NO.
C2.5

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MATCHLINE SHEET C2.4

MATCHLINE SHEET C2.6

PROPOSED TRAIL

ROAD T
54' ROW - 27' B-B

ROAD W
54' ROW - 27' B-B

ALLEY 1
20' ROW - 16' B-B

ROAD X
54' ROW - 27' B-B

ROAD S
54' ROW - 27' B-B

ROAD P
54' ROW - 27' B-B

ROAD Y
54' ROW - 27' B-B

BENCH

BENCH

BENCH

PASSIVE OS 4
123,077 SF
2.83 AC

EXISTING POND

PROPOSED TRAIL

COMMON 17
45,317 SF
1.04 AC

MASSEY FARM RD
60' PUBLIC ROW

PLEASANT VALLEY CIR
60' PRIVATE ROW

GATED FOR EMERGENCY ACCESS ONLY

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

SCM

COMMON 13
76,827 SF
1.76 AC

20' PRIVATE DRAINAGE EASEMENT

20' PRIVATE DRAINAGE EASEMENT

COMMON 14
30,401 SF
0.70 AC

COMMON 15
1,210 SF
0.03 AC

COMMON 16
20,756 SF
0.48 AC

PROPOSED 20' PRIVATE PAVEMENT ON MARSHALL DRIVE EXTENDING TO MARKS CREEKS ROAD, SPECIFIC DETAILS STILL TO BE DETERMINED

PE EASEMENT

MATCHLINE SHEET C2.5

MATCHLINE SHEET C2.6

517 6,098 SF
518 6,378 SF
519 6,374 SF
520 6,370 SF
521 6,349 SF
522 6,309 SF
537 10,981 SF
538 6,900 SF
539 8,912 SF
536 8,793 SF
535 9,256 SF
534 8,189 SF
533 9,772 SF
532 8,930 SF
559 5,804 SF
560 5,160 SF
561 5,163 SF
562 5,254 SF
563 5,849 SF
558 4,412 SF
557 3,600 SF
556 3,600 SF
555 3,600 SF
554 3,600 SF
553 3,600 SF
552 4,277 SF
545 4,344 SF
546 3,600 SF
547 3,600 SF
548 3,600 SF
549 3,600 SF
550 3,600 SF
551 4,345 SF
544 5,431 SF
543 5,160 SF
542 5,160 SF
541 5,160 SF
540 6,690 SF
636 6,600 SF
637 6,600 SF
638 10,065 SF
639 10,555 SF
640 7,513 SF
641 6,785 SF
642 6,938 SF
643 6,634 SF
644 7,686 SF
635 8,197 SF
634 8,199 SF
633 8,209 SF
632 8,395 SF
631 7,510 SF
630 6,621 SF
629 6,325 SF
628 6,325 SF
627 6,325 SF
626 6,325 SF
625 6,683 SF
624 6,694 SF
623 6,678 SF
622 6,325 SF
621 6,325 SF
620 6,325 SF
619 6,595 SF
600 7,795 SF
601 6,338 SF
602 6,346 SF
603 6,337 SF
604 6,329 SF
605 7,181 SF
606 8,686 SF
607 7,373 SF
608 7,373 SF
609 7,214 SF
612 8,832 SF
611 6,895 SF
610 7,915 SF
613 7,746 SF
614 6,900 SF
616 14,344 SF
615 11,791 SF
618 11,294 SF
617 10,882 SF

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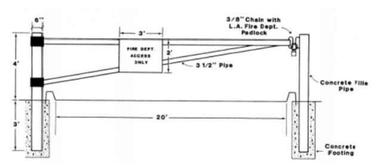

EMERGENCY GATE DETAIL

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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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SITE PLAN SHEET 6 OF 6

REVISION DESCRIPTION	DATE

DATE 1/03/2023

DRAWN BY C.CLARK

DESIGNED BY E.ANGE

CHECKED BY B.BLACKMON

SCALE 1" = 60'

JOB NO. 48720

SHEET NO. C2.6

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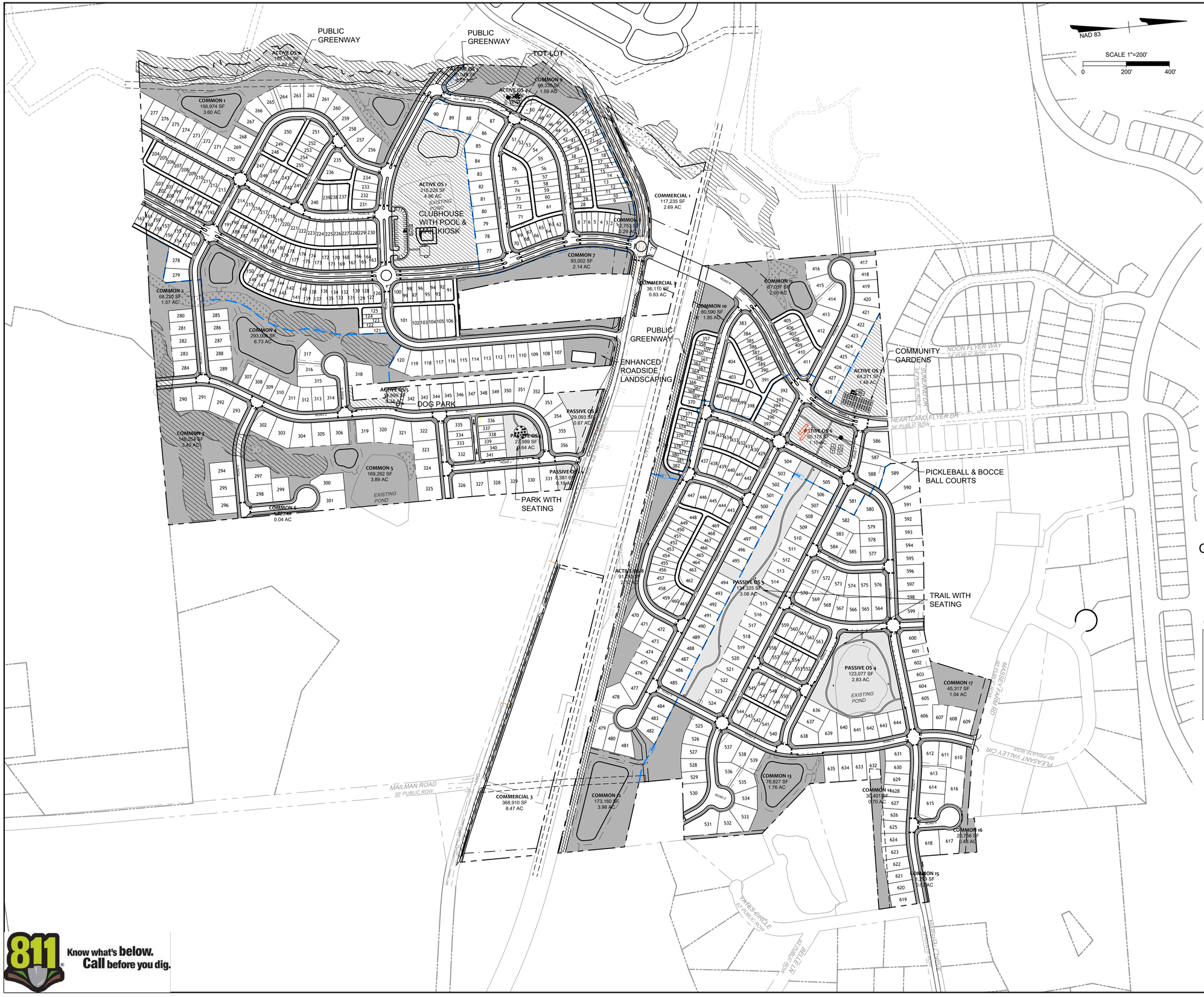

NAD 83

SCALE 1"=200'

0 200' 400'

LEGEND

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

COMMON OPEN SPACE

COMMON OS 1	156,974	SF	3.60 AC
COMMON OS 2	68,220	SF	1.57 AC
COMMON OS 3	148,254	SF	3.40 AC
COMMON OS 4	293,006	SF	6.73 AC
COMMON OS 5	169,262	SF	3.89 AC
COMMON OS 6	1,723	SF	0.04 AC
COMMON OS 7	93,002	SF	2.14 AC
COMMON OS 8	12,753	SF	0.29 AC
COMMON OS 9	69,330	SF	1.59 AC
COMMON OS 10	80,590	SF	1.85 AC
COMMON OS 11	87,057	SF	2.00 AC
COMMON OS 12	173,160	SF	3.98 AC
COMMON OS 13	76,827	SF	1.76 AC
COMMON OS 14	30,401	SF	0.70 AC
COMMON OS 15	1,299	SF	0.03 AC
COMMON OS 16	20,756	SF	0.48 AC
COMMON OS 17	45,317	SF	1.04 AC
TOTAL:	**1,461,859**	**SF**	**33.56 AC**

ACTIVE OPEN SPACE

ACTIVE OS 1	216,228	SF	4.96 AC
ACTIVE OS 2	108,598	SF	2.49 AC
ACTIVE OS 3	10,048	SF	0.23 AC
ACTIVE OS 4	13,756	SF	0.32 AC
ACTIVE OS 5	27,989	SF	0.64 AC
ACTIVE OS 6	14,899	SF	0.34 AC
ACTIVE OS 7	50,178	SF	1.15 AC
ACTIVE OS 8	64,271	SF	1.48 AC
ACTIVE OS 9	91,493	SF	2.10 AC
TOTAL:	**597,461**	**SF**	**13.72 AC**

PASSIVE OPEN SPACE

PASSIVE OS 1	8,381	SF	0.19 AC
PASSIVE OS 2	29,093	SF	0.67 AC
PASSIVE OS 3	134,325	SF	3.08 AC
PASSIVE OS 4	123,077	SF	2.83 AC
PASSIVE OS 5	27,989	SF	0.64 AC
TOTAL:	**314,485**	**SF**	**7.22 AC**

COMMERCIAL MIXED USE

COMMERCIAL 1	117,235	SF	2.69 AC
COMMERCIAL 2	36,110	SF	0.83 AC
COMMERCIAL 3	368,910	SF	8.47 AC
TOTAL:	**522,254**	**SF**	**11.99 AC**

OPEN SPACE DATA

466 SINGLE FAMILY UNITS * 3.5 = 1,631 BEDROOMS
178 TOWNHOMES * 2.5 = 445 BEDROOMS
TOTAL BEDROOMS: 2,076

2,076 BEDROOMS * 260 = 539,760 SF REQUIRED
PASSIVE OPEN SPACE REQUIRED = 269,880 SF
PASSIVE OPEN SPACE PROVIDED = 314,485 SF
ACTIVE OPEN SPACE REQUIRED = 269,880 SF
ACTIVE OPEN SPACE PROVIDED = 597,461 SF

CANOPY SAVE REQUIRED: 605,740 SF
CANOPY SAVE PROVIDED: 626,096 SF

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REVISION DESCRIPTION

DATE

DATE 1/03/2023
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 200'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OPEN SPACE PLAN

JOB NO. 48720

SHEET NO. C2.7

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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

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=200'
0 200' 400'

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.

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DATE

DATE 1/03/2023
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 200'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL PRELIMINARY UTILITY PLAN

JOB NO. 48720
SHEET NO. C3.0

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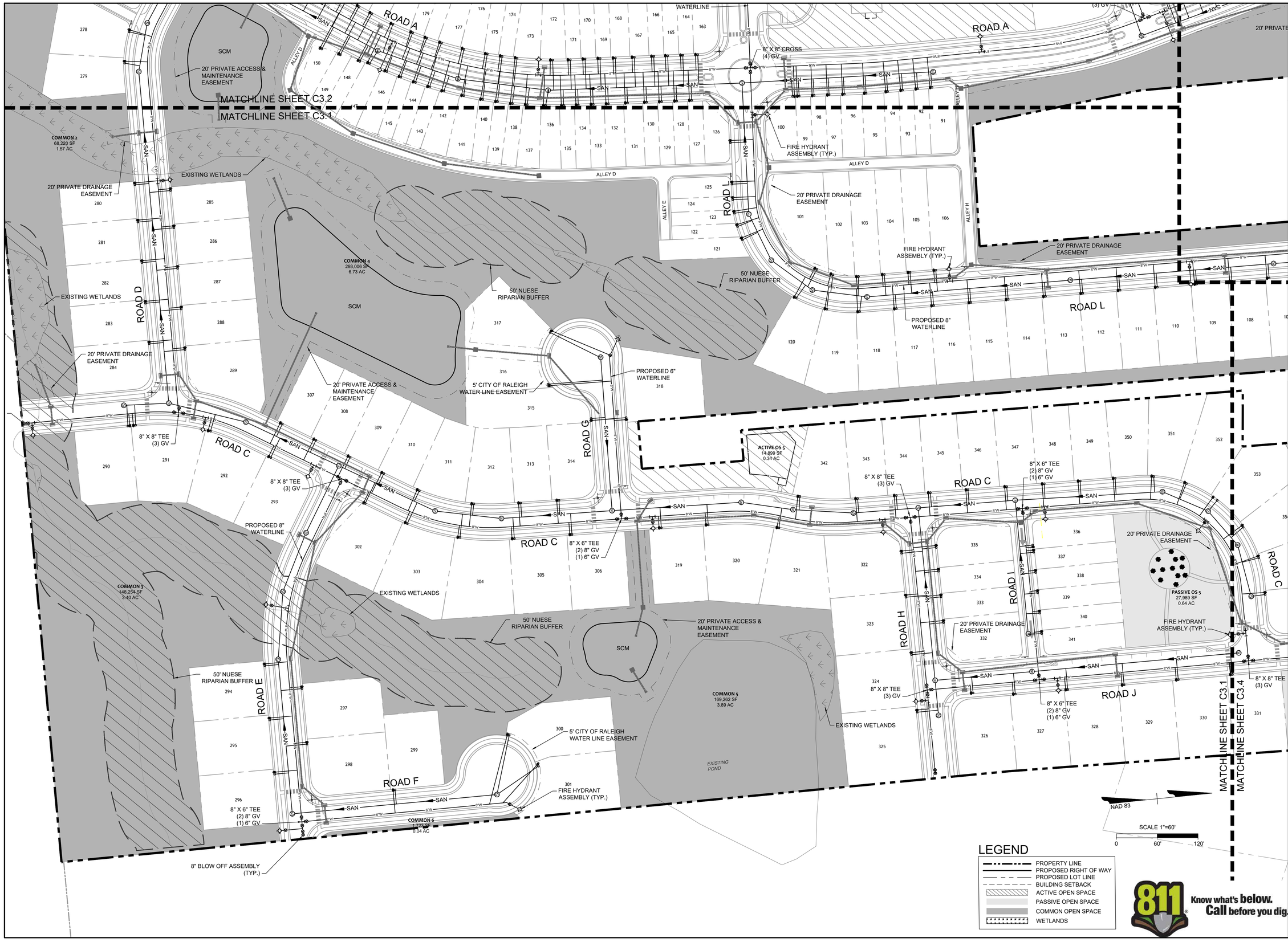

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REVISION DESCRIPTION	DATE

DATE	1/03/2023
DRAWN BY	C.CLARK
DESIGNED BY	E.ANGE
CHECKED BY	B.BLACKMON
SCALE	1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 1 OF 6

JOB NO.	SHEET NO.
48720	C3.1

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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

50' NUESE RIPARIAN BUFFER

ACTIVE OS 2
108,598 SF
2.49 AC

CONNECT TO EXISTING CITY OF RALEIGH SEWER

30' CITY OF RALEIGH UTILITY EASEMENT

COMMON 1
156,974 SF
3.60 AC
SCM

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

20' PRIVATE DRAINAGE EASEMENT

EXISTING WETLANDS

SCM
20' PRIVATE ACCESS & MAINTENANCE EASEMENT

8" X 8" TEE
(3) GV

6" BLOW OFF ASSEMBLY

ACTIVE OS 3
11,048 SF
0.25 AC

ROAD N

ACTIVE OS 4
9,784 SF
0.22 AC

ROAD A
ROAD B
ROAD D
ROAD K
ROAD L
ROAD M

ALLEY A
ALLEY B
ALLEY C
ALLEY D
ALLEY E
ALLEY F
ALLEY G
ALLEY I
ALLEY J

8" X 6" TEE
(2) 8" GV
(1) 6" GV

8" X 8" TEE
(3) GV

8" X 8" CROSS
(4) GV

FIRE HYDRANT ASSEMBLY (TYP.)

PROPOSED 6" WATERLINE

PROPOSED 8" WATERLINE

ACTIVE OS 1
216,228 SF
4.96 AC

EXISTING POND

SCM

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

COMMON 2
68,220 SF
1.57 AC

MATCHLINE SHEET C3.2

MATCHLINE SHEET C3.1

MATCHLINE SHEET C3.2

MATCHLINE SHEET C3.3

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SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 2 OF 6

JOB NO.
48720

SHEET NO.
C3.2

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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

CONNECT TO EXISTING CITY OF RALEIGH SEWER

COMMON 9
69,330 SF
1.59 AC

50' NUESE RIPARIAN BUFFER

PROPOSED 8" WATERLINE

20' PRIVATE DRAINAGE EASEMENT

FIRE HYDRANT ASSEMBLY (TYP.)

MATCHLINE SHEET C3.2

MATCHLINE SHEET C3.3

ROAD N

ALLEY J

ALLEY I

ALLEY K

ROBERTSON STREET

COMMERCIAL 1
117,235 SF
2.69 AC

COMMON 8
12,753 SF
0.29 AC

8" X 8" TEE
(3) GV

20' PRIVATE DRAINAGE EASEMENT

COMMON 7
93,002 SF
2.14 AC

COMMERCIAL 2
36,110 SF
0.83 AC

ROAD L

8" X 8" TEE
(3) GV

MATCHLINE SHEET C3.3

MATCHLINE SHEET C3.4

CONNECT TO EXISTING CITY OF RALEIGH SEWER

EXISTING 30' CITY OF RALEIGH SANITARY SEWER EASEMENT

30' CITY OF RALEIGH SANITARY SEWER EASEMENT

ROAD A

EXISTING WETLANDS

COMMON 11
87,057 SF
2.00 AC

SCM

FIRE HYDRANT ASSEMBLY (TYP.)

5' CITY OF RALEIGH WATER LINE EASEMENT

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

8" X 8" BEND
(2) GV

FIRE HYDRANT ASSEMBLY (TYP.)

COMMON 10
80,928 SF
1.85 AC

ROAD O

ALLEY T

ALLEY M

20' PRIVATE DRAINAGE EASEMENT

ROAD R

20' PRIVATE DRAINAGE EASEMENT

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E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 3 OF 6

JOB NO.
48720

SHEET NO.
C3.3

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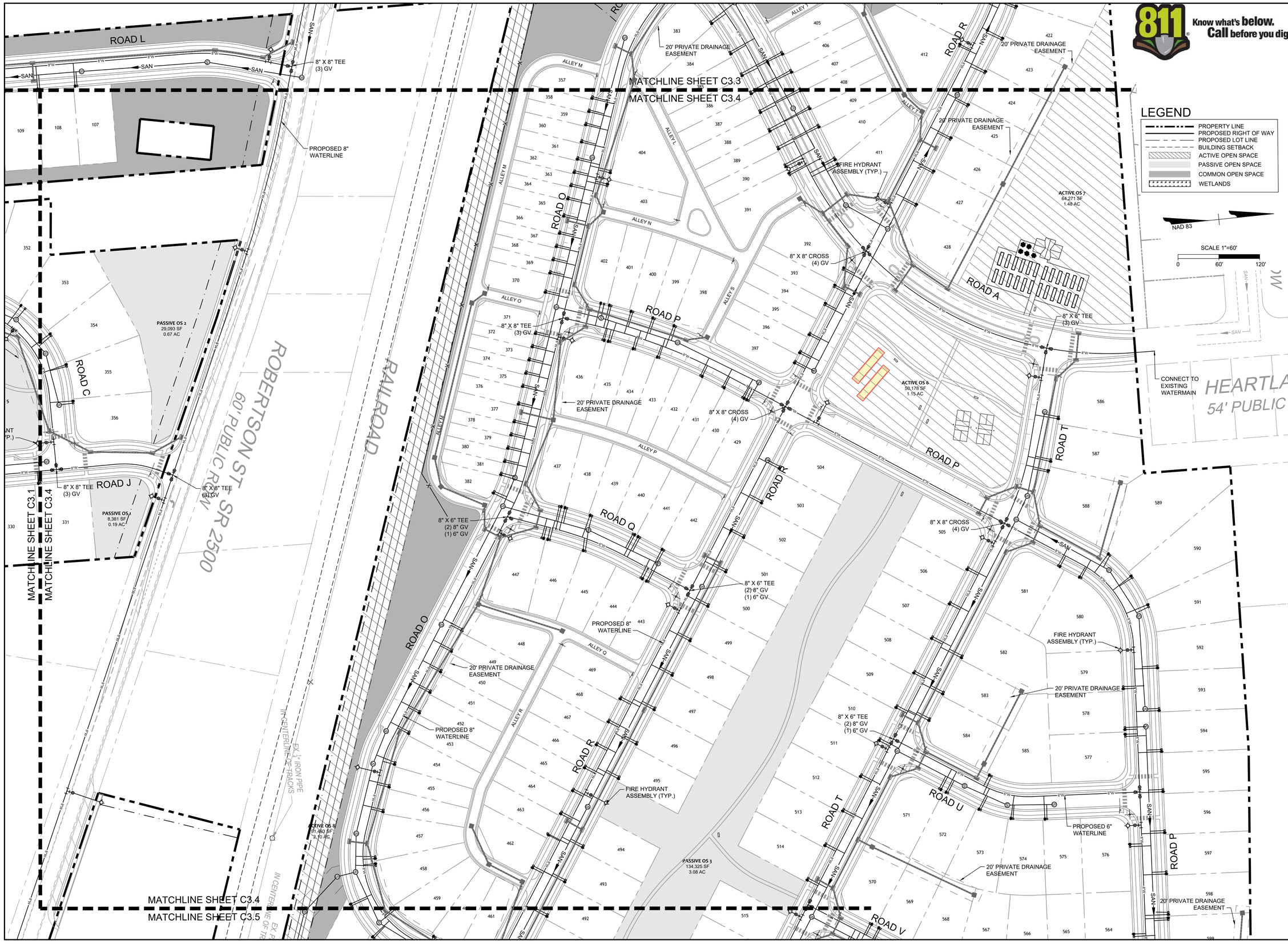

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- BUILDING SETBACK
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=60'

0 60' 120'

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 4 OF 6

JOB NO. 48720
SHEET NO. C3.4

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SCALE
1" = 60'

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 5 OF 6

JOB NO.
48720

SHEET NO.
C3.5

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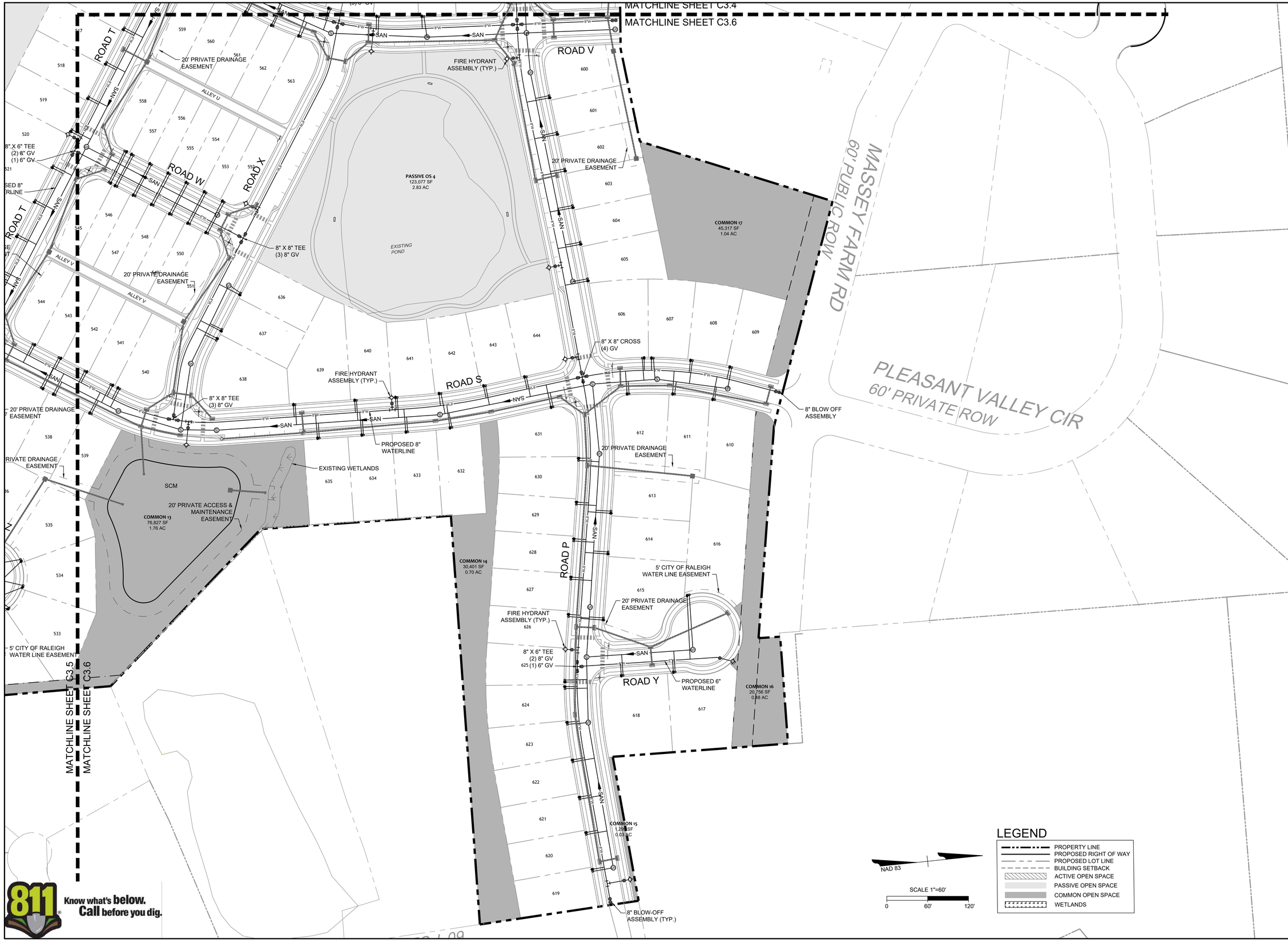

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SCALE
1" = 60'

TIMMONS GROUP

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED UTILITY PLAN SHEET 3 OF 6

JOB NO.
48720

SHEET NO.
C3.6

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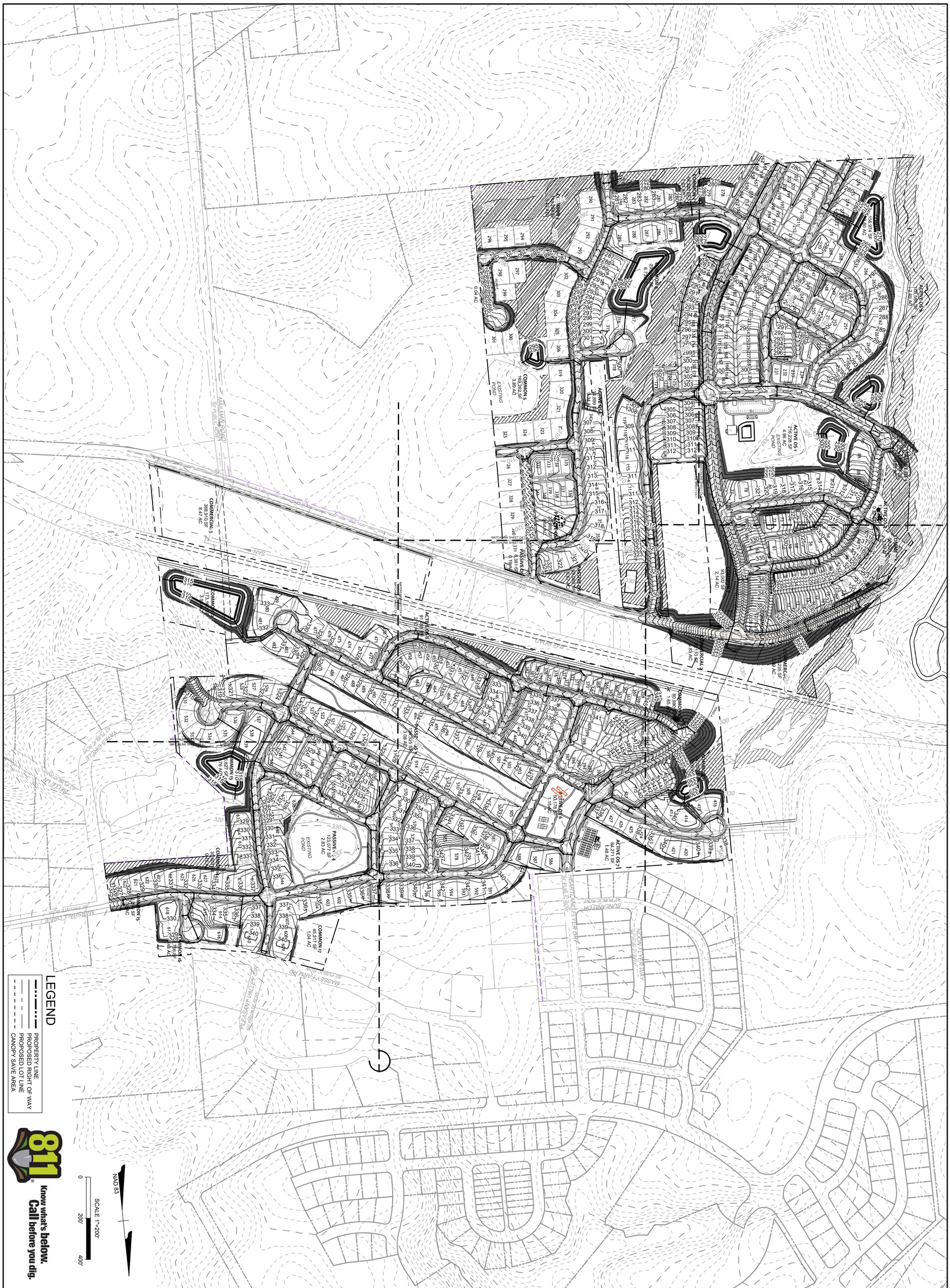

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL PRELIMINARY STORMWATER MANAGEMENT PLAN

JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
48720	1" = 200'	B.BLACKMON	E.ANGE	C.CLARK	1/03/2023

SHEET NO. C4.0

DATE	REVISION DESCRIPTION

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 1 OF 6

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
C4.1	48720	1" = 60'	B.BLACKMON	E.ANGE	C.CLARK	1/03/2023

DATE	REVISION DESCRIPTION

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NAD 83

SCALE 1"=60'
0 60' 120'

LEGEND
- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- CANOPY SAVE AREA

PRELIMINARY DO NOT USE FOR CONSTRUCTION

50' NUESE RIPARIAN BUFFER

ACTIVE OS 2
108,598 SF
2.49 AC

EXISTING WETLANDS

COMMON 1
156,974 SF
3.60 AC
SCM

20' PRIVATE ACCESS & MAINTENANCE EASEMENT

ROAD B

ROAD D

ROAD K

ROAD L

ROAD M

ROAD N

ROAD A

ALLEY B

ALLEY C

ALLEY D

ALLEY F

ALLEY G

ALLEY

ACTIVE OS 3
16,654 SF
0.38 AC

ACTIVE OS 1
216,228 SF
4.96 AC

EXISTING POND

20' PRIVATE DRAINAGE EASEMENT
COMMON 2
68,226 SF
1.57 AC

MATCHLINE SHEET C4.2

MATCHLINE SHEET C4.1

MATCHLINE SHEET C4.3

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SCALE
1" = 60'

TIMMONS GROUP

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 2 OF 6

JOB NO.
48720

SHEET NO.
C4.2

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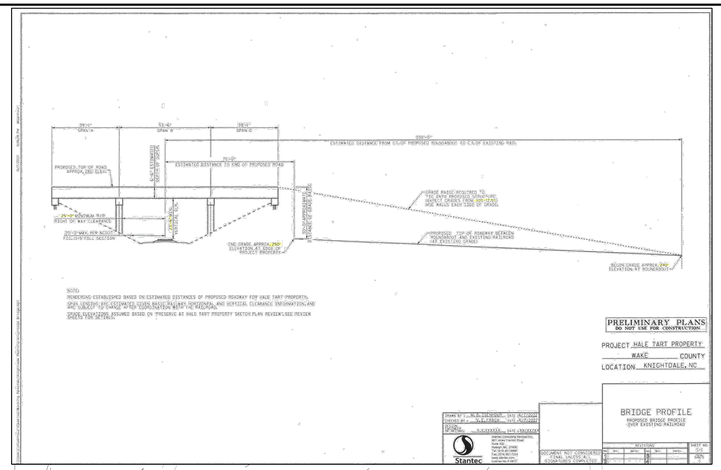

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- CANOPY SAVE AREA

NAD 83

SCALE 1"=60'

0 60' 120'

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REVISION DESCRIPTION	DATE

DATE 1/03/2023
DRAWN BY C.CLARK
DESIGNED BY E.ANGE
CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 3 OF 6

JOB NO. 48720
SHEET NO. C4.3

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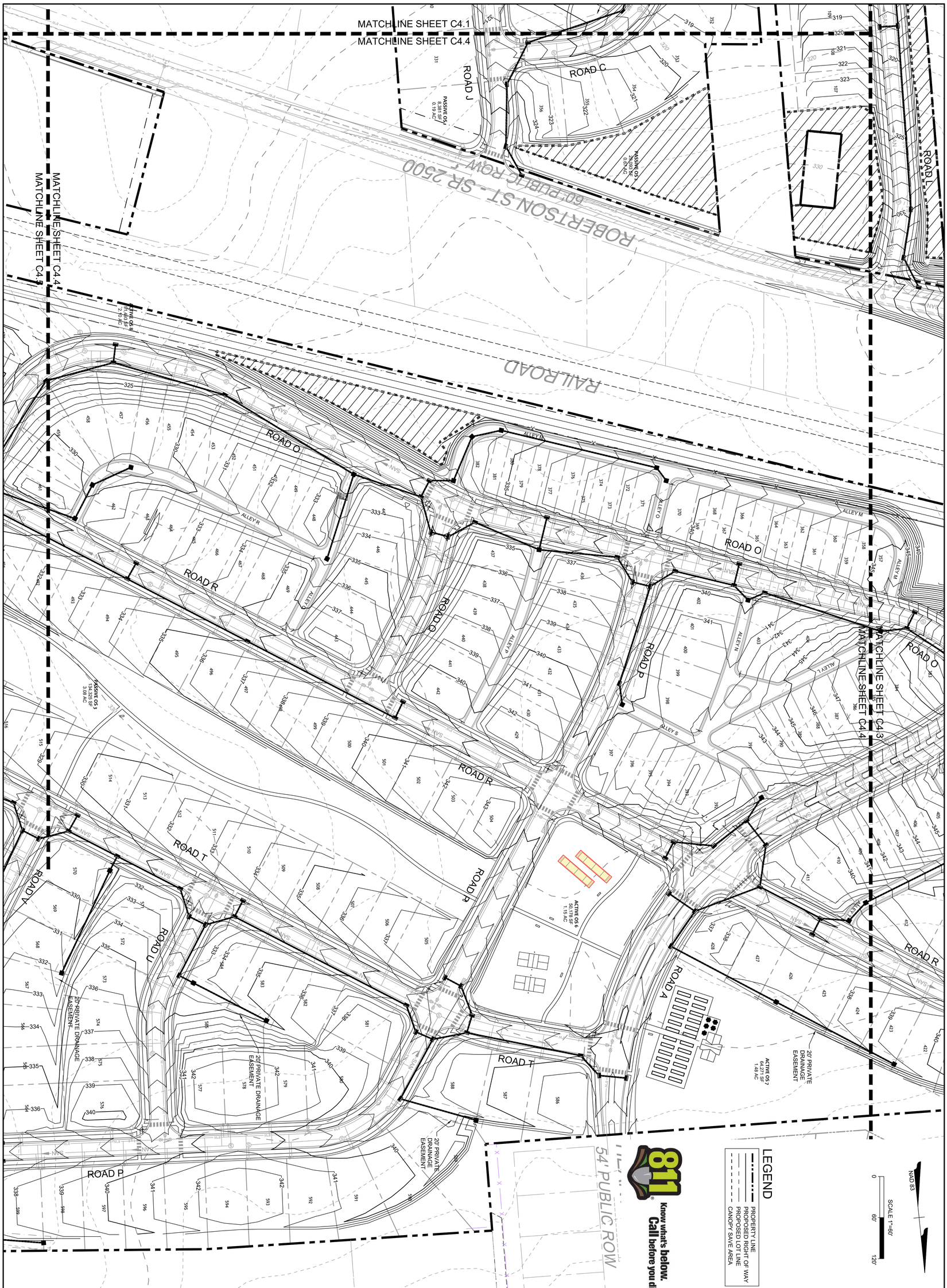

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ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED STORMWATER MANAGEMENT PLAN SHEET 4 OF 6

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
C4.4	48720	1" = 60'	B.BLACKMON	E.ANGE	C.CLARK	1/03/2023

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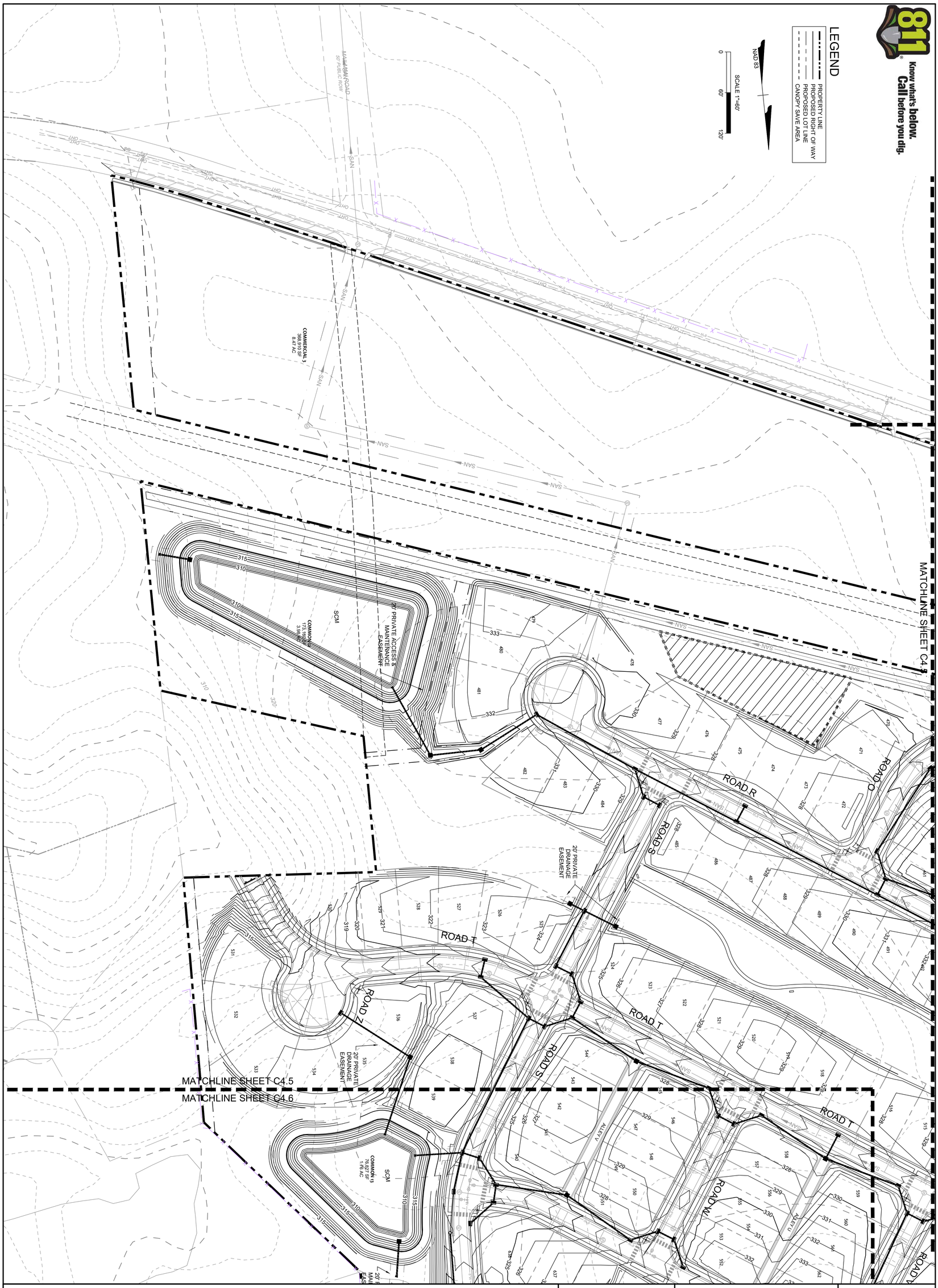

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DETAILED STORMWATER MANAGEMENT PLAN SHEET 5 OF 6

JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
48720	1" = 60'	B.BLACKMON	E.ANGE	C.CLARK	1/03/2023

SHEET NO. C4.5

DATE	REVISION DESCRIPTION

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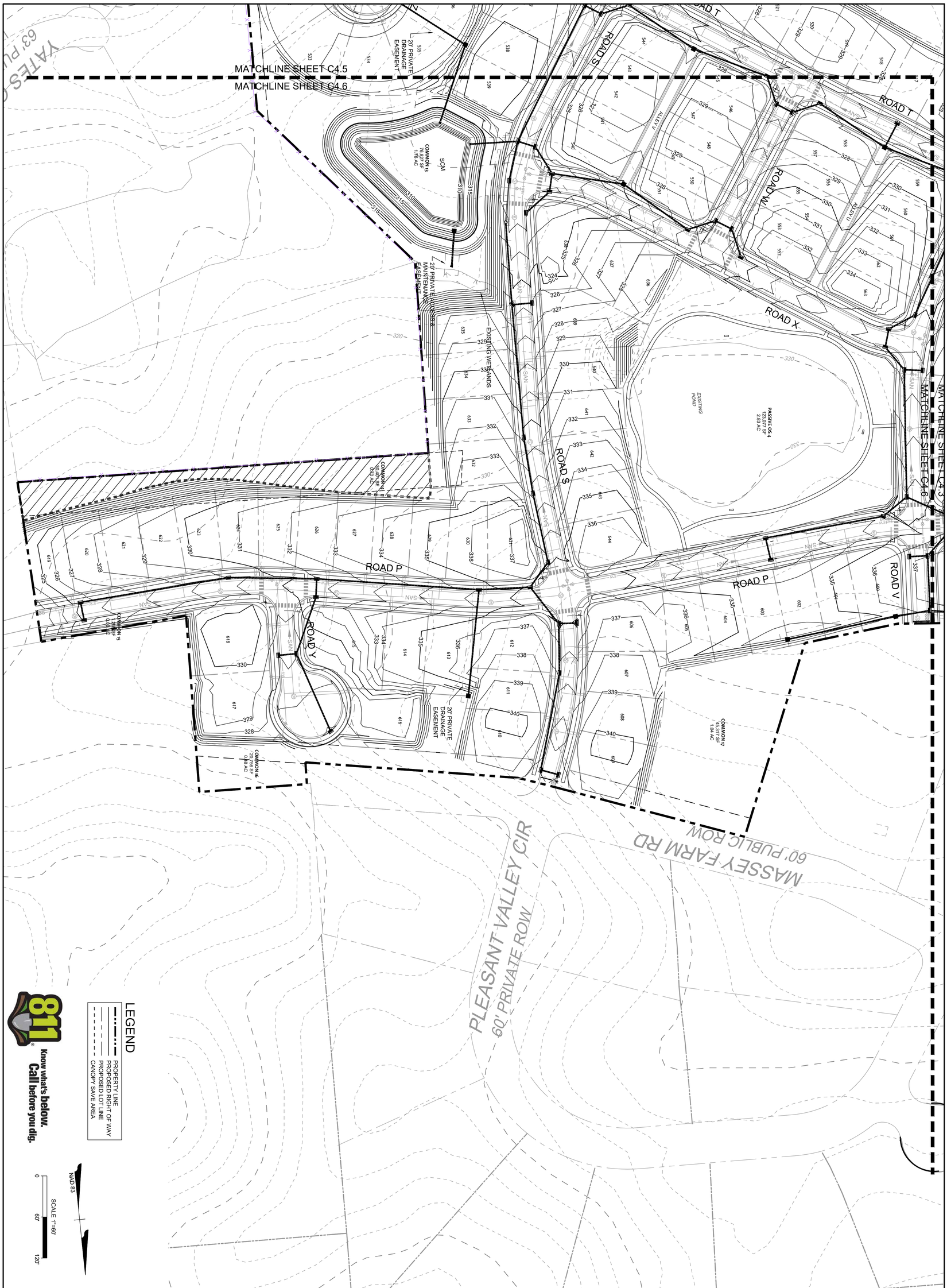

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DETAILED STORMWATER MANAGEMENT PLAN SHEET 6 OF 6

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
C4.6	48720	1" = 60'	B.BLACKMON	E.ANGE	C.CLARK	1/03/2023

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NOTES

1. ALL LUMINAIRES SHALL HAVE A FULL CUTOFF CLASSIFICATION OR BE SHIELDED TO MEET THIS REQUIREMENT.
2. ALL POLE-MOUNTED FIXTURES CANNOT EXCEED 37' IN HEIGHT.
3. ALL LUMINAIRES SHALL BE FULL CUTOFF, DOWNWARD FACING AND SHIELDED ARM-MOUNTED LED FIXTURE.
4. MAXIMUM LIGHT LEVEL AT PROPERTY LINE SHALL NOT EXCEED 0.5 FC ALONG ROBERTSON ST. INTERNAL STREETS SHALL BE 25W AWAY AND 82 FC ON MAXIMUM.
5. AVERAGE LIGHT LEVEL SHALL NOT EXCEED 81 U/ G2 FOR LOCAL STREETS AND 82 FOR THE ENTRY ALONG ROBERTSON ST.
6. POSTING FOR THE ENTRY ALONG ROBERTSON ST. THE STREET SHALL BE A RECIPIENT OF B1 U/G 0/L. ILLUMINATION PARALLEL SHALL NOT EXCEED

NAD 83

SCALE 1"=200'
0 200' 400'

LIGHTING LEGEND

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

LEGEND

PROPERTY LINE
PROPOSED RIGHT OF WAY
PROPOSED LOT LINE
ACTIVE OPEN SPACE
PASSIVE OPEN SPACE
COMMON OPEN SPACE
WETLANDS

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL PRELIMINARY LIGHTING PLAN

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
C5.0	48720	1" = 200'	B.BLACKMON	E.ANGE	C.CLARK	1/03/2023

DATE	REVISION DESCRIPTION

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DATE
1/03/2023

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 1 OF 6

JOB NO.
48720

SHEET NO.
C5.1

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MATCHLINE SHEET C2.2

MATCHLINE SHEET C2.1

CHLINE SHEET C2.1

CHLINE SHEET C2.4

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=60'

0 60' 120'

LIGHTING LEGEND

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

811 Know what's below. Call before you dig.

Know what's below. Call before you dig.

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

LIGHTING LEGEND

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

50' NUESE RIPARIAN BUFFER

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

SCM

EXISTING WETLANDS

STREET LIGHT, TYP.

ROAD A
ROAD B
ROAD D
ROAD K
ROAD L
ROAD M
ROAD N

ALLEY A
ALLEY B
ALLEY C
ALLEY D
ALLEY F
ALLEY G
ALLEY H
ALLEY I
ALLEY J

EXISTING POND

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

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SCALE
1" = 60'

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 2 OF 6

JOB NO.
48720

SHEET NO.
C5.2

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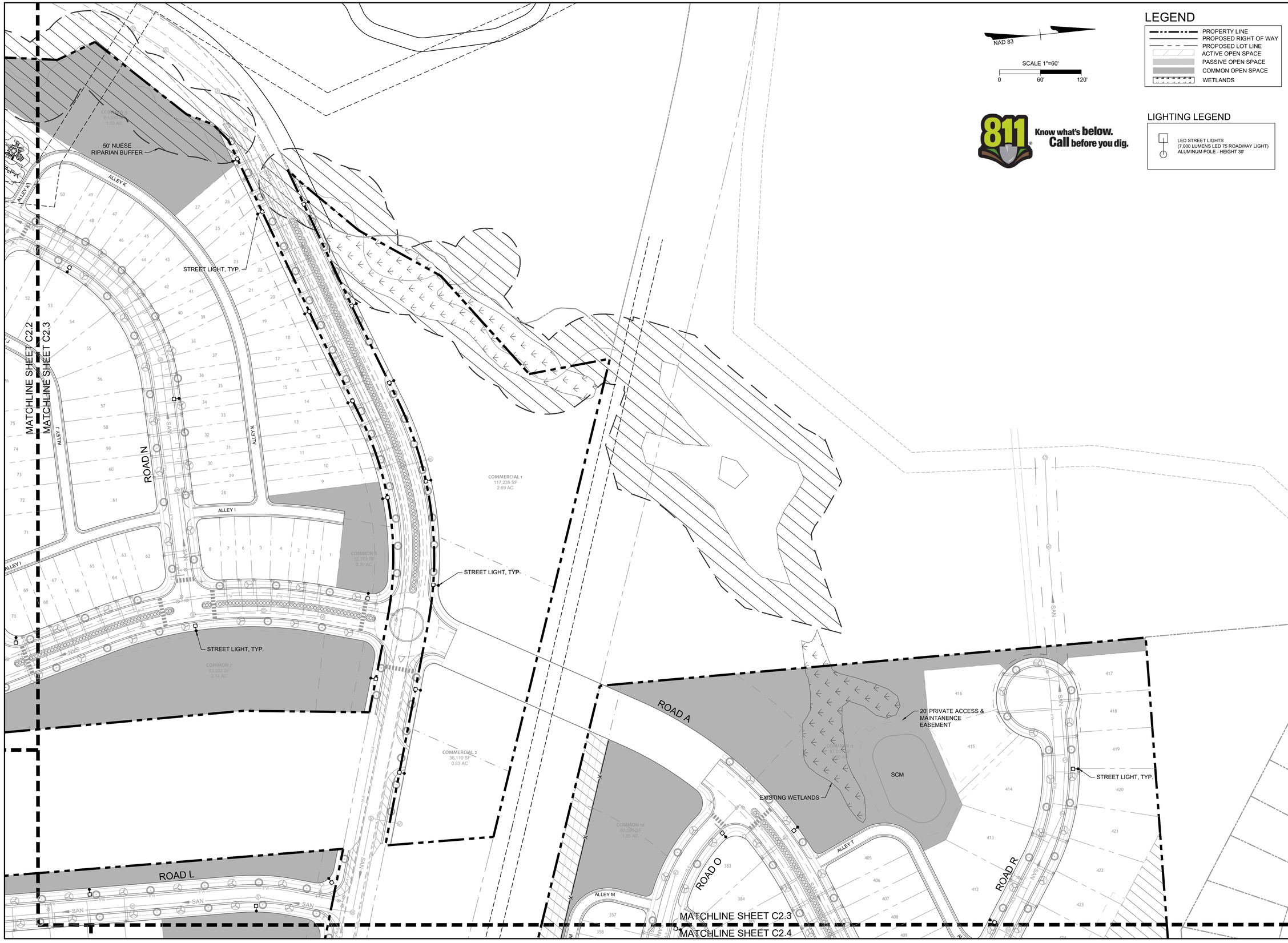

NAD 83

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

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LIGHTING LEGEND

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

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SCALE
1" = 60'

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 3 OF 6

JOB NO.
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SHEET NO.
C5.3

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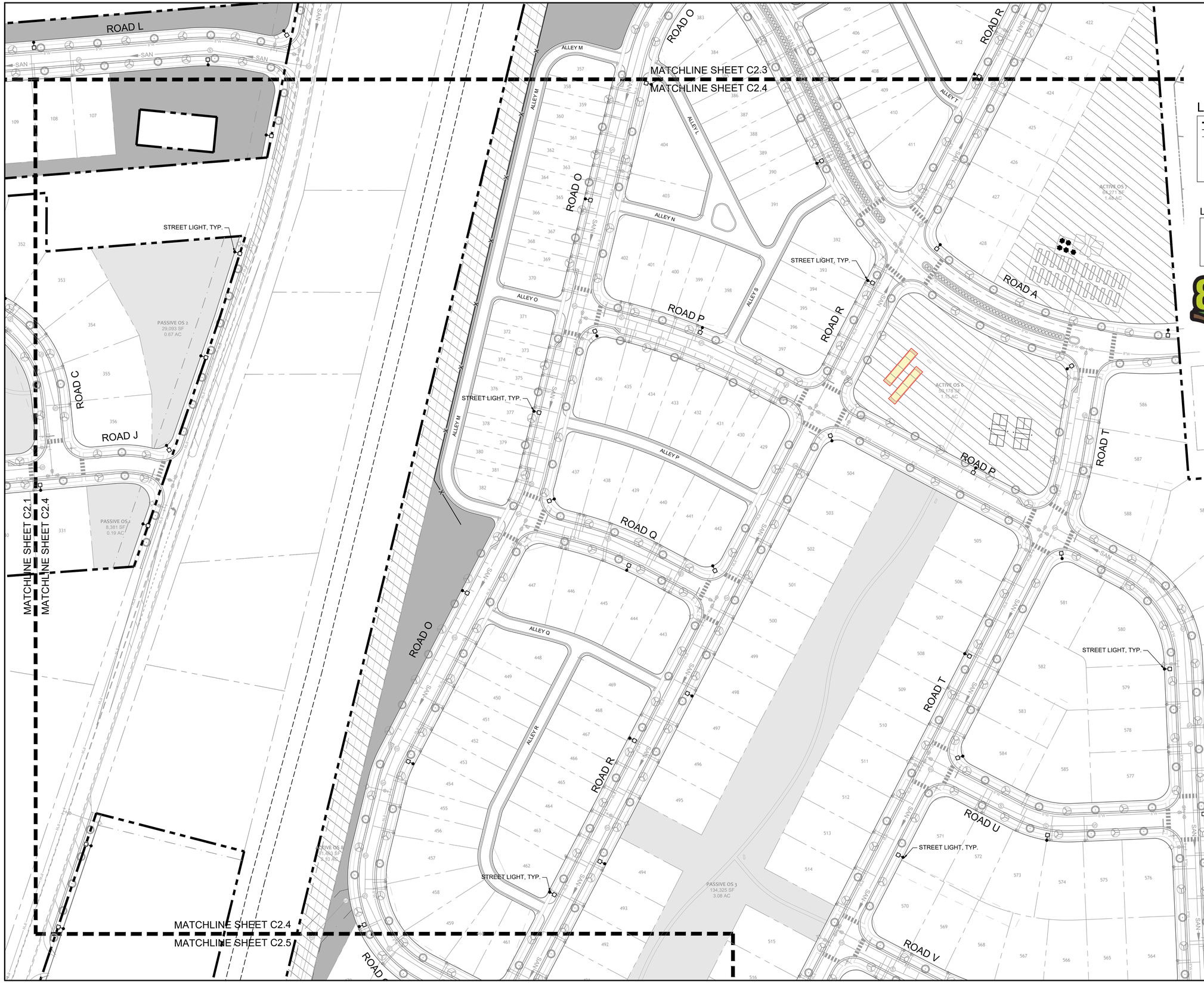

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

LIGHTING LEGEND

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

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 4 OF 6

JOB NO. 48720
SHEET NO. C5.4

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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

LIGHTING LEGEND

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

MATCHLINE SHEET C2.5

ROAD O

ROAD R

ROAD S

ROAD T

ROAD V

ROAD W

ROAD X

ROAD Z

ALLEY U

ALLEY V

STREET LIGHT, TYP.

SCM
COMMON 12
173,160 SF
3.98 AC

SCM
COMMON 13
72,827 SF
1.76 AC

COMMERCIAL 3
368,910 SF
8.47 AC

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

MATCHLINE SHEET C2.5
MATCHLINE SHEET C2.6

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ROBERTSON ASSEMBLAGE
ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 5 OF 6

JOB NO.
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SHEET NO.
C5.5

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MATCHLINE SHEET C2.4

MATCHLINE SHEET C2.6

ROAD T

ROAD V

ROAD W

ROAD X

ROAD P

ROAD S

ROAD Y

ALLEY U

ALLEY V

PASSIVE OS 4
123,077 SF
2.83 AC

EXISTING POND

COMMON 17
45,317 SF
1.04 AC

STREET LIGHT, TYP.

EXISTING WETLANDS

SCM
COMMON 13
76,827 SF
1.76 AC

COMMON 14
30,401 SF
0.70 AC

COMMON 15
12,[illegible] SF
0.0[illegible] AC

COMMON 16
20,756 SF
0.48 AC

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

MATCHLINE SHEET C2.5

MATCHLINE SHEET C2.6

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

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LIGHTING LEGEND

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

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED PRELIMINARY LIGHTING PLAN SHEET 6 OF 6

JOB NO.
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SHEET NO.
C5.6

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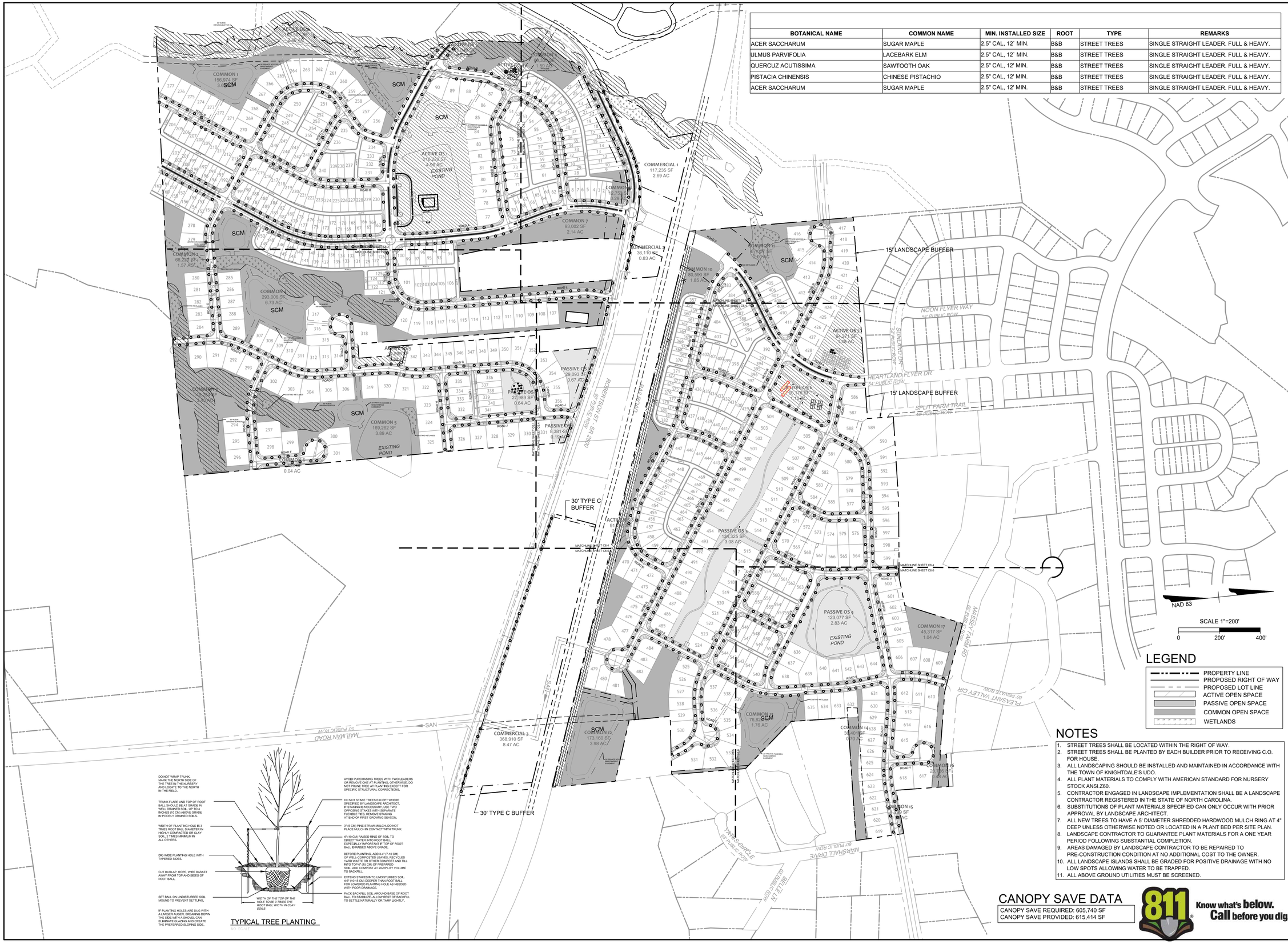
BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	ROOT	TYPE	REMARKS
ACER SACCHARUM	SUGAR MAPLE	2.5" CAL, 12' MIN.	B&B	STREET TREES	SINGLE STRAIGHT LEADER. FULL & HEAVY.
ULMUS PARVIFOLIA	LACEBARK ELM	2.5" CAL, 12' MIN.	B&B	STREET TREES	SINGLE STRAIGHT LEADER. FULL & HEAVY.
QUERCUZ ACUTISSIMA	SAWTOOTH OAK	2.5" CAL, 12' MIN.	B&B	STREET TREES	SINGLE STRAIGHT LEADER. FULL & HEAVY.
PISTACIA CHINENSIS	CHINESE PISTACHIO	2.5" CAL, 12' MIN.	B&B	STREET TREES	SINGLE STRAIGHT LEADER. FULL & HEAVY.
ACER SACCHARUM	SUGAR MAPLE	2.5" CAL, 12' MIN.	B&B	STREET TREES	SINGLE STRAIGHT LEADER. FULL & HEAVY.



TYPICAL TREE PLANTING

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

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.

CANOPY SAVE DATA

CANOPY SAVE REQUIRED:	605,740 SF
CANOPY SAVE PROVIDED:	615,414 SF

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DRAWN BY: C.CLARK
DESIGNED BY: E.ANGE
CHECKED BY: B.BLACKMON
SCALE: 1" = 200'

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL LANDSCAPE PLAN

JOB NO. 48720
SHEET NO. C6.0

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1" = 60'

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ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 1 OF 6

JOB NO.
48720

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MATCHLINE SHEET C6.2

MATCHLINE SHEET C6.3

MATCHLINE SHEET C6.1

MATCHLINE SHEET C6.4

ROAD A

ROAD C

ROAD D

ROAD E

ROAD F

ROAD G

ROAD H

ROAD I

ROAD J

ROAD L

ALLEY D

ALLEY E

ALLEY H

SCM

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

EXISTING WETLANDS

50' NUESE RIPARIAN BUFFER

COMMON 2
68,220 SF
1.57 AC

COMMON 4
293,006 SF
6.73 AC

COMMON 3
148,254 SF
3.40 AC

COMMON 5
169,262 SF
3.89 AC

COMMON 6
1,775 SF
0.04 AC

ACTIVE OS 5
14,099 SF
0.32 AC

PASSIVE OS 5
27,989 SF
0.64 AC

EXISTING POND

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=60'
0 60' 120'

811 Know what's below. Call before you dig.

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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

50' NUESE RIPARIAN BUFFER

ACTIVE OS 2
108,588 SF
2.49 AC

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

COMMON 1
156,974 SF
3.60 AC
SCM

EXISTING WETLANDS

ROAD D

ROAD K

ROAD L

ROAD N

ACTIVE OS 3
10,048 SF
0.23 AC

ACTIVE OS 4
5,227 SF
0.12 AC

ALLEY K

ALLEY G

ALLEY F

ALLEY J

ALLEY I

ALLEY H

ROAD B

ROAD A

ALLEY A

ALLEY B

ALLEY C

ALLEY D

SCM

ACTIVE OS 1
216,328 SF
4.96 AC

EXISTING POND

ROAD M

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

COMMON 2
68,260 SF
1.57 AC

MATCHLINE SHEET C6.2

MATCHLINE SHEET C6.3

NAD 83

SCALE 1"=60'
0 60' 120'

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REVISION DESCRIPTION

DATE

DATE
1/03/2023

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 2 OF 6

JOB NO.
48720

SHEET NO.
C6.2

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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

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NORTH CAROLINA LICENSE NO. C-1652

REVISION DESCRIPTION	DATE

DATE: 1/03/2023
DRAWN BY: C.CLARK
DESIGNED BY: E.ANGE
CHECKED BY: B.BLACKMON
SCALE: 1" = 60'

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 3 OF 6

JOB NO. 48720
SHEET NO. C6.3

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MATCHLINE SHEET C6.2
MATCHLINE SHEET C6.3
MATCHLINE SHEET C6.3
MATCHLINE SHEET C6.4

COMMON 9
69,330 SF
1.59 AC

50' NUESE
RIPARIAN BUFFER

COMMERCIAL 1
117,235 SF
2.69 AC

COMMON 8
12,753 SF
0.29 AC

COMMON 7
93,002 SF
2.14 AC

COMMERCIAL 2
36,110 SF
0.83 AC

COMMON 10
80,500 SF
1.85 AC

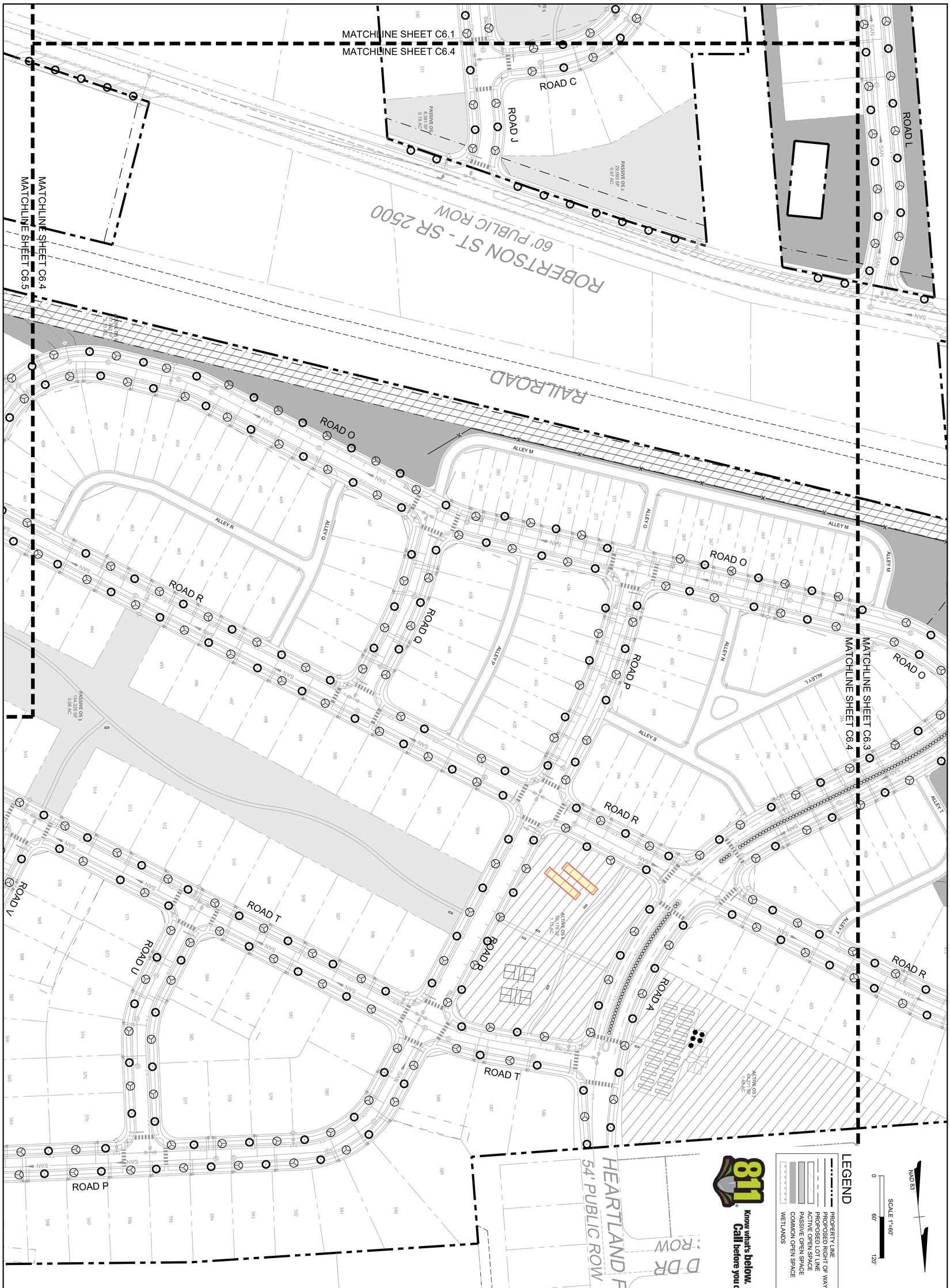
COMMON 11
87,057 SF
2.00 AC

20' PRIVATE ACCESS &
MAINTANENCE
EASEMENT

SCM

EXISTING WETLANDS

ROAD A
ROAD L
ROAD N
ROAD O
ROAD R
ALLEY I
ALLEY J
ALLEY K
ALLEY L
ALLEY M
ALLEY T



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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 4 OF 6

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
C6.4	48720	1" = 60'	B.BLACKMON	E.ANGE	C.CLARK	1/03/2023

DATE	REVISION DESCRIPTION

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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

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MATCHLINE SHEET C6.5

ROAD O

ROAD R

ROAD S

ROAD T

ROAD V

ROAD W

ROAD X

ROAD Z

ALLEY U

ALLEY V

SAN

SWN

COMMERCIAL 3
368,910 SF
8.47 AC

SCM

COMMON 12
173,160 SF
3.98 AC

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

SCM

COMMON 13
76,827 SF
1.76 AC

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

MATCHLINE SHEET C6.5
MATCHLINE SHEET C6.6

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SCALE
1" = 60'

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 5 OF 6

JOB NO.
48720

SHEET NO.
C6.5

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MATCHLINE SHEET C6.4

MATCHLINE SHEET C6.6

ROAD T

ROAD V

ROAD P

ROAD W

ROAD X

ROAD S

ROAD Y

ALLEY U

ALLEY V

PASSIVE OS 4
123,077 SF
2.83 AC

EXISTING POND

COMMON 17
45,317 SF
1.04 AC

MASSEY FARM RD
60' PUBLIC ROW

PLEASANT VALLEY CIR
60' PRIVATE ROW

EXISTING WETLANDS

SCM
COMMON 13
76,827 SF
1.76 AC

COMMON 14
30,401 SF
0.70 AC

COMMON 15
12,[illegible] SF
0.0[illegible] AC

COMMON 16
20,756 SF
0.48 AC

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

MATCHLINE SHEET C6.5

MATCHLINE SHEET C6.6

YATES
63' PU

NAD 83

SCALE 1"=60'

0 60' 120'

LEGEND

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- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
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- WETLANDS

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CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED LANDSCAPE PLAN SHEET 6 OF 6

JOB NO.
48720

SHEET NO.
C6.6

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CHECKED BY
B.BLACKMON

SCALE
1" = 200'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

OVERALL SIGNS AND MARKINGS PLAN

JOB NO.
48720

SHEET NO.
C7.0

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

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 SPECIFCATIONS.
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.

NAD 83

SCALE 1"=200'

0 200' 400'

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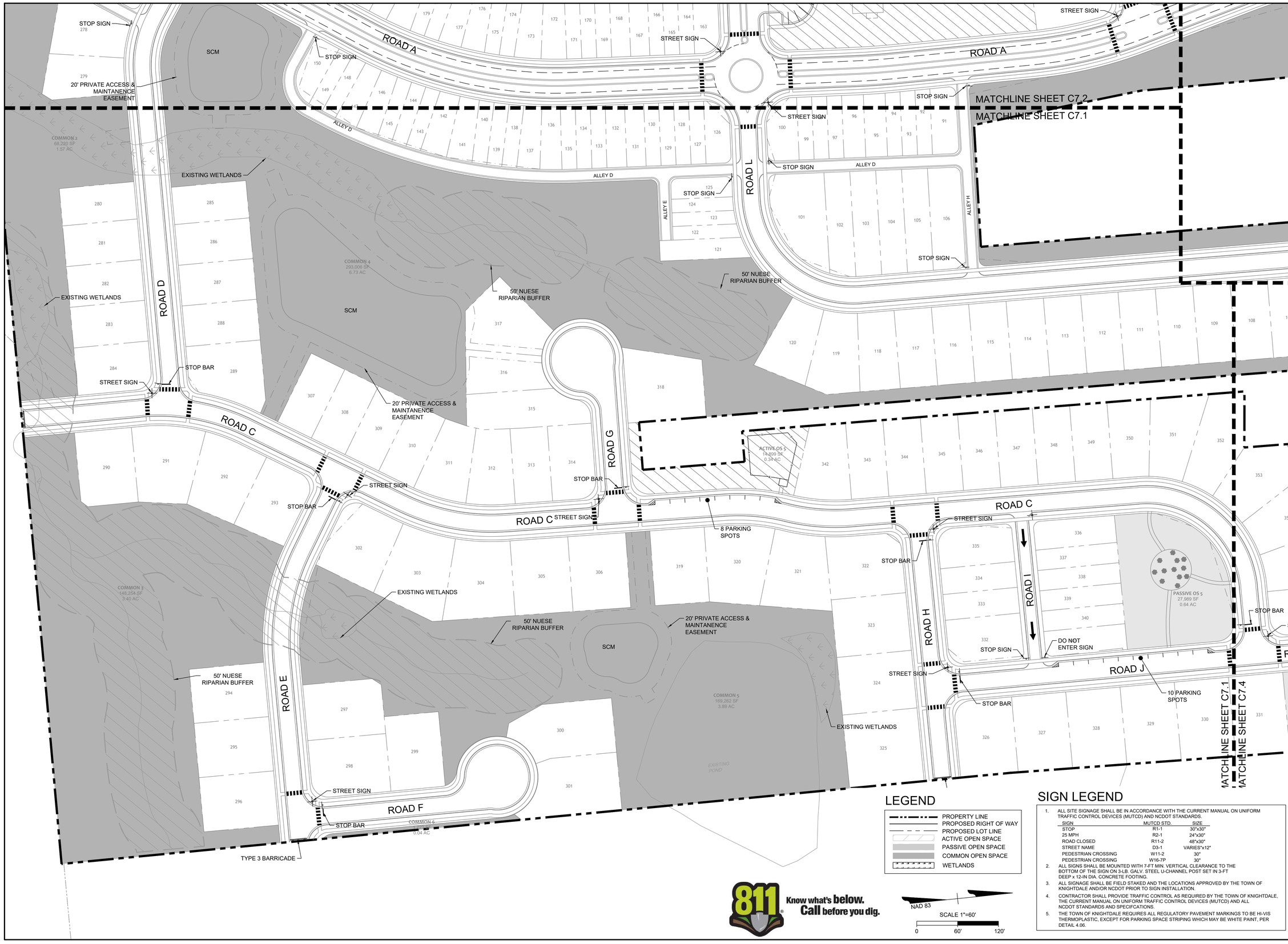

LEGEND

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- PROPOSED RIGHT OF WAY
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- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=60'

0 60' 120'

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NORTH CAROLINA LICENSE NO. C-1652

REVISION DESCRIPTION

DATE

DATE 1/03/2023

DRAWN BY C.CLARK

DESIGNED BY E.ANGE

CHECKED BY B.BLACKMON

SCALE 1" = 60'

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 1 OF 6

JOB NO. 48720

SHEET NO. C7.1

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=60'
0 60' 120'

50' NUESE RIPARIAN BUFFER
ACTIVE OS 3 108,588 SF 2.49 AC
20' PRIVATE ACCESS & MAINTANENCE EASEMENT
COMMON 1 156,974 SF 3.60 AC
SCM
EXISTING WETLANDS
ACTIVE OS 2 16,048 SF 0.37 AC
ACTIVE OS 4 8,627 SF 0.20 AC
ACTIVE OS 1 216,328 SF 4.96 AC
EXISTING POND
COMMON 2 68,220 SF 1.57 AC
ROAD A
ROAD B
ROAD D
ROAD K
ROAD L
ROAD M
ROAD N
ALLEY A
ALLEY B
ALLEY C
ALLEY D
ALLEY F
ALLEY G
ALLEY I
ALLEY J
ALLEY K
STOP SIGN
STOP BAR
STREET SIGN
15 PARKING SPOTS
8 PARKING SPOTS
12 PARKING SPOTS
14 PARKING SPOTS
41 PARKING SPOTS
MATCHLINE SHEET C7.2
MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.1

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CHECKED BY B.BLACKMON
SCALE 1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 2 OF 6

JOB NO. 48720
SHEET NO. C7.2

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PEDESTRIAN CROSSING	W16-7P	30"

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LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=60'
0 60' 120'

COMMON 9
69,330 SF
1.59 AC

50' NUESE RIPARIAN BUFFER

ALLEY K

21 PARKING SPOTS

MATCHLINE SHEET C7.2

MATCHLINE SHEET C7.3

ROAD N

ALLEY J

ALLEY I

STOP SIGN

STOP BAR

STREET SIGN

COMMON 8
12,753 SF
0.29 AC

ROAD A

COMMON 7
93,002 SF
2.14 AC

COMMERCIAL 1
117,235 SF
2.69 AC

COMMERCIAL 2
36,110 SF
0.83 AC

20' PRIVATE ACCESS & MAINTANENCE EASEMENT

COMMON 11
87,057 SF
2.00 AC

SCM

EXISTING WETLANDS

COMMON 10
80,590 SF
1.85 AC

ROAD O

ROAD R

ALLEY M

MATCHLINE SHEET C7.3

MATCHLINE SHEET C7.4

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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

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 3 OF 6

JOB NO. 48720
SHEET NO. C7.3

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MATCHLINE SHEET C7.3
MATCHLINE SHEET C7.4

MATCHLINE SHEET C7.1
MATCHLINE SHEET C7.4

MATCHLINE SHEET C7.4
MATCHLINE SHEET C7.5

ROBERTSON ST - SR 2500
60' PUBLIC ROW

RAILROAD

PUBLIC ROW

HEARTLA
54' PUBLIC

PASSIVE OS 1
8,381 SF
0.19 AC

PASSIVE OS 2
29,093 SF
0.67 AC

PASSIVE OS 3
134,325 SF
3.08 AC

ACTIVE OS 6
26,178 SF
1.15 AC

ACTIVE OS 7
24,271 SF
1.48 AC

ROAD J
ROAD O
ROAD P
ROAD Q
ROAD R
ROAD T
ROAD U
ROAD V
ALLEY L
ALLEY M
ALLEY N
ALLEY O
ALLEY P
ALLEY Q
ALLEY R
ALLEY S
ALLEY T

STOP SIGN
STOP BAR
STREET SIGN
12 PARKING SPOTS
14 PARKING SPOTS
8 PARKING SPOTS
11 PARKING SPOTS
5 PARKING SPOTS
6 PARKING SPOTS
BENCH

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
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NAD 83

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ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 4 OF 6

JOB NO. 48720
SHEET NO. C7.4

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MATCHLINE SHEET C7.5

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
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- WETLANDS

SIGN LEGEND

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SIGN	MUTCD STD.	SIZE
STOP	R1-1	30"x30"
25 MPH	R2-1	24"x30"
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PEDESTRIAN CROSSING	W11-2	30"
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NAD 83

SCALE 1"=60'

0 60' 120'

ROAD O
STOP BAR
STREET SIGN
ROAD R
ROAD S
STREET SIGN
STOP BAR
BENCH
ROAD T
STOP BAR
STREET SIGN
BENCH
ROAD V
STOP BAR
STREET SIGN
ROAD T
STOP SIGN
ALLEY U
STOP SIGN
STOP BAR
STREET SIGN
10 PARKING SPOTS
ROAD W
STOP BAR
STREET
ALLEY V
STOP SIGN
STOP BAR
STREET SIGN
STOP BAR
STREET SIGN
ROAD T
STREET SIGN
STOP SIGN
ROAD Z
SCM
COMMON 13
76,827 SF
1.76 AC
COMMERCIAL 3
368,910 SF
8.47 AC
COMMON 12
173,160 SF
3.98 AC
SCM
20' PRIVATE ACCESS & MAINTANENCE EASEMENT
TYPE 3 BARRICADE
20' PRIVATE ACCESS & MAINTANENCE EASEMENT
MATCHLINE SHEET C7.5
MATCHLINE SHEET C7.6

PRELIMINARY DO NOT USE FOR CONSTRUCTION

THIS DRAWING PREPARED AT THE
RALEIGH OFFICE
5410 Trinity Road, Suite 102 | Raleigh, NC 27607
TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE
1/03/2023

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

TIMMONS GROUP

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 5 OF 6

JOB NO.
48720

SHEET NO.
C7.5

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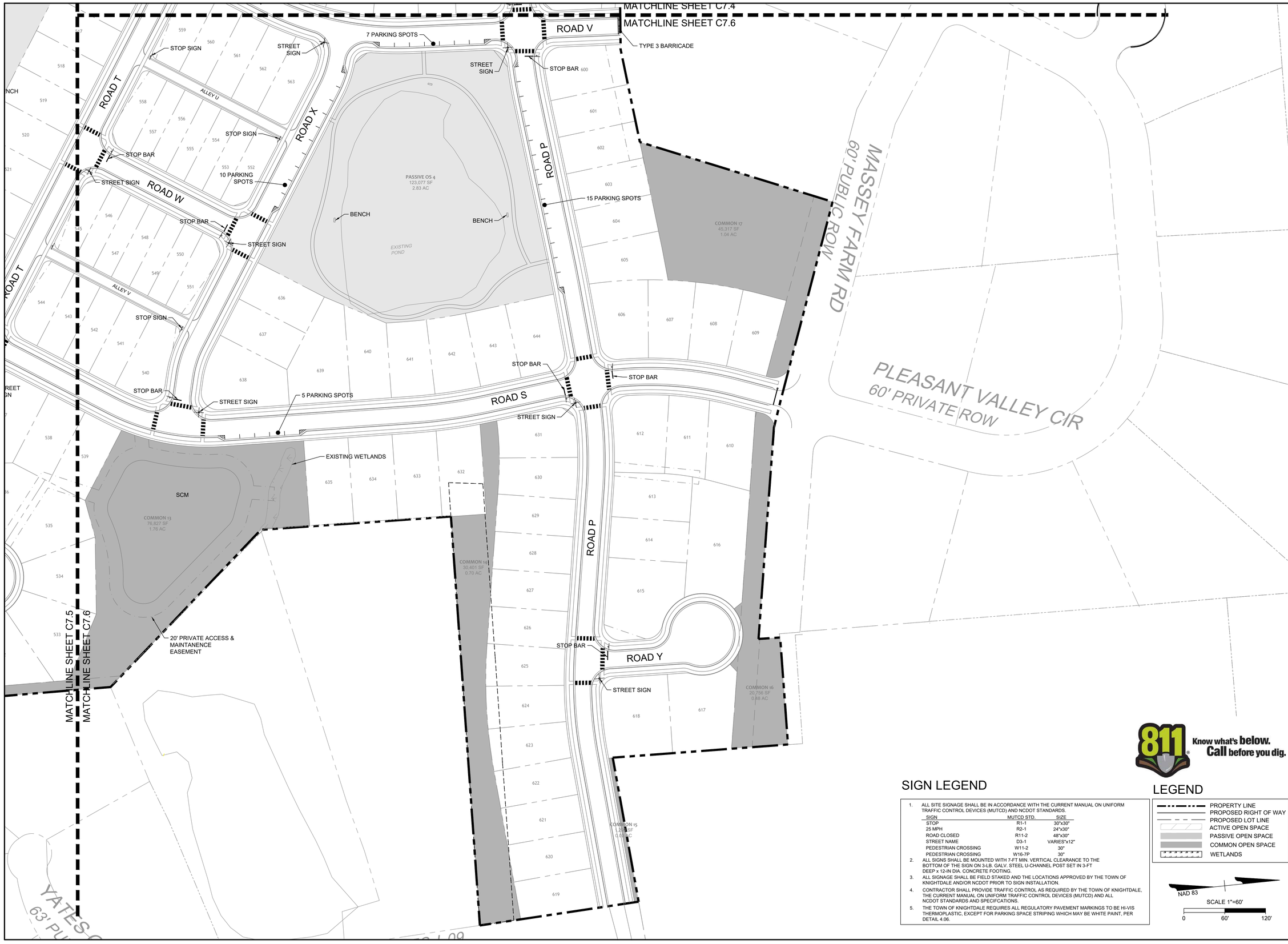

SIGN LEGEND

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.

811 Know what's below. Call before you dig.

LEGEND

- PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- ACTIVE OPEN SPACE
- PASSIVE OPEN SPACE
- COMMON OPEN SPACE
- WETLANDS

NAD 83

SCALE 1"=60'

0 60' 120'

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NORTH CAROLINA LICENSE NO. C-1652

REVISION DESCRIPTION

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1/03/2023

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE
1" = 60'

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

DETAILED SIGNS AND MARKINGS PLAN SHEET 6 OF 6

JOB NO.
48720

SHEET NO.
C7.6

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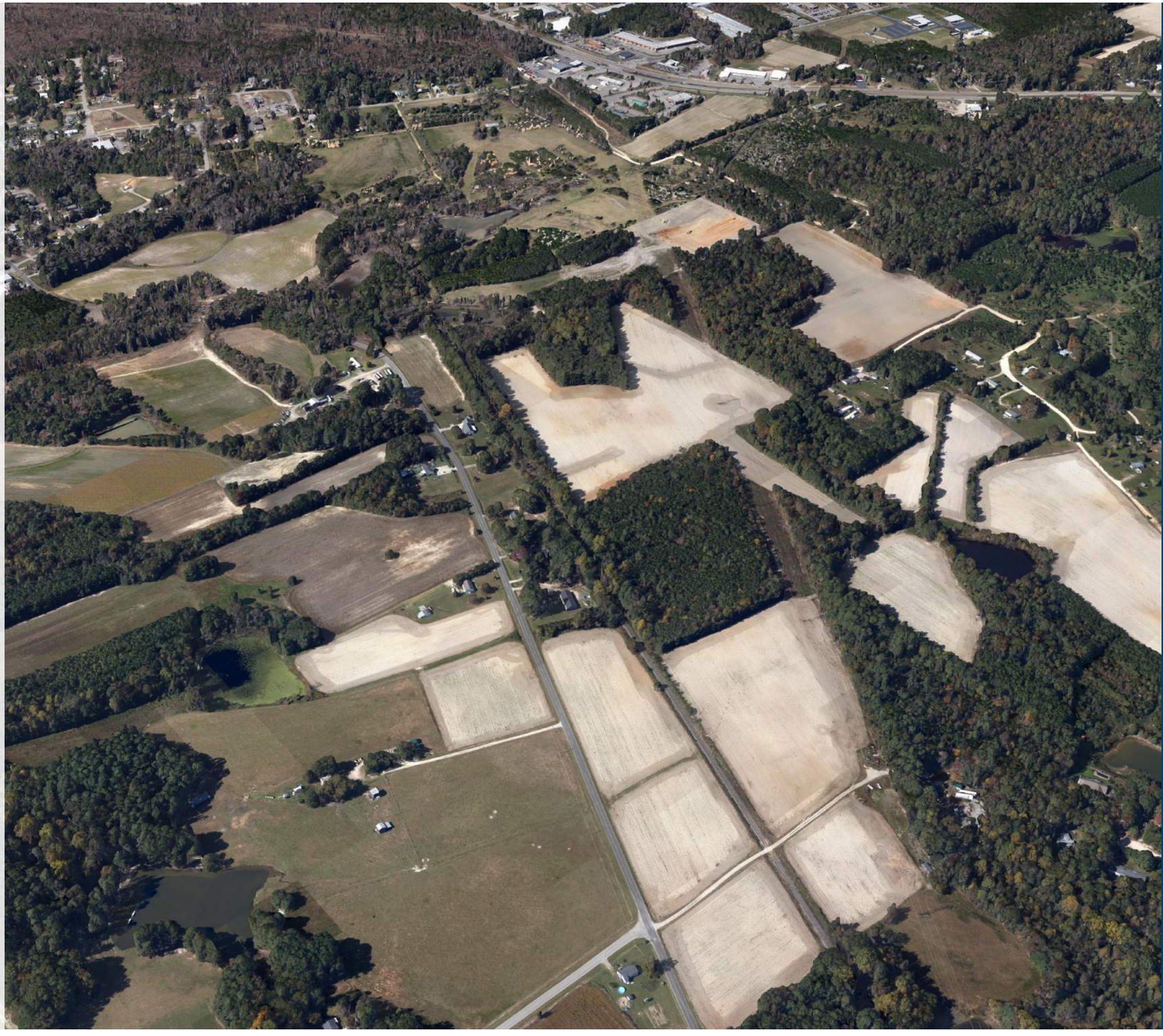
ENGINEERING FIRM:
TIMMONS GROUP
5401 TRINITY RD, SUITE 102
RALEIGH | NC 27607



ROBERTSON CROSSING

PUD SUBMITTAL
PREPARED FOR:
TOWN OF KNIGHTDALE
MAY, 2023

Our Mission

AN INSIGHT FROM TOM NATELLI (PRESIDENT AND CEO)

Thoughtful Planning, Timeless Design, and Attention To Detail. These concepts in large part capture the essence of our company's operating philosophy. After having developed properties for over 40 years now, we've come to believe there are fundamental principles that should drive our development efforts, if we are to achieve our goal of creating great places that home buyers and business owners will seek out over all others.

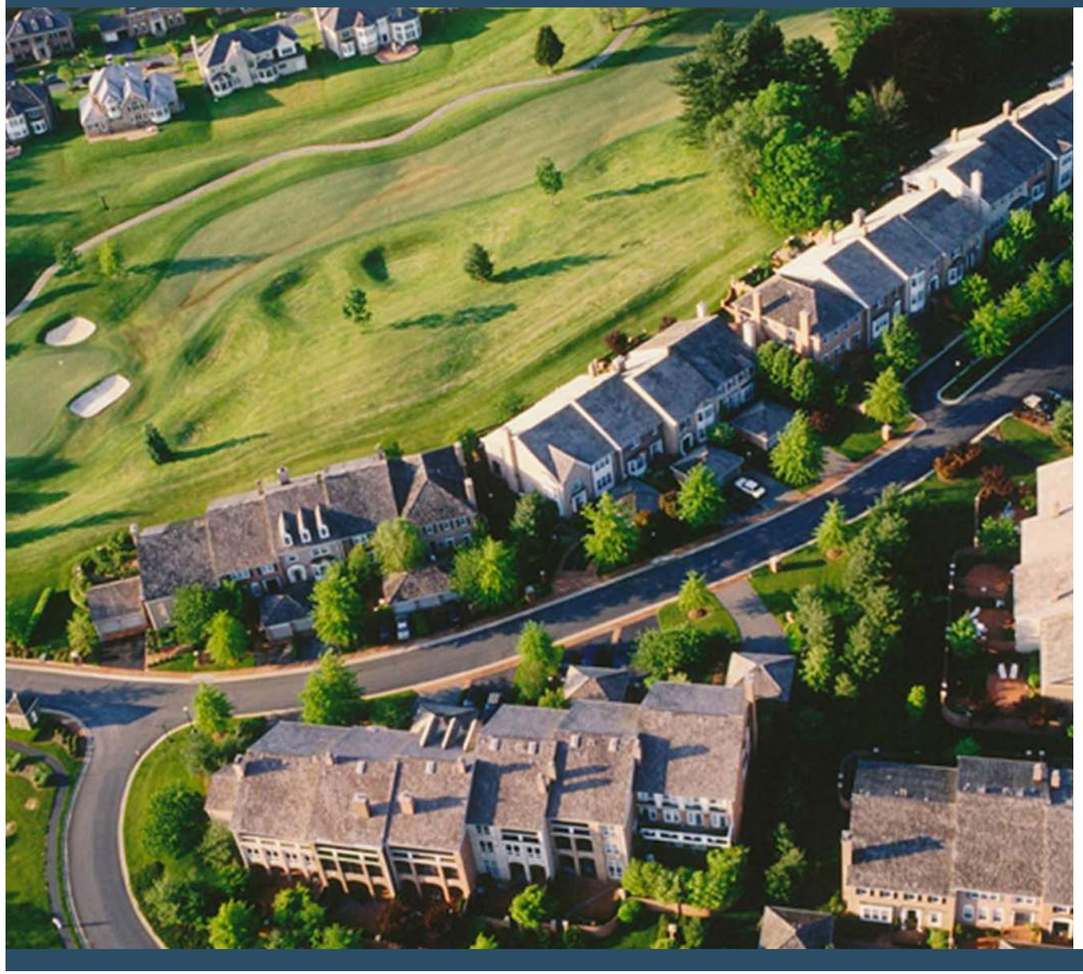
AT THE OUTSET - Because we develop large-scale communities, we realize that we bring tremendous change to the local communities that were already there before we arrived. We realize that it's important to hear from those living and working in these communities at the outset, so we can better understand their concerns and observations and so we can incorporate their suggestions into our development plans, to the extent reasonably possible. If we can do it better than we thought, we ought to consider it. If we can reasonably mitigate the impacts, we ought to accommodate it.

IT WILL BE THERE FOR A LONG, LONG, TIME - We also realize that what we design and implement will ultimately become part of the built environment that others will experience (for better or for worse), for perhaps the next 75 or 100 years, until redevelopment occurs sometime in the distant future. We have the opportunity to design our communities thoughtfully and to execute them well. Frankly, given the significant role we play in helping to create the fabric of the local communities in which we operate, we have an obligation to those that are there now, and to those that come after us, to do it well.

THE MOST IMPORTANT INVESTMENT – To move into one of our communities means that an individual or family has made a life decision to choose an environment created by us in which to raise a family, share a home, shop, work, relax, enjoy, simply live. This is a fundamental decision that bears on almost all aspects of a person's life. It's vital to them, it's vital to us.

FIND THE RIGHT BALANCE – Trends come and go, but true quality is lasting. Some innovations in design and materials make sense, and some come at too great a price, too great a compromise to the quality of the built environment. Take a thoughtful approach to preserving the environment and to finding balance between the needs of our residents and appropriate preservation techniques and systems.

ABOUT US



Together with his late father, Anthony M Natelli, Tom Natelli has built Natelli Communities into one of the most respected and accomplished privately held real estate development concerns in the nation. By focusing on excellence in all aspects of design, development, construction and managerial processes, Natelli Communities has consistently developed the best-selling master planned communities in the markets where we operate.

The company is well versed in local and regional planning, environmental and development matters, and principally acquires unimproved, un-entitled property in the Mid-Atlantic and Southeast region for long-term development.

Natelli Communities develops a vision for each property, seeks the input of local communities and other interested parties, undertakes the rezoning and entitlement processes and physically develops the properties into finished communities. Residential, retail and office components are sold to national and regional builders under coordinated programs that govern the type, style and level of finish of each of the products constructed by third parties. Natelli builds some of the products through its affiliates, Main Street Homes, Main Street Commercial and Natelli Homes.

Natelli Communities has developed over 15,000 homesites and several million square feet of office and retail space. Communities range in size from several hundred to several thousand units. The company has received dozens of local and national awards including the “Award for Excellence” for Avenel in 1996 for best planned community in the nation by the Urban Land Institute, and “Best Community in the Nation” by the National Association of Homebuilders for Bay Forest in 2018 as well as Washington Metro Environmental Developer of the Year and Suburban Maryland Builder of the Year.

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, Robertson Crossing design has been based on the following:

KnightdaleNext 2035 Comprehensive Plan

- Robertson Crossing 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 Commercial Mixed-Use area further contributes to the walkable lifestyle within one community.
- Consistent with the Growth and Conservation Map, Robertson is predominately located within the Mixed-Density Neighborhood Placetype with a small portion of Rural Living Placetype. Robertson embraces the Mixed-Density Placetype with a significant mixture housing types and densities. Product types differ throughout the development with larger homes adjacent to the many natural preservation areas and smaller lots and townhomes more centrally located adjacent to collector streets. 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

- Maintaining generous natural buffers and untouched green spaces, Robertson Crossing 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

- Robertson Crossing will ensure compatibility with surrounding land uses as a residential and commercial mixed-use development located in a growing area of the Town of Knightdale. Robertson Crossing is a natural extension of Knightdale Station, The Collection and Harper Preserve. The development has coordinated with other future developments adjacent to the property and will not impede the use and future development of surrounding properties nor will it dimmish property values of the area.
- Enhanced erosion control measures shall be proposed to protect downstream properties.

Impact on Public Facilities and Resources

- Robertson Crossing 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

- Numerous natural features found on the property will be conserved. Several existing ponds will remain so wildlife will continue to flourish. Stream buffers and connected wetland areas provide a conduit for continued wildlife movement. 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.
- Robertson Crossing includes traditional modern high-end amenities such as pool, clubhouse, tot lot, parks with seating, dog park, community gardens, pickleball and bocce ball courts, but also preserves and incorporates natural features found on the property like wetlands, streams, and existing 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 Robertson Crossing to minimize traffic congestion on existing public streets and provide adequate access for emergency vehicles. Robertson Crossing includes a public greenway along Poplar Creek in accordance with Knightdale's Trails and Greenway plan. The greenway will help Knightdale move closer towards making their vision for a pedestrian-friendly community a reality and will create a healthier and more dynamic community by improving pedestrian safety and connectivity.
- The layout of Robertson Crossing seamlessly integrates various dwelling types into the beautiful landscape and a series of collector roads that fulfill the Transportation Plan's goal of connecting parts of southeastern Knightdale. Coordinating with proposed development on adjacent parcels ensures that Robertson Crossing fits into a larger design language for the area. With the completion of these roads, Knightdale is one step closer to the intended transportation system of integrated grid street network for major roads and local streets.

Adequate Buffering

- Landscaping and open space areas are proposed throughout Robertson Crossing for the enjoyment of residents and passerby. Adjacent property is a mixture of existing and proposed residential development, Knightdale Station Park and agricultural uses. The site is divided by streams and wetlands creating natural buffering.

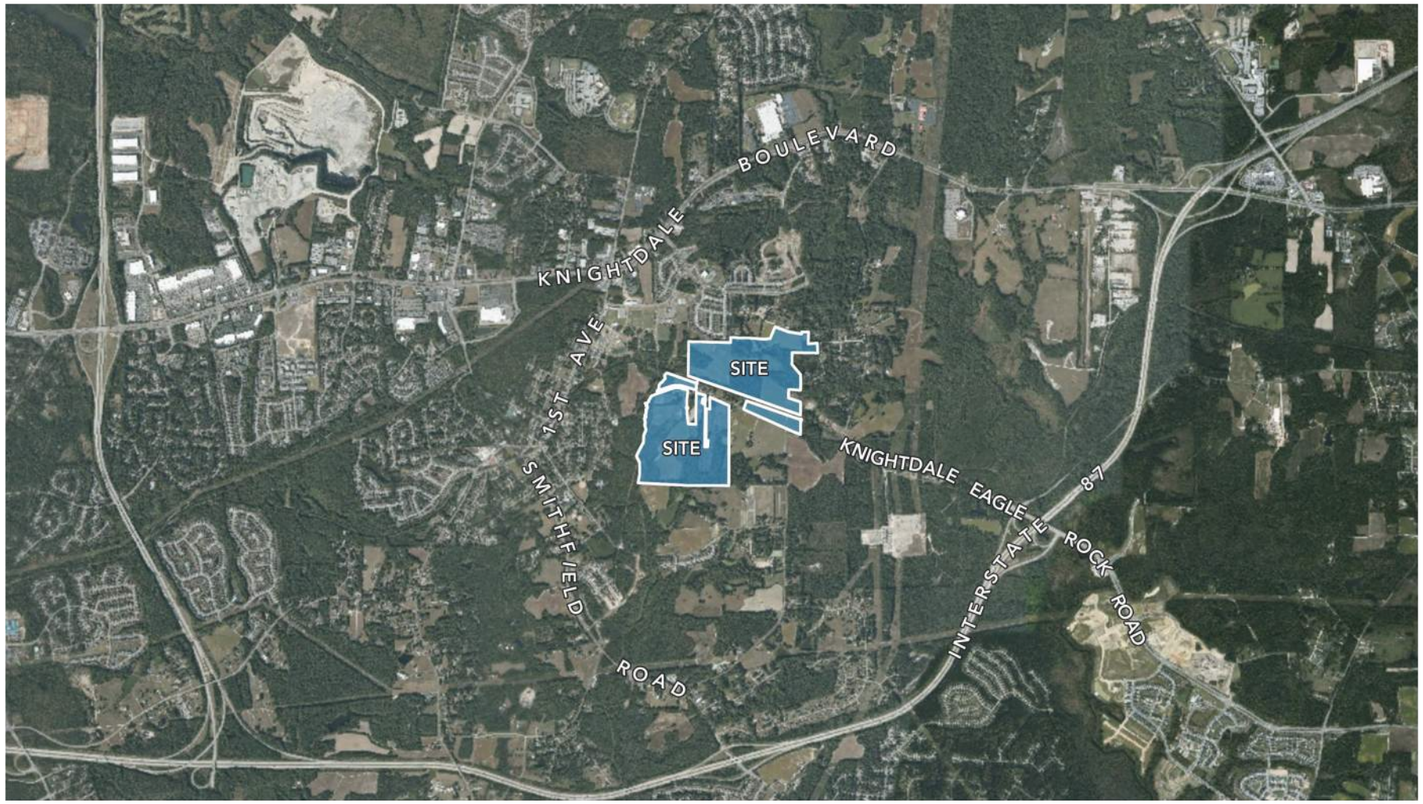
Performance

- The applicant has a successful history with the Town of Knightdale in developing Allen Park as well as developing projects throughout the Mid-Atlantic and Southeast regions. The applicant is working closely with potential builders to ensure that Robertson Crossing is the highest quality development.

SITE DATA TABLE

PROJECT:	ROBERTSON CROSSINGS
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:	NATELLI COMMUNITITES BRIAN MASSENGILL 1903 N. HARRISON AVE. CARY, NC 27513 PHONE: (919) 888-3102 EMAIL: BRIAN@NATELLI.COM
LAND OWNER:	POOLE, JAMES HOWARD JR, JAMES HOWARD III 52 BLEEKER DR CLAYTON, NC 27527 HILTON WEATHERS 170 ALMONT ST MATTAPAN MA 02126 ANGEL R & BRIAN K DUNN 3537 MEADOW RIDGE DR RALEIGH NC 27604 HILTON PERRY & ELOISE WEATHERS 170 ALMONT ST MATTAPAN MA 02126 DENNIS PERRY 42 COLSON DR GARNER NC 27529 DON V & DEBORAH J DEBNAM 7905 KNIGHTDALE BLVD KNIGHTDALE NC 27545 TMW FARMS LLC 817 RUNNYMEDE RD RALEIGH NC 27607 DON DEBNAM 152 MAILMAN ROAD KNIGHTDALE NC 27545
TAX ID:	1754-83-4965, 1754-72-7141, 1754-81-0838, 1754-81-2900, 1754-81-4716, PORTION OF 1754-92-3372, 1754-93-6968, PORTION OF 1754-94-5547, 1764-04-3505, 1754-84-7374, 1754-84-7584, & 1754-82-2951
DEED REFERENCE:	DB15997 PG77; DB6710 PG212; DB16725 PG1685; DB7793 PG 111; DB12952 PG1020; DB11753 PG2219; DB18454 PG1661; DB12-E PG200
TOWNSHIP:	ST. MATTHEW'S
EXISTING ZONING:	RT & GR3
CURRENT USE:	VACANT & AGRICULTURE
PROPOSED USE:	SINGLE-FAMILY RESIDENTIAL & COMMERCIAL MIXED USE
PROPOSED ZONING:	GR-8 PUD GENERAL RESIDENTIAL-8 (GR-8) & NMX, PUD (PLANNED UNIT DEVELOPMENT)
TOTAL PROJECT AREA:	188.40 ACRES
PROPOSED DENSITY:	3.42 DU/A
CONNECTIVITY INDEX:	1.60
RIVER BASIN:	NEUSE
SURFACE WATER CLASSIFICATION:	C; NSW
WATERSHED:	NONE
FIRM PANEL #:	3720175400K EFF. 07/19/2022

FRONT LOAD SINGLE FAMILY LOT STANDARDS:	MINIMUM LOT SIZE: 6,050 SF MINIMUM LOT WIDTH: 55' 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: 3,400 SF MINIMUM LOT WIDTH: 30' FRONT SETBACK: 10' SIDE SETBACK: 3' CORNER SIDE SETBACK: 10' REAR SETBACK: 20' DRIVEWAY LENGTH: 20'
REAR LOAD TOWNHOME LOT STANDARDS:	MINIMUM LOT SIZE: 1,800 SF LOT WIDTH: 20' FRONT SETBACK:10' BUILDING SEPARATION: 10' REAR SETBACK: 20' DRIVEWAY LENGTH: 20'



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'), 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 55', side setbacks be reduced to 5', rear setback be reduced to 20', and driveway lengths be reduced to a minimum of 25' for front loaded homes to be adequately developed within the site constraints. Per Section 3.4, Knightdale requires a minimum driveway length of 35'. An exception to this requirement is requested to allow rear loaded homes & townhome driveways to be reduced to 20'. These exceptions are requested based on the Beneficial Common Open Space, Landscape Conservation, 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.

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. Selective exemptions to the clearing and grading requirements presented in Section 9.3 of the UDO are requested for proposed lots that are 60' wide to be eligible for mass grading. All 80' lots have been designated to not be mass graded. This exemption would allow for a more efficient construction process. This modification is requested based on the Surface Water Drainage Modification Standard to ensure proper site surface drainage is maintained. Collecting runoff does not adversely impact neighboring properties is the basis for this request.

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 multifamily is proposed. Proposed distribution of uses is: 11% Townhouse, 74% Single Family, 15% Mixed-Use.

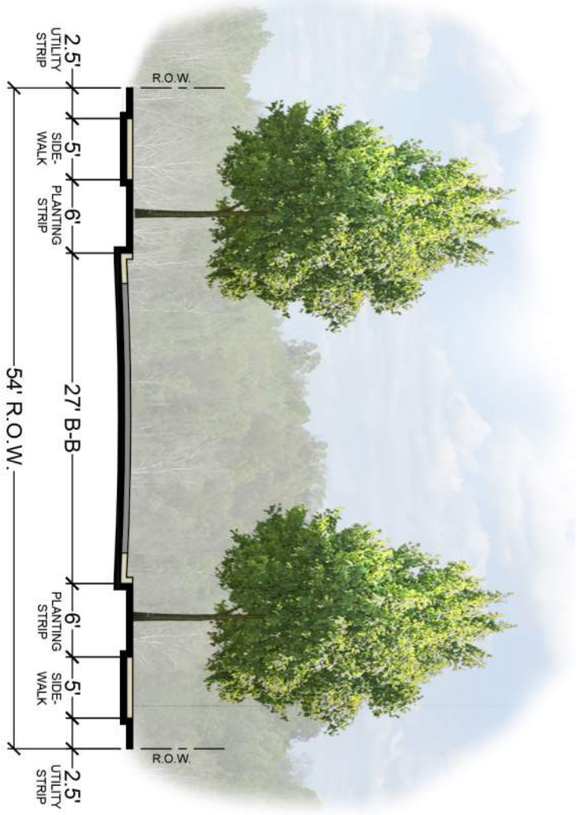
CUL-DE-SAC LENGTH

Per Sec 11.3.E.5 of the Knightdale Unified Development Ordiance, maximum cul-de-sac length is 300'. To avoid additional environmental impacts Road R cul-de-sac length will exceed the maximum allowed.

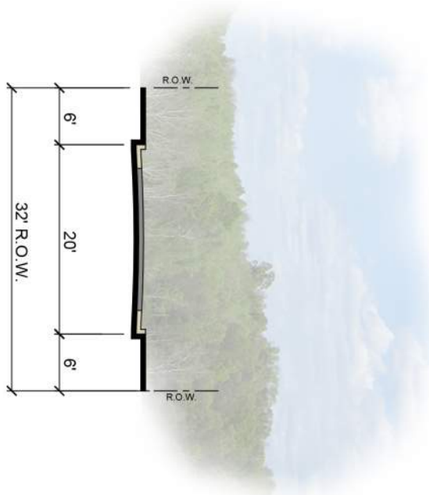
COMMUNITY LOCATION

COMMUNITY MASTER PLAN

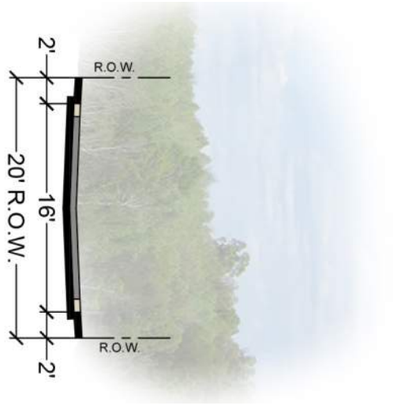
SECTION 1



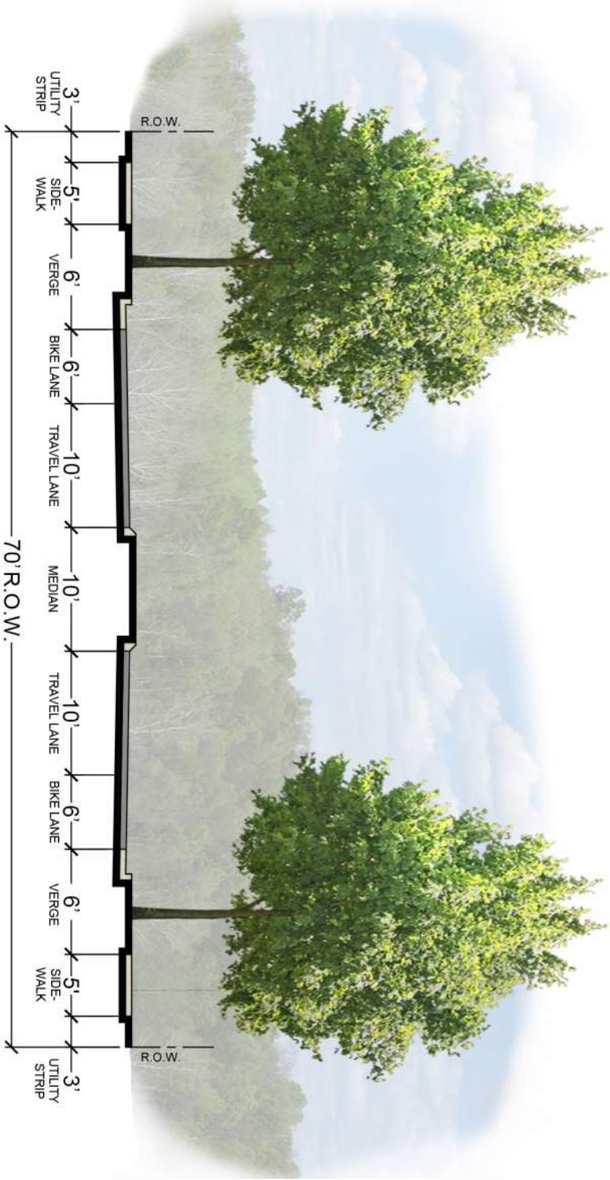
SECTION 3

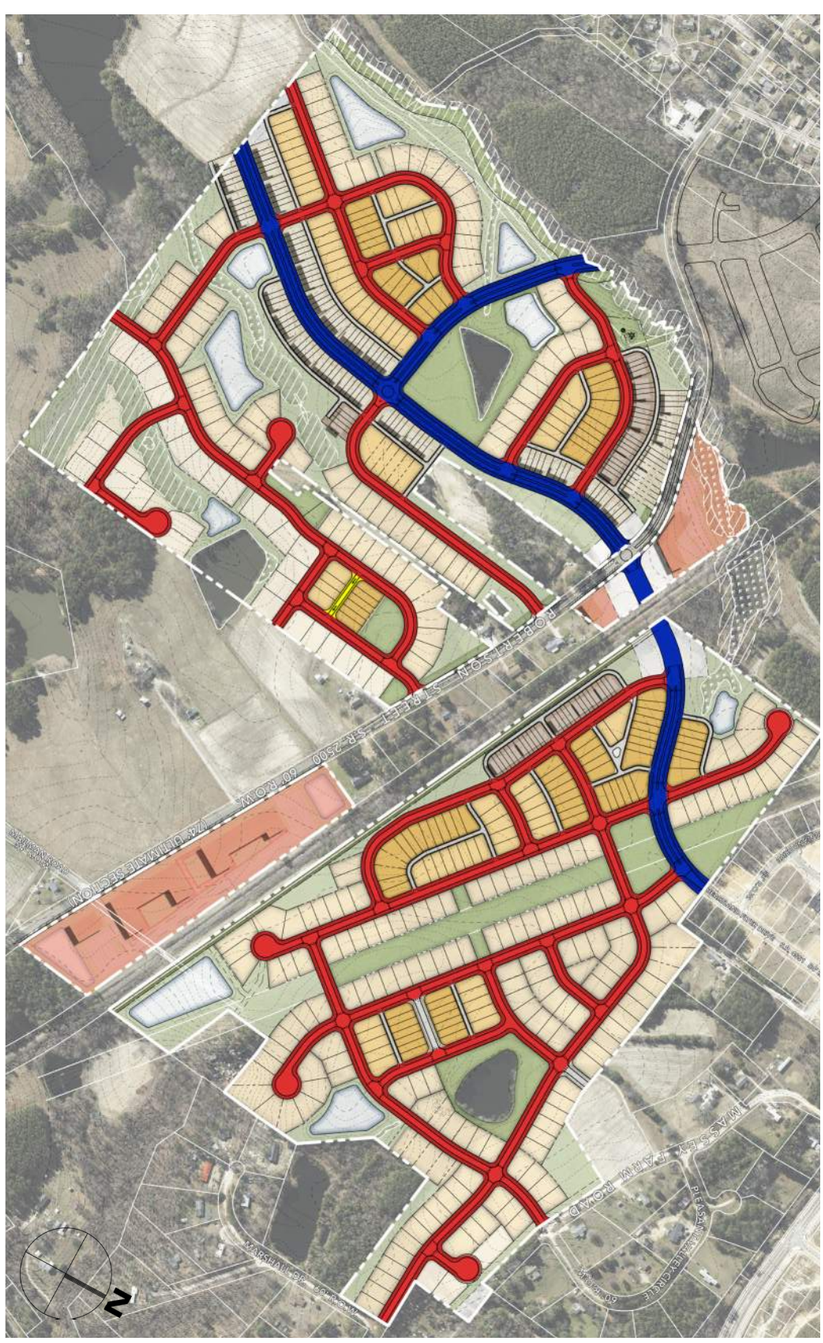


TYP. RESIDENTIAL ALLEY



SECTION 2





STREET SECTIONS

MASS-GRADING EXHIBIT

TOWNHOMES - 20’ X 90’ LOTS

RESIDENTIAL PRODUCT

TOWNHOMES - 22’ X 90’ LOTS

RESIDENTIAL PRODUCT

REAR-LOAD SINGLE FAMILY HOMES - 30’ X 120’

RESIDENTIAL PRODUCT

REAR-LOAD SINGLE FAMILY HOMES - 38’ X 110’

RESIDENTIAL PRODUCT

FRONT-LOAD SINGLE FAMILY HOMES - 55’ X 110’

RESIDENTIAL PRODUCT

FRONT-LOAD SINGLE FAMILY HOMES - 80’ X 115’

RESIDENTIAL PRODUCT

ARCHITECTURAL STANDARDS

- Townhomes shall be three-story homes with a minimum width of 20’ wide and have a minimum heated area of 1,500 square feet. Townhomes shall have 2-car garages.
- Neo Traditional Single family detached homes shall be rear loaded two-story homes built on lots less than 55 feet wide with a minimum heated area of 1,500 square feet.
- Single Family Ranch detached homes shall be built on lots that are at least 55 feet wide, with a minimum heated area of 1,480 square feet, and no more than 25% of the ranch homes may be less than 1,500 square feet.
- Traditional Single family detached homes shall be two-story homes built on lots at least 55 feet wide with a minimum heated area of 2,100 square feet. No more than 10% of the Traditional Single Family detached homes may be homes less than 35’ wide.
- All homes will either consist of a single material of brick or stone or will have a combination of 2 or more of the following materials on the front façade (not including foundations): stone, brick, lap siding, fiber cement siding, shakes, or board and batten siding, with side and rear facades of fiber cement siding. When 2 materials are used, the materials shall be different but complimentary colors. Vinyl may only be used of soffits, fascia, and corner bounds.
- All single family detached homes will have front porches with a minimum depth of 5 feet. Townhomes will have either a front stoop cover that is at least 4’ wide, front porches covering at least 70% of the front facade of the homes, or a rectangular bay/ oriel window on the second/ upper story.
- All traditional single family detached homes will have a rear patio or decks a minimum of 10’ x 10’. All single family ranch detached homes will have a minimum 6’ x 10’ covered patio.
- Main roof pitches (excluding porches) fronting the street will be at least 7:12, with the exception of ranch homes in which 6:12 shall be allowed.
- For every 30 feet (or fraction) of continuous side elevation (calculated on a per floor basis), there shall be one window or door added to the side elevations. Any siding break on the side of the home, such as a fireplace, side porch, or wall offsets may be used as an alternate to windows.
- There shall be a minimum 12 inch overhang on every gable end for every home.
- Garages on all neo traditional single family detached homes and townhomes shall be alley fed.
- All front loaded garage doors shall have glass windows and carriage style hardware.
- All single family detached 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 attached 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.
- Any single family homes with a crawl space shall be wrapped in brick, or stone on all sides.
- All homes shall have front door glass inserts.
- Garages on front load single family detached homes shall not protrude more than six (6) feet from the front porch or stoop and all garage doors shall have window inserts and hardware.
- No more than 45% of the single family detached front garage lots will have garages that are greater than 50% but less than 60% of the front facade of the homes. All remaining single family detached front garage lots will have garages that are equal to or less than 50% of the front facade of the home. The percent of garage as a portion of the front facade shall be measured from wall to wall of the garage. A decorative trellis above the garage door will be included on all single family ranch homes.
- A minimum of twenty (20) Traditional Single Family detached homes shall be constructed with basements or crawl space construction. Potential lots, as identified by the Developer, for basement or crawl space shall not be included in the mass grading operation. Clearing and grading plans for these groups of lots shall be determined and submitted in conjunction with home construction.
- All townhouse units shall provide detailed design elements using at least one (1) of the features from each of the four categories below:

1. <u>Entrance:</u>
   - Covered stoop
   - Covered porch with 6” minimum width columns
   - Soldier row of masonry element above door
2. <u>Building Offset:</u>
   - Facade offset
   - Roofline offset
3. <u>Roof:</u>
   - Dormer
   - Gable
   - Cupola/Tower/Chimney
   - Decorative cornice of roof line (flat roof only)
4. <u>Facade - at least two (2) of the following elements:</u>
   - Bay window
   - Balcony
   - Porch
   - Shutters
   - Window trim with 4” minimum width
   - Patterned finish (scales, shakes, wainscoting, brick, or stone)

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:

- Indoor Amusements (5,000 SF or less)
- Animal Services, Non-boarding
- Banks with indoor services only
- Bar, Brewery, Tavern, Tasting Room
- Child/Adult Day Care Center
- Cultural Facility
- General Retail (under 10,000 SF per single user)
- Flex Office Space in accordance with TOK UDO standards
- Institutional in accordance with TOK UDO standards
- 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 as mixed-use above retail/ office
- Studio Services (Music, Dance, Martial Arts)
- Neighborhood Retail/Restaurants
- Pet Daycare with outdoor play and/or boarding facility

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 Robertson Crossing Planned Development District: PUD-NMX:

- Bed and Breakfasts
- Rooming or Boarding House
- Hotel/Motel or Inn
- 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
- Business requiring Drive-Thru (Banks permitted)

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 in accordance with TOK UDO standards for commercial buildings.

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.

TOTAL BEDROOMS:
178 TOWNHOME UNITS * 2.5 = 445 BEDROOMS
466 SINGLE FAMILY UNITS * 3.5 = 1,631 BEDROOMS
TOTAL BEDROOMS = 2,076

OPEN SPACE CALCULATIONS:
2,076 BEDROOMS * 260 = 539,760 SF REQUIRED
PASSIVE OPEN SPACE REQUIRED = 269,880 SF
PASSIVE OPEN SPACE PROVIDED = 314,485 SF
ACTIVE OPEN SPACE REQUIRED = 269,880 SF
ACTIVE OPEN SPACE PROVIDED = 597,461 SF

CANOPY SAVE:

CANOPY SAVE REQUIRED:	605,740 SF
CANOPY SAVE PROVIDED:	626,096 SF

COMMUNITY AMENITIES

Robertson Crossing Allocation Points:

ITEM	POINTS
Major Subdivision	15
Residential Architectural Standards	15
Pickleball Court	5
Clubhouse without kitchen 1500-2499 sf	5
Resort Style Pool	2
IPEMA Certified Playground Equipment	4
Multi-Use Hard Bocce court	5
Total	**51**

COMMUNITY AMENITIES

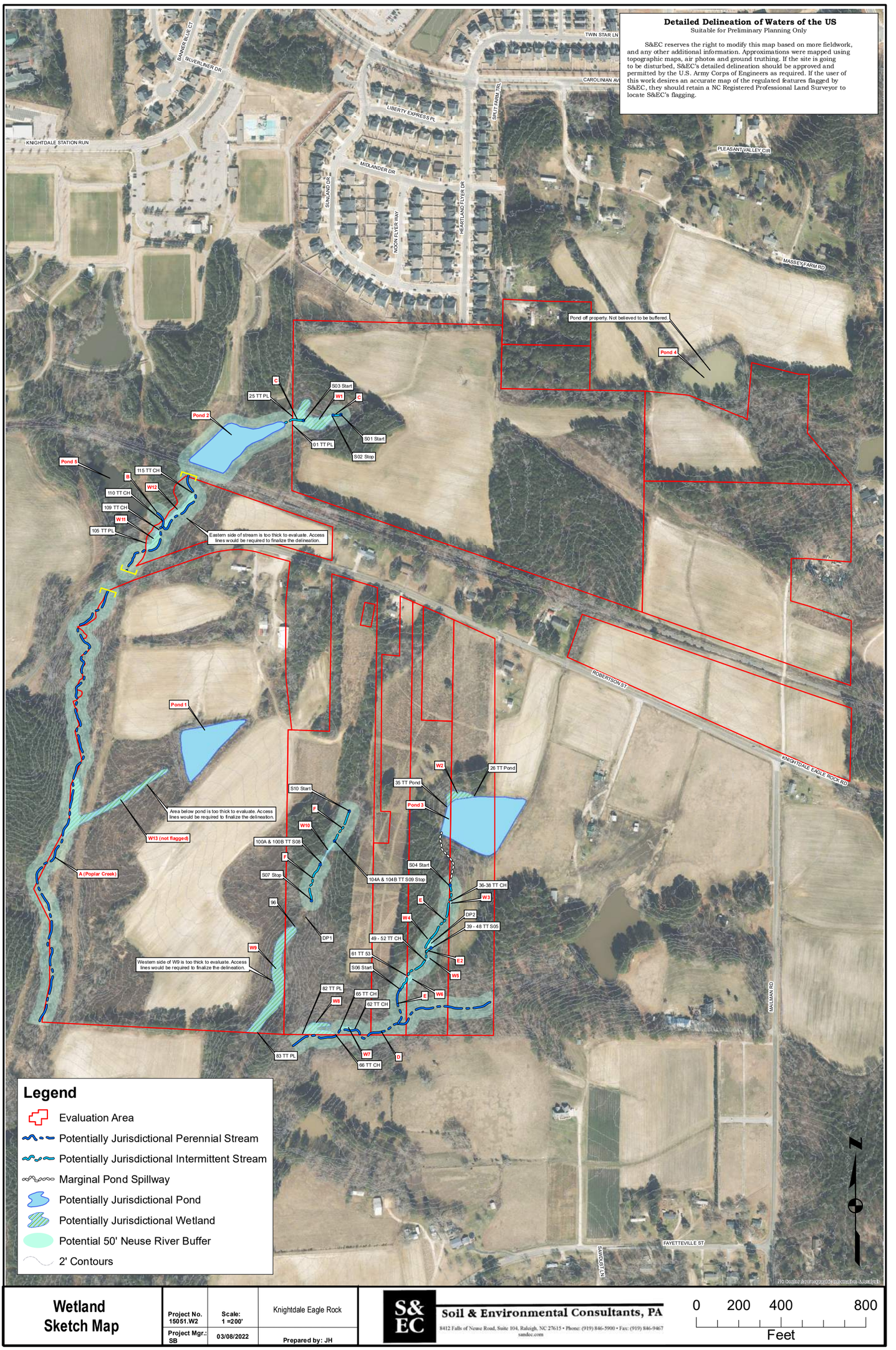
EXISTING CONDITIONS

SCALE 1"=200'

0 200' 400'

LEGEND

- PROPOSED BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- EXISTING CONTOUR
- WETLANDS
- NEUSE RIPARIAN BUFFER



WETLAND EXHIBIT

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NEIGHBORHOOD MEETING

Meeting Sign-in Sheet

Project:	Robertson Crossing	**Meeting Date:**	21-Nov-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
Kevin Lewis	Town of Knightdale Planning Department	919-217-2243	kevin.lewis@knightdalenc.gov
Brian Massengill	1903 N Harrison Ave, Cary NC 27513	919-868-3102	brian@natelli.com
Michael Natelli	1903 N Harrison Ave, Cary NC 27513	301-590-7346	michael@natelli.com
Jeff Hochanadel	5410 Trinity Rd, Suite 102, Raleigh NC 27607	919-866-4511	jeff.hochanadel@timmons.com
Vivian Demarco	1103 Massey Farm Rd, Knightdale NC 27545		
Tacie Hicks			
Jason Brown	706 Sunland Dr, Knightdale, NC 27545		
Chris Kitchen	722 Sunland Drive, Knightdale NC 27545		srhardy70@gmail.com
Tom			
Mark Treml	2013Yates Circle, Knightdale NC 27545	984-78-9255	
Taylor & Matt Norton	615 Heartland Flyer Dr, Knightdale NC 27545	757-652-1843	taylornorton85@gmail.com
Gordon Copeland	592 Heartland Flyer Dr, Knightdale NC 27545		
Abbey			
Jimmy		919-685-6238	jimmypsmail@gmail.com
Tim Griffin	1732 Font Hills Lane, Knightdale NC 27545		tim@griffinwakeinc.com
Dennis Perry	42 Colson Dr, Garner NC 27529		dperry7623@gmail.com
Yeni			
Hilton Weathers	170 Almont St, Mattapan MA 02126-1480	617-296-3651	tjnhw2msn.com
Nancy & Roger Howard	718 Sunland Dr, Knightdale NC 27545		
Shannon Hardy & Billy Barnes			
Jenkins Hilton			

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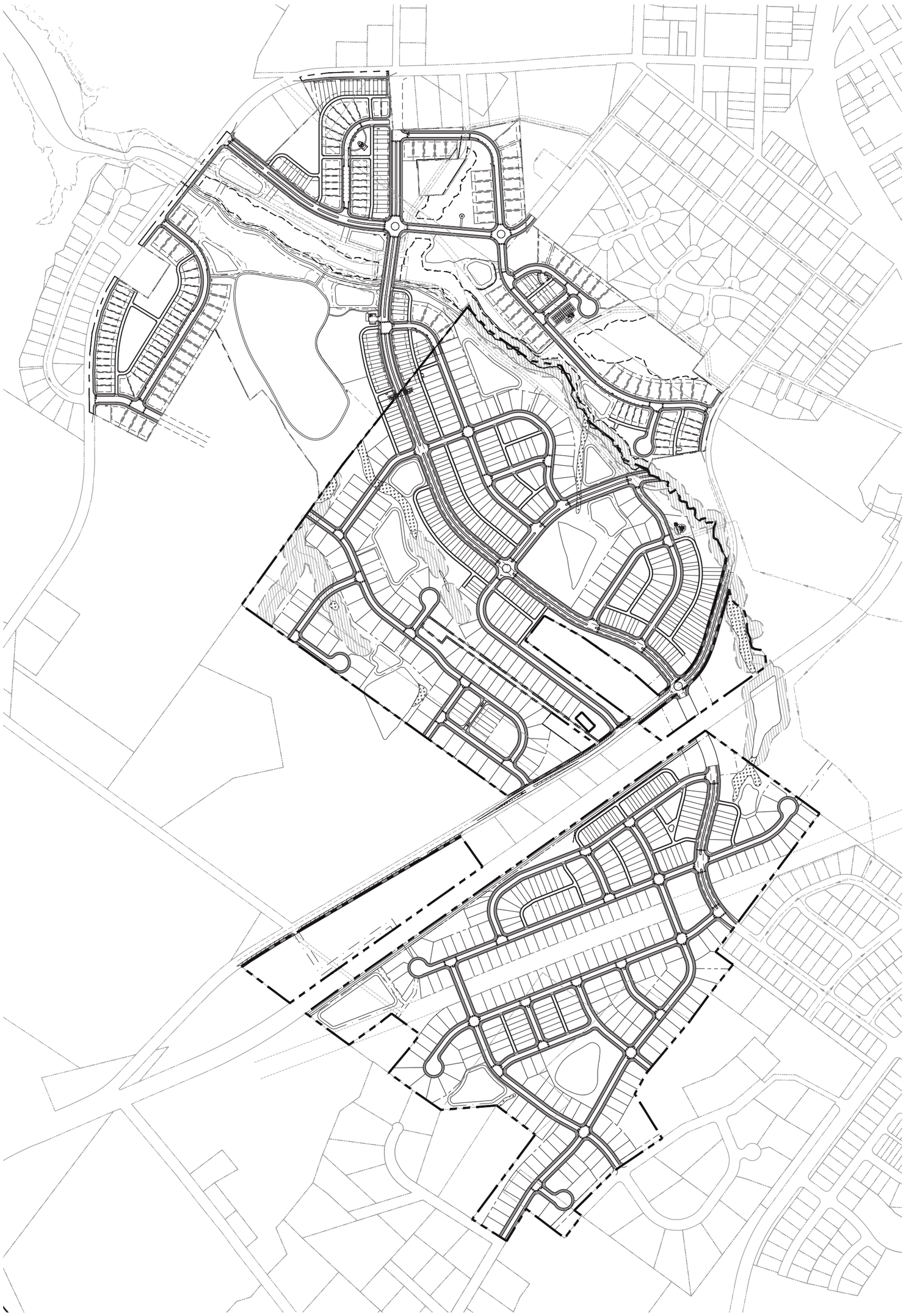
MEETING MINUTES

Summary of Discussion From the Neighborhood Meeting			
Project:	Robertson Crossing	**Meeting Date:**	11/21/2022
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:	It appears that Heartland Flyer Dr. will be the main artery for entry and exit of the northeast portion of the development. Heartland is a narrow street with parking on both sides which leaves one lane to drive thru most of the day. Are you considering utilizing or putting in another street for entry into the new site? Also, do you have an alternative entry for construction traffic during your buildup. Our neighborhood will not appreciate dealing with the issues brought on by construction traffic.
Applicant Response:	We did not put driveways on it. Its median divided on our side. We are hopeful to limit construction. We have two other entrances on the northern section of the site, at Marshall Drive and Massey Farm Rd (gated).
Questions/ Concern #2:	How might this affect Massey Farm Rd?
Applicant Response:	Massey Farm Road is not going to be connected to at this time. This should be a gated emergency entrance.
Questions/ Concern #3:	Also is this going to be a clear cut situation or are some of the buffer or open space going to be left as is?
Applicant Response:	Some of the property will be left as is, where the environmental is. Quite a bit of this is agriculture land that has already been cleared. Knightdale has rules about mass grading and we work to not mass grade some of the site.
Questions/ Concern #4:	Are we connecting the road to Marshall dr in Fieldcrest subdivision?
Applicant Response:	Yes, we are connecting to Marshall drive to get more points of access.
Questions/ Concern #5:	We have an additional question about what percentage is being reserved for open space?
Applicant Response:	12.5 ac open space is required. We are providing 30 acres of open space and this is split between passive improved areas and active improved areas.
Questions/ Concern #6:	How will this project be developed in terms of phases? What land will be graded first?
Applicant Response:	We will definitely phase it but have not figured that out yet. The south side will most likely be in phase one so that we can connect to sewer in the south.
Questions/ Concern #7:	Regarding the Heartland Flyer Dr. question, can you please advise why the NE section of the neighborhood cannot cross the railroad tracks?
Applicant Response:	There is a potential crossing shown with a slope easement. The railroad company was approached early on and would not give us a crossing. In the future, the Town could add an elevated crossing.
Questions/ Concern #8:	Do you plan to pave the road on Marshall dr?
Applicant Response:	Yes, it would need to be brought up to standards, that would be the intention. We are still in the beginning stages of figuring this out
Questions/ Concern #9:	Do you have a builder assigned yet for homes? What will be the price point?
Applicant Response:	We will potentially have more than one builder because the site is so large and the price range would be market rate.
Questions/ Concern #10:	Will you have any visual differences between this development and Knightdale Station in terms of signage or different street sign designs etc.?
Applicant Response:	Yes, we would put signs up to identify the new community. We want to separate the two developments. We haven't gotten to that level of detail yet.
Questions/ Concern #11:	Will you be developing the public greenway that runs along the railroad?
Applicant Response:	Yes
Questions/ Concern #12:	Will there be a greenway to Knightdale Station Park?
Applicant Response:	Yes, we plan on stubbing a trail head toward the park



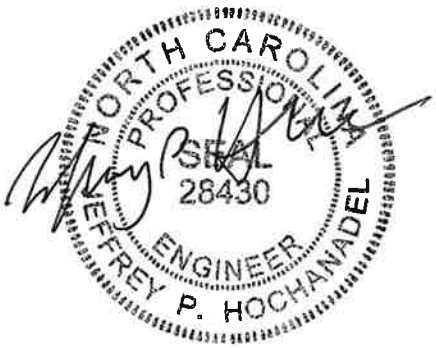
COMPOSITE PLANS

Robertson Street Assemblage

Traffic Impact Analysis

Knightdale, North Carolina

October 2022



10/26/22

Prepared for:

Natelli Communities

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Contact: Jeff Hochanadel, PE, PTOE

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1 INTRODUCTION

This report presents the proposed Robertson Street Assemblage residential and commercial development Traffic Impact Analysis (TIA) findings. The development will be located north and south of Robertson Street (east of North First Avenue), in Knightdale, NC (see **Figure 1-1**). The proposed development will be built in one phase and will consist of the following:

- 176 townhouse units
- 491 single family houses
- 3,000 SF daycare center
- 5,000 SF medical / dental office building
- 7,000 SF general office building
- 2,000 SF high-turnover sit-down restaurant
- 2,000 SF high-turnover sit-down restaurant

Development construction is proposed to be completed by 2027. Analyses will be performed for the first and tenth years after the build-out year, or 2028 and 2038.

Analyses were completed for the following scenarios:

- 2022 Existing;
- 2028 Background;
- 2028 Build (Background + site trips);
- 2028 Build + Improvements (Background + site trips); and
- 2038 Build (Background + site trips).

The TIA's purpose is to verify that the existing geometry provided within the study area is sufficient to accommodate the projected traffic volumes, and to determine what, if any, improvements are necessary at the proposed site driveway connections.

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 hour turning movement counts were collected in December 2021, January 2022, May 2022, and June 2022 at the following intersections:

    - US-64 Business (Knightdale Boulevard) / Carolinian Avenue;
    - Knightdale Station Run / Carolinian Avenue;
    - Knightdale Station Run / First Avenue;
    - Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane;
    - Marks Creek Road / Marshall Drive;
    - First Avenue / Poplar Street;
    - SR-2500 (Robertson Street) / First Avenue;
    - SR-2500 (Robertson Street) / Keith Street;
    - SR-2500 (Robertson Street) / SR-2500 (Knightdale Eagle Rock Road) / SR-2514 (Mailman Road);
    - SR-2501 (Knightdale Eagle Rock Road) / SR-2500 (Marks Creek Road); and
    - SR-2233 (Smithfield Road) / First Avenue.

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*. The proposed development trip generation was calculated following the NCDOT trip generation standards and practices. Projected 2028 traffic volumes were calculated using a 3% ambient growth rate where projected 2038 traffic volumes were calculated using a 1% growth rate between 2028 and 2038. Per

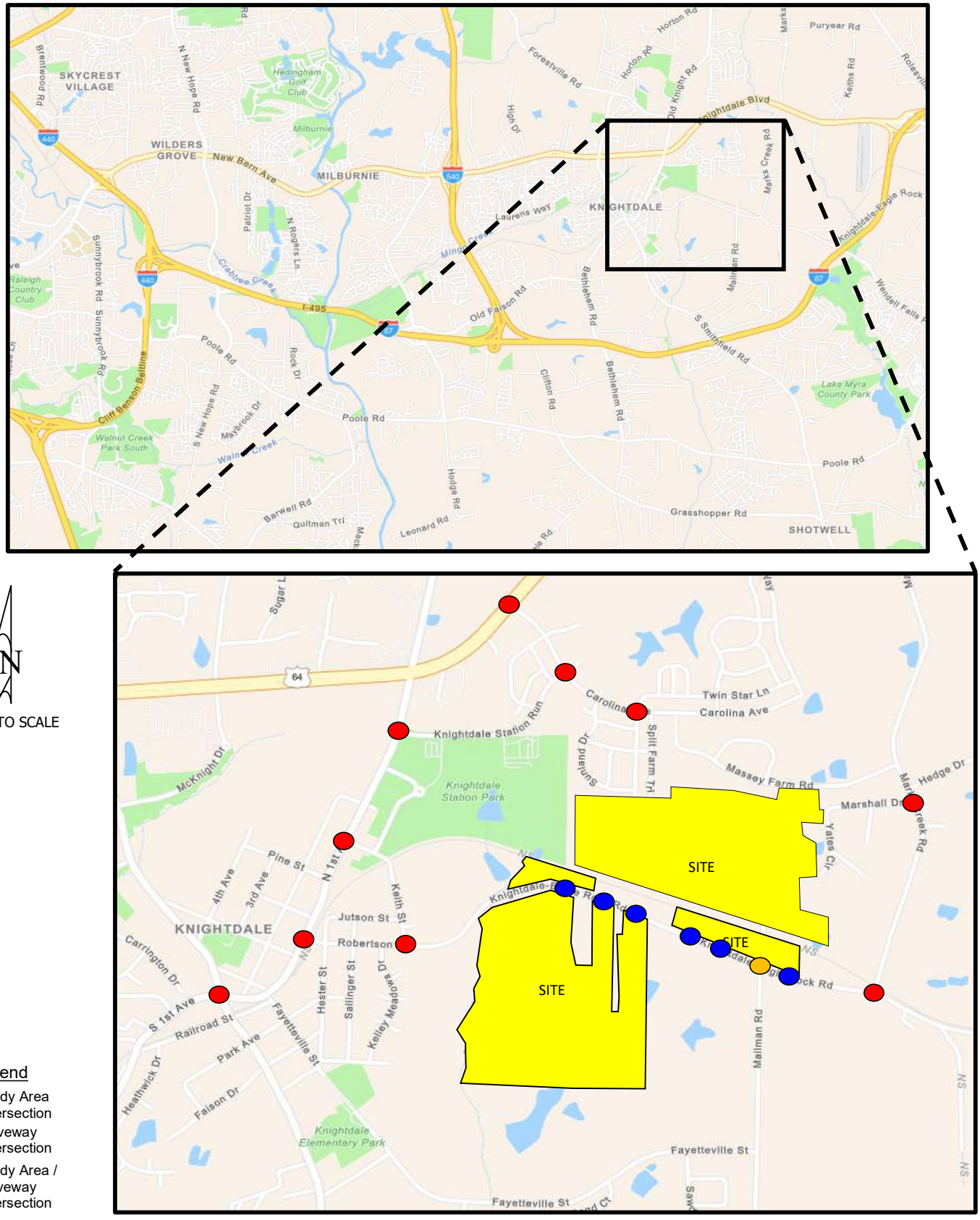
the scoping information (see **Appendix A**), there are currently two (2) approved developments within the project study area, Smithfield Mixed Use Development and The Collection Development.

3. Trip Distribution and Projections – The site-generated trip distribution was based on the existing area traffic distribution and Engineering judgement. It was assumed, for purposes of analysis, that projected trips would follow similar patterns as existing traffic.

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

   - US-64 Business (Knightdale Boulevard) / Carolinian Avenue;
   - Knightdale Station Run / Carolinian Avenue;
   - Knightdale Station Run / First Avenue;
   - Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane;
   - Marks Creek Road / Marshall Drive;
   - First Avenue / Poplar Street;
   - SR-2500 (Robertson Street) / First Avenue;
   - SR-2500 (Robertson Street) / Keith Street;
   - SR-2500 (Robertson Street) / Site Access 1;
   - SR-2500 (Robertson Street) / Site Access 2;
   - SR-2500 (Robertson Street) / Site Access 3;
   - SR-2500 (Robertson Street) / Site Access 4;
   - SR-2500 (Robertson Street) / Site Access 5;
   - SR-2500 (Robertson Street) / SR-2500 (Knightdale Eagle Rock Road) / SR-2514 (Mailman Road) / Site Access 6;
   - SR-2500 (Robertson Street) / Site Access 7;
   - SR-2501 (Knightdale Eagle Rock Road) / SR-2500 (Marks Creek Road); and
   - SR-2233 (Smithfield Road) / First Avenue.

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



N

NOT TO SCALE

Legend

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

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Robertson Street Assemblage Traffic Impact Analysis

Site Location Map

Figure 1-1

2 EXISTING INFORMATION

The proposed development will be located north and south of Robertson Street (east of First Avenue), in Knightdale, NC, as shown on **Figure 1-1**.

2.1 STUDY LIMITS

Access to the proposed northern residential site section will be provided by connections to two (2) existing roads, Heartland Flyer Drive and Marshall Drive.

Access to the proposed southern residential site section will be provided via three (3) full access connections to SR-2500 (Robertson Street).

- **Site Access 1** will connect to Robertson Street approximately 2,630 feet (C/L to C/L) west of Mailman Road.
- **Site Access 2** will connect to Robertson Street approximately 2,200 feet (C/L to C/L) west of Mailman Road.
- **Site Access 3** will connect to Robertson Street approximately 1,400 feet (C/L to C/L) west of Mailman Road.

Access to the proposed commercial site section will be provided via four (4) full access connections to SR-2500 (Robertson Street).

- **Site Access 4** will connect to Robertson Street approximately 1,060 feet (C/L to C/L) west of Mailman Road.
- **Site Access 5** will connect to Robertson Street approximately 850 feet (C/L to C/L) west of Mailman Road.
- **Site Access 6** will connect to Robertson Street directly across from Mailman Road.
- **Site Access 7** will connect to Robertson Street approximately 285 feet (C/L to C/L) east of Mailman Road.

Site accesses are shown graphically in **Figure 1-1** and the preliminary site layout in **Figure 2-1** (all figures are located at the end of their respective chapter).

The study limits include the following seventeen (17) intersections:

- US-64 Business (Knightdale Boulevard) / Carolinian Avenue;
- Knightdale Station Run / Carolinian Avenue;
- Knightdale Station Run / First Avenue;
- Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane;
- Marks Creek Road / Marshall Drive;
- First Avenue / Poplar Street;
- SR-2500 (Robertson Street) / First Avenue;
- SR-2500 (Robertson Street) / Keith Street;
- SR-2500 (Robertson Street) / Site Access 1;
- SR-2500 (Robertson Street) / Site Access 2;
- SR-2500 (Robertson Street) / Site Access 3;
- SR-2500 (Robertson Street) / Site Access 4;
- SR-2500 (Robertson Street) / Site Access 5;
- SR-2500 (Knightdale Eagle Rock Road) / SR-2514 (Mailman Road) / Site Access 6;
- SR-2500 (Robertson Street) / Site Access 7;

- SR-2500 (Robertson Street) / SR-2501 (Knightdale Eagle Rock Road) / SR-2500 (Marks Creek Road); and
- SR-2233 (Smithfield Road) / First Avenue.

2.2 EXISTING ROADWAYS

US-64 Business (Knightdale Boulevard) is a four-lane divided facility that runs approximately east-west within the study area. The facility, classified as a principal arterial, connects to Wendell in the east and Raleigh in the west. Knightdale Boulevard has a posted 45-mph speed limit. Per 2020 NCDOT Average Annual Daily Traffic (AADT) maps, Knightdale Boulevard carries 16,000 vehicles per day (VPD) east of First Avenue.

Carolinian Avenue is a two-lane divided facility that runs north-south at Knightdale Boulevard and east-west at Heartland Flyers Drive. The facility, classified as a local roadway, connects to Business US-64 (Knightdale Boulevard) and has a posted 25-mph speed limit. No AADT data is available for this facility.

Knightdale Station Run is a two-lane undivided facility that runs approximately east-west within the study area. The facility, classified as a local roadway, has a posted 25-mph speed limit. No AADT data is available for this facility.

Heartland Flyer Drive is a two-lane undivided facility that runs approximately north-south within the study area. The facility, classified as a local roadway, connects to Carolinian Avenue to the north. Heartland Flyer Drive has a posted 25-mph speed limit. No AADT data is available for this facility.

Twin Star Lane is a two-lane undivided facility that connects to Carolinian Avenue. The facility, classified as a local roadway, has a posted 25-mph speed limit. No AADT data is available for this facility.

SR-2049 (First Avenue) is a two-lane facility that runs approximately north-south within the study area. The facility, classified as a major collector, has a posted 25-mph speed limit. Per 2020 NCDOT AADT maps, First Avenue carries 6,300 VPD south of Knightdale Boulevard.

Poplar Street is a two-lane undivided facility that runs approximately east-west within the study area. The facility, classified as a local roadway, has a posted 15-mph speed limit. No AADT data is available for this facility.

Keith Street is a two-lane undivided facility that runs approximately north-south within the study area. The facility, classified as a local roadway, has a posted 25-mph speed limit. No AADT data is available for this facility.

SR-2500 (Robertson Street) is a two-lane facility that runs approximately east-west within the study area. The facility, classified as a major collector, has a variable posted speed limit, ranging from 25-mph in the west, 35-mph in the middle, and 45-mph in the east. Per 2020 NCDOT AADT maps, Robertson Street carries 2,600 VPD, east of First Avenue.

SR-2501 (Knightdale Eagle Rock Road) is a two-lane divided facility that runs approximately east-west within the study area. The facility, classified as major collector, connects to Robertson Street at Mailman Road. Knightdale Eagle Rock Road has a posted 45-mph speed limit. Per 2020 NCDOT AADT maps, Knightdale Eagle Rock Road carries 2,600 VPD.

SR-2500 (Marks Creek Road) is a two-lane divided facility that runs approximately north-south within the study area. The facility, classified as a local roadway, has a posted 45-mph speed limit. Per 2020 NCDOT AADT maps, Marks Creek Road carries 500 VPD, north of Knightdale Eagle Rock Rd.

Marshall Drive is a two-lane undivided facility that runs approximately east-west within the study area. The facility, classified as a local roadway, has a posted 25-mph speed limit. No AADT data is available for this facility.

SR-2514 (Mailman Road) is a two-lane facility that runs approximately north-south within the study area. The facility, classified as a local roadway, has no posted speed limit. Per the NCDOT Statutory Speed Limit Map, the assumed speed limit is 55-mph. Per 2020 NCDOT AADT maps, Mailman Road carries 500 VPD, south of Robertson Street.

SR-2233 (Smithfield Road) is a two-lane facility that runs approximately north-south within the study area. The facility, classified as a minor arterial, has a posted 35-mph speed limit. Per 2020 NCDOT AADT maps, Smithfield Road carries 6,100 VPD, south of First Avenue.

2.3 EXISTING INTERSECTIONS

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

Knightdale Boulevard / Carolinian Avenue is a three-phased signalized T-intersection with protected / permissive westbound left-turn phasing. The northbound approach consists of two exclusive left-turn lanes and an exclusive right-turn lane. The eastbound approach consists of an exclusive U-turn lane, two through lanes, and an exclusive right-turn lane. The westbound approach consists of an exclusive left-turn lane and two through lanes.

Knightdale Station Run / Carolinian Avenue is a single-lane roundabout. The north, south, east, and westbound approaches consist of a single right-turn only lane.

First Avenue / Knightdale Station Run is an unsignalized T-intersection with the westbound Knightdale Station Run approach encountering the stop condition. The northbound approach consists of a shared through / right-turn lane. The southbound approach consists of an exclusive left-turn lane and a single through lane. The westbound approach consists of exclusive left and right-turn lanes.

Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane is an unsignalized intersection with the northbound Heartland Flyer Drive and southbound Twin Star Lane approaches encountering the stop condition. All four approaches consist of a single shared left / through / right-turn lane.

Marshall Drive / Marks Creek Road is an unsignalized T-intersection with the eastbound Marshall Drive approach encountering the stop condition. The northbound approach consists of a shared through / left-turn lane. The southbound approach consists of a shared through / right-turn lane. The eastbound approach consists of a shared left / right-turn lane.

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

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

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

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

Knightdale Eagle Rock Road / Marks Creek Road is an unsignalized T-intersection with the southbound approach encountering the stop condition. The southbound approach consists of a shared left / right-turn lane. The eastbound approach consists of a shared through / left-turn lane. The westbound approach consists of a shared through / right-turn lane.

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

2.4 TRAFFIC VOLUMES

Timmons Group calculated peak hour volumes at the study area intersections using the collected AM (7:00 a.m. – 9:00 a.m.) and PM (4:00 p.m. – 6:00 p.m.) peak period turning movements counts undertaken in December 2021, January 2022, May 2022, and June 2022. Collected traffic count data is summarized in **Figure 2-3**. The complete traffic count data is found in **Appendix B**.

2.5 CAPACITY ANALYSIS

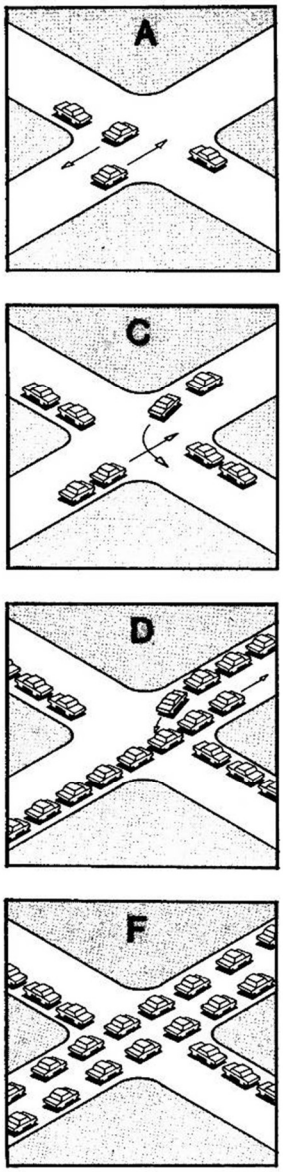
Using field observations, aerial photography, and traffic count data, traffic operations were analyzed during 2022 (existing), 2028 (without and with the proposed development site trips), and 2038 (with the proposed development site trips).

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. Synchro is 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
- Signal data found in the provided traffic signal plans (see **Appendix C**).

COMMUNITY MASTER PLAN

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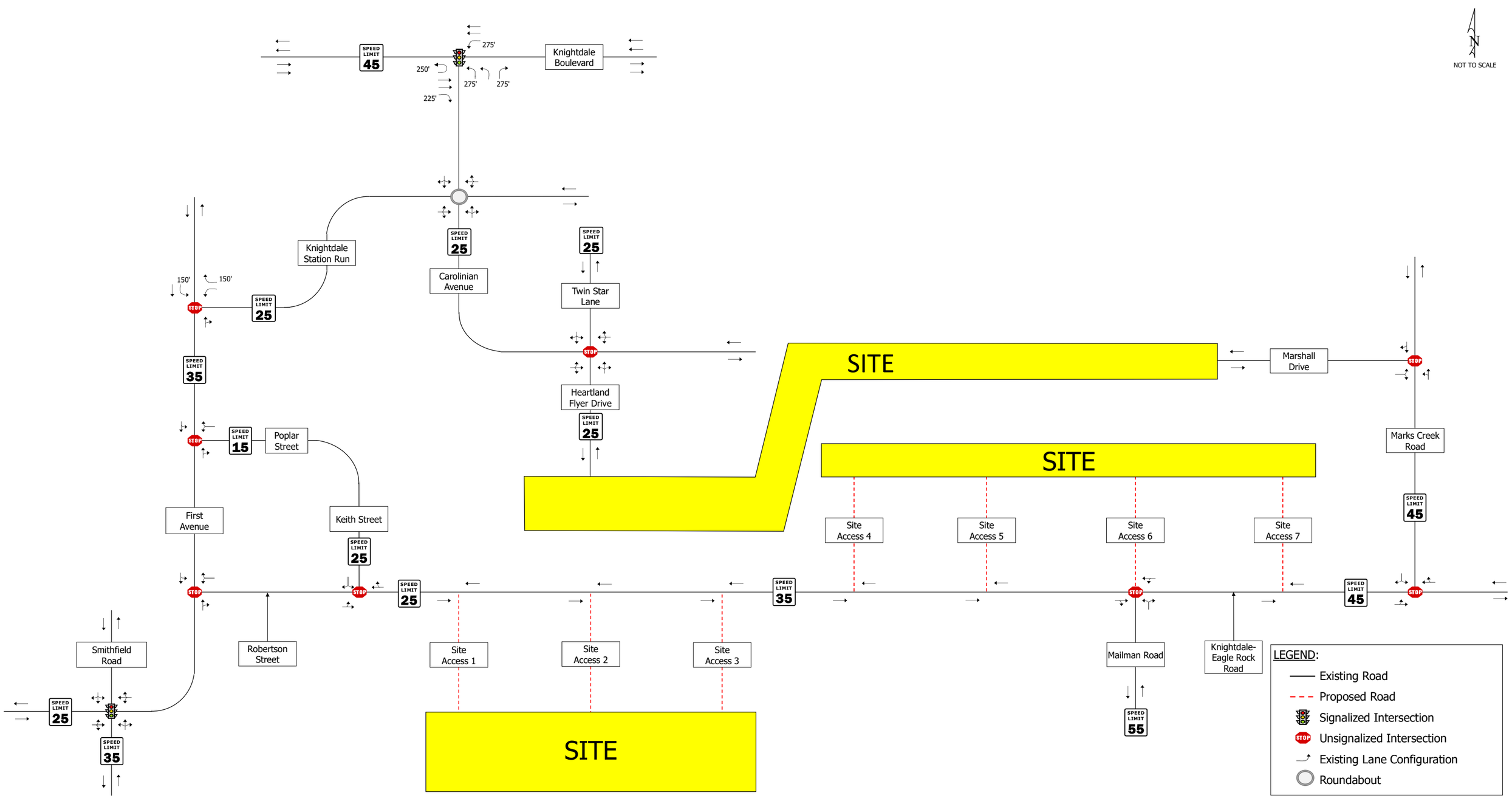
Robertson Street Assemblage Traffic Impact Analysis
Site Plan

Figure 2-1



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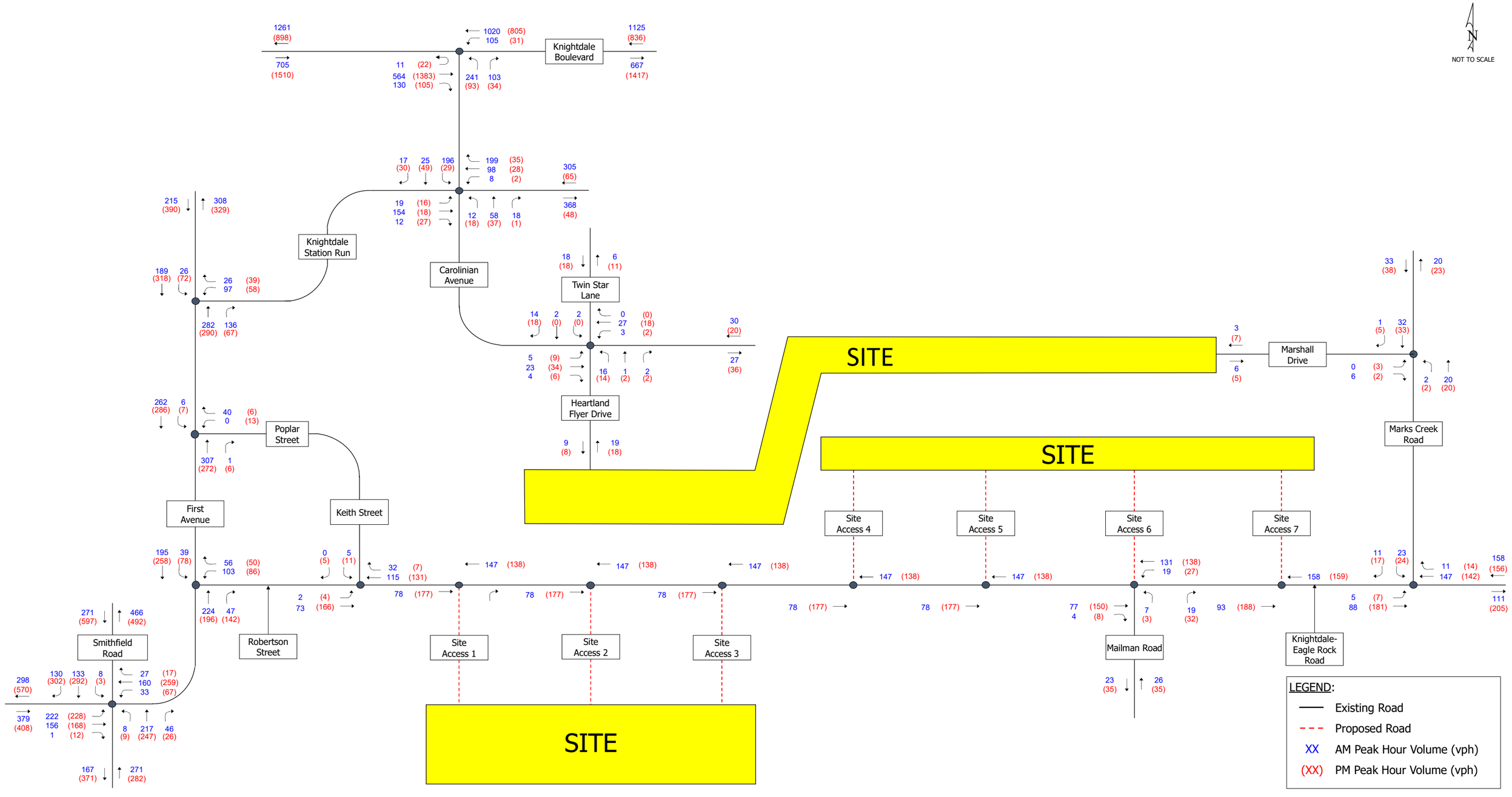
Robertson Street Assemblage Traffic Impact Analysis

2022 Existing Lane Configuration

Figure 2-2



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Robertson Street Assemblage 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, based on the geometry shown in **Figure 2-2** and the 2022 Existing traffic volumes shown in **Figure 2-3**. **Table 3-2** summarizes the 2022 Existing roundabout LOS, delay, and volume / capacity (V/C) ratios. The corresponding SYNCHRO and SIDRA output is included in **Appendix D**.

The signalized intersection of Carolinian Avenue and Knightdale Boulevard is currently operating at an overall LOS B during both 2022 Existing AM and PM peak hours. All intersection approaches are currently operating at a LOS C or better during both peak hours.

The Carolinian Avenue / Knightdale Station Run roundabout is currently operating at an overall A during both 2022 Existing AM and PM peak hours. All approaches are currently operating at a LOS A during both peak hours. All approaches are projected to have a maximum 0.278 V/C ratio during both peak hours. Per NCDOT guidelines, roundabouts are considered to operate unacceptably when the V/C ratio is greater than 0.85.

All First Avenue / Knightdale Station Run unsignalized intersection approaches are currently operating at a LOS C or better during the 2022 Existing AM and PM peak hours.

All Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane unsignalized intersection approaches are currently operating at a LOS A during the 2022 Existing AM and PM peak hours.

All Marks Creek Road / Marshall Drive unsignalized intersection approaches are currently operating at a LOS A during the 2022 Existing AM and PM peak hours.

All First Avenue / Poplar Street unsignalized intersection approaches are currently operating at a LOS B or better during the 2022 Existing AM and PM peak hours.

All Robertson Street / N First Avenue unsignalized intersection approaches are currently operating at a LOS C or better during the 2022 Existing AM and PM peak hours.

All Robertson Street / Keith Street unsignalized intersection approaches are currently operating at a LOS B or better during the 2022 Existing AM and PM peak hours.

All Robertson Street / Knightdale Eagle Rock Road / Mailman Road unsignalized intersection approaches are currently operating at a LOS A during the 2022 Existing AM and PM peak hours.

All Knightdale Eagle Road / Marks Creek Road unsignalized intersection are currently operating at a LOS B or better during the 2022 Existing AM and PM peak hours.

The signalized intersection of Smithfield Road and First Avenue is currently operating at an overall LOS B and LOS D during the 2022 Existing AM and PM peak hours, respectively. All intersection approaches are currently operating at a LOS D 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: Carolinian Ave & Knightdale Blvd	EB Approach	12.5	B	12.0	B
	WB Approach	7.5	A	4.0	A
	NB Approach	17.0	B	27.5	C
	Overall	10.6	B	10.1	B
3: First Ave & Knightdale Station Run	WB Approach	15.3	C	16.4	C
	NB Approach	0.0	A	0.0	A
	SB Approach	1.0	A	1.5	A
4: Heartland Flyer Drive/Twin Star Lane & Carolinian Ave	EB Approach	1.1	A	1.3	A
	WB Approach	0.8	A	1.1	A
	NB Approach	9.2	A	9.3	A
	SB Approach	8.8	A	8.8	A
5: Marks Creek Rd & Marshall Dr	EB Approach	8.7	A	8.7	A
	NB Approach	1.2	A	1.2	A
	SB Approach	0.0	A	0.0	A
6 First Ave & Poplar St	WB Approach	10.9	B	12.5	B
	NB Approach	0.0	A	0.0	A
	SB Approach	0.2	A	0.2	A
7: First Ave & Robertson St	WB Approach	15.0	C	18.0	C
	NB Approach	0.0	A	0.0	A
	SB Approach	1.3	A	1.9	A
8: Robertson St & Keith St	EB Approach	0.4	A	0.2	A
	WB Approach	0.0	A	0.0	A
	SB Approach	9.5	A	10.2	B
14: Mailman Rd & Robertson St/Knightdale Eagle Rock Rd	EB Approach	0.0	A	0.0	A
	WB Approach	0.9	A	1.2	A
	NB Approach	9.2	A	9.6	A
16: Knightdale Eagle Rock Rd & Marks Creek Rd	EB Approach	0.4	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.0	B	10.5	B
17: Smithfield Rd & First Ave	EB Approach	17.7	B	50.7	D
	WB Approach	9.1	A	19.2	B
	NB Approach	18.5	B	17.7	B
	SB Approach	20.4	C	46.6	D
	Overall	16.8	B	36.9	D

[1] *Overall intersection LOS and delay not reported for TWSC intersections.*

* - 95th percentile queues for unsignalized intersections reported in number of vehicles.

Table 3-2: Intersection Level of Service, Delay, and V/C Ratio Summary
2022 Existing Traffic Volumes

Intersection and Type of Control	Movement and Approach	AM PEAK HOUR			PM PEAK HOUR		
		Delay [1] (sec/veh)	LOS [1]	V/C	Delay [1] (sec/veh)	LOS [1]	V/C
2: Carolinian Avenue / Knightdale Station Run	EB Approach	5.3	A	0.198	3.4	A	0.055
	WB Approach	5.5	A	0.278	3.4	A	0.060
	NB Approach	5.1	A	0.111	3.3	A	0.052
	SB Approach	5.0	A	0.224	3.6	A	0.094
	Overall	5.3	A	0.278	3.4	A	0.094

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

3.2 2028 AND 2038 BACKGROUND TRAFFIC VOLUMES

Figure 3-1 and **Figure 3-2** show the 2028 and 2038 ambient traffic volumes, respectively. Ambient volumes were calculated using a 3% growth rate for six and 1% growth rate for the subsequent 10 years.

Per the scoping information (see **Appendix A**), there are two (2) approved development in the project study area that will be fully constructed by 2028: Smithfield Mixed Use Development and the Collection Development (see **Appendix E**).

Listed below are the approved developments, site trip distribution assumptions, and proposed offsite 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 multifamily housing (apartments), and 16,600 square-foot retail space
  - Trip distribution assumed to follow patterns in existing TIA and Engineering judgement

- The Collection Development
  - No TIA completed
  - Traffic memorandum completed by VHB (09/03/2019)
  - Located east of Keith Street and north of Robertson Street
  - 57 single-family detached housing, 32 multifamily 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**. Approved development trips were added to the 2028 ambient volumes (**Figure 3-1**) to determine the 2028 Background traffic volumes (see **Figure 3-4**). Approved development trips were added to the 2038 ambient volumes (**Figure 3-2**) to determine the 2038 Background traffic volumes (see **Figure 3-5**).

3.3 2028 BACKGROUND ANALYSIS

Table 3-3 summarizes the 2028 Background intersection LOS and delay based on the geometry shown in **Figure 2-2** and the 2028 Background traffic volumes shown in **Figure 3-4**. **Table 3-4** summarizes the 2028 Background roundabout LOS, delay, and V/C ratios. The corresponding SYNCHRO and SIDRA output is included in **Appendix D**.

The signalized intersection of Carolinian Avenue and Knightdale Boulevard is projected to operate at an overall LOS B during both 2028 Background AM and PM peak hours. All intersection approaches are projected to operate at a LOS C or better during both peak hours.

The Carolinian Avenue / Knightdale Station Run roundabout is projected to operate at an overall A during both 2028 Background AM and PM peak hours. All approaches are projected to operate at a LOS A during both peak hours. All approaches are projected to have a maximum 0.339 V/C ratio during both peak hours.

All First Avenue / Knightdale Station Run unsignalized intersection approaches are projected to operate at a LOS C or better during the 2028 Background AM and PM peak hours.

All Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane unsignalized intersection approaches are projected to operate at a LOS A during the 2028 Background AM and PM peak hours.

All Marks Creek Road / Marshall Drive unsignalized intersection approaches are projected to operate at a LOS A during the 2028 Background AM and PM peak hours.

All First Avenue / Poplar Street unsignalized intersection approaches are projected to operate at a LOS B or better during the 2028 Background AM and PM peak hours.

All Robertson Street / N First Avenue unsignalized intersection approaches are projected to operate at a LOS D or better during the 2028 Background AM and PM peak hours.

All Robertson Street / Keith Street unsignalized intersection approaches are projected to operate at a LOS B or better during the 2028 Background AM and PM peak hours.

All Robertson Street / Knightdale Eagle Rock Road / Mailman Road unsignalized intersection approaches are projected to operate at a LOS B or better during the 2028 Background AM and PM peak hours.

All Knightdale Eagle Road / Marks Creek Road unsignalized intersection are projected to operate at a LOS B or better during the 2028 Background AM and PM peak hours.

The signalized intersection of Smithfield Road and First Avenue is projected to operate at an overall LOS C and LOS F during the 2028 Background AM and PM peak hours, respectively. The east and southbound approaches are projected to operate at LOS F during the 2028 PM peak hour. All other intersection approaches are projected to operate at a LOS C or better during both peak hours.

Table 3-3: Intersection Level of Service and Delay Summary
2028 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: Carolinian Ave & Knightdale Blvd	EB Approach	13.8	B	17.1	B
	WB Approach	8.4	A	4.1	A
	NB Approach	20.5	C	30.2	C
	Overall	12.0	B	13.4	B
3: First Ave & Knightdale Station Run	WB Approach	20.4	C	22.7	C
	NB Approach	0.0	A	0.0	A
	SB Approach	1.0	A	1.5	A
4: Heartland Flyer Drive/Twin Star Lane & Carolinian Ave	EB Approach	1.2	A	1.4	A
	WB Approach	0.7	A	1.0	A
	NB Approach	9.3	A	9.4	A
	SB Approach	8.9	A	8.8	A
5: Marks Creek Rd & Marshall Dr	EB Approach	8.7	A	8.8	A
	NB Approach	0.9	A	0.9	A
	SB Approach	0.0	A	0.0	A
6: First Ave & Poplar St	WB Approach	11.9	B	14.1	B
	NB Approach	0.0	A	0.0	A
	SB Approach	0.3	A	0.5	A
7: First Ave & Robertson St	WB Approach	21.4	C	30.4	D
	NB Approach	0.0	A	0.0	A
	SB Approach	1.5	A	2.2	A
8: Robertson St & Keith St	EB Approach	0.4	A	0.5	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.3	B	11.3	B
14: Mailman Rd & Robertson St/Knightdale Eagle Rock Rd	EB Approach	0.0	A	0.0	A
	WB Approach	0.9	A	1.2	A
	NB Approach	10.2	B	10.6	B
16: Knightdale Eagle Rock Rd & Marks Creek Rd	EB Approach	0.7	A	0.4	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.6	B	11.2	B
17: Smithfield Rd & First Ave	EB Approach	27.0	C	***130.0***	***F***
	WB Approach	10.4	B	32.3	C
	NB Approach	28.8	C	30.7	C
	SB Approach	30.1	C	***123.7***	***F***
	Overall	25.1	C	***89.6***	***F***

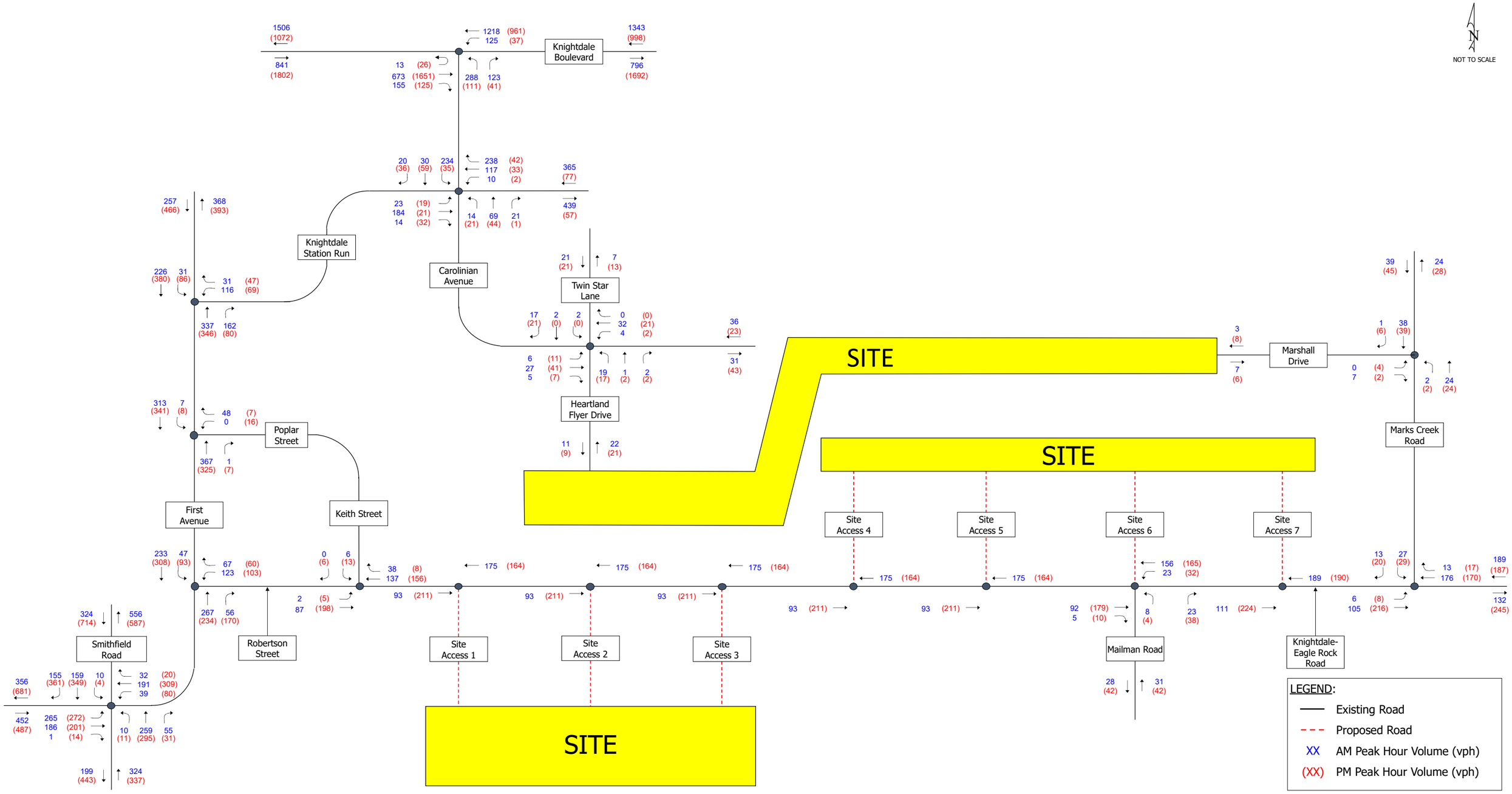
[1] *Overall intersection LOS and delay not reported for TWSC intersections.*

* - 95th percentile queues for unsignalized intersections reported in number of vehicles.

Table 3-4: Intersection Level of Service, Delay, and V/C Ratio Summary
2028 Background Traffic Volumes

Intersection and Type of Control	Movement and Approach	AM PEAK HOUR			PM PEAK HOUR		
		Delay [1] (sec/veh)	LOS [1]	V/C	Delay [1] (sec/veh)	LOS [1]	V/C
2: Carolinian Avenue / Knightdale Station Run	EB Approach	6.1	A	0.249	3.5	A	0.066
	WB Approach	6.2	A	0.339	3.5	A	0.071
	NB Approach	5.9	A	0.142	3.4	A	0.062
	SB Approach	5.7	A	0.275	3.8	A	0.114
	Overall	6.0	A	0.339	3.6	A	0.114

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



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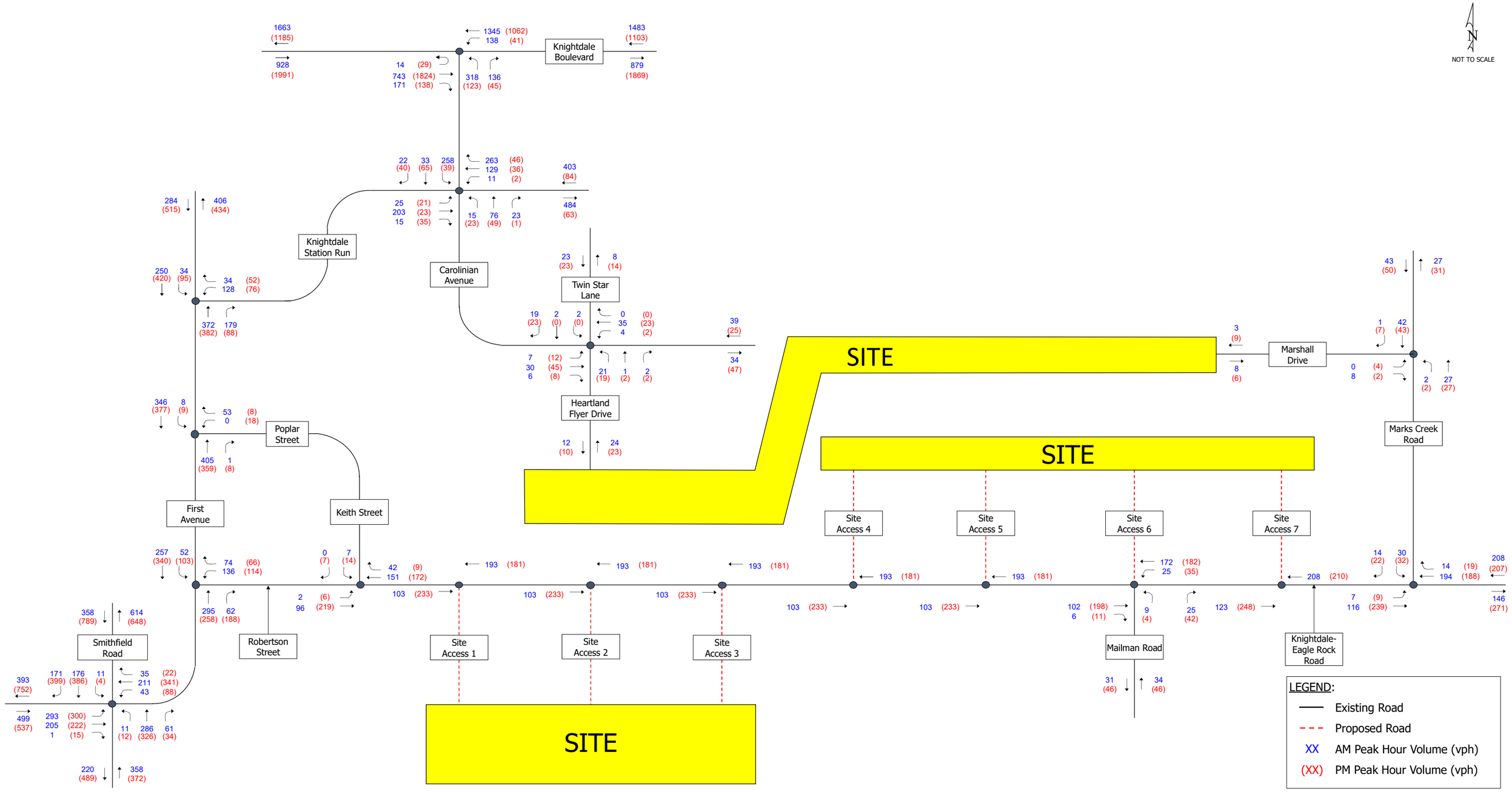
Robertson Street Assemblage Traffic Impact Analysis

2028 Ambient Traffic Volumes

Figure 3-1



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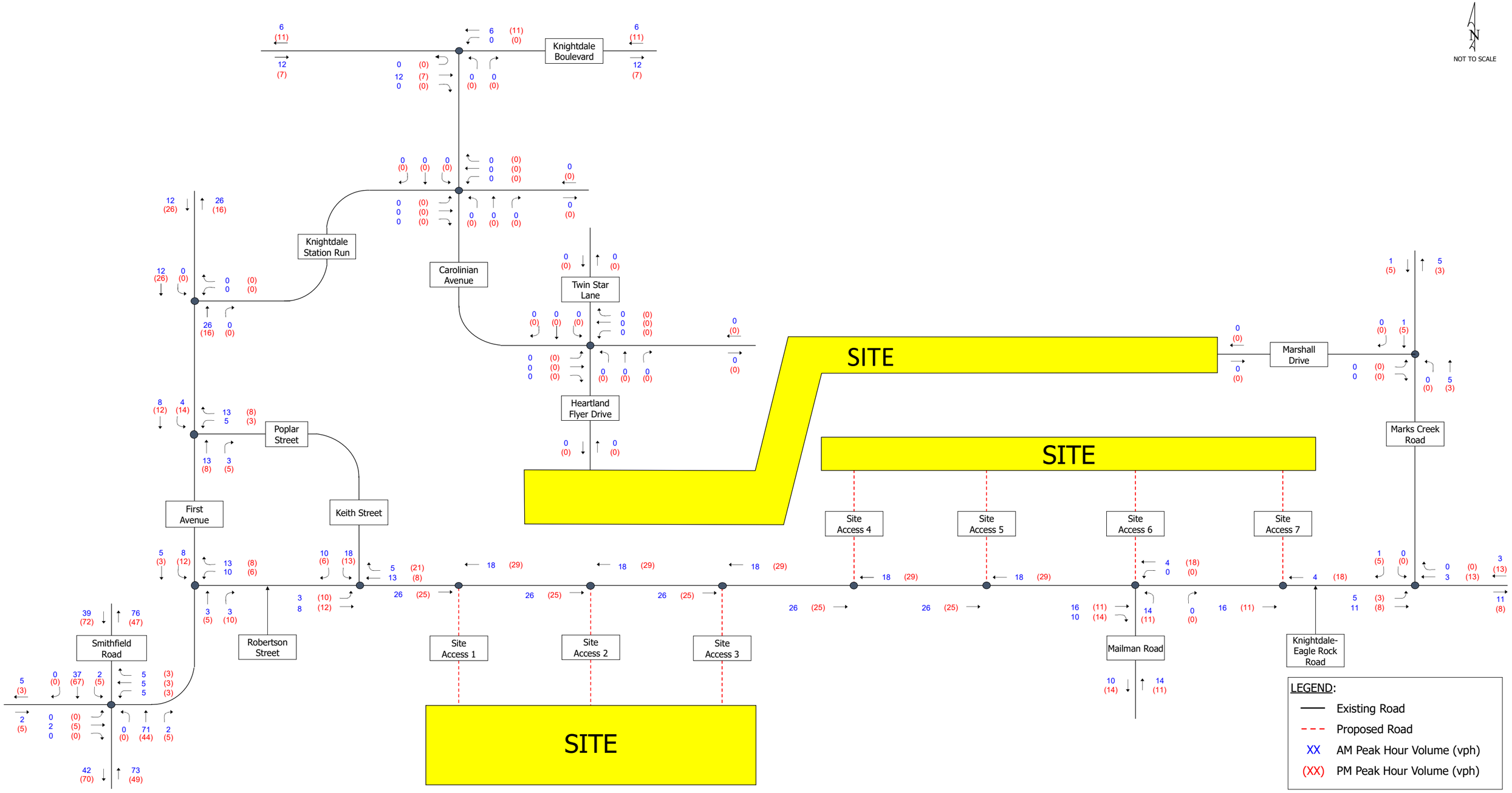
2038 Ambient Traffic Volumes

Figure 3-2



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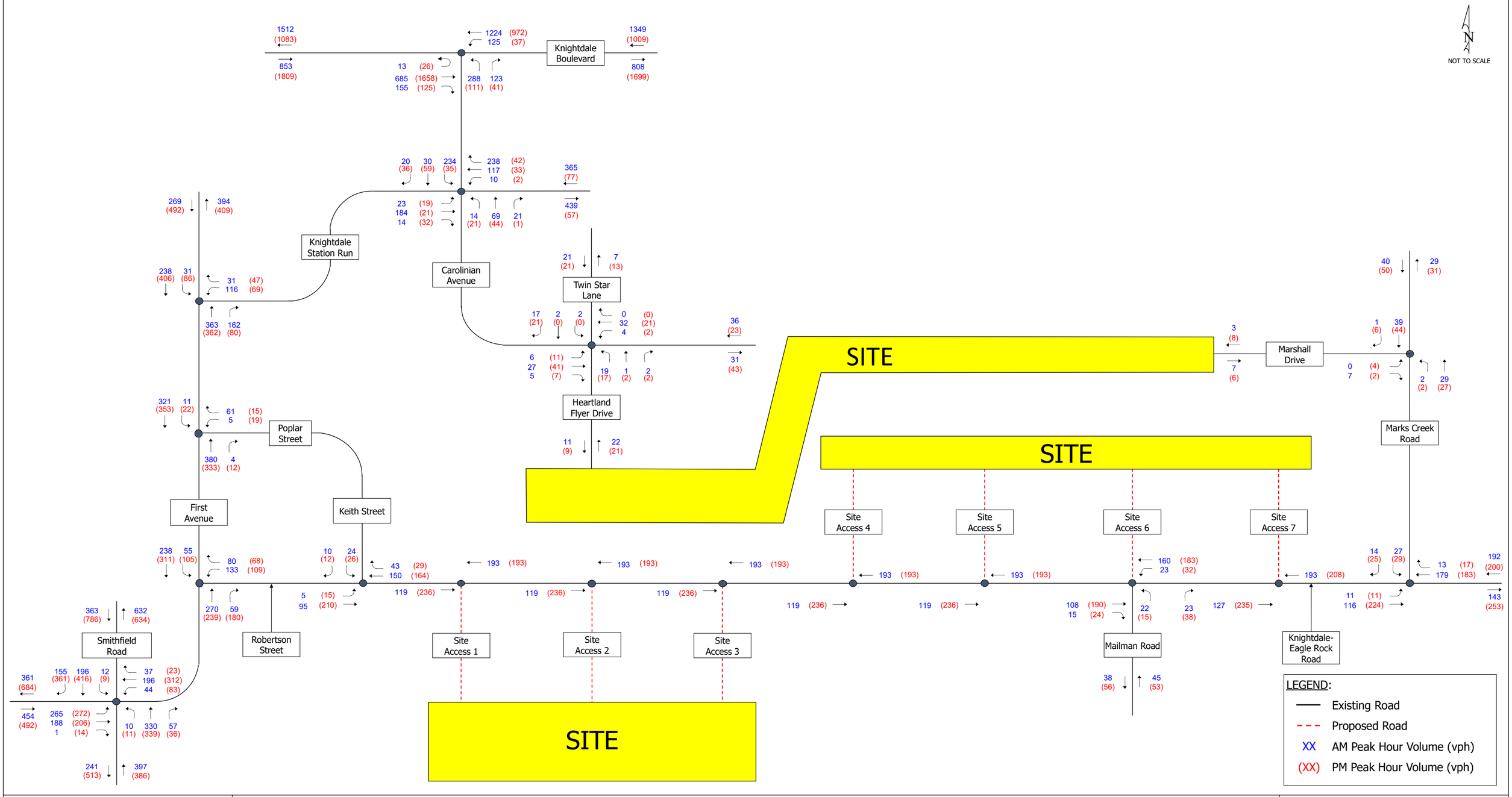
Robertson Street Assemblage Traffic Impact Analysis

Approved Development Trip Distribution Volumes

Figure 3-3



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2028 Background Traffic Volumes

Figure 3-4

NOT TO SCALE

Knightdale Boulevard
Carolinian Avenue
Knightdale Station Run
Twin Star Lane
Heartland Flyer Drive
Poplar Street
First Avenue
Keith Street
Robertson Street
Smithfield Road
Marshall Drive
Marks Creek Road
Site Access 1
Site Access 2
Site Access 3
Site Access 4
Site Access 5
Site Access 6
Site Access 7
Mailman Road
Knightdale-Eagle Rock Road

SITE
SITE
SITE

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

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Robertson Street Assemblage Traffic Impact Analysis

2038 Background Traffic Volumes

Figure 3-5

4 SITE TRIP GENERATION AND DISTRIBUTION

Robertson Street Assemblage Development site trips were estimated based on the proposed land uses 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 Engineer's (ITE's) *Trip Generation Manual* and the projected mixed-use development land uses. The trip generation was calculated using the proposed number of residential units and building square-footages as the independent variables. The provided equations and/or rates were used to generate trips (per NCDOT standards and procedures).

Table 4-1: Trip Generation Summary

ITE Land Use Code	Independent Variable	AM Peak Hour			PM Peak Hour			Daily Traffic
		In	Out	Total	In	Out	Total	
210 – Single Family Detached Housing	491 DU	88	265	353	295	173	468	4,495
220 – Multifamily Housing (Low Rise)	176 DU	19	63	82	62	36	98	1,290
565 – Day Care Center	3,000 SF	17	16	33	16	17	33	143
720 – Medical-Dental Office Building	5,000 SF	11	3	14	5	12	17	174
710 – General Office Building	7,000 SF	14	2	16	13	60	73	80
932 – High-Turnover (Sit-down) Restaurant	2,000 SF	16	12	28	18	17	35	224
932 – High-Turnover (Sit-down) Restaurant	3,000 SF	24	18	42	27	25	52	337
Subtotal:		189	379	568	436	340	776	6,743
LUC 932 (2,000 SF) Pass-By (43% PM)		--	--	--	8	7	15	--
LUC 932 (3,000 SF) Pass-By (43% PM)		--	--	--	12	11	23	--
Total Development:		189	379	568	416	322	738	6,743

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

Prior to pass-by reductions, AM peak hour trips generated totaled 189 incoming and 379 outgoing where PM peak hour trips totaled 436 incoming and 340 outgoing. Following pass-by reductions, AM peak hour trips generated totaled 189 incoming and 379 outgoing where PM peak hour trips totaled 416 incoming and 322 outgoing. Average daily traffic (ADT) volumes generated by the development totaled 6,743 vehicles per day. No reduction in trips was included due to internal capture.

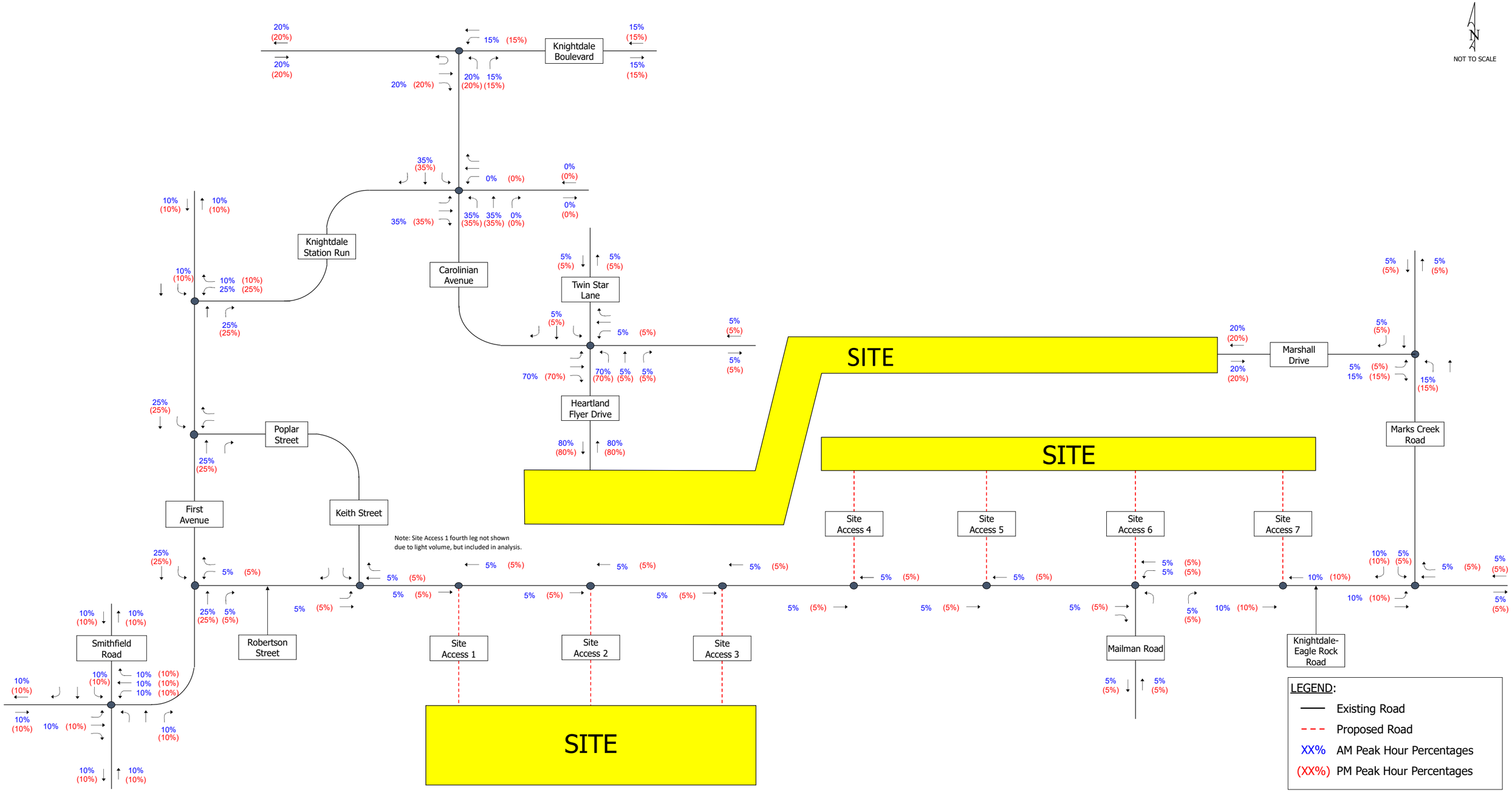
4.2 TRIP DISTRIBUTION

The directional traffic patterns, or trip distribution, of the site-generated traffic was determined using the existing AM and PM peak hour traffic characteristics and Engineering judgement. Total trips into and out of the study area using Knightdale Boulevard, Carolinian Avenue, Twin Star Lane, First Avenue, Marks Creek Road, Mailman Road, Knightdale Eagle Rock Road, and Smithfield Road form the basis for the

percentage distribution for the northern section. Total trips into and out of the study area using Knightdale Boulevard, First Avenue, Marks Creek Road, Mailman Road, Knightdale Eagle Rock Road, and Smithfield Road form the basis for the percentage distribution for the southern section. 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 traffic volumes for the 2028 Build scenario.

Residential development trip distribution percentages are shown in **Figures 4-1, 4-2,** and **4-3.** Commercial development trip distribution percentages are shown in **Figures 4-4** and **4-5.** Commercial development pass-by percentages are shown in **Figure 4-6.**

Residential development trip distribution volumes are shown in **Figures 4-7, 4-8,** and **4-9.** Commercial development trip distribution volumes are shown in **Figures 4-10** and **4-11. C**ommercial development pass-by percentages are shown in **Figure 4-12.** Total trip distribution volumes are shown in **Figure 4-13**.



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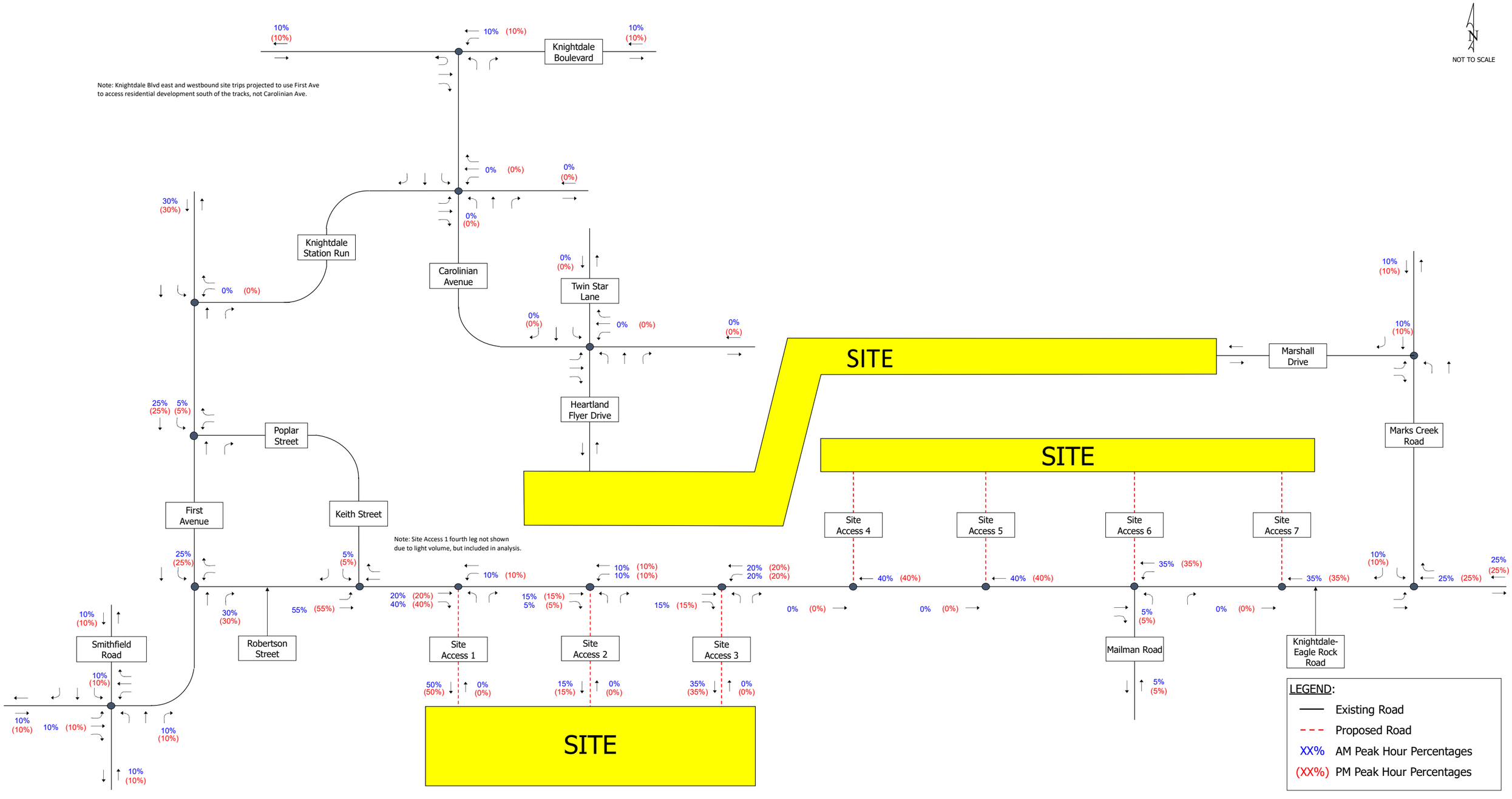
Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Percentages (Residential - North of Railroad Tracks)

Figure 4-1



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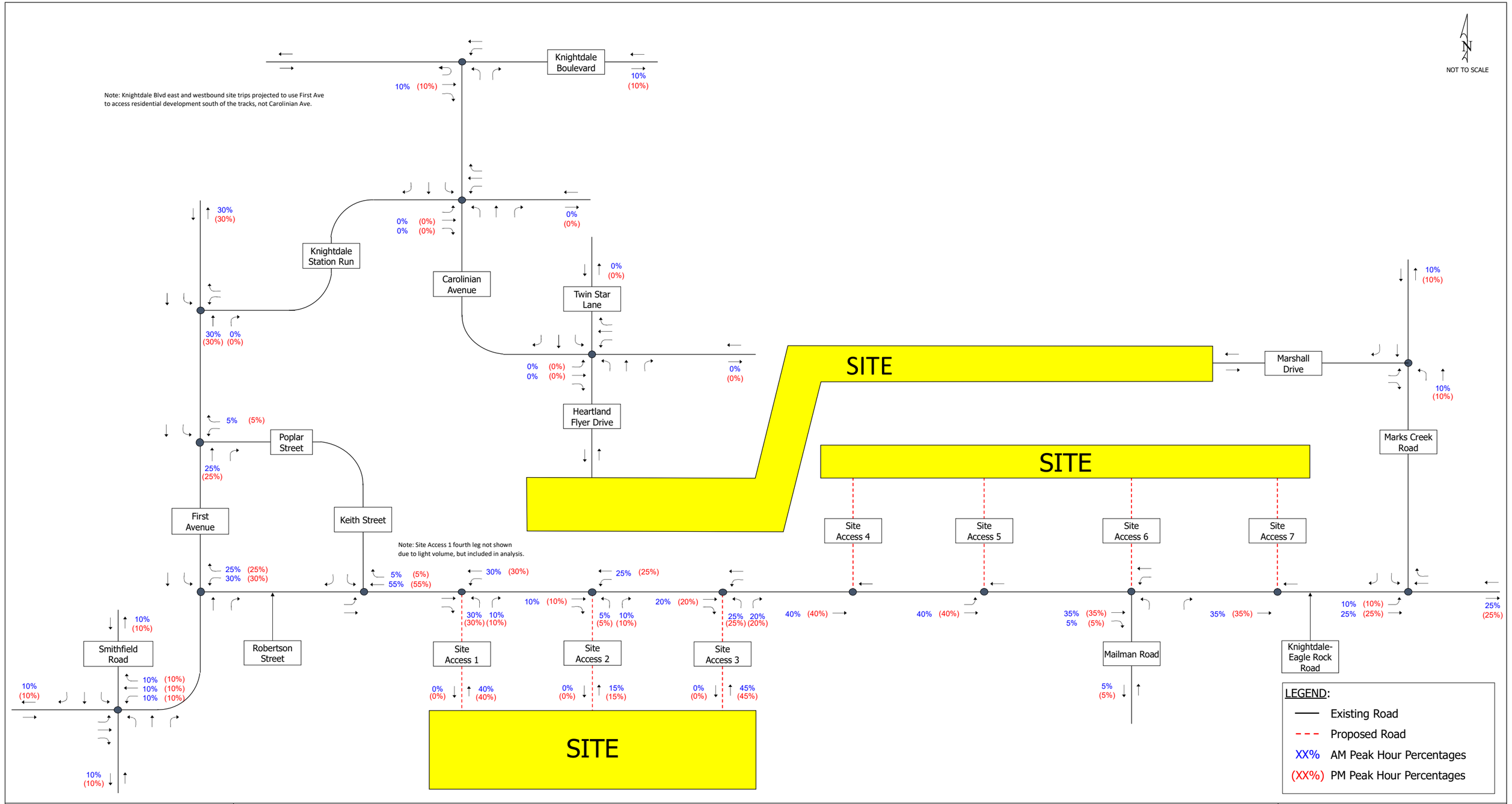
Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Percentages (Residential - Ingress - South of Railroad Tracks)

Figure 4-2



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Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Percentages (Residential - Egress - South of Railroad Tracks)

Figure 4-3

NOT TO SCALE

Note: Knightdale Blvd east and westbound site trips projected to use First Ave to access residential development south of the tracks, not Carolinian Ave.

Note: Site Access 1 fourth leg not shown due to light volume, but included in analysis.

Knightdale Boulevard
Knightdale Station Run
Carolinian Avenue
Twin Star Lane
Heartland Flyer Drive
Poplar Street
First Avenue
Keith Street
Smithfield Road
Robertson Street
Marshall Drive
Marks Creek Road
Mailman Road
Knightdale-Eagle Rock Road
Site Access 1
Site Access 2
Site Access 3
Site Access 4
Site Access 5
Site Access 6
Site Access 7
SITE
SITE
SITE

LEGEND:
- Existing Road
- Proposed Road
- XX% AM Peak Hour Percentages
- (XX%) PM Peak Hour Percentages

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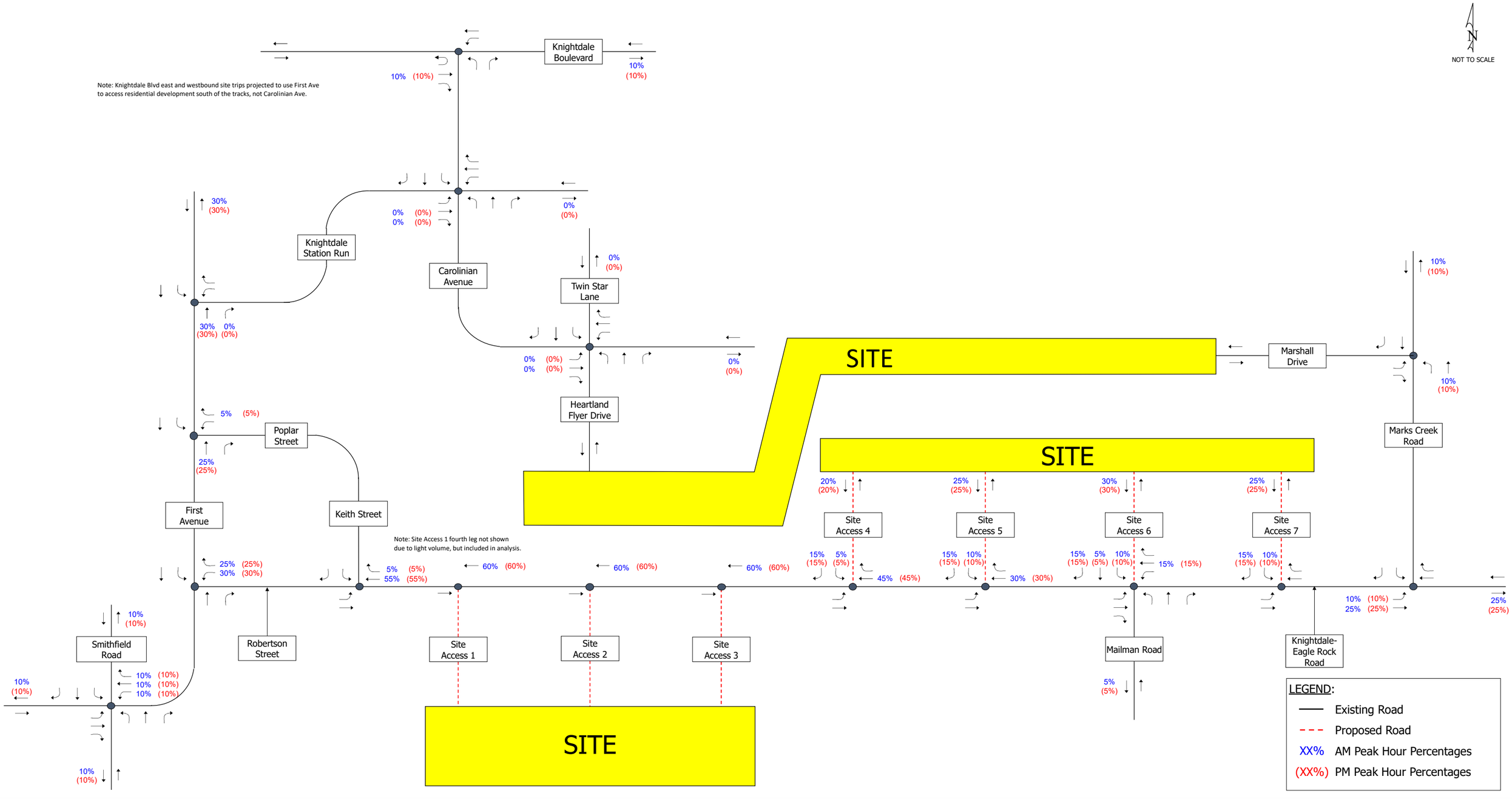
Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Percentages (Commercial - Ingress)

Figure 4-4



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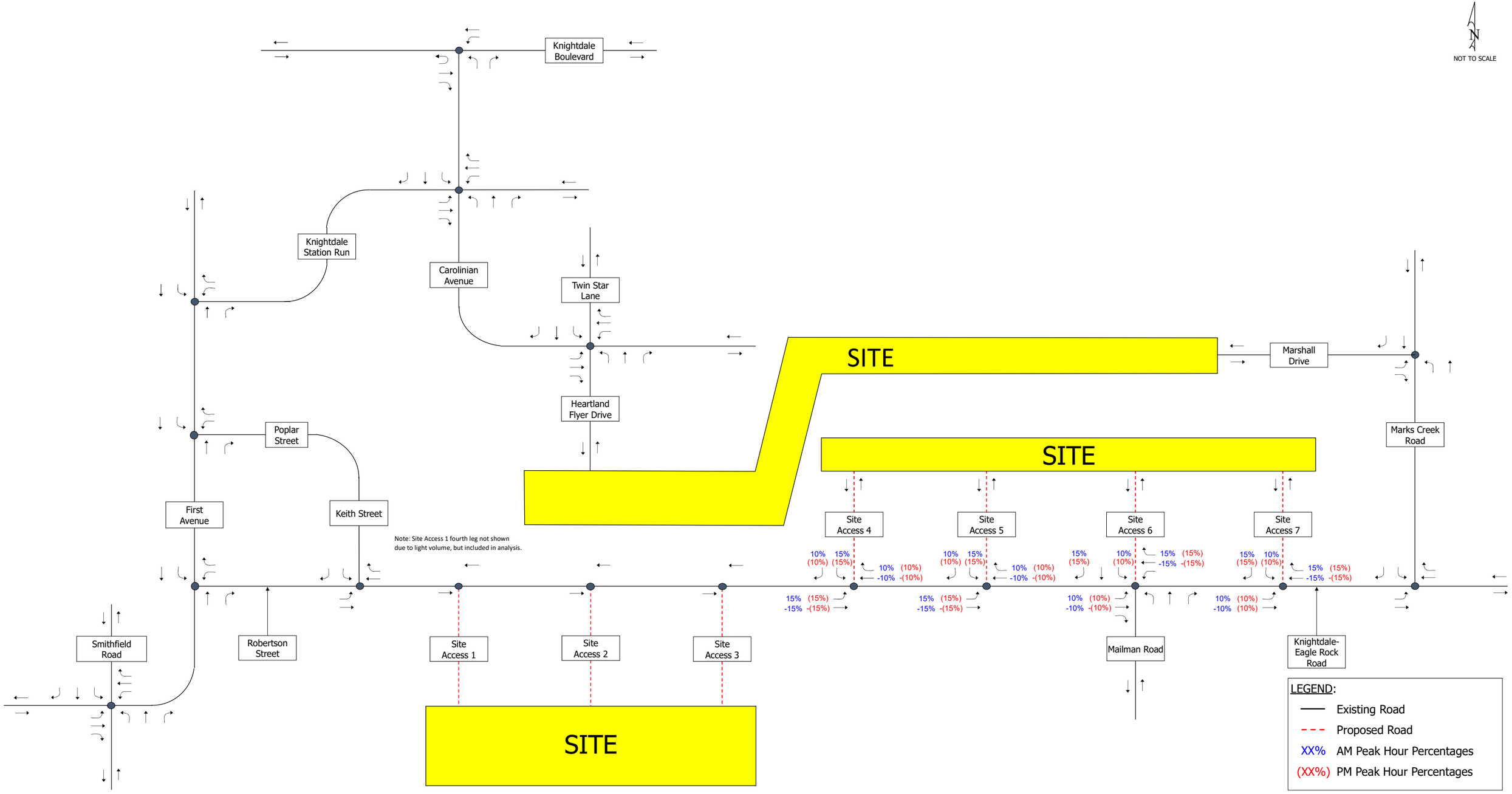
Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Percentages (Commercial - Egress)

Figure 4-5



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Robertson Street Assemblage Traffic Impact Analysis

Pass-By Trip Distribution Percentages

Figure 4-6

NOT TO SCALE

Knightdale Boulevard

Knightdale Station Run

Carolinian Avenue

Twin Star Lane

Heartland Flyer Drive

Marshall Drive

Marks Creek Road

Poplar Street

First Avenue

Keith Street

Smithfield Road

Robertson Street

Site Access 1

Site Access 2

Site Access 3

Site Access 4

Site Access 5

Site Access 6

Site Access 7

Mailman Road

Knightdale-Eagle Rock Road

SITE

SITE

SITE

Note: Site Access 1 fourth leg not shown due to light volume, but included in analysis.

LEGEND:

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

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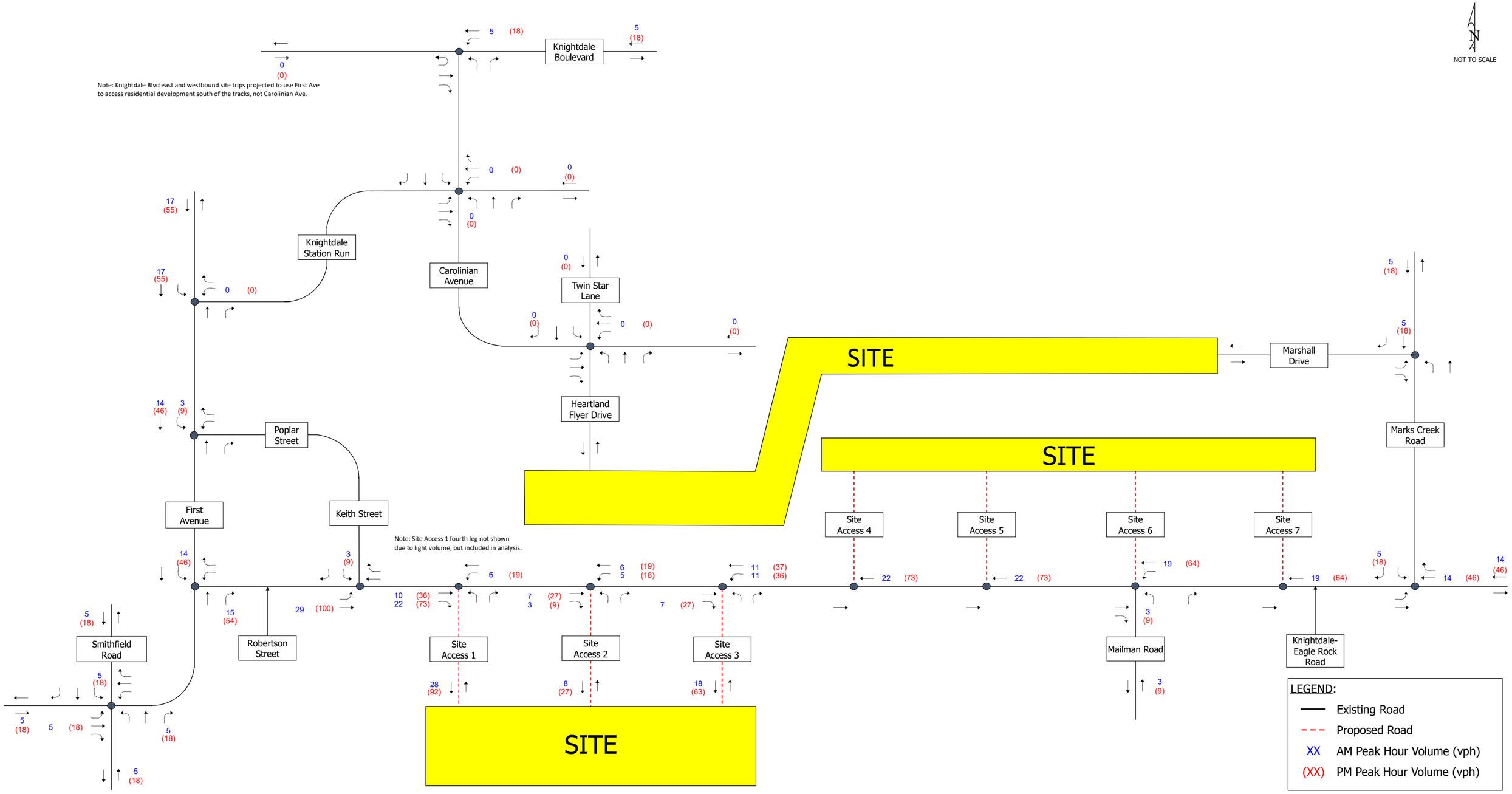
Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Volumes (Residential - North of Railroad Tracks)

Figure 4-7



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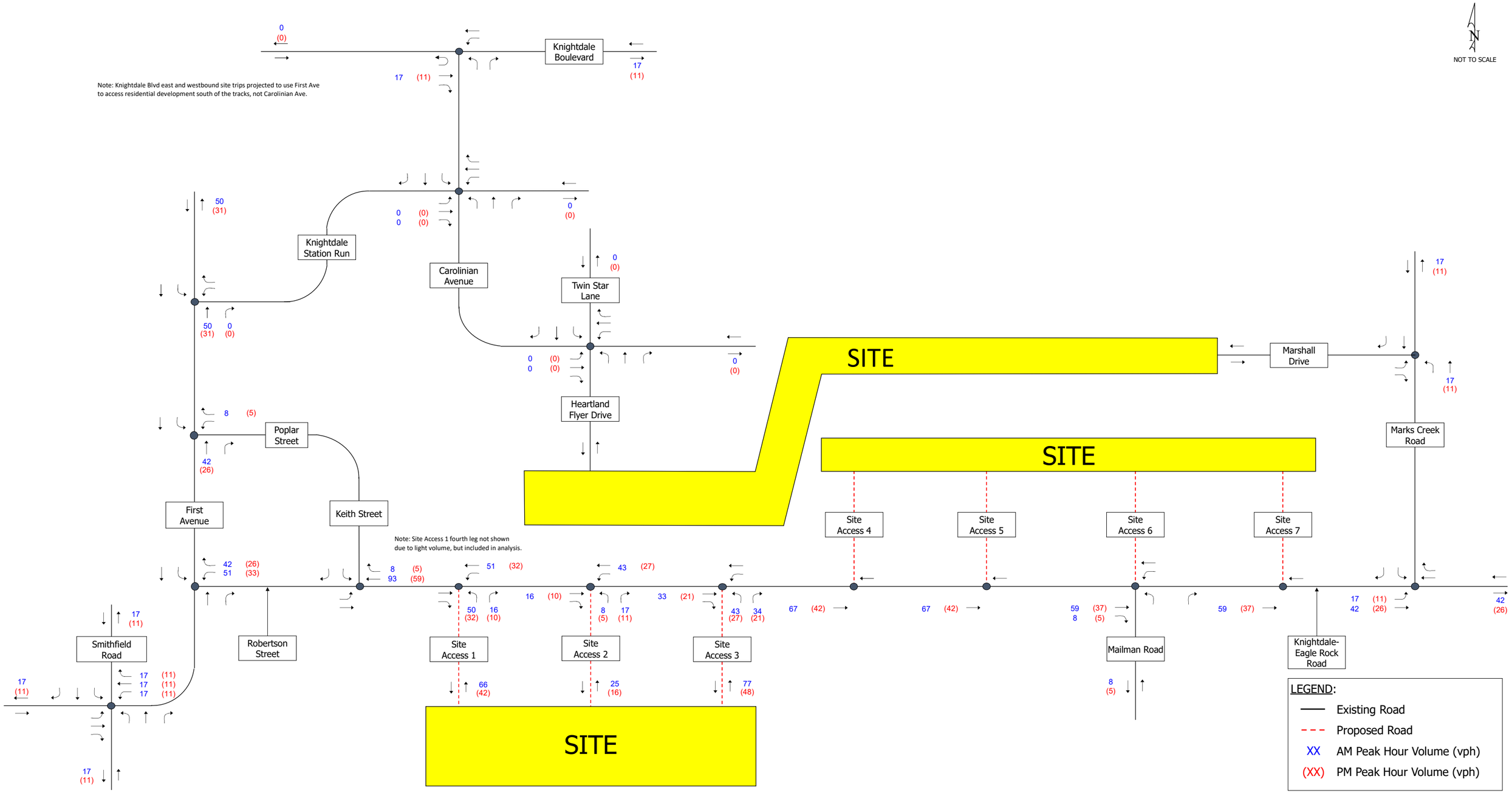
Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Volumes (Residential - Ingress - South of Railroad Tracks)

Figure 4-8



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Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Volumes (Residential - Egress - South of Railroad Tracks)

Figure 4-9

NOT TO SCALE

Note: Knightdale Blvd east and westbound site trips projected to use First Ave to access residential development south of the tracks, not Carolinian Ave.

Note: Site Access 1 fourth leg not shown due to light volume, but included in analysis.

Knightdale Boulevard
Knightdale Station Run
Carolinian Avenue
Twin Star Lane
Heartland Flyer Drive
Poplar Street
First Avenue
Keith Street
Smithfield Road
Robertson Street
Marshall Drive
Marks Creek Road
Mailman Road
Knightdale-Eagle Rock Road
Site Access 1
Site Access 2
Site Access 3
Site Access 4
Site Access 5
Site Access 6
Site Access 7
SITE
SITE
SITE

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

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Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Volumes (Commercial - Ingress)

Figure 4-10

NOT TO SCALE

Note: Knightdale Blvd east and westbound site trips projected to use First Ave to access residential development south of the tracks, not Carolinian Ave.

Note: Site Access 1 fourth leg not shown due to light volume, but included in analysis.

Knightdale Boulevard
Knightdale Station Run
Carolinian Avenue
Twin Star Lane
Heartland Flyer Drive
Poplar Street
First Avenue
Keith Street
Smithfield Road
Robertson Street
Site Access 1
Site Access 2
Site Access 3
Site Access 4
Site Access 5
Site Access 6
Site Access 7
Marshall Drive
Marks Creek Road
Mailman Road
Knightdale-Eagle Rock Road

SITE

SITE

SITE

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

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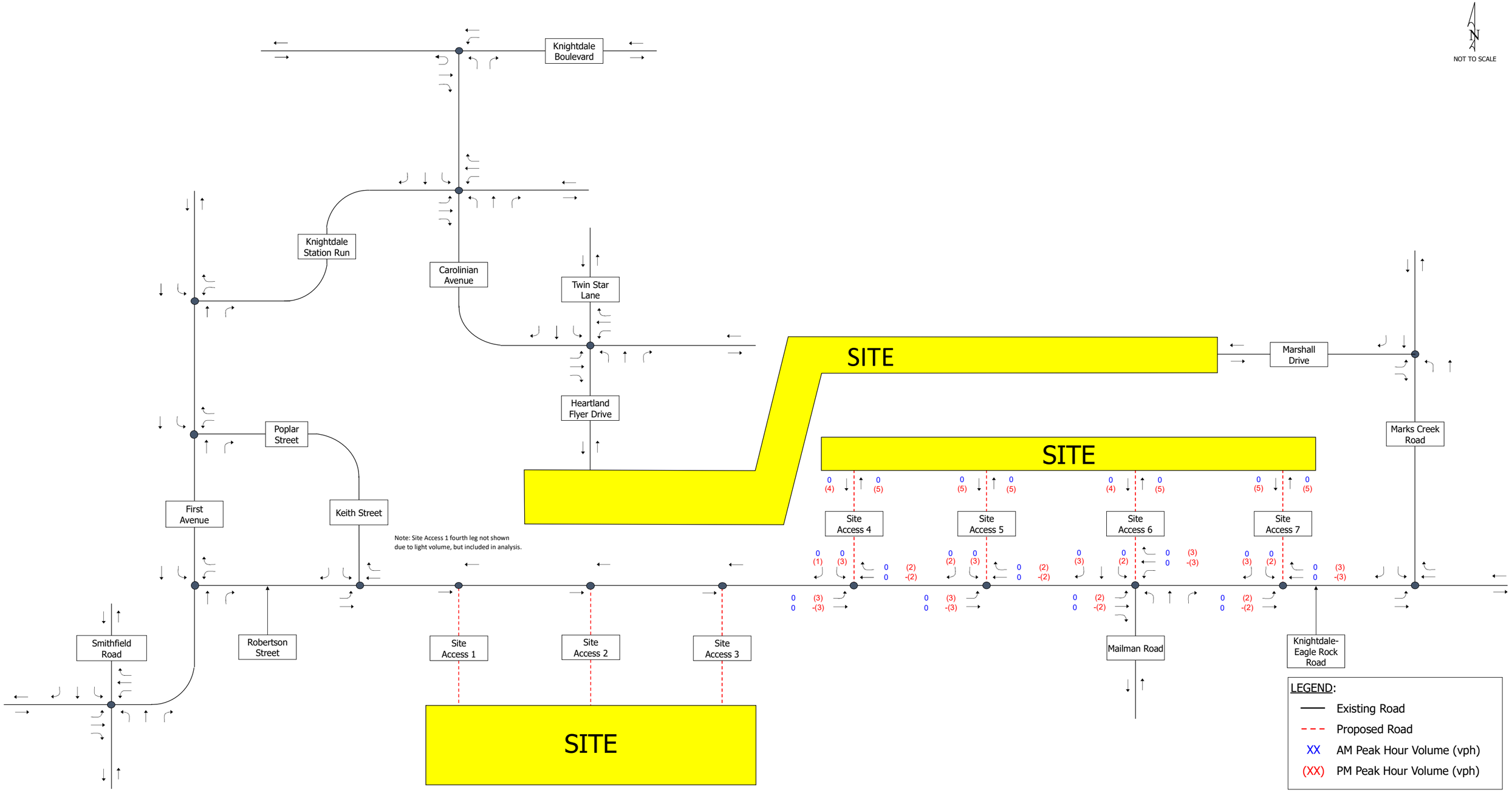
Robertson Street Assemblage Traffic Impact Analysis

Trip Distribution Volumes (Commercial - Egress)

Figure 4-11



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Robertson Street Assemblage Traffic Impact Analysis

Pass-By Trip Volumes

Figure 4-12

NOT TO SCALE

Knightdale Boulevard

Knightdale Station Run

Carolinian Avenue

Twin Star Lane

Heartland Flyer Drive

Poplar Street

First Avenue

Keith Street

Smithfield Road

Robertson Street

Site Access 1

Site Access 2

Site Access 3

Site Access 4

Site Access 5

Site Access 6

Site Access 7

Marshall Drive

Marks Creek Road

Mailman Road

Knightdale-Eagle Rock Road

SITE

SITE

SITE

Note: Site Access 1 fourth leg not shown due to light volume, but included in analysis.

LEGEND:

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

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Robertson Street Assemblage Traffic Impact Analysis

Total Site Trip Distribution Volumes

Figure 4-13

5 2028 BUILD CONDITION AND ANALYSIS

To complete the 2028 Build analyses (including the proposed development), the estimated site trips were added to the 2028 Background traffic volumes. The projected total volumes, along with the existing intersection geometry, were used to complete the capacity analyses.

5.1 2028 BUILD TRAFFIC VOLUMES

2028 Background traffic volumes (**Figure 3-4**) were added to the projected Robertson Street Assemblage development site trips (**Figure 4-13**) to generate the 2028 Build traffic volumes (background + site) shown in **Figure 5-1**.

To summarize, the 2028 Build traffic volumes (**Figure 5-1**) contain the following:

- 2022 traffic volumes grown exponentially for six (6) 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 4-13**).

5.2 2028 BUILD ANALYSIS

Table 5-1 summarizes the intersection LOS and delay based on the geometry shown in **Figure 2-2** and the 2028 Build traffic volumes shown in **Figure 5-1**. **Table 5-2** summarizes the 2028 Build roundabout LOS, delay, and V/C ratios. The corresponding SYNCHRO and SIDRA output is included in **Appendix D**.

The signalized intersection of Carolinian Avenue and Knightdale Boulevard is projected to operate at an overall LOS B during both 2028 Build AM and PM peak hours. All intersection approaches are projected to operate at a LOS C or better during both peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

The Carolinian Avenue / Knightdale Station Run roundabout is projected to operate at an overall LOS A during both 2028 Build AM and PM peak hours. All approaches are projected to operate at a LOS A with a maximum 0.386 V/C ratio during both peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

The westbound First Avenue / Knightdale Station Run unsignalized intersection approach is projected to operate at a LOS E during the 2028 Build PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both 2028 Build peak hours. Based on projected volumes and area development peaking characteristics, MUTCD's 4-hour and 8-hour volume warrants (typically required by the NCDOT for warranting signalization) will likely not be met. Additionally, the V/C ratio for the westbound approach is projected to be 0.681 for the PM peak hour. Construction of a northbound right turn lane was also considered; however, this does not mitigate the westbound approach, and it is not feasible as on-street parking for Knightdale Station Park would be lost. Therefore, no improvements are recommended at this intersection due to development construction.

All Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane unsignalized intersection approaches are projected to operate at a LOS B or better during the 2028 Build AM and PM peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

All Marks Creek Road / Marshall Drive unsignalized intersection approaches are projected to operate at a LOS A during the 2028 Build AM and PM peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

All First Avenue / Poplar Street unsignalized intersection approaches are projected to operate at a LOS C or better during the 2028 Build AM and PM peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

The westbound First Avenue / Robertson Street unsignalized intersection approach is projected to operate at a LOS F during both 2028 Build AM and PM peak hours. All other intersection approaches are projected to operate at a LOS A during both 2028 Build peak hours. To help mitigate capacity concerns at this intersection, a two-phase traffic signal should be installed. However, based on projected volumes, MUTCD's 4-hour and 8-hour volume warrants will likely not be met during the 2028 Build conditions. Therefore, it is recommended that this intersection be monitored for future signalization.

All Robertson Street / Keith Street unsignalized intersection approaches are projected to operate at a LOS C or better during the 2028 Build AM and PM peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

The Robertson Street / Site Access 1 roundabout is projected to operate at an overall A during both 2028 Build AM and PM peak hours. All approaches are projected to operate at a LOS A during both peak hours. All approaches are projected to have a maximum 0.334 V/C ratio during both peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

All Robertson Street / Site Access 2 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2028 Build 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. 136-18(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 2028 AADT along Robertson Street is projected to exceed 4,000 VPD. Because of this, turn lanes were considered at Site Access 2. Per the nomograph (provided in the Driveway Manual – see **Appendix F**), and projected 2028 Build traffic volumes, no turn-lanes are recommended. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

All Robertson Street / Site Access 3 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2028 Build peak hours. Per the NCDOT Nomograph (see **Appendix F**) and projected 2028 peak hour volumes, a 50-foot westbound left-turn lane (with appropriate taper) is recommended. Per **Table 5-3**, 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 Robertson Street / Site Access 4 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2028 Build peak hours. Per the NCDOT Nomograph (see **Appendix F**) and projected 2028 peak hour volumes, no turn-lanes are recommended. No additional improvements are recommended at this intersection due to the proposed development's construction.

All Robertson Street / Site Access 5 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2028 Build peak hours. Per the NCDOT Nomograph (see **Appendix F**) and projected 2028 peak hour volumes, no turn-lanes are recommended. No additional improvements are recommended at this intersection due to the proposed development's construction.

All Robertson Street / Knightdale Eagle Rock Road / Site Access 6 / Mailman Road unsignalized intersection approaches are projected to operate at a LOS B or better during the 2028 Build AM and PM peak hours. Per the NCDOT Nomograph (see **Appendix F**) and projected 2028 peak hour volumes, no turn-lanes are recommended. No additional improvements are recommended at this intersection due to the proposed development's construction.

All Robertson Street / Site Access 7 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2028 Build peak hours. Per the NCDOT Nomograph (see **Appendix F**) and projected 2028 peak hour volumes, no turn-lanes are recommended. No additional improvements are recommended at this intersection due to the proposed development's construction.

All Knightdale Eagle Road / Marks Creek Road unsignalized intersection are projected to operate at a LOS B or better during the 2028 Build AM and PM peak hours. Because all approaches are projected to operate acceptably, no improvements are recommended due to the proposed development's construction.

The signalized intersection of Smithfield Road and First Avenue is projected to operate at an overall LOS C and F during the 2028 Build AM and PM peak hours, respectively. The east and southbound approaches are projected to operate at LOS F during the 2028 Build PM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours. Heavy eastbound left-turn volumes from S First Avenue onto N Smithfield Road and southbound right-turn volumes from N Smithfield Road to S First Avenue cause the intersection to operate unacceptably. To allow this intersection to operate acceptably, an exclusive eastbound left-turn lane and 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
2028 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: Carolinian Ave & Knightdale Blvd	EB Approach	14.4	B	18.3	B
	WB Approach	8.9	A	4.5	A
	NB Approach	20.7	C	29.9	C
	Overall	12.7	B	14.3	B
3: First Ave & Knightdale Station Run	WB Approach	33.1	D	***46.5***	***E***
	NB Approach	0.0	A	0.0	A
	SB Approach	1.0	A	1.6	A
4: Heartland Flyer Drive/Twin Star Lane & Carolinian Ave	EB Approach	0.6	A	0.4	A
	WB Approach	1.2	A	2.3	A
	NB Approach	10.5	B	10.9	B
	SB Approach	9.0	A	9.4	A
5: Marks Creek Rd & Marshall Dr	EB Approach	8.9	A	9.2	A
	NB Approach	1.3	A	2.8	A
	SB Approach	0.0	A	0.0	A
6: First Ave & Poplar St	WB Approach	13.0	B	16.5	C
	NB Approach	0.0	A	0.0	A
	SB Approach	0.4	A	0.6	A
7: First Ave & Robertson St	WB Approach	***89.1***	***F***	***290.0***	***F***
	NB Approach	0.0	A	0.0	A
	SB Approach	2.1	A	3.2	A
8: Robertson St & Keith St	EB Approach	0.2	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	12.3	B	15.1	C
10: Site Access 2 & Robertson St	EB Approach	0.0	A	0.0	A
	WB Approach	0.1	A	0.4	A
	NB Approach	10.5	B	11.8	B
11: Site Access 3 & Robertson St	EB Approach	0.0	A	0.0	A
	WB Approach	0.3	A	0.9	A
	NB Approach	11.9	B	14.0	B
12: Robertson St & Site Access 4	EB Approach	0.4	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.7	B	11.2	B
13: Robertson St & Site Access 5	EB Approach	0.4	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.8	B	12.3	B
14: Mailman Rd/Site Access 6 & Robertson St/Knightdale Eagle Rock Rd	EB Approach	0.4	A	0.3	A
	WB Approach	1.0	A	0.9	A
	NB Approach	12.5	B	13.9	B
	SB Approach	12.0	B	14.3	B
15: Knightdale Eagle Rock Rd & Site Access 7	EB Approach	8.9	A	10.8	B
	WB Approach	9.2	A	10.4	B
	SB Approach	7.9	A	8.5	A
16: Knightdale Eagle Rock Rd & Marks Creek Rd	EB Approach	1.5	A	1.2	A
	WB Approach	0.0	A	0.0	A
	SB Approach	11.7	B	13.0	B
17: Smithfield Rd & First Ave	EB Approach	36.8	D	***190.7***	***F***
	WB Approach	13.1	B	41.9	D
	NB Approach	34.6	C	31.1	C
	SB Approach	41.8	D	***185.6***	***F***
	Overall	31.8	C	***126.0***	***F***

[1] *Overall intersection LOS and delay not reported for TWSC intersections.*

* - 95th percentile queues for unsignalized intersections reported in number of vehicles.

Table 5-2: Intersection Level of Service, Delay, and V/C Ratio Summary
2028 Build Traffic Volumes

Intersection and Type of Control	Movement and Approach	AM PEAK HOUR			PM PEAK HOUR		
		Delay [1] (sec/veh)	LOS [1]	V/C	Delay [1] (sec/veh)	LOS [1]	V/C
2: Carolinian Avenue / Knightdale Station Run	EB Approach	6.5	A	0.274	4.3	A	0.133
	WB Approach	7.5	A	0.386	3.9	A	0.078
	NB Approach	7.8	A	0.295	4.0	A	0.128
	SB Approach	6.4	A	0.311	4.5	A	0.173
	Overall	7.0	A	0.386	4.2	A	0.173
9: Robertson Street / Site Access 1 / Site Access 1A	EB Approach	4.1	A	0.173	5.8	A	0.334
	WB Approach	5.1	A	0.256	5.2	A	0.274
	NB Approach	3.9	A	0.072	4.4	A	0.055
	SB Approach	4.1	A	0.015	4.1	A	0.015
	Overall	4.6	A	0.256	5.4	A	0.334

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

Table 5-3: Intersection Level of Service and Delay Summary
2028 Build Traffic Volumes with Recommended Improvements

Intersection	Movement and Approach	AM PEAK HOUR		PM PEAK HOUR	
		Delay [1] (sec/veh)	LOS [1]	Delay [1] (sec/veh)	LOS [1]
11: Site Access 3 & Robertson St	EB Approach	0.0	A	0.0	A
	WB Approach	0.3	A	0.9	A
	NB Approach	11.9	B	14.0	B

[1] *Overall intersection LOS and delay not reported for TWSC intersections.*

* - 95th percentile queues for unsignalized intersections reported in number of vehicles.

5.3 2038 BUILD TRAFFIC VOLUMES

For the 2038 Horizon Build Year analyses (including the proposed development), the 2022 Existing traffic volumes were grown at a 3% ambient growth rate from 2022 to 2028 and a 1% ambient growth rate from 2028 to 2038 and added to the estimated site trips. The projected total volumes, along with the proposed intersection geometry (see **Figure 6-1**), were used to complete the capacity analyses.

The 2038 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 2028 and a 1% ambient growth rate from 2028 to 2038 (**Figure 3-2**);
- Area approved development site trips (**Figure 3-3**); and
- Total site trips generated by the subject development (**Figure 4-13**).

5.4 2038 BUILD ANALYSIS

Table 5-4 summarizes the intersection LOS and delay based on the 2038 Build traffic volumes (shown in **Figure 5-2**). The corresponding SYNCHRO and SIDRA output is included in **Appendix D**.

The signalized intersection of Carolinian Avenue and Knightdale Boulevard is projected to operate at an overall LOS B and LOS C during the 2038 Build AM and PM peak hours, respectively. All intersection approaches are projected to operate at a LOS D or better during both peak hours.

The Carolinian Avenue / Knightdale Station Run roundabout is projected to operate at an overall A during both 2038 Build AM and PM peak hours. All approaches are projected to operate at a LOS A during both peak hours. All approaches are projected to have a maximum 0.431 V/C ratio during both peak hours.

The westbound First Avenue / Knightdale Station Run unsignalized intersection approach is projected to operate at a LOS E and LOS F during the 2038 Build AM and PM peak hours, respectively. All other intersection approaches are projected to operate at a LOS A during both 2038 Build peak hours.

All Carolinian Avenue / Heartland Flyer Drive / Twin Star Lane unsignalized intersection approaches are projected to operate at a LOS B or better during the 2038 Build AM and PM peak hours.

All Marks Creek Road / Marshall Drive unsignalized intersection approaches are projected to operate at a LOS A during the 2038 Build AM and PM peak hours.

All First Avenue / Poplar Street unsignalized intersection approaches are projected to operate at a LOS C or better during the 2038 Build AM and PM peak hours.

The westbound First Avenue / Robertson Street unsignalized intersection approach is projected to operate at a LOS F during both 2038 Build AM and PM peak hours. All other intersection approaches are projected to operate at a LOS A during both 2038 Build peak hours.

All Robertson Street / Keith Street unsignalized intersection approaches are projected to operate at a LOS C or better during the 2038 Build AM and PM peak hours.

The Robertson Street / Site Access 1 roundabout is projected to operate at an overall A during both 2038 Build AM and PM peak hours. All approaches are projected to operate at a LOS A during both peak hours. All approaches are projected to have a maximum 0.352 V/C ratio during both peak hours.

All Robertson Street / Site Access 2 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2038 Build peak hours.

All Robertson Street / Site Access 3 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2038 Build peak hours.

All Robertson Street / Site Access 4 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2038 Build peak hours.

All Robertson Street / Site Access 5 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2038 Build peak hours.

All Robertson Street / Knightdale Eagle Rock Road / Site Access 6 / Mailman Road unsignalized intersection approaches are projected to operate at a LOS C or better during the 2038 Build AM and PM peak hours.

All Robertson Street / Site Access 7 unsignalized intersection approaches are projected to operate at a LOS B or better during both 2038 Build peak hours.

All Knightdale Eagle Road / Marks Creek Road unsignalized intersection are projected to operate at a LOS B or better during the 2038 Build AM and PM peak hours.

The signalized intersection of Smithfield Road and First Avenue is projected to operate at an overall LOS D and F during the 2038 Build AM and PM peak hours, respectively. The east and southbound approaches are projected to operate at LOS F during the PM peak hour. The southbound approach is projected to operate at LOS E during the AM peak hour. All other intersection approaches are projected to operate at a LOS D or better during both peak hours.

Table 5-4: Intersection Level of Service and Delay Summary
2038 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: Carolinian Ave & Knightdale Blvd	EB Approach	14.2	B	19.7	B
	WB Approach	10.1	B	4.7	A
	NB Approach	22.5	C	35.3	D
	Overall	13.5	B	15.5	C
3: First Ave & Knightdale Station Run	WB Approach	***46.8***	***E***	***74.3***	***F***
	NB Approach	0.0	A	0.0	A
	SB Approach	1.1	A	1.7	A
4: Heartland Flyer Drive/Twin Star Lane & Carolinian Ave	EB Approach	0.7	A	0.5	A
	WB Approach	1.1	A	2.2	A
	NB Approach	10.6	B	11.1	B
	SB Approach	9.0	A	9.4	A
5: Marks Creek Rd & Marshall Dr	EB Approach	8.9	A	9.2	A
	NB Approach	1.2	A	2.7	A
	SB Approach	0.0	A	0.0	A
6: First Ave & Poplar St	WB Approach	13.7	B	18.2	C
	NB Approach	0.0	A	0.0	A
	SB Approach	0.4	A	0.6	A
7: First Ave & Robertson St	WB Approach	***151.2***	***F***	***452.7***	***F***
	NB Approach	0.0	A	0.0	A
	SB Approach	2.1	A	3.2	A
8: Robertson St & Keith St	EB Approach	0.2	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	12.6	B	15.8	C
10: Site Access 2 & Robertson St	EB Approach	0.0	A	0.0	A
	WB Approach	0.1	A	0.4	A
	NB Approach	10.7	B	12.2	B
11: Site Access 3 & Robertson St	EB Approach	0.0	A	0.0	A
	WB Approach	0.3	A	0.8	A
	NB Approach	12.1	B	14.5	B
12: Robertson St & Site Access 4	EB Approach	0.4	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	10.9	B	11.5	B
13: Robertson St & Site Access 5	EB Approach	0.4	A	0.3	A
	WB Approach	0.0	A	0.0	A
	SB Approach	11.0	B	12.7	B
14: Mailman Rd/Site Access 6 & Robertson St/Knightdale Eagle Rock Rd	EB Approach	0.4	A	0.3	A
	WB Approach	1.0	A	1.0	A
	NB Approach	12.8	B	14.4	B
	SB Approach	12.4	B	15.0	C
15: Knightdale Eagle Rock Rd & Site Access 7	EB Approach	9.1	A	11.4	B
	WB Approach	9.5	A	10.8	B
	SB Approach	8.0	A	8.6	B
16: Knightdale Eagle Rock Rd & Marks Creek Rd	EB Approach	1.4	A	1.2	A
	WB Approach	0.0	A	0.0	A
	SB Approach	12.1	B	13.7	B
17: Smithfield Rd & First Ave	EB Approach	54.7	D	***255.4***	***F***
	WB Approach	14.1	B	50.2	D
	NB Approach	42.8	D	35.5	D
	SB Approach	***59.4***	***E***	***249.0***	***F***
	Overall	43.4	D	***166.9***	***F***

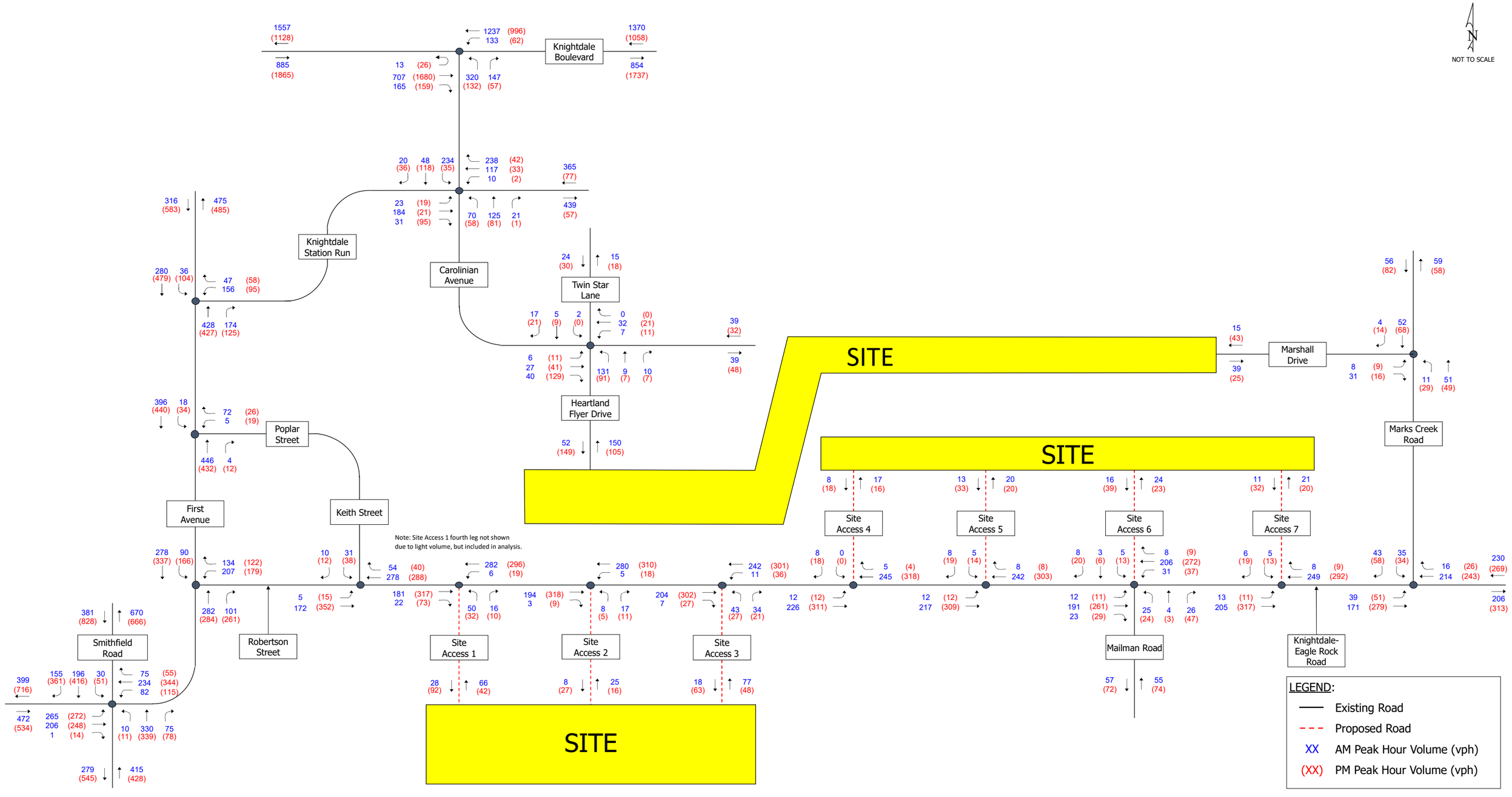
[1] *Overall intersection LOS and delay not reported for TWSC intersections.*

* - 95th percentile queues for unsignalized intersections reported in number of vehicles.

Table 5-5: Intersection Level of Service, Delay, and V/C Ratio Summary
2038 Build Traffic Volumes

Intersection and Type of Control	Movement and Approach	AM PEAK HOUR			PM PEAK HOUR		
		Delay [1] (sec/veh)	LOS [1]	V/C	Delay [1] (sec/veh)	LOS [1]	V/C
2: Carolinian Avenue / Knightdale Station Run	EB Approach	7.1	A	0.309	4.5	A	0.141
	WB Approach	8.2	A	0.431	4.0	A	0.086
	NB Approach	8.5	A	0.326	4.1	A	0.136
	SB Approach	6.9	A	0.347	4.6	A	0.187
	Overall	7.7	A	0.431	4.3	A	0.187
9: Robertson Street / Site Access 1 / Site Access 1A	EB Approach	4.2	A	0.181	6.0	A	0.352
	WB Approach	5.3	A	0.272	5.4	A	0.289
	NB Approach	4.0	A	0.072	4.5	A	0.056
	SB Approach	4.2	A	0.015	4.2	A	0.015
	Overall	4.7	A	0.272	5.6	A	0.352

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



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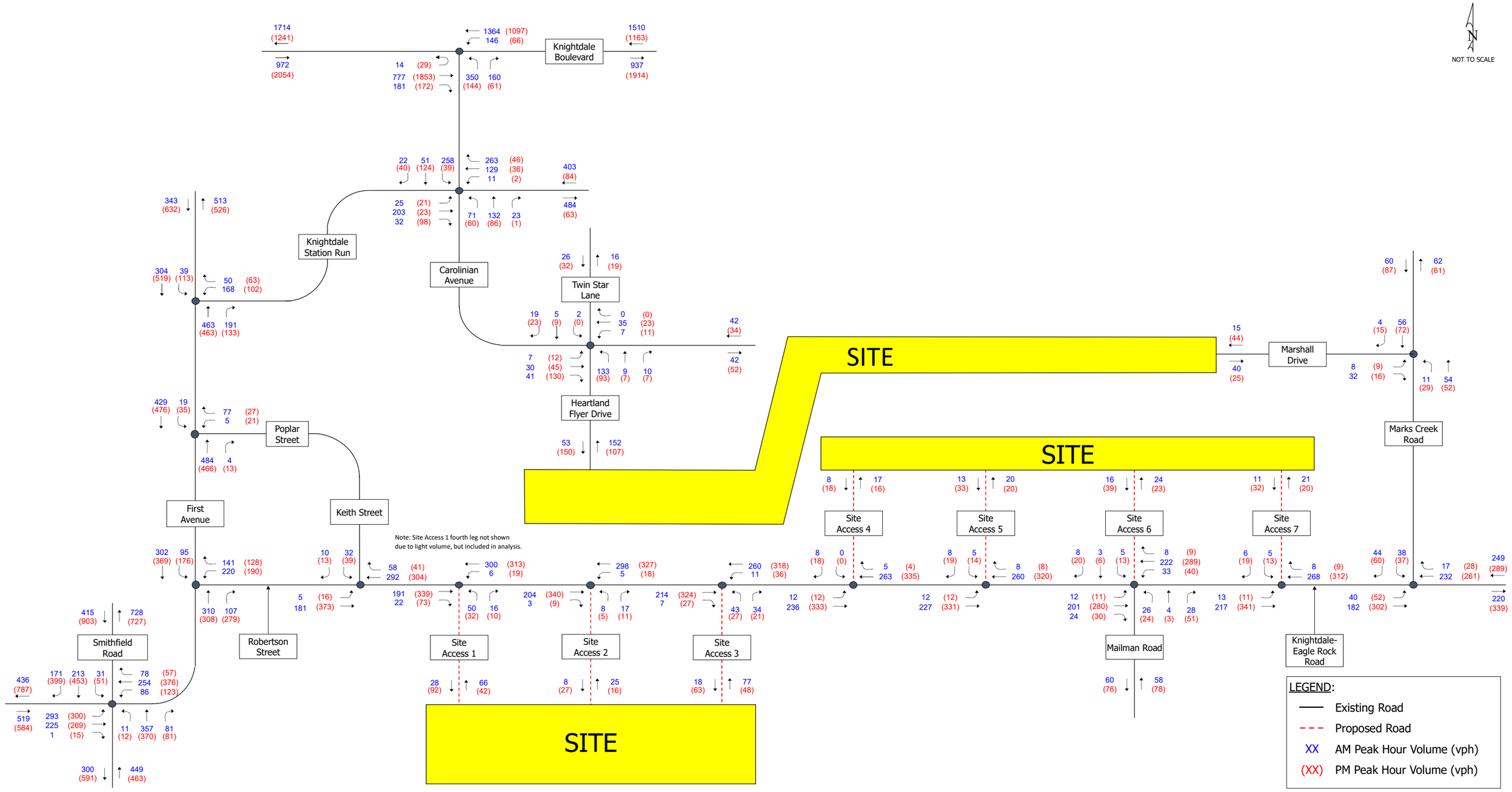
Robertson Street Assemblage Traffic Impact Analysis

2028 Build Traffic Volumes

Figure 5-1



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Robertson Street Assemblage Traffic Impact Analysis

2038 Build Traffic Volumes

Figure 5-2

6 CONCLUSIONS AND RECOMMENDATIONS

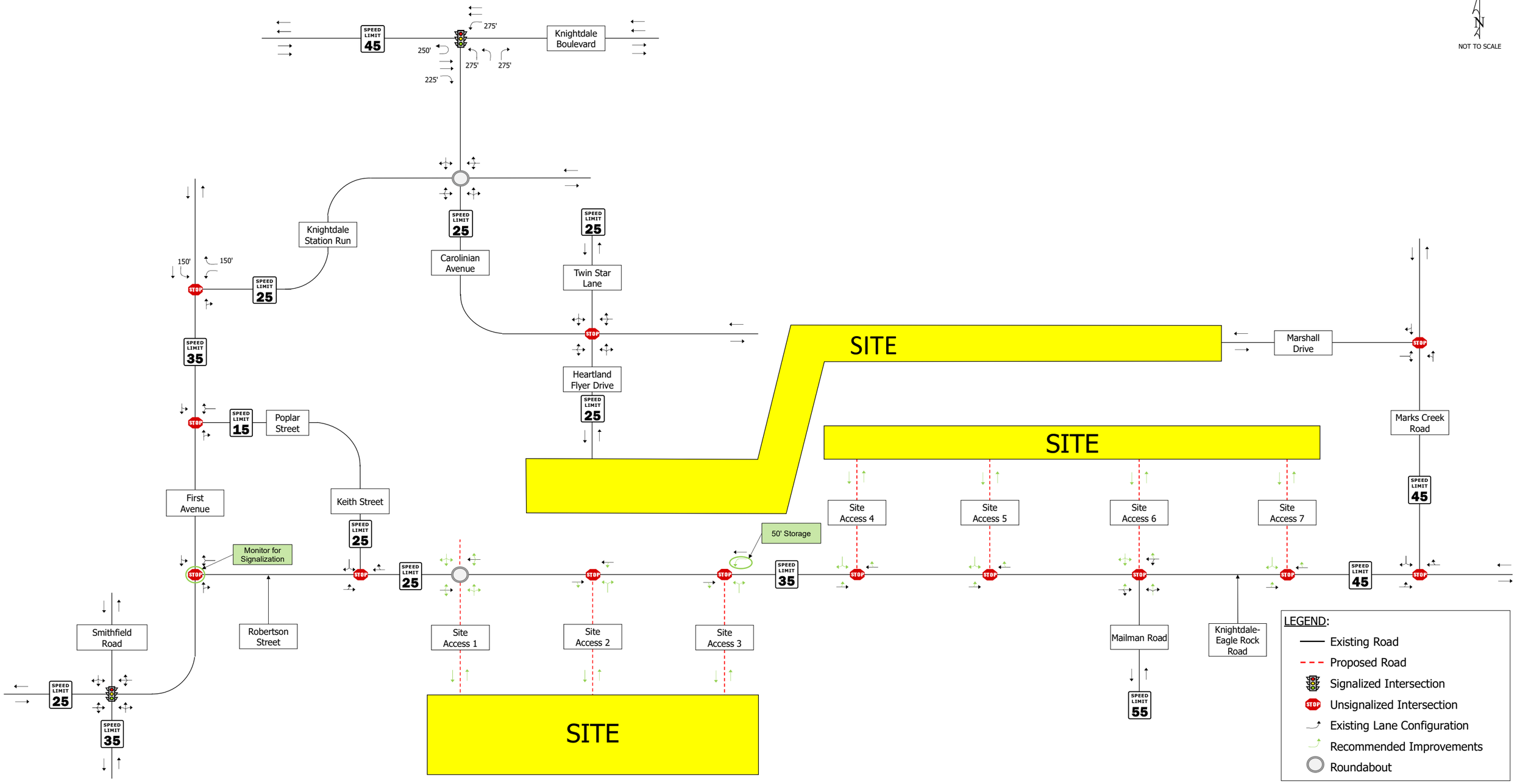
Capacity analyses were performed for the following scenarios:

- 2022 Existing
- 2028 Background (existing + ambient growth + approved development traffic)
- 2028 Build (Background + site trips)
- 2038 Horizon Build (existing + ambient growth + approved development traffic)

In closing, the following improvements (see **Figure 6-1**) are recommended in conjunction with the construction of the proposed development:

- Robertson Street / First Avenue
    - Monitor for Signalization

- Robertson Street / Site Access 3
    - 50-foot westbound left-turn lane (with appropriate taper)



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Robertson Street Assemblage Traffic Impact Analysis

Proposed Lane Configuration

Figure 6-1

Appendix A – Scoping Information

From:	Brennan, Sean P
To:	Andrew Spiliotis; Brian Massengill
Cc:	Jeff Hochanadel; Kevin Lewis; Ishak, Doumit Y; Walker, Braden M; Bunting, Clarence B; Lineberger, Nicholas C; Warren, Jeremy L; Mate"a Tindal; Beth Blackmon
Subject:	Re: [External] RE: Robertson TIA Scoping (Updated)
Date:	Friday, May 13, 2022 11:18:23 AM
Attachments:	3B3DA6AD605147ABAE0ACD1DE27E60D4[125700511].png

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Jeff,

I'm okay with the proposed scope with these changes.

Regards,
Sean Brennan, PE
Senior Assistant District Engineer
Division 5/District 1
Department of Transportation

919-733-3213 office
919-715-5778 fax
spbrennan@ncdot.gov

4009 District Drive (Physical Address)
Raleigh, NC 27607

1575 Mail Service Center (Mailing Address)
Raleigh, NC 27699-1575

cid:image001.png@01D10DA4.5CC88DA0

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

From: Andrew Spiliotis <andrew.spiliotis@knightdalenc.gov>
Sent: Wednesday, May 4, 2022 2:02 PM
To: Brian Massengill <brian@natelli.com>
Cc: Jeff Hochanadel <Jeff.Hochanadel@timmons.com>; Kevin Lewis <kevin.lewis@knightdalenc.gov>; Brennan, Sean P <spbrennan@ncdot.gov>; Neidringhaus, Amy N <anneidringhaus@ncdot.gov>; Ishak, Doumit Y <dishak@ncdot.gov>; Walker, Braden M <bmwalker1@ncdot.gov>; Bunting, Clarence B <cbunting@ncdot.gov>; Lineberger, Nicholas C <nclineberger@ncdot.gov>; Warren, Jeremy L <jlwarren@ncdot.gov>; Mate'a Tindal <Mate'a.Tindal@timmons.com>; Beth Blackmon <Beth.Blackmon@timmons.com>
Subject: [External] RE: Robertson TIA Scoping (Updated)

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to Report Spam.

Good point Brian. I lean more towards including Marshall @ Marks Creek in that case. Not that I expect a huge trip assignment percentage or potential LOS issue at the intersection… more just wanting to model the trip assignment and study network comprehensively.

Andrew Spiliotis
Senior Planner – Transportation & Land Use

KNIGHTDALE
start something

Town of Knightdale | KnightdaleNC.gov
950 Steeple Square Ct. | Knightdale, NC 27545 | 919-217-2247
This message and any attachments may be considered public record and are subject to public review.

From: Brian Massengill
Sent: Wednesday, May 4, 2022 1:55 PM
To: Andrew Spiliotis
Cc: Jeff Hochanadel; Kevin Lewis; Brennan, Sean P; Neidringhaus, Amy N; Ishak, Doumit Y; Walker, Braden M; Bunting, Clarence B; Lineberger, Nicholas C; Warren, Jeremy L; Mate'a Tindal; Beth Blackmon
Subject: Re: Robertson TIA Scoping (Updated)

Be Advised: This email originated from outside of the Town of Knightdale, NC

Jeff may have more insight, but Massey Farm Road doesn't connect to Marks Creek except via offroad vehicles. It's more of a path through the woods.

Marshall Drive is more of a "potential" possibility for connection, but it is currently a private drive.

Brian Massengill
Natelli Communities
919 868 3102

On Wed, May 4, 2022 at 1:27 PM Andrew Spiliotis <andrew.spiliotis@knightdalenc.gov> wrote:

> Jeff, thank you for running this change through the TIA process. Overall the updated MOU looks good. Please run your proposed trip assignment distributions by us whenever you have them prepared. Also, I wonder if we should add either Massey Farm Rd/Marks Creek Rd or Marshall Dr/Marks Creek Rd as study network intersections now that more trips will travel through those intersections as the most direct route to I-87/Wendell Falls area now that the development's railroad crossing is no longer assumed. Massey Farm Rd seems like the more important roadway so I lean towards including that intersection over Marshall. I'm happy to talk through this further, just let me know.

Andrew Spiliotis
Senior Planner – Transportation & Land Use

KNIGHTDALE
start something

Town of Knightdale | KnightdaleNC.gov
950 Steeple Square Ct. | Knightdale, NC 27545 | 919-217-2247

This message and any attachments may be considered public record and are subject to public review.

From: Jeff Hochanadel
Sent: Wednesday, April 27, 2022 4:09 PM
To: Andrew Spiliotis; Kevin Lewis; Brennan, Sean P; Neidringhaus, Amy N; Ishak, Doumit Y; Walker, Braden M; Bunting, Clarence B; Lineberger, Nicholas C; Warren, Jeremy L
Cc: Mate'a Tindal; Beth Blackmon; Brian Massengill
Subject: Robertson TIA Scoping (Updated)

Be Advised: This email originated from outside of the Town of Knightdale, NC

All,

As you are aware, Timmons Group is currently working on a TIA for the subject project. I have

attached TIA scoping meeting minutes (held 12/16/21) for the subject project. At this meeting, it was assumed that a rail crossing would be permitted, providing site traffic access to/from Robertson Street (from the northern development portion). Since this meeting, the rail crossing has been denied and the site has been redesigned to include additional connections to the north (along with additional residential units).

I would like to rescope the subject project. I will be happy to meet to discuss the project, or I am happy to scope via email. Listed below are the project assumptions (updated site sketch attached):

- The project build-out will include:
    - 178 townhomes (originally 158)
    - 476 single-family homes (originally 357)
- 344 units to be constructed south of the tracks
- 310 units to be constructed north of the tracks
- The project will be constructed by 2027
- Analyses will include:
    - 2022 Existing
    - 2028 Background
    - 2028 Build
    - 2038 Future
- The project study area intersections will include the following (new intersections in red):
    - S First Avenue / N First Avenue / N Smithfield Road *
    - N First Avenue / Robertson Street *
    - N First Avenue / Poplar Street **
    - Robertson Street / Keith Street **
    - Robertson Street / Heartland Flyer Drive / Site Access 1
    - Robertson Street / Site Access 2
    - Robertson Street / Site Access 3
    - Robertson Street / Mailman Road **
    - Robertson Street / Knightdale Eagle Rock Road / Marks Creek Road **
    - Carolinian Avenue / Twin Star Lane / Heartland Flyer Drive *
    - Carolinian Avenue / Knightdale Station Run ^
    - Carolinian Avenue / Knightdale Blvd ^
    - N First Avenue / Knightdale Station Run ^

Note: Stubbed connections are shown to Massey Farm Road and Marshall Drive. As both roads are currently unpaved, no analyses are included.

- Traffic counts
    - Conducted December 2021 *

    - Conducted January 2022 **
    - To Be Conducted May 2022 ^

- 3% ambient growth rate through 2028 (Build + 1)
- 1% ambient growth rate between 2028 (Build + 1) and 2038 (Build + 10)
- There are no public improvement projects in the study area
- There are two approved developments within the study area:
    - Smithfield Road Mixed Use Development
        - To be constructed off Mailman Road
    - The Collection Development
        - To be constructed off Poplar Street / Keith Street

Jeff Hochanadel, PE, PTOE
Principal | North Carolina Transportation Group Leader
TIMMONS GROUP | www.timmons.com
5410 Trinity Rd, Suite 102 | Raleigh, NC 27607
Office: 919.866.4511 | Fax: 919.859.5663
Cell: 919.426.8405
jeff.hochanadel@timmons.com
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Appendix B – Traffic Counts

TRAFFIC DATA COLLECTION

File Name : Knightdale (N First Ave and Knightdale Station Run)
Site Code :
Start Date : 5/12/2022
Page No : 1

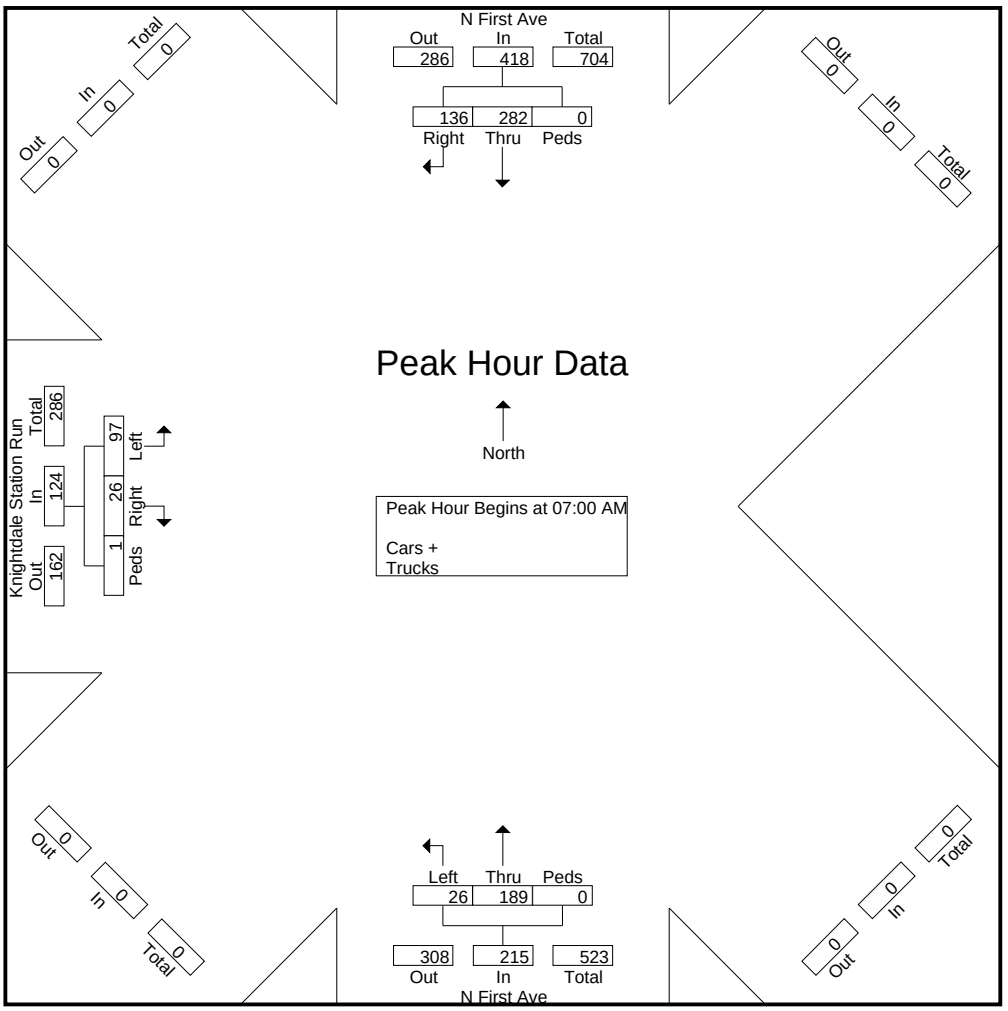
Groups Printed- Cars + - Trucks

	N First Ave Southbound				N First Ave Northbound				Knightdale Station Run Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
07:00 AM	20	86	0	106	44	7	0	51	1	7	0	8	165
07:15 AM	47	62	0	109	56	6	0	62	3	24	1	28	199
07:30 AM	53	66	0	119	46	10	0	56	14	31	0	45	220
07:45 AM	16	68	0	84	43	3	0	46	8	35	0	43	173
Total	136	282	0	418	189	26	0	215	26	97	1	124	757
08:00 AM	9	53	0	62	46	5	0	51	3	4	0	7	120
08:15 AM	11	58	0	69	44	6	0	50	6	6	0	12	131
08:30 AM	4	42	0	46	47	3	0	50	9	10	0	19	115
08:45 AM	9	55	0	64	54	6	0	60	10	9	1	20	144
Total	33	208	0	241	191	20	0	211	28	29	1	58	510
Grand Total	169	490	0	659	380	46	0	426	54	126	2	182	1267
Apprch %	25.6	74.4	0		89.2	10.8	0		29.7	69.2	1.1		
Total %	13.3	38.7	0	52	30	3.6	0	33.6	4.3	9.9	0.2	14.4	
Cars +	169	474	0	643	366	46	0	412	53	126	2	181	1236
% Cars +	100	96.7	0	97.6	96.3	100	0	96.7	98.1	100	100	99.5	97.6
Trucks	0	16	0	16	14	0	0	14	1	0	0	1	31
% Trucks	0	3.3	0	2.4	3.7	0	0	3.3	1.9	0	0	0.5	2.4

TRAFFIC DATA COLLECTION

File Name : Knightdale (N First Ave and Knightdale Station Run)
Site Code :
Start Date : 5/12/2022
Page No : 2

	N First Ave Southbound				N First Ave Northbound				Knightdale Station Run Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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 07:00 AM													
07:00 AM	20	**86**	0	106	44	7	0	51	1	7	0	8	165
07:15 AM	47	62	0	109	**56**	6	0	**62**	3	24	**1**	28	199
07:30 AM	**53**	66	0	**119**	46	**10**	0	56	**14**	31	0	**45**	**220**
07:45 AM	16	68	0	84	43	3	0	46	8	**35**	0	43	173
Total Volume	136	282	0	418	189	26	0	215	26	97	1	124	757
% App. Total	32.5	67.5	0		87.9	12.1	0		21	78.2	0.8		
PHF	.642	.820	.000	.878	.844	.650	.000	.867	.464	.693	.250	.689	.860



TRAFFIC DATA COLLECTION

File Name : Knightdale (N First Ave and Knightdale Station Run)
Site Code :
Start Date : 5/12/2022
Page No : 1

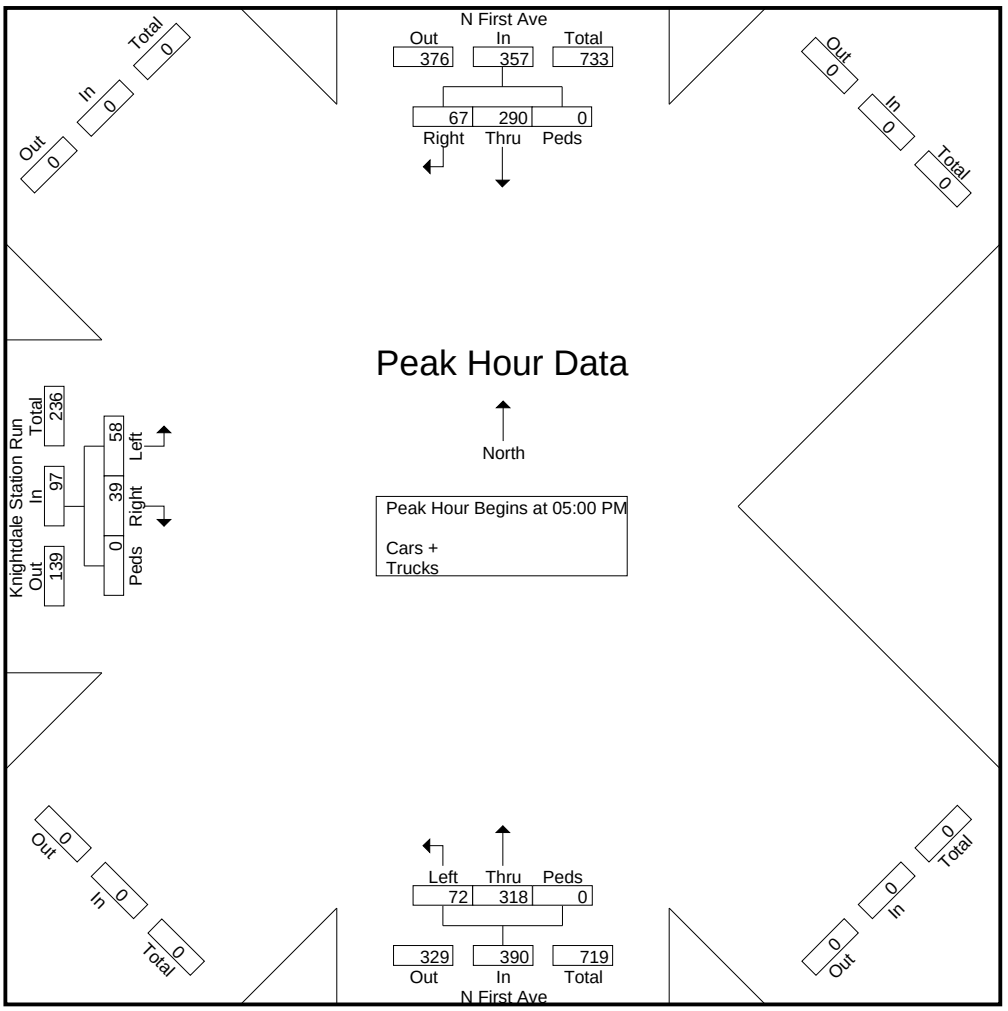
Groups Printed- Cars + - Trucks

	N First Ave Southbound				N First Ave Northbound				Knightdale Station Run Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
04:00 PM	10	51	0	61	62	10	0	72	7	11	0	18	151
04:15 PM	17	68	0	85	64	10	0	74	6	8	1	15	174
04:30 PM	19	64	0	83	57	9	0	66	8	21	0	29	178
04:45 PM	14	68	0	82	85	13	0	98	11	15	0	26	206
Total	60	251	0	311	268	42	0	310	32	55	1	88	709
05:00 PM	13	71	0	84	84	15	0	99	6	15	0	21	204
05:15 PM	17	72	0	89	82	11	0	93	5	11	0	16	198
05:30 PM	18	71	0	89	84	18	0	102	11	13	0	24	215
05:45 PM	19	76	0	95	68	28	0	96	17	19	0	36	227
Total	67	290	0	357	318	72	0	390	39	58	0	97	844
Grand Total	127	541	0	668	586	114	0	700	71	113	1	185	1553
Apprch %	19	81	0		83.7	16.3	0		38.4	61.1	0.5		
Total %	8.2	34.8	0	43	37.7	7.3	0	45.1	4.6	7.3	0.1	11.9	
Cars +	127	526	0	653	576	114	0	690	71	112	1	184	1527
% Cars +	100	97.2	0	97.8	98.3	100	0	98.6	100	99.1	100	99.5	98.3
Trucks	0	15	0	15	10	0	0	10	0	1	0	1	26
% Trucks	0	2.8	0	2.2	1.7	0	0	1.4	0	0.9	0	0.5	1.7

TRAFFIC DATA COLLECTION

File Name : Knightdale (N First Ave and Knightdale Station Run)
Site Code :
Start Date : 5/12/2022
Page No : 2

	N First Ave Southbound				N First Ave Northbound				Knightdale Station Run Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	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 05:00 PM													
05:00 PM	13	71	0	84	**84**	15	0	99	6	15	0	21	204
05:15 PM	17	72	0	89	82	11	0	93	5	11	0	16	198
05:30 PM	18	71	0	89	84	18	0	**102**	11	13	0	24	215
05:45 PM	**19**	**76**	0	**95**	68	**28**	0	96	**17**	**19**	0	**36**	**227**
Total Volume	67	290	0	357	318	72	0	390	39	58	0	97	844
% App. Total	18.8	81.2	0		81.5	18.5	0		40.2	59.8	0		
PHF	.882	.954	.000	.939	.946	.643	.000	.956	.574	.763	.000	.674	.930



TRAFFIC DATA COLLECTION

File Name : Knightdale (Knightdale Blvd and Carolinian Ave)
Site Code :
Start Date : 5/12/2022
Page No : 1

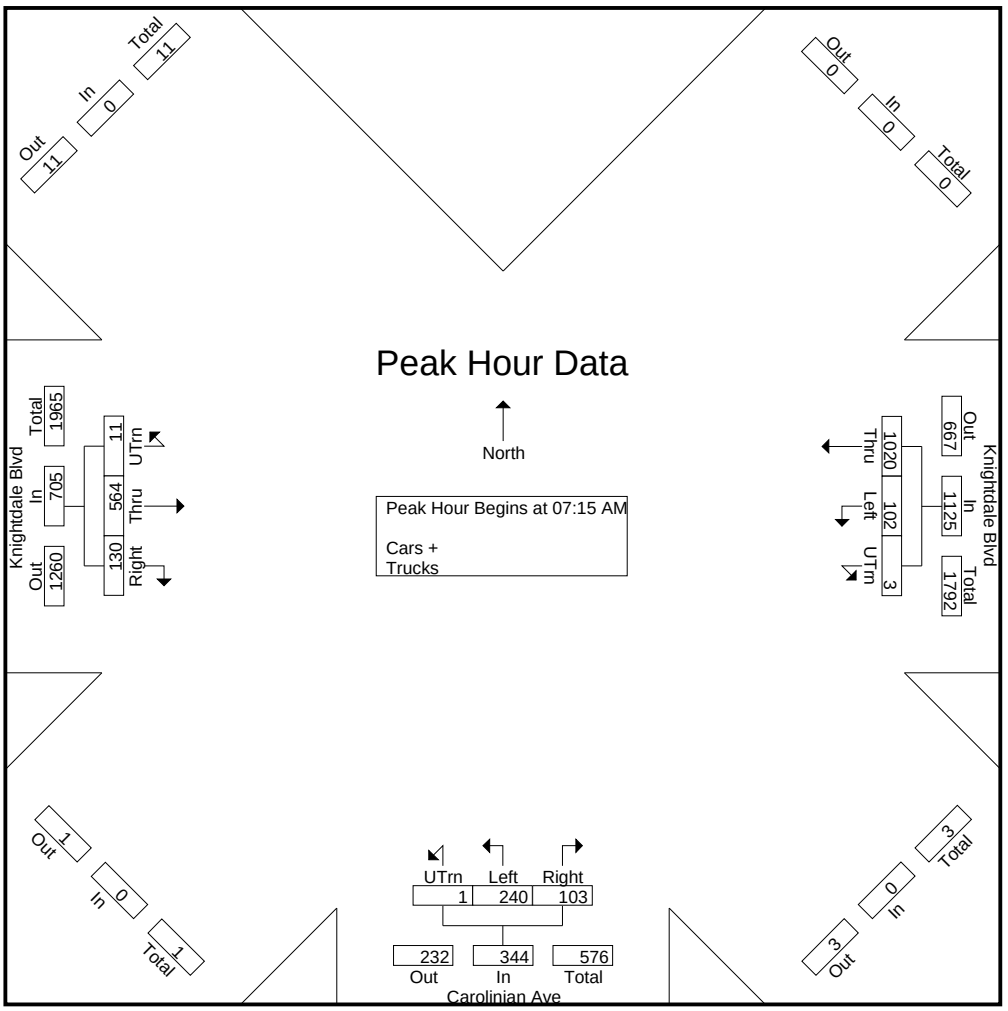
Groups Printed- Cars + - Trucks

	Knightdale Blvd Westbound				Carolinian Ave Northbound				Knightdale Blvd Eastbound				
Start Time	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Right	Thru	UTrn	App. Total	Int. Total
07:00 AM	215	19	0	234	5	15	0	20	25	87	2	114	368
07:15 AM	260	34	0	294	24	53	0	77	49	139	3	191	562
07:30 AM	238	58	3	299	51	84	0	135	56	123	3	182	616
07:45 AM	288	6	0	294	23	71	1	95	18	174	2	194	583
Total	1001	117	3	1121	103	223	1	327	148	523	10	681	2129
08:00 AM	234	4	0	238	5	32	0	37	7	128	3	138	413
08:15 AM	224	3	0	227	2	12	0	14	18	148	4	170	411
08:30 AM	198	6	0	204	5	21	0	26	12	147	3	162	392
08:45 AM	238	3	0	241	1	18	0	19	18	128	5	151	411
Total	894	16	0	910	13	83	0	96	55	551	15	621	1627
Grand Total	1895	133	3	2031	116	306	1	423	203	1074	25	1302	3756
Apprch %	93.3	6.5	0.1		27.4	72.3	0.2		15.6	82.5	1.9		
Total %	50.5	3.5	0.1	54.1	3.1	8.1	0	11.3	5.4	28.6	0.7	34.7	
Cars +	1783	133	3	1919	116	306	1	423	200	975	25	1200	3542
% Cars +	94.1	100	100	94.5	100	100	100	100	98.5	90.8	100	92.2	94.3
Trucks	112	0	0	112	0	0	0	0	3	99	0	102	214
% Trucks	5.9	0	0	5.5	0	0	0	0	1.5	9.2	0	7.8	5.7

TRAFFIC DATA COLLECTION

File Name : Knightdale (Knightdale Blvd and Carolinian Ave)
Site Code :
Start Date : 5/12/2022

	Knightdale Blvd Westbound				Carolinian Ave Northbound				Knightdale Blvd Eastbound				
Start Time	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Right	Thru	UTrn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	260	34	0	294	24	53	0	77	49	139	**3**	191	562
07:30 AM	238	**58**	**3**	**299**	**51**	**84**	0	**135**	**56**	123	3	182	**616**
07:45 AM	**288**	6	0	294	23	71	**1**	95	18	**174**	2	**194**	583
08:00 AM	234	4	0	238	5	32	0	37	7	128	3	138	413
Total Volume	1020	102	3	1125	103	240	1	344	130	564	11	705	2174
% App. Total	90.7	9.1	0.3		29.9	69.8	0.3		18.4	80	1.6		
PHF	.885	.440	.250	.941	.505	.714	.250	.637	.580	.810	.917	.909	.882



TRAFFIC DATA COLLECTION

File Name : Knightdale (Knightdale Blvd and Carolinian Ave)
Site Code :
Start Date : 5/12/2022
Page No : 1

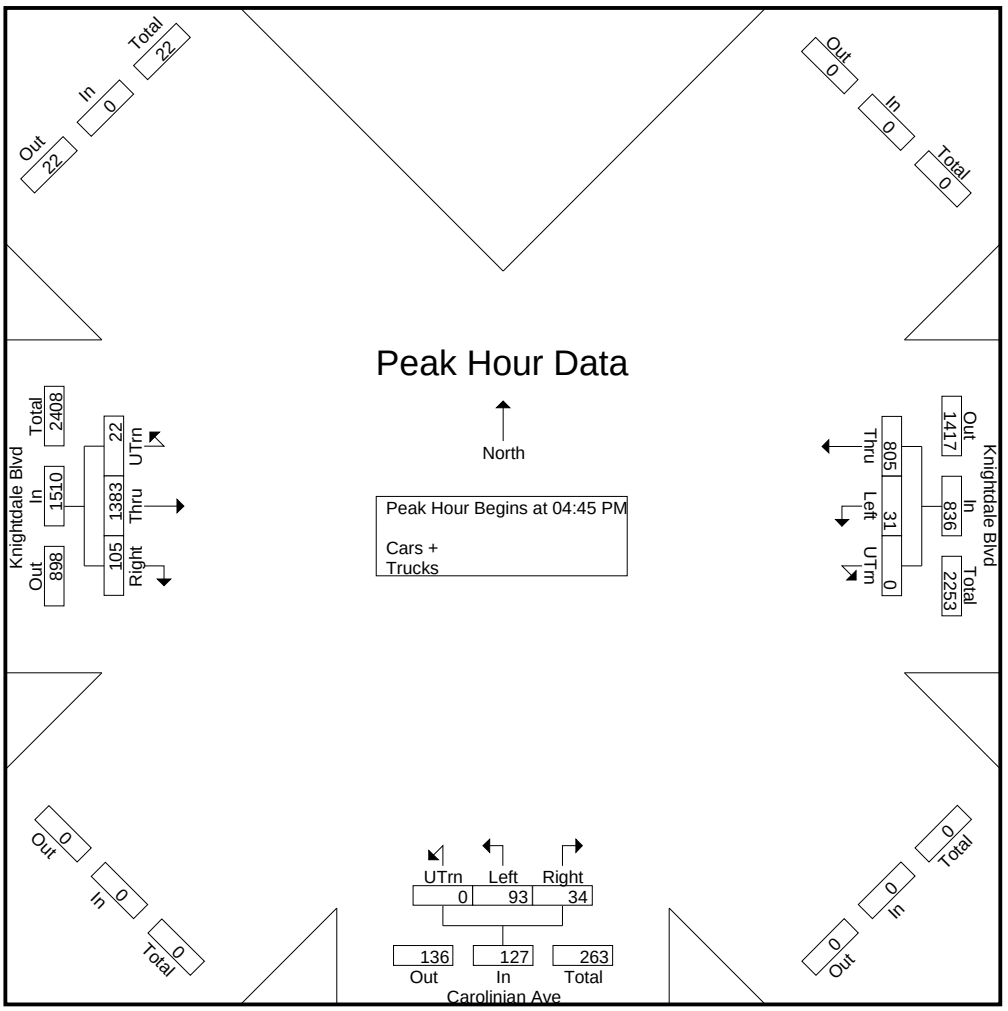
Groups Printed- Cars + - Trucks

	Knightdale Blvd Westbound				Carolinian Ave Northbound				Knightdale Blvd Eastbound				
Start Time	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Right	Thru	UTrn	App. Total	Int. Total
04:00 PM	149	5	0	154	3	10	1	14	12	340	9	361	529
04:15 PM	194	9	0	203	4	19	0	23	23	276	13	312	538
04:30 PM	183	5	0	188	12	14	0	26	29	300	9	338	552
04:45 PM	175	9	0	184	11	28	0	39	27	315	9	351	574
Total	701	28	0	729	30	71	1	102	91	1231	40	1362	2193
05:00 PM	209	3	0	212	7	16	0	23	24	360	6	390	625
05:15 PM	225	9	0	234	7	20	0	27	32	368	6	406	667
05:30 PM	196	10	0	206	9	29	0	38	22	340	1	363	607
05:45 PM	181	4	0	185	7	21	0	28	19	337	4	360	573
Total	811	26	0	837	30	86	0	116	97	1405	17	1519	2472
Grand Total	1512	54	0	1566	60	157	1	218	188	2636	57	2881	4665
Apprch %	96.6	3.4	0		27.5	72	0.5		6.5	91.5	2		
Total %	32.4	1.2	0	33.6	1.3	3.4	0	4.7	4	56.5	1.2	61.8	
Cars +	1464	54	0	1518	60	157	1	218	187	2567	57	2811	4547
% Cars +	96.8	100	0	96.9	100	100	100	100	99.5	97.4	100	97.6	97.5
Trucks	48	0	0	48	0	0	0	0	1	69	0	70	118
% Trucks	3.2	0	0	3.1	0	0	0	0	0.5	2.6	0	2.4	2.5

TRAFFIC DATA COLLECTION

File Name : Knightdale (Knightdale Blvd and Carolinian Ave)
Site Code :
Start Date : 5/12/2022

	Knightdale Blvd Westbound				Carolinian Ave Northbound				Knightdale Blvd Eastbound				
Start Time	Thru	Left	UTrn	App. Total	Right	Left	UTrn	App. Total	Right	Thru	UTrn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	175	9	0	184	**11**	28	0	**39**	27	315	**9**	351	574
05:00 PM	209	3	0	212	7	16	0	23	24	360	6	390	625
05:15 PM	**225**	9	0	**234**	7	20	0	27	**32**	**368**	6	**406**	**667**
05:30 PM	196	**10**	0	206	9	**29**	0	38	22	340	1	363	607
Total Volume	805	31	0	836	34	93	0	127	105	1383	22	1510	2473
% App. Total	96.3	3.7	0		26.8	73.2	0		7	91.6	1.5		
PHF	.894	.775	.000	.893	.773	.802	.000	.814	.820	.940	.611	.930	.927



TRAFFIC DATA COLLECTION

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

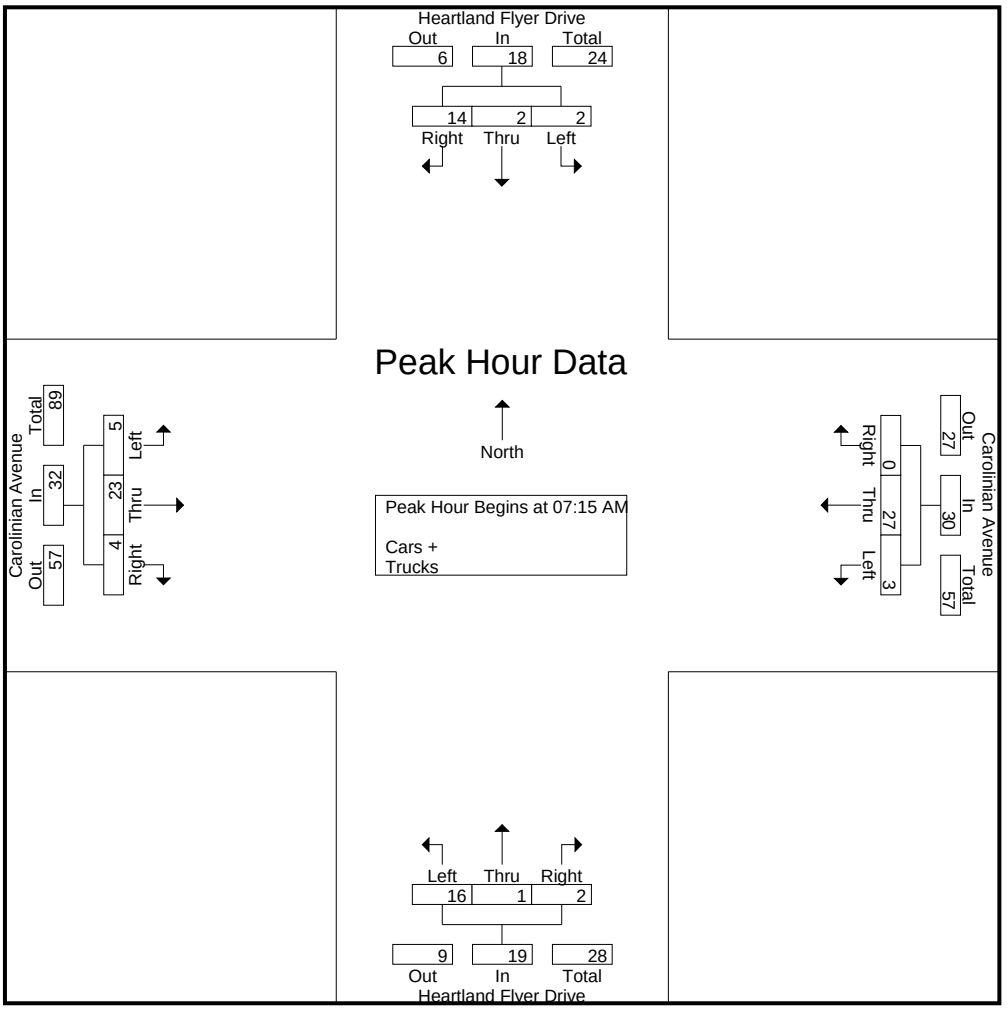
Groups Printed- Cars + - Trucks

	Heartland Flyer Drive Southbound				Carolinian Avenue Westbound				Heartland Flyer Drive Northbound				Carolinian 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	1	0	0	1	0	3	0	3	0	0	2	2	1	1	3	5	11
07:15 AM	3	0	1	4	0	6	1	7	0	0	5	5	1	4	0	5	21
07:30 AM	6	2	0	8	0	11	0	11	2	0	2	4	1	7	2	10	33
07:45 AM	3	0	1	4	0	5	1	6	0	0	5	5	1	6	3	10	25
Total	13	2	2	17	0	25	2	27	2	0	14	16	4	18	8	30	90
08:00 AM	2	0	0	2	0	5	1	6	0	1	4	5	1	6	0	7	20
08:15 AM	1	1	0	2	0	5	1	6	0	0	0	0	1	4	2	7	15
08:30 AM	1	1	0	2	0	3	1	4	1	0	2	3	2	2	2	6	15
08:45 AM	4	0	0	4	0	2	0	2	1	1	2	4	0	1	2	3	13
Total	8	2	0	10	0	15	3	18	2	2	8	12	4	13	6	23	63
Grand Total	21	4	2	27	0	40	5	45	4	2	22	28	8	31	14	53	153
Apprch %	77.8	14.8	7.4		0	88.9	11.1		14.3	7.1	78.6		15.1	58.5	26.4		
Total %	13.7	2.6	1.3	17.6	0	26.1	3.3	29.4	2.6	1.3	14.4	18.3	5.2	20.3	9.2	34.6	
Cars +	21	4	2	27	0	40	5	45	4	2	22	28	8	30	14	52	152
% Cars +	100	100	100	100	0	100	100	100	100	100	100	100	100	96.8	100	98.1	99.3
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	3.2	0	1.9	0.7

TRAFFIC DATA COLLECTION

File Name : Knightdale(Carolinian and Twin Star) AM Peak
Site Code :
Start Date : 12/16/2021
Page No : 2

	Heartland Flyer Drive Southbound				Carolinian Avenue Westbound				Heartland Flyer Drive Northbound				Carolinian 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	3	0	**1**	4	0	6	**1**	7	0	0	**5**	**5**	**1**	4	0	5	21
07:30 AM	**6**	**2**	0	**8**	0	**11**	0	**11**	**2**	0	2	4	1	**7**	2	**10**	**33**
07:45 AM	3	0	1	4	0	5	1	6	0	0	5	5	1	6	**3**	10	25
08:00 AM	2	0	0	2	0	5	1	6	0	**1**	4	5	1	6	0	7	20
Total Volume	14	2	2	18	0	27	3	30	2	1	16	19	4	23	5	32	99
% App. Total	77.8	11.1	11.1		0	90	10		10.5	5.3	84.2		12.5	71.9	15.6		
PHF	.583	.250	.500	.563	.000	.614	.750	.682	.250	.250	.800	.950	1.00	.821	.417	.800	.750



TRAFFIC DATA COLLECTION

File Name : Knightdale(Carolinian and Twin Star) PM Peak
Site Code :
Start Date : 12/16/2021
Page No : 1

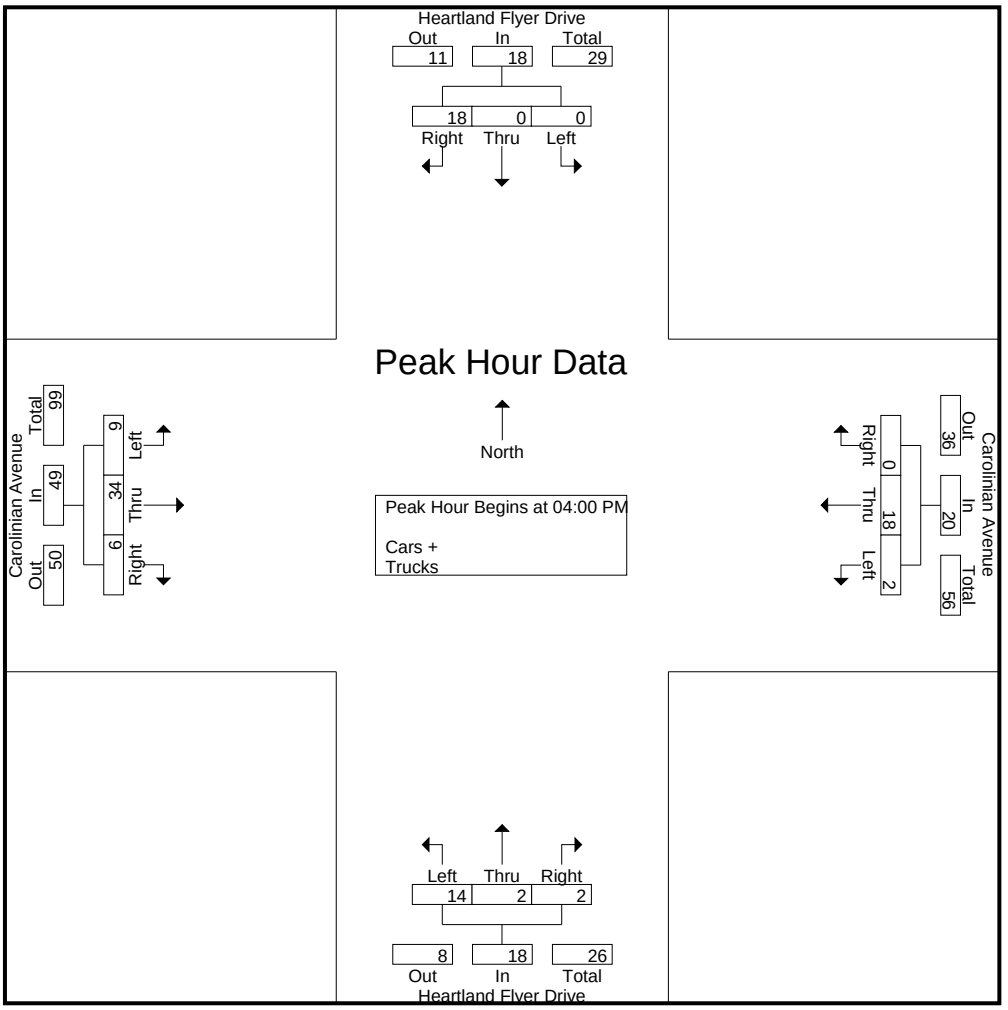
Groups Printed- Cars + - Trucks

	Heartland Flyer Drive Southbound				Carolinian Avenue Westbound				Heartland Flyer Drive Northbound				Carolinian 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	7	0	0	7	0	7	1	8	0	2	2	4	2	9	3	14	33
04:15 PM	7	0	0	7	0	2	0	2	0	0	7	7	2	5	1	8	24
04:30 PM	1	0	0	1	0	5	1	6	1	0	1	2	1	13	0	14	23
04:45 PM	3	0	0	3	0	4	0	4	1	0	4	5	1	7	5	13	25
Total	18	0	0	18	0	18	2	20	2	2	14	18	6	34	9	49	105
05:00 PM	1	0	0	1	0	2	0	2	0	0	5	5	4	6	1	11	19
05:15 PM	4	0	0	4	0	1	0	1	1	0	2	3	4	4	6	14	22
05:30 PM	1	0	0	1	0	5	0	5	0	0	2	2	1	6	4	11	19
05:45 PM	1	0	0	1	0	6	1	7	0	0	3	3	3	5	4	12	23
Total	7	0	0	7	0	14	1	15	1	0	12	13	12	21	15	48	83
Grand Total	25	0	0	25	0	32	3	35	3	2	26	31	18	55	24	97	188
Apprch %	100	0	0		0	91.4	8.6		9.7	6.5	83.9		18.6	56.7	24.7		
Total %	13.3	0	0	13.3	0	17	1.6	18.6	1.6	1.1	13.8	16.5	9.6	29.3	12.8	51.6	
Cars +	25	0	0	25	0	32	3	35	3	2	26	31	18	54	24	96	187
% Cars +	100	0	0	100	0	100	100	100	100	100	100	100	100	98.2	100	99	99.5
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8	0	1	0.5

TRAFFIC DATA COLLECTION

File Name : Knightdale(Carolinian and Twin Star) PM Peak
Site Code :
Start Date : 12/16/2021
Page No : 2

	Heartland Flyer Drive Southbound				Carolinian Avenue Westbound				Heartland Flyer Drive Northbound				Carolinian 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 04:00 PM																	
04:00 PM	**7**	0	0	**7**	0	**7**	**1**	**8**	0	**2**	2	4	**2**	9	3	**14**	**33**
04:15 PM	7	0	0	7	0	2	0	2	0	0	**7**	**7**	2	5	1	8	24
04:30 PM	1	0	0	1	0	5	1	6	**1**	0	1	2	1	**13**	0	14	23
04:45 PM	3	0	0	3	0	4	0	4	1	0	4	5	1	7	**5**	13	25
Total Volume	18	0	0	18	0	18	2	20	2	2	14	18	6	34	9	49	105
% App. Total	100	0	0		0	90	10		11.1	11.1	77.8		12.2	69.4	18.4		
PHF	.643	.000	.000	.643	.000	.643	.500	.625	.500	.250	.500	.643	.750	.654	.450	.875	.795



TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Poplar)
Site Code :
Start Date : 1/13/2022
Page No : 1

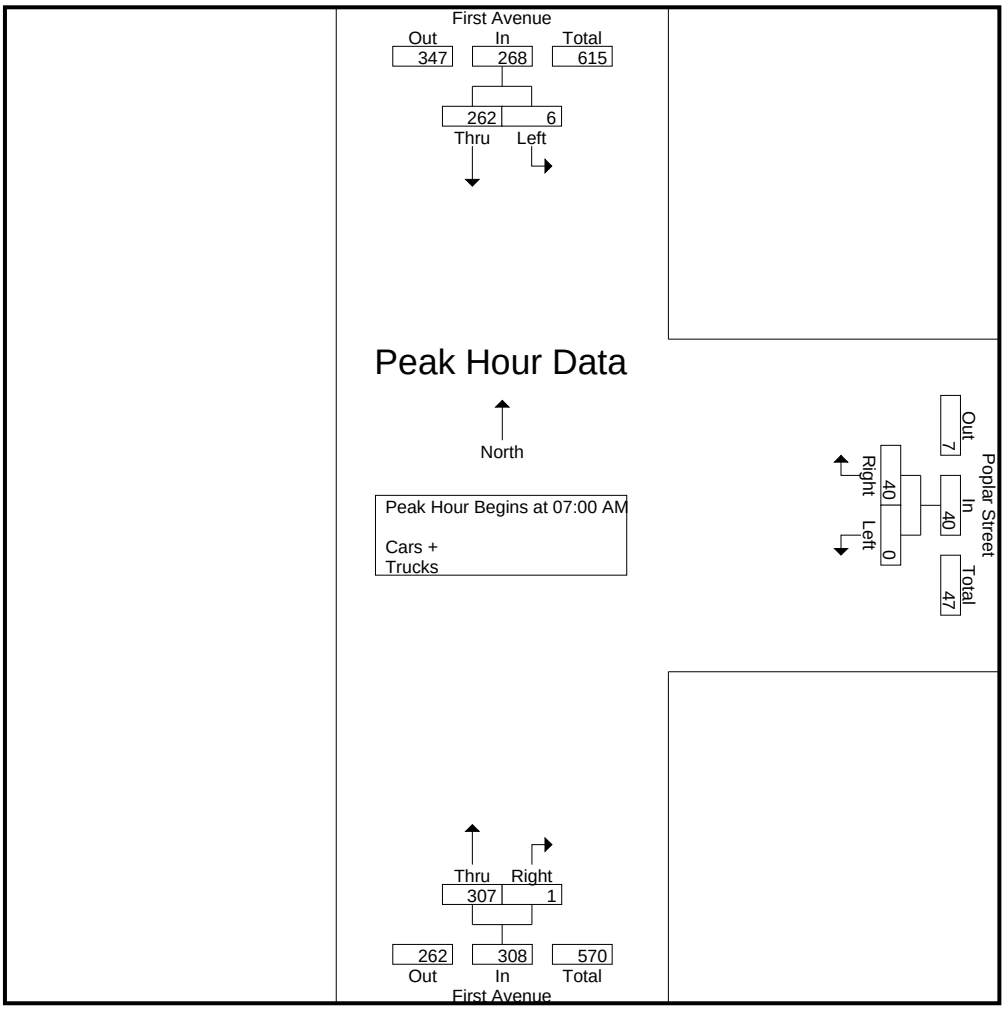
Groups Printed- Cars + - Trucks

	First Avenue Southbound			Poplar Street Westbound			First Avenue Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	53	1	54	10	0	10	0	86	86	150
07:15 AM	66	2	68	11	0	11	0	85	85	164
07:30 AM	77	1	78	14	0	14	0	89	89	181
07:45 AM	66	2	68	5	0	5	1	47	48	121
Total	262	6	268	40	0	40	1	307	308	616
08:00 AM	33	3	36	2	0	2	2	48	50	88
08:15 AM	40	1	41	3	0	3	0	60	60	104
08:30 AM	42	1	43	4	0	4	0	44	44	91
08:45 AM	40	1	41	6	0	6	0	56	56	103
Total	155	6	161	15	0	15	2	208	210	386
Grand Total	417	12	429	55	0	55	3	515	518	1002
Apprch %	97.2	2.8		100	0		0.6	99.4		
Total %	41.6	1.2	42.8	5.5	0	5.5	0.3	51.4	51.7	
Cars +	391	12	403	54	0	54	3	493	496	953
% Cars +	93.8	100	93.9	98.2	0	98.2	100	95.7	95.8	95.1
Trucks	26	0	26	1	0	1	0	22	22	49
% Trucks	6.2	0	6.1	1.8	0	1.8	0	4.3	4.2	4.9

TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Poplar)
Site Code :
Start Date : 1/13/2022

	First Avenue Southbound			Poplar Street Westbound			First Avenue Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	53	1	54	10	0	10	0	86	86	150
07:15 AM	66	**2**	68	11	0	11	0	85	85	164
07:30 AM	**77**	1	**78**	**14**	0	**14**	0	**89**	**89**	**181**
07:45 AM	66	2	68	5	0	5	**1**	47	48	121
Total Volume	262	6	268	40	0	40	1	307	308	616
% App. Total	97.8	2.2		100	0		0.3	99.7		
PHF	.851	.750	.859	.714	.000	.714	.250	.862	.865	.851



TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Poplar)
Site Code :
Start Date : 1/13/2022
Page No : 1

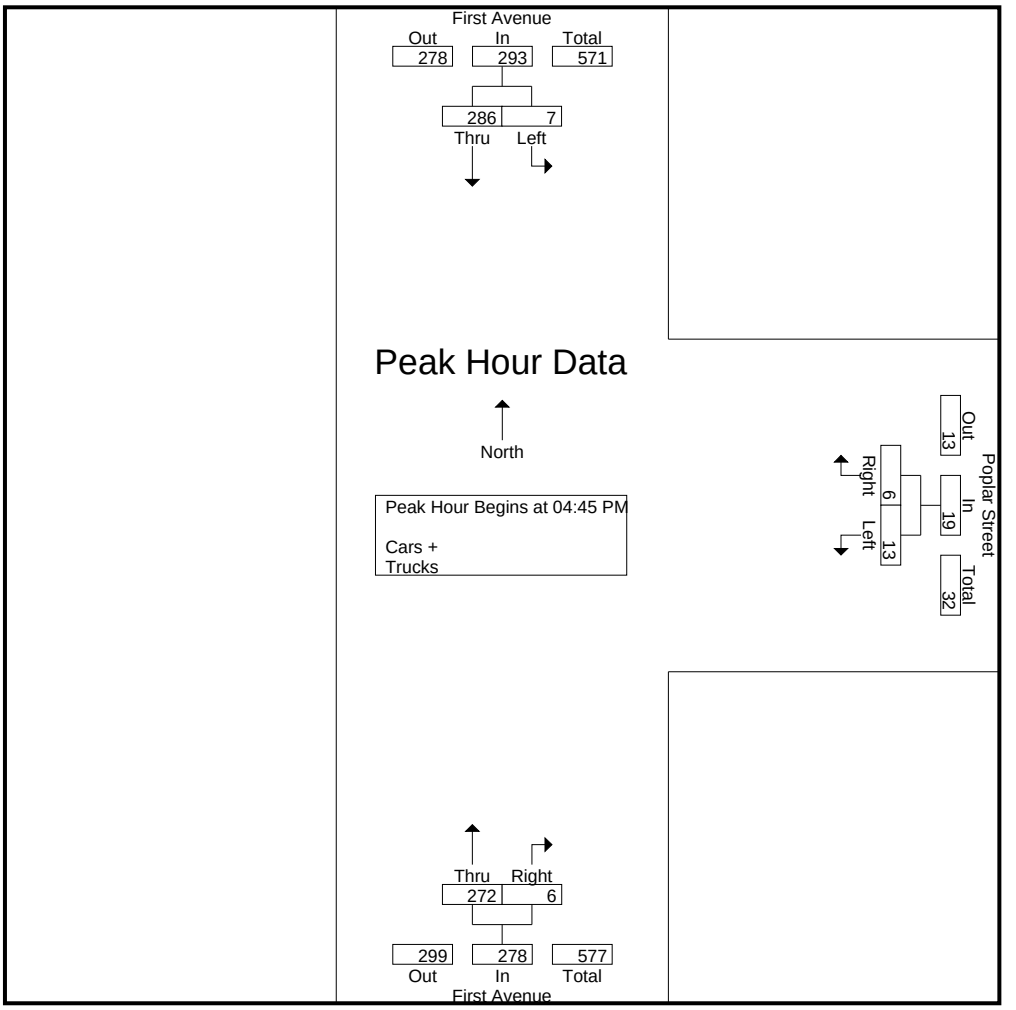
Groups Printed- Cars + - Trucks

	First Avenue Southbound			Poplar Street Westbound			First Avenue Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
04:00 PM	47	3	50	1	1	2	1	64	65	117
04:15 PM	70	4	74	7	3	10	3	57	60	144
04:30 PM	64	3	67	4	2	6	1	64	65	138
04:45 PM	71	1	72	3	4	7	2	59	61	140
Total	252	11	263	15	10	25	7	244	251	539
05:00 PM	76	2	78	0	0	0	0	68	68	146
05:15 PM	74	1	75	1	6	7	3	64	67	149
05:30 PM	65	3	68	2	3	5	1	81	82	155
05:45 PM	71	4	75	6	1	7	1	53	54	136
Total	286	10	296	9	10	19	5	266	271	586
Grand Total	538	21	559	24	20	44	12	510	522	1125
Apprch %	96.2	3.8		54.5	45.5		2.3	97.7		
Total %	47.8	1.9	49.7	2.1	1.8	3.9	1.1	45.3	46.4	
Cars +	522	20	542	24	20	44	12	480	492	1078
% Cars +	97	95.2	97	100	100	100	100	94.1	94.3	95.8
Trucks	16	1	17	0	0	0	0	30	30	47
% Trucks	3	4.8	3	0	0	0	0	5.9	5.7	4.2

TRAFFIC DATA COLLECTION

File Name : Knightdale(First and Poplar)
Site Code :
Start Date : 1/13/2022

	First Avenue Southbound			Poplar Street Westbound			First Avenue Northbound			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	71	1	72	**3**	4	**7**	2	59	61	140
05:00 PM	**76**	2	**78**	0	0	0	0	68	68	146
05:15 PM	74	1	75	1	**6**	7	**3**	64	67	149
05:30 PM	65	**3**	68	2	3	5	1	**81**	**82**	**155**
Total Volume	286	7	293	6	13	19	6	272	278	590
% App. Total	97.6	2.4		31.6	68.4		2.2	97.8		
PHF	.941	.583	.939	.500	.542	.679	.500	.840	.848	.952



TRAFFIC DATA COLLECTION

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

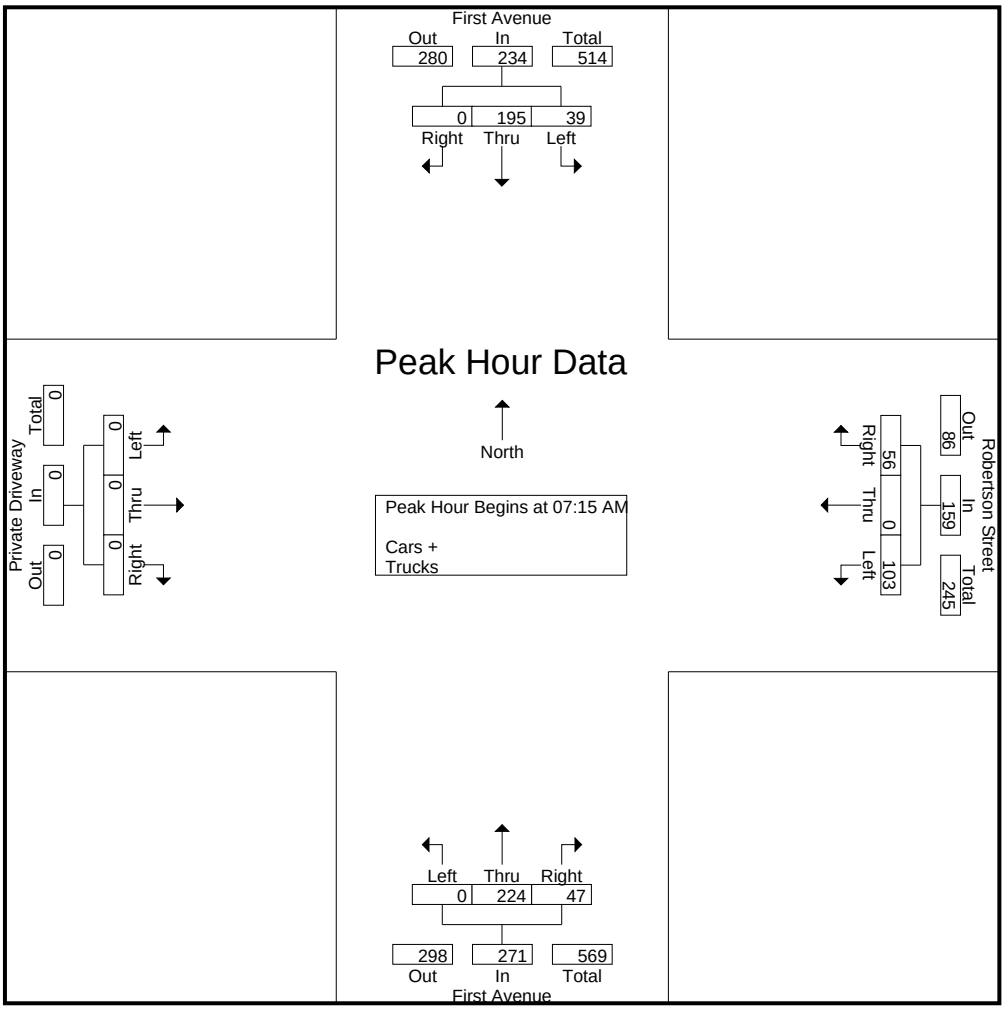
Groups Printed- Cars + - Trucks

	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 :
Start Date : 12/16/2021
Page No : 2

	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
Site Code :
Start Date : 12/16/2021
Page No : 1

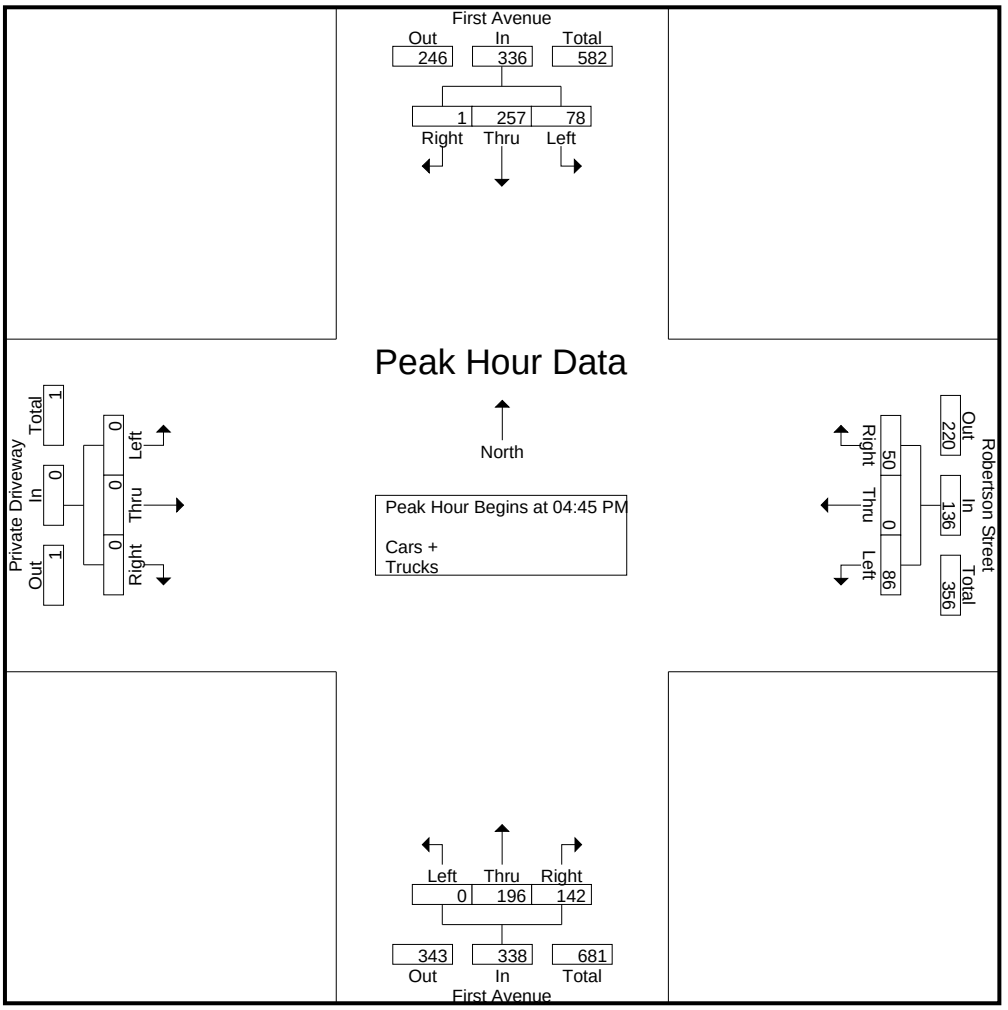
Groups Printed- Cars + - Trucks

	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
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
Page No : 2

	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
Site Code :
Start Date : 12/16/2021
Page No : 1

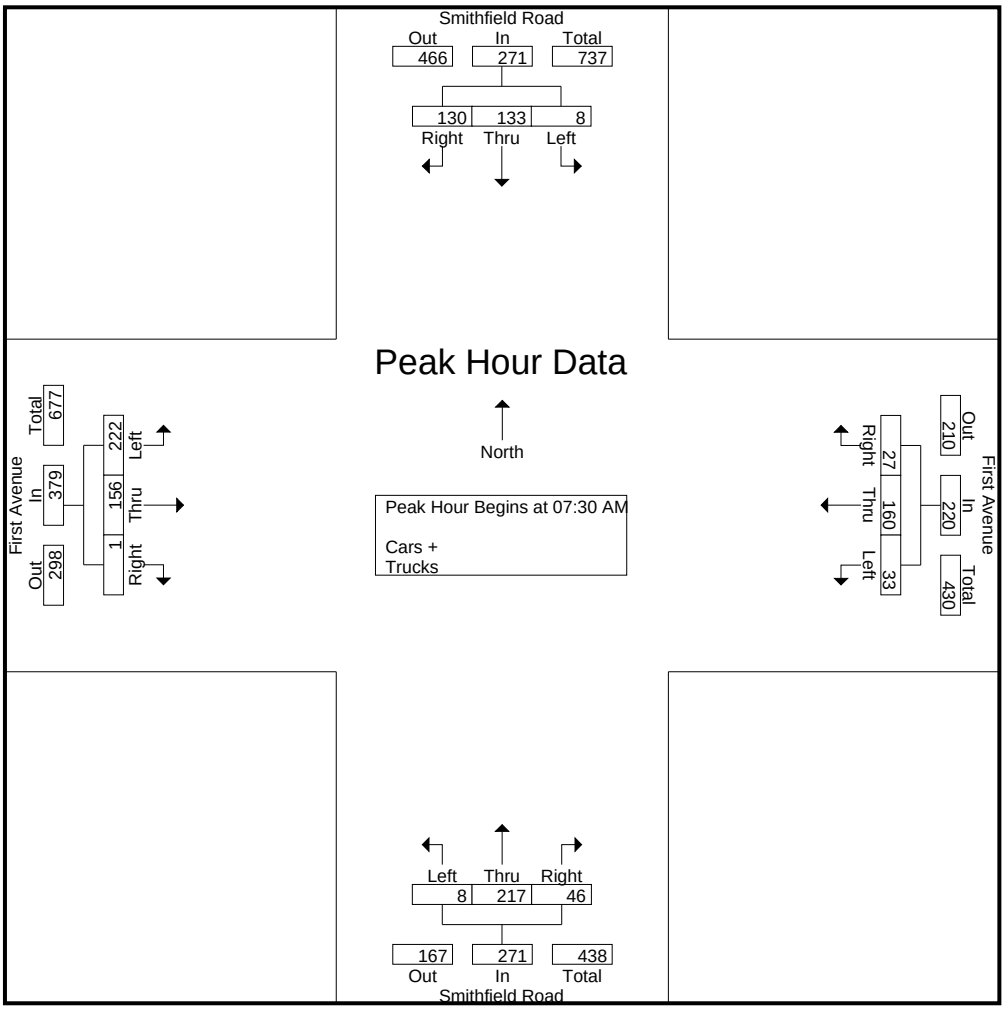
Groups Printed- Cars + - Trucks

	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
Site Code :
Start Date : 12/16/2021
Page No : 2

	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



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

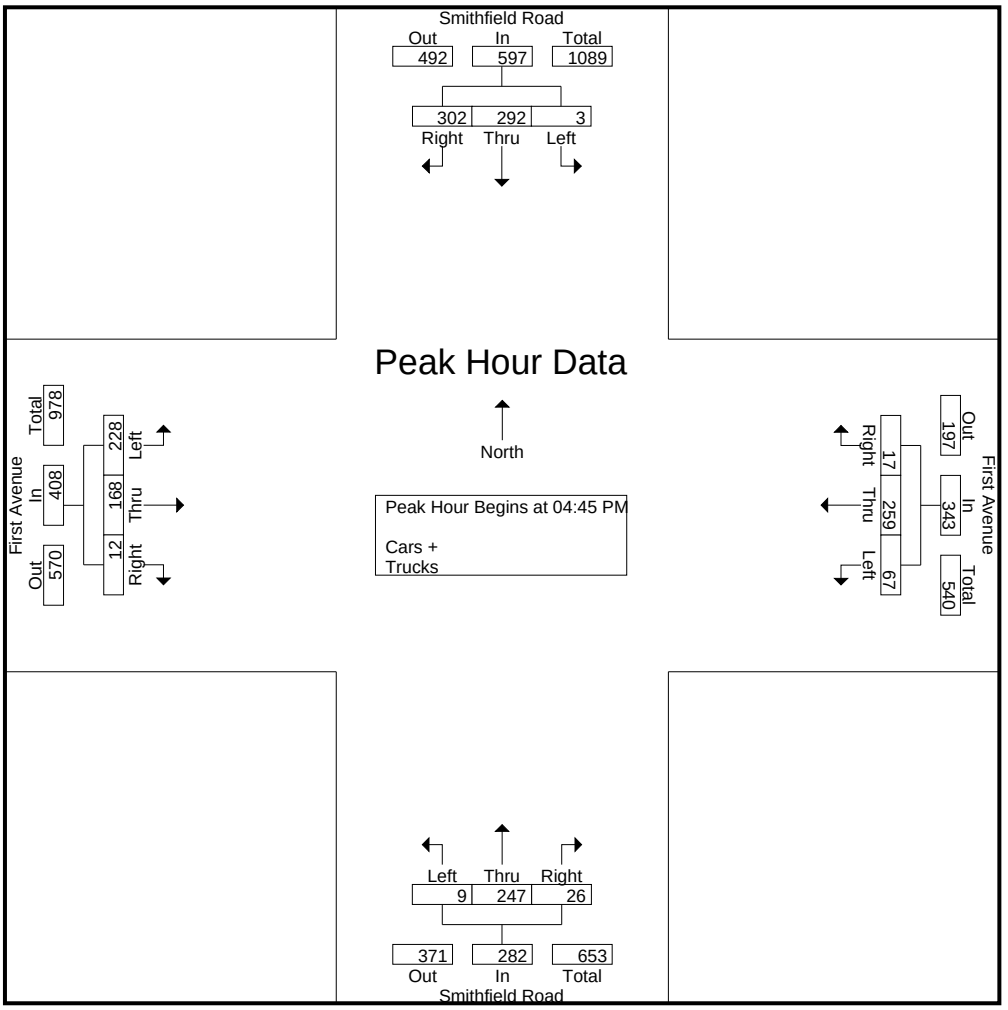
Groups Printed- Cars + - Trucks

	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
Site Code :
Start Date : 12/16/2021
Page No : 2

	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

File Name : Knightdale(Knightdale Station Run and Carolinian Ave)
Site Code :
Start Date : 5/12/2022
Page No : 1

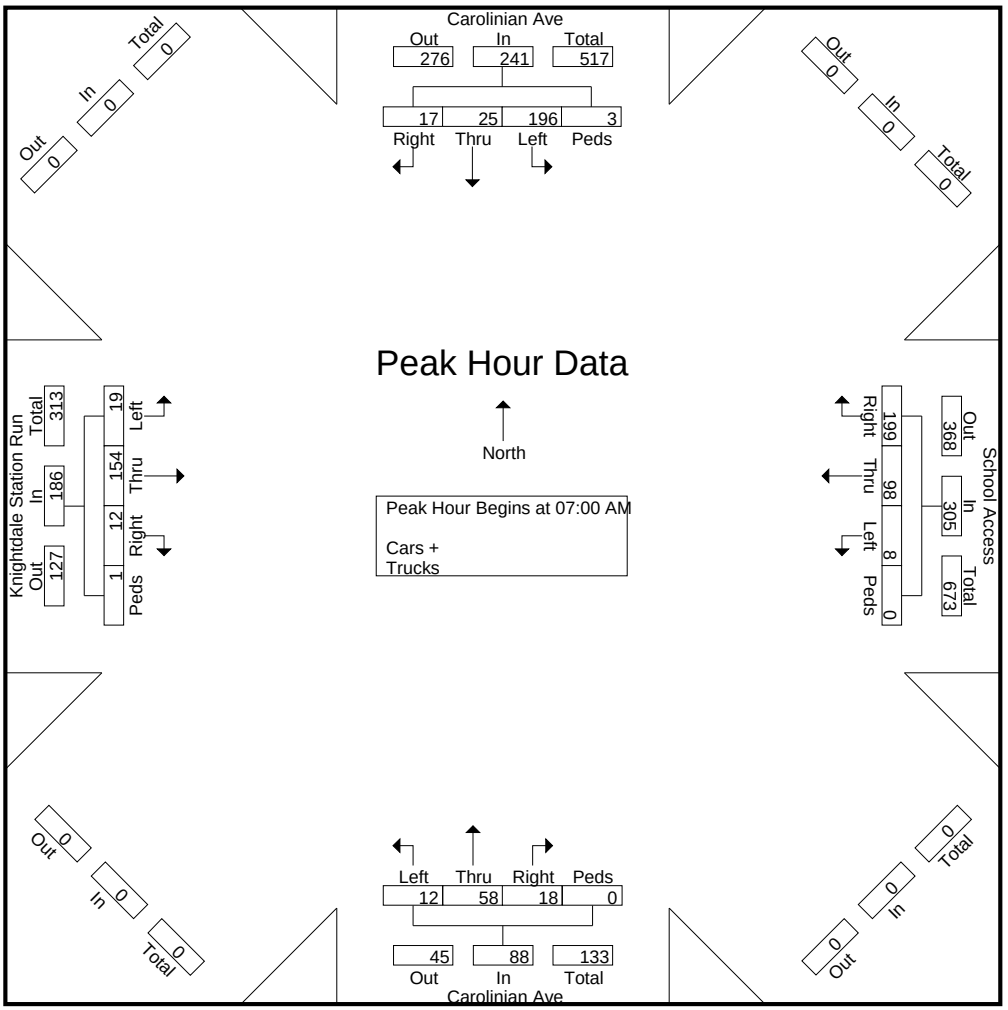
Groups Printed- Cars + - Trucks

	Carolinian Ave Southbound					School Access Westbound					Carolinian Ave Northbound					Knightdale Station Run 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	1	10	24	0	35	2	1	0	0	3	0	10	4	0	14	3	20	4	0	27	79
07:15 AM	7	3	73	2	85	51	25	0	0	76	5	16	1	0	22	2	52	3	0	57	240
07:30 AM	2	7	88	1	98	93	45	2	0	140	11	17	3	0	31	5	69	6	1	81	350
07:45 AM	7	5	11	0	23	53	27	6	0	86	2	15	4	0	21	2	13	6	0	21	151
Total	17	25	196	3	241	199	98	8	0	305	18	58	12	0	88	12	154	19	1	186	820
08:00 AM	3	3	2	0	8	3	2	0	0	5	0	13	4	0	17	3	1	8	0	12	42
08:15 AM	2	8	1	0	11	1	0	1	0	2	1	6	2	0	9	8	0	4	0	12	34
08:30 AM	8	8	2	0	18	3	0	0	0	3	0	12	5	0	17	1	0	3	0	4	42
08:45 AM	4	9	1	0	14	1	0	0	0	1	0	12	12	0	24	3	0	5	0	8	47
Total	17	28	6	0	51	8	2	1	0	11	1	43	23	0	67	15	1	20	0	36	165
Grand Total	34	53	202	3	292	207	100	9	0	316	19	101	35	0	155	27	155	39	1	222	985
Apprch %	11.6	18.2	69.2	1		65.5	31.6	2.8	0		12.3	65.2	22.6	0		12.2	69.8	17.6	0.5		
Total %	3.5	5.4	20.5	0.3	29.6	21	10.2	0.9	0	32.1	1.9	10.3	3.6	0	15.7	2.7	15.7	4	0.1	22.5	
Cars +	34	51	202	3	290	207	100	9	0	316	19	101	34	0	154	26	155	39	1	221	981
% Cars +	100	96.2	100	100	99.3	100	100	100	0	100	100	100	97.1	0	99.4	96.3	100	100	100	99.5	99.6
Trucks	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	4
% Trucks	0	3.8	0	0	0.7	0	0	0	0	0	0	0	2.9	0	0.6	3.7	0	0	0	0.5	0.4

TRAFFIC DATA COLLECTION

File Name : Knightdale(Knightdale Station Run and Carolinian Ave)
Site Code :
Start Date : 5/12/2022
Page No : 2

	Carolinian Ave Southbound					School Access Westbound					Carolinian Ave Northbound					Knightdale Station Run 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 07:00 AM																					
07:00 AM	1	**10**	24	0	35	2	1	0	0	3	0	10	**4**	0	14	3	20	4	0	27	79
07:15 AM	**7**	3	73	**2**	85	51	25	0	0	76	5	16	1	0	22	2	52	3	0	57	240
07:30 AM	2	7	**88**	1	**98**	**93**	**45**	2	0	**140**	**11**	**17**	3	0	**31**	**5**	**69**	**6**	**1**	**81**	**350**
07:45 AM	7	5	11	0	23	53	27	**6**	0	86	2	15	4	0	21	2	13	6	0	21	151
Total Volume	17	25	196	3	241	199	98	8	0	305	18	58	12	0	88	12	154	19	1	186	820
% App. Total	7.1	10.4	81.3	1.2		65.2	32.1	2.6	0		20.5	65.9	13.6	0		6.5	82.8	10.2	0.5		
PHF	.607	.625	.557	.375	.615	.535	.544	.333	.000	.545	.409	.853	.750	.000	.710	.600	.558	.792	.250	.574	.586



TRAFFIC DATA COLLECTION

File Name : Knightdale(Knightdale Station Run and Carolinian Ave)
Site Code :
Start Date : 5/12/2022
Page No : 1

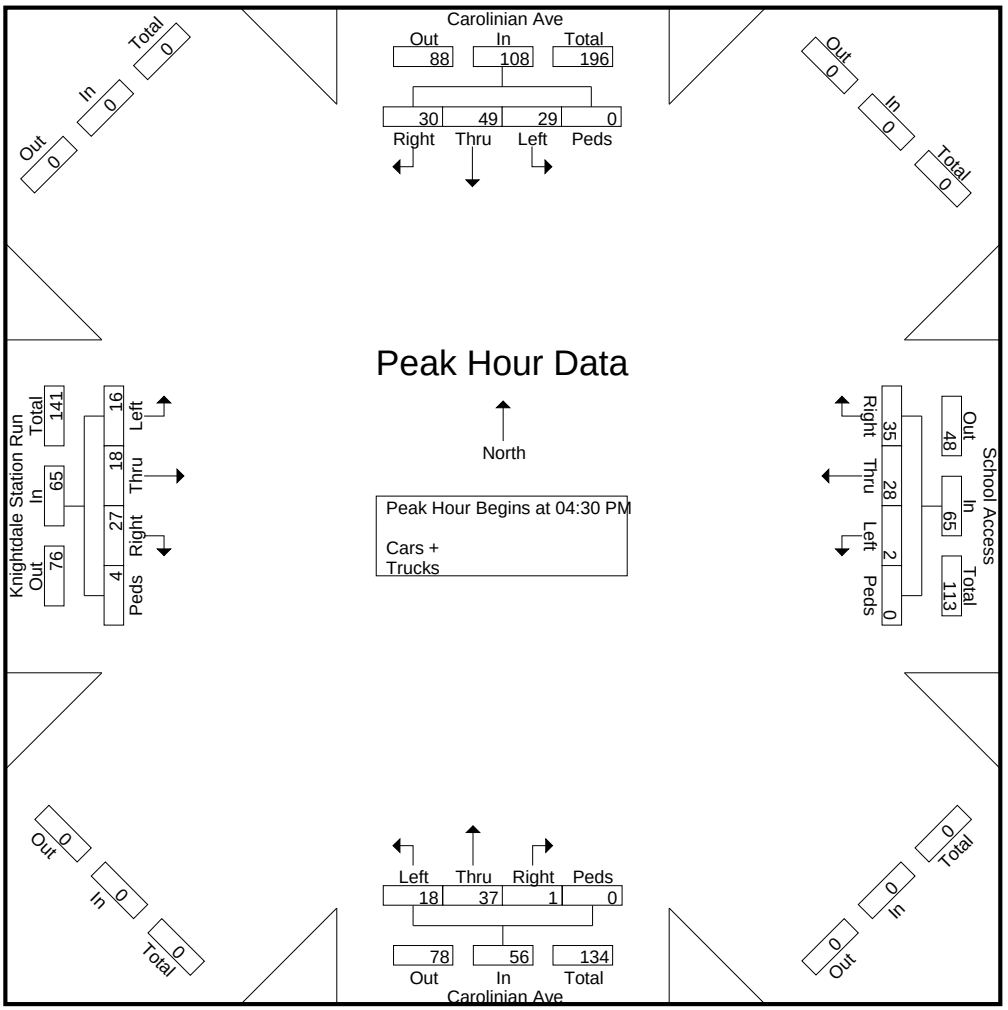
Groups Printed- Cars + - Trucks

	Carolinian Ave Southbound					School Access Westbound					Carolinian Ave Northbound					Knightdale Station Run 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	3	2	10	0	15	3	2	0	0	5	0	6	6	0	12	8	2	1	0	11	43
04:15 PM	2	10	13	0	25	12	1	0	0	13	1	5	5	0	11	13	10	3	0	26	75
04:30 PM	5	10	7	0	22	12	14	1	0	27	0	7	5	0	12	9	5	4	4	22	83
04:45 PM	8	18	8	0	34	7	7	0	0	14	0	12	2	0	14	7	5	3	0	15	77
Total	18	40	38	0	96	34	24	1	0	59	1	30	18	0	49	37	22	11	4	74	278
05:00 PM	6	9	5	0	20	9	3	0	0	12	0	8	4	0	12	4	4	4	0	12	56
05:15 PM	11	12	9	0	32	7	4	1	0	12	1	10	7	0	18	7	4	5	0	16	78
05:30 PM	11	10	7	0	28	9	3	0	0	12	1	12	4	0	17	3	3	4	0	10	67
05:45 PM	9	11	2	0	22	2	5	0	0	7	0	10	6	0	16	7	0	8	4	19	64
Total	37	42	23	0	102	27	15	1	0	43	2	40	21	0	63	21	11	21	4	57	265
Grand Total	55	82	61	0	198	61	39	2	0	102	3	70	39	0	112	58	33	32	8	131	543
Apprch %	27.8	41.4	30.8	0		59.8	38.2	2	0		2.7	62.5	34.8	0		44.3	25.2	24.4	6.1		
Total %	10.1	15.1	11.2	0	36.5	11.2	7.2	0.4	0	18.8	0.6	12.9	7.2	0	20.6	10.7	6.1	5.9	1.5	24.1	
Cars +	55	81	61	0	197	61	39	2	0	102	3	70	39	0	112	58	33	32	8	131	542
% Cars +	100	98.8	100	0	99.5	100	100	100	0	100	100	100	100	0	100	100	100	100	100	100	99.8
Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks	0	1.2	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2

TRAFFIC DATA COLLECTION

File Name : Knightdale(Knightdale Station Run and Carolinian Ave)
Site Code :
Start Date : 5/12/2022
Page No : 2

	Carolinian Ave Southbound					School Access Westbound					Carolinian Ave Northbound					Knightdale Station Run 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 04:30 PM																					
04:30 PM	5	10	7	0	22	**12**	**14**	**1**	0	**27**	0	7	5	0	12	**9**	**5**	4	**4**	**22**	**83**
04:45 PM	8	**18**	8	0	**34**	7	7	0	0	14	0	**12**	2	0	14	7	5	3	0	15	77
05:00 PM	6	9	5	0	20	9	3	0	0	12	0	8	4	0	12	4	4	4	0	12	56
05:15 PM	**11**	12	**9**	0	32	7	4	1	0	12	**1**	10	**7**	0	**18**	7	4	**5**	0	16	78
Total Volume	30	49	29	0	108	35	28	2	0	65	1	37	18	0	56	27	18	16	4	65	294
% App. Total	27.8	45.4	26.9	0		53.8	43.1	3.1	0		1.8	66.1	32.1	0		41.5	27.7	24.6	6.2		
PHF	.682	.681	.806	.000	.794	.729	.500	.500	.000	.602	.250	.771	.643	.000	.778	.750	.900	.800	.250	.739	.886



TRAFFIC DATA COLLECTION

File Name : Knightdale(Marshall and Marks Creek)AM
Site Code :
Start Date : 6/2/2022
Page No : 1

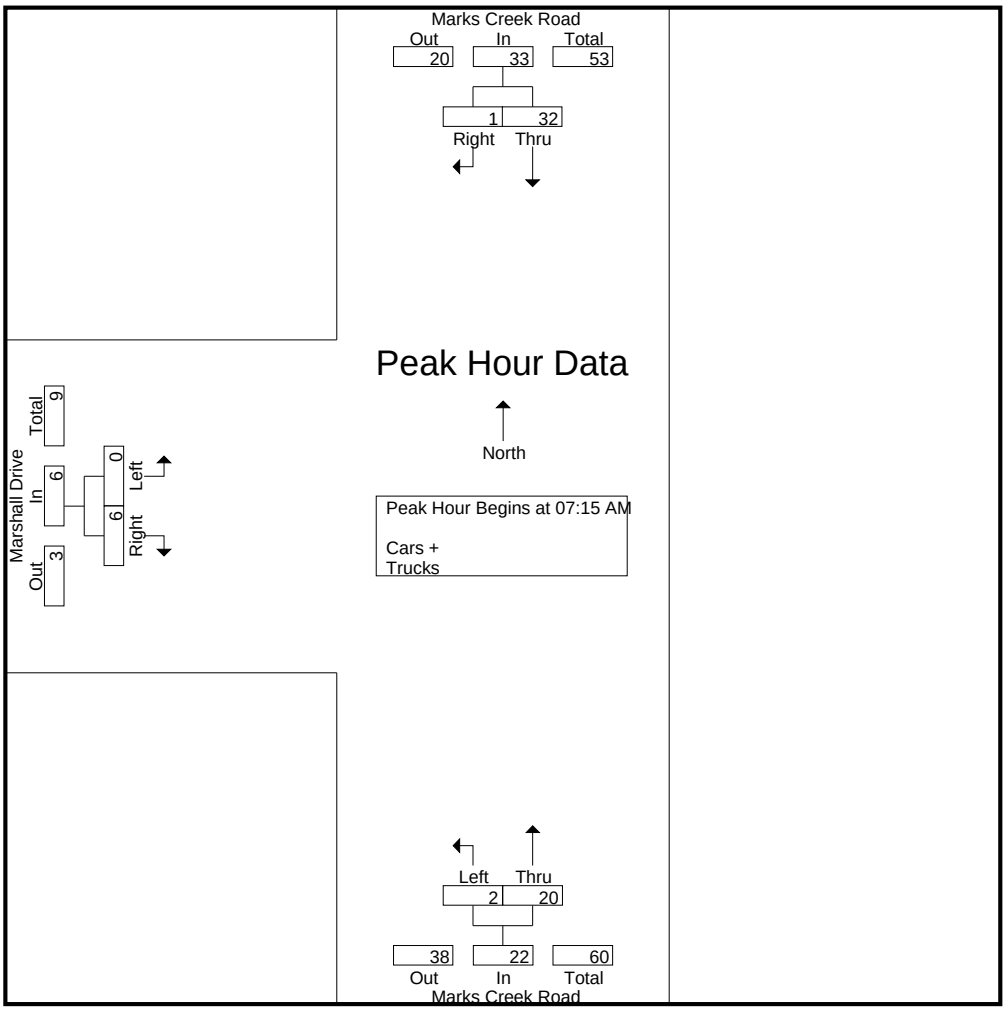
Groups Printed- Cars + - Trucks

	Marks Creek Road Southbound			Marks Creek Road Northbound			Marshall Drive Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
07:00 AM	1	6	7	2	1	3	1	1	2	12
07:15 AM	0	7	7	7	0	7	1	0	1	15
07:30 AM	0	7	7	5	1	6	2	0	2	15
07:45 AM	0	10	10	6	0	6	1	0	1	17
Total	1	30	31	20	2	22	5	1	6	59
08:00 AM	1	8	9	2	1	3	2	0	2	14
08:15 AM	0	4	4	2	0	2	0	0	0	6
08:30 AM	0	7	7	4	0	4	2	0	2	13
08:45 AM	1	6	7	3	0	3	0	0	0	10
Total	2	25	27	11	1	12	4	0	4	43
Grand Total	3	55	58	31	3	34	9	1	10	102
Apprch %	5.2	94.8		91.2	8.8		90	10		
Total %	2.9	53.9	56.9	30.4	2.9	33.3	8.8	1	9.8	
Cars +	3	49	52	29	3	32	8	1	9	93
% Cars +	100	89.1	89.7	93.5	100	94.1	88.9	100	90	91.2
Trucks	0	6	6	2	0	2	1	0	1	9
% Trucks	0	10.9	10.3	6.5	0	5.9	11.1	0	10	8.8

TRAFFIC DATA COLLECTION

File Name : Knightdale(Marshall and Marks Creek)AM
Site Code :
Start Date : 6/2/2022
Page No : 2

	Marks Creek Road Southbound			Marks Creek Road Northbound			Marshall Drive 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 07:15 AM										
07:15 AM	0	7	7	**7**	0	**7**	1	0	1	15
07:30 AM	0	7	7	5	**1**	6	**2**	0	**2**	15
07:45 AM	0	**10**	**10**	6	0	6	1	0	1	**17**
08:00 AM	**1**	8	9	2	1	3	2	0	2	14
Total Volume	1	32	33	20	2	22	6	0	6	61
% App. Total	3	97		90.9	9.1		100	0		
PHF	.250	.800	.825	.714	.500	.786	.750	.000	.750	.897



TRAFFIC DATA COLLECTION

File Name : Knightdale(Marshall and Marks Creek)PM
Site Code :
Start Date : 6/1/2022
Page No : 1

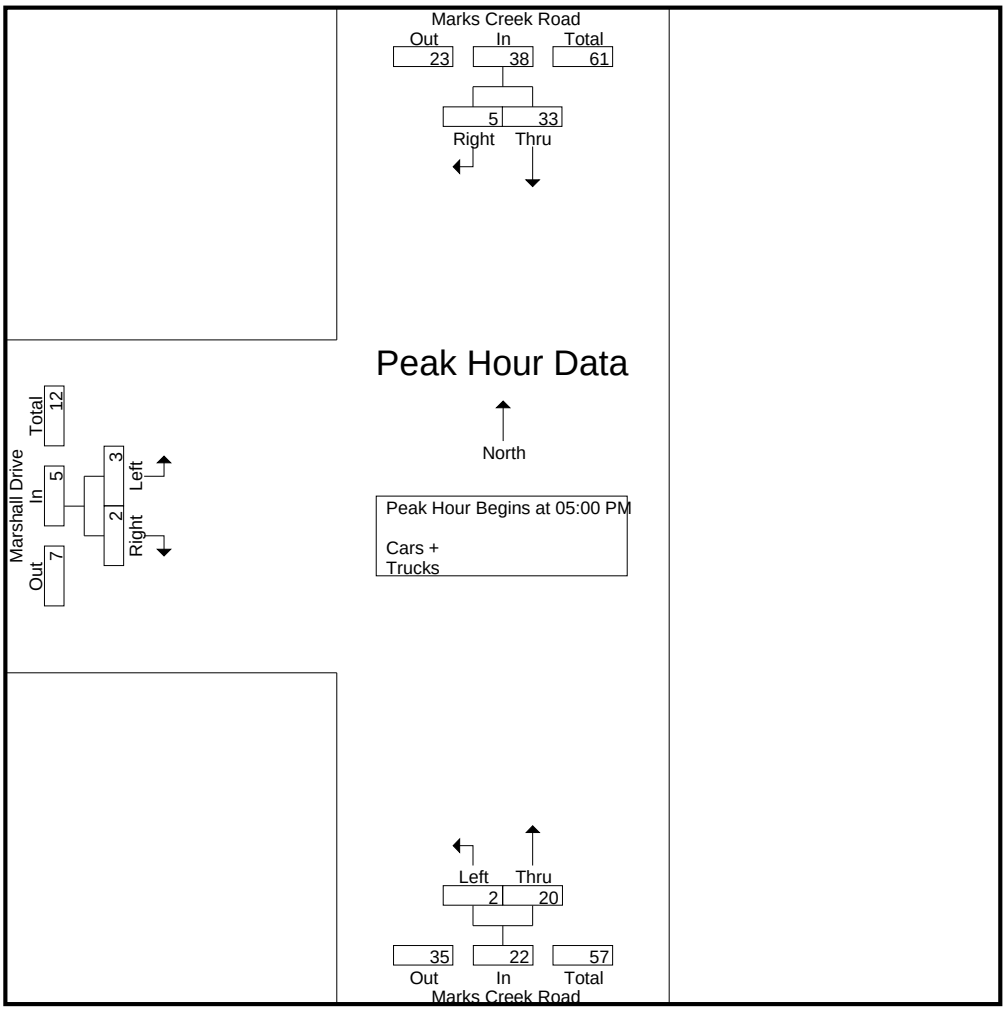
Groups Printed- Cars + - Trucks

	Marks Creek Road Southbound			Marks Creek Road Northbound			Marshall Drive Eastbound			
Start Time	Right	Thru	App. Total	Thru	Left	App. Total	Right	Left	App. Total	Int. Total
04:00 PM	1	4	5	5	0	5	0	0	0	10
04:15 PM	0	5	5	3	1	4	1	0	1	10
04:30 PM	0	6	6	4	0	4	0	0	0	10
04:45 PM	1	7	8	6	0	6	0	0	0	14
Total	2	22	24	18	1	19	1	0	1	44
05:00 PM	0	8	8	2	0	2	0	1	1	11
05:15 PM	1	9	10	8	1	9	0	0	0	19
05:30 PM	1	11	12	5	1	6	0	1	1	19
05:45 PM	3	5	8	5	0	5	2	1	3	16
Total	5	33	38	20	2	22	2	3	5	65
Grand Total	7	55	62	38	3	41	3	3	6	109
Apprch %	11.3	88.7		92.7	7.3		50	50		
Total %	6.4	50.5	56.9	34.9	2.8	37.6	2.8	2.8	5.5	
Cars +	7	53	60	38	3	41	3	3	6	107
% Cars +	100	96.4	96.8	100	100	100	100	100	100	98.2
Trucks	0	2	2	0	0	0	0	0	0	2
% Trucks	0	3.6	3.2	0	0	0	0	0	0	1.8

TRAFFIC DATA COLLECTION

File Name : Knightdale(Marshall and Marks Creek)PM
Site Code :
Start Date : 6/1/2022
Page No : 2

	Marks Creek Road Southbound			Marks Creek Road Northbound			Marshall Drive 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	0	8	8	2	0	2	0	**1**	1	11
05:15 PM	1	9	10	**8**	**1**	**9**	0	0	0	**19**
05:30 PM	1	**11**	**12**	5	1	6	0	1	1	19
05:45 PM	**3**	5	8	5	0	5	**2**	1	**3**	16
Total Volume	5	33	38	20	2	22	2	3	5	65
% App. Total	13.2	86.8		90.9	9.1		40	60		
PHF	.417	.750	.792	.625	.500	.611	.250	.750	.417	.855



TRAFFIC DATA COLLECTION

File Name : Knightdale (Robertson and Keith)
Site Code :
Start Date : 1/13/2022
Page No : 1

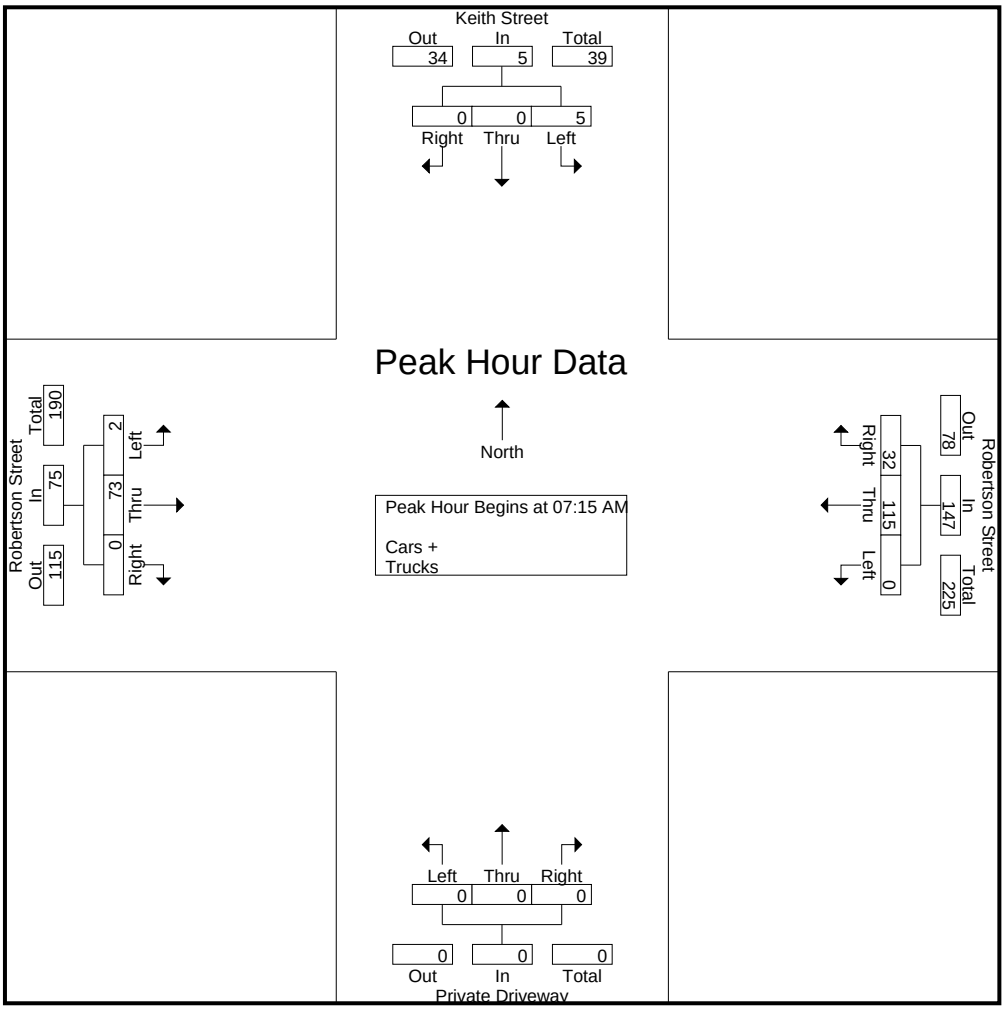
Groups Printed- Cars + - Trucks

	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
Page No : 2

	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

File Name : Knightdale (Robertson and Keith)
Site Code :
Start Date : 1/13/2022
Page No : 1

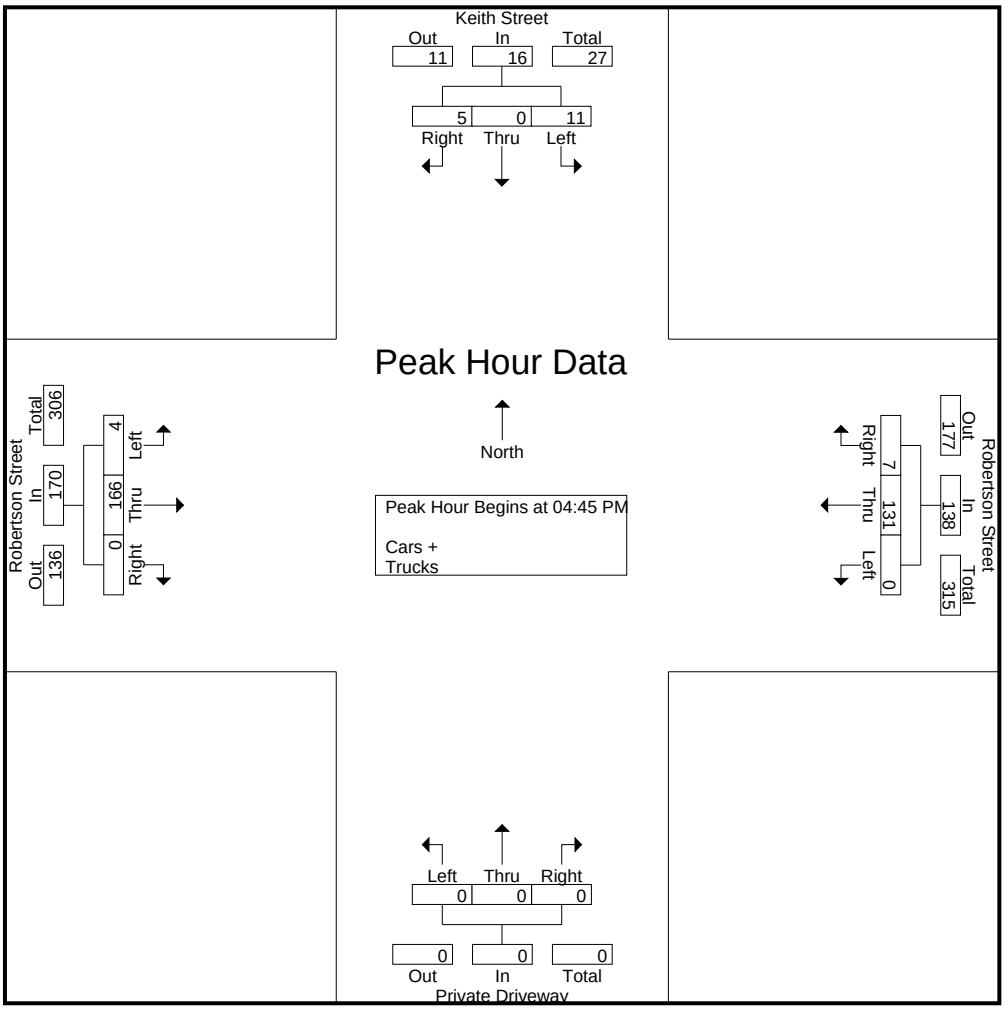
Groups Printed- Cars + - Trucks

	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)
Site Code :
Start Date : 1/13/2022
Page No : 2

	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)
Site Code :
Start Date : 1/13/2022
Page No : 1

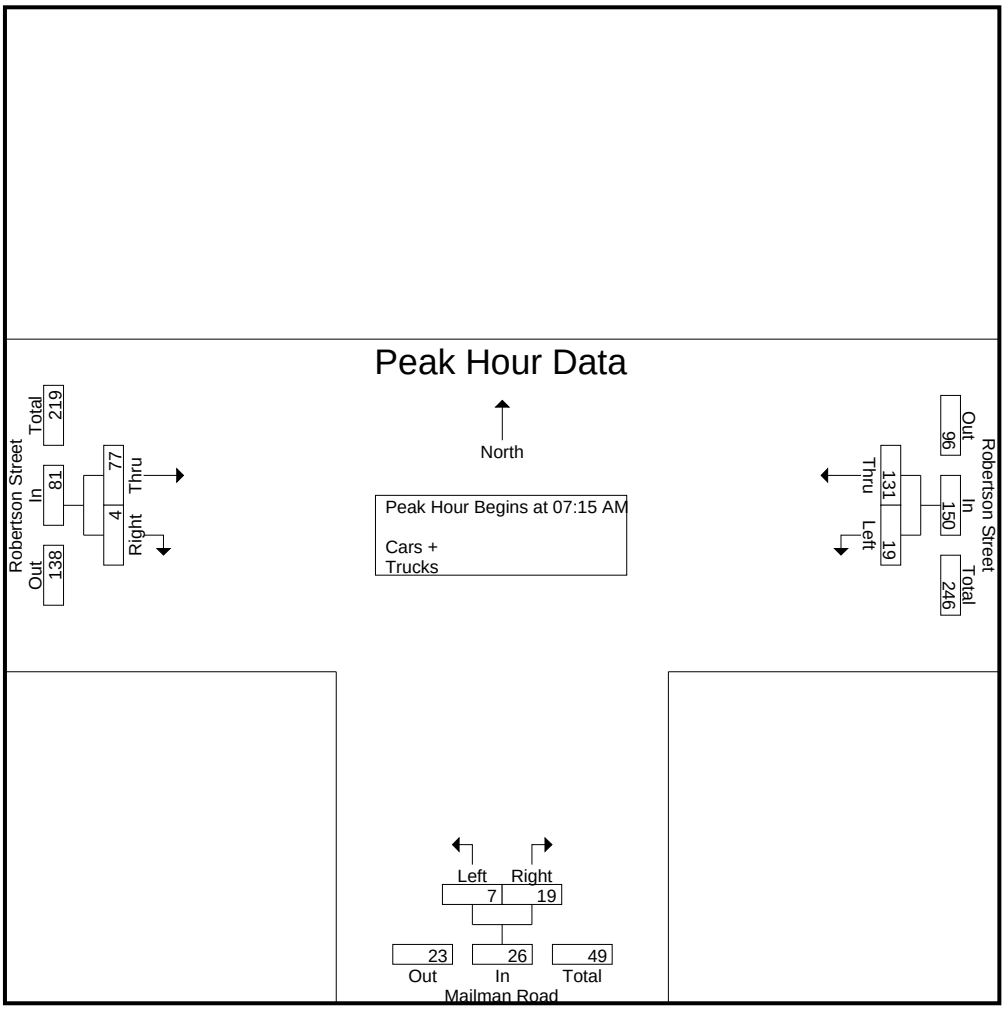
Groups Printed- Cars + - Trucks

	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)
Site Code :
Start Date : 1/13/2022
Page No : 2

	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)
Site Code :
Start Date : 1/13/2022
Page No : 1

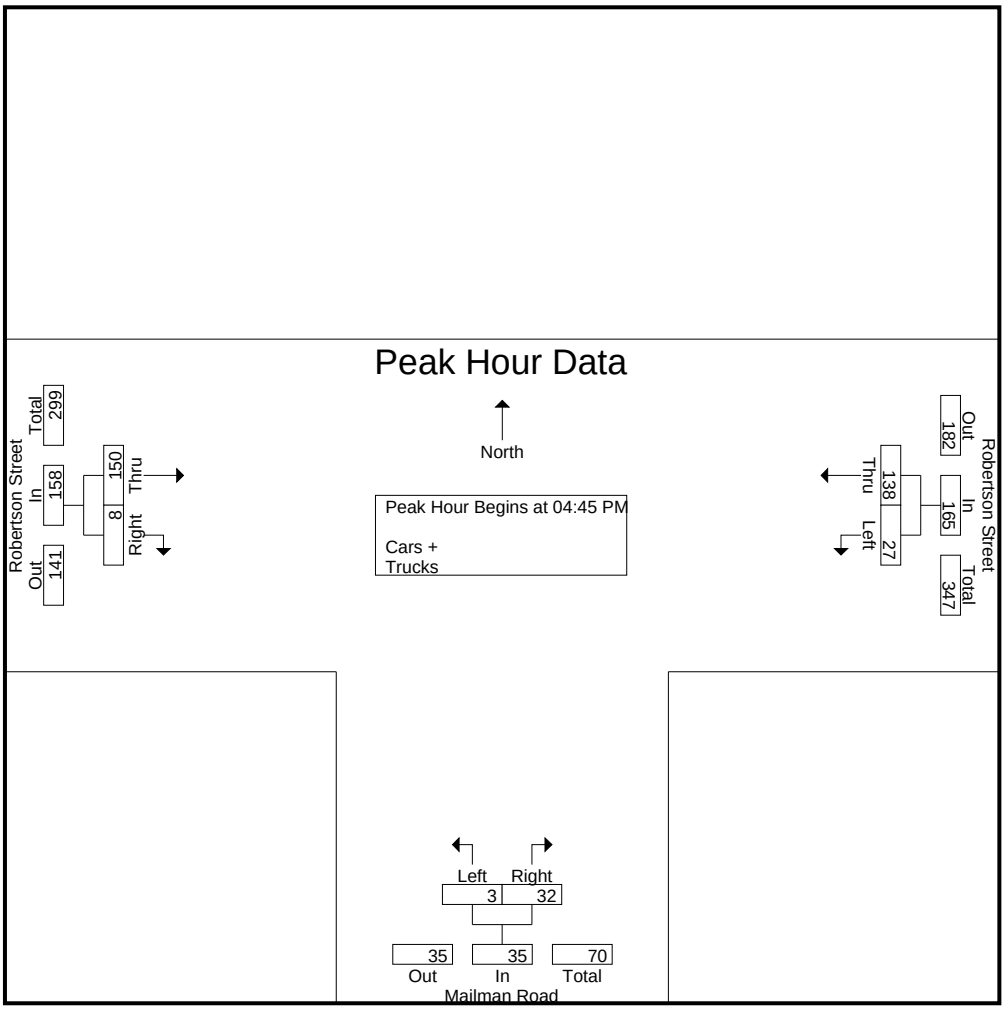
Groups Printed- Cars + - Trucks

	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



File Name : Knightdale(Robertson and Marks Creek)
Site Code :
Start Date : 1/19/2022
Page No : 1

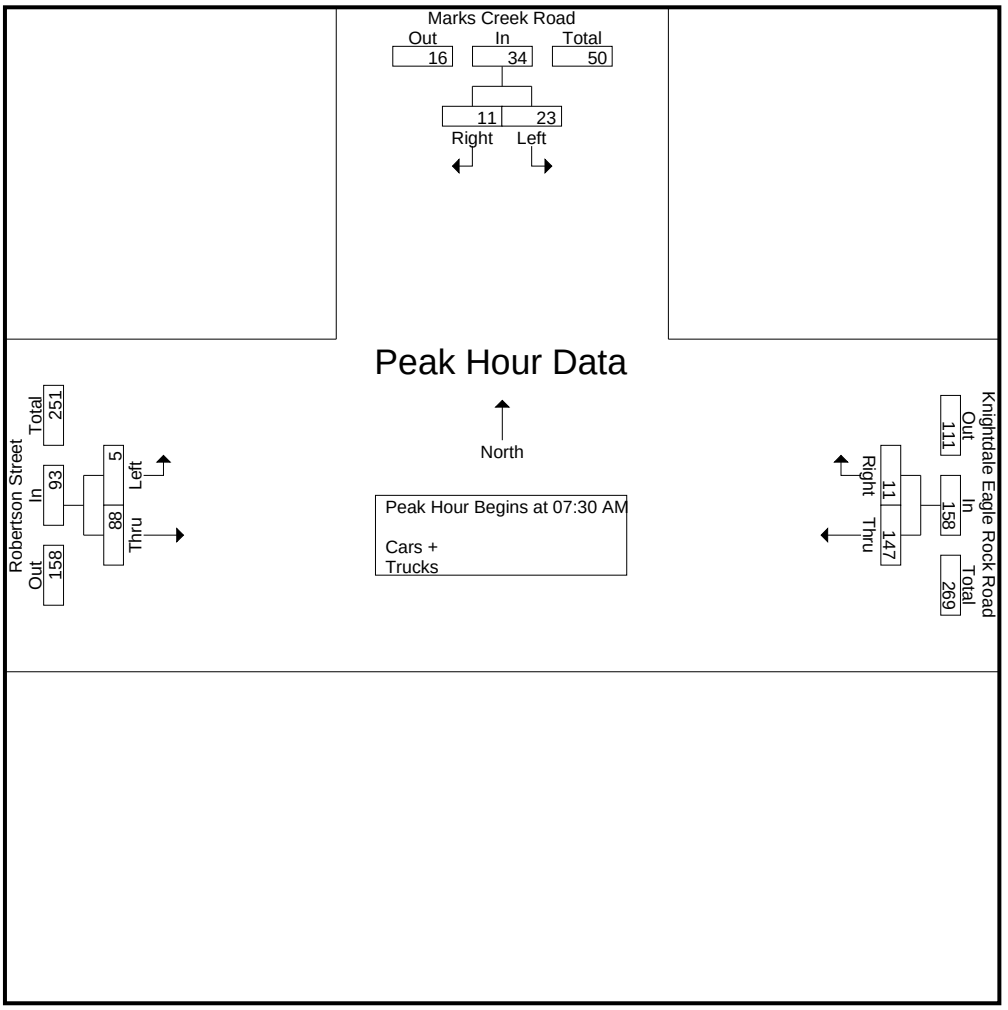
Groups Printed- Cars + - Trucks

	Marks Creek Road Southbound			Knightdale Eagle Rock Road Westbound			Robertson Street Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
07:00 AM	2	2	4	0	16	16	15	0	15	35
07:15 AM	3	6	9	0	27	27	20	0	20	56
07:30 AM	2	8	10	1	44	45	28	2	30	85
07:45 AM	3	5	8	3	36	39	33	1	34	81
Total	10	21	31	4	123	127	96	3	99	257
08:00 AM	3	4	7	4	38	42	12	1	13	62
08:15 AM	3	6	9	3	29	32	15	1	16	57
08:30 AM	5	1	6	0	23	23	18	3	21	50
08:45 AM	3	9	12	2	22	24	18	1	19	55
Total	14	20	34	9	112	121	63	6	69	224
Grand Total	24	41	65	13	235	248	159	9	168	481
Apprch %	36.9	63.1		5.2	94.8		94.6	5.4		
Total %	5	8.5	13.5	2.7	48.9	51.6	33.1	1.9	34.9	
Cars +	19	37	56	12	229	241	151	9	160	457
% Cars +	79.2	90.2	86.2	92.3	97.4	97.2	95	100	95.2	95
Trucks	5	4	9	1	6	7	8	0	8	24
% Trucks	20.8	9.8	13.8	7.7	2.6	2.8	5	0	4.8	5

TRAFFIC DATA COLLECTION

File Name : Knightdale(Robertson and Marks Creek)
Site Code :
Start Date : 1/19/2022
Page No : 2

	Marks Creek Road Southbound			Knightdale Eagle Rock Road Westbound			Robertson Street 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 07:30 AM										
07:30 AM	2	**8**	**10**	1	**44**	**45**	28	**2**	30	**85**
07:45 AM	**3**	5	8	3	36	39	**33**	1	**34**	81
08:00 AM	3	4	7	**4**	38	42	12	1	13	62
08:15 AM	3	6	9	3	29	32	15	1	16	57
Total Volume	11	23	34	11	147	158	88	5	93	285
% App. Total	32.4	67.6		7	93		94.6	5.4		
PHF	.917	.719	.850	.688	.835	.878	.667	.625	.684	.838



TRAFFIC DATA COLLECTION

File Name : Knightdale(Robertson and Marks Creek)
Site Code :
Start Date : 1/19/2022
Page No : 1

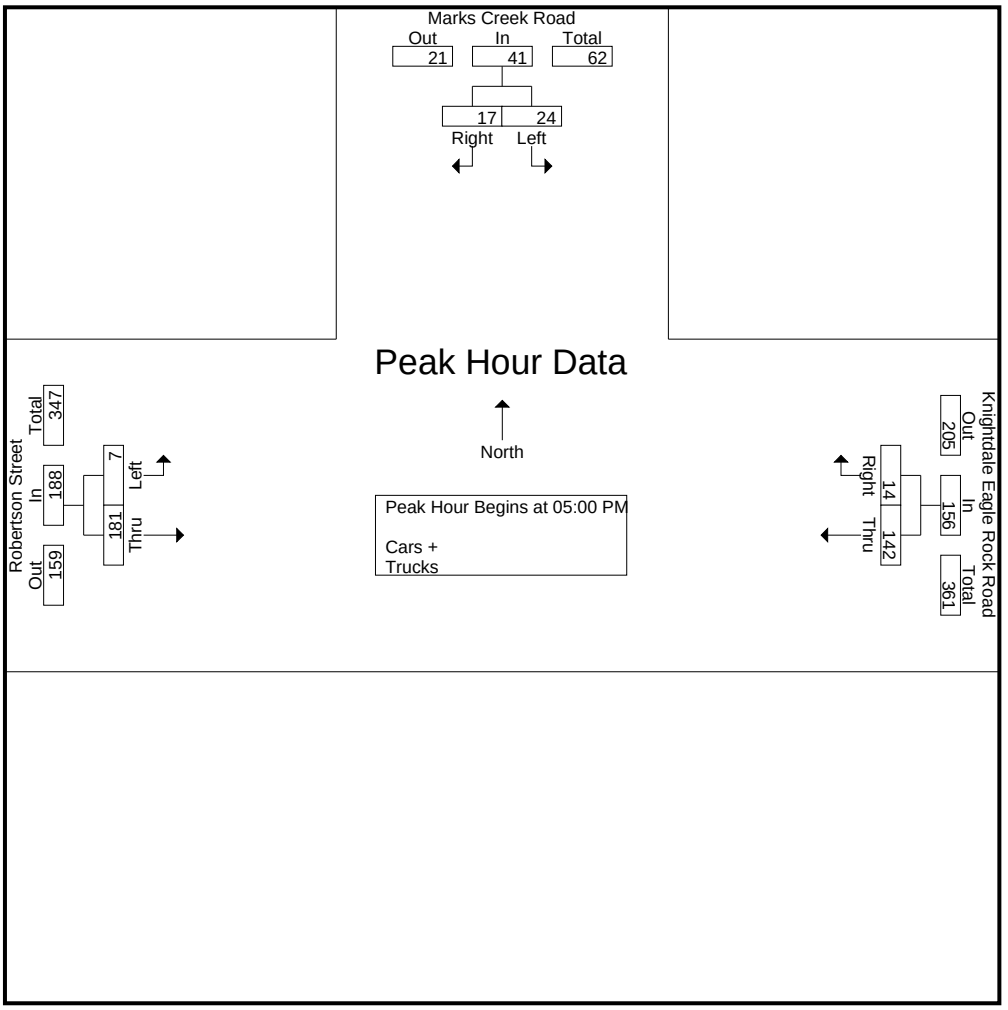
Groups Printed- Cars + - Trucks

	Marks Creek Road Southbound			Knightdale Eagle Rock Road Westbound			Robertson Street Eastbound			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
04:00 PM	2	3	5	2	29	31	36	2	38	74
04:15 PM	5	8	13	9	22	31	34	4	38	82
04:30 PM	1	4	5	2	32	34	43	3	46	85
04:45 PM	5	1	6	2	31	33	37	2	39	78
Total	13	16	29	15	114	129	150	11	161	319
05:00 PM	4	2	6	2	40	42	41	2	43	91
05:15 PM	3	8	11	3	37	40	58	2	60	111
05:30 PM	6	8	14	3	37	40	44	2	46	100
05:45 PM	4	6	10	6	28	34	38	1	39	83
Total	17	24	41	14	142	156	181	7	188	385
Grand Total	30	40	70	29	256	285	331	18	349	704
Apprch %	42.9	57.1		10.2	89.8		94.8	5.2		
Total %	4.3	5.7	9.9	4.1	36.4	40.5	47	2.6	49.6	
Cars +	28	39	67	27	248	275	324	18	342	684
% Cars +	93.3	97.5	95.7	93.1	96.9	96.5	97.9	100	98	97.2
Trucks	2	1	3	2	8	10	7	0	7	20
% Trucks	6.7	2.5	4.3	6.9	3.1	3.5	2.1	0	2	2.8

TRAFFIC DATA COLLECTION

File Name : Knightdale(Robertson and Marks Creek)
Site Code :
Start Date : 1/19/2022

	Marks Creek Road Southbound			Knightdale Eagle Rock Road Westbound			Robertson Street 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 05:00 PM										
05:00 PM	4	2	6	2	**40**	**42**	41	**2**	43	91
05:15 PM	3	**8**	11	3	37	40	**58**	2	**60**	**111**
05:30 PM	**6**	8	**14**	3	37	40	44	2	46	100
05:45 PM	4	6	10	**6**	28	34	38	1	39	83
Total Volume	17	24	41	14	142	156	181	7	188	385
% App. Total	41.5	58.5		9	91		96.3	3.7		
PHF	.708	.750	.732	.583	.888	.929	.780	.875	.783	.867

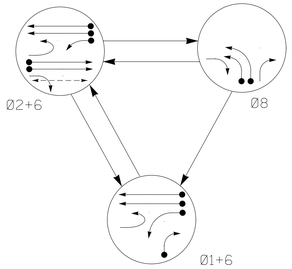


Appendix C – Traffic Signal Plans

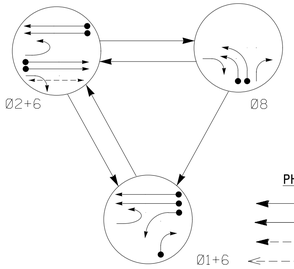
PROJECT REFERENCE NO.	SHEET NO.
36249.3894	Sig.1.0

3 Phase
Fully Actuated
(US 64 BUS. (Knightdale) Closed Loop System)

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø8	FLASH
11	←	F Y	R	Y
12	→	R	→	R
21	F Y	F Y	R	Y
22	R	G	R	Y
23	R	G	R/→	Y
61, 62	G	G	R	Y
81, 82	R ←	R ←	←	R ←
83	R/→	R	G	R
P21, P22	DW	W	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	PHASE Ø2+6	PHASE Ø8	FLASH
11	←	R ←	R	Y ←
12	→	R	→	R
21	F Y	F Y	R	Y
22	R	G	R	Y
23	R	G	R/→	Y
61, 62	G	G	R	Y
81, 82	R ←	R ←	←	R ←
83	R/→	R	G	R
P21, P22	DW	W	DW	DRK

2070 LOOP & DETECTOR INSTALLATION

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
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15*	-	Y
					6**	Y	Y	Y	-	3	-	Y
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A	6X6	300	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	300	6	Y	2	Y	Y	-	-	-	-	Y
6A/S35	6X6	300	6	Y	6	Y	Y	-	-	-	Y	Y
6B/S36	6X6	300	6	Y	6	Y	Y	-	-	-	Y	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y
8B	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y
S33	6X6	+220	6	Y	-	-	-	-	-	-	Y	Y
S34	6X6	+220	6	Y	-	-	-	-	-	-	Y	Y

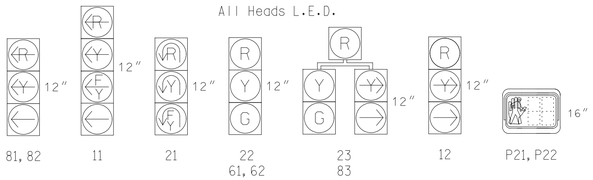
* Disable Delay During Alternate Phasing
** Disable Phase Call for Loop During Alternate Phasing

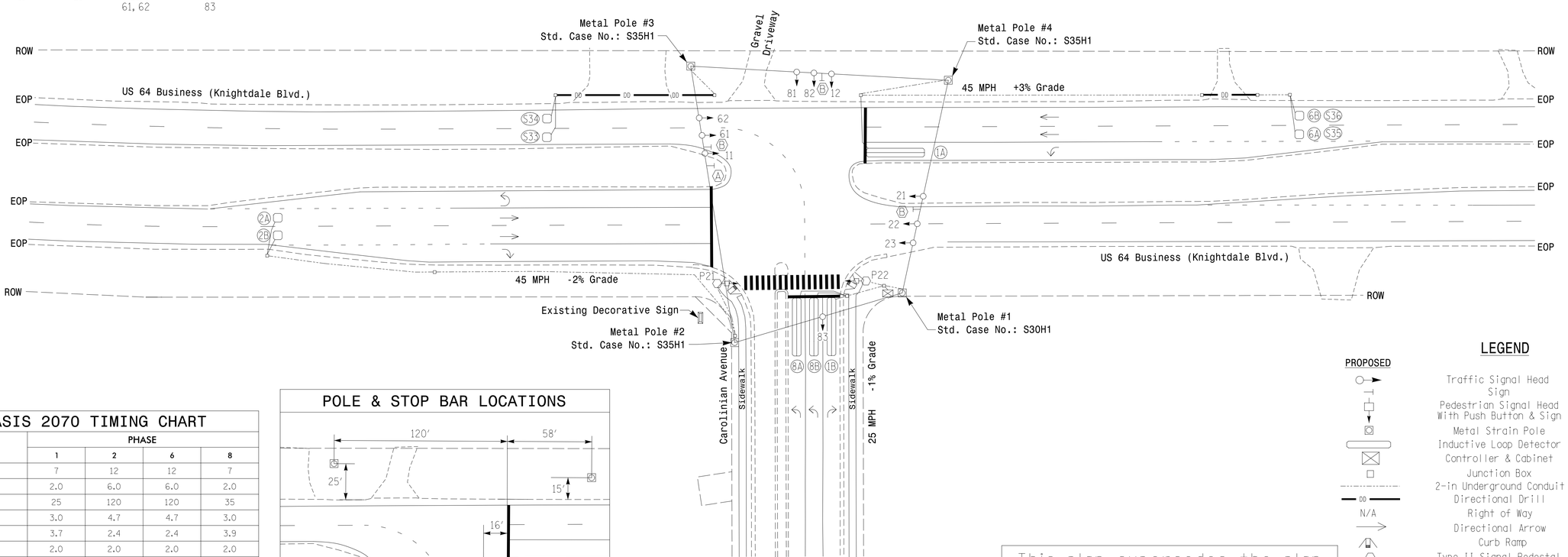
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 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. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pavement markings are existing unless otherwise shown.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. Closed loop system data: Controller Asset: #0648.
11. The Division Traffic Engineer will determine the hours of use for each phasing plan.

SIGNAL FACE I.D.

All Heads L.E.D.



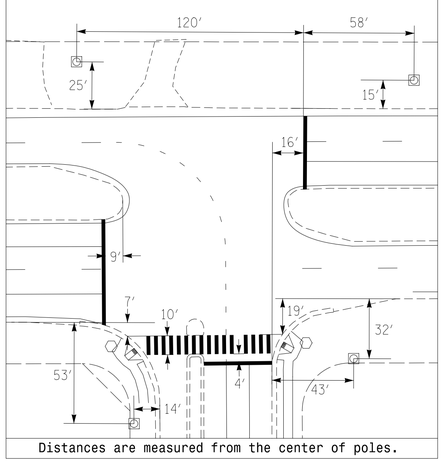


OASIS 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 6	PHASE 8
Min Green 1 *	7	12	12	7
Extension 1 *	2.0	6.0	6.0	2.0
Max Green 1 *	25	120	120	35
Yellow Clearance	3.0	4.7	4.7	3.0
Red Clearance	3.7	2.4	2.4	3.9
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	7	-	-
Don't Walk 1	-	18	-	-
Seconds Per Actuation *	-	1.5	1.5	-
Max Variable Initial *	-	34	34	-
Time Before Reduction *	-	20	20	-
Time To Reduce *	-	45	45	-
Minimum Gap	-	3.0	3.0	-
Recall Mode	-	MIN RECALL	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	YELLOW	-
Dual Entry	-	-	-	-
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.

POLE & STOP BAR LOCATIONS



Distances are measured from the center of poles.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Strain Pole	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
DD	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
	Curb Ramp	
	Type II Signal Pedestal	
(A)	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	(A)
(B)	Street Name Sign (D3-1)	(B)

This plan supersedes the plan signed and sealed on 08/03/2018

New Installation

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC Dept of Transportation
Division of Highways
Final Drawing Date: 10/8/2019
DocuSigned by: [signature]
ITS & Signals Unit

vhb
VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
919.829.0328

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

US 64 BUS.(Knightdale Blvd.)
at
Carolinian Avenue

Division 5 Wake County Knightdale

PLAN DATE:	September 2019	REVIEWED BY:	J.L. Lewis
PREPARED BY:	M.L. Stygles	REVIEWED BY:	J. Ma

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 046057 ENGINEER MATTHEW L STYGLES
DocuSigned by: [signature] 394B61E84457456C
9/24/2019
SIGNATURE DATE
SIG. INVENTORY NO. 05-0648

9/24/2019
05-0648_211908_p-dgn
mstygles

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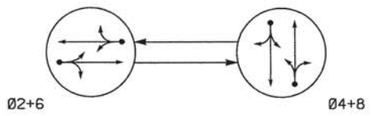
PROJECT REFERENCE NO.	SHEET NO.
MOE	Sig. 1

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

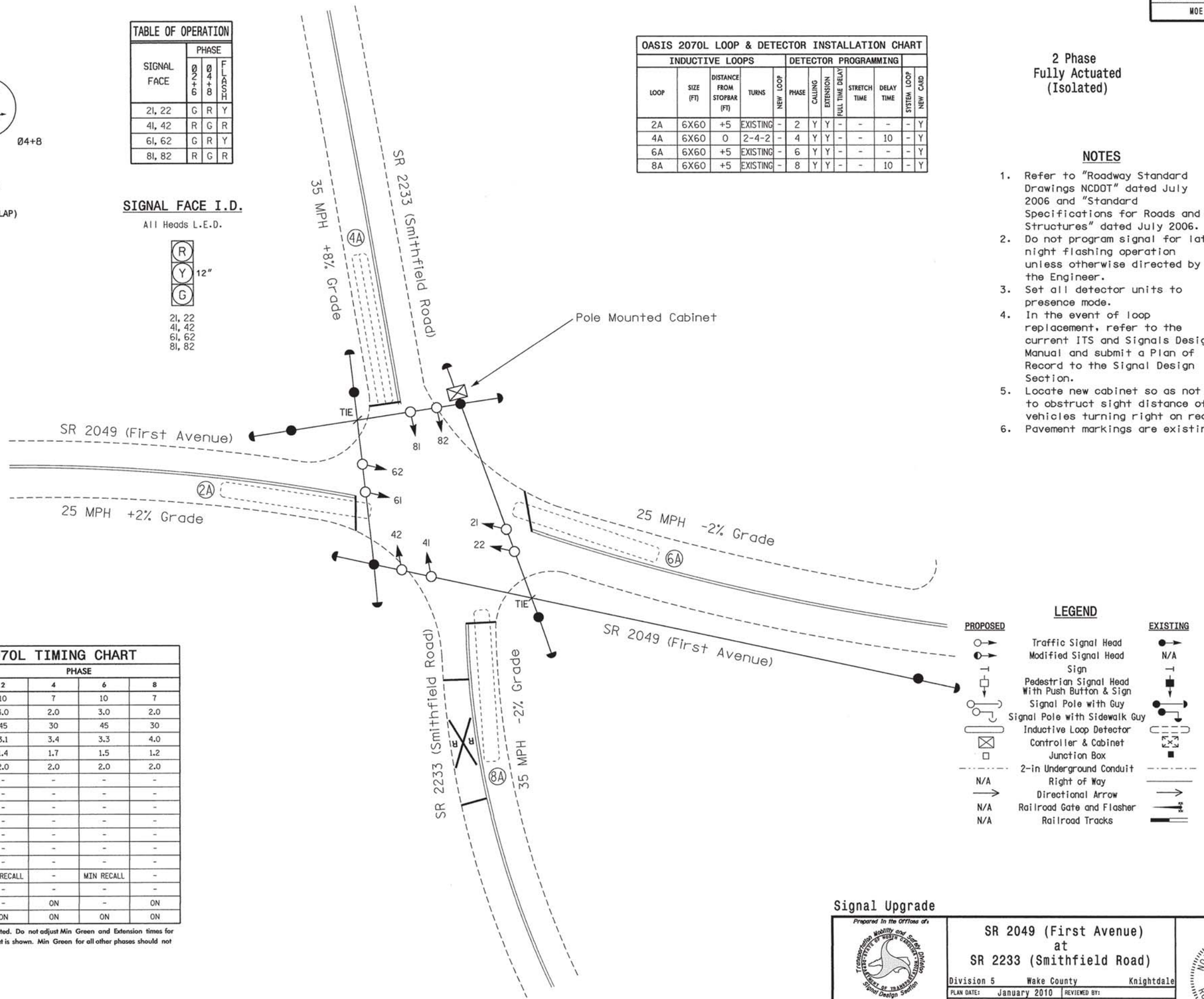
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

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.



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	N/A
→	Directional Arrow	→
N/A	Railroad Gate and Flasher	N/A
N/A	Railroad Tracks	N/A

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.

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:

REVISIONS	INIT.	DATE

SCALE 0 20 1"=20'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA
SIGNATURE | DATE 10/10/10
SIG. INVENTORY NO. 05-1403

10-FEB-2010 14:57
S:#TS Signals#Signal Design Section#Central Region#Div 5#MOE#05-1403#051403_sig_dsn_20100210.dgn
rziemba

Appendix D
Synchro and SIDRA Analysis Output

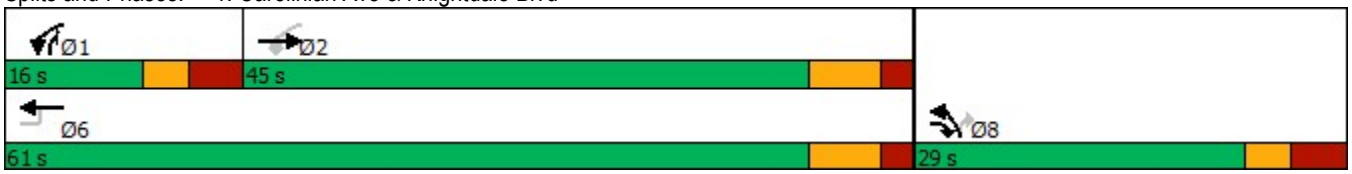
Existing Traffic Volumes

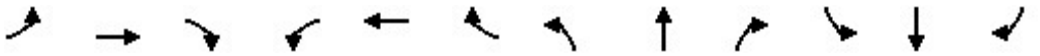
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	11	564	130	105	1020	241	103
Future Volume (vph)	11	564	130	105	1020	241	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.208			0.360		0.950	
Satd. Flow (perm)	391	3575	1599	661	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	627	144	117	1133	268	114
Shared Lane Traffic (%)							
Lane Group Flow (vph)	12	627	144	117	1133	268	114
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	61.0	45.0	29.0	16.0	61.0	29.0	16.0
Total Split (%)	67.8%	50.0%	32.2%	17.8%	67.8%	32.2%	17.8%
Maximum Green (s)	53.9	37.9	22.1	9.3	53.9	22.1	9.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	29.6	19.1	36.4	25.8	29.6	10.8	25.1
Actuated g/C Ratio	0.58	0.38	0.72	0.51	0.58	0.21	0.49
v/c Ratio	0.05	0.47	0.13	0.22	0.56	0.36	0.15
Control Delay	5.2	14.6	3.9	6.0	7.6	20.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	14.6	3.9	6.0	7.6	20.2	9.6
LOS	A	B	A	A	A	C	A
Approach Delay		12.5			7.5	17.0	
Approach LOS		B			A	B	
Queue Length 50th (ft)	1	77	14	13	88	36	18
Queue Length 95th (ft)	7	131	30	32	151	75	52
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	382	2858	1455	598	3405	1680	856
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.22	0.10	0.20	0.33	0.16	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 50.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 10.6		Intersection LOS: B	
Intersection Capacity Utilization 57.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	154	12	8	98	199	12	58	18	196	25	17
Future Volume (vph)	19	154	12	8	98	199	12	58	18	196	25	17
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		0.991			0.912			0.972			0.990	
Flt Protected		0.995			0.999			0.993			0.960	
Satd. Flow (prot)	0	1837	0	0	1697	0	0	1798	0	0	1770	0
Flt Permitted		0.995			0.999			0.993			0.960	
Satd. Flow (perm)	0	1837	0	0	1697	0	0	1798	0	0	1770	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
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)	21	171	13	9	109	221	13	64	20	218	28	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	205	0	0	339	0	0	97	0	0	265	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	26	282	136	26	189
Future Volume (vph)	97	26	282	136	26	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.956			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1781	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1781	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	108	29	313	151	29	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	29	464	0	29	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.2%		ICU Level of Service A	
Analysis Period (min) 15			

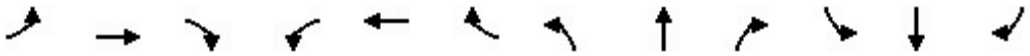
Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	97	26	282	136	26	189
Future Vol, veh/h	97	26	282	136	26	189
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	108	29	313	151	29	210

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	657	389	0	0	464	0
Stage 1	389	-	-	-	-	-
Stage 2	268	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	430	659	-	-	1097	-
Stage 1	685	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	419	659	-	-	1097	-
Mov Cap-2 Maneuver	419	-	-	-	-	-
Stage 1	685	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	419	659	1097	-
HCM Lane V/C Ratio	-	-	0.257	0.044	0.026	-
HCM Control Delay (s)	-	-	16.5	10.7	8.4	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1	0.1	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	23	4	4	27	4	16	4	4	4	4	14
Future Volume (vph)	5	23	4	4	27	4	16	4	4	4	4	14
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		0.985			0.986			0.979			0.910	
Flt Protected		0.992			0.995			0.967			0.992	
Satd. Flow (prot)	0	1820	0	0	1827	0	0	1763	0	0	1682	0
Flt Permitted		0.992			0.995			0.967			0.992	
Satd. Flow (perm)	0	1820	0	0	1827	0	0	1763	0	0	1682	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
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)	6	26	4	4	30	4	18	4	4	4	4	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	0	0	38	0	0	26	0	0	24	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 13.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	23	4	4	27	4	16	4	4	4	4	14
Future Vol, veh/h	5	23	4	4	27	4	16	4	4	4	4	14
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	6	26	4	4	30	4	18	4	4	4	4	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	34	0	0	30	0	0	90	82	28	84	82	32
Stage 1	-	-	-	-	-	-	40	40	-	40	40	-
Stage 2	-	-	-	-	-	-	50	42	-	44	42	-
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	1578	-	-	1583	-	-	895	808	1047	903	808	1042
Stage 1	-	-	-	-	-	-	975	862	-	975	862	-
Stage 2	-	-	-	-	-	-	963	860	-	970	860	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1578	-	-	1583	-	-	874	802	1047	890	802	1042
Mov Cap-2 Maneuver	-	-	-	-	-	-	874	802	-	890	802	-
Stage 1	-	-	-	-	-	-	971	859	-	971	859	-
Stage 2	-	-	-	-	-	-	941	857	-	957	857	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.8	9.2	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	885	1578	-	-	1583	-	-	960
HCM Lane V/C Ratio	0.03	0.004	-	-	0.003	-	-	0.025
HCM Control Delay (s)	9.2	7.3	0	-	7.3	0	-	8.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	6	4	20	32	4
Future Volume (vph)	4	6	4	20	32	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	0.914				0.986	
Flt Protected	0.982			0.992		
Satd. Flow (prot)	1672	0	0	1848	1837	0
Flt Permitted	0.982			0.992		
Satd. Flow (perm)	1672	0	0	1848	1837	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	7	4	22	36	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	26	40	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	6	4	20	32	4
Future Vol, veh/h	4	6	4	20	32	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	7	4	22	36	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	68	38	40	0	-	0
Stage 1	38	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	937	1034	1570	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	934	1034	1570	-	-	-
Mov Cap-2 Maneuver	934	-	-	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	993	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	992	-	-
HCM Lane V/C Ratio	0.003	-	0.011	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	40	307	4	6	262
Future Volume (vph)	4	40	307	4	6	262
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	0.876		0.998			
Flt Protected	0.996					0.999
Satd. Flow (prot)	1625	0	1859	0	0	1861
Flt Permitted	0.996					0.999
Satd. Flow (perm)	1625	0	1859	0	0	1861
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	44	341	4	7	291
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	345	0	0	298
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	40	307	4	6	262
Future Vol, veh/h	4	40	307	4	6	262
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	44	341	4	7	291

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	648	343	0	0	345	0
Stage 1	343	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	435	700	-	-	1214	-
Stage 1	719	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	432	700	-	-	1214	-
Mov Cap-2 Maneuver	432	-	-	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	743	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	663	1214	-
HCM Lane V/C Ratio	-	-	0.074	0.005	-
HCM Control Delay (s)	-	-	10.9	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

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
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)	1718	0	1820	0	0	1848
Flt Permitted	0.969					0.992
Satd. Flow (perm)	1718	0	1820	0	0	1848
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
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	1.00	1.00	1.00	1.00	1.00	1.00
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			

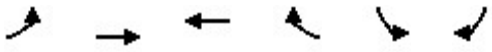
Intersection	
Int Delay, s/veh	4.1

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, %	0	-	0	-	-	0
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	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	478	764	-	-	1260	-
Stage 1	771	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	459	764	-	-	1260	-
Mov Cap-2 Maneuver	459	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	720	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	1.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	534	1260	-
HCM Lane V/C Ratio	-	-	0.331	0.034	-
HCM Control Delay (s)	-	-	15	8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.4	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
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	1859	1807	0	1711	0
Flt Permitted		0.998			0.971	
Satd. Flow (perm)	0	1859	1807	0	1711	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
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	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 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, %	-	0	0	-	0	-
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	-	-	-	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	1414	-	-	-	753	901
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1414	-	-	-	751	901
Mov Cap-2 Maneuver	-	-	-	-	751	-
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	934	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1414	-	-	-	811
HCM Lane V/C Ratio	0.003	-	-	-	0.012
HCM Control Delay (s)	7.6	0	-	-	9.5
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)	35			45	55	
Link Distance (ft)	852			285	807	
Travel Time (s)	16.6			4.3	10.0	
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			

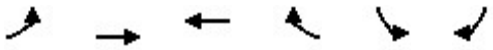
Intersection	
Int Delay, s/veh	1.5

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	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	88	147	11	23	11
Future Volume (vph)	5	88	147	11	23	11
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			0.991		0.957	
Flt Protected		0.997			0.967	
Satd. Flow (prot)	0	1857	1846	0	1724	0
Flt Permitted		0.997			0.967	
Satd. Flow (perm)	0	1857	1846	0	1724	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	98	163	12	26	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	104	175	0	38	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 18.7%		ICU Level of Service A	
Analysis Period (min) 15			

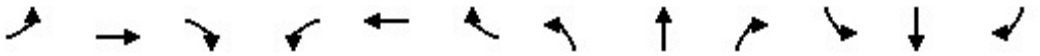
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	88	147	11	23	11
Future Vol, veh/h	5	88	147	11	23	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, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	98	163	12	26	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	175	0	-	0	279	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	110	-
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	1401	-	-	-	711	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1401	-	-	-	707	875
Mov Cap-2 Maneuver	-	-	-	-	707	-
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	915	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1401	-	-	-	754
HCM Lane V/C Ratio	0.004	-	-	-	0.05
HCM Control Delay (s)	7.6	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	156	4	33	160	27	8	217	46	8	133	130
Future Volume (vph)	222	156	4	33	160	27	8	217	46	8	133	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.983			0.977			0.935	
Flt Protected		0.972			0.993			0.999			0.999	
Satd. Flow (prot)	0	1791	0	0	1836	0	0	1836	0	0	1670	0
Flt Permitted		0.721			0.904			0.984			0.985	
Satd. Flow (perm)	0	1328	0	0	1672	0	0	1809	0	0	1647	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
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)	247	173	4	37	178	30	9	241	51	9	148	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	424	0	0	245	0	0	301	0	0	301	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	31.5	31.5		31.2	31.2		18.8	18.8		18.9	18.9	
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)		18.5			18.5			12.3			12.3	
Actuated g/C Ratio		0.44			0.44			0.30			0.30	
v/c Ratio		0.72			0.33			0.56			0.62	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		17.7			9.1			18.5			20.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.7			9.1			18.5			20.4	
LOS		B			A			B			C	
Approach Delay		17.7			9.1			18.5			20.4	
Approach LOS		B			A			B			C	
Queue Length 50th (ft)		69			32			54			56	
Queue Length 95th (ft)		184			84			154			160	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		1032			1300			895			814	
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		0.41			0.19			0.34			0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 41.6			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 63.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 17: Smithfield Rd & First Ave

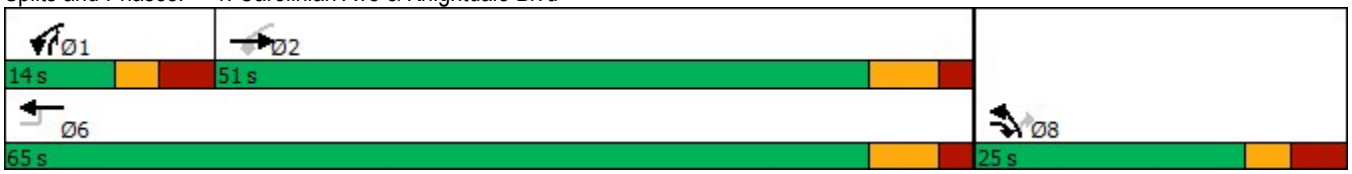
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	22	1383	105	31	805	93	34
Future Volume (vph)	22	1383	105	31	805	93	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.307			0.095		0.950	
Satd. Flow (perm)	578	3575	1599	174	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	1537	117	34	894	103	38
Shared Lane Traffic (%)							
Lane Group Flow (vph)	24	1537	117	34	894	103	38
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	65.0	51.0	25.0	14.0	65.0	25.0	14.0
Total Split (%)	72.2%	56.7%	27.8%	15.6%	72.2%	27.8%	15.6%
Maximum Green (s)	57.9	43.9	18.1	7.3	57.9	18.1	7.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0

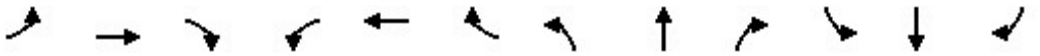
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	50.1	42.6	59.4	47.4	50.1	9.4	23.3
Actuated g/C Ratio	0.72	0.61	0.85	0.68	0.72	0.13	0.33
v/c Ratio	0.06	0.70	0.09	0.11	0.36	0.22	0.07
Control Delay	3.0	12.8	2.3	3.6	4.0	30.5	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	12.8	2.3	3.6	4.0	30.5	19.3
LOS	A	B	A	A	A	C	B
Approach Delay		12.0			4.0	27.5	
Approach LOS		B			A	C	
Queue Length 50th (ft)	2	262	11	3	56	21	12
Queue Length 95th (ft)	8	363	22	9	85	46	35
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	500	2397	1494	324	3017	1006	539
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.64	0.08	0.10	0.30	0.10	0.07

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 69.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 52.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	18	27	4	28	35	18	37	4	29	49	30
Future Volume (vph)	16	18	27	4	28	35	18	37	4	29	49	30
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		0.940			0.929			0.992			0.963	
Flt Protected		0.987			0.997			0.985			0.987	
Satd. Flow (prot)	0	1728	0	0	1725	0	0	1820	0	0	1771	0
Flt Permitted		0.987			0.997			0.985			0.987	
Satd. Flow (perm)	0	1728	0	0	1725	0	0	1820	0	0	1771	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
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)	18	20	30	4	31	39	20	41	4	32	54	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	0	0	74	0	0	65	0	0	119	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	58	39	290	67	72	318
Future Volume (vph)	58	39	290	67	72	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.975			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1816	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1816	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	43	322	74	80	353
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	43	396	0	80	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			

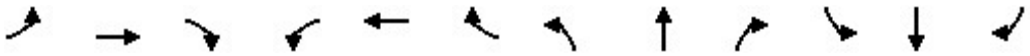
Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	58	39	290	67	72	318
Future Vol, veh/h	58	39	290	67	72	318
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	43	322	74	80	353

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	872	359	0	0	396	0
Stage 1	359	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	321	685	-	-	1163	-
Stage 1	707	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	299	685	-	-	1163	-
Mov Cap-2 Maneuver	299	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.4	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	299	685	1163	-
HCM Lane V/C Ratio	-	-	0.216	0.063	0.069	-
HCM Control Delay (s)	-	-	20.3	10.6	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	0.2	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	34	6	4	18	4	14	4	4	4	4	18
Future Volume (vph)	9	34	6	4	18	4	14	4	4	4	4	18
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		0.983			0.981			0.977			0.904	
Flt Protected		0.991			0.993			0.968			0.993	
Satd. Flow (prot)	0	1815	0	0	1815	0	0	1762	0	0	1672	0
Flt Permitted		0.991			0.993			0.968			0.993	
Satd. Flow (perm)	0	1815	0	0	1815	0	0	1762	0	0	1672	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
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)	10	38	7	4	20	4	16	4	4	4	4	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	28	0	0	24	0	0	28	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 14.2%		ICU Level of Service A	
Analysis Period (min) 15			

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	9	34	6	4	18	4	14	4	4	4	4	18
Future Vol, veh/h	9	34	6	4	18	4	14	4	4	4	4	18
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	10	38	7	4	20	4	16	4	4	4	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	24	0	0	45	0	0	104	94	42	96	95	22
Stage 1	-	-	-	-	-	-	62	62	-	30	30	-
Stage 2	-	-	-	-	-	-	42	32	-	66	65	-
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	1591	-	-	1563	-	-	876	796	1029	887	795	1055
Stage 1	-	-	-	-	-	-	949	843	-	987	870	-
Stage 2	-	-	-	-	-	-	972	868	-	945	841	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1591	-	-	1563	-	-	850	789	1029	874	788	1055
Mov Cap-2 Maneuver	-	-	-	-	-	-	850	789	-	874	788	-
Stage 1	-	-	-	-	-	-	943	838	-	981	867	-
Stage 2	-	-	-	-	-	-	946	865	-	930	836	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	1.1	9.3	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	865	1591	-	-	1563	-	-	973
HCM Lane V/C Ratio	0.028	0.006	-	-	0.003	-	-	0.03
HCM Control Delay (s)	9.3	7.3	0	-	7.3	0	-	8.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	4	4	20	33	5
Future Volume (vph)	4	4	4	20	33	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	0.932				0.981	
Flt Protected	0.976			0.992		
Satd. Flow (prot)	1694	0	0	1848	1827	0
Flt Permitted	0.976			0.992		
Satd. Flow (perm)	1694	0	0	1848	1827	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	4	4	22	37	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	26	43	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	4	4	20	33	5
Future Vol, veh/h	4	4	4	20	33	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	4	4	22	37	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	70	40	43	0	-	0
Stage 1	40	-	-	-	-	-
Stage 2	30	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	934	1031	1566	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	931	1031	1566	-	-	-
Mov Cap-2 Maneuver	931	-	-	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	993	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1566	-	978	-	-
HCM Lane V/C Ratio	0.003	-	0.009	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	6	272	6	7	286
Future Volume (vph)	13	6	272	6	7	286
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	0.955		0.997			
Flt Protected	0.968					0.999
Satd. Flow (prot)	1722	0	1857	0	0	1861
Flt Permitted	0.968					0.999
Satd. Flow (perm)	1722	0	1857	0	0	1861
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	7	302	7	8	318
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	309	0	0	326
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	6	272	6	7	286
Future Vol, veh/h	13	6	272	6	7	286
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	7	302	7	8	318

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	640	306	0	0	309	0
Stage 1	306	-	-	-	-	-
Stage 2	334	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	440	734	-	-	1252	-
Stage 1	747	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	436	734	-	-	1252	-
Mov Cap-2 Maneuver	436	-	-	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	719	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	500	1252	-
HCM Lane V/C Ratio	-	-	0.042	0.006	-
HCM Control Delay (s)	-	-	12.5	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	86	50	196	142	78	258
Future Volume (vph)	86	50	196	142	78	258
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	0.950		0.943			
Flt Protected	0.969					0.989
Satd. Flow (prot)	1715	0	1757	0	0	1842
Flt Permitted	0.969					0.989
Satd. Flow (perm)	1715	0	1757	0	0	1842
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	56	218	158	87	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	376	0	0	374
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

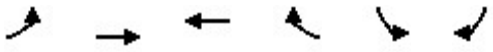
Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	86	50	196	142	78	258
Future Vol, veh/h	86	50	196	142	78	258
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	56	218	158	87	287

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	758	297	0	0	376	0
Stage 1	297	-	-	-	-	-
Stage 2	461	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	375	742	-	-	1182	-
Stage 1	754	-	-	-	-	-
Stage 2	635	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	342	742	-	-	1182	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18	0	1.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	1182	-
HCM Lane V/C Ratio	-	-	0.354	0.073	-
HCM Control Delay (s)	-	-	18	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	4	166	131	7	11	5
Future Volume (vph)	4	166	131	7	11	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			0.993		0.955	
Flt Protected		0.999			0.968	
Satd. Flow (prot)	0	1861	1850	0	1722	0
Flt Permitted		0.999			0.968	
Satd. Flow (perm)	0	1861	1850	0	1722	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	184	146	8	12	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	188	154	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 22.0%		ICU Level of Service A	
Analysis Period (min) 15			

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, %	-	0	0	-	0	-
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	-	-	-	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	1426	-	-	-	654	896
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	841	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1426	-	-	-	652	896
Mov Cap-2 Maneuver	-	-	-	-	652	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	841	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1426	-	-	-	713
HCM Lane V/C Ratio	0.003	-	-	-	0.025
HCM Control Delay (s)	7.5	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	150	8	27	138	4	32
Future Volume (vph)	150	8	27	138	4	32
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				0.878	
Flt Protected				0.992	0.995	
Satd. Flow (prot)	1850	0	0	1848	1627	0
Flt Permitted				0.992	0.995	
Satd. Flow (perm)	1850	0	0	1848	1627	0
Link Speed (mph)	35			45	55	
Link Distance (ft)	852			285	807	
Travel Time (s)	16.6			4.3	10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	167	9	30	153	4	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	0	0	183	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	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 30.5%		ICU Level of Service A	
Analysis Period (min) 15			

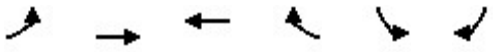
Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	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	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	181	142	14	24	17
Future Volume (vph)	7	181	142	14	24	17
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			0.988		0.944	
Flt Protected		0.998			0.971	
Satd. Flow (prot)	0	1859	1840	0	1707	0
Flt Permitted		0.998			0.971	
Satd. Flow (perm)	0	1859	1840	0	1707	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	201	158	16	27	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	209	174	0	46	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 25.2%		ICU Level of Service A	
Analysis Period (min) 15			

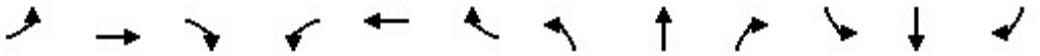
Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	181	142	14	24	17
Future Vol, veh/h	7	181	142	14	24	17
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	201	158	16	27	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	174	0	-	0	383	166
Stage 1	-	-	-	-	166	-
Stage 2	-	-	-	-	217	-
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	1403	-	-	-	620	878
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	819	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1403	-	-	-	616	878
Mov Cap-2 Maneuver	-	-	-	-	616	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	819	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1403	-	-	-	703
HCM Lane V/C Ratio	0.006	-	-	-	0.065
HCM Control Delay (s)	7.6	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



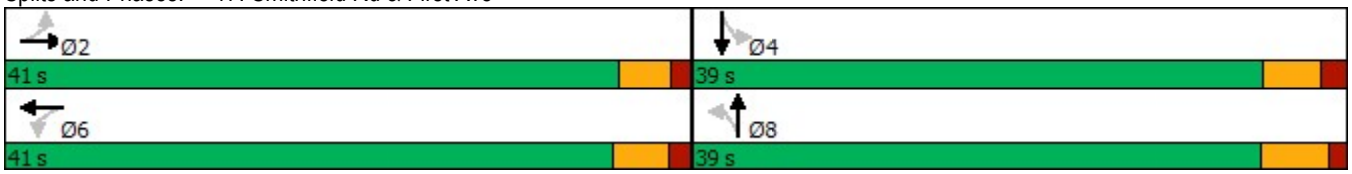
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	228	168	12	67	259	17	9	247	26	4	292	302
Future Volume (vph)	228	168	12	67	259	17	9	247	26	4	292	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			8%	
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		0.996			0.993			0.987			0.932	
Flt Protected		0.973			0.990			0.998				
Satd. Flow (prot)	0	1787	0	0	1850	0	0	1853	0	0	1667	0
Flt Permitted		0.595			0.857			0.978			0.998	
Satd. Flow (perm)	0	1093	0	0	1601	0	0	1816	0	0	1663	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
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)	253	187	13	74	288	19	10	274	29	4	324	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	453	0	0	381	0	0	313	0	0	664	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	41.0	41.0		41.0	41.0		39.0	39.0		39.0	39.0	
Total Split (%)	51.3%	51.3%		51.3%	51.3%		48.8%	48.8%		48.8%	48.8%	
Maximum Green (s)	36.5	36.5		36.2	36.2		33.8	33.8		33.9	33.9	
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)		33.8			33.8			32.2			32.2	
Actuated g/C Ratio		0.44			0.44			0.42			0.42	
v/c Ratio		0.93			0.54			0.41			0.94	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		50.7			19.2			17.7			46.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		50.7			19.2			17.7			46.6	
LOS		D			B			B			D	
Approach Delay		50.7			19.2			17.7			46.6	
Approach LOS		D			B			B			D	
Queue Length 50th (ft)		204			132			105			307	
Queue Length 95th (ft)		#394			213			170			#528	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		522			766			820			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		0.87			0.50			0.38			0.88	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 36.9		Intersection LOS: D	
Intersection Capacity Utilization 88.7%		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: 17: Smithfield Rd & First Ave



MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2022 Existing AM Peak Hour
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	12	2.0	13	2.0	0.111	5.1	LOS A	0.5	11.7	0.50	0.40	0.50	24.5
8	T1	58	2.0	64	2.0	0.111	5.1	LOS A	0.5	11.7	0.50	0.40	0.50	24.1
18	R2	18	2.0	20	2.0	0.111	5.1	LOS A	0.5	11.7	0.50	0.40	0.50	23.6
Approach		88	2.0	98	2.0	0.111	5.1	LOS A	0.5	11.7	0.50	0.40	0.50	24.1
East: Knightdale Station Run														
1	L2	8	2.0	9	2.0	0.278	5.5	LOS A	1.5	37.9	0.29	0.15	0.29	24.5
6	T1	98	2.0	109	2.0	0.278	5.5	LOS A	1.5	37.9	0.29	0.15	0.29	24.1
16	R2	199	2.0	221	2.0	0.278	5.5	LOS A	1.5	37.9	0.29	0.15	0.29	23.5
Approach		305	2.0	339	2.0	0.278	5.5	LOS A	1.5	37.9	0.29	0.15	0.29	23.7
North: Carolinian Ave														
7	L2	196	2.0	218	2.0	0.224	5.0	LOS A	1.1	28.4	0.32	0.18	0.32	23.7
4	T1	25	2.0	28	2.0	0.224	5.0	LOS A	1.1	28.4	0.32	0.18	0.32	23.3
14	R2	17	2.0	19	2.0	0.224	5.0	LOS A	1.1	28.4	0.32	0.18	0.32	22.9
Approach		238	2.0	264	2.0	0.224	5.0	LOS A	1.1	28.4	0.32	0.18	0.32	23.6
West: Knightdale Station Run														
5	L2	19	2.0	21	2.0	0.198	5.3	LOS A	0.9	23.4	0.43	0.31	0.43	24.5
2	T1	154	2.0	171	2.0	0.198	5.3	LOS A	0.9	23.4	0.43	0.31	0.43	24.2
12	R2	12	2.0	13	2.0	0.198	5.3	LOS A	0.9	23.4	0.43	0.31	0.43	23.6
Approach		185	2.0	206	2.0	0.198	5.3	LOS A	0.9	23.4	0.43	0.31	0.43	24.2
All Vehicles		816	2.0	907	2.0	0.278	5.3	LOS A	1.5	37.9	0.35	0.22	0.35	23.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2022 Existing PM Peak Hour
Site Category: Existing Design
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	18	2.0	20	2.0	0.052	3.3	LOS A	0.2	5.7	0.19	0.07	0.19	24.8
8	T1	37	2.0	41	2.0	0.052	3.3	LOS A	0.2	5.7	0.19	0.07	0.19	24.4
18	R2	4	2.0	4	2.0	0.052	3.3	LOS A	0.2	5.7	0.19	0.07	0.19	23.9
Approach		59	2.0	66	2.0	0.052	3.3	LOS A	0.2	5.7	0.19	0.07	0.19	24.5
East: Knightdale Station Run														
1	L2	4	2.0	4	2.0	0.060	3.4	LOS A	0.3	6.5	0.20	0.08	0.20	25.0
6	T1	28	2.0	31	2.0	0.060	3.4	LOS A	0.3	6.5	0.20	0.08	0.20	24.6
16	R2	35	2.0	39	2.0	0.060	3.4	LOS A	0.3	6.5	0.20	0.08	0.20	24.1
Approach		67	2.0	74	2.0	0.060	3.4	LOS A	0.3	6.5	0.20	0.08	0.20	24.3
North: Carolinian Ave														
7	L2	29	2.0	32	2.0	0.094	3.6	LOS A	0.4	10.7	0.17	0.07	0.17	24.7
4	T1	49	2.0	54	2.0	0.094	3.6	LOS A	0.4	10.7	0.17	0.07	0.17	24.3
14	R2	30	2.0	33	2.0	0.094	3.6	LOS A	0.4	10.7	0.17	0.07	0.17	23.8
Approach		108	2.0	120	2.0	0.094	3.6	LOS A	0.4	10.7	0.17	0.07	0.17	24.3
West: Knightdale Station Run														
5	L2	16	2.0	18	2.0	0.055	3.4	LOS A	0.2	6.0	0.22	0.10	0.22	24.8
2	T1	18	2.0	20	2.0	0.055	3.4	LOS A	0.2	6.0	0.22	0.10	0.22	24.4
12	R2	27	2.0	30	2.0	0.055	3.4	LOS A	0.2	6.0	0.22	0.10	0.22	23.8
Approach		61	2.0	68	2.0	0.055	3.4	LOS A	0.2	6.0	0.22	0.10	0.22	24.2
All Vehicles		295	2.0	328	2.0	0.094	3.4	LOS A	0.4	10.7	0.19	0.08	0.19	24.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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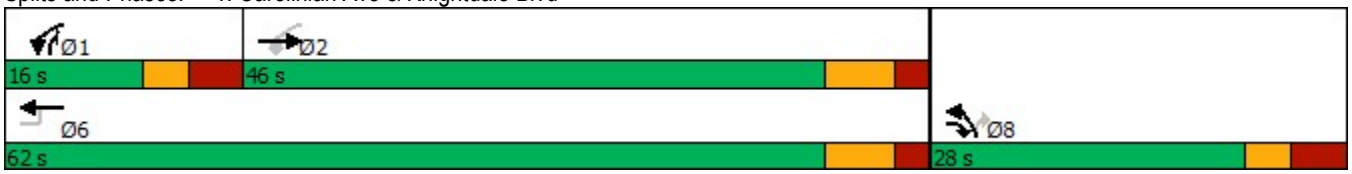
2028 Background Traffic Volumes

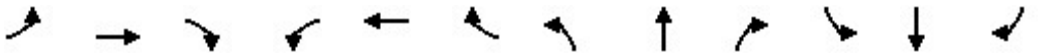
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	13	685	155	125	1224	288	123
Future Volume (vph)	13	685	155	125	1224	288	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.148			0.275		0.950	
Satd. Flow (perm)	278	3575	1599	505	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	761	172	139	1360	320	137
Shared Lane Traffic (%)							
Lane Group Flow (vph)	14	761	172	139	1360	320	137
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	62.0	46.0	28.0	16.0	62.0	28.0	16.0
Total Split (%)	68.9%	51.1%	31.1%	17.8%	68.9%	31.1%	17.8%
Maximum Green (s)	54.9	38.9	21.1	9.3	54.9	21.1	9.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	36.6	22.3	39.4	31.5	36.6	12.0	26.3
Actuated g/C Ratio	0.62	0.38	0.67	0.54	0.62	0.20	0.45
v/c Ratio	0.08	0.56	0.16	0.30	0.63	0.46	0.19
Control Delay	6.1	16.2	3.7	6.8	8.5	24.0	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	16.2	3.7	6.8	8.5	24.0	12.2
LOS	A	B	A	A	A	C	B
Approach Delay		13.8			8.4	20.5	
Approach LOS		B			A	C	
Queue Length 50th (ft)	2	103	17	16	127	52	29
Queue Length 95th (ft)	9	173	36	40	219	98	69
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	258	2547	1383	524	3241	1379	766
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.30	0.12	0.27	0.42	0.23	0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 58.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	184	14	10	117	238	14	69	21	234	30	20
Future Volume (vph)	23	184	14	10	117	238	14	69	21	234	30	20
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		0.991			0.912			0.973			0.991	
Flt Protected		0.995			0.999			0.993			0.960	
Satd. Flow (prot)	0	1837	0	0	1697	0	0	1800	0	0	1772	0
Flt Permitted		0.995			0.999			0.993			0.960	
Satd. Flow (perm)	0	1837	0	0	1697	0	0	1800	0	0	1772	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
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)	26	204	16	11	130	264	16	77	23	260	33	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	246	0	0	405	0	0	116	0	0	315	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	31	363	162	31	238
Future Volume (vph)	116	31	363	162	31	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.958			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1785	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1785	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	129	34	403	180	34	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	34	583	0	34	264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

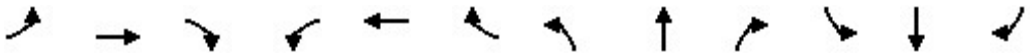
Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	116	31	363	162	31	238
Future Vol, veh/h	116	31	363	162	31	238
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	129	34	403	180	34	264

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	825	493	0	0	583	0
Stage 1	493	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	342	576	-	-	991	-
Stage 1	614	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	330	576	-	-	991	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.4	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	330	576	991	-
HCM Lane V/C Ratio	-	-	0.391	0.06	0.035	-
HCM Control Delay (s)	-	-	22.7	11.6	8.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.8	0.2	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	27	5	4	32	4	19	4	4	4	4	17
Future Volume (vph)	6	27	5	4	32	4	19	4	4	4	4	17
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			0.988			0.981			0.905	
Flt Protected		0.992			0.995			0.965			0.993	
Satd. Flow (prot)	0	1813	0	0	1831	0	0	1763	0	0	1674	0
Flt Permitted		0.992			0.995			0.965			0.993	
Satd. Flow (perm)	0	1813	0	0	1831	0	0	1763	0	0	1674	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
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)	7	30	6	4	36	4	21	4	4	4	4	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	0	44	0	0	29	0	0	27	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 14.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	27	5	4	32	4	19	4	4	4	4	17
Future Vol, veh/h	6	27	5	4	32	4	19	4	4	4	4	17
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	7	30	6	4	36	4	21	4	4	4	4	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	40	0	0	36	0	0	105	95	33	97	96	38
Stage 1	-	-	-	-	-	-	47	47	-	46	46	-
Stage 2	-	-	-	-	-	-	58	48	-	51	50	-
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	1570	-	-	1575	-	-	875	795	1041	885	794	1034
Stage 1	-	-	-	-	-	-	967	856	-	968	857	-
Stage 2	-	-	-	-	-	-	954	855	-	962	853	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1570	-	-	1575	-	-	851	789	1041	872	788	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	851	789	-	872	788	-
Stage 1	-	-	-	-	-	-	962	852	-	963	854	-
Stage 2	-	-	-	-	-	-	929	852	-	948	849	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.7	9.3	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	864	1570	-	-	1575	-	-	958
HCM Lane V/C Ratio	0.035	0.004	-	-	0.003	-	-	0.029
HCM Control Delay (s)	9.3	7.3	0	-	7.3	0	-	8.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	7	4	29	39	4
Future Volume (vph)	4	7	4	29	39	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	0.910				0.989	
Flt Protected	0.984			0.994		
Satd. Flow (prot)	1668	0	0	1852	1842	0
Flt Permitted	0.984			0.994		
Satd. Flow (perm)	1668	0	0	1852	1842	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	8	4	32	43	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	36	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

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	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	7	4	29	39	4
Future Vol, veh/h	4	7	4	29	39	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	8	4	32	43	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	85	45	47	0	-	0
Stage 1	45	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	916	1025	1560	-	-	-
Stage 1	977	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	913	1025	1560	-	-	-
Mov Cap-2 Maneuver	913	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	982	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1560	-	981	-	-
HCM Lane V/C Ratio	0.003	-	0.012	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	61	380	4	11	321
Future Volume (vph)	5	61	380	4	11	321
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	0.876		0.999			
Flt Protected	0.996					0.998
Satd. Flow (prot)	1625	0	1861	0	0	1859
Flt Permitted	0.996					0.998
Satd. Flow (perm)	1625	0	1861	0	0	1859
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	68	422	4	12	357
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	426	0	0	369
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	61	380	4	11	321
Future Vol, veh/h	5	61	380	4	11	321
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	68	422	4	12	357

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	805	424	0	0	426	0
Stage 1	424	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	352	630	-	-	1133	-
Stage 1	660	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	347	630	-	-	1133	-
Mov Cap-2 Maneuver	347	-	-	-	-	-
Stage 1	660	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	593	1133	-
HCM Lane V/C Ratio	-	-	0.124	0.011	-
HCM Control Delay (s)	-	-	11.9	8.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	133	80	270	59	55	238
Future Volume (vph)	133	80	270	59	55	238
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	0.949		0.976			
Flt Protected	0.970					0.991
Satd. Flow (prot)	1715	0	1818	0	0	1846
Flt Permitted	0.970					0.991
Satd. Flow (perm)	1715	0	1818	0	0	1846
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	148	89	300	66	61	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	237	0	366	0	0	325
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.6%		ICU Level of Service B	
Analysis Period (min) 15			

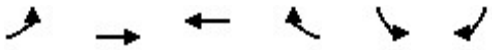
Intersection	
Int Delay, s/veh	6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	133	80	270	59	55	238
Future Vol, veh/h	133	80	270	59	55	238
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	148	89	300	66	61	264

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	719	333	0	0	366	0
Stage 1	333	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	395	709	-	-	1193	-
Stage 1	726	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	371	709	-	-	1193	-
Mov Cap-2 Maneuver	371	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	646	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.4	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	452	1193	-
HCM Lane V/C Ratio	-	-	0.524	0.051	-
HCM Control Delay (s)	-	-	21.4	8.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	95	150	43	24	10
Future Volume (vph)	5	95	150	43	24	10
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		0.961	
Flt Protected		0.997			0.966	
Satd. Flow (prot)	0	1857	1807	0	1729	0
Flt Permitted		0.997			0.966	
Satd. Flow (perm)	0	1857	1807	0	1729	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	106	167	48	27	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	112	215	0	38	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 20.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	95	150	43	24	10
Future Vol, veh/h	5	95	150	43	24	10
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	106	167	48	27	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	215	0	-	0	309	191
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	118	-
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	1355	-	-	-	683	851
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1355	-	-	-	680	851
Mov Cap-2 Maneuver	-	-	-	-	680	-
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	907	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	723
HCM Lane V/C Ratio	0.004	-	-	-	0.052
HCM Control Delay (s)	7.7	0	-	-	10.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	108	15	23	160	22	23
Future Volume (vph)	108	15	23	160	22	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	0.983				0.930	
Flt Protected				0.994	0.977	
Satd. Flow (prot)	1831	0	0	1852	1693	0
Flt Permitted				0.994	0.977	
Satd. Flow (perm)	1831	0	0	1852	1693	0
Link Speed (mph)	35			45	55	
Link Distance (ft)	852			285	807	
Travel Time (s)	16.6			4.3	10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	17	26	178	24	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	137	0	0	204	50	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 29.6%		ICU Level of Service A	
Analysis Period (min) 15			

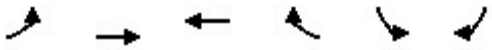
Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	15	23	160	22	23
Future Vol, veh/h	108	15	23	160	22	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	120	17	26	178	24	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	137	0	359	129
Stage 1	-	-	-	-	129	-
Stage 2	-	-	-	-	230	-
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	-	-	1447	-	640	921
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1447	-	627	921
Mov Cap-2 Maneuver	-	-	-	-	627	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	792	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	749	-	-	1447	-
HCM Lane V/C Ratio	0.067	-	-	0.018	-
HCM Control Delay (s)	10.2	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	116	179	13	27	14
Future Volume (vph)	11	116	179	13	27	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			0.991		0.953	
Flt Protected		0.996			0.968	
Satd. Flow (prot)	0	1855	1846	0	1718	0
Flt Permitted		0.996			0.968	
Satd. Flow (perm)	0	1855	1846	0	1718	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	129	199	14	30	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	141	213	0	46	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 25.2%		ICU Level of Service A	
Analysis Period (min) 15			

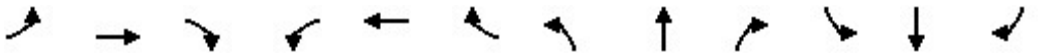
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	116	179	13	27	14
Future Vol, veh/h	11	116	179	13	27	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	12	129	199	14	30	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	213	0	-	0	359	206
Stage 1	-	-	-	-	206	-
Stage 2	-	-	-	-	153	-
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	1357	-	-	-	640	835
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	875	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1357	-	-	-	634	835
Mov Cap-2 Maneuver	-	-	-	-	634	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	875	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1357	-	-	-	691
HCM Lane V/C Ratio	0.009	-	-	-	0.066
HCM Control Delay (s)	7.7	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	188	4	44	196	37	10	330	57	12	196	155
Future Volume (vph)	265	188	4	44	196	37	10	330	57	12	196	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.982			0.981			0.942	
Flt Protected		0.972			0.992			0.999			0.998	
Satd. Flow (prot)	0	1791	0	0	1833	0	0	1844	0	0	1681	0
Flt Permitted		0.682			0.880			0.986			0.983	
Satd. Flow (perm)	0	1256	0	0	1626	0	0	1820	0	0	1656	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
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)	294	209	4	49	218	41	11	367	63	13	218	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	507	0	0	308	0	0	441	0	0	403	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	36.0	36.0		36.0	36.0		24.0	24.0		24.0	24.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		40.0%	40.0%		40.0%	40.0%	
Maximum Green (s)	31.5	31.5		31.2	31.2		18.8	18.8		18.9	18.9	
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)		24.5			24.5			15.9			15.9	
Actuated g/C Ratio		0.48			0.48			0.31			0.31	
v/c Ratio		0.84			0.39			0.78			0.78	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		27.0			10.4			28.8			30.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		27.0			10.4			28.8			30.1	
LOS		C			B			C			C	
Approach Delay		27.0			10.4			28.8			30.1	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)		134			60			131			120	
Queue Length 95th (ft)		#304			109			#272			#258	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		804			1041			714			650	
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		0.63			0.30			0.62			0.62	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 51			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 25.1		Intersection LOS: C	
Intersection Capacity Utilization 78.0%		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: 17: Smithfield Rd & First Ave

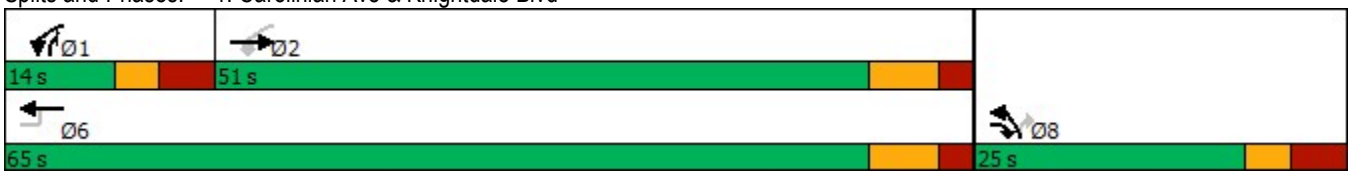
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	26	1658	125	37	972	111	41
Future Volume (vph)	26	1658	125	37	972	111	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.247			0.084		0.950	
Satd. Flow (perm)	465	3575	1599	154	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	1842	139	41	1080	123	46
Shared Lane Traffic (%)							
Lane Group Flow (vph)	29	1842	139	41	1080	123	46
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	65.0	51.0	25.0	14.0	65.0	25.0	14.0
Total Split (%)	72.2%	56.7%	27.8%	15.6%	72.2%	27.8%	15.6%
Maximum Green (s)	57.9	43.9	18.1	7.3	57.9	18.1	7.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0

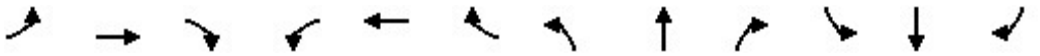
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	59.2	48.3	64.0	55.2	59.2	9.6	23.3
Actuated g/C Ratio	0.75	0.61	0.81	0.70	0.75	0.12	0.30
v/c Ratio	0.08	0.84	0.11	0.14	0.41	0.29	0.10
Control Delay	3.4	18.4	2.5	4.1	4.2	33.6	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	18.4	2.5	4.1	4.2	33.6	21.0
LOS	A	B	A	A	A	C	C
Approach Delay		17.1			4.1	30.2	
Approach LOS		B			A	C	
Queue Length 50th (ft)	3	372	14	4	75	28	16
Queue Length 95th (ft)	10	#557	25	11	114	53	40
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	354	2191	1462	289	2657	876	477
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.84	0.10	0.14	0.41	0.14	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.8			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 13.4		Intersection LOS: B	
Intersection Capacity Utilization 60.0%		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: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	21	32	4	33	42	21	44	4	35	59	36
Future Volume (vph)	19	21	32	4	33	42	21	44	4	35	59	36
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		0.939			0.928			0.993			0.963	
Flt Protected		0.987			0.998			0.985			0.987	
Satd. Flow (prot)	0	1726	0	0	1725	0	0	1822	0	0	1771	0
Flt Permitted		0.987			0.998			0.985			0.987	
Satd. Flow (perm)	0	1726	0	0	1725	0	0	1822	0	0	1771	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
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)	21	23	36	4	37	47	23	49	4	39	66	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	88	0	0	76	0	0	145	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.6%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	69	47	362	80	86	406
Future Volume (vph)	69	47	362	80	86	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.976			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1818	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1818	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	77	52	402	89	96	451
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	52	491	0	96	451
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

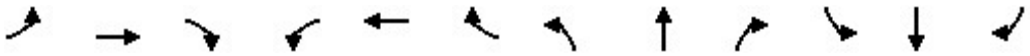
Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	69	47	362	80	86	406
Future Vol, veh/h	69	47	362	80	86	406
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	52	402	89	96	451

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1090	447	0	0	491	0
Stage 1	447	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	238	612	-	-	1072	-
Stage 1	644	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	217	612	-	-	1072	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.7	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	217	612	1072	-
HCM Lane V/C Ratio	-	-	0.353	0.085	0.089	-
HCM Control Delay (s)	-	-	30.4	11.4	8.7	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.5	0.3	0.3	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	41	7	4	21	4	17	4	4	4	4	21
Future Volume (vph)	11	41	7	4	21	4	17	4	4	4	4	21
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		0.984			0.983			0.980			0.900	
Flt Protected		0.991			0.994			0.966			0.994	
Satd. Flow (prot)	0	1816	0	0	1820	0	0	1763	0	0	1666	0
Flt Permitted		0.991			0.994			0.966			0.994	
Satd. Flow (perm)	0	1816	0	0	1820	0	0	1763	0	0	1666	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
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)	12	46	8	4	23	4	19	4	4	4	4	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	31	0	0	27	0	0	31	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 16.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	41	7	4	21	4	17	4	4	4	4	21
Future Vol, veh/h	11	41	7	4	21	4	17	4	4	4	4	21
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	12	46	8	4	23	4	19	4	4	4	4	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	54	0	0	121	109	50	111	111	25
Stage 1	-	-	-	-	-	-	74	74	-	33	33	-
Stage 2	-	-	-	-	-	-	47	35	-	78	78	-
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	1587	-	-	1551	-	-	854	781	1018	867	779	1051
Stage 1	-	-	-	-	-	-	935	833	-	983	868	-
Stage 2	-	-	-	-	-	-	967	866	-	931	830	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1587	-	-	1551	-	-	824	772	1018	852	770	1051
Mov Cap-2 Maneuver	-	-	-	-	-	-	824	772	-	852	770	-
Stage 1	-	-	-	-	-	-	928	826	-	975	865	-
Stage 2	-	-	-	-	-	-	938	863	-	915	823	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	1	9.4	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	841	1587	-	-	1551	-	-	971
HCM Lane V/C Ratio	0.033	0.008	-	-	0.003	-	-	0.033
HCM Control Delay (s)	9.4	7.3	0	-	7.3	0	-	8.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	4	4	27	44	6
Future Volume (vph)	4	4	4	27	44	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	0.932				0.983	
Flt Protected	0.976			0.994		
Satd. Flow (prot)	1694	0	0	1852	1831	0
Flt Permitted	0.976			0.994		
Satd. Flow (perm)	1694	0	0	1852	1831	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	4	4	30	49	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	34	56	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

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	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	4	4	27	44	6
Future Vol, veh/h	4	4	4	27	44	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, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	4	4	30	49	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	91	53	56	0	-	0
Stage 1	53	-	-	-	-	-
Stage 2	38	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	909	1014	1549	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	906	1014	1549	-	-	-
Mov Cap-2 Maneuver	906	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1549	-	957	-	-
HCM Lane V/C Ratio	0.003	-	0.009	-	-
HCM Control Delay (s)	7.3	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	15	333	12	22	353
Future Volume (vph)	19	15	333	12	22	353
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	0.940		0.995			
Flt Protected	0.973					0.997
Satd. Flow (prot)	1704	0	1853	0	0	1857
Flt Permitted	0.973					0.997
Satd. Flow (perm)	1704	0	1853	0	0	1857
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	17	370	13	24	392
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	383	0	0	416
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	15	333	12	22	353
Future Vol, veh/h	19	15	333	12	22	353
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	17	370	13	24	392

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	817	377	0	0	383	0
Stage 1	377	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	346	670	-	-	1175	-
Stage 1	694	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	337	670	-	-	1175	-
Mov Cap-2 Maneuver	337	-	-	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	632	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	432	1175	-
HCM Lane V/C Ratio	-	-	0.087	0.021	-
HCM Control Delay (s)	-	-	14.1	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	109	68	239	180	105	311
Future Volume (vph)	109	68	239	180	105	311
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	0.948		0.942			
Flt Protected	0.970					0.988
Satd. Flow (prot)	1713	0	1755	0	0	1840
Flt Permitted	0.970					0.988
Satd. Flow (perm)	1713	0	1755	0	0	1840
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	121	76	266	200	117	346
Shared Lane Traffic (%)						
Lane Group Flow (vph)	197	0	466	0	0	463
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

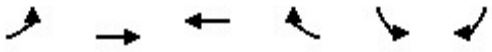
Intersection	
Int Delay, s/veh	6.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	109	68	239	180	105	311
Future Vol, veh/h	109	68	239	180	105	311
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	121	76	266	200	117	346

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	946	366	0	0	466	0
Stage 1	366	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	290	679	-	-	1095	-
Stage 1	702	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	252	679	-	-	1095	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	486	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.4	0	2.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	332	1095	-
HCM Lane V/C Ratio	-	-	0.592	0.107	-
HCM Control Delay (s)	-	-	30.4	8.7	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	3.6	0.4	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	210	164	29	26	12
Future Volume (vph)	15	210	164	29	26	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			0.980		0.958	
Flt Protected		0.997			0.967	
Satd. Flow (prot)	0	1857	1825	0	1726	0
Flt Permitted		0.997			0.967	
Satd. Flow (perm)	0	1857	1825	0	1726	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	233	182	32	29	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	250	214	0	42	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 33.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	210	164	29	26	12
Future Vol, veh/h	15	210	164	29	26	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	17	233	182	32	29	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	214	0	-	0	465	198
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	267	-
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	1356	-	-	-	556	843
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	778	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1356	-	-	-	548	843
Mov Cap-2 Maneuver	-	-	-	-	548	-
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	778	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1356	-	-	-	616
HCM Lane V/C Ratio	0.012	-	-	-	0.069
HCM Control Delay (s)	7.7	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	190	24	32	183	15	38
Future Volume (vph)	190	24	32	183	15	38
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	0.985				0.904	
Flt Protected				0.993	0.986	
Satd. Flow (prot)	1835	0	0	1850	1660	0
Flt Permitted				0.993	0.986	
Satd. Flow (perm)	1835	0	0	1850	1660	0
Link Speed (mph)	35			45	55	
Link Distance (ft)	852			285	807	
Travel Time (s)	16.6			4.3	10.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	211	27	36	203	17	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	238	0	0	239	59	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 36.2%		ICU Level of Service A	
Analysis Period (min) 15			

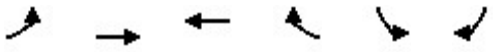
Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	190	24	32	183	15	38
Future Vol, veh/h	190	24	32	183	15	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, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	27	36	203	17	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	238	0	500	225
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	275	-
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	-	-	1329	-	530	814
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1329	-	514	814
Mov Cap-2 Maneuver	-	-	-	-	514	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	747	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	699	-	-	1329	-
HCM Lane V/C Ratio	0.084	-	-	0.027	-
HCM Control Delay (s)	10.6	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	224	183	17	29	25
Future Volume (vph)	11	224	183	17	29	25
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			0.988		0.937	
Flt Protected		0.998			0.974	
Satd. Flow (prot)	0	1859	1840	0	1700	0
Flt Permitted		0.998			0.974	
Satd. Flow (perm)	0	1859	1840	0	1700	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	249	203	19	32	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	261	222	0	60	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 30.7%		ICU Level of Service A	
Analysis Period (min) 15			

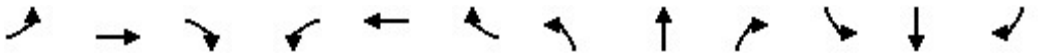
Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	224	183	17	29	25
Future Vol, veh/h	11	224	183	17	29	25
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	12	249	203	19	32	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	222	0	-	0	486	213
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	273	-
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	1347	-	-	-	540	827
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	773	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1347	-	-	-	535	827
Mov Cap-2 Maneuver	-	-	-	-	535	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	773	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1347	-	-	-	640
HCM Lane V/C Ratio	0.009	-	-	-	0.094
HCM Control Delay (s)	7.7	0	-	-	11.2
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)	272	206	14	83	312	23	11	339	36	9	416	361
Future Volume (vph)	272	206	14	83	312	23	11	339	36	9	416	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			8%	
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		0.996			0.992			0.987			0.938	
Flt Protected		0.973			0.990			0.999			0.999	
Satd. Flow (prot)	0	1787	0	0	1848	0	0	1855	0	0	1676	0
Flt Permitted		0.534			0.817			0.972			0.994	
Satd. Flow (perm)	0	981	0	0	1525	0	0	1805	0	0	1667	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
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)	302	229	16	92	347	26	12	377	40	10	462	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	547	0	0	465	0	0	429	0	0	873	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	72.0	72.0		72.0	72.0		68.0	68.0		68.0	68.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		48.6%	48.6%		48.6%	48.6%	
Maximum Green (s)	67.5	67.5		67.2	67.2		62.8	62.8		62.9	62.9	
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)		67.0			67.0			63.0			63.0	
Actuated g/C Ratio		0.48			0.48			0.45			0.45	
v/c Ratio		1.17			0.64			0.53			1.16	

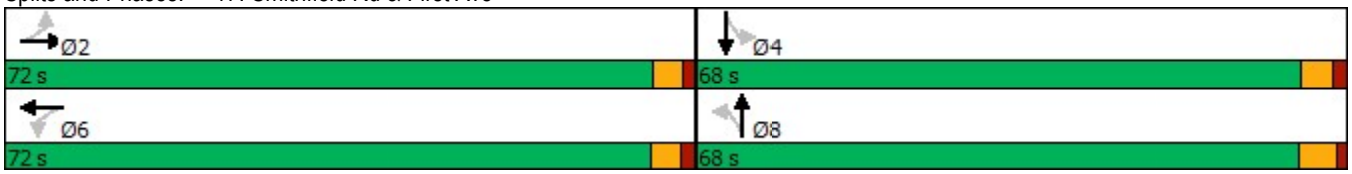
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		130.0			32.3			30.7			123.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		130.0			32.3			30.7			123.7	
LOS		F			C			C			F	
Approach Delay		130.0			32.3			30.7			123.7	
Approach LOS		F			C			C			F	
Queue Length 50th (ft)		~590			311			278			~941	
Queue Length 95th (ft)		#819			437			382			#1194	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		469			729			812			750	
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		1.17			0.64			0.53			1.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 89.6		Intersection LOS: F	
Intersection Capacity Utilization 109.8%		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: 17: Smithfield Rd & First Ave



MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2028 Background AM Peak Hour
Site Category: Base Year
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	14	2.0	16	2.0	0.142	5.9	LOS A	0.6	15.0	0.55	0.48	0.55	24.3
8	T1	69	2.0	77	2.0	0.142	5.9	LOS A	0.6	15.0	0.55	0.48	0.55	23.9
18	R2	21	2.0	23	2.0	0.142	5.9	LOS A	0.6	15.0	0.55	0.48	0.55	23.4
Approach		104	2.0	116	2.0	0.142	5.9	LOS A	0.6	15.0	0.55	0.48	0.55	23.9
East: Knightdale Station Run														
1	L2	10	2.0	11	2.0	0.339	6.2	LOS A	1.9	49.3	0.34	0.20	0.34	24.3
6	T1	117	2.0	130	2.0	0.339	6.2	LOS A	1.9	49.3	0.34	0.20	0.34	23.9
16	R2	238	2.0	264	2.0	0.339	6.2	LOS A	1.9	49.3	0.34	0.20	0.34	23.3
Approach		365	2.0	406	2.0	0.339	6.2	LOS A	1.9	49.3	0.34	0.20	0.34	23.5
North: Carolinian Ave														
7	L2	234	2.0	260	2.0	0.275	5.7	LOS A	1.4	36.3	0.37	0.23	0.37	23.6
4	T1	30	2.0	33	2.0	0.275	5.7	LOS A	1.4	36.3	0.37	0.23	0.37	23.2
14	R2	20	2.0	22	2.0	0.275	5.7	LOS A	1.4	36.3	0.37	0.23	0.37	22.7
Approach		284	2.0	316	2.0	0.275	5.7	LOS A	1.4	36.3	0.37	0.23	0.37	23.5
West: Knightdale Station Run														
5	L2	23	2.0	26	2.0	0.249	6.1	LOS A	1.2	30.2	0.49	0.39	0.49	24.3
2	T1	184	2.0	204	2.0	0.249	6.1	LOS A	1.2	30.2	0.49	0.39	0.49	24.0
12	R2	14	2.0	16	2.0	0.249	6.1	LOS A	1.2	30.2	0.49	0.39	0.49	23.4
Approach		221	2.0	246	2.0	0.249	6.1	LOS A	1.2	30.2	0.49	0.39	0.49	24.0
All Vehicles		974	2.0	1082	2.0	0.339	6.0	LOS A	1.9	49.3	0.41	0.28	0.41	23.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2028 Background PM Peak Hour
Site Category: Base Year
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	21	2.0	23	2.0	0.062	3.4	LOS A	0.3	6.8	0.21	0.09	0.21	24.8
8	T1	44	2.0	49	2.0	0.062	3.4	LOS A	0.3	6.8	0.21	0.09	0.21	24.4
18	R2	4	2.0	4	2.0	0.062	3.4	LOS A	0.3	6.8	0.21	0.09	0.21	23.9
Approach		69	2.0	77	2.0	0.062	3.4	LOS A	0.3	6.8	0.21	0.09	0.21	24.5
East: Knightdale Station Run														
1	L2	4	2.0	4	2.0	0.071	3.5	LOS A	0.3	7.9	0.23	0.10	0.23	25.0
6	T1	33	2.0	37	2.0	0.071	3.5	LOS A	0.3	7.9	0.23	0.10	0.23	24.6
16	R2	42	2.0	47	2.0	0.071	3.5	LOS A	0.3	7.9	0.23	0.10	0.23	24.0
Approach		79	2.0	88	2.0	0.071	3.5	LOS A	0.3	7.9	0.23	0.10	0.23	24.3
North: Carolinian Ave														
7	L2	35	2.0	39	2.0	0.114	3.8	LOS A	0.5	13.2	0.19	0.08	0.19	24.7
4	T1	59	2.0	66	2.0	0.114	3.8	LOS A	0.5	13.2	0.19	0.08	0.19	24.3
14	R2	36	2.0	40	2.0	0.114	3.8	LOS A	0.5	13.2	0.19	0.08	0.19	23.8
Approach		130	2.0	144	2.0	0.114	3.8	LOS A	0.5	13.2	0.19	0.08	0.19	24.2
West: Knightdale Station Run														
5	L2	19	2.0	21	2.0	0.066	3.5	LOS A	0.3	7.2	0.25	0.12	0.25	24.7
2	T1	21	2.0	23	2.0	0.066	3.5	LOS A	0.3	7.2	0.25	0.12	0.25	24.3
12	R2	32	2.0	36	2.0	0.066	3.5	LOS A	0.3	7.2	0.25	0.12	0.25	23.8
Approach		72	2.0	80	2.0	0.066	3.5	LOS A	0.3	7.2	0.25	0.12	0.25	24.2
All Vehicles		350	2.0	389	2.0	0.114	3.6	LOS A	0.5	13.2	0.22	0.09	0.22	24.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

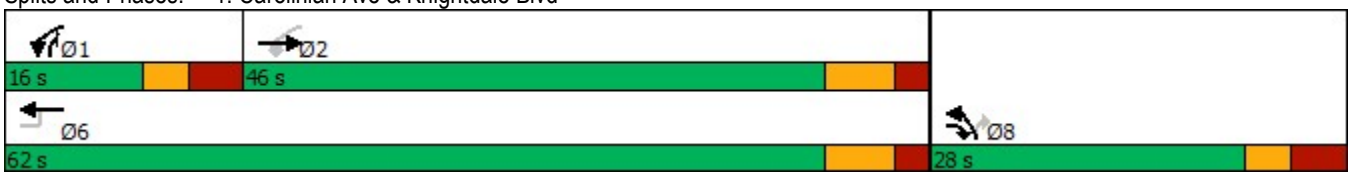
2028 Build Traffic Volumes

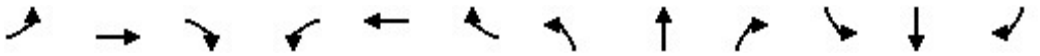
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	13	707	165	133	1237	320	147
Future Volume (vph)	13	707	165	133	1237	320	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.143			0.259		0.950	
Satd. Flow (perm)	269	3575	1599	475	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	786	183	148	1374	356	163
Shared Lane Traffic (%)							
Lane Group Flow (vph)	14	786	183	148	1374	356	163
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	62.0	46.0	28.0	16.0	62.0	28.0	16.0
Total Split (%)	68.9%	51.1%	31.1%	17.8%	68.9%	31.1%	17.8%
Maximum Green (s)	54.9	38.9	21.1	9.3	54.9	21.1	9.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	37.6	23.1	41.2	32.5	37.6	12.9	27.4
Actuated g/C Ratio	0.62	0.38	0.68	0.53	0.62	0.21	0.45
v/c Ratio	0.08	0.58	0.17	0.33	0.64	0.49	0.23
Control Delay	6.6	17.0	3.8	7.5	9.1	24.5	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	17.0	3.8	7.5	9.1	24.5	12.5
LOS	A	B	A	A	A	C	B
Approach Delay		14.4			8.9	20.7	
Approach LOS		B			A	C	
Queue Length 50th (ft)	2	111	18	19	137	59	36
Queue Length 95th (ft)	10	191	39	47	244	111	83
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	245	2470	1363	504	3179	1337	766
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.32	0.13	0.29	0.43	0.27	0.21

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 60.8			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	184	31	10	117	238	70	125	21	234	48	20
Future Volume (vph)	23	184	31	10	117	238	70	125	21	234	48	20
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		0.983			0.912			0.987			0.991	
Flt Protected		0.995			0.999			0.984			0.963	
Satd. Flow (prot)	0	1822	0	0	1697	0	0	1809	0	0	1778	0
Flt Permitted		0.995			0.999			0.984			0.963	
Satd. Flow (perm)	0	1822	0	0	1697	0	0	1809	0	0	1778	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
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)	26	204	34	11	130	264	78	139	23	260	53	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	264	0	0	405	0	0	240	0	0	335	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	156	47	428	174	36	280
Future Volume (vph)	156	47	428	174	36	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.961			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1790	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1790	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	173	52	476	193	40	311
Shared Lane Traffic (%)						
Lane Group Flow (vph)	173	52	669	0	40	311
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

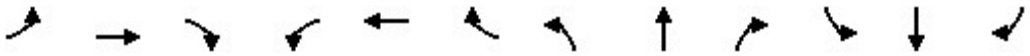
Intersection	
Int Delay, s/veh	6.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	156	47	428	174	36	280
Future Vol, veh/h	156	47	428	174	36	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	173	52	476	193	40	311

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	964	573	0	0	669	0
Stage 1	573	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	283	519	-	-	921	-
Stage 1	564	-	-	-	-	-
Stage 2	683	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	271	519	-	-	921	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	654	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.1	0	1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	271	519	921	-
HCM Lane V/C Ratio	-	-	0.64	0.101	0.043	-
HCM Control Delay (s)	-	-	39.2	12.7	9.1	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	4	0.3	0.1	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	27	40	7	32	4	131	9	10	4	5	17
Future Volume (vph)	6	27	40	7	32	4	131	9	10	4	5	17
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		0.927			0.989			0.991			0.912	
Flt Protected		0.996			0.992			0.958			0.993	
Satd. Flow (prot)	0	1720	0	0	1828	0	0	1768	0	0	1687	0
Flt Permitted		0.996			0.992			0.958			0.993	
Satd. Flow (perm)	0	1720	0	0	1828	0	0	1768	0	0	1687	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
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)	7	30	44	8	36	4	146	10	11	4	6	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	48	0	0	167	0	0	29	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 26.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	6	27	40	7	32	4	131	9	10	4	5	17
Future Vol, veh/h	6	27	40	7	32	4	131	9	10	4	5	17
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	7	30	44	8	36	4	146	10	11	4	6	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	40	0	0	74	0	0	133	122	52	131	142	38
Stage 1	-	-	-	-	-	-	66	66	-	54	54	-
Stage 2	-	-	-	-	-	-	67	56	-	77	88	-
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	1570	-	-	1526	-	-	839	768	1016	841	749	1034
Stage 1	-	-	-	-	-	-	945	840	-	958	850	-
Stage 2	-	-	-	-	-	-	943	848	-	932	822	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1570	-	-	1526	-	-	813	760	1016	817	742	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	813	760	-	817	742	-
Stage 1	-	-	-	-	-	-	940	836	-	953	846	-
Stage 2	-	-	-	-	-	-	915	844	-	906	818	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	1.2	10.5	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	820	1570	-	-	1526	-	-	926
HCM Lane V/C Ratio	0.203	0.004	-	-	0.005	-	-	0.031
HCM Control Delay (s)	10.5	7.3	0	-	7.4	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	31	11	51	52	4
Future Volume (vph)	8	31	11	51	52	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	0.893				0.991	
Flt Protected	0.990			0.991		
Satd. Flow (prot)	1647	0	0	1846	1846	0
Flt Permitted	0.990			0.991		
Satd. Flow (perm)	1647	0	0	1846	1846	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	34	12	57	58	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	69	62	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	31	11	51	52	4
Future Vol, veh/h	8	31	11	51	52	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	34	12	57	58	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	141	60	62	0	-	0
Stage 1	60	-	-	-	-	-
Stage 2	81	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	852	1005	1541	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	845	1005	1541	-	-	-
Mov Cap-2 Maneuver	845	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	942	-	-	-	-	-

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)	1541	-	967	-	-
HCM Lane V/C Ratio	0.008	-	0.045	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	72	446	4	18	396
Future Volume (vph)	5	72	446	4	18	396
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	0.874		0.999			
Flt Protected	0.997					0.998
Satd. Flow (prot)	1623	0	1861	0	0	1859
Flt Permitted	0.997					0.998
Satd. Flow (perm)	1623	0	1861	0	0	1859
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	80	496	4	20	440
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	0	500	0	0	460
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	72	446	4	18	396
Future Vol, veh/h	5	72	446	4	18	396
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	80	496	4	20	440

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	978	498	0	0	500	0
Stage 1	498	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	278	572	-	-	1064	-
Stage 1	611	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	271	572	-	-	1064	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	534	1064	-
HCM Lane V/C Ratio	-	-	0.16	0.019	-
HCM Control Delay (s)	-	-	13	8.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	207	134	282	101	90	278
Future Volume (vph)	207	134	282	101	90	278
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	0.947		0.964			
Flt Protected	0.971					0.988
Satd. Flow (prot)	1713	0	1796	0	0	1840
Flt Permitted	0.971					0.988
Satd. Flow (perm)	1713	0	1796	0	0	1840
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	230	149	313	112	100	309
Shared Lane Traffic (%)						
Lane Group Flow (vph)	379	0	425	0	0	409
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.3%		ICU Level of Service C	
Analysis Period (min) 15			

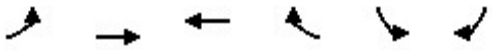
Intersection	
Int Delay, s/veh	28.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	207	134	282	101	90	278
Future Vol, veh/h	207	134	282	101	90	278
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	230	149	313	112	100	309

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	878	369	0	0	425	0
Stage 1	369	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	318	677	-	-	1134	-
Stage 1	699	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	284	677	-	-	1134	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	89.1	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	368	1134	-
HCM Lane V/C Ratio	-	-	1.03	0.088	-
HCM Control Delay (s)	-	-	89.1	8.5	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	12.6	0.3	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	172	278	54	31	10
Future Volume (vph)	5	172	278	54	31	10
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		0.967	
Flt Protected		0.998			0.964	
Satd. Flow (prot)	0	1859	1822	0	1736	0
Flt Permitted		0.998			0.964	
Satd. Flow (perm)	0	1859	1822	0	1736	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	191	309	60	34	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	197	369	0	45	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 27.9%		ICU Level of Service A	
Analysis Period (min) 15			

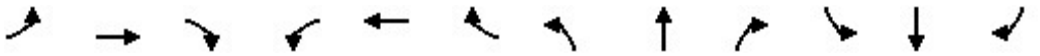
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	172	278	54	31	10
Future Vol, veh/h	5	172	278	54	31	10
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	191	309	60	34	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	369	0	-	0	542	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	203	-
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	1190	-	-	-	501	703
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	831	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1190	-	-	-	498	703
Mov Cap-2 Maneuver	-	-	-	-	498	-
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1190	-	-	-	536
HCM Lane V/C Ratio	0.005	-	-	-	0.085
HCM Control Delay (s)	8	0	-	-	12.3
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	181	22	6	282	4	50	4	16	4	4	4
Future Volume (vph)	4	181	22	6	282	4	50	4	16	4	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		0.986			0.998			0.969			0.955	
Flt Protected		0.999			0.999			0.965			0.984	
Satd. Flow (prot)	0	1835	0	0	1857	0	0	1742	0	0	1750	0
Flt Permitted		0.999			0.999			0.965			0.984	
Satd. Flow (perm)	0	1835	0	0	1857	0	0	1742	0	0	1750	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2012			431			1157			209	
Travel Time (s)		39.2			8.4			31.6			5.7	
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	201	24	7	313	4	56	4	18	4	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	229	0	0	324	0	0	78	0	0	12	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 32.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	181	22	6	282	4	50	4	16	4	4	4
Future Vol, veh/h	4	181	22	6	282	4	50	4	16	4	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	201	24	7	313	4	56	4	18	4	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	317	0	0	225	0	0	554	552	213	561	562	315
Stage 1	-	-	-	-	-	-	221	221	-	329	329	-
Stage 2	-	-	-	-	-	-	333	331	-	232	233	-
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	1243	-	-	1344	-	-	443	442	827	438	436	725
Stage 1	-	-	-	-	-	-	781	720	-	684	646	-
Stage 2	-	-	-	-	-	-	681	645	-	771	712	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1243	-	-	1344	-	-	434	438	827	422	432	725
Mov Cap-2 Maneuver	-	-	-	-	-	-	434	438	-	422	432	-
Stage 1	-	-	-	-	-	-	778	717	-	681	642	-
Stage 2	-	-	-	-	-	-	668	641	-	747	709	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	13.8	12.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	487	1243	-	-	1344	-	-	495
HCM Lane V/C Ratio	0.16	0.004	-	-	0.005	-	-	0.027
HCM Control Delay (s)	13.8	7.9	0	-	7.7	0	-	12.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	194	4	5	280	8	17
Future Volume (vph)	194	4	5	280	8	17
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	0.998				0.908	
Flt Protected				0.999	0.984	
Satd. Flow (prot)	1859	0	0	1861	1664	0
Flt Permitted				0.999	0.984	
Satd. Flow (perm)	1859	0	0	1861	1664	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	431			605	752	
Travel Time (s)	8.4			11.8	20.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	216	4	6	311	9	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	220	0	0	317	28	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 28.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	4	5	280	8	17
Future Vol, veh/h	194	4	5	280	8	17
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	4	6	311	9	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	220	0	541	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	323	-
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	-	502	822
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1349	-	499	822
Mov Cap-2 Maneuver	-	-	-	-	499	-
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	730	-

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)	681	-	-	1349	-
HCM Lane V/C Ratio	0.041	-	-	0.004	-
HCM Control Delay (s)	10.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	204	7	11	242	43	34
Future Volume (vph)	204	7	11	242	43	34
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	0.995				0.940	
Flt Protected				0.998	0.973	
Satd. Flow (prot)	1853	0	0	1859	1704	0
Flt Permitted				0.998	0.973	
Satd. Flow (perm)	1853	0	0	1859	1704	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	605			535	566	
Travel Time (s)	11.8			10.4	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	227	8	12	269	48	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	235	0	0	281	86	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 32.8%		ICU Level of Service A	
Analysis Period (min) 15			

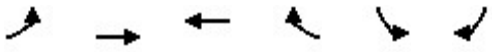
Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	204	7	11	242	43	34
Future Vol, veh/h	204	7	11	242	43	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	227	8	12	269	48	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	235	0	524	231
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	293	-
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	-	-	1332	-	514	808
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1332	-	508	808
Mov Cap-2 Maneuver	-	-	-	-	508	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	608	-	-	1332	-
HCM Lane V/C Ratio	0.141	-	-	0.009	-
HCM Control Delay (s)	11.9	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	226	245	5	4	8
Future Volume (vph)	12	226	245	5	4	8
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			0.997		0.907	
Flt Protected		0.998			0.985	
Satd. Flow (prot)	0	1859	1857	0	1664	0
Flt Permitted		0.998			0.985	
Satd. Flow (perm)	0	1859	1857	0	1664	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		535	213		253	
Travel Time (s)		10.4	4.1		17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	251	272	6	4	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	264	278	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 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

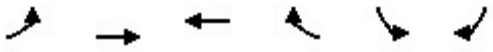
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	226	245	5	4	8
Future Vol, veh/h	12	226	245	5	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, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	251	272	6	4	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	278	0	-	0	552	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	277	-
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	1285	-	-	-	495	764
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	770	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1285	-	-	-	489	764
Mov Cap-2 Maneuver	-	-	-	-	489	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	770	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1285	-	-	-	643
HCM Lane V/C Ratio	0.01	-	-	-	0.021
HCM Control Delay (s)	7.8	0	-	-	10.7
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)	12	217	242	8	5	8
Future Volume (vph)	12	217	242	8	5	8
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			0.996		0.919	
Flt Protected		0.997			0.980	
Satd. Flow (prot)	0	1857	1855	0	1678	0
Flt Permitted		0.997			0.980	
Satd. Flow (perm)	0	1857	1855	0	1678	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		213	852		269	
Travel Time (s)		4.1	16.6		18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	241	269	9	6	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	254	278	0	15	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 31.2%		ICU Level of Service A	
Analysis Period (min) 15			

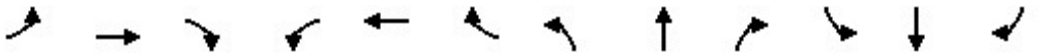
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	217	242	8	5	8
Future Vol, veh/h	12	217	242	8	5	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, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	241	269	9	6	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	278	0	-	0	541	274
Stage 1	-	-	-	-	274	-
Stage 2	-	-	-	-	267	-
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	1285	-	-	-	502	765
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	778	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1285	-	-	-	496	765
Mov Cap-2 Maneuver	-	-	-	-	496	-
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	778	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1285	-	-	-	633
HCM Lane V/C Ratio	0.01	-	-	-	0.023
HCM Control Delay (s)	7.8	0	-	-	10.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	191	23	31	206	8	25	4	26	5	4	8
Future Volume (vph)	12	191	23	31	206	8	25	4	26	5	4	8
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		0.986			0.996			0.936			0.936	
Flt Protected		0.997			0.994			0.978			0.984	
Satd. Flow (prot)	0	1831	0	0	1844	0	0	1705	0	0	1716	0
Flt Permitted		0.997			0.994			0.978			0.984	
Satd. Flow (perm)	0	1831	0	0	1844	0	0	1705	0	0	1716	0
Link Speed (mph)		35			45			55			10	
Link Distance (ft)		852			285			807			349	
Travel Time (s)		16.6			4.3			10.0			23.8	
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)	13	212	26	34	229	9	28	4	29	6	4	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	251	0	0	272	0	0	61	0	0	19	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 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

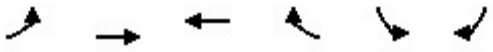
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	12	191	23	31	206	8	25	4	26	5	4	8
Future Vol, veh/h	12	191	23	31	206	8	25	4	26	5	4	8
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	13	212	26	34	229	9	28	4	29	6	4	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	238	0	0	238	0	0	559	557	225	570	566	234
Stage 1	-	-	-	-	-	-	251	251	-	302	302	-
Stage 2	-	-	-	-	-	-	308	306	-	268	264	-
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	1329	-	-	1329	-	-	440	439	814	432	434	805
Stage 1	-	-	-	-	-	-	753	699	-	707	664	-
Stage 2	-	-	-	-	-	-	702	662	-	738	690	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1329	-	-	1329	-	-	418	421	814	400	416	805
Mov Cap-2 Maneuver	-	-	-	-	-	-	418	421	-	400	416	-
Stage 1	-	-	-	-	-	-	745	691	-	699	644	-
Stage 2	-	-	-	-	-	-	669	642	-	699	682	-

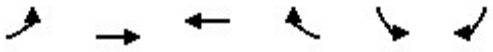
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1	12.5	12
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	543	1329	-	-	1329	-	-	530
HCM Lane V/C Ratio	0.113	0.01	-	-	0.026	-	-	0.036
HCM Control Delay (s)	12.5	7.7	0	-	7.8	0	-	12
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	13	205	249	8	5	6
Future Volume (vph)	13	205	249	8	5	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			0.996		0.927	
Flt Protected		0.997			0.977	
Satd. Flow (prot)	0	1857	1855	0	1687	0
Flt Permitted		0.997			0.977	
Satd. Flow (perm)	0	1857	1855	0	1687	0
Link Speed (mph)		45	45		10	
Link Distance (ft)		285	1096		338	
Travel Time (s)		4.3	16.6		23.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	228	277	9	6	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	242	286	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		Stop	Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.4%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	39	171	214	16	35	43
Future Volume (vph)	39	171	214	16	35	43
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			0.991		0.926	
Flt Protected		0.991			0.978	
Satd. Flow (prot)	0	1846	1846	0	1687	0
Flt Permitted		0.991			0.978	
Satd. Flow (perm)	0	1846	1846	0	1687	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	190	238	18	39	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	233	256	0	87	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 38.0%		ICU Level of Service A	
Analysis Period (min) 15			

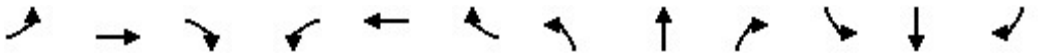
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	39	171	214	16	35	43
Future Vol, veh/h	39	171	214	16	35	43
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	43	190	238	18	39	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	256	0	-	0	523	247
Stage 1	-	-	-	-	247	-
Stage 2	-	-	-	-	276	-
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	1309	-	-	-	514	792
Stage 1	-	-	-	-	794	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1309	-	-	-	495	792
Mov Cap-2 Maneuver	-	-	-	-	495	-
Stage 1	-	-	-	-	765	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1309	-	-	-	624
HCM Lane V/C Ratio	0.033	-	-	-	0.139
HCM Control Delay (s)	7.8	0	-	-	11.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	265	206	4	82	234	75	10	330	75	30	196	155
Future Volume (vph)	265	206	4	82	234	75	10	330	75	30	196	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.974			0.976			0.945	
Flt Protected		0.973			0.990			0.999			0.996	
Satd. Flow (prot)	0	1793	0	0	1814	0	0	1834	0	0	1683	0
Flt Permitted		0.608			0.828			0.988			0.930	
Satd. Flow (perm)	0	1120	0	0	1517	0	0	1814	0	0	1572	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
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)	294	229	4	91	260	83	11	367	83	33	218	172
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	527	0	0	434	0	0	461	0	0	423	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	40.0	40.0		40.0	40.0		25.0	25.0		25.0	25.0	
Total Split (%)	61.5%	61.5%		61.5%	61.5%		38.5%	38.5%		38.5%	38.5%	
Maximum Green (s)	35.5	35.5		35.2	35.2		19.8	19.8		19.9	19.9	
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)		30.9			30.9			18.5			18.5	
Actuated g/C Ratio		0.52			0.52			0.31			0.31	
v/c Ratio		0.91			0.55			0.82			0.87	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		36.8			13.1			34.6			41.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		36.8			13.1			34.6			41.8	
LOS		D			B			C			D	
Approach Delay		36.8			13.1			34.6			41.8	
Approach LOS		D			B			C			D	
Queue Length 50th (ft)		166			101			168			157	
Queue Length 95th (ft)		#361			175			#316			#310	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		674			913			624			540	
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		0.78			0.48			0.74			0.78	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 59.7			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 31.8		Intersection LOS: C	
Intersection Capacity Utilization 95.2%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 17: Smithfield Rd & First Ave

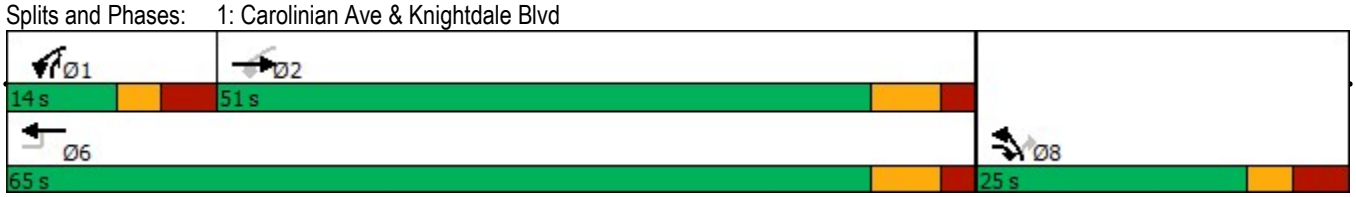
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	26	1680	159	62	996	132	57
Future Volume (vph)	26	1680	159	62	996	132	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Ped Bike Factor							
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.238			0.087		0.950	
Satd. Flow (perm)	448	3575	1599	160	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Confl. Peds. (#/hr)							
Confl. Bikes (#/hr)							
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)							
Mid-Block Traffic (%)		0%			0%	0%	
Adj. Flow (vph)	29	1867	177	69	1107	147	63
Shared Lane Traffic (%)							
Lane Group Flow (vph)	29	1867	177	69	1107	147	63
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	65.0	51.0	25.0	14.0	65.0	25.0	14.0
Total Split (%)	72.2%	56.7%	27.8%	15.6%	72.2%	27.8%	15.6%

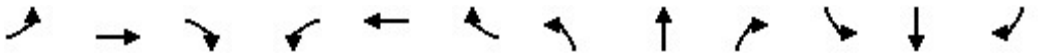
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Maximum Green (s)	57.9	43.9	18.1	7.3	57.9	18.1	7.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	57.2	46.6	62.8	53.3	57.2	10.0	23.8
Actuated g/C Ratio	0.74	0.60	0.81	0.69	0.74	0.13	0.31
v/c Ratio	0.09	0.87	0.14	0.24	0.43	0.33	0.13
Control Delay	3.7	20.0	2.6	5.5	4.5	33.6	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.7	20.0	2.6	5.5	4.5	33.6	21.3
LOS	A	B	A	A	A	C	C
Approach Delay		18.3			4.5	29.9	
Approach LOS		B			A	C	
Queue Length 50th (ft)	3	390	18	7	81	35	23
Queue Length 95th (ft)	11	#624	31	18	125	61	51
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	349	2156	1455	296	2723	898	496
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.87	0.12	0.23	0.41	0.16	0.13

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 77.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 14.3 Intersection LOS: B
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	21	95	4	33	42	58	81	4	35	118	36
Future Volume (vph)	19	21	95	4	33	42	58	81	4	35	118	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
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
Ped Bike Factor												
Frt		0.905			0.928			0.997			0.974	
Flt Protected		0.993			0.998			0.980			0.991	
Satd. Flow (prot)	0	1674	0	0	1725	0	0	1820	0	0	1798	0
Flt Permitted		0.993			0.998			0.980			0.991	
Satd. Flow (perm)	0	1674	0	0	1725	0	0	1820	0	0	1798	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	21	23	106	4	37	47	64	90	4	39	131	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	150	0	0	88	0	0	158	0	0	210	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.3%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	95	58	427	125	104	479
Future Volume (vph)	95	58	427	125	104	479
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.969			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1805	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1805	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	106	64	474	139	116	532
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	64	613	0	116	532
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

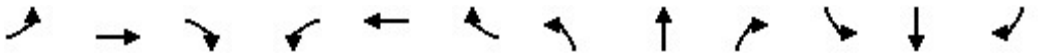
Intersection	
Int Delay, s/veh	6.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	95	58	427	125	104	479
Future Vol, veh/h	95	58	427	125	104	479
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	64	474	139	116	532

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1308	544	0	0	613	0
Stage 1	544	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	176	539	-	-	966	-
Stage 1	582	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	155	539	-	-	966	-
Mov Cap-2 Maneuver	155	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	405	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.5	0	1.6
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	155	539	966	-
HCM Lane V/C Ratio	-	-	0.681	0.12	0.12	-
HCM Control Delay (s)	-	-	67.2	12.6	9.2	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	3.9	0.4	0.4	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	41	129	11	21	4	91	7	7	4	9	21
Future Volume (vph)	11	41	129	11	21	4	91	7	7	4	9	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
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
Ped Bike Factor												
Frt		0.904			0.986			0.991			0.916	
Flt Protected		0.997			0.985			0.959			0.995	
Satd. Flow (prot)	0	1679	0	0	1809	0	0	1770	0	0	1698	0
Flt Permitted		0.997			0.985			0.959			0.995	
Satd. Flow (perm)	0	1679	0	0	1809	0	0	1770	0	0	1698	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	12	46	143	12	23	4	101	8	8	4	10	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	201	0	0	39	0	0	117	0	0	37	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 30.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	11	41	129	11	21	4	91	7	7	4	9	21
Future Vol, veh/h	11	41	129	11	21	4	91	7	7	4	9	21
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	12	46	143	12	23	4	101	8	8	4	10	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	189	0	0	208	193	118	199	262	25
Stage 1	-	-	-	-	-	-	142	142	-	49	49	-
Stage 2	-	-	-	-	-	-	66	51	-	150	213	-
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	1587	-	-	1385	-	-	749	702	934	760	643	1051
Stage 1	-	-	-	-	-	-	861	779	-	964	854	-
Stage 2	-	-	-	-	-	-	945	852	-	853	726	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1587	-	-	1385	-	-	714	689	934	737	631	1051
Mov Cap-2 Maneuver	-	-	-	-	-	-	714	689	-	737	631	-
Stage 1	-	-	-	-	-	-	853	772	-	955	846	-
Stage 2	-	-	-	-	-	-	905	844	-	830	719	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	2.3	10.9	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	724	1587	-	-	1385	-	-	857
HCM Lane V/C Ratio	0.161	0.008	-	-	0.009	-	-	0.044
HCM Control Delay (s)	10.9	7.3	0	-	7.6	0	-	9.4
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	16	29	49	68	14
Future Volume (vph)	9	16	29	49	68	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	100		100			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.913				0.977	
Flt Protected	0.982			0.982		
Satd. Flow (prot)	1670	0	0	1829	1820	0
Flt Permitted	0.982			0.982		
Satd. Flow (perm)	1670	0	0	1829	1820	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	10	18	32	54	76	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	86	92	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	16	29	49	68	14
Future Vol, veh/h	9	16	29	49	68	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	18	32	54	76	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	202	84	92	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	787	975	1503	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	975	1503	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	2.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1503	-	890	-	-
HCM Lane V/C Ratio	0.021	-	0.031	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	26	432	12	34	440
Future Volume (vph)	19	26	432	12	34	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.922		0.996			
Flt Protected	0.979					0.996
Satd. Flow (prot)	1681	0	1855	0	0	1855
Flt Permitted	0.979					0.996
Satd. Flow (perm)	1681	0	1855	0	0	1855
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	21	29	480	13	38	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	50	0	493	0	0	527
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	26	432	12	34	440
Future Vol, veh/h	19	26	432	12	34	440
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	29	480	13	38	489

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1052	487	0	0	493	0
Stage 1	487	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	251	581	-	-	1071	-
Stage 1	618	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	239	581	-	-	1071	-
Mov Cap-2 Maneuver	239	-	-	-	-	-
Stage 1	618	-	-	-	-	-
Stage 2	541	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	362	1071	-
HCM Lane V/C Ratio	-	-	0.138	0.035	-
HCM Control Delay (s)	-	-	16.5	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	179	122	284	261	166	337
Future Volume (vph)	179	122	284	261	166	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	0		0	0	
Storage Lanes	1	0		0	0	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.945		0.935			
Flt Protected	0.971					0.984
Satd. Flow (prot)	1709	0	1742	0	0	1833
Flt Permitted	0.971					0.984
Satd. Flow (perm)	1709	0	1742	0	0	1833
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Adj. Flow (vph)	199	136	316	290	184	374
Shared Lane Traffic (%)						
Lane Group Flow (vph)	335	0	606	0	0	558
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	65.9

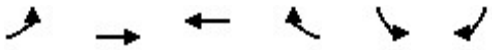
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	179	122	284	261	166	337
Future Vol, veh/h	179	122	284	261	166	337
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	199	136	316	290	184	374

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1203	461	0	0	606	0
Stage 1	461	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	204	600	-	-	972	-
Stage 1	635	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 155	600	-	-	972	-
Mov Cap-2 Maneuver	~ 155	-	-	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	358	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	290	0	3.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	222	972	-
HCM Lane V/C Ratio	-	-	1.507	0.19	-
HCM Control Delay (s)	-	-	290	9.6	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	20.2	0.7	-

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	15	352	288	40	38	12
Future Volume (vph)	15	352	288	40	38	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.984		0.968	
Flt Protected		0.998			0.963	
Satd. Flow (prot)	0	1859	1833	0	1736	0
Flt Permitted		0.998			0.963	
Satd. Flow (perm)	0	1859	1833	0	1736	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	17	391	320	44	42	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	408	364	0	55	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 40.7%		ICU Level of Service A	
Analysis Period (min) 15			

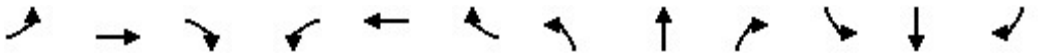
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	352	288	40	38	12
Future Vol, veh/h	15	352	288	40	38	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	17	391	320	44	42	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	364	0	-	0	767	342
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	425	-
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	1195	-	-	-	370	701
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1195	-	-	-	363	701
Mov Cap-2 Maneuver	-	-	-	-	363	-
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	659	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1195	-	-	-	411
HCM Lane V/C Ratio	0.014	-	-	-	0.135
HCM Control Delay (s)	8.1	0	-	-	15.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	317	73	19	296	4	32	4	10	4	4	4
Future Volume (vph)	4	317	73	19	296	4	32	4	10	4	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
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
Ped Bike Factor												
Frt		0.975			0.998			0.971			0.955	
Flt Protected					0.997			0.966			0.984	
Satd. Flow (prot)	0	1816	0	0	1853	0	0	1747	0	0	1750	0
Flt Permitted					0.997			0.966			0.984	
Satd. Flow (perm)	0	1816	0	0	1853	0	0	1747	0	0	1750	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2012			431			1157			209	
Travel Time (s)		39.2			8.4			31.6			5.7	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	4	352	81	21	329	4	36	4	11	4	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	437	0	0	354	0	0	51	0	0	12	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 39.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	317	73	19	296	4	32	4	10	4	4	4
Future Vol, veh/h	4	317	73	19	296	4	32	4	10	4	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	352	81	21	329	4	36	4	11	4	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	333	0	0	433	0	0	778	776	393	781	814	331
Stage 1	-	-	-	-	-	-	401	401	-	373	373	-
Stage 2	-	-	-	-	-	-	377	375	-	408	441	-
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	1226	-	-	1127	-	-	314	328	656	312	312	711
Stage 1	-	-	-	-	-	-	626	601	-	648	618	-
Stage 2	-	-	-	-	-	-	644	617	-	620	577	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1226	-	-	1127	-	-	302	319	656	297	304	711
Mov Cap-2 Maneuver	-	-	-	-	-	-	302	319	-	297	304	-
Stage 1	-	-	-	-	-	-	623	599	-	645	604	-
Stage 2	-	-	-	-	-	-	621	603	-	603	575	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	17.3	15
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	344	1226	-	-	1127	-	-	372
HCM Lane V/C Ratio	0.149	0.004	-	-	0.019	-	-	0.036
HCM Control Delay (s)	17.3	7.9	0	-	8.3	0	-	15
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	318	9	18	310	5	11
Future Volume (vph)	318	9	18	310	5	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			100		100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.996				0.910	
Flt Protected				0.997	0.984	
Satd. Flow (prot)	1855	0	0	1857	1668	0
Flt Permitted				0.997	0.984	
Satd. Flow (perm)	1855	0	0	1857	1668	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	431			605	752	
Travel Time (s)	8.4			11.8	20.5	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	353	10	20	344	6	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	363	0	0	364	18	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	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	318	9	18	310	5	11
Future Vol, veh/h	318	9	18	310	5	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, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	353	10	20	344	6	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	363	0	742	358
Stage 1	-	-	-	-	358	-
Stage 2	-	-	-	-	384	-
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	-	-	1196	-	383	686
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	688	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1196	-	375	686
Mov Cap-2 Maneuver	-	-	-	-	375	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	674	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	1196	-
HCM Lane V/C Ratio	0.033	-	-	0.017	-
HCM Control Delay (s)	11.8	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	302	27	36	301	27	21
Future Volume (vph)	302	27	36	301	27	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			0%	0%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			100		100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989				0.941	
Flt Protected				0.995	0.972	
Satd. Flow (prot)	1842	0	0	1853	1704	0
Flt Permitted				0.995	0.972	
Satd. Flow (perm)	1842	0	0	1853	1704	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	605			535	566	
Travel Time (s)	11.8			10.4	15.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	336	30	40	334	30	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	366	0	0	374	53	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	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

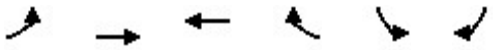
Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	302	27	36	301	27	21
Future Vol, veh/h	302	27	36	301	27	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, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	336	30	40	334	30	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	366	0	765	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	414	-
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	-	-	1193	-	371	692
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	667	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1193	-	356	692
Mov Cap-2 Maneuver	-	-	-	-	356	-
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	640	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	452	-	-	1193	-
HCM Lane V/C Ratio	0.118	-	-	0.034	-
HCM Control Delay (s)	14	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	311	318	4	4	18
Future Volume (vph)	12	311	318	4	4	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.998		0.887	
Flt Protected		0.998			0.992	
Satd. Flow (prot)	0	1859	1859	0	1639	0
Flt Permitted		0.998			0.992	
Satd. Flow (perm)	0	1859	1859	0	1639	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		535	213		253	
Travel Time (s)		10.4	4.1		17.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	13	346	353	4	4	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	359	357	0	24	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 36.1%		ICU Level of Service A	
Analysis Period (min) 15			

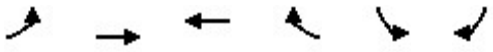
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	311	318	4	4	18
Future Vol, veh/h	12	311	318	4	4	18
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	13	346	353	4	4	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	357	0	-	0	727	355
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	372	-
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	1202	-	-	-	391	689
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	697	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1202	-	-	-	386	689
Mov Cap-2 Maneuver	-	-	-	-	386	-
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	697	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1202	-	-	-	603
HCM Lane V/C Ratio	0.011	-	-	-	0.041
HCM Control Delay (s)	8	0	-	-	11.2
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)	12	309	303	8	14	19
Future Volume (vph)	12	309	303	8	14	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.996		0.923	
Flt Protected		0.998			0.979	
Satd. Flow (prot)	0	1859	1855	0	1683	0
Flt Permitted		0.998			0.979	
Satd. Flow (perm)	0	1859	1855	0	1683	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		213	852		269	
Travel Time (s)		4.1	16.6		18.3	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	13	343	337	9	16	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	356	346	0	37	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 36.0%		ICU Level of Service A	
Analysis Period (min) 15			

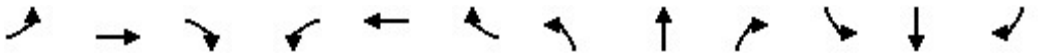
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	309	303	8	14	19
Future Vol, veh/h	12	309	303	8	14	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	13	343	337	9	16	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	346	0	-	0	711	342
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	369	-
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	1213	-	-	-	400	701
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1213	-	-	-	395	701
Mov Cap-2 Maneuver	-	-	-	-	395	-
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	699	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1213	-	-	-	528
HCM Lane V/C Ratio	0.011	-	-	-	0.069
HCM Control Delay (s)	8	0	-	-	12.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	261	29	37	272	9	24	4	47	13	6	20
Future Volume (vph)	11	261	29	37	272	9	24	4	47	13	6	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
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
Ped Bike Factor												
Frt		0.987			0.996			0.915			0.931	
Flt Protected		0.998			0.994			0.984			0.984	
Satd. Flow (prot)	0	1835	0	0	1844	0	0	1677	0	0	1706	0
Flt Permitted		0.998			0.994			0.984			0.984	
Satd. Flow (perm)	0	1835	0	0	1844	0	0	1677	0	0	1706	0
Link Speed (mph)		35			45			55			10	
Link Distance (ft)		852			285			807			349	
Travel Time (s)		16.6			4.3			10.0			23.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	12	290	32	41	302	10	27	4	52	14	7	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	0	353	0	0	83	0	0	43	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	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

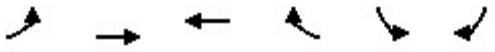
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	11	261	29	37	272	9	24	4	47	13	6	20
Future Vol, veh/h	11	261	29	37	272	9	24	4	47	13	6	20
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	12	290	32	41	302	10	27	4	52	14	7	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	312	0	0	322	0	0	734	724	306	747	735	307
Stage 1	-	-	-	-	-	-	330	330	-	389	389	-
Stage 2	-	-	-	-	-	-	404	394	-	358	346	-
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	1248	-	-	1238	-	-	336	352	734	329	347	733
Stage 1	-	-	-	-	-	-	683	646	-	635	608	-
Stage 2	-	-	-	-	-	-	623	605	-	660	635	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1248	-	-	1238	-	-	308	334	734	291	329	733
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	334	-	291	329	-
Stage 1	-	-	-	-	-	-	675	638	-	627	584	-
Stage 2	-	-	-	-	-	-	573	581	-	601	627	-

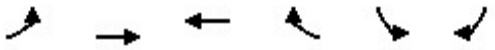
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.9	13.9	14.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	487	1248	-	-	1238	-	-	432
HCM Lane V/C Ratio	0.171	0.01	-	-	0.033	-	-	0.1
HCM Control Delay (s)	13.9	7.9	0	-	8	0	-	14.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.3



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	317	292	9	13	19
Future Volume (vph)	11	317	292	9	13	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.996		0.919	
Flt Protected		0.998			0.980	
Satd. Flow (prot)	0	1859	1855	0	1678	0
Flt Permitted		0.998			0.980	
Satd. Flow (perm)	0	1859	1855	0	1678	0
Link Speed (mph)		45	45		10	
Link Distance (ft)		285	1096		338	
Travel Time (s)		4.3	16.6		23.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	12	352	324	10	14	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	364	334	0	35	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		Stop	Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.6%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	51	279	243	26	34	58
Future Volume (vph)	51	279	243	26	34	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)		0%	0%		0%	
Storage Length (ft)	0			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.987		0.915	
Flt Protected		0.992			0.982	
Satd. Flow (prot)	0	1848	1839	0	1674	0
Flt Permitted		0.992			0.982	
Satd. Flow (perm)	0	1848	1839	0	1674	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	57	310	270	29	38	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	367	299	0	102	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	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.3

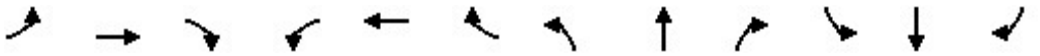
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	51	279	243	26	34	58
Future Vol, veh/h	51	279	243	26	34	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	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	57	310	270	29	38	64

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	299	0	-	0	709	285
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	424	-
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	1262	-	-	-	401	754
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1262	-	-	-	379	754
Mov Cap-2 Maneuver	-	-	-	-	379	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	660	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1262	-	-	-	552
HCM Lane V/C Ratio	0.045	-	-	-	0.185
HCM Control Delay (s)	8	0	-	-	13
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	248	14	115	344	55	11	339	78	51	416	361
Future Volume (vph)	272	248	14	115	344	55	11	339	78	51	416	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		2%			-2%			-2%			8%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	100			100			100			100		
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
Ped Bike Factor												
Frt		0.996			0.986			0.975			0.941	
Flt Protected		0.975			0.989			0.999			0.997	
Satd. Flow (prot)	0	1791	0	0	1835	0	0	1833	0	0	1678	0
Flt Permitted		0.513			0.776			0.974			0.929	
Satd. Flow (perm)	0	942	0	0	1440	0	0	1787	0	0	1563	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	302	276	16	128	382	61	12	377	87	57	462	401
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	594	0	0	571	0	0	476	0	0	920	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	67.0	67.0		67.0	67.0		63.0	63.0		63.0	63.0	
Total Split (%)	51.5%	51.5%		51.5%	51.5%		48.5%	48.5%		48.5%	48.5%	



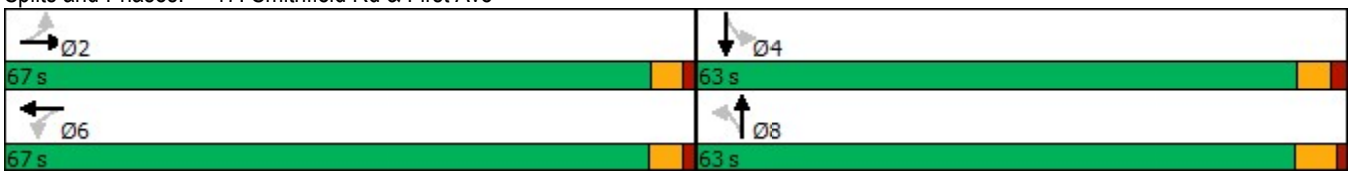
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	62.5	62.5		62.2	62.2		57.8	57.8		57.9	57.9	
Yellow Time (s)	3.1	3.1		3.3	3.3		4.0	4.0		3.4	3.4	
All-Red Time (s)	1.4	1.4		1.5	1.5		1.2	1.2		1.7	1.7	
Lost Time Adjust (s)		0.5			0.2			-0.2			-0.1	
Total Lost Time (s)		5.0			5.0			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	
Minimum Gap (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		62.0			62.0			58.0			58.0	
Actuated g/C Ratio		0.48			0.48			0.45			0.45	
v/c Ratio		1.32			0.83			0.60			1.32	
Control Delay		190.7			41.9			31.1			185.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		190.7			41.9			31.1			185.6	
LOS		F			D			C			F	
Approach Delay		190.7			41.9			31.1			185.6	
Approach LOS		F			D			C			F	
Queue Length 50th (ft)		~647			407			297			~1000	
Queue Length 95th (ft)		#876			#624			413			#1254	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		449			686			797			697	
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		1.32			0.83			0.60			1.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.32			
Intersection Signal Delay: 126.0		Intersection LOS: F	
Intersection Capacity Utilization 136.9%		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: 17: Smithfield Rd & First Ave



MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2028 Build AM Peak Hour
Site Category: Proposed Design 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	70	2.0	78	2.0	0.295	7.8	LOS A	1.4	34.6	0.61	0.57	0.61	23.6
8	T1	125	2.0	139	2.0	0.295	7.8	LOS A	1.4	34.6	0.61	0.57	0.61	23.3
18	R2	21	2.0	23	2.0	0.295	7.8	LOS A	1.4	34.6	0.61	0.57	0.61	22.8
Approach		216	2.0	240	2.0	0.295	7.8	LOS A	1.4	34.6	0.61	0.57	0.61	23.3
East: Knightdale Station Run														
1	L2	10	2.0	11	2.0	0.386	7.5	LOS A	2.2	55.0	0.51	0.38	0.51	23.9
6	T1	117	2.0	130	2.0	0.386	7.5	LOS A	2.2	55.0	0.51	0.38	0.51	23.6
16	R2	238	2.0	264	2.0	0.386	7.5	LOS A	2.2	55.0	0.51	0.38	0.51	23.0
Approach		365	2.0	406	2.0	0.386	7.5	LOS A	2.2	55.0	0.51	0.38	0.51	23.2
North: Carolinian Ave														
7	L2	234	2.0	260	2.0	0.311	6.4	LOS A	1.6	41.6	0.45	0.32	0.45	23.4
4	T1	48	2.0	53	2.0	0.311	6.4	LOS A	1.6	41.6	0.45	0.32	0.45	23.1
14	R2	20	2.0	22	2.0	0.311	6.4	LOS A	1.6	41.6	0.45	0.32	0.45	22.6
Approach		302	2.0	336	2.0	0.311	6.4	LOS A	1.6	41.6	0.45	0.32	0.45	23.3
West: Knightdale Station Run														
5	L2	23	2.0	26	2.0	0.274	6.5	LOS A	1.3	33.7	0.51	0.42	0.51	24.2
2	T1	184	2.0	204	2.0	0.274	6.5	LOS A	1.3	33.7	0.51	0.42	0.51	23.8
12	R2	31	2.0	34	2.0	0.274	6.5	LOS A	1.3	33.7	0.51	0.42	0.51	23.3
Approach		238	2.0	264	2.0	0.274	6.5	LOS A	1.3	33.7	0.51	0.42	0.51	23.8
All Vehicles		1121	2.0	1246	2.0	0.386	7.0	LOS A	2.2	55.0	0.51	0.41	0.51	23.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 9 [Robertson St / Site Access 1 / Site Access 1A (Site Folder: Robertson St TIA)]

2028 Build AM Peak Hour
Site Category: Proposed Design 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Site Access 1														
3	L2	50	2.0	56	2.0	0.072	3.9	LOS A	0.3	7.7	0.35	0.21	0.35	24.1
8	T1	4	2.0	4	2.0	0.072	3.9	LOS A	0.3	7.7	0.35	0.21	0.35	23.7
18	R2	16	2.0	18	2.0	0.072	3.9	LOS A	0.3	7.7	0.35	0.21	0.35	23.2
Approach		70	2.0	78	2.0	0.072	3.9	LOS A	0.3	7.7	0.35	0.21	0.35	23.9
East: Robertson Street														
1	L2	6	2.0	7	2.0	0.256	5.1	LOS A	1.4	34.7	0.23	0.10	0.23	24.7
6	T1	282	2.0	313	2.0	0.256	5.1	LOS A	1.4	34.7	0.23	0.10	0.23	24.3
16	R2	4	2.0	4	2.0	0.256	5.1	LOS A	1.4	34.7	0.23	0.10	0.23	23.8
Approach		292	2.0	324	2.0	0.256	5.1	LOS A	1.4	34.7	0.23	0.10	0.23	24.3
North: Site Access 1A														
7	L2	4	2.0	4	2.0	0.015	4.1	LOS A	0.1	1.4	0.45	0.29	0.45	24.5
4	T1	4	2.0	4	2.0	0.015	4.1	LOS A	0.1	1.4	0.45	0.29	0.45	24.1
14	R2	4	2.0	4	2.0	0.015	4.1	LOS A	0.1	1.4	0.45	0.29	0.45	23.6
Approach		12	2.0	13	2.0	0.015	4.1	LOS A	0.1	1.4	0.45	0.29	0.45	24.1
West: Robertson Street														
5	L2	4	2.0	4	2.0	0.173	4.1	LOS A	0.9	21.6	0.09	0.02	0.09	25.0
2	T1	181	2.0	201	2.0	0.173	4.1	LOS A	0.9	21.6	0.09	0.02	0.09	24.6
12	R2	22	2.0	24	2.0	0.173	4.1	LOS A	0.9	21.6	0.09	0.02	0.09	24.0
Approach		207	2.0	230	2.0	0.173	4.1	LOS A	0.9	21.6	0.09	0.02	0.09	24.5
All Vehicles		581	2.0	646	2.0	0.256	4.6	LOS A	1.4	34.7	0.20	0.09	0.20	24.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2028 Build PM Peak Hour
Site Category: Proposed Design 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	58	2.0	64	2.0	0.128	4.0	LOS A	0.6	14.9	0.23	0.10	0.23	24.5
8	T1	81	2.0	90	2.0	0.128	4.0	LOS A	0.6	14.9	0.23	0.10	0.23	24.1
18	R2	4	2.0	4	2.0	0.128	4.0	LOS A	0.6	14.9	0.23	0.10	0.23	23.6
Approach		143	2.0	159	2.0	0.128	4.0	LOS A	0.6	14.9	0.23	0.10	0.23	24.3
East: Knightdale Station Run														
1	L2	4	2.0	4	2.0	0.078	3.9	LOS A	0.3	8.5	0.32	0.19	0.32	24.9
6	T1	33	2.0	37	2.0	0.078	3.9	LOS A	0.3	8.5	0.32	0.19	0.32	24.5
16	R2	42	2.0	47	2.0	0.078	3.9	LOS A	0.3	8.5	0.32	0.19	0.32	23.9
Approach		79	2.0	88	2.0	0.078	3.9	LOS A	0.3	8.5	0.32	0.19	0.32	24.2
North: Carolinian Ave														
7	L2	35	2.0	39	2.0	0.173	4.5	LOS A	0.8	21.0	0.27	0.14	0.27	24.6
4	T1	118	2.0	131	2.0	0.173	4.5	LOS A	0.8	21.0	0.27	0.14	0.27	24.2
14	R2	36	2.0	40	2.0	0.173	4.5	LOS A	0.8	21.0	0.27	0.14	0.27	23.7
Approach		189	2.0	210	2.0	0.173	4.5	LOS A	0.8	21.0	0.27	0.14	0.27	24.2
West: Knightdale Station Run														
5	L2	19	2.0	21	2.0	0.133	4.3	LOS A	0.6	15.2	0.34	0.20	0.34	24.6
2	T1	21	2.0	23	2.0	0.133	4.3	LOS A	0.6	15.2	0.34	0.20	0.34	24.2
12	R2	95	2.0	106	2.0	0.133	4.3	LOS A	0.6	15.2	0.34	0.20	0.34	23.7
Approach		135	2.0	150	2.0	0.133	4.3	LOS A	0.6	15.2	0.34	0.20	0.34	23.9
All Vehicles		546	2.0	607	2.0	0.173	4.2	LOS A	0.8	21.0	0.28	0.15	0.28	24.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 9 [Robertson St / Site Access 1 / Site Access 1A (Site Folder: Robertson St TIA)]

2028 Build PM Peak Hour
Site Category: Proposed Design 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Site Access 1														
3	L2	32	2.0	36	2.0	0.055	4.4	LOS A	0.2	5.6	0.45	0.33	0.45	24.0
8	T1	4	2.0	4	2.0	0.055	4.4	LOS A	0.2	5.6	0.45	0.33	0.45	23.6
18	R2	10	2.0	11	2.0	0.055	4.4	LOS A	0.2	5.6	0.45	0.33	0.45	23.1
Approach		46	2.0	51	2.0	0.055	4.4	LOS A	0.2	5.6	0.45	0.33	0.45	23.8
East: Robertson Street														
1	L2	19	2.0	21	2.0	0.274	5.2	LOS A	1.5	38.3	0.19	0.07	0.19	24.6
6	T1	296	2.0	329	2.0	0.274	5.2	LOS A	1.5	38.3	0.19	0.07	0.19	24.3
16	R2	4	2.0	4	2.0	0.274	5.2	LOS A	1.5	38.3	0.19	0.07	0.19	23.7
Approach		319	2.0	354	2.0	0.274	5.2	LOS A	1.5	38.3	0.19	0.07	0.19	24.3
North: Site Access 1A														
7	L2	4	2.0	4	2.0	0.015	4.1	LOS A	0.1	1.5	0.45	0.29	0.45	24.5
4	T1	4	2.0	4	2.0	0.015	4.1	LOS A	0.1	1.5	0.45	0.29	0.45	24.1
14	R2	4	2.0	4	2.0	0.015	4.1	LOS A	0.1	1.5	0.45	0.29	0.45	23.6
Approach		12	2.0	13	2.0	0.015	4.1	LOS A	0.1	1.5	0.45	0.29	0.45	24.1
West: Robertson Street														
5	L2	4	2.0	4	2.0	0.334	5.8	LOS A	2.0	50.9	0.16	0.05	0.16	24.5
2	T1	317	2.0	352	2.0	0.334	5.8	LOS A	2.0	50.9	0.16	0.05	0.16	24.1
12	R2	73	2.0	81	2.0	0.334	5.8	LOS A	2.0	50.9	0.16	0.05	0.16	23.6
Approach		394	2.0	438	2.0	0.334	5.8	LOS A	2.0	50.9	0.16	0.05	0.16	24.0
All Vehicles		771	2.0	857	2.0	0.334	5.4	LOS A	2.0	50.9	0.19	0.08	0.19	24.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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2028 Build + Improvements Traffic Volumes

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	204	7	11	242	43	34
Future Vol, veh/h	204	7	11	242	43	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	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	227	8	12	269	48	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	235	0	524	231
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	293	-
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	-	-	1332	-	514	808
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1332	-	509	808
Mov Cap-2 Maneuver	-	-	-	-	509	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	750	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	608	-	-	1332	-
HCM Lane V/C Ratio	0.141	-	-	0.009	-
HCM Control Delay (s)	11.9	-	-	7.7	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	302	27	36	301	27	21
Future Vol, veh/h	302	27	36	301	27	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	-	-	50	-	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	336	30	40	334	30	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	366	0	765	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	414	-
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	-	-	1193	-	371	692
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	667	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1193	-	358	692
Mov Cap-2 Maneuver	-	-	-	-	358	-
Stage 1	-	-	-	-	713	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	454	-	-	1193	-
HCM Lane V/C Ratio	0.117	-	-	0.034	-
HCM Control Delay (s)	14	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

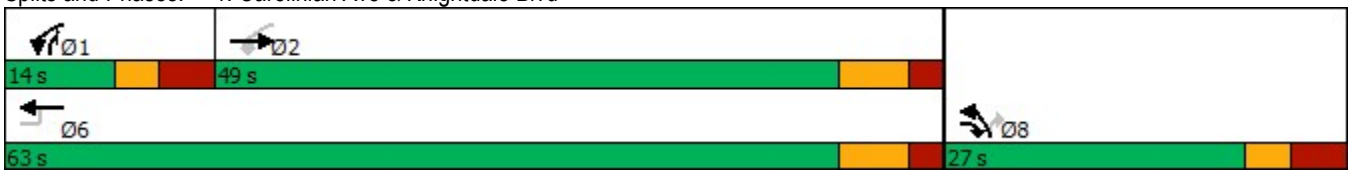
2038 Build Traffic Volumes

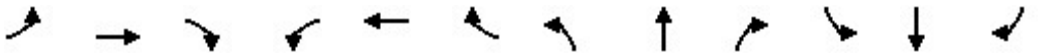
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	14	777	181	146	1364	350	160
Future Volume (vph)	14	777	181	146	1364	350	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.112			0.231		0.950	
Satd. Flow (perm)	211	3575	1599	424	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	863	201	162	1516	389	178
Shared Lane Traffic (%)							
Lane Group Flow (vph)	16	863	201	162	1516	389	178
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	63.0	49.0	27.0	14.0	63.0	27.0	14.0
Total Split (%)	70.0%	54.4%	30.0%	15.6%	70.0%	30.0%	15.6%
Maximum Green (s)	55.9	41.9	20.1	7.3	55.9	20.1	7.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	40.5	26.4	45.3	35.4	40.5	13.8	28.0
Actuated g/C Ratio	0.63	0.41	0.70	0.55	0.63	0.21	0.43
v/c Ratio	0.12	0.59	0.18	0.39	0.69	0.53	0.26
Control Delay	8.1	16.8	3.4	8.5	10.3	26.2	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	16.8	3.4	8.5	10.3	26.2	14.4
LOS	A	B	A	A	B	C	B
Approach Delay		14.2			10.1	22.5	
Approach LOS		B			B	C	
Queue Length 50th (ft)	2	130	21	22	171	71	44
Queue Length 95th (ft)	12	210	36	53	306	126	101
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	187	2495	1337	421	3096	1204	693
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.35	0.15	0.38	0.49	0.32	0.26

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 64.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 13.5		Intersection LOS: B	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	203	32	11	129	263	71	132	23	258	51	22
Future Volume (vph)	25	203	32	11	129	263	71	132	23	258	51	22
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		0.983			0.912			0.986			0.991	
Flt Protected		0.995			0.999			0.985			0.962	
Satd. Flow (prot)	0	1822	0	0	1697	0	0	1809	0	0	1776	0
Flt Permitted		0.995			0.999			0.985			0.962	
Satd. Flow (perm)	0	1822	0	0	1697	0	0	1809	0	0	1776	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
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)	28	226	36	12	143	292	79	147	26	287	57	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	290	0	0	447	0	0	252	0	0	368	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	168	50	463	191	39	304
Future Volume (vph)	168	50	463	191	39	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.961			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1790	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1790	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	187	56	514	212	43	338
Shared Lane Traffic (%)						
Lane Group Flow (vph)	187	56	726	0	43	338
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

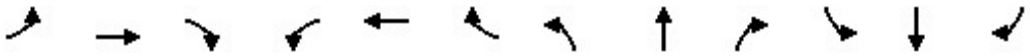
Intersection	
Int Delay, s/veh	8.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	168	50	463	191	39	304
Future Vol, veh/h	168	50	463	191	39	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	187	56	514	212	43	338

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1044	620	0	0	726	0
Stage 1	620	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	254	488	-	-	877	-
Stage 1	536	-	-	-	-	-
Stage 2	660	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	242	488	-	-	877	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	536	-	-	-	-	-
Stage 2	628	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.8	0	1.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	242	488	877	-
HCM Lane V/C Ratio	-	-	0.771	0.114	0.049	-
HCM Control Delay (s)	-	-	56.8	13.3	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	5.6	0.4	0.2	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	30	41	7	35	4	133	9	10	4	5	19
Future Volume (vph)	7	30	41	7	35	4	133	9	10	4	5	19
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		0.929			0.989			0.991			0.909	
Flt Protected		0.995			0.992			0.958			0.994	
Satd. Flow (prot)	0	1722	0	0	1828	0	0	1768	0	0	1683	0
Flt Permitted		0.995			0.992			0.958			0.994	
Satd. Flow (perm)	0	1722	0	0	1828	0	0	1768	0	0	1683	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
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)	8	33	46	8	39	4	148	10	11	4	6	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	51	0	0	169	0	0	31	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 27.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	7	30	41	7	35	4	133	9	10	4	5	19
Future Vol, veh/h	7	30	41	7	35	4	133	9	10	4	5	19
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	8	33	46	8	39	4	148	10	11	4	6	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	43	0	0	79	0	0	143	131	56	140	152	41
Stage 1	-	-	-	-	-	-	72	72	-	57	57	-
Stage 2	-	-	-	-	-	-	71	59	-	83	95	-
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	1566	-	-	1519	-	-	826	760	1011	830	740	1030
Stage 1	-	-	-	-	-	-	938	835	-	955	847	-
Stage 2	-	-	-	-	-	-	939	846	-	925	816	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1566	-	-	1519	-	-	798	752	1011	807	733	1030
Mov Cap-2 Maneuver	-	-	-	-	-	-	798	752	-	807	733	-
Stage 1	-	-	-	-	-	-	933	831	-	950	843	-
Stage 2	-	-	-	-	-	-	909	842	-	899	812	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	1.1	10.6	9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	806	1566	-	-	1519	-	-	926
HCM Lane V/C Ratio	0.21	0.005	-	-	0.005	-	-	0.034
HCM Control Delay (s)	10.6	7.3	0	-	7.4	0	-	9
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	32	11	54	56	4
Future Volume (vph)	8	32	11	54	56	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	0.892				0.992	
Flt Protected	0.990			0.992		
Satd. Flow (prot)	1645	0	0	1848	1848	0
Flt Permitted	0.990			0.992		
Satd. Flow (perm)	1645	0	0	1848	1848	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	36	12	60	62	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	0	72	66	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	32	11	54	56	4
Future Vol, veh/h	8	32	11	54	56	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	36	12	60	62	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	148	64	66	0	-	0
Stage 1	64	-	-	-	-	-
Stage 2	84	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	844	1000	1536	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	837	1000	1536	-	-	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	939	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1536	-	963	-	-
HCM Lane V/C Ratio	0.008	-	0.046	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	77	484	4	19	429
Future Volume (vph)	5	77	484	4	19	429
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	0.874		0.999			
Flt Protected	0.997					0.998
Satd. Flow (prot)	1623	0	1861	0	0	1859
Flt Permitted	0.997					0.998
Satd. Flow (perm)	1623	0	1861	0	0	1859
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	86	538	4	21	477
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	542	0	0	498
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	77	484	4	19	429
Future Vol, veh/h	5	77	484	4	19	429
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	86	538	4	21	477

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1059	540	0	0	542	0
Stage 1	540	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	249	542	-	-	1027	-
Stage 1	584	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	242	542	-	-	1027	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	580	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	504	1027	-
HCM Lane V/C Ratio	-	-	0.181	0.021	-
HCM Control Delay (s)	-	-	13.7	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	220	141	310	107	95	302
Future Volume (vph)	220	141	310	107	95	302
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	0.947		0.965			
Flt Protected	0.970					0.988
Satd. Flow (prot)	1711	0	1798	0	0	1840
Flt Permitted	0.970					0.988
Satd. Flow (perm)	1711	0	1798	0	0	1840
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	244	157	344	119	106	336
Shared Lane Traffic (%)						
Lane Group Flow (vph)	401	0	463	0	0	442
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.8%		ICU Level of Service D	
Analysis Period (min) 15			

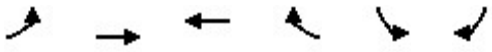
Intersection	
Int Delay, s/veh	47.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	220	141	310	107	95	302
Future Vol, veh/h	220	141	310	107	95	302
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	244	157	344	119	106	336

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	952	404	0	0	463	0
Stage 1	404	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	288	647	-	-	1098	-
Stage 1	674	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	647	-	-	1098	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	510	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	151.2	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	333	1098	-
HCM Lane V/C Ratio	-	-	1.205	0.096	-
HCM Control Delay (s)	-	-	151.2	8.6	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	17.2	0.3	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	181	292	58	32	10
Future Volume (vph)	5	181	292	58	32	10
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		0.968	
Flt Protected		0.999			0.963	
Satd. Flow (prot)	0	1861	1822	0	1736	0
Flt Permitted		0.999			0.963	
Satd. Flow (perm)	0	1861	1822	0	1736	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	201	324	64	36	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	207	388	0	47	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 28.9%		ICU Level of Service A	
Analysis Period (min) 15			

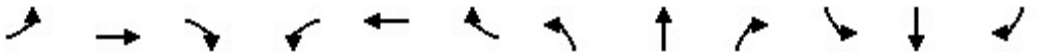
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	181	292	58	32	10
Future Vol, veh/h	5	181	292	58	32	10
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	201	324	64	36	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	388	0	-	0	569	356
Stage 1	-	-	-	-	356	-
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	1170	-	-	-	484	688
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1170	-	-	-	481	688
Mov Cap-2 Maneuver	-	-	-	-	481	-
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	823	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1170	-	-	-	518
HCM Lane V/C Ratio	0.005	-	-	-	0.09
HCM Control Delay (s)	8.1	0	-	-	12.6
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	191	22	6	300	4	50	4	16	4	4	4
Future Volume (vph)	4	191	22	6	300	4	50	4	16	4	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		0.986			0.998			0.969			0.955	
Flt Protected		0.999			0.999			0.965			0.984	
Satd. Flow (prot)	0	1835	0	0	1857	0	0	1742	0	0	1750	0
Flt Permitted		0.999			0.999			0.965			0.984	
Satd. Flow (perm)	0	1835	0	0	1857	0	0	1742	0	0	1750	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2012			431			1157			209	
Travel Time (s)		39.2			8.4			31.6			5.7	
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	212	24	7	333	4	56	4	18	4	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	240	0	0	344	0	0	78	0	0	12	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 33.6%		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	4	191	22	6	300	4	50	4	16	4	4	4
Future Vol, veh/h	4	191	22	6	300	4	50	4	16	4	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	212	24	7	333	4	56	4	18	4	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	337	0	0	236	0	0	585	583	224	592	593	335
Stage 1	-	-	-	-	-	-	232	232	-	349	349	-
Stage 2	-	-	-	-	-	-	353	351	-	243	244	-
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	1222	-	-	1331	-	-	422	424	815	418	418	707
Stage 1	-	-	-	-	-	-	771	713	-	667	633	-
Stage 2	-	-	-	-	-	-	664	632	-	761	704	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1222	-	-	1331	-	-	413	420	815	403	414	707
Mov Cap-2 Maneuver	-	-	-	-	-	-	413	420	-	403	414	-
Stage 1	-	-	-	-	-	-	768	710	-	664	629	-
Stage 2	-	-	-	-	-	-	651	628	-	737	701	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	14.3	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	466	1222	-	-	1331	-	-	475
HCM Lane V/C Ratio	0.167	0.004	-	-	0.005	-	-	0.028
HCM Control Delay (s)	14.3	8	0	-	7.7	0	-	12.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	204	4	5	298	8	17
Future Volume (vph)	204	4	5	298	8	17
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	0.998				0.908	
Flt Protected				0.999	0.984	
Satd. Flow (prot)	1859	0	0	1861	1664	0
Flt Permitted				0.999	0.984	
Satd. Flow (perm)	1859	0	0	1861	1664	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	431			605	752	
Travel Time (s)	8.4			11.8	20.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	227	4	6	331	9	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	0	0	337	28	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 29.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	204	4	5	298	8	17
Future Vol, veh/h	204	4	5	298	8	17
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	227	4	6	331	9	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	231	0	572	229
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	343	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1337	-	482	810
Stage 1	-	-	-	-	809	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1337	-	480	810
Mov Cap-2 Maneuver	-	-	-	-	480	-
Stage 1	-	-	-	-	809	-
Stage 2	-	-	-	-	715	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	664	-	-	1337	-
HCM Lane V/C Ratio	0.042	-	-	0.004	-
HCM Control Delay (s)	10.7	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	214	7	11	260	43	34
Future Volume (vph)	214	7	11	260	43	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.940	
Flt Protected			0.950		0.973	
Satd. Flow (prot)	1855	0	1770	1863	1704	0
Flt Permitted			0.950		0.973	
Satd. Flow (perm)	1855	0	1770	1863	1704	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	605			535	566	
Travel Time (s)	11.8			10.4	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	8	12	289	48	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	246	0	12	289	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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	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	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

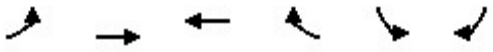
Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	214	7	11	260	43	34
Future Vol, veh/h	214	7	11	260	43	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	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	238	8	12	289	48	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	246	0	555	242
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	313	-
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	-	493	797
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1320	-	489	797
Mov Cap-2 Maneuver	-	-	-	-	489	-
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	734	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	590	-	-	1320	-
HCM Lane V/C Ratio	0.145	-	-	0.009	-
HCM Control Delay (s)	12.1	-	-	7.8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	236	263	5	4	8
Future Volume (vph)	12	236	263	5	4	8
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			0.997		0.907	
Flt Protected		0.998			0.985	
Satd. Flow (prot)	0	1859	1857	0	1664	0
Flt Permitted		0.998			0.985	
Satd. Flow (perm)	0	1859	1857	0	1664	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		535	213		253	
Travel Time (s)		10.4	4.1		17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	262	292	6	4	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	275	298	0	13	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	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 32.2%		ICU Level of Service A	
Analysis Period (min) 15			

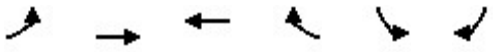
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	236	263	5	4	8
Future Vol, veh/h	12	236	263	5	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, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	262	292	6	4	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	298	0	-	0	583	295
Stage 1	-	-	-	-	295	-
Stage 2	-	-	-	-	288	-
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	1263	-	-	-	475	744
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	761	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1263	-	-	-	469	744
Mov Cap-2 Maneuver	-	-	-	-	469	-
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	761	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1263	-	-	-	622
HCM Lane V/C Ratio	0.011	-	-	-	0.021
HCM Control Delay (s)	7.9	0	-	-	10.9
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)	12	227	260	8	5	8
Future Volume (vph)	12	227	260	8	5	8
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			0.996		0.919	
Flt Protected		0.998			0.980	
Satd. Flow (prot)	0	1859	1855	0	1678	0
Flt Permitted		0.998			0.980	
Satd. Flow (perm)	0	1859	1855	0	1678	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		213	852		269	
Travel Time (s)		4.1	16.6		18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	252	289	9	6	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	265	298	0	15	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 31.7%		ICU Level of Service A	
Analysis Period (min) 15			

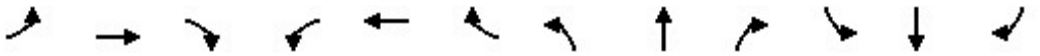
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	227	260	8	5	8
Future Vol, veh/h	12	227	260	8	5	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, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	252	289	9	6	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	298	0	-	0	572	294
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	278	-
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	1263	-	-	-	482	745
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	769	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1263	-	-	-	476	745
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	769	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1263	-	-	-	612
HCM Lane V/C Ratio	0.011	-	-	-	0.024
HCM Control Delay (s)	7.9	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	201	24	33	222	8	26	4	28	5	4	8
Future Volume (vph)	12	201	24	33	222	8	26	4	28	5	4	8
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		0.986			0.996			0.935			0.936	
Flt Protected		0.998			0.994			0.978			0.984	
Satd. Flow (prot)	0	1833	0	0	1844	0	0	1703	0	0	1716	0
Flt Permitted		0.998			0.994			0.978			0.984	
Satd. Flow (perm)	0	1833	0	0	1844	0	0	1703	0	0	1716	0
Link Speed (mph)		35			45			55			10	
Link Distance (ft)		852			285			807			349	
Travel Time (s)		16.6			4.3			10.0			23.8	
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)	13	223	27	37	247	9	29	4	31	6	4	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	263	0	0	293	0	0	64	0	0	19	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 36.1%		ICU Level of Service A	
Analysis Period (min) 15			

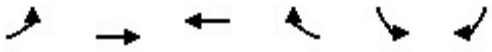
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	12	201	24	33	222	8	26	4	28	5	4	8
Future Vol, veh/h	12	201	24	33	222	8	26	4	28	5	4	8
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	13	223	27	37	247	9	29	4	31	6	4	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	256	0	0	250	0	0	595	593	237	606	602	252
Stage 1	-	-	-	-	-	-	263	263	-	326	326	-
Stage 2	-	-	-	-	-	-	332	330	-	280	276	-
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	1309	-	-	1316	-	-	416	418	802	409	414	787
Stage 1	-	-	-	-	-	-	742	691	-	687	648	-
Stage 2	-	-	-	-	-	-	681	646	-	727	682	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1309	-	-	1316	-	-	394	399	802	377	395	787
Mov Cap-2 Maneuver	-	-	-	-	-	-	394	399	-	377	395	-
Stage 1	-	-	-	-	-	-	733	683	-	679	627	-
Stage 2	-	-	-	-	-	-	646	625	-	686	674	-

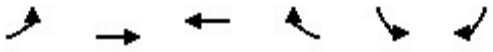
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1	12.8	12.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	1309	-	-	1316	-	-	507
HCM Lane V/C Ratio	0.123	0.01	-	-	0.028	-	-	0.037
HCM Control Delay (s)	12.8	7.8	0	-	7.8	0	-	12.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	13	217	268	8	5	6
Future Volume (vph)	13	217	268	8	5	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			0.996		0.927	
Flt Protected		0.997			0.977	
Satd. Flow (prot)	0	1857	1855	0	1687	0
Flt Permitted		0.997			0.977	
Satd. Flow (perm)	0	1857	1855	0	1687	0
Link Speed (mph)		45	45		10	
Link Distance (ft)		285	1096		338	
Travel Time (s)		4.3	16.6		23.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	241	298	9	6	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	255	307	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		Stop	Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.1%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	40	182	232	17	38	44
Future Volume (vph)	40	182	232	17	38	44
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			0.991		0.927	
Flt Protected		0.991			0.977	
Satd. Flow (prot)	0	1846	1846	0	1687	0
Flt Permitted		0.991			0.977	
Satd. Flow (perm)	0	1846	1846	0	1687	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	44	202	258	19	42	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	246	277	0	91	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 39.8%		ICU Level of Service A	
Analysis Period (min) 15			

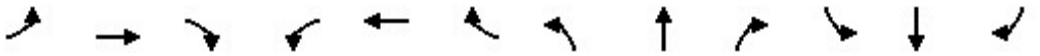
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	182	232	17	38	44
Future Vol, veh/h	40	182	232	17	38	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	44	202	258	19	42	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	277	0	-	0	558	268
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	290	-
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	1286	-	-	-	491	771
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1286	-	-	-	472	771
Mov Cap-2 Maneuver	-	-	-	-	472	-
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	759	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1286	-	-	-	596
HCM Lane V/C Ratio	0.035	-	-	-	0.153
HCM Control Delay (s)	7.9	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	225	4	86	254	78	11	357	81	31	213	171
Future Volume (vph)	293	225	4	86	254	78	11	357	81	31	213	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			8%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.975			0.976			0.944	
Flt Protected		0.973			0.990			0.999			0.996	
Satd. Flow (prot)	0	1793	0	0	1816	0	0	1834	0	0	1681	0
Flt Permitted		0.583			0.815			0.988			0.911	
Satd. Flow (perm)	0	1074	0	0	1495	0	0	1814	0	0	1538	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
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)	326	250	4	96	282	87	12	397	90	34	237	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	580	0	0	465	0	0	499	0	0	461	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	43.0	43.0		43.0	43.0		27.0	27.0		27.0	27.0	
Total Split (%)	61.4%	61.4%		61.4%	61.4%		38.6%	38.6%		38.6%	38.6%	
Maximum Green (s)	38.5	38.5		38.2	38.2		21.8	21.8		21.9	21.9	
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)		38.0			38.0			21.8			21.8	
Actuated g/C Ratio		0.54			0.54			0.31			0.31	
v/c Ratio		0.99			0.57			0.88			0.96	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		54.7			14.1			42.8			59.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		54.7			14.1			42.8			59.4	
LOS		D			B			D			E	
Approach Delay		54.7			14.1			42.8			59.4	
Approach LOS		D			B			D			E	
Queue Length 50th (ft)		228			122			201			192	
Queue Length 95th (ft)		#446			206			#369			#368	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		585			814			572			485	
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		0.99			0.57			0.87			0.95	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 69.8			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 101.4%		ICU Level of Service G	
Analysis Period (min) 15			

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

Splits and Phases: 17: Smithfield Rd & First Ave

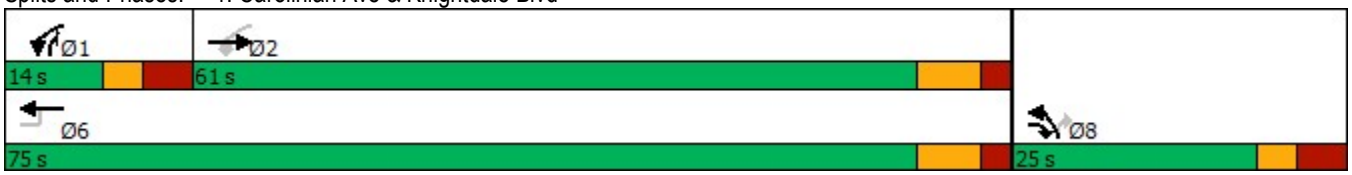
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	29	1853	172	66	1097	144	61
Future Volume (vph)	29	1853	172	66	1097	144	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			3%	-1%	
Storage Length (ft)	250		225	275		275	275
Storage Lanes	1		1	1		1	1
Taper Length (ft)	100			100		100	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Frt			0.850				0.850
Flt Protected	0.950			0.950		0.950	
Satd. Flow (prot)	1787	3575	1599	1743	3486	3450	1591
Flt Permitted	0.209			0.072		0.950	
Satd. Flow (perm)	393	3575	1599	132	3486	3450	1591
Right Turn on Red			No				No
Satd. Flow (RTOR)							
Link Speed (mph)		45			45	25	
Link Distance (ft)		948			1123	1095	
Travel Time (s)		14.4			17.0	29.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	2059	191	73	1219	160	68
Shared Lane Traffic (%)							
Lane Group Flow (vph)	32	2059	191	73	1219	160	68
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Right	Left	Left	Left	Right
Median Width(ft)		12			12	24	
Link Offset(ft)		0			0	0	
Crosswalk Width(ft)		16			16	16	
Two way Left Turn Lane							
Headway Factor	0.99	0.99	0.99	1.02	1.02	0.99	0.99
Turning Speed (mph)	9		9	15		15	9
Turn Type	D.Pm	NA	pm+ov	D.P+P	NA	Prot	pm+ov
Protected Phases		2	8	1	6	8	1
Permitted Phases	6		2	2			8
Detector Phase	6	2	8	1	6	8	1
Switch Phase							
Minimum Initial (s)	12.0	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	25.0	32.1	25.0	14.0	25.0	25.0	14.0
Total Split (s)	75.0	61.0	25.0	14.0	75.0	25.0	14.0
Total Split (%)	75.0%	61.0%	25.0%	14.0%	75.0%	25.0%	14.0%
Maximum Green (s)	67.9	53.9	18.1	7.3	67.9	18.1	7.3
Yellow Time (s)	4.7	4.7	3.0	3.0	4.7	3.0	3.0
All-Red Time (s)	2.4	2.4	3.9	3.7	2.4	3.9	3.7
Lost Time Adjust (s)	-2.1	-2.1	-1.9	-1.7	-2.1	-1.9	-1.7
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lag		Lead			Lead
Lead-Lag Optimize?		Yes		Yes			Yes
Vehicle Extension (s)	6.0	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	3.0	2.0	2.0	3.0	2.0	2.0

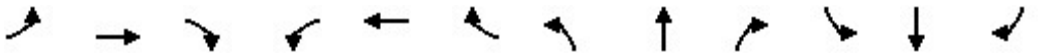
Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Time Before Reduce (s)	20.0	20.0	0.0	0.0	20.0	0.0	0.0
Time To Reduce (s)	45.0	45.0	0.0	0.0	45.0	0.0	0.0
Recall Mode	Min	Min	None	None	Min	None	None
Walk Time (s)		7.0					
Flash Dont Walk (s)		18.0					
Pedestrian Calls (#/hr)		0					
Act Effct Green (s)	67.0	56.4	73.2	63.1	67.0	10.6	24.5
Actuated g/C Ratio	0.76	0.64	0.83	0.72	0.76	0.12	0.28
v/c Ratio	0.11	0.90	0.14	0.29	0.46	0.38	0.15
Control Delay	3.8	21.6	2.3	8.3	4.5	39.2	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	21.6	2.3	8.3	4.5	39.2	26.1
LOS	A	C	A	A	A	D	C
Approach Delay		19.7			4.7	35.3	
Approach LOS		B			A	D	
Queue Length 50th (ft)	4	499	19	8	98	44	30
Queue Length 95th (ft)	12	#779	33	29	149	74	63
Internal Link Dist (ft)		868			1043	1015	
Turn Bay Length (ft)	250		225	275		275	275
Base Capacity (vph)	315	2297	1460	261	2800	791	448
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.90	0.13	0.28	0.44	0.20	0.15

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 87.7
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 69.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Carolinian Ave & Knightdale Blvd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	23	98	4	36	46	60	86	4	39	124	40
Future Volume (vph)	21	23	98	4	36	46	60	86	4	39	124	40
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		0.907			0.928			0.997			0.974	
Flt Protected		0.993			0.998			0.980			0.991	
Satd. Flow (prot)	0	1678	0	0	1725	0	0	1820	0	0	1798	0
Flt Permitted		0.993			0.998			0.980			0.991	
Satd. Flow (perm)	0	1678	0	0	1725	0	0	1820	0	0	1798	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		910			556			1007			1095	
Travel Time (s)		24.8			15.2			27.5			29.9	
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)	23	26	109	4	40	51	67	96	4	43	138	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	0	0	95	0	0	167	0	0	225	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			12			12	
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		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	102	63	463	133	113	519
Future Volume (vph)	102	63	463	133	113	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.970			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1807	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1807	0	1770	1863
Link Speed (mph)	25		35			35
Link Distance (ft)	1463		1498			771
Travel Time (s)	39.9		29.2			15.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	113	70	514	148	126	577
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	70	662	0	126	577
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			

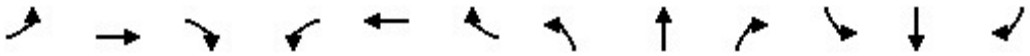
Intersection	
Int Delay, s/veh	9.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	102	63	463	133	113	519
Future Vol, veh/h	102	63	463	133	113	519
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	150	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	113	70	514	148	126	577

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1417	588	0	0	662	0
Stage 1	588	-	-	-	-	-
Stage 2	829	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	151	509	-	-	927	-
Stage 1	555	-	-	-	-	-
Stage 2	429	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	130	509	-	-	927	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	555	-	-	-	-	-
Stage 2	371	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	74.3	0	1.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	130	509	927	-
HCM Lane V/C Ratio	-	-	0.872	0.138	0.135	-
HCM Control Delay (s)	-	-	112	13.2	9.5	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	5.6	0.5	0.5	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	45	130	11	23	4	93	7	7	4	9	23
Future Volume (vph)	12	45	130	11	23	4	93	7	7	4	9	23
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		0.906			0.987			0.991			0.912	
Flt Protected		0.997			0.986			0.959			0.995	
Satd. Flow (prot)	0	1683	0	0	1813	0	0	1770	0	0	1690	0
Flt Permitted		0.997			0.986			0.959			0.995	
Satd. Flow (perm)	0	1683	0	0	1813	0	0	1770	0	0	1690	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		1007			1193			1169			1254	
Travel Time (s)		27.5			32.5			31.9			34.2	
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)	13	50	144	12	26	4	103	8	8	4	10	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	42	0	0	119	0	0	40	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 30.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	12	45	130	11	23	4	93	7	7	4	9	23
Future Vol, veh/h	12	45	130	11	23	4	93	7	7	4	9	23
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	13	50	144	12	26	4	103	8	8	4	10	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	30	0	0	194	0	0	218	202	122	208	272	28
Stage 1	-	-	-	-	-	-	148	148	-	52	52	-
Stage 2	-	-	-	-	-	-	70	54	-	156	220	-
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	1583	-	-	1379	-	-	738	694	929	749	635	1047
Stage 1	-	-	-	-	-	-	855	775	-	961	852	-
Stage 2	-	-	-	-	-	-	940	850	-	846	721	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1583	-	-	1379	-	-	702	682	929	727	624	1047
Mov Cap-2 Maneuver	-	-	-	-	-	-	702	682	-	727	624	-
Stage 1	-	-	-	-	-	-	847	768	-	952	844	-
Stage 2	-	-	-	-	-	-	898	842	-	823	715	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	2.2	11.1	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	712	1583	-	-	1379	-	-	859
HCM Lane V/C Ratio	0.167	0.008	-	-	0.009	-	-	0.047
HCM Control Delay (s)	11.1	7.3	0	-	7.6	0	-	9.4
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	16	29	52	72	15
Future Volume (vph)	9	16	29	52	72	15
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	0.913				0.976	
Flt Protected	0.982			0.983		
Satd. Flow (prot)	1670	0	0	1831	1818	0
Flt Permitted	0.982			0.983		
Satd. Flow (perm)	1670	0	0	1831	1818	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	997			2466	1085	
Travel Time (s)	27.2			37.4	16.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	10	18	32	58	80	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	90	97	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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	16	29	52	72	15
Future Vol, veh/h	9	16	29	52	72	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	18	32	58	80	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	211	89	97	0	-	0
Stage 1	89	-	-	-	-	-
Stage 2	122	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	777	969	1496	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	760	969	1496	-	-	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	2.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1496	-	882	-	-
HCM Lane V/C Ratio	0.022	-	0.031	-	-
HCM Control Delay (s)	7.5	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	27	466	13	35	476
Future Volume (vph)	21	27	466	13	35	476
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	0.924		0.996			
Flt Protected	0.979					0.997
Satd. Flow (prot)	1685	0	1855	0	0	1857
Flt Permitted	0.979					0.997
Satd. Flow (perm)	1685	0	1855	0	0	1857
Link Speed (mph)	15		35			35
Link Distance (ft)	1616		1292			1498
Travel Time (s)	73.5		25.2			29.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	30	518	14	39	529
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	532	0	0	568
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	27	466	13	35	476
Future Vol, veh/h	21	27	466	13	35	476
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	30	518	14	39	529

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1132	525	0	0	532	0
Stage 1	525	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	225	552	-	-	1036	-
Stage 1	593	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	213	552	-	-	1036	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	515	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.2	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	325	1036	-
HCM Lane V/C Ratio	-	-	0.164	0.038	-
HCM Control Delay (s)	-	-	18.2	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	190	128	308	279	176	369
Future Volume (vph)	190	128	308	279	176	369
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	0.946		0.936			
Flt Protected	0.971					0.984
Satd. Flow (prot)	1711	0	1744	0	0	1833
Flt Permitted	0.971					0.984
Satd. Flow (perm)	1711	0	1744	0	0	1833
Link Speed (mph)	25		35			35
Link Distance (ft)	1195		1409			1292
Travel Time (s)	32.6		27.4			25.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	211	142	342	310	196	410
Shared Lane Traffic (%)						
Lane Group Flow (vph)	353	0	652	0	0	606
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	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	100.5

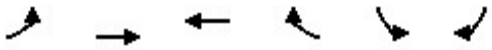
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	190	128	308	279	176	369
Future Vol, veh/h	190	128	308	279	176	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	142	342	310	196	410

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1299	497	0	0	652	0
Stage 1	497	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 178	573	-	-	935	-
Stage 1	611	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 130	573	-	-	935	-
Mov Cap-2 Maneuver	~ 130	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	321	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 452.7	0	3.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	189	935	-
HCM Lane V/C Ratio	-	-	1.869	0.209	-
HCM Control Delay (s)	-	-	$ 452.7	9.9	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	25.7	0.8	-

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



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	373	304	41	39	13
Future Volume (vph)	16	373	304	41	39	13
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			0.984		0.967	
Flt Protected		0.998			0.964	
Satd. Flow (prot)	0	1859	1833	0	1736	0
Flt Permitted		0.998			0.964	
Satd. Flow (perm)	0	1859	1833	0	1736	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		1195	2012		1616	
Travel Time (s)		32.6	54.9		44.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	414	338	46	43	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	432	384	0	57	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 42.6%		ICU Level of Service A	
Analysis Period (min) 15			

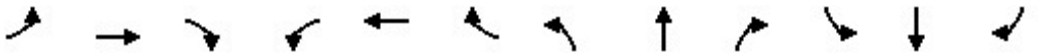
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	373	304	41	39	13
Future Vol, veh/h	16	373	304	41	39	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, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	414	338	46	43	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	384	0	-	0	811	361
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	450	-
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	1174	-	-	-	349	684
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	642	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1174	-	-	-	342	684
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	642	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1174	-	-	-	391
HCM Lane V/C Ratio	0.015	-	-	-	0.148
HCM Control Delay (s)	8.1	0	-	-	15.8
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	339	73	19	313	4	32	4	10	4	4	4
Future Volume (vph)	4	339	73	19	313	4	32	4	10	4	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		0.976			0.999			0.971			0.955	
Flt Protected					0.997			0.966			0.984	
Satd. Flow (prot)	0	1818	0	0	1855	0	0	1747	0	0	1750	0
Flt Permitted					0.997			0.966			0.984	
Satd. Flow (perm)	0	1818	0	0	1855	0	0	1747	0	0	1750	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2012			431			1157			209	
Travel Time (s)		39.2			8.4			31.6			5.7	
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	377	81	21	348	4	36	4	11	4	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	462	0	0	373	0	0	51	0	0	12	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 40.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	339	73	19	313	4	32	4	10	4	4	4
Future Vol, veh/h	4	339	73	19	313	4	32	4	10	4	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	377	81	21	348	4	36	4	11	4	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	352	0	0	458	0	0	822	820	418	825	858	350
Stage 1	-	-	-	-	-	-	426	426	-	392	392	-
Stage 2	-	-	-	-	-	-	396	394	-	433	466	-
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	1207	-	-	1103	-	-	293	310	635	292	294	693
Stage 1	-	-	-	-	-	-	606	586	-	633	606	-
Stage 2	-	-	-	-	-	-	629	605	-	601	562	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1207	-	-	1103	-	-	282	301	635	278	286	693
Mov Cap-2 Maneuver	-	-	-	-	-	-	282	301	-	278	286	-
Stage 1	-	-	-	-	-	-	604	584	-	630	591	-
Stage 2	-	-	-	-	-	-	605	590	-	584	560	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.5	18.2	15.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	323	1207	-	-	1103	-	-	351
HCM Lane V/C Ratio	0.158	0.004	-	-	0.019	-	-	0.038
HCM Control Delay (s)	18.2	8	0	-	8.3	0	-	15.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	340	9	18	327	5	11
Future Volume (vph)	340	9	18	327	5	11
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	0.997				0.910	
Flt Protected				0.997	0.984	
Satd. Flow (prot)	1857	0	0	1857	1668	0
Flt Permitted				0.997	0.984	
Satd. Flow (perm)	1857	0	0	1857	1668	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	431			605	752	
Travel Time (s)	8.4			11.8	20.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	378	10	20	363	6	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	388	0	0	383	18	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	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	340	9	18	327	5	11
Future Vol, veh/h	340	9	18	327	5	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, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	378	10	20	363	6	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	388	0	786	383
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	403	-
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	-	-	1170	-	361	664
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	675	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1170	-	353	664
Mov Cap-2 Maneuver	-	-	-	-	353	-
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	661	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	521	-	-	1170	-
HCM Lane V/C Ratio	0.034	-	-	0.017	-
HCM Control Delay (s)	12.2	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	324	27	36	318	27	21
Future Volume (vph)	324	27	36	318	27	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	50		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.941	
Flt Protected			0.950		0.972	
Satd. Flow (prot)	1844	0	1770	1863	1704	0
Flt Permitted			0.950		0.972	
Satd. Flow (perm)	1844	0	1770	1863	1704	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	605			535	566	
Travel Time (s)	11.8			10.4	15.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	360	30	40	353	30	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	390	0	40	353	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	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	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	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

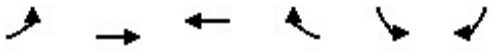
Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	324	27	36	318	27	21
Future Vol, veh/h	324	27	36	318	27	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	-	-	50	-	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	360	30	40	353	30	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	390	0	808	375
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	433	-
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	-	-	1169	-	350	671
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	654	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1169	-	338	671
Mov Cap-2 Maneuver	-	-	-	-	338	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	632	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	432	-	-	1169	-
HCM Lane V/C Ratio	0.123	-	-	0.034	-
HCM Control Delay (s)	14.5	-	-	8.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	333	335	4	4	18
Future Volume (vph)	12	333	335	4	4	18
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			0.999		0.887	
Flt Protected		0.998			0.992	
Satd. Flow (prot)	0	1859	1861	0	1639	0
Flt Permitted		0.998			0.992	
Satd. Flow (perm)	0	1859	1861	0	1639	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		535	213		253	
Travel Time (s)		10.4	4.1		17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	370	372	4	4	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	383	376	0	24	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	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 37.2%		ICU Level of Service A	
Analysis Period (min) 15			

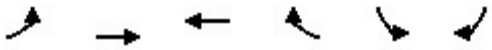
Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	333	335	4	4	18
Future Vol, veh/h	12	333	335	4	4	18
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	13	370	372	4	4	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	376	0	-	0	770	374
Stage 1	-	-	-	-	374	-
Stage 2	-	-	-	-	396	-
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	1182	-	-	-	369	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	680	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1182	-	-	-	364	672
Mov Cap-2 Maneuver	-	-	-	-	364	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	680	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1182	-	-	-	582
HCM Lane V/C Ratio	0.011	-	-	-	0.042
HCM Control Delay (s)	8.1	0	-	-	11.5
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)	12	331	320	8	14	19
Future Volume (vph)	12	331	320	8	14	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			0.997		0.923	
Flt Protected		0.998			0.979	
Satd. Flow (prot)	0	1859	1857	0	1683	0
Flt Permitted		0.998			0.979	
Satd. Flow (perm)	0	1859	1857	0	1683	0
Link Speed (mph)		35	35		10	
Link Distance (ft)		213	852		269	
Travel Time (s)		4.1	16.6		18.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	368	356	9	16	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	381	365	0	37	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 37.1%		ICU Level of Service A	
Analysis Period (min) 15			

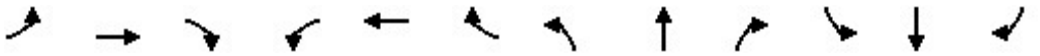
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	331	320	8	14	19
Future Vol, veh/h	12	331	320	8	14	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	13	368	356	9	16	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	365	0	-	0	755	361
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	394	-
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	1194	-	-	-	376	684
Stage 1	-	-	-	-	705	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1194	-	-	-	371	684
Mov Cap-2 Maneuver	-	-	-	-	371	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	681	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1194	-	-	-	504
HCM Lane V/C Ratio	0.011	-	-	-	0.073
HCM Control Delay (s)	8	0	-	-	12.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	280	30	40	289	9	24	4	51	13	6	20
Future Volume (vph)	11	280	30	40	289	9	24	4	51	13	6	20
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		0.987			0.996			0.913			0.931	
Flt Protected		0.998			0.994			0.985			0.984	
Satd. Flow (prot)	0	1835	0	0	1844	0	0	1675	0	0	1706	0
Flt Permitted		0.998			0.994			0.985			0.984	
Satd. Flow (perm)	0	1835	0	0	1844	0	0	1675	0	0	1706	0
Link Speed (mph)		35			45			55			10	
Link Distance (ft)		852			285			807			349	
Travel Time (s)		16.6			4.3			10.0			23.8	
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)	12	311	33	44	321	10	27	4	57	14	7	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	356	0	0	375	0	0	88	0	0	43	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 46.0%		ICU Level of Service A	
Analysis Period (min) 15			

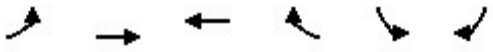
Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	11	280	30	40	289	9	24	4	51	13	6	20
Future Vol, veh/h	11	280	30	40	289	9	24	4	51	13	6	20
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	12	311	33	44	321	10	27	4	57	14	7	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	331	0	0	344	0	0	781	771	328	796	782	326
Stage 1	-	-	-	-	-	-	352	352	-	414	414	-
Stage 2	-	-	-	-	-	-	429	419	-	382	368	-
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	1228	-	-	1215	-	-	312	331	713	305	326	715
Stage 1	-	-	-	-	-	-	665	632	-	616	593	-
Stage 2	-	-	-	-	-	-	604	590	-	640	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1228	-	-	1215	-	-	285	313	713	266	308	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	285	313	-	266	308	-
Stage 1	-	-	-	-	-	-	657	624	-	609	567	-
Stage 2	-	-	-	-	-	-	553	564	-	578	614	-

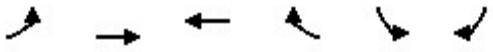
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	1	14.4	15
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	469	1228	-	-	1215	-	-	405
HCM Lane V/C Ratio	0.187	0.01	-	-	0.037	-	-	0.107
HCM Control Delay (s)	14.4	8	0	-	8.1	0	-	15
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.4



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	341	312	9	13	19
Future Volume (vph)	11	341	312	9	13	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			0.996		0.919	
Flt Protected		0.998			0.980	
Satd. Flow (prot)	0	1859	1855	0	1678	0
Flt Permitted		0.998			0.980	
Satd. Flow (perm)	0	1859	1855	0	1678	0
Link Speed (mph)		45	45		10	
Link Distance (ft)		285	1096		338	
Travel Time (s)		4.3	16.6		23.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	12	379	347	10	14	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	391	357	0	35	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		Stop	Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	302	261	28	37	60
Future Volume (vph)	52	302	261	28	37	60
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			0.987		0.916	
Flt Protected		0.993			0.981	
Satd. Flow (prot)	0	1850	1839	0	1674	0
Flt Permitted		0.993			0.981	
Satd. Flow (perm)	0	1850	1839	0	1674	0
Link Speed (mph)		45	45		45	
Link Distance (ft)		1096	1080		2466	
Travel Time (s)		16.6	16.4		37.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	336	290	31	41	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	394	321	0	108	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 49.9%		ICU Level of Service A	
Analysis Period (min) 15			

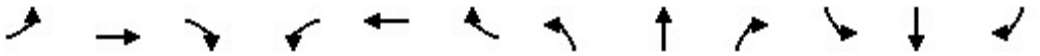
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	302	261	28	37	60
Future Vol, veh/h	52	302	261	28	37	60
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	58	336	290	31	41	67

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	321	0	-	0	758	306
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	452	-
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	1239	-	-	-	375	734
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1239	-	-	-	353	734
Mov Cap-2 Maneuver	-	-	-	-	353	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	641	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1239	-	-	-	520
HCM Lane V/C Ratio	0.047	-	-	-	0.207
HCM Control Delay (s)	8	0	-	-	13.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

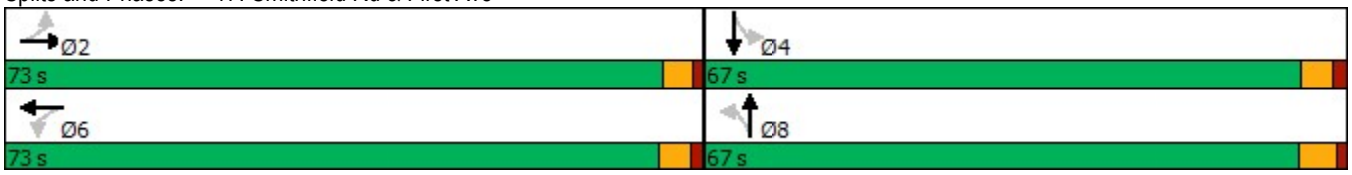


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	269	15	123	376	57	12	370	81	51	453	399
Future Volume (vph)	300	269	15	123	376	57	12	370	81	51	453	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			8%	
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		0.996			0.986			0.976			0.940	
Flt Protected		0.975			0.989			0.999			0.997	
Satd. Flow (prot)	0	1791	0	0	1835	0	0	1834	0	0	1676	0
Flt Permitted		0.493			0.766			0.967			0.919	
Satd. Flow (perm)	0	906	0	0	1421	0	0	1776	0	0	1545	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		1108			1409			1184			1107	
Travel Time (s)		30.2			38.4			23.1			21.6	
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)	333	299	17	137	418	63	13	411	90	57	503	443
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	649	0	0	618	0	0	514	0	0	1003	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	0.99	0.99	0.99	0.99	0.99	0.99	1.05	1.05	1.05
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)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	73.0	73.0		73.0	73.0		67.0	67.0		67.0	67.0	
Total Split (%)	52.1%	52.1%		52.1%	52.1%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	68.5	68.5		68.2	68.2		61.8	61.8		61.9	61.9	
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)		68.0			68.0			62.0			62.0	
Actuated g/C Ratio		0.49			0.49			0.44			0.44	
v/c Ratio		1.48			0.90			0.65			1.47	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay		255.4			50.2			35.5			249.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		255.4			50.2			35.5			249.0	
LOS		F			D			D			F	
Approach Delay		255.4			50.2			35.5			249.0	
Approach LOS		F			D			D			F	
Queue Length 50th (ft)		~811			502			362			~1249	
Queue Length 95th (ft)		#1051			#752			492			#1508	
Internal Link Dist (ft)		1028			1329			1104			1027	
Turn Bay Length (ft)												
Base Capacity (vph)		440			690			786			684	
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		1.48			0.90			0.65			1.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.48			
Intersection Signal Delay: 166.9		Intersection LOS: F	
Intersection Capacity Utilization 147.4%		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: 17: Smithfield Rd & First Ave



MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2038 Build AM Peak Hour
Site Category: Future Conditions 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	71	2.0	79	2.0	0.326	8.5	LOS A	1.5	38.2	0.64	0.63	0.64	23.5
8	T1	132	2.0	147	2.0	0.326	8.5	LOS A	1.5	38.2	0.64	0.63	0.64	23.1
18	R2	23	2.0	26	2.0	0.326	8.5	LOS A	1.5	38.2	0.64	0.63	0.64	22.6
Approach		226	2.0	251	2.0	0.326	8.5	LOS A	1.5	38.2	0.64	0.63	0.64	23.2
East: Knightdale Station Run														
1	L2	11	2.0	12	2.0	0.431	8.2	LOS A	2.5	64.1	0.54	0.42	0.54	23.8
6	T1	129	2.0	143	2.0	0.431	8.2	LOS A	2.5	64.1	0.54	0.42	0.54	23.4
16	R2	263	2.0	292	2.0	0.431	8.2	LOS A	2.5	64.1	0.54	0.42	0.54	22.9
Approach		403	2.0	448	2.0	0.431	8.2	LOS A	2.5	64.1	0.54	0.42	0.54	23.1
North: Carolinian Ave														
7	L2	258	2.0	287	2.0	0.347	6.9	LOS A	1.9	47.7	0.48	0.36	0.48	23.3
4	T1	51	2.0	57	2.0	0.347	6.9	LOS A	1.9	47.7	0.48	0.36	0.48	23.0
14	R2	22	2.0	24	2.0	0.347	6.9	LOS A	1.9	47.7	0.48	0.36	0.48	22.5
Approach		331	2.0	368	2.0	0.347	6.9	LOS A	1.9	47.7	0.48	0.36	0.48	23.2
West: Knightdale Station Run														
5	L2	25	2.0	28	2.0	0.309	7.1	LOS A	1.5	38.7	0.55	0.47	0.55	24.1
2	T1	203	2.0	226	2.0	0.309	7.1	LOS A	1.5	38.7	0.55	0.47	0.55	23.7
12	R2	32	2.0	36	2.0	0.309	7.1	LOS A	1.5	38.7	0.55	0.47	0.55	23.2
Approach		260	2.0	289	2.0	0.309	7.1	LOS A	1.5	38.7	0.55	0.47	0.55	23.7
All Vehicles		1220	2.0	1356	2.0	0.431	7.7	LOS A	2.5	64.1	0.54	0.45	0.54	23.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: L:\208\207\48720-Robertson_TIA\TRAFFIC\SIDRA\Existing\2 Robertson Build 38 AM.sip9

MOVEMENT SUMMARY

Site: 9 [Robertson St / Site Access 1 / Site Access 1A (Site Folder: Robertson St TIA)]

2038 Build AM Peak Hour
Site Category: Future Conditions 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Site Access 1														
3	L2	50	2.0	56	2.0	0.072	4.0	LOS A	0.3	7.7	0.36	0.22	0.36	24.1
8	T1	4	2.0	4	2.0	0.072	4.0	LOS A	0.3	7.7	0.36	0.22	0.36	23.7
18	R2	16	2.0	18	2.0	0.072	4.0	LOS A	0.3	7.7	0.36	0.22	0.36	23.2
Approach		70	2.0	78	2.0	0.072	4.0	LOS A	0.3	7.7	0.36	0.22	0.36	23.8
East: Robertson Street														
1	L2	6	2.0	7	2.0	0.272	5.3	LOS A	1.5	37.6	0.23	0.10	0.23	24.7
6	T1	300	2.0	333	2.0	0.272	5.3	LOS A	1.5	37.6	0.23	0.10	0.23	24.3
16	R2	4	2.0	4	2.0	0.272	5.3	LOS A	1.5	37.6	0.23	0.10	0.23	23.7
Approach		310	2.0	344	2.0	0.272	5.3	LOS A	1.5	37.6	0.23	0.10	0.23	24.3
North: Site Access 1A														
7	L2	4	2.0	4	2.0	0.015	4.2	LOS A	0.1	1.5	0.46	0.30	0.46	24.5
4	T1	4	2.0	4	2.0	0.015	4.2	LOS A	0.1	1.5	0.46	0.30	0.46	24.1
14	R2	4	2.0	4	2.0	0.015	4.2	LOS A	0.1	1.5	0.46	0.30	0.46	23.6
Approach		12	2.0	13	2.0	0.015	4.2	LOS A	0.1	1.5	0.46	0.30	0.46	24.0
West: Robertson Street														
5	L2	4	2.0	4	2.0	0.181	4.2	LOS A	0.9	22.9	0.09	0.02	0.09	25.0
2	T1	191	2.0	212	2.0	0.181	4.2	LOS A	0.9	22.9	0.09	0.02	0.09	24.5
12	R2	22	2.0	24	2.0	0.181	4.2	LOS A	0.9	22.9	0.09	0.02	0.09	24.0
Approach		217	2.0	241	2.0	0.181	4.2	LOS A	0.9	22.9	0.09	0.02	0.09	24.5
All Vehicles		609	2.0	677	2.0	0.272	4.7	LOS A	1.5	37.6	0.20	0.09	0.20	24.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2 [Knightdale Station Run / Carolinian Ave (Site Folder: Robertson St TIA)]

2038 Build PM Peak Hour
Site Category: Future Conditions 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Carolinian Ave														
3	L2	60	2.0	67	2.0	0.136	4.1	LOS A	0.6	15.9	0.24	0.11	0.24	24.5
8	T1	86	2.0	96	2.0	0.136	4.1	LOS A	0.6	15.9	0.24	0.11	0.24	24.1
18	R2	4	2.0	4	2.0	0.136	4.1	LOS A	0.6	15.9	0.24	0.11	0.24	23.6
Approach		150	2.0	167	2.0	0.136	4.1	LOS A	0.6	15.9	0.24	0.11	0.24	24.2
East: Knightdale Station Run														
1	L2	4	2.0	4	2.0	0.086	4.0	LOS A	0.4	9.4	0.33	0.20	0.33	24.9
6	T1	36	2.0	40	2.0	0.086	4.0	LOS A	0.4	9.4	0.33	0.20	0.33	24.5
16	R2	46	2.0	51	2.0	0.086	4.0	LOS A	0.4	9.4	0.33	0.20	0.33	23.9
Approach		86	2.0	96	2.0	0.086	4.0	LOS A	0.4	9.4	0.33	0.20	0.33	24.2
North: Carolinian Ave														
7	L2	39	2.0	43	2.0	0.187	4.6	LOS A	0.9	23.0	0.28	0.15	0.28	24.6
4	T1	124	2.0	138	2.0	0.187	4.6	LOS A	0.9	23.0	0.28	0.15	0.28	24.2
14	R2	40	2.0	44	2.0	0.187	4.6	LOS A	0.9	23.0	0.28	0.15	0.28	23.7
Approach		203	2.0	226	2.0	0.187	4.6	LOS A	0.9	23.0	0.28	0.15	0.28	24.2
West: Knightdale Station Run														
5	L2	21	2.0	23	2.0	0.141	4.5	LOS A	0.6	16.2	0.35	0.22	0.35	24.6
2	T1	23	2.0	26	2.0	0.141	4.5	LOS A	0.6	16.2	0.35	0.22	0.35	24.2
12	R2	98	2.0	109	2.0	0.141	4.5	LOS A	0.6	16.2	0.35	0.22	0.35	23.6
Approach		142	2.0	158	2.0	0.141	4.5	LOS A	0.6	16.2	0.35	0.22	0.35	23.9
All Vehicles		581	2.0	646	2.0	0.187	4.3	LOS A	0.9	23.0	0.30	0.16	0.30	24.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: TIMMONS GROUP | Licence: PLUS / 1PC | Processed: Friday, August 5, 2022 10:07:10 AM
Project: L:\208\207\48720-Robertson_TIA\TRAFFIC\SIDRA\Existing\2 Robertson Build 38 PM.sip9

MOVEMENT SUMMARY

Site: 9 [Robertson St / Site Access 1 / Site Access 1A (Site Folder: Robertson St TIA)]

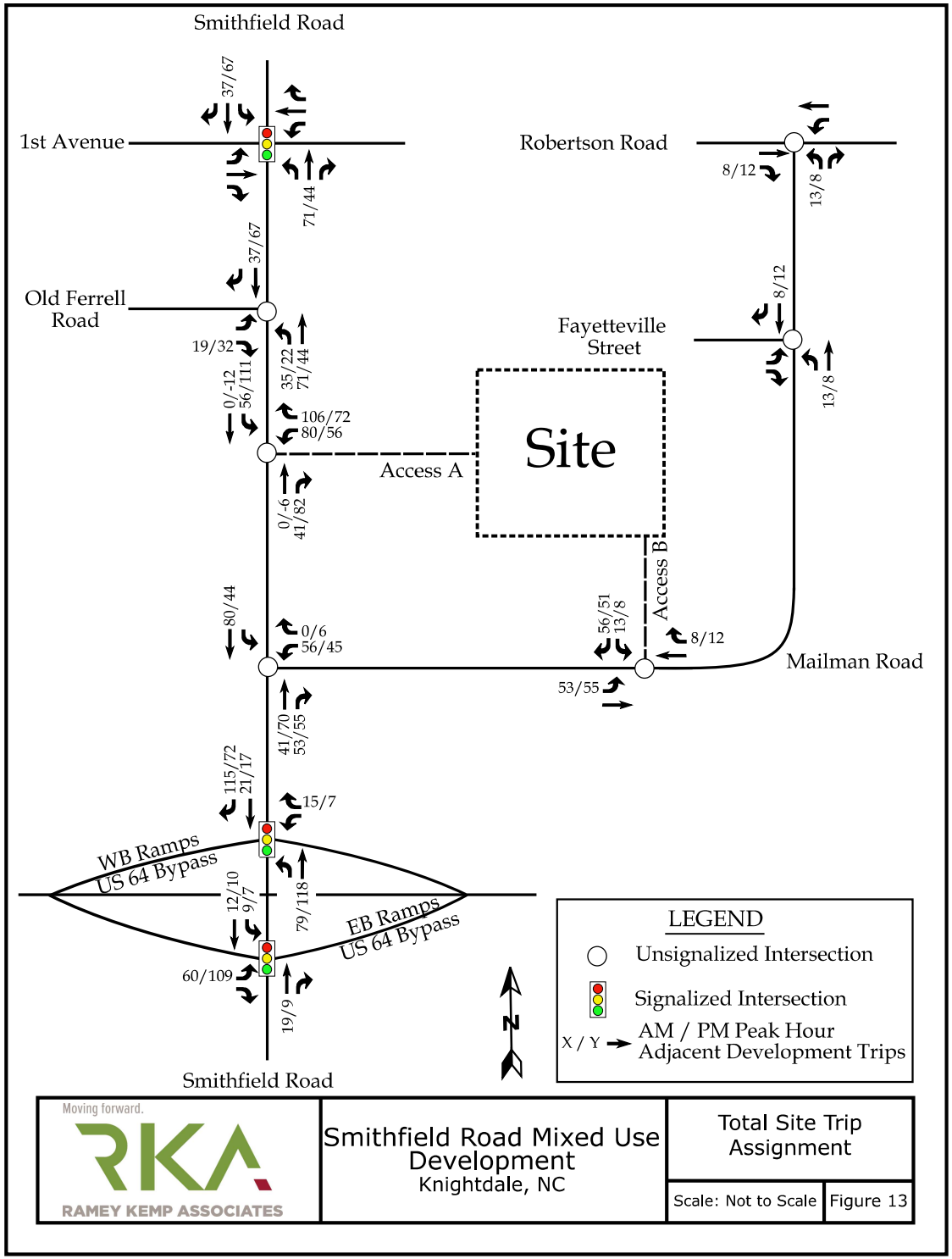
2038 Build PM Peak Hour
Site Category: Future Conditions 1
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Site Access 1														
3	L2	32	2.0	36	2.0	0.053	4.5	LOS A	0.2	5.4	0.47	0.35	0.47	23.9
8	T1	1	2.0	1	2.0	0.053	4.5	LOS A	0.2	5.4	0.47	0.35	0.47	23.5
18	R2	10	2.0	11	2.0	0.053	4.5	LOS A	0.2	5.4	0.47	0.35	0.47	23.0
Approach		43	2.0	48	2.0	0.053	4.5	LOS A	0.2	5.4	0.47	0.35	0.47	23.7
East: Robertson Street														
1	L2	19	2.0	21	2.0	0.292	5.4	LOS A	1.6	41.9	0.18	0.07	0.18	24.6
6	T1	318	2.0	353	2.0	0.292	5.4	LOS A	1.6	41.9	0.18	0.07	0.18	24.2
16	R2	4	2.0	4	2.0	0.292	5.4	LOS A	1.6	41.9	0.18	0.07	0.18	23.7
Approach		341	2.0	379	2.0	0.292	5.4	LOS A	1.6	41.9	0.18	0.07	0.18	24.2
North: Site Access 1A														
7	L2	4	2.0	4	2.0	0.011	4.2	LOS A	0.0	1.1	0.47	0.30	0.47	24.3
4	T1	1	2.0	1	2.0	0.011	4.2	LOS A	0.0	1.1	0.47	0.30	0.47	23.9
14	R2	4	2.0	4	2.0	0.011	4.2	LOS A	0.0	1.1	0.47	0.30	0.47	23.4
Approach		9	2.0	10	2.0	0.011	4.2	LOS A	0.0	1.1	0.47	0.30	0.47	23.9
West: Robertson Street														
5	L2	4	2.0	4	2.0	0.355	6.0	LOS A	2.2	56.0	0.16	0.05	0.16	24.5
2	T1	344	2.0	382	2.0	0.355	6.0	LOS A	2.2	56.0	0.16	0.05	0.16	24.1
12	R2	73	2.0	81	2.0	0.355	6.0	LOS A	2.2	56.0	0.16	0.05	0.16	23.5
Approach		421	2.0	468	2.0	0.355	6.0	LOS A	2.2	56.0	0.16	0.05	0.16	24.0
All Vehicles		814	2.0	904	2.0	0.355	5.6	LOS A	2.2	56.0	0.19	0.08	0.19	24.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix E – Approved Area Developments


Smithfield Road
1st Avenue
Robertson Road
Old Ferrell Road
Fayetteville Street
Site
Access A
Access B
Mailman Road
WB Ramps US 64 Bypass
EB Ramps US 64 Bypass
Smithfield Road
37/67
71/44
37/67
8/12
13/8
8/12
19/32
0/-12
56/111
35/22
71/44
13/8
106/72
80/56
0/-6
41/82
80/44
0/6
56/45
56/51
13/8
8/12
53/55
41/70
53/55
115/72
21/17
15/7
12/10
9/7
79/118
60/109
19/9
N
LEGEND
Unsignalized Intersection
Signalized Intersection
X / Y
AM / PM Peak Hour
Adjacent Development Trips
Moving forward.
RKA
RAMEY KEMP ASSOCIATES
Smithfield Road Mixed Use Development
Knightdale, NC
Total Site Trip Assignment
Scale: Not to Scale
Figure 13

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*

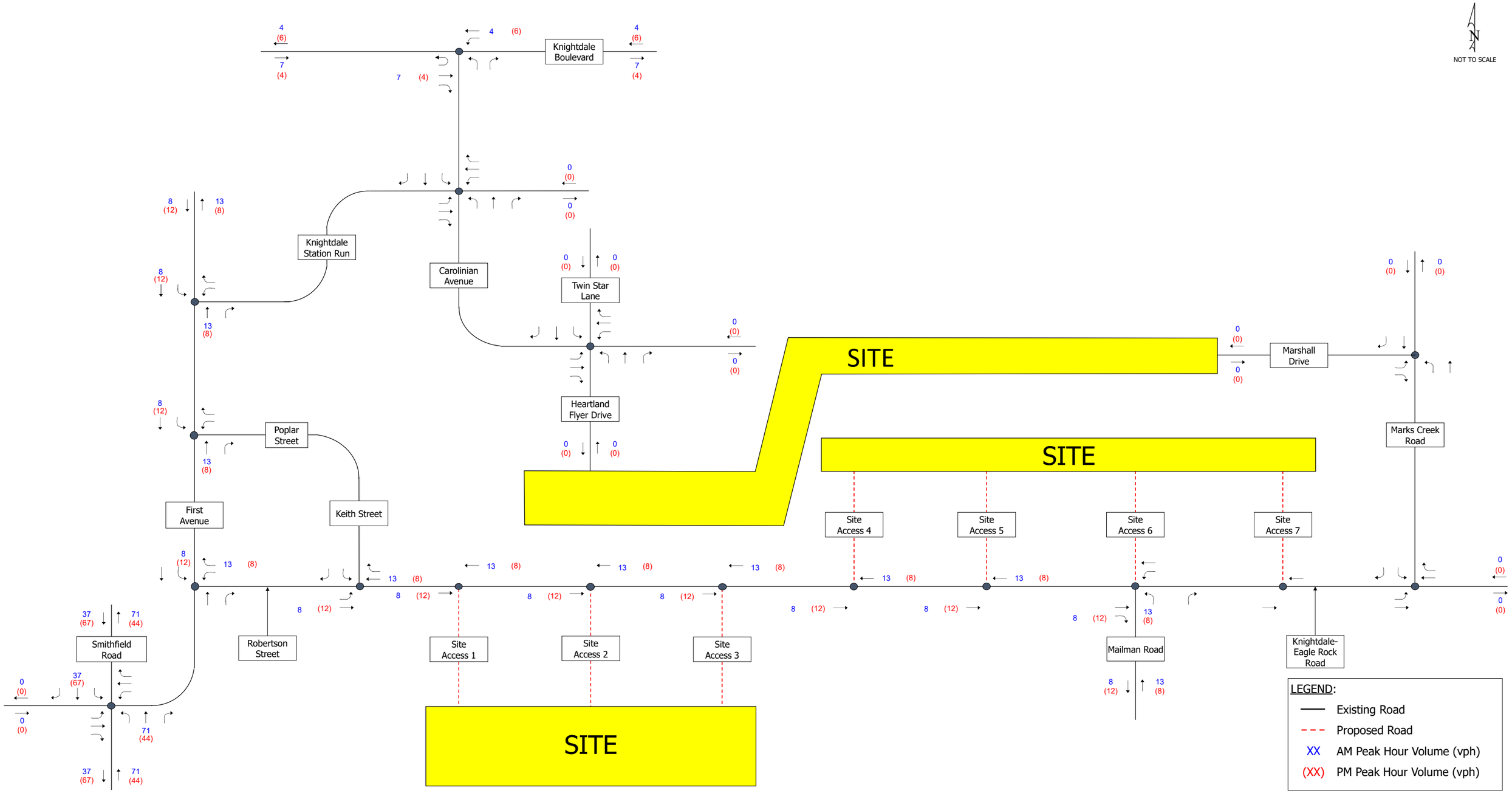
Notes:

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



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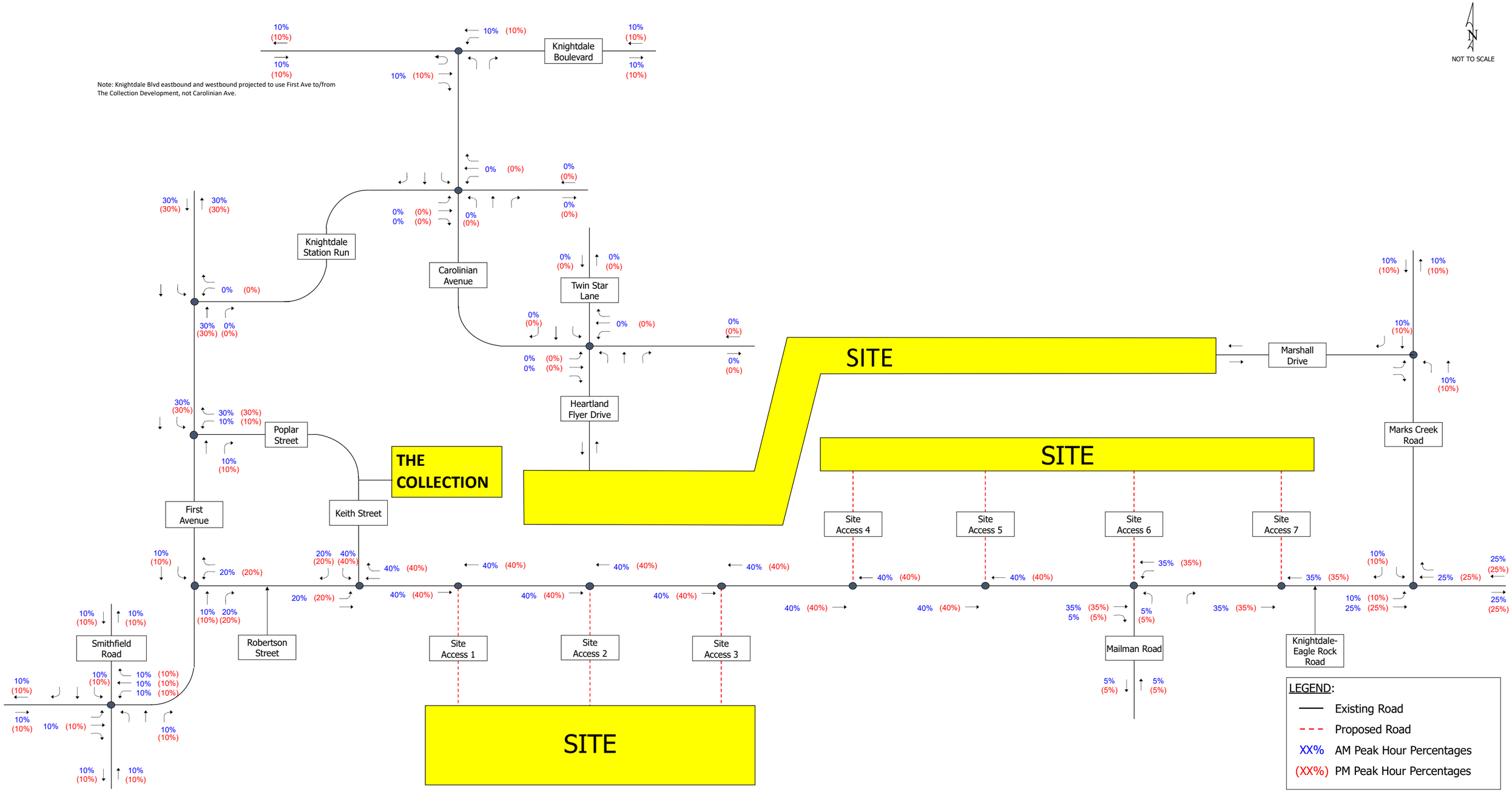
Robertson Street Assemblage Traffic Impact Analysis

Smithfield Mixed Use Development Traffic Volumes

Figure D-1



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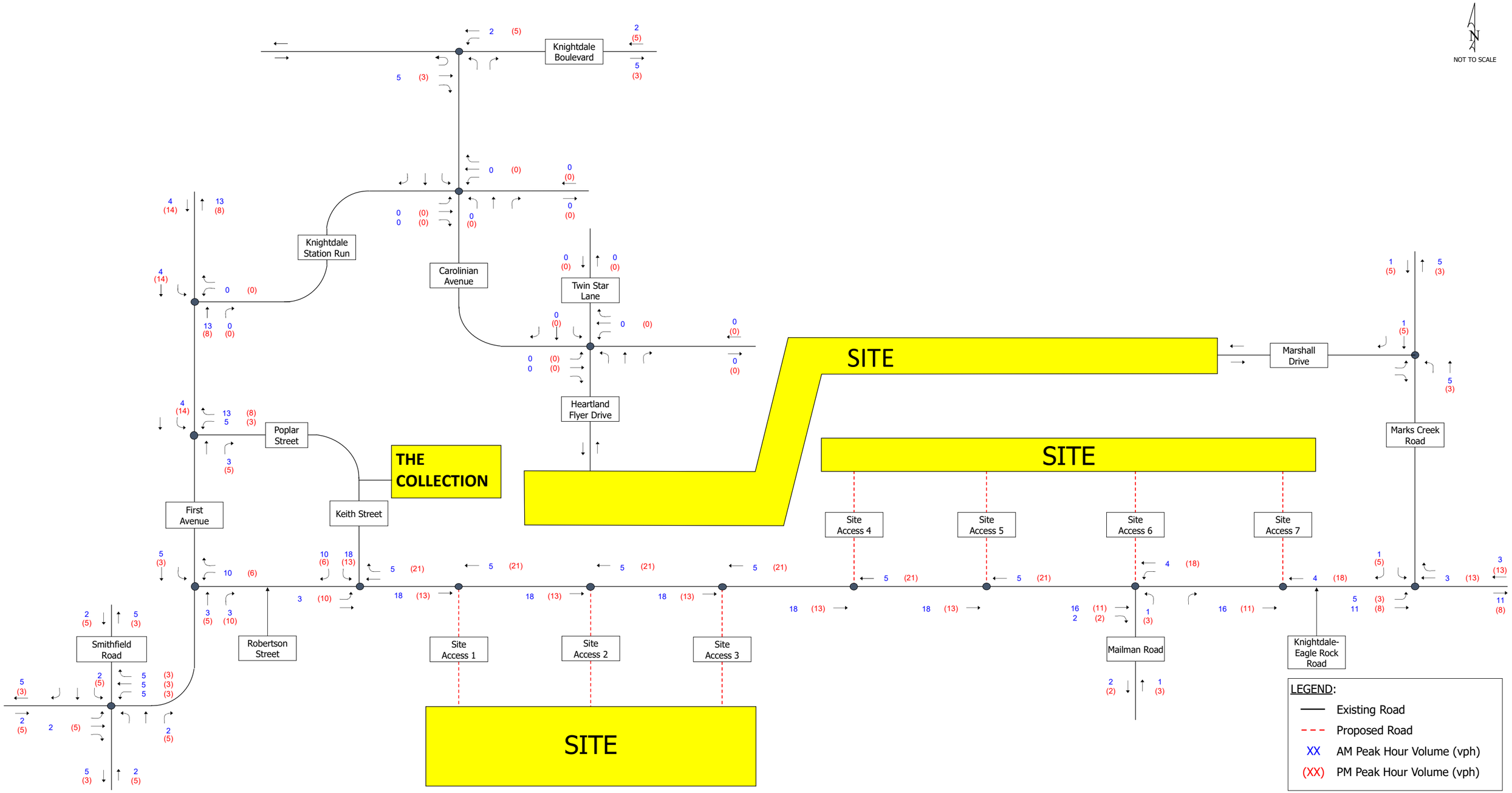
Robertson Street Assemblage Traffic Impact Analysis

The Collection Development Trip Distribution Percentages

Figure D-2A



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Robertson Street Assemblage Traffic Impact Analysis

The Collection Development Trip Distribution Volumes

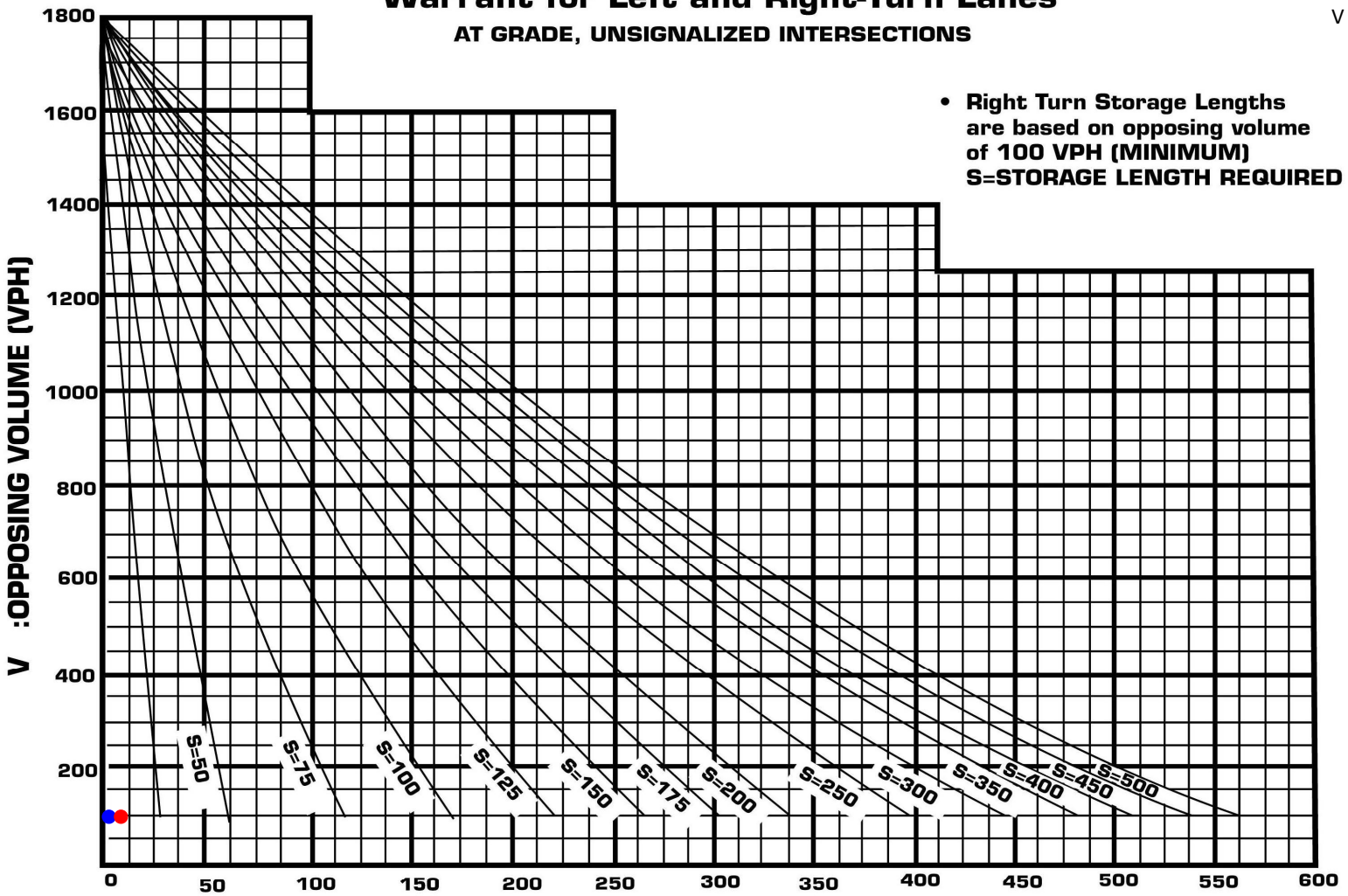
Figure D-2B

Appendix F – NCDOT Nomographs

AM Peak Hour
VR = 3
V = 100
PM Peak Hour
VR = 9
V = 100

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS



Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

LEGEND
● = AM Peak
● = PM Peak

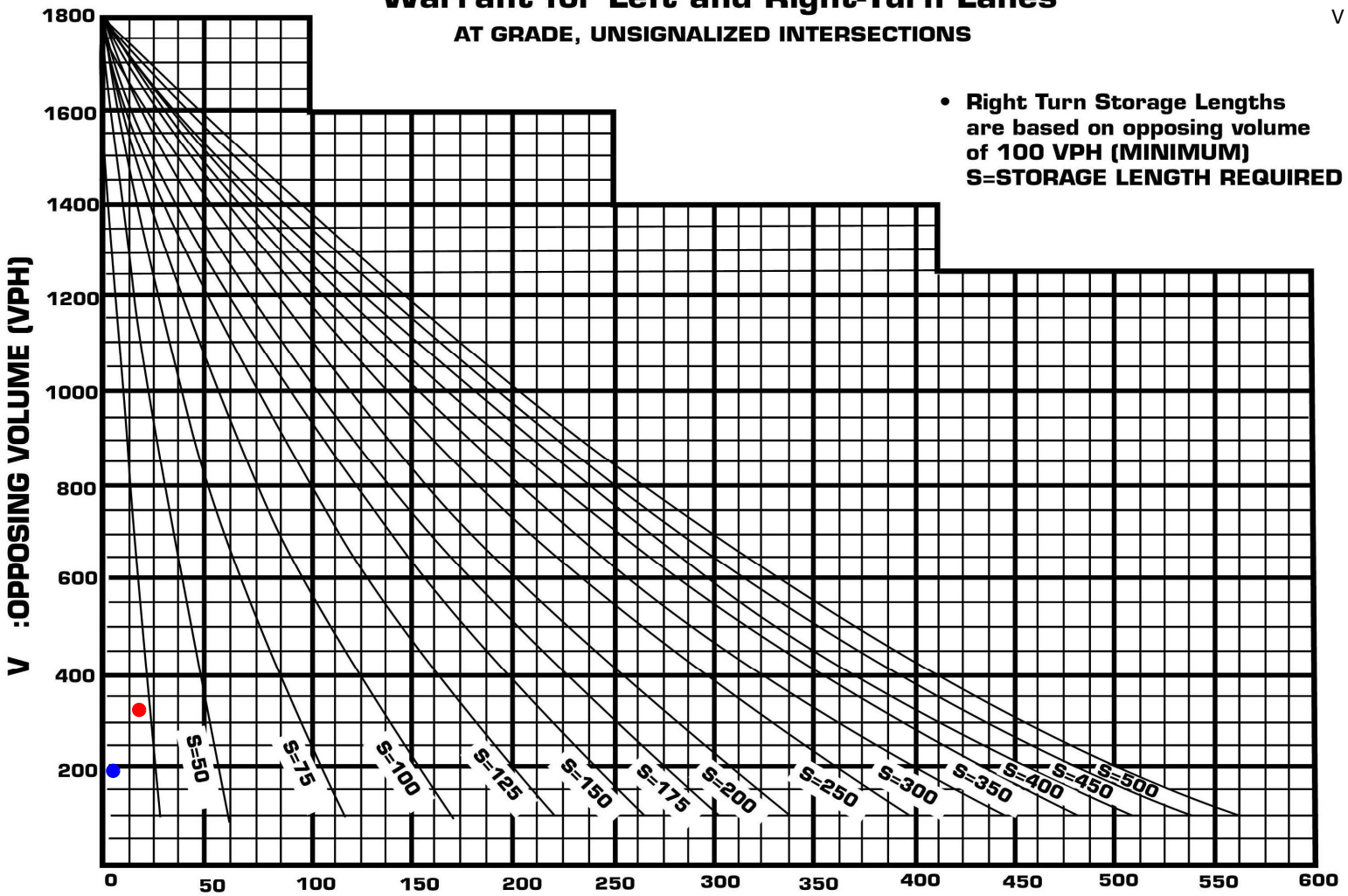
Robertson Street / Site Access 2
Eastbound Right-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VL = 5
V = 197
PM Peak Hour
VL = 18
V = 327

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS

- **Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)**
  S=STORAGE LENGTH REQUIRED



V_L: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

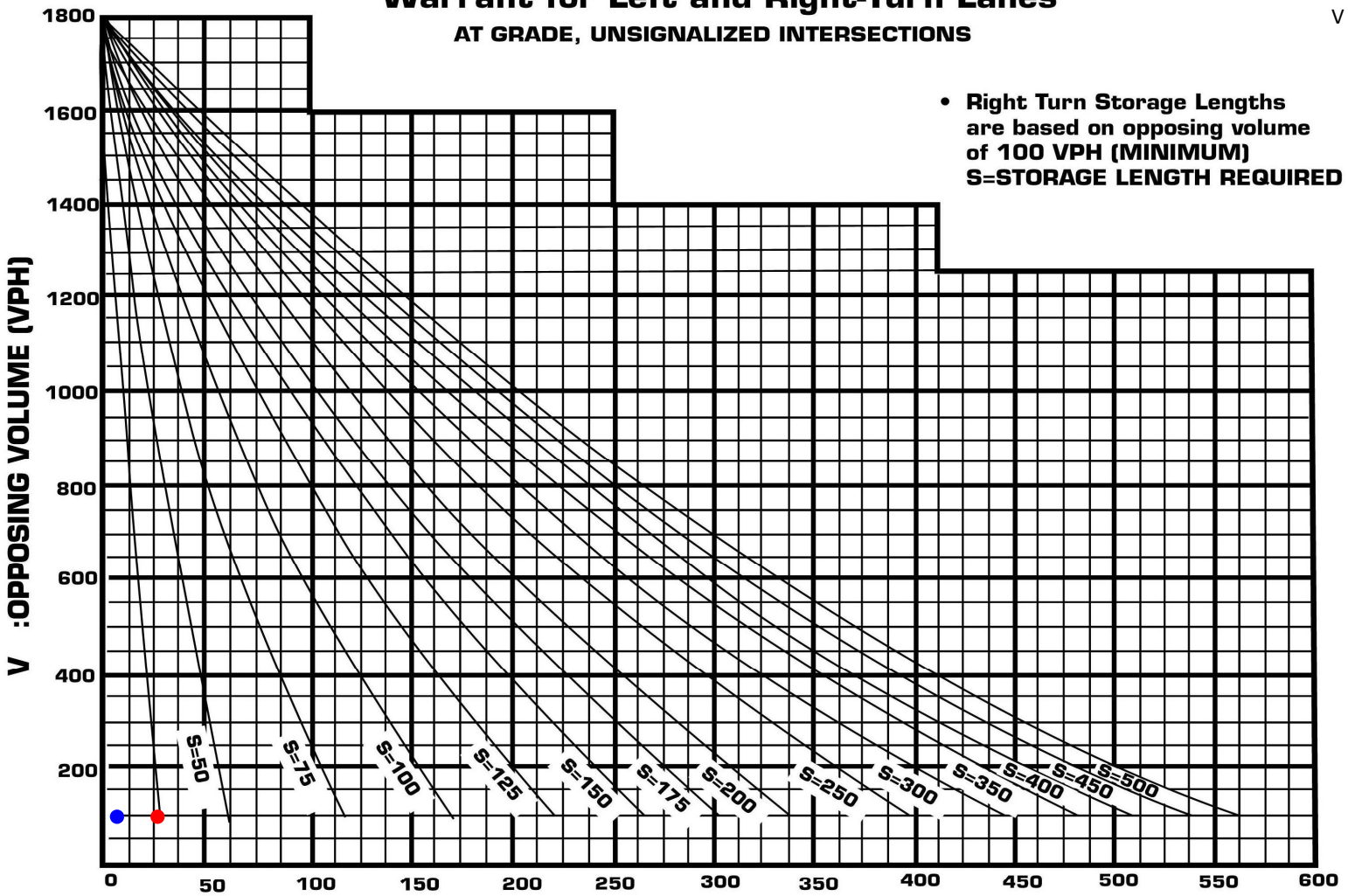
LEGEND
● = AM Peak
● = PM Peak

Robertson Street / Site Access 2
Westbound Left-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VR = 7
V = 100
PM Peak Hour
VR = 27
V = 100

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS



Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

LEGEND
● = AM Peak
● = PM Peak

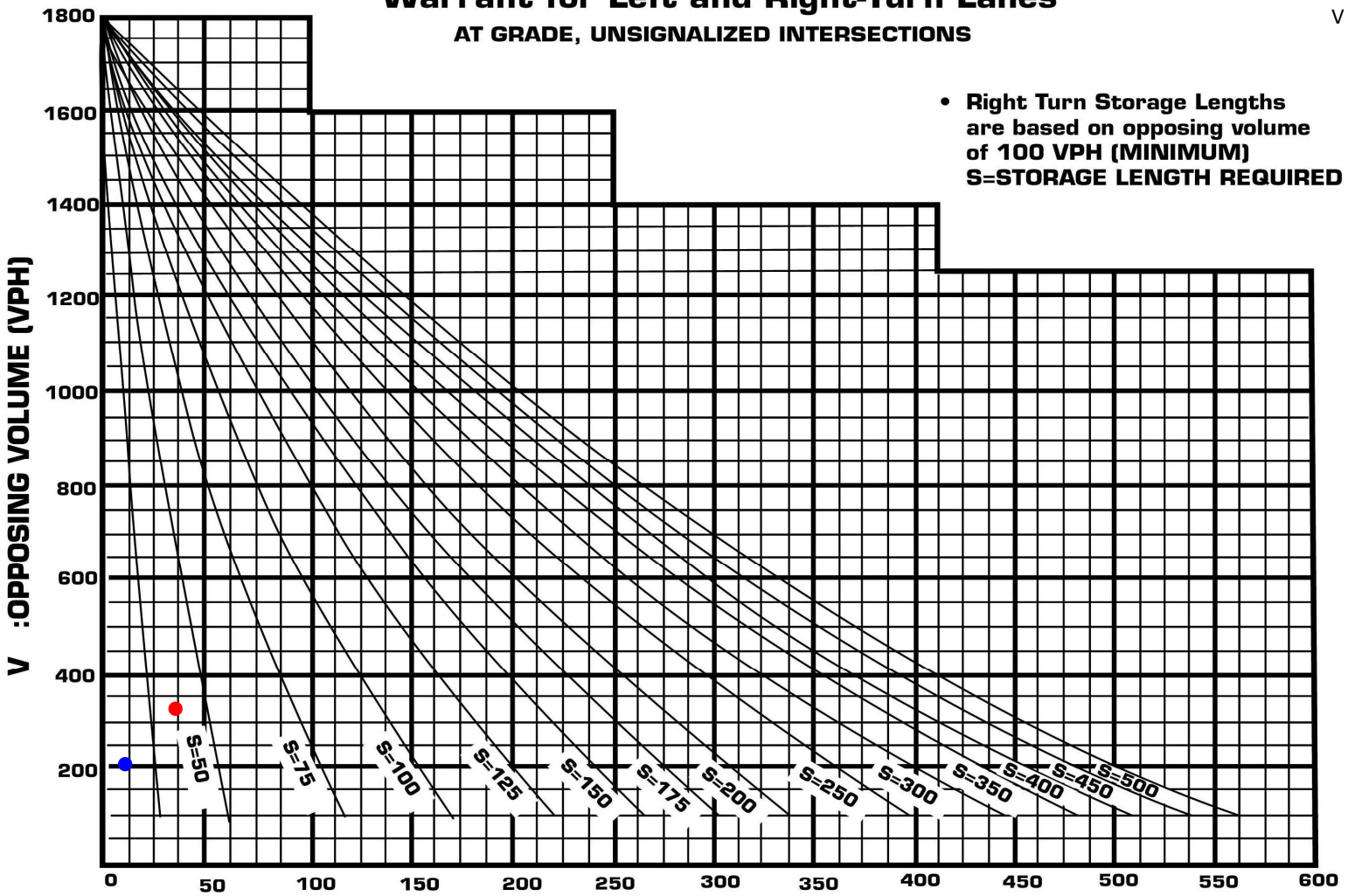
Robertson Street / Site Access 3
Eastbound Right-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VL = 11
V = 211
PM Peak Hour
VL = 36
V = 329

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS

- **Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)**
  S=STORAGE LENGTH REQUIRED



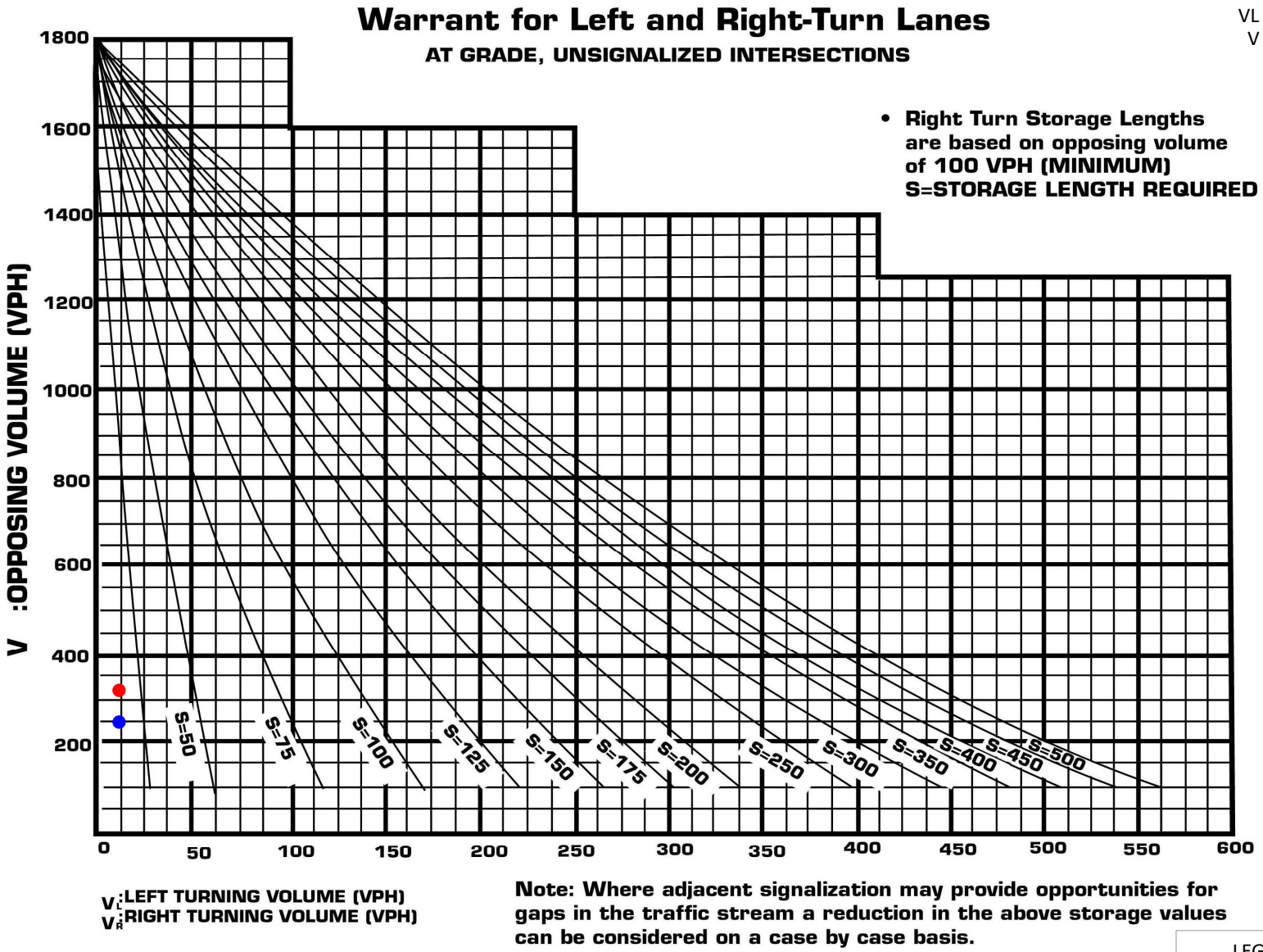
V_L :LEFT TURNING VOLUME (VPH)
V_R :RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

LEGEND
● = AM Peak
● = PM Peak

Robertson Street / Site Access 3
Westbound Left-Turn
2028 Build AM and PM Peak Hours

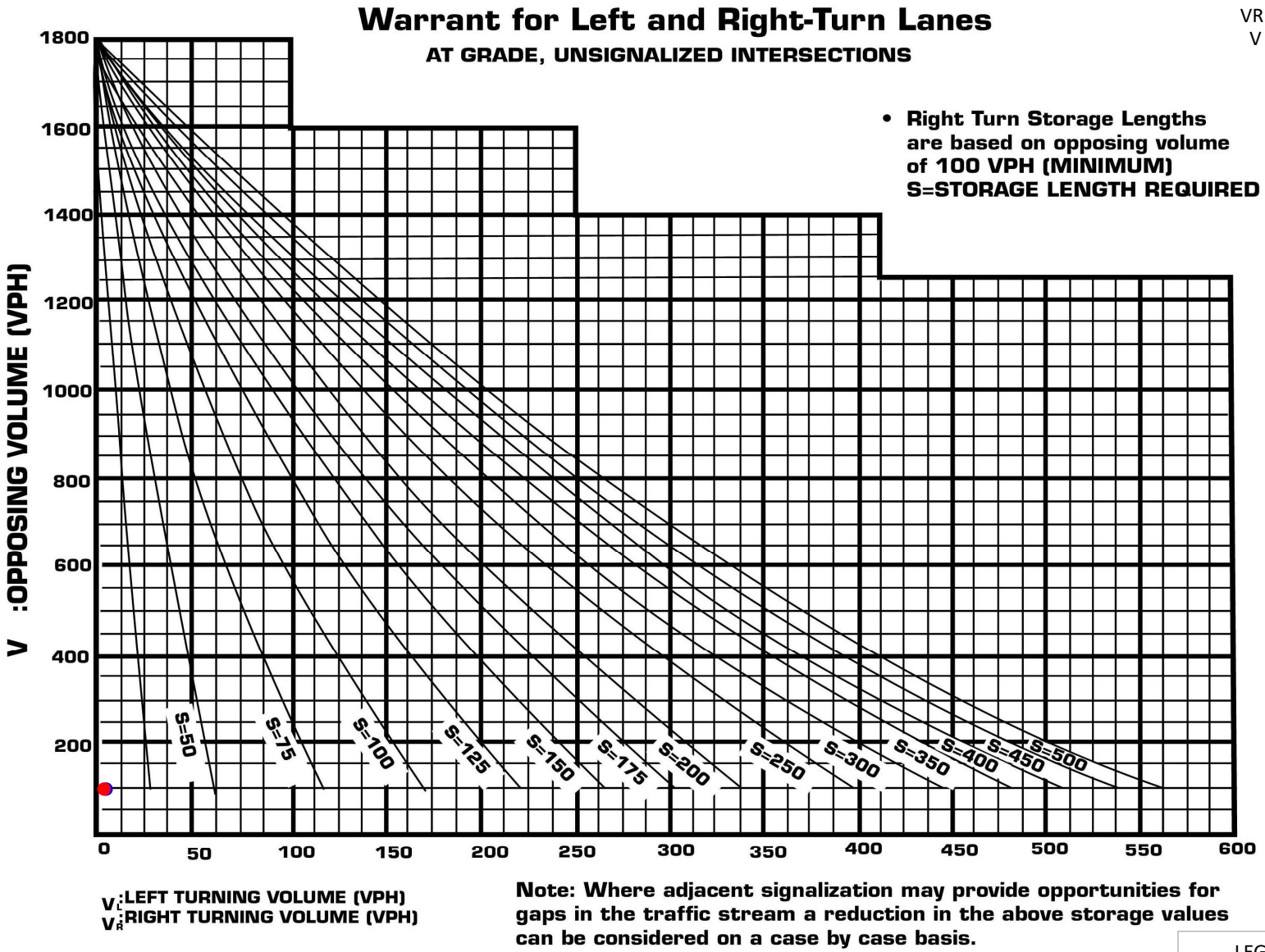
AM Peak Hour
VL = 12
V = 250
PM Peak Hour
VL = 12
V = 322



LEGEND
● = AM Peak
● = PM Peak

Robertson Street / Site Access 4
Eastbound Left-Turn
2028 Build AM and PM Peak Hours

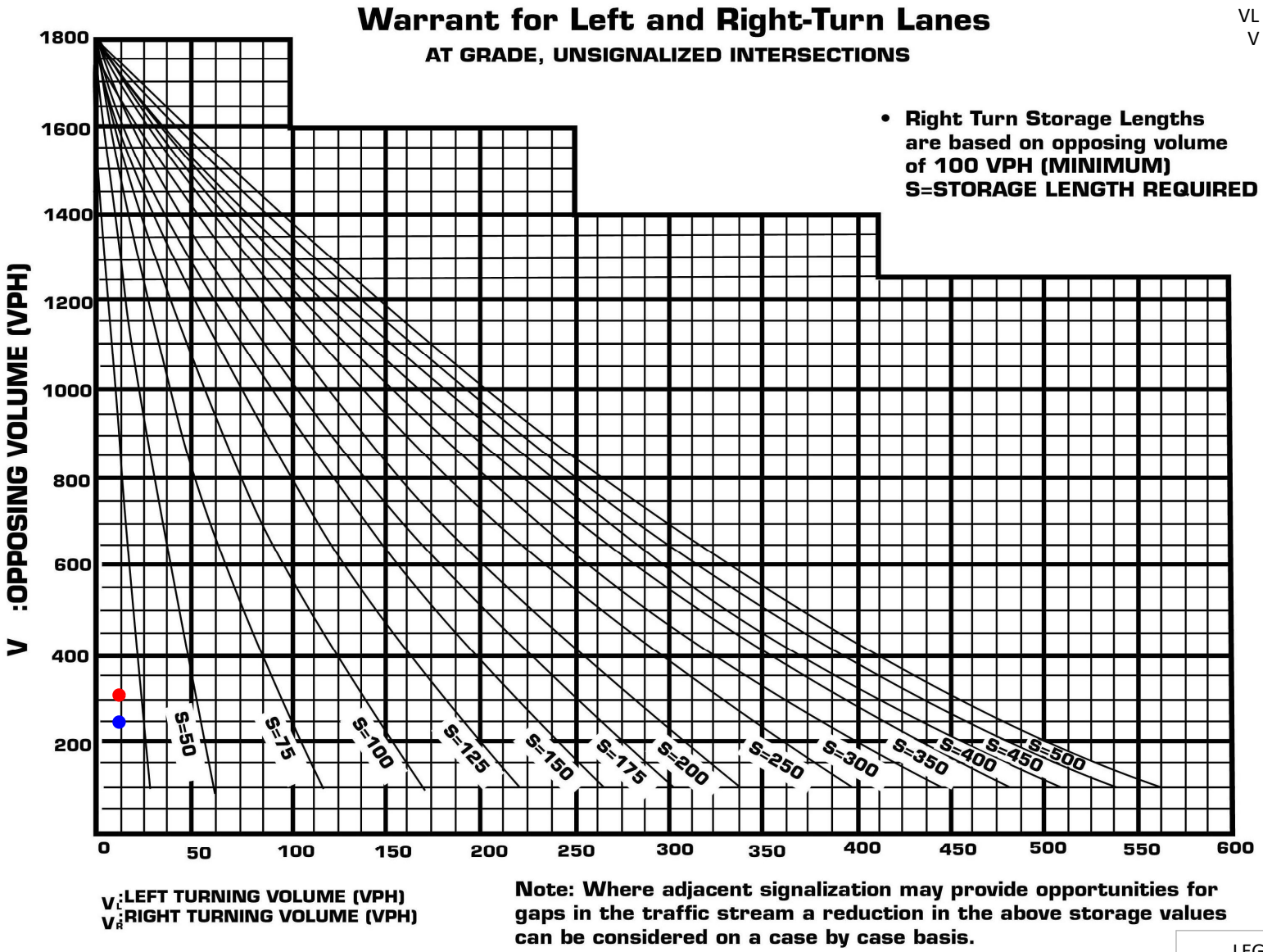
AM Peak Hour
VR = 5
V = 100
PM Peak Hour
VR = 4
V = 100



Robertson Street / Site Access 4
Westbound Right-Turn
2028 Build AM and PM Peak Hours

LEGEND
● = AM Peak
● = PM Peak

AM Peak Hour
VL = 12
V = 250
PM Peak Hour
VL = 12
V = 311



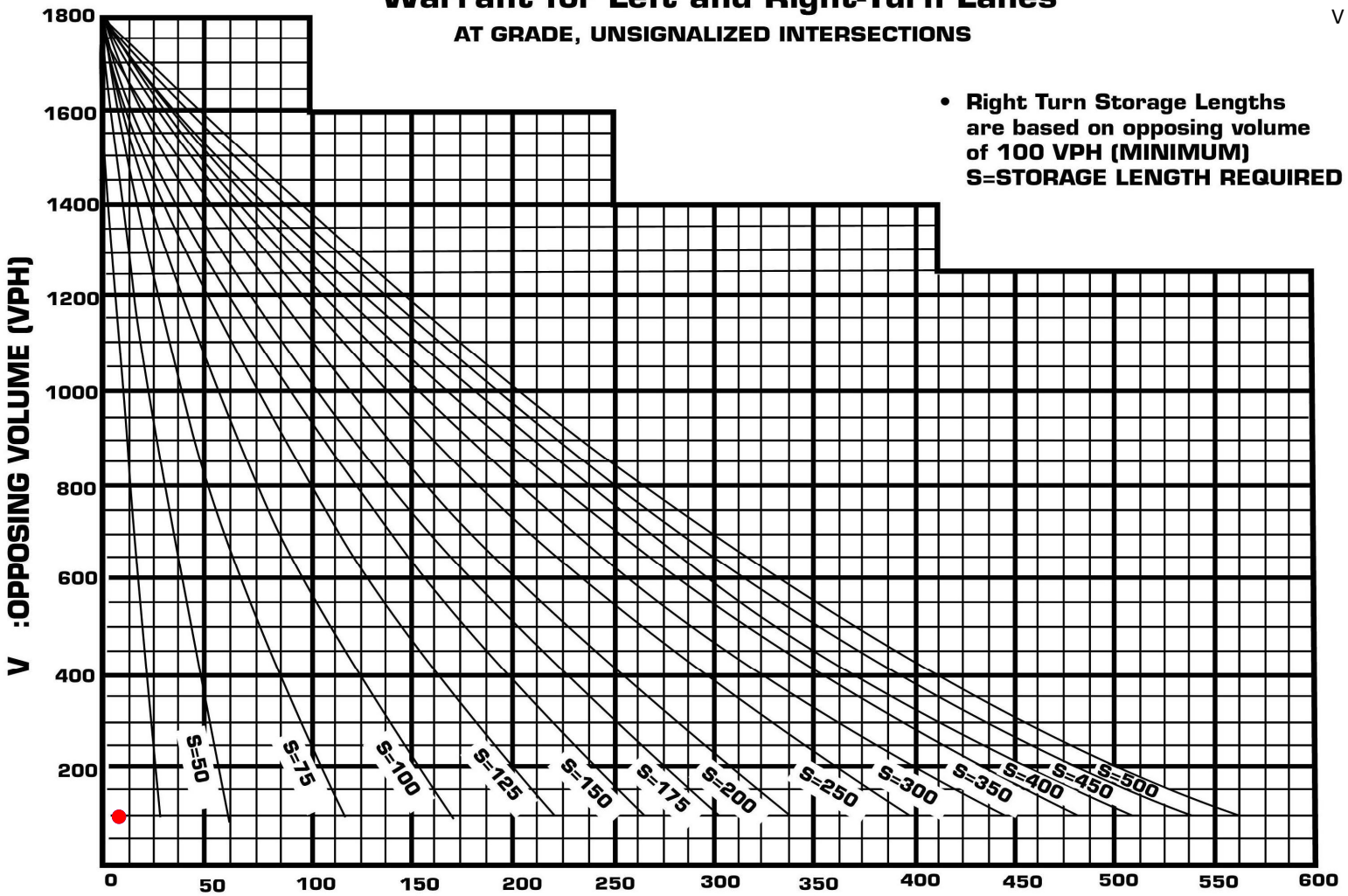
LEGEND
● = AM Peak
● = PM Peak

Robertson Street / Site Access 5
Eastbound Left-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VR = 8
V = 100
PM Peak Hour
VR = 8
V = 100

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS



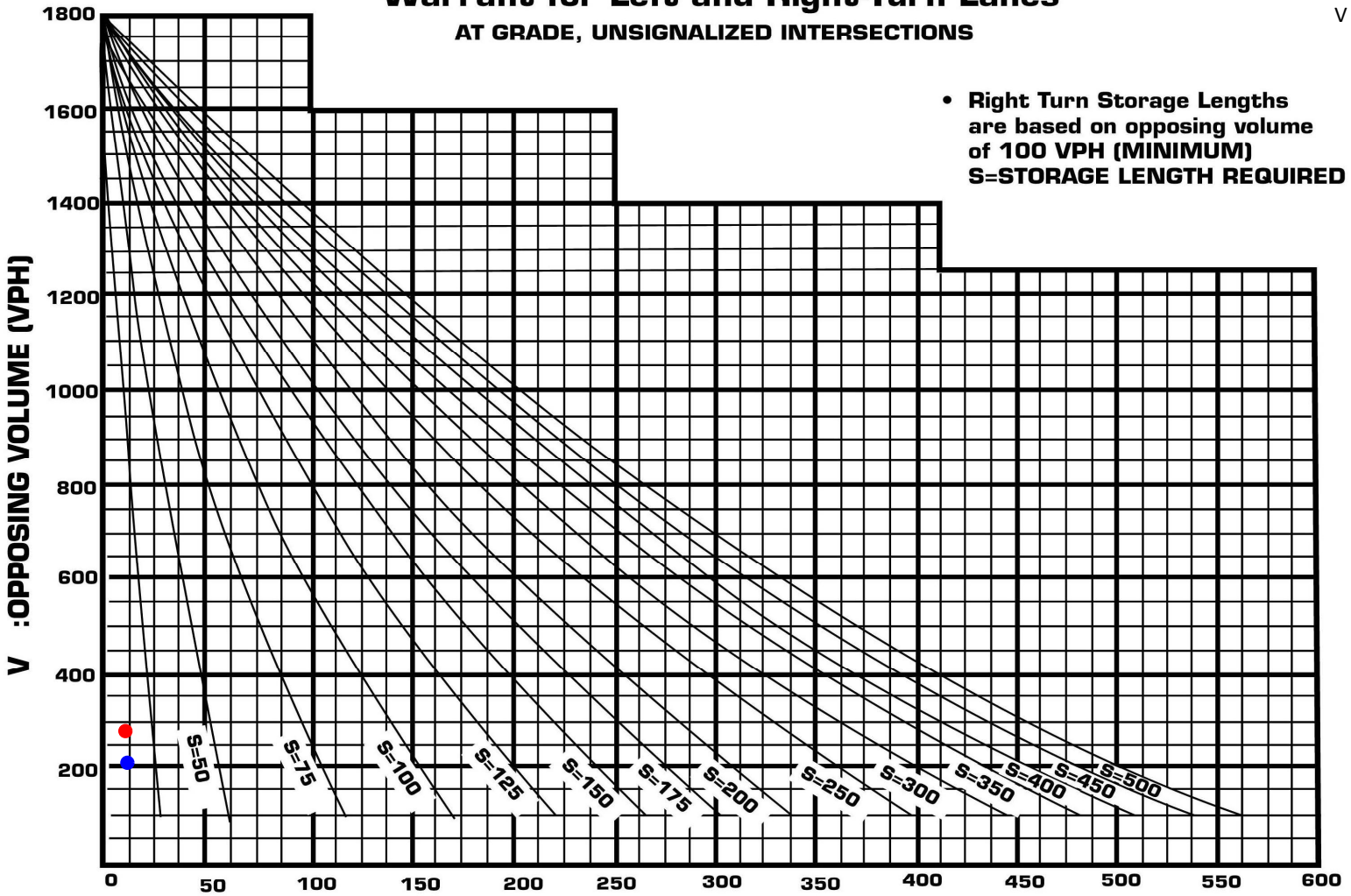
Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

LEGEND
● = AM Peak
● = PM Peak

Robertson Street / Site Access 5
Westbound Right-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VL = 12
V = 214
PM Peak Hour
VL = 11
V = 281

Warrant for Left and Right-Turn Lanes
AT GRADE, UNSIGNALIZED INTERSECTIONS



Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

LEGEND
● = AM Peak
● = PM Peak

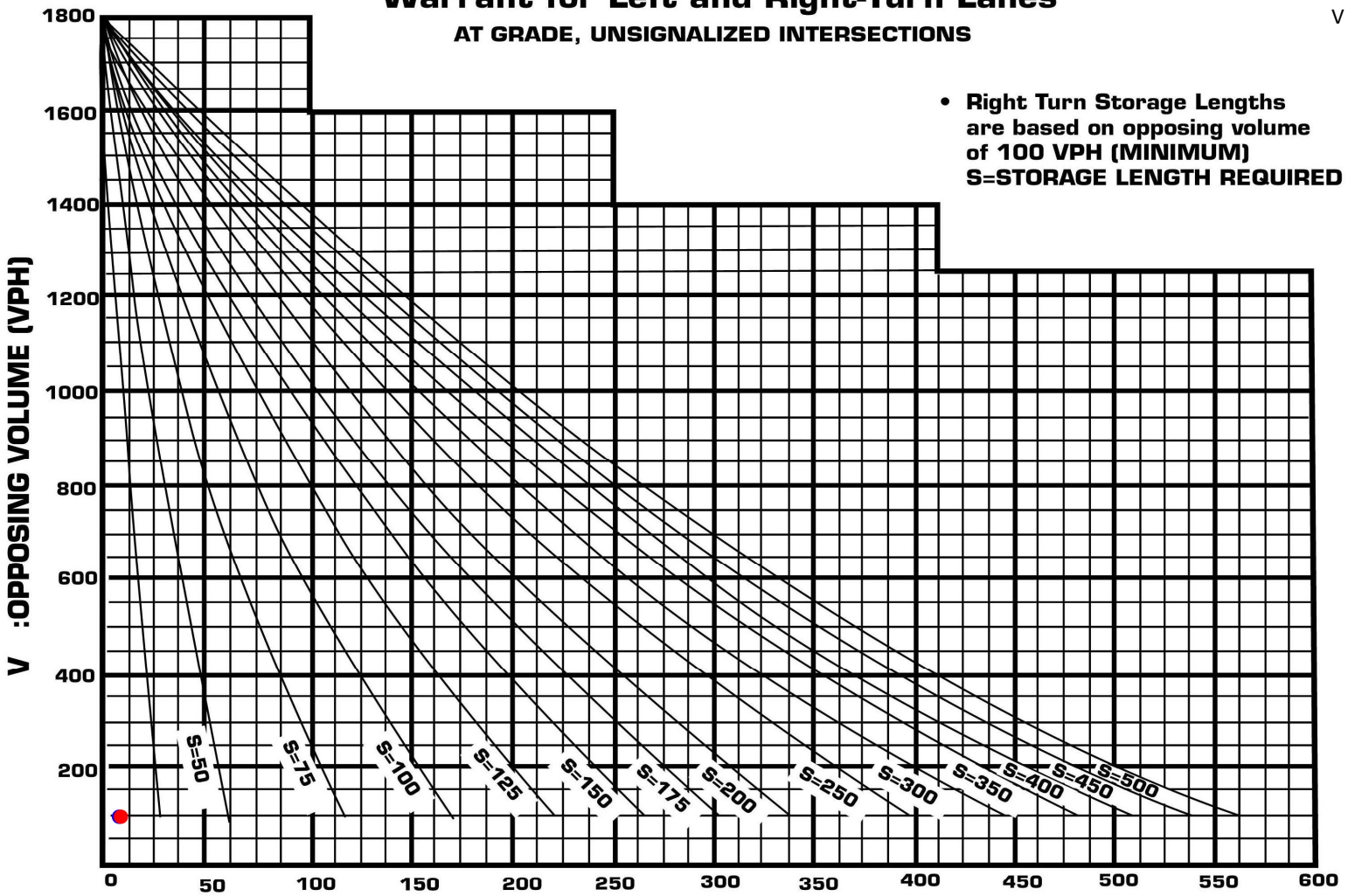
Robertson Street / Site Access 6
Eastbound Left-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VR = 8
V = 100
PM Peak Hour
VR = 9
V = 100

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS

- **Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)**
  S=STORAGE LENGTH REQUIRED



V_L: LEFT TURNING VOLUME (VPH)
V_R: RIGHT TURNING VOLUME (VPH)

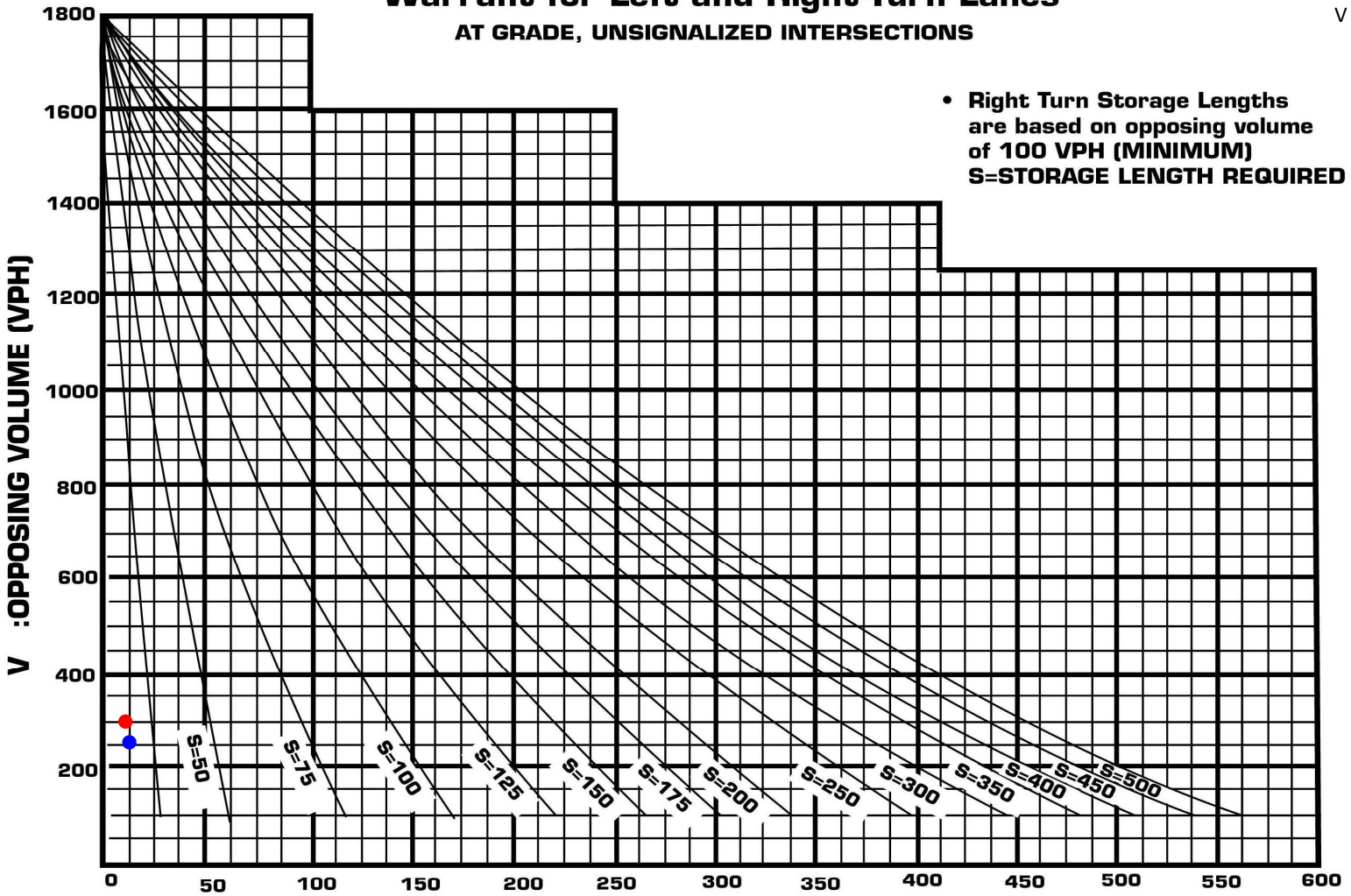
Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

LEGEND
● = AM Peak
● = PM Peak

Robertson Street / Site Access 6
Westbound Right-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VL = 13
V = 257
PM Peak Hour
VL = 11
V = 301

Warrant for Left and Right-Turn Lanes
AT GRADE, UNSIGNALIZED INTERSECTIONS

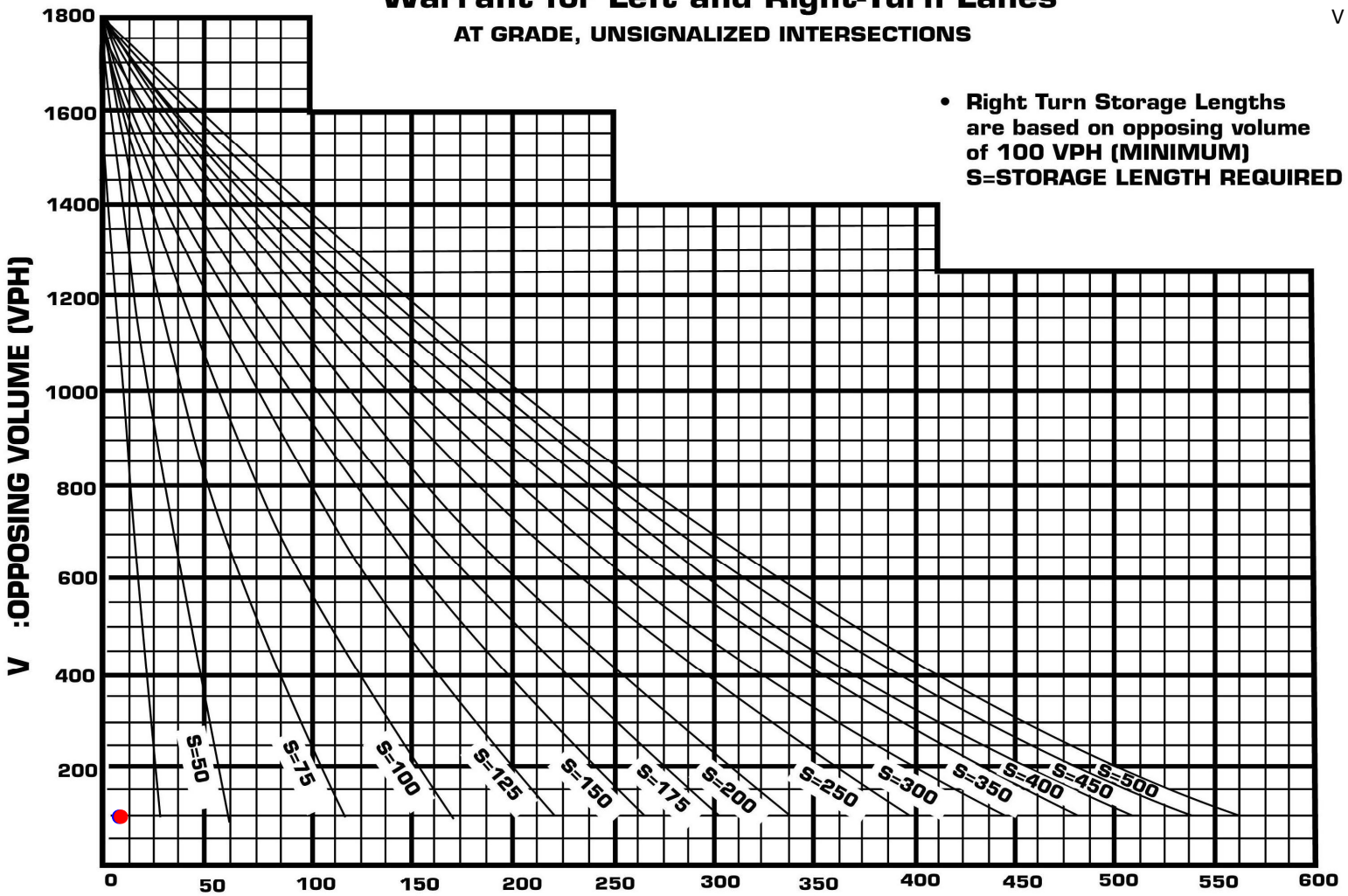


Robertson Street / Site Access 7
Eastbound Left-Turn
2028 Build AM and PM Peak Hours

AM Peak Hour
VR = 8
V = 100
PM Peak Hour
VR = 9
V = 100

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS



Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

LEGEND
● = AM Peak
● = PM Peak

Robertson Street / Site Access 7
Westbound Right-Turn
2028 Build AM and PM Peak Hours

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

November 23, 2022

Robertson Street Assemblage

Traffic Impact Analysis Review Report
Congestion Management Section

TIA Project: SC-2022-328
Division: 5
County: Wake

Nicholas C. Lineberger, P.E. Project Engineer
Daniel W. Collins, Project Design Engineer

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
TRANSPORTATION MOBILITY & SAFETY DIVISION
1561 MAIL SERVICE CENTER
RALEIGH, NC 27699-1561

Telephone: (919) 814-5000
Fax: (919) 771-2745
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
750 N. GREENFIELD PARKWAY
GARNER, NC 27529

Robertson Street Assemblage

SC-2022-328	Knightdale	Wake County

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data for background conditions presented in the Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Date Initially Received by CMS	10/26/22	Date of Site Plan	N/A
Date of Complete Information	10/26/22	Date of Sealed TIA	10/26/22

Proposed Development

The TIA assumes the development is completed by 2028 and consists of the following:

Land Use	Land Use Code	Size
Single-Family Detached Housing	210	491 d.u.
Multifamily Housing (Low-Rise)	220	176 d.u.
Day Care Center	565	3,000 sq.ft.
Medical-Dental Office Building	720	5,000 sq.ft.
General Office Building	710	7,000 sq.ft.
High-Turnover (Sit-Down) Restaurant	932	2,000 sq.ft.
High-Turnover (Sit-Down) Restaurant	932	3,000 sq.ft.

Trip Generation - Unadjusted Volumes During a Typical Weekday

	IN	OUT	TOTAL
AM Peak Hour	189	379	568
PM Peak Hour	436	340	776
Daily Trips			6,743

General Reference

For reference to various documents applicable to this review please reference the following link: ***https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx***

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section.

Signalization

We defer to the District Engineer, the Division Traffic Engineer, and the Regional Traffic Engineer for final decisions regarding signalization.

Robertson Street Assemblage
SC-2022-328

N

Existing Laneage

Recommended Laneage

NCDOT Recommendation

Existing Signal

NCDOT Recommended Signal

Roundabout

XXX Storage

XXX NCDOT Recommended Storage

IPS Internal Protected Stem

All Distances in Feet

Drawing Not to Scale

Knightdale Blvd

N First Ave

Knightdale Station Rn

Twin Star Ln

Carolinian Ave

Heartland Flyer Dr

SITE

Marshall Dr

Marks Creek Rd

SITE

Poplar St

Keith St

100

Site Drive 4

100 IPS

Site Drive 5

100 IPS

Site Drive 6

100 IPS

Site Drive 7

100 IPS

50

Robertson St

Knightdale-Eagle Rock Rd

Mailman Rd

Smithfield Rd

325

100 IPS

Site Drive 1

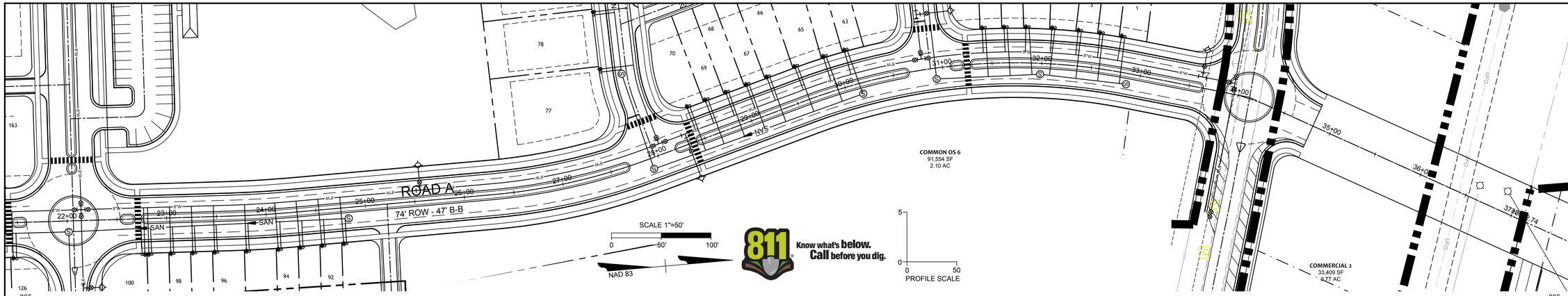
100 IPS

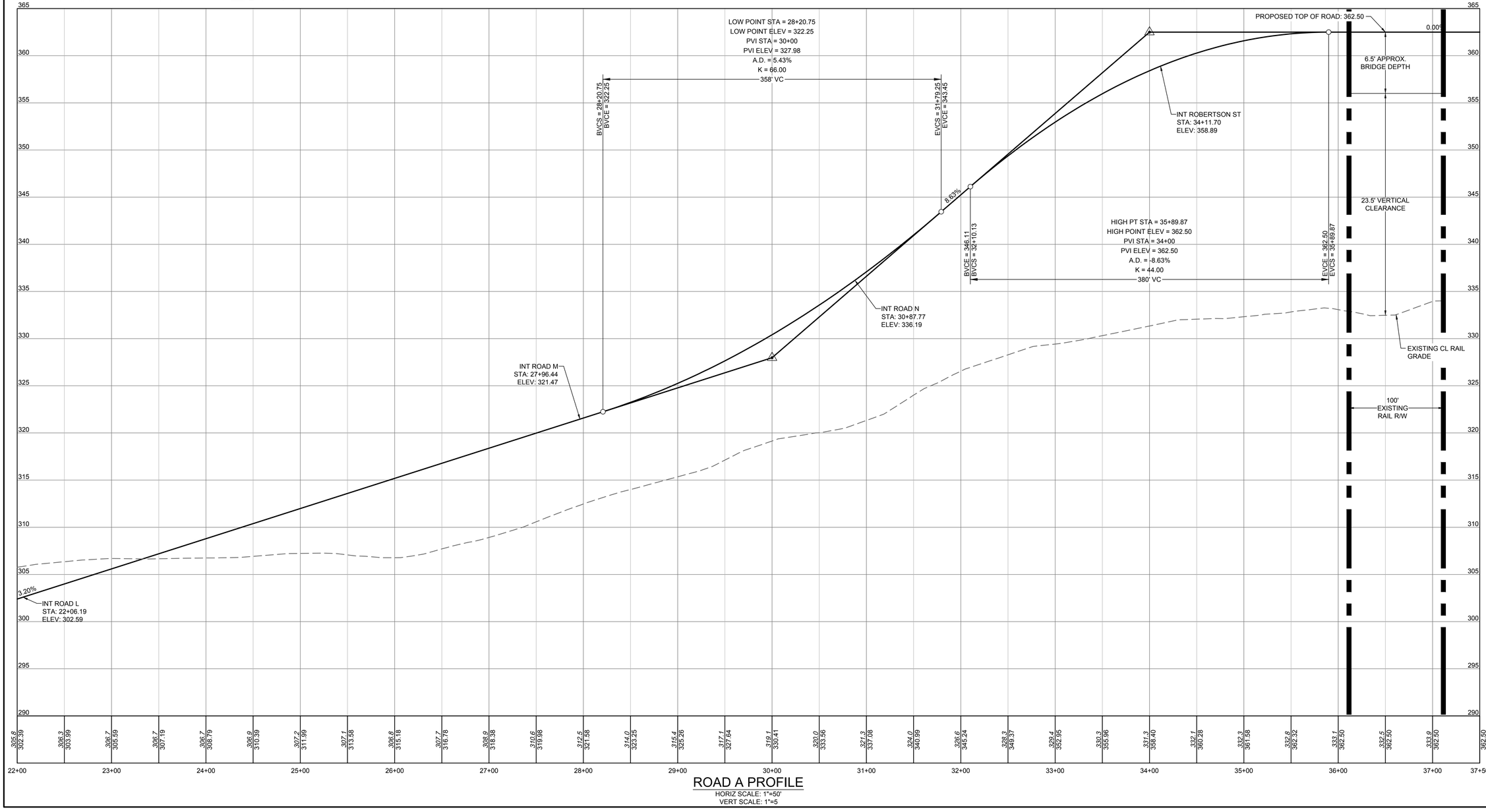
Site Drive 2

100 IPS

Site Drive 3

SITE





ROAD A PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

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TEL 919.866.4951 FAX 919.833.8124 www.timmons.com

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TIMMONS GROUP

REVISION DESCRIPTION

DATE

DATE
11/28/2022

DRAWN BY
C.CLARK

DESIGNED BY
E.ANGE

CHECKED BY
B.BLACKMON

SCALE

NORTH CAROLINA LICENSE NO. C-1652

ROBERTSON ASSEMBLAGE

ROBERTSON STREET, KNIGHTDALE, WAKE COUNTY, NORTH CAROLINA

JOB NO.
48720

SHEET NO.

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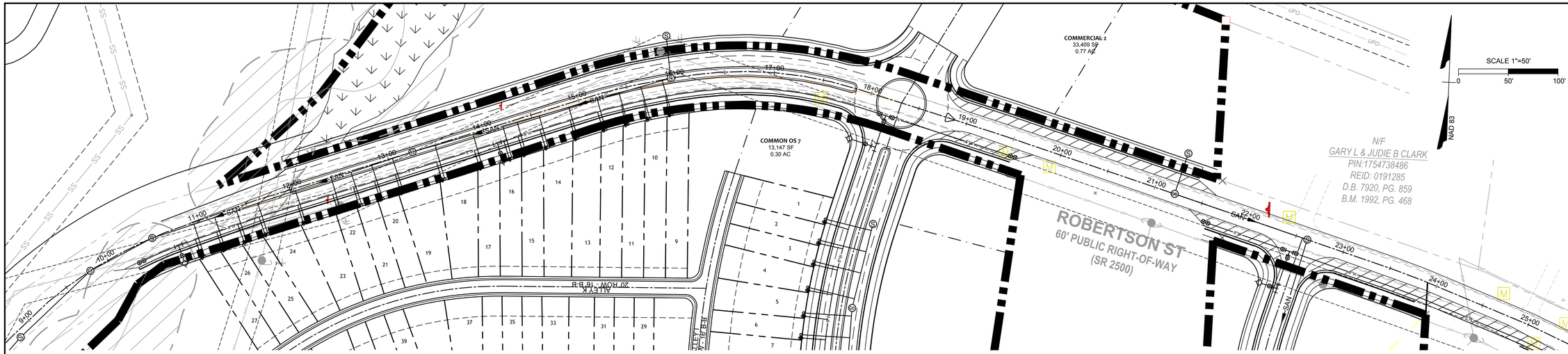

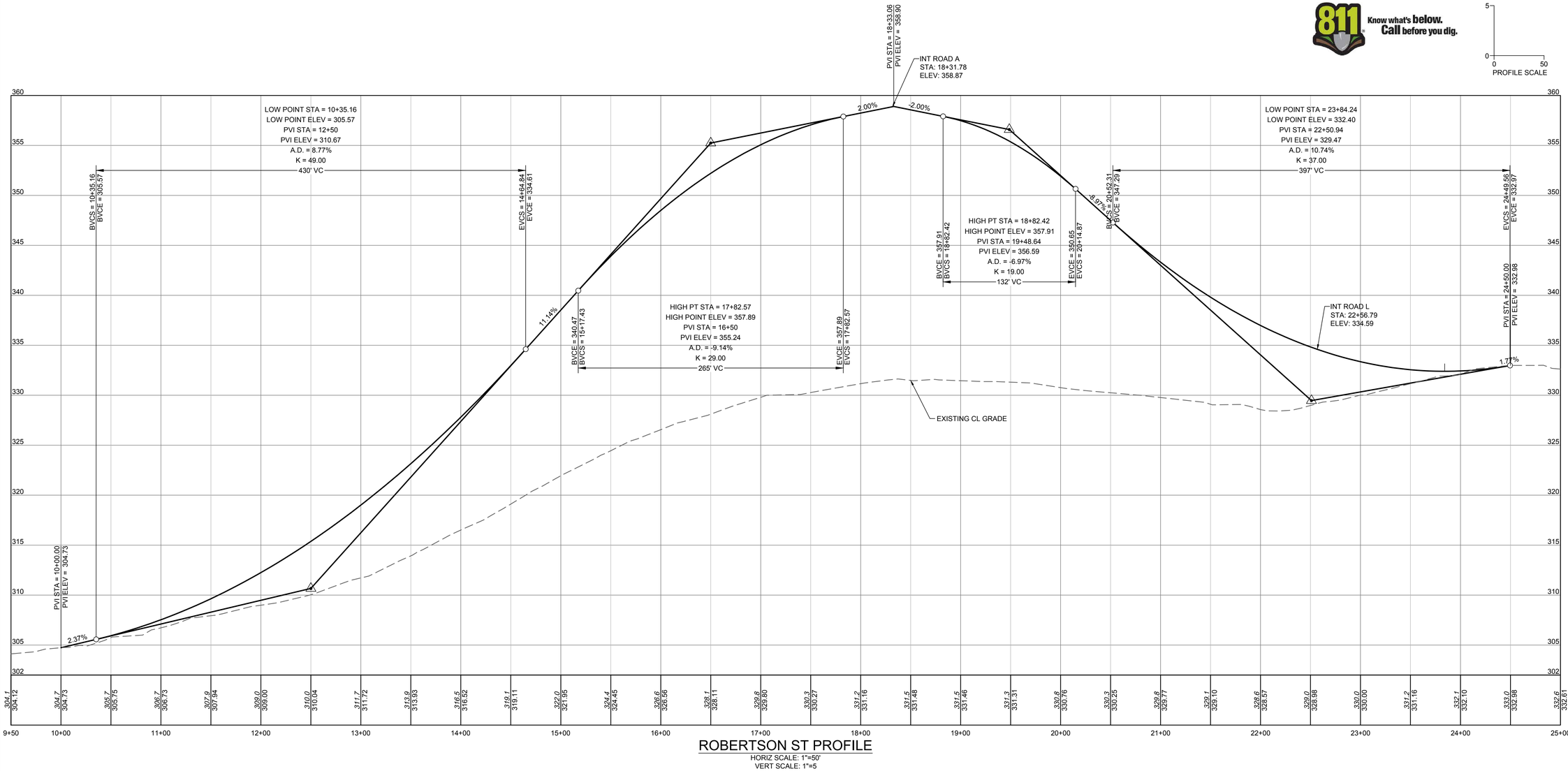

ROBERTSON ST PROFILE

HORIZ SCALE: 1"=50'
VERT SCALE: 1"=5

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