

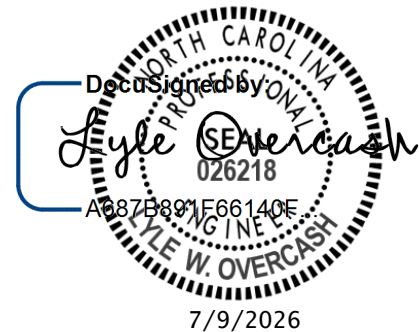
MEMORANDUM

To: Kevin Lewis, AICP, CZO, Town of Knightdale
Daniel Boulware, PE, NCDOT

From: Lyle Overcash, P.E.
Kimley-Horn and Associates, Inc.

Date: July 9, 2026

Subject: Adams Assemblage – Trip Generation Memorandum



Kimley-Horn has performed a trip generation and capacity analysis for the proposed Adams Assemblage development. The Adams Assemblage site is located east of Milburnie Lake Drive and north of Farmwell Road. The site is currently proposed to include up to 100,000 square feet (SF) of light industrial space. Access to the development is proposed via two driveway connections along Milburnie Lake Drive. The development is anticipated to be completed in 2027. The following paragraphs summarize the trip generation analysis for the proposed development. In addition, a traffic capacity analysis was conducted for the adjacent intersections of Knightdale Boulevard at Milburnie Lake Drive and Milburnie Lake Drive at Farmwell Road to analyze the impact of the proposed development site trips, and a summary of this analysis is presented later in this memorandum.

Trip Generation Analysis

The traffic generation potential for the proposed redevelopment was determined using the traffic generation rates and equations published in *Trip Generation* (Institute of Transportation Engineers, 12th Edition, 2025) for a general urban/suburban setting. Table 1 shows the trip generation potential of the proposed redevelopment.

Table 1 ITE Trip Generation (12 th Edition)										
Land Use Code	Land Use	Intensity		Daily	AM Peak Hour			PM Peak Hour		
					Total	In	Out	Total	In	Out
110	General Light Industrial	100,000	SF	360	48	41	7	49	12	37

As shown in Table 1, the proposed Adams Assemblage development has the potential to generate 360 daily trips, 48 trips in the AM peak hour, and 49 trips during the PM peak hour on a typical weekday. These projected site trips fall well below the traffic analysis trip generation thresholds of 150 trips in a given peak hour as outlined in section 11.3.D.2a of the Town of Knightdale Unified Development Ordinance (UDO) adopted on July 21, 2021. The projected site trips also fall below the North Carolina Department of Transportation (NCDOT) trip generation threshold of 3,000 daily trips.

Traffic Capacity Analysis

A traffic capacity analysis was conducted for the intersections of Knightdale Boulevard at Milburnie Lake Drive and Milburnie Lake Drive at Farmwell Road to determine the impact of the proposed site

trips on the adjacent intersections. For this analysis, the Existing (2026), Background (2028), and Build-out (2028) scenarios were studied. The future study year of 2028 includes the projected development build-out of 2027 plus an additional year for a more conservative analysis and consistency with Section 12.3.J.4.d of the Town of Knightdale Unified Development Ordinance (UDO) adopted on July 21, 2021.

Existing weekday AM (6:00 – 9:00 AM) and PM (4:00 – 7:00 PM) peak hour turning movement counts were collected at both study intersections on February 25, 2026, while Wake County Public Schools were in session. To calculate the projected Background (2028) traffic volumes, a 3% annual growth rate was applied to the existing traffic volumes up to the study year 2028. Consistent with the previous *Knightdale Gateway TIA* (Kimley-Horn, May 2022), site trips from three approved developments were also included in the background traffic volumes, including the *Legacy Oaks TIA* (Kimley-Horn, June 2020), the *Allen Park Development TIA* (Timmons Group, January 2021), and the *River's Edge Apartments TIA* (WSP, December 2014). The approved development site trips were assigned to the study intersections based on existing traffic patterns.

The site trips generated from the proposed development were assigned to the adjacent intersections based on separate distributions for passenger vehicles and trucks. Based on *Appendix C: Truck Trips as Percent of Total Vehicle Trips* published with *Trip Generation* (Institute of Transportation Engineers, 10th Edition, 2020), 2% of the AM peak hour trip generation and 3% of the PM peak hour generation were calculated to be truck site trips. Projected passenger car site trips were assigned to the study intersections based on a distribution of 55% to/from the east on Knightdale Boulevard, 35% to/from the west on Knightdale Boulevard, 5% to/from the south on Westover Drive, and 5% to/from the west on Farmwell Road. Projected truck site trips were assigned to the study intersections based on a distribution of 60% to/from the east and 40% to/from the west on Knightdale Boulevard. The combined projected site trip totals were added to the projected Background (2028) volumes to obtain the projected Build-out (2028) peak hour volumes. A breakdown of the volume development can be found in the attachments of this memorandum.

Capacity analyses were performed using Synchro/SimTraffic Version 12 software. Existing peak hour factors (PHF) were used for the existing intersections, and right-turns on red (RTOR) and permitted + protected left-turn phasing was permitted in the analysis where currently allowed. Table 2, on the following page, summarizes the operation of study intersections for the AM and PM peak hour traffic conditions.

Table 2 Level-of-Service Summary		
Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Knightdale Boulevard at Milburnie Lake Drive/Westover Drive		
Existing (2026) Traffic	Overall – A (7.6) EB – A (3.4) WB – A (8.1) NB – D (39.8) SB – D (52.5)	Overall – A (9.2) EB – A (8.4) WB – A (5.7) NB – D (41.0) SB – D (54.9)
Background (2028) Traffic	Overall – A (8.8) EB – A (4.9) WB – A (9.6) NB – D (40.0) SB – D (53.0)	Overall – B (11.4) EB – B (11.8) WB – A (6.8) NB – D (40.9) SB – D (54.9)
Build-Out (2028) Traffic	Overall – A (9.7) EB – A (5.0) WB – B (10.9) NB – D (40.0) SB – D (52.9)	Overall – B (13.3) EB – B (13.9) WB – A (8.0) NB – D (38.6) SB – D (53.6)
Milburnie Lake Drive at Farmwell Road*		
Existing (2026) Traffic	EB – A (10.0) WB – A (7.2)	EB – C (20.5) WB – A (9.0)
Background (2028) Traffic	EB – B (10.8) WB – A (6.9)	EB – C (21.0) WB – B (10.1)
Build-Out (2028) Traffic	EB – C (20.7) WB – A (9.0)	EB – D (25.9) WB – B (10.7)

*Synchro does not report LOS for a four-leg intersection with stop control on three approaches. Therefore, the approach LOS for the Farmwell Road approaches were obtained from SimTraffic Performance Reports.

Conclusions

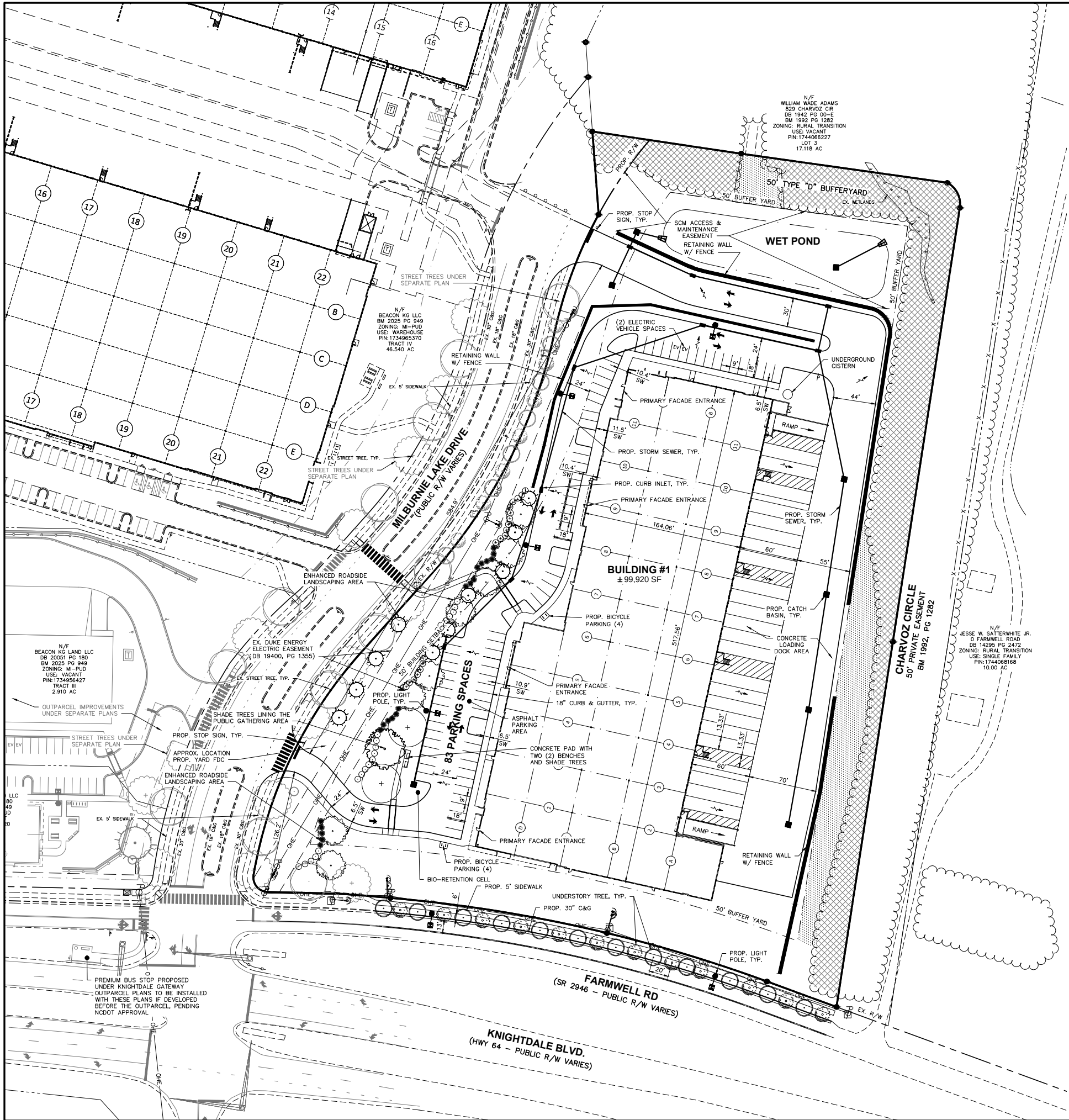
Based on the low projected peak hour site trips and their expected minimal impact on the capacity of the adjacent intersections, a formal TIA was not required for the Adams Assemblage development. However, even though a formal TIA is not required for development, a capacity analysis was performed and presented herein. Based on the capacity analysis, the signalized intersection of Knightdale Boulevard at Milburnie Lake Drive is expected to operate at LOS B or better for all traffic conditions, with only minor increases in delay due to the addition of site traffic. Additionally, the unsignalized intersection of Milburnie Lake Drive at Farmwell Road is projected to operate with short to moderate delays for the Farmwell Road approaches with the addition of site traffic. SimTraffic simulations do not indicate any queuing issues for the study intersections.

Should you have any questions or comments, please do not hesitate to contact me at (919) 678-4131 or lyle.overcash@kimley-horn.com.

Attachments

Preliminary Site Plan
Existing Laneage and Peak Hour Volume Figures
Trip Generation Table
Traffic Counts
Intersection Volume Spreadsheets
Synchro Reports
SimTraffic Reports
Signal Plan

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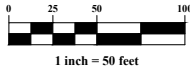
GENERAL NOTES

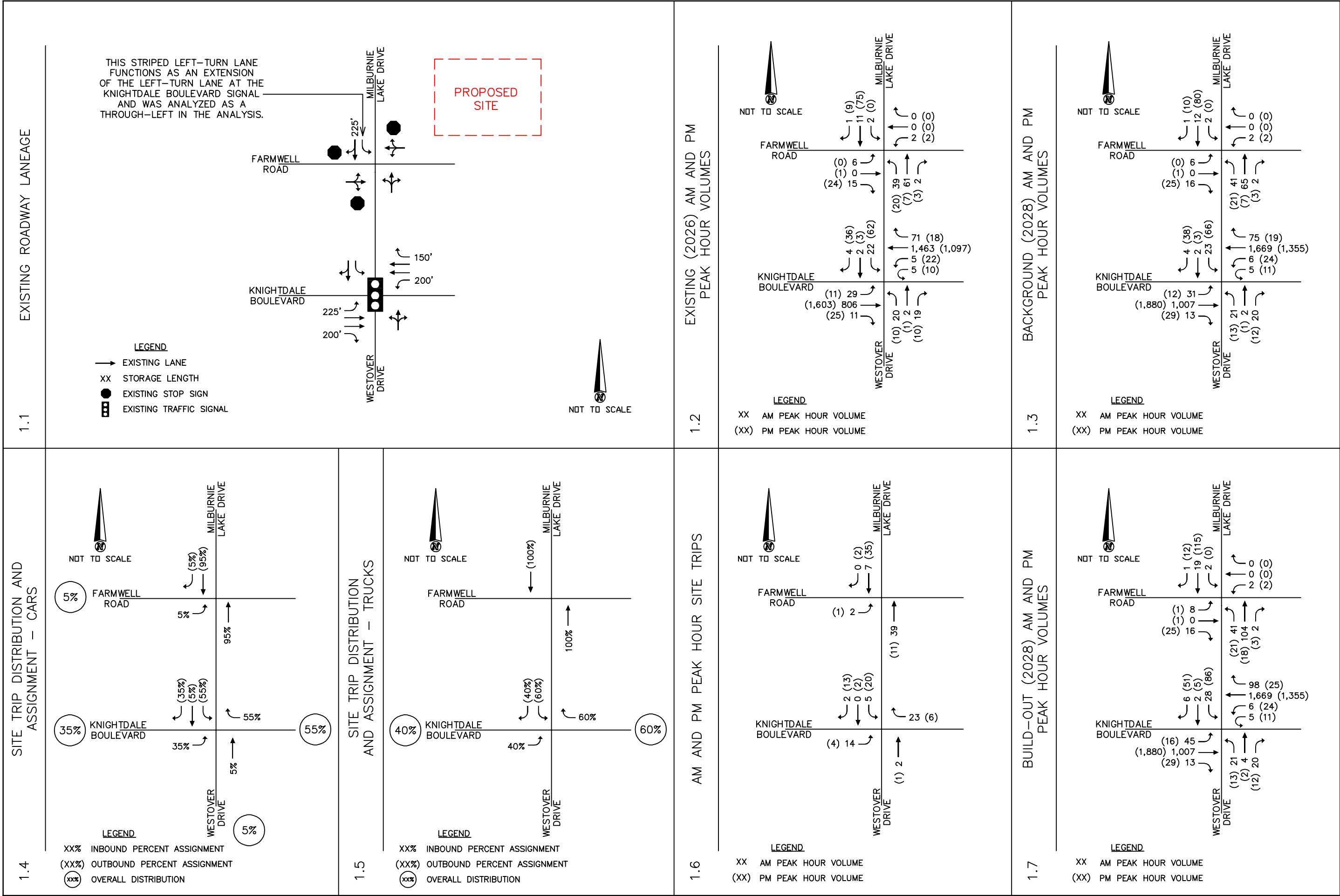
1. PRELIMINARY WETLAND LOCATIONS, STREAMS, AND PRELIMINARY BUFFER DETERMINATIONS PROVIDED BY ATLAS ENVIRONMENTAL.
2. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
3. OUTDOOR STORAGE IS PROHIBITED WITHIN LOADING AREAS.
4. EXCLUSIVE USE OF NATIVE LANDSCAPE SPECIES SHALL BE PROPOSED FOR THIS DEVELOPMENT AS REQUIRED TO MEET THE TOWN OF KNIGHTDALE WATER ALLOCATION POLICY.
5. TRASH WILL BE HANDLED ON A PER TENANT BASIS WITH DOCK DUMPSTERS AS NEEDED.

LEGEND

- X — X — Ex. Fence Line
- — — — — Ex. Property Line
- — — — — Property Line
- ■ — — — Proposed Storm Sewer
- — — — — Ex. Wetlands
- — — — — Existing Tree Save Area
- — — — — Buffer Yard 'D' Replanted Area

GRAPHIC SCALE





THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

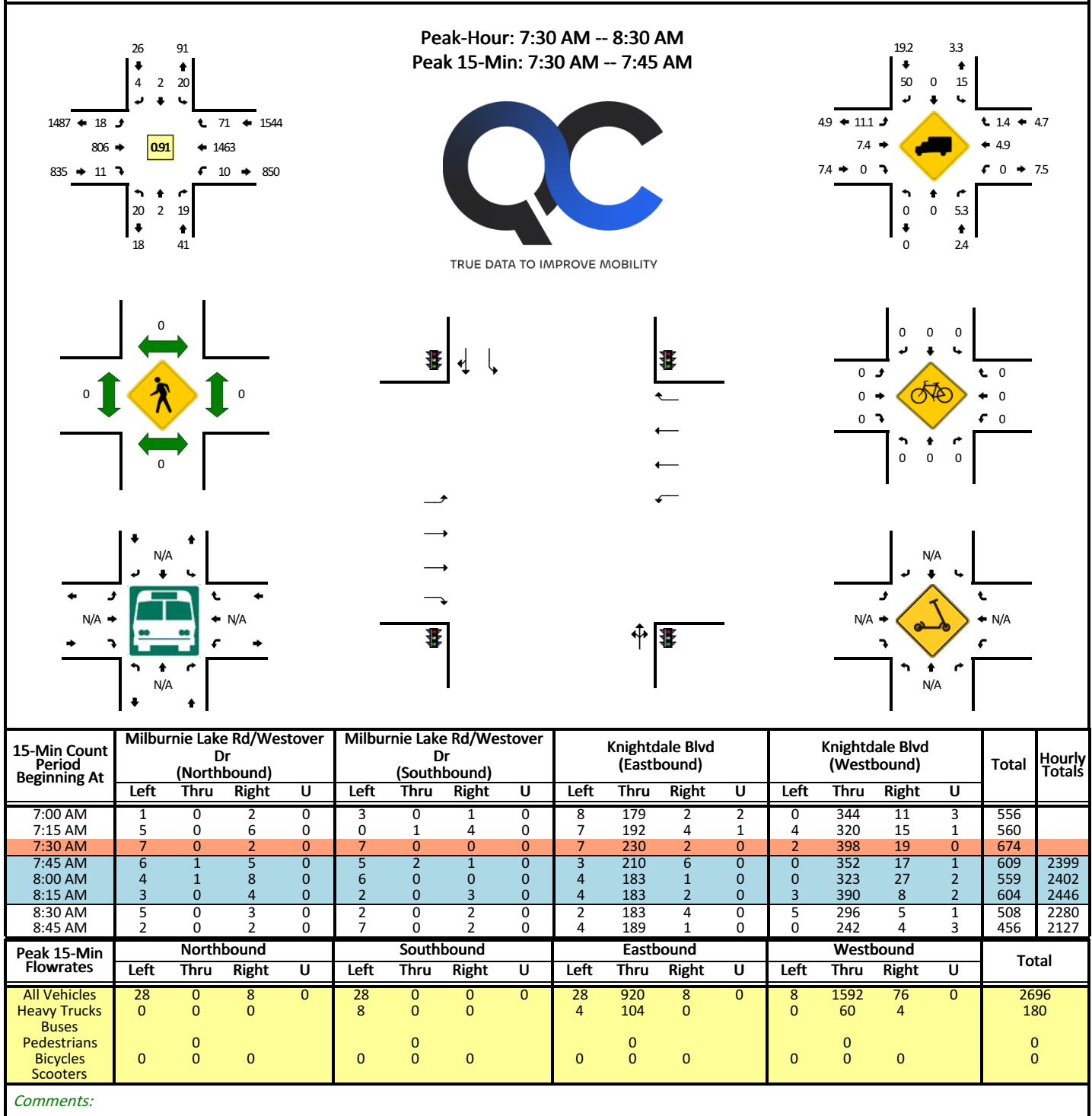
Adams Assemblage
Table 1 - Trip Generation (ITE 12th Edition)

Land Use	Intensity	Daily			AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out	Total	In	Out

110	General Light Industrial	100,000	s.f.	360	180	180	48	41	7	49	12	37

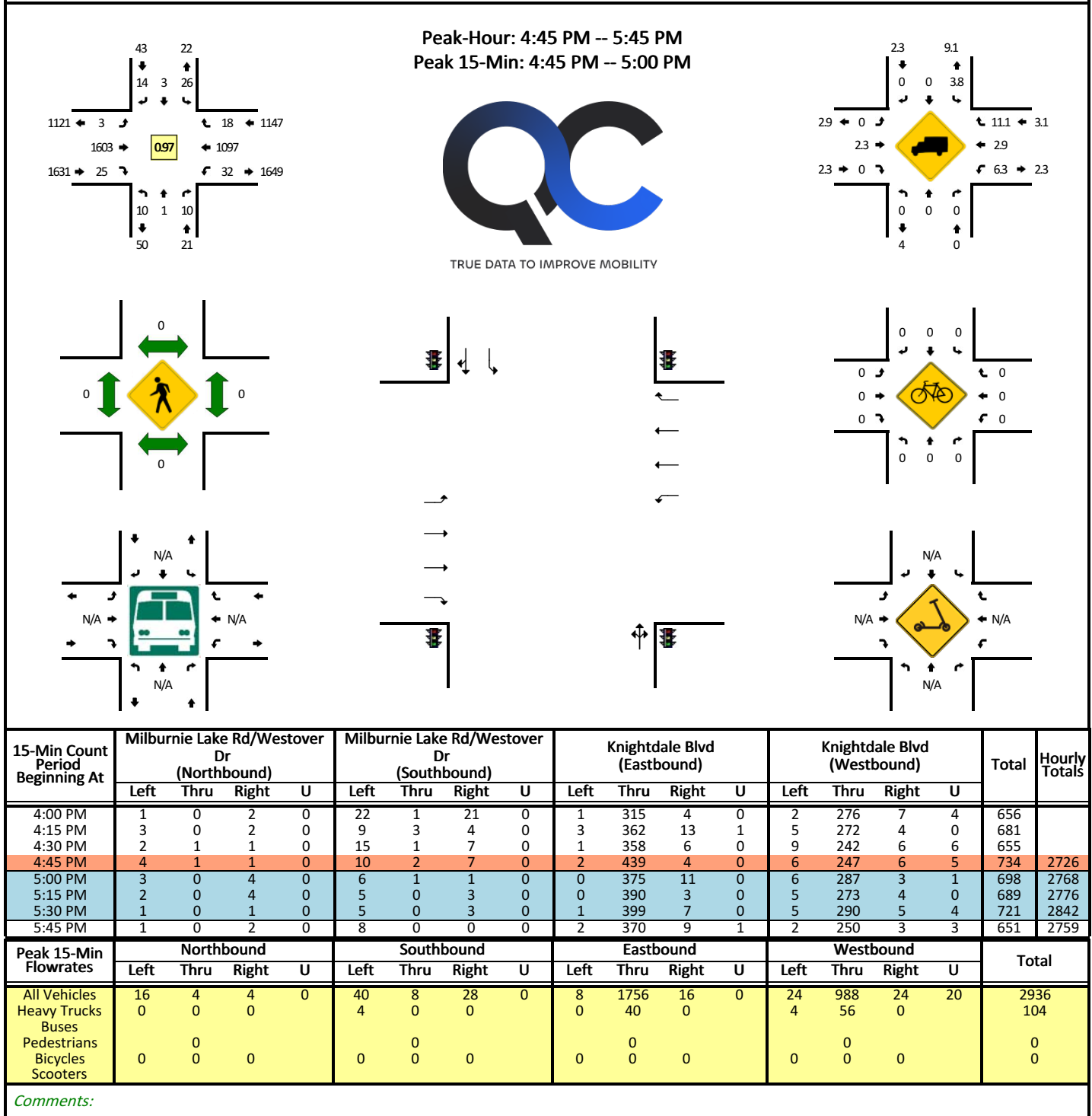
LOCATION: Milburnie Lake Rd/Westover Dr -- Knightdale Blvd
CITY/STATE: Wake, NC

QC JOB #: 17468703
DATE: Wed, Feb 25 2026



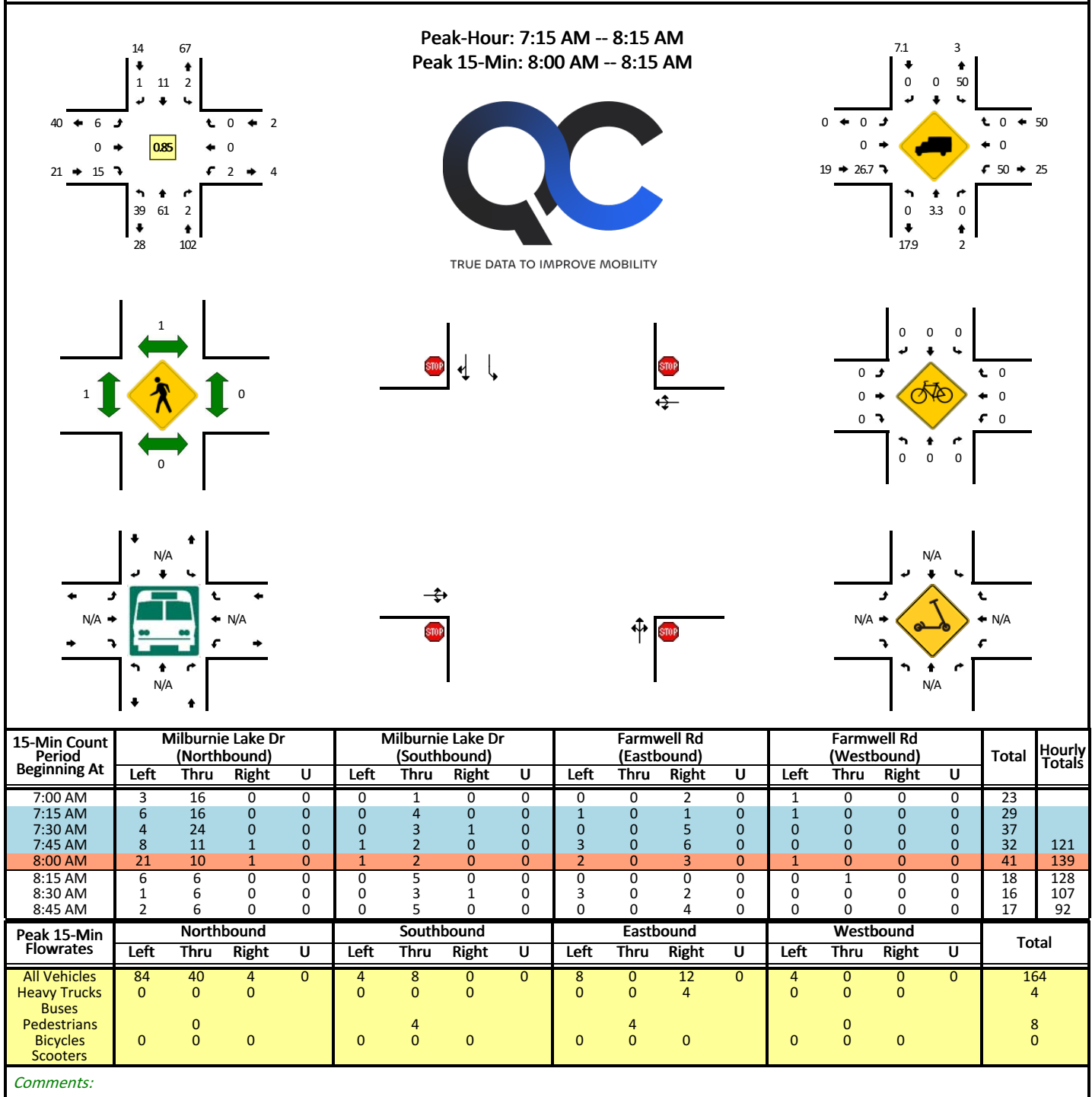
LOCATION: Milburnie Lake Rd/Westover Dr -- Knightdale Blvd
CITY/STATE: Wake, NC

QC JOB #: 17468704
DATE: Wed, Feb 25 2026



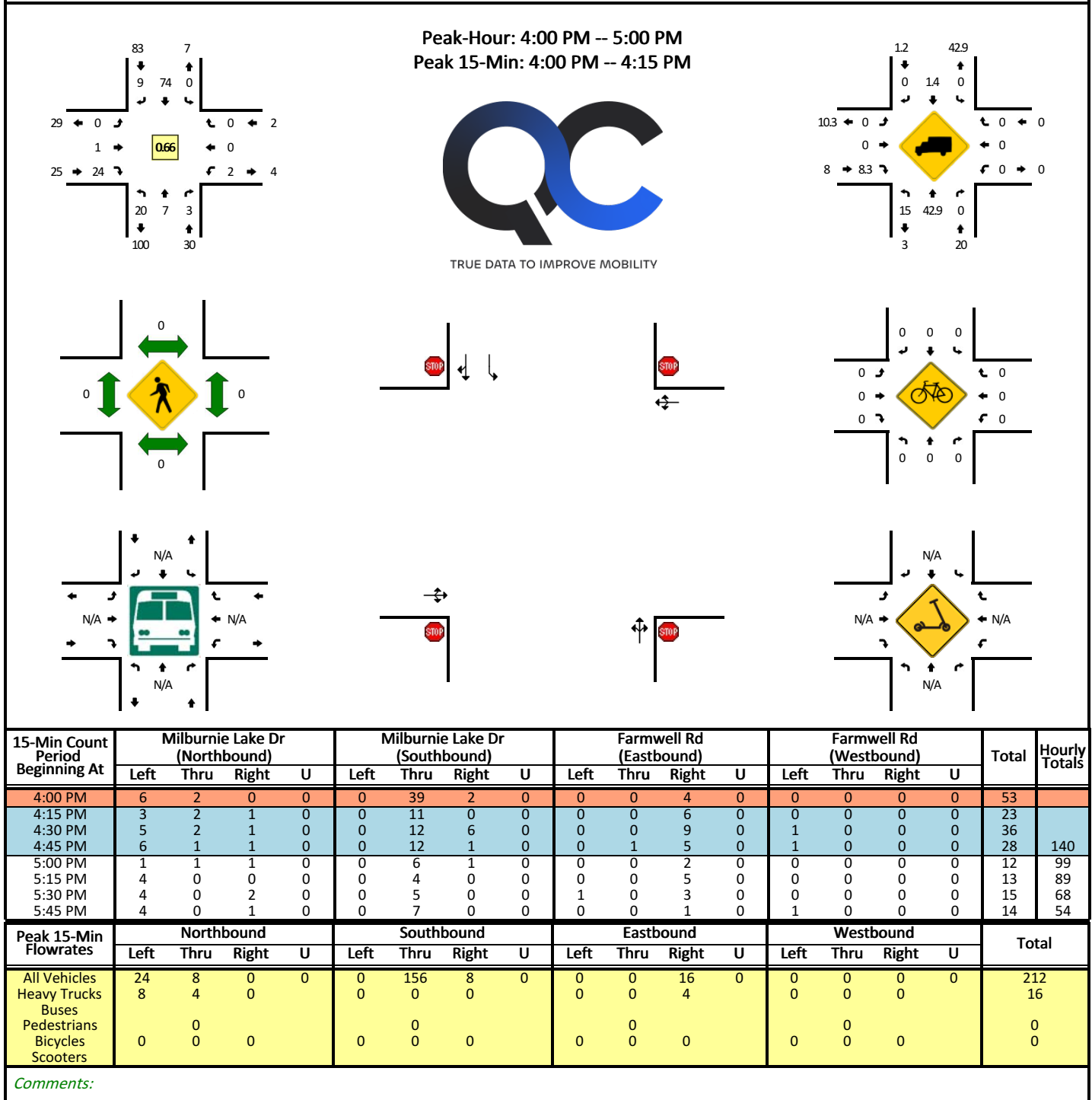
LOCATION: Milburnie Lake Dr -- Farmwell Rd
CITY/STATE: Wake, NC

QC JOB #: 17468713
DATE: Wed, Feb 25 2026



LOCATION: Milburnie Lake Dr -- Farmwell Rd
CITY/STATE: Wake, NC

QC JOB #: 17468714
DATE: Wed, Feb 25 2026



INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #1
US 64 Business (Knightdale Boulevard) at Westover Drive/Farmwell Road

AM PEAK HOUR

	Westover Drive Northbound				Farmwell Road Southbound				US 64 Business (Knightdale Boulevard) Eastbound				US 64 Business (Knightdale Boulevard) Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2026 Traffic Volumes	0	20	2	19	0	20	2	4	0	18	806	11	5	5	1,463	71
Count Balancing						2				11						
Pedestrians	0				0				0				0			
Conflicting Pedestrians	0				0				0				0			
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles	0				0				0				0			
Heavy Vehicles	0	0	0	1	0	3	0	2	0	2	60	0	0	0	71	1
Heavy Vehicle %	2%	2%	2%	5%	2%	15%	2%	50%	2%	11%	7%	2%	2%	2%	5%	2%
Peak Hour Factor	0.91				0.91				0.91				0.91			
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2026 Volumes	0	20	2	19	0	22	2	4	0	29	806	11	5	5	1,463	71
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Growth Factor	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609
Background Growth Trips	0	1	0	1	0	1	0	0	0	2	49	1	0	0	89	4
New Road Adjustment																
Legacy Oaks TIA				0							42			1	67	
Allen Park TIA		0									30	0			14	
River's Edge TIA		0									80	1			36	
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	152	1	0	1	117	0
2028 No-Build Traffic	0	21	2	20	0	23	2	4	0	31	1,007	13	5	6	1,669	75
Trip Distribution IN										40%						60%
Trip Distribution OUT						(60%)		(40%)								
Warehouse Truck Trips	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Trip Distribution IN			5%							35%						55%
Trip Distribution OUT						(55%)	(5%)	(35%)								
Warehouse Car Trips	0	0	2	0	0	3	0	2	0	14	0	0	0	0	0	22
Project Trips (Unbalanced)	0	0	2	0	0	4	0	2	0	14	0	0	0	0	0	23
Balancing Adjustment						1										
Total Vehicular Project Trips	0	0	2	0	0	5	0	2	0	14	0	0	0	0	0	23
2028 Build Traffic	0	21	4	20	0	28	2	6	0	45	1,007	13	5	6	1,669	98
2028 Build Heavy Vehicle %	2%	2%	2%	5%	2%	15%	2%	35%	2%	5%	6%	2%	2%	2%	5%	2%

PM PEAK HOUR

	Westover Drive Northbound				Farmwell Road Southbound				US 64 Business (Knightdale Boulevard) Eastbound				US 64 Business (Knightdale Boulevard) Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2026 Traffic Volumes	0	10	1	10	0	26	3	14	0	9	1,603	25	10	22	1,097	18
Count Balancing						36		22		2						
Pedestrians	0				0				0				0			
Conflicting Pedestrians	0				0				0				0			
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles	0				0				0				0			
Heavy Vehicles	0	0	0	0	0	1	0	0	0	0	37	0	0	2	32	2
Heavy Vehicle %	2%	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	9%	3%	11%
Peak Hour Factor	0.97				0.97				0.97				0.97			
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2026 Volumes	0	10	1	10	0	62	3	36	0	11	1,603	25	10	22	1,097	18
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Growth Factor	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609
Background Growth Trips	0	1	0	1	0	4	0	2	0	1	98	2	1	1	67	1
New Road Adjustment																
Legacy Oaks TIA				1							71			1	50	
Allen Park TIA		1									49	1			68	
River's Edge TIA		1									59	1			73	
Total Approved Development Trips	0	2	0	1	0	0	0	0	0	0	179	2	0	1	191	0
2028 No-Build Traffic	0	13	1	12	0	66	3	38	0	12	1,880	29	11	24	1,355	19
Trip Distribution IN										40%						60%
Trip Distribution OUT						(60%)		(40%)								
Warehouse Truck Trips	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Trip Distribution IN			5%							35%						55%
Trip Distribution OUT						(55%)	(5%)	(35%)								
Warehouse Car Trips	0	0	1	0	0	20	2	13	0	4	0	0	0	0	0	6
Project Trips (Unbalanced)	0	0	1	0	0	21	2	13	0	5	0	0	0	0	0	7
Balancing Adjustment						-1				-1						-1
Total Vehicular Project Trips	0	0	1	0	0	20	2	13	0	4	0	0	0	0	0	6
2028 Build Traffic	0	13	2	12	0	86	5	51	0	16	1,880	29	11	24	1,355	25
2028 Build Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	9%	3%	12%

INTERSECTION VOLUME DEVELOPMENT

INTERSECTION #2
Milburnie Lake Drive at Farmwell Road

AM PEAK HOUR

	Milburnie Lake Drive Northbound				Milburnie Lake Drive Southbound				Farmwell Road Eastbound				Farmwell Road Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2026 Traffic Volumes	0	39	61	2	0	2	11	1	0	6	0	15	0	2	0	0
Count Balancing																
Pedestrians	0				1				1				0			
Conflicting Pedestrians	1				0				1				0			
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles	0				0				0				0			
Heavy Vehicles	0	0	2	0	0	1	0	0	0	0	0	4	0	1	0	0
Heavy Vehicle %	2%	2%	3%	2%	2%	50%	2%	2%	2%	2%	2%	27%	2%	50%	2%	2%
Peak Hour Factor	0.85				0.85				0.85				0.85			
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2026 Volumes	0	39	61	2	0	2	11	1	0	6	0	15	0	2	0	0
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Growth Factor	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609
Background Growth Trips	0	2	4	0	0	0	1	0	0	0	0	1	0	0	0	0
New Road Adjustment																
Legacy Oaks TIA																
Allen Park TIA																
River's Edge TIA																
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2028 No-Build Traffic	0	41	65	2	0	2	12	1	0	6	0	16	0	2	0	0
Trip Distribution IN			100%													
Trip Distribution OUT							(100%)									
Warehouse Truck Trips	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Trip Distribution IN			95%							5%						
Trip Distribution OUT							(95%)	(5%)								
Warehouse Car Trips	0	0	38	0	0	0	6	0	0	2	0	0	0	0	0	0
Project Trips (Unbalanced)	0	0	39	0	0	0	7	0	0	2	0	0	0	0	0	0
Balancing Adjustment																
Total Vehicular Project Trips	0	0	39	0	0	0	7	0	0	2	0	0	0	0	0	0
2028 Build Traffic	0	41	104	2	0	2	19	1	0	8	0	16	0	2	0	0
2028 Build Heavy Vehicle %	2%	2%	3%	2%	2%	50%	5%	2%	2%	2%	2%	27%	2%	50%	2%	2%

PM PEAK HOUR

	Milburnie Lake Drive Northbound				Milburnie Lake Drive Southbound				Farmwell Road Eastbound				Farmwell Road Westbound			
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
Observed 2026 Traffic Volumes	0	20	7	3	0	0	74	9	0	0	1	24	0	2	0	0
Count Balancing							1									
Pedestrians	0				0				0				0			
Conflicting Pedestrians	0			0	0			0	0			0	0			0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conflicting Bicycles	0				0				0				0			
Heavy Vehicles	0	3	3	0	0	0	1	0	0	0	0	2	0	0	0	0
Heavy Vehicle %	2%	15%	43%	2%	2%	2%	2%	2%	2%	2%	2%	8%	2%	2%	2%	2%
Peak Hour Factor	0.66				0.66				0.66				0.66			
Adjustment Factor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Adjusted 2026 Volumes	0	20	7	3	0	0	75	9	0	0	1	24	0	2	0	0
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Growth Factor	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609	1.0609
Background Growth Trips	0	1	0	0	0	0	5	1	0	0	0	1	0	0	0	0
New Road Adjustment																
Legacy Oaks TIA																
Allen Park TIA																
River's Edge TIA																
Total Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2028 No-Build Traffic	0	21	7	3	0	0	80	10	0	0	1	25	0	2	0	0
Trip Distribution IN			100%													
Trip Distribution OUT							(100%)									
Warehouse Truck Trips	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
Trip Distribution IN			95%							5%						
Trip Distribution OUT							(95%)	(5%)								
Warehouse Car Trips	0	0	10	0	0	0	34	2	0	1	0	0	0	0	0	0
Project Trips (Unbalanced)	0	0	12	0	0	0	35	2	0	1	0	0	0	0	0	0
Balancing Adjustment			-1													
Total Vehicular Project Trips	0	0	11	0	0	0	35	2	0	1	0	0	0	0	0	0
2028 Build Traffic	0	21	18	3	0	0	115	12	0	1	1	25	0	2	0	0
2028 Build Heavy Vehicle %	2%	15%	29%	2%	2%	2%	2%	2%	2%	2%	2%	8%	2%	2%	2%	2%

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	29	806	11	5	5	1463	71	20	4	19	22	4
Future Volume (vph)	29	806	11	5	5	1463	71	20	4	19	22	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				-1%			2%			3%
Storage Length (ft)	225		200		200		150	0		0	0	
Storage Lanes	1		1		1		1	0		0	1	
Taper Length (ft)	100				100			25			25	
Satd. Flow (prot)	1610	3340	1568	0	1778	3455	1591	0	1672	0	1546	1374
Flt Permitted	0.112				0.286				0.847		0.820	
Satd. Flow (perm)	190	3340	1568	0	535	3455	1591	0	1449	0	1334	1374
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			90				91		21			4
Link Speed (mph)		45				45			25			25
Link Distance (ft)		891				823			712			123
Travel Time (s)		13.5				12.5			19.4			3.4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	11%	7%	2%	2%	2%	5%	2%	2%	2%	5%	15%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	886	12	0	10	1608	78	0	47	0	24	8
Turn Type	D.P+P	NA	Perm	D.P+P	pm+pt	NA	Perm	D.Pm	NA		D.Pm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	6		2	2	6		6	4			8	
Detector Phase	5	2	2	1	1	6	6	4	8		8	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0
Minimum Split (s)	15.0	20.0	20.0	15.0	15.0	20.0	20.0	15.0	15.0		15.0	15.0
Total Split (s)	15.0	89.0	89.0	15.0	15.0	89.0	89.0	16.0	16.0		16.0	16.0
Total Split (%)	12.5%	74.2%	74.2%	12.5%	12.5%	74.2%	74.2%	13.3%	13.3%		13.3%	13.3%
Yellow Time (s)	3.0	4.6	4.6	3.0	3.0	4.6	4.6	3.7	3.1		3.1	3.7
All-Red Time (s)	3.2	1.9	1.9	3.4	3.4	1.9	1.9	2.5	3.4		3.4	2.5
Lost Time Adjust (s)	-1.2	-1.5	-1.5		-1.4	-1.5	-1.5		-1.5		-1.5	1.2
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0		5.0		5.0	7.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)	100.7	101.1	101.1		93.7	94.7	94.7		10.0		10.0	7.8
Actuated g/C Ratio	0.84	0.84	0.84		0.78	0.79	0.79		0.08		0.08	0.07
v/c Ratio	0.12	0.32	0.01		0.02	0.59	0.06		0.34		0.22	0.09
Control Delay (s/veh)	3.5	3.5	0.0		5.4	8.4	1.0		39.8		56.0	42.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0
Total Delay (s/veh)	3.5	3.5	0.0		5.4	8.4	1.0		39.8		56.0	42.3
LOS	A	A	A		A	A	A		D		E	D
Approach Delay (s/veh)		3.4				8.1			39.8			52.5
Approach LOS		A				A			D			D
Queue Length 50th (ft)	3	65	0		2	332	0		20		20	3
Queue Length 95th (ft)	9	165	0		7	415	11		59		51	20
Internal Link Dist (ft)		811				743			632			43
Turn Bay Length (ft)	225		200		200		150					

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	50%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	276	2812	1334		521	2727	1275		151		122	102
Starvation Cap Reductn	0	0	0		0	0	0		0		0	0
Spillback Cap Reductn	0	0	0		0	0	0		0		0	0
Storage Cap Reductn	0	0	0		0	0	0		0		0	0
Reduced v/c Ratio	0.12	0.32	0.01		0.02	0.59	0.06		0.31		0.20	0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay (s/veh): 7.6

Intersection LOS: A

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)





Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Adams Assemblage
2: Farmwell Road & Milburnie Lake Drive

Existing (2026) AM
04/15/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	15	4	4	4	39	61	4	4	11	4
Future Volume (vph)	6	4	15	4	4	4	39	61	4	4	11	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		225
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			75		
Satd. Flow (prot)	0	1474	0	0	1513	0	0	1810	0	0	3071	0
Flt Permitted		0.988			0.984			0.982			0.989	
Satd. Flow (perm)	0	1474	0	0	1513	0	0	1810	0	0	3071	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		613			657			123			618	
Travel Time (s)		11.9			12.8			3.4			16.9	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	27%	50%	2%	2%	2%	3%	2%	50%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	0	0	15	0	0	123	0	0	23	0
Sign Control		Stop			Stop			Free			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.6%						ICU Level of Service A					
Analysis Period (min)	15											

2: Farmwell Road & Milburnie Lake Drive Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	1.6	0.2
Total Del/Veh (s)	10.0	7.2	0.4	9.7	3.5

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	11	1603	25	10	22	1097	18	10	4	10	62	4
Future Volume (vph)	11	1603	25	10	22	1097	18	10	4	10	62	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				-1%			2%			3%
Storage Length (ft)	225		200		200		150	0		0	0	
Storage Lanes	1		1		1		1	0		0	1	
Taper Length (ft)	100				100			25			25	
Satd. Flow (prot)	1752	3504	1568	0	1697	3522	1462	0	1706	0	1710	1587
Flt Permitted	0.227				0.105				0.862		0.742	
Satd. Flow (perm)	419	3504	1568	0	188	3522	1462	0	1501	0	1335	1587
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			77				78		10			37
Link Speed (mph)		45				45			25			25
Link Distance (ft)		891				823			712			123
Travel Time (s)		13.5				12.5			19.4			3.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	9%	3%	11%	2%	2%	2%	4%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	1653	26	0	33	1131	19	0	24	0	64	41
Turn Type	D.P+P	NA	Perm	D.P+P	pm+pt	NA	Perm	D.Pm	NA		D.Pm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	6		2	2	6		6	4			8	
Detector Phase	5	2	2	1	1	6	6	4	8		8	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0
Minimum Split (s)	15.0	20.0	20.0	15.0	15.0	20.0	20.0	15.0	15.0		15.0	15.0
Total Split (s)	15.0	85.0	85.0	15.0	15.0	85.0	85.0	40.0	40.0		40.0	40.0
Total Split (%)	10.7%	60.7%	60.7%	10.7%	10.7%	60.7%	60.7%	28.6%	28.6%		28.6%	28.6%
Yellow Time (s)	3.0	4.6	4.6	3.0	3.0	4.6	4.6	3.7	3.1		3.1	3.7
All-Red Time (s)	3.2	1.9	1.9	3.4	3.4	1.9	1.9	2.5	3.4		3.4	2.5
Lost Time Adjust (s)	-1.2	-1.5	-1.5		-1.4	-1.5	-1.5		-1.5		-1.5	1.2
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0		5.0		5.0	7.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)	118.8	112.8	112.8		113.8	114.8	114.8		12.9		12.9	10.7
Actuated g/C Ratio	0.85	0.81	0.81		0.81	0.82	0.82		0.09		0.09	0.08
v/c Ratio	0.03	0.59	0.02		0.14	0.39	0.02		0.16		0.52	0.26
Control Delay (s/veh)	2.7	8.5	0.0		6.2	5.8	0.0		41.0		74.8	24.0
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0
Total Delay (s/veh)	2.7	8.5	0.0		6.2	5.8	0.0		41.0		74.8	24.0
LOS	A	A	A		A	A	A		D		E	C
Approach Delay (s/veh)		8.4				5.7			41.0			54.9
Approach LOS		A				A			D			D
Queue Length 50th (ft)	1	348	0		4	103	0		12		59	4
Queue Length 95th (ft)	6	484	0		21	276	0		41		108	41
Internal Link Dist (ft)		811				743			632			43
Turn Bay Length (ft)	225		200		200		150					

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	36
Future Volume (vph)	36
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	448	2822	1278		260	2888	1213		382		333	397
Starvation Cap Reductn	0	0	0		0	0	0		0		0	0
Spillback Cap Reductn	0	0	0		0	0	0		0		0	0
Storage Cap Reductn	0	0	0		0	0	0		0		0	0
Reduced v/c Ratio	0.02	0.59	0.02		0.13	0.39	0.02		0.06		0.19	0.10

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 20 (14%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay (s/veh): 9.2

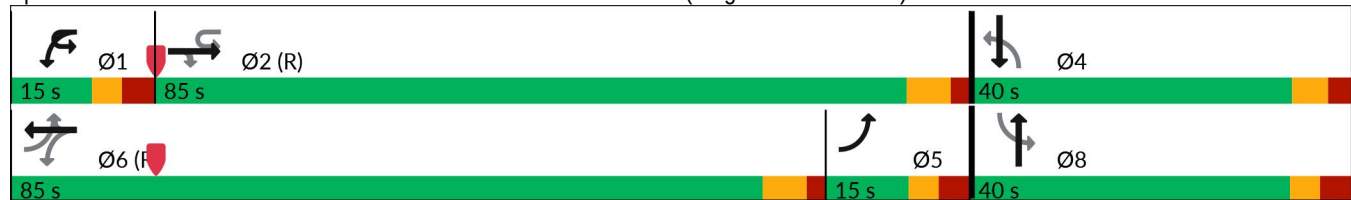
Intersection LOS: A

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)





Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Adams Assemblage
2: Farmwell Road & Milburnie Lake Drive

Existing (2026) PM
04/15/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	24	4	4	4	20	7	4	4	75	9
Future Volume (vph)	4	4	24	4	4	4	20	7	4	4	75	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		225
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			75		
Satd. Flow (prot)	0	1594	0	0	1750	0	0	1510	0	0	3476	0
Flt Permitted		0.994			0.984			0.969			0.998	
Satd. Flow (perm)	0	1594	0	0	1750	0	0	1510	0	0	3476	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		613			657			123			618	
Travel Time (s)		11.9			12.8			3.4			16.9	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	2%	2%	8%	2%	2%	2%	15%	43%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	18	0	0	47	0	0	134	0
Sign Control		Stop			Stop			Free			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 18.4%

ICU Level of Service A

Analysis Period (min) 15

2: Farmwell Road & Milburnie Lake Drive Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	1.8	1.0
Total Del/Veh (s)	20.5	9.0	0.5	21.3	15.7

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	31	1007	13	5	6	1669	75	21	4	20	23	4
Future Volume (vph)	31	1007	13	5	6	1669	75	21	4	20	23	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				-1%			2%			3%
Storage Length (ft)	225		200		200		150	0		0	0	
Storage Lanes	1		1		1		1	0		0	1	
Taper Length (ft)	100				100			25			25	
Satd. Flow (prot)	1610	3340	1568	0	1778	3455	1591	0	1670	0	1546	1374
Flt Permitted	0.079				0.217				0.846		0.808	
Satd. Flow (perm)	134	3340	1568	0	406	3455	1591	0	1446	0	1315	1374
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			90				91		22			4
Link Speed (mph)		45				45			25			25
Link Distance (ft)		891				823			712			123
Travel Time (s)		13.5				12.5			19.4			3.4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	11%	7%	2%	2%	2%	5%	2%	2%	2%	5%	15%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	1107	14	0	12	1834	82	0	49	0	25	8
Turn Type	D.P+P	NA	Perm	D.P+P	pm+pt	NA	Perm	D.Pm	NA		D.Pm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	6		2	2	6		6	4			8	
Detector Phase	5	2	2	1	1	6	6	4	8		8	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0
Minimum Split (s)	15.0	20.0	20.0	15.0	15.0	20.0	20.0	15.0	15.0		15.0	15.0
Total Split (s)	15.0	89.0	89.0	15.0	15.0	89.0	89.0	16.0	16.0		16.0	16.0
Total Split (%)	12.5%	74.2%	74.2%	12.5%	12.5%	74.2%	74.2%	13.3%	13.3%		13.3%	13.3%
Yellow Time (s)	3.0	4.6	4.6	3.0	3.0	4.6	4.6	3.7	3.1		3.1	3.7
All-Red Time (s)	3.2	1.9	1.9	3.4	3.4	1.9	1.9	2.5	3.4		3.4	2.5
Lost Time Adjust (s)	-1.2	-1.5	-1.5		-1.4	-1.5	-1.5		-1.5		-1.5	1.2
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0		5.0		5.0	7.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)	100.7	98.4	98.4		93.7	94.7	94.7		10.0		10.0	7.8
Actuated g/C Ratio	0.84	0.82	0.82		0.78	0.79	0.79		0.08		0.08	0.07
v/c Ratio	0.15	0.40	0.01		0.03	0.67	0.06		0.35		0.23	0.09
Control Delay (s/veh)	4.7	5.0	0.0		5.4	10.0	1.1		40.0		56.4	42.3
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0
Total Delay (s/veh)	4.7	5.0	0.0		5.4	10.0	1.1		40.0		56.4	42.3
LOS	A	A	A		A	B	A		D		E	D
Approach Delay (s/veh)		4.9				9.6			40.0			53.0
Approach LOS		A				A			D			D
Queue Length 50th (ft)	4	90	0		2	431	0		20		21	3
Queue Length 95th (ft)	9	223	0		9	540	13		61		53	20
Internal Link Dist (ft)		811				743			632			43
Turn Bay Length (ft)	225		200		200		150					

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	50%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	234	2738	1301		431	2727	1275		152		120	102
Starvation Cap Reductn	0	0	0		0	0	0		0		0	0
Spillback Cap Reductn	0	0	0		0	0	0		0		0	0
Storage Cap Reductn	0	0	0		0	0	0		0		0	0
Reduced v/c Ratio	0.15	0.40	0.01		0.03	0.67	0.06		0.32		0.21	0.08

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay (s/veh): 8.8

Intersection LOS: A

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)





Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Adams Assemblage
2: Farmwell Road & Milburnie Lake Drive

Background (2028) AM
04/15/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	4	16	4	4	4	41	65	4	4	12	4
Future Volume (vph)	6	4	16	4	4	4	41	65	4	4	12	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		225
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			75		
Satd. Flow (prot)	0	1469	0	0	1513	0	0	1810	0	0	3092	0
Flt Permitted		0.989			0.984			0.982			0.990	
Satd. Flow (perm)	0	1469	0	0	1513	0	0	1810	0	0	3092	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		613			657			123			618	
Travel Time (s)		11.9			12.8			3.4			16.9	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	27%	50%	2%	2%	2%	3%	2%	50%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	15	0	0	129	0	0	24	0
Sign Control		Stop			Stop			Free			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.9%											
Analysis Period (min)	15											
	ICU Level of Service A											

2: Farmwell Road & Milburnie Lake Drive Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	1.6	0.2
Total Del/Veh (s)	10.8	6.9	0.6	15.0	4.3

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	12	1880	29	11	24	1355	19	13	4	12	66	4
Future Volume (vph)	12	1880	29	11	24	1355	19	13	4	12	66	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				-1%			2%			3%
Storage Length (ft)	225		200		200		150	0		0	0	
Storage Lanes	1		1		1		1	0		0	1	
Taper Length (ft)	100				100			25			25	
Satd. Flow (prot)	1752	3504	1568	0	1698	3522	1462	0	1703	0	1710	1585
Flt Permitted	0.163				0.062				0.848		0.738	
Satd. Flow (perm)	301	3504	1568	0	111	3522	1462	0	1476	0	1328	1585
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			77				78		12			39
Link Speed (mph)		45				45			25			25
Link Distance (ft)		891				823			712			123
Travel Time (s)		13.5				12.5			19.4			3.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	2%	9%	3%	11%	2%	2%	2%	4%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1938	30	0	36	1397	20	0	29	0	68	43
Turn Type	D.P+P	NA	Perm	D.P+P	pm+pt	NA	Perm	D.Pm	NA		D.Pm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	6		2	2	6		6	4			8	
Detector Phase	5	2	2	1	1	6	6	4	8		8	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0
Minimum Split (s)	15.0	20.0	20.0	15.0	15.0	20.0	20.0	15.0	15.0		15.0	15.0
Total Split (s)	15.0	85.0	85.0	15.0	15.0	85.0	85.0	40.0	40.0		40.0	40.0
Total Split (%)	10.7%	60.7%	60.7%	10.7%	10.7%	60.7%	60.7%	28.6%	28.6%		28.6%	28.6%
Yellow Time (s)	3.0	4.6	4.6	3.0	3.0	4.6	4.6	3.7	3.1		3.1	3.7
All-Red Time (s)	3.2	1.9	1.9	3.4	3.4	1.9	1.9	2.5	3.4		3.4	2.5
Lost Time Adjust (s)	-1.2	-1.5	-1.5		-1.4	-1.5	-1.5		-1.5		-1.5	1.2
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0		5.0		5.0	7.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)	118.4	109.7	109.7		113.4	114.4	114.4		13.3		13.3	11.2
Actuated g/C Ratio	0.85	0.78	0.78		0.81	0.82	0.82		0.10		0.10	0.08
v/c Ratio	0.03	0.71	0.02		0.19	0.49	0.02		0.19		0.54	0.27
Control Delay (s/veh)	3.1	12.1	0.0		7.5	6.9	0.0		40.9		75.1	23.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0
Total Delay (s/veh)	3.1	12.1	0.0		7.5	6.9	0.0		40.9		75.1	23.1
LOS	A	B	A		A	A	A		D		E	C
Approach Delay (s/veh)		11.8				6.8			40.9			54.9
Approach LOS		B				A			D			D
Queue Length 50th (ft)	1	491	0		5	148	0		15		62	4
Queue Length 95th (ft)	6	684	0		23	386	0		46		112	42
Internal Link Dist (ft)		811				743			632			43
Turn Bay Length (ft)	225		200		200		150					

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	38
Future Volume (vph)	38
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	355	2744	1244		203	2877	1208		378		332	398
Starvation Cap Reductn	0	0	0		0	0	0		0		0	0
Spillback Cap Reductn	0	0	0		0	0	0		0		0	0
Storage Cap Reductn	0	0	0		0	0	0		0		0	0
Reduced v/c Ratio	0.03	0.71	0.02		0.18	0.49	0.02		0.08		0.20	0.11

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 20 (14%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay (s/veh): 11.4

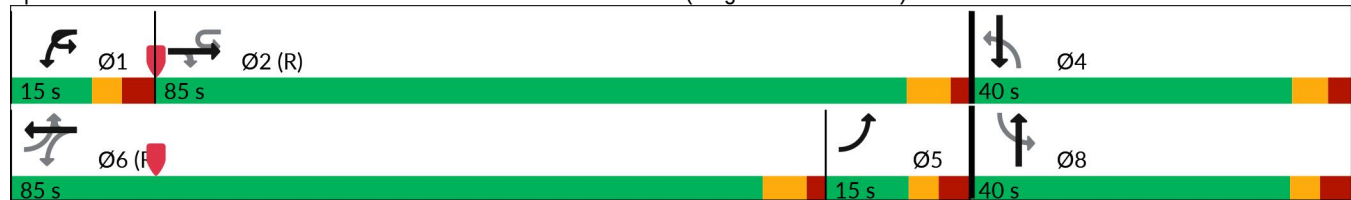
Intersection LOS: B

Intersection Capacity Utilization 69.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)





Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Adams Assemblage
2: Farmwell Road & Milburnie Lake Drive

Background (2028) PM
04/15/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	25	4	4	4	21	7	4	4	80	10
Future Volume (vph)	4	4	25	4	4	4	21	7	4	4	80	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		225
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			75		
Satd. Flow (prot)	0	1590	0	0	1750	0	0	1510	0	0	3476	0
Flt Permitted		0.994			0.984			0.968			0.998	
Satd. Flow (perm)	0	1590	0	0	1750	0	0	1510	0	0	3476	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		613			657			123			618	
Travel Time (s)		11.9			12.8			3.4			16.9	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	2%	2%	8%	2%	2%	2%	15%	43%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	0	0	18	0	0	49	0	0	142	0
Sign Control	Stop				Stop		Free				Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 18.4%												
ICU Level of Service A												
Analysis Period (min) 15												

2: Farmwell Road & Milburnie Lake Drive Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	1.8	0.9
Total Del/Veh (s)	21.0	10.1	0.6	26.1	18.0

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	45	1007	13	5	6	1669	98	21	4	20	28	4
Future Volume (vph)	45	1007	13	5	6	1669	98	21	4	20	28	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				-1%			2%			3%
Storage Length (ft)	225		200		200		150	0		0	0	
Storage Lanes	1		1		1		1	0		0	1	
Taper Length (ft)	100				100			25			25	
Satd. Flow (prot)	1702	3372	1568	0	1778	3455	1591	0	1670	0	1546	1377
Flt Permitted	0.073				0.215				0.845		0.808	
Satd. Flow (perm)	131	3372	1568	0	402	3455	1591	0	1444	0	1315	1377
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			90				91		22			7
Link Speed (mph)		45				45			25			25
Link Distance (ft)		891				823			712			123
Travel Time (s)		13.5				12.5			19.4			3.4
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	6%	2%	2%	2%	5%	2%	2%	2%	5%	15%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	1107	14	0	12	1834	108	0	49	0	31	11
Turn Type	D.P+P	NA	Perm	D.P+P	pm+pt	NA	Perm	D.Pm	NA		D.Pm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	6		2	2	6		6	4			8	
Detector Phase	5	2	2	1	1	6	6	4	8		8	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0
Minimum Split (s)	15.0	20.0	20.0	15.0	15.0	20.0	20.0	15.0	15.0		15.0	15.0
Total Split (s)	15.0	89.0	89.0	15.0	15.0	89.0	89.0	16.0	16.0		16.0	16.0
Total Split (%)	12.5%	74.2%	74.2%	12.5%	12.5%	74.2%	74.2%	13.3%	13.3%		13.3%	13.3%
Yellow Time (s)	3.0	4.6	4.6	3.0	3.0	4.6	4.6	3.7	3.1		3.1	3.7
All-Red Time (s)	3.2	1.9	1.9	3.4	3.4	1.9	1.9	2.5	3.4		3.4	2.5
Lost Time Adjust (s)	-1.2	-1.5	-1.5		-1.4	-1.5	-1.5		-1.5		-1.5	1.2
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0		5.0		5.0	7.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Act Effct Green (s)	99.7	98.3	98.3		90.7	91.7	91.7		10.0		10.0	7.8
Actuated g/C Ratio	0.83	0.82	0.82		0.76	0.76	0.76		0.08		0.08	0.07
v/c Ratio	0.21	0.40	0.01		0.03	0.69	0.09		0.35		0.28	0.11
Control Delay (s/veh)	6.9	5.0	0.0		5.5	11.5	1.7		40.0		58.3	37.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0
Total Delay (s/veh)	6.9	5.0	0.0		5.5	11.5	1.7		40.0		58.3	37.8
LOS	A	A	A		A	B	A		D		E	D
Approach Delay (s/veh)		5.0				10.9			40.0			52.9
Approach LOS		A				B			D			D
Queue Length 50th (ft)	5	88	0		2	431	4		20		26	3
Queue Length 95th (ft)	12	220	0		9	540	20		61		62	23
Internal Link Dist (ft)		811				743			632			43
Turn Bay Length (ft)	225		200		200		150					

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.91
Heavy Vehicles (%)	35%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	238	2763	1301		418	2640	1237		152		120	105
Starvation Cap Reductn	0	0	0		0	0	0		0		0	0
Spillback Cap Reductn	0	0	0		0	0	0		0		0	0
Storage Cap Reductn	0	0	0		0	0	0		0		0	0
Reduced v/c Ratio	0.21	0.40	0.01		0.03	0.69	0.09		0.32		0.26	0.10

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 9.7

Intersection LOS: A

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)





Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Adams Assemblage
2: Farmwell Road & Milburnie Lake Drive

Build (2028) AM
07/08/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	4	16	4	4	4	41	104	4	4	19	4
Future Volume (vph)	8	4	16	4	4	4	41	104	4	4	19	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		225
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			75		
Satd. Flow (prot)	0	1485	0	0	1513	0	0	1817	0	0	3136	0
Flt Permitted		0.987			0.984			0.986			0.992	
Satd. Flow (perm)	0	1485	0	0	1513	0	0	1817	0	0	3136	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		613			657			123			618	
Travel Time (s)		11.9			12.8			3.4			16.9	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	2%	27%	50%	2%	2%	2%	3%	2%	50%	5%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	15	0	0	175	0	0	32	0
Sign Control		Stop			Stop			Free			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.0%						ICU Level of Service A					
Analysis Period (min)	15											

2: Farmwell Road & Milburnie Lake Drive Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.1	1.5	0.3
Total Del/Veh (s)	20.7	9.0	0.6	18.5	5.9

												
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	16	1880	29	11	24	1355	25	13	4	12	86	5
Future Volume (vph)	16	1880	29	11	24	1355	25	13	4	12	86	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%				-1%			2%			3%
Storage Length (ft)	225		200		200		150	0		0	0	
Storage Lanes	1		1		1		1	0		0	1	
Taper Length (ft)	100				100			25			25	
Satd. Flow (prot)	1686	3504	1568	0	1698	3522	1449	0	1703	0	1743	1583
Flt Permitted	0.157				0.056				0.860		0.738	
Satd. Flow (perm)	279	3504	1568	0	100	3522	1449	0	1497	0	1354	1583
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			77				78		12			53
Link Speed (mph)		45				45			25			25
Link Distance (ft)		891				823			712			123
Travel Time (s)		13.5				12.5			19.4			3.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	6%	2%	2%	2%	9%	3%	12%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1938	30	0	36	1397	26	0	29	0	89	58
Turn Type	D.P+P	NA	Perm	D.P+P	pm+pt	NA	Perm	D.Pm	NA		D.Pm	NA
Protected Phases	5	2		1	1	6			8			4
Permitted Phases	6		2	2	6		6	4			8	
Detector Phase	5	2	2	1	1	6	6	4	8		8	4
Switch Phase												
Minimum Initial (s)	7.0	12.0	12.0	7.0	7.0	12.0	12.0	7.0	7.0		7.0	7.0
Minimum Split (s)	15.0	20.0	20.0	15.0	15.0	20.0	20.0	15.0	15.0		15.0	15.0
Total Split (s)	15.0	85.0	85.0	15.0	15.0	85.0	85.0	40.0	40.0		40.0	40.0
Total Split (%)	10.7%	60.7%	60.7%	10.7%	10.7%	60.7%	60.7%	28.6%	28.6%		28.6%	28.6%
Yellow Time (s)	3.0	4.6	4.6	3.0	3.0	4.6	4.6	3.7	3.1		3.1	3.7
All-Red Time (s)	3.2	1.9	1.9	3.4	3.4	1.9	1.9	2.5	3.4		3.4	2.5
Lost Time Adjust (s)	-1.2	-1.5	-1.5		-1.4	-1.5	-1.5		-1.5		-1.5	1.2
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0	5.0		5.0		5.0	7.4
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	None	None	C-Max	C-Max	None	None		None	None
Act Effect Green (s)	112.7	104.0	104.0		108.7	108.7	108.7		15.3		15.3	12.9
Actuated g/C Ratio	0.81	0.74	0.74		0.78	0.78	0.78		0.11		0.11	0.09
v/c Ratio	0.05	0.74	0.03		0.21	0.51	0.02		0.17		0.61	0.30
Control Delay (s/veh)	3.8	14.2	0.0		8.6	8.1	0.0		38.6		75.5	20.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0
Total Delay (s/veh)	3.8	14.2	0.0		8.6	8.1	0.0		38.6		75.5	20.1
LOS	A	B	A		A	A	A		D		E	C
Approach Delay (s/veh)		13.9				8.0			38.6			53.6
Approach LOS		B				A			D			D
Queue Length 50th (ft)	2	523	0		5	165	0		14		80	4
Queue Length 95th (ft)	8	735	0		24	414	0		45		135	48
Internal Link Dist (ft)		811				743			632			43
Turn Bay Length (ft)	225		200		200		150					

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	51
Future Volume (vph)	51
Ideal Flow (vphpl)	1900
Grade (%)	
Storage Length (ft)	0
Storage Lanes	0
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.97
Heavy Vehicles (%)	2%
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay (s/veh)	
Queue Delay	
Total Delay (s/veh)	
LOS	
Approach Delay (s/veh)	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	



Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Base Capacity (vph)	325	2602	1184		191	2734	1142		383		338	409
Starvation Cap Reductn	0	0	0		0	0	0		0		0	0
Spillback Cap Reductn	0	0	0		0	0	0		0		0	0
Storage Cap Reductn	0	0	0		0	0	0		0		0	0
Reduced v/c Ratio	0.05	0.74	0.03		0.19	0.51	0.02		0.08		0.26	0.14

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 20 (14%), Referenced to phase 2:EBWB and 6:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 13.3

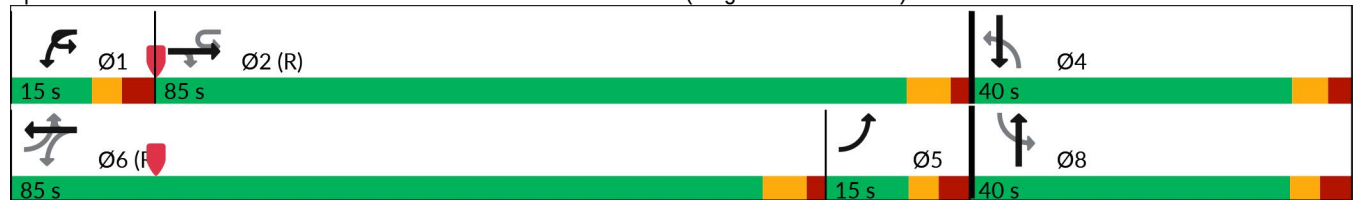
Intersection LOS: B

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)





Lane Group	SBR
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Adams Assemblage
2: Farmwell Road & Milburnie Lake Drive

Build (2028) PM
07/08/2026

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	25	4	4	4	21	18	4	4	115	12
Future Volume (vph)	4	4	25	4	4	4	21	18	4	4	115	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		225
Storage Lanes	0		0	0		0	0		0	0		1
Taper Length (ft)	25			25			25			75		
Satd. Flow (prot)	0	1590	0	0	1750	0	0	1532	0	0	3483	0
Flt Permitted		0.994			0.984			0.976			0.998	
Satd. Flow (perm)	0	1590	0	0	1750	0	0	1532	0	0	3483	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		613			657			123			618	
Travel Time (s)		11.9			12.8			3.4			16.9	
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	2%	2%	8%	2%	2%	2%	15%	29%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	0	0	18	0	0	65	0	0	198	0
Sign Control		Stop			Stop			Free			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 20.3%

ICU Level of Service A

Analysis Period (min) 15

2: Farmwell Road & Milburnie Lake Drive Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	1.7	1.0
Total Del/Veh (s)	25.9	10.7	0.5	36.9	25.4

Intersection: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	LTR	L	TR
Maximum Queue (ft)	67	118	57	7	32	256	216	29	99	52	43
Average Queue (ft)	17	35	10	0	5	83	49	5	34	16	7
95th Queue (ft)	47	90	34	3	23	193	138	20	79	42	28
Link Distance (ft)		852	852			788	788		642	24	24
Upstream Blk Time (%)										29	8
Queuing Penalty (veh)										4	1
Storage Bay Dist (ft)	225			200	200			150			
Storage Blk Time (%)						1	0				
Queuing Penalty (veh)						0	0				

Intersection: 2: Farmwell Road & Milburnie Lake Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	59	64	17	57	25
Average Queue (ft)	18	13	1	10	5
95th Queue (ft)	48	42	10	37	20
Link Distance (ft)	566	617	24	587	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				225	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 6

Intersection: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	LTR	L	TR
Maximum Queue (ft)	32	416	314	18	76	245	200	30	64	38	38
Average Queue (ft)	6	172	99	2	25	116	64	3	19	23	18
95th Queue (ft)	22	350	235	11	62	227	153	16	48	37	36
Link Distance (ft)		852	852			788	788		642	24	24
Upstream Blk Time (%)										50	11
Queuing Penalty (veh)										26	6
Storage Bay Dist (ft)	225			200	200			150			
Storage Blk Time (%)		4	1			1	0				
Queuing Penalty (veh)		0	0			0	0				

Intersection: 2: Farmwell Road & Milburnie Lake Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	80	33	18	93	49
Average Queue (ft)	20	9	1	34	19
95th Queue (ft)	54	31	9	75	41
Link Distance (ft)	566	617	24	587	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				225	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 33

Intersection: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	LTR	L	TR
Maximum Queue (ft)	84	154	107	8	37	317	242	38	98	51	46
Average Queue (ft)	21	46	20	1	8	112	68	8	33	17	7
95th Queue (ft)	59	114	66	5	27	245	170	29	77	42	28
Link Distance (ft)		852	852			788	788		642	24	24
Upstream Blk Time (%)										32	7
Queuing Penalty (veh)										5	1
Storage Bay Dist (ft)	225			200	200			150			
Storage Blk Time (%)		0				2	1				
Queuing Penalty (veh)		0				0	1				

Intersection: 2: Farmwell Road & Milburnie Lake Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	58	49	22	51	27
Average Queue (ft)	19	12	1	10	5
95th Queue (ft)	47	39	10	37	22
Link Distance (ft)	566	617	24	587	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				225	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 8

Intersection: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	LTR	L	TR
Maximum Queue (ft)	30	573	519	73	97	303	232	39	74	40	35
Average Queue (ft)	6	233	154	4	33	138	85	4	22	24	18
95th Queue (ft)	21	459	355	45	78	265	186	21	57	36	37
Link Distance (ft)		852	852			788	788		642	24	24
Upstream Blk Time (%)										53	12
Queuing Penalty (veh)										29	7
Storage Bay Dist (ft)	225			200	200			150			
Storage Blk Time (%)		7	3			2	1				
Queuing Penalty (veh)		1	1			1	0				

Intersection: 2: Farmwell Road & Milburnie Lake Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	68	35	16	119	49
Average Queue (ft)	21	9	1	36	18
95th Queue (ft)	53	31	10	87	42
Link Distance (ft)	566	617	24	587	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				225	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 39

Intersection: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	LTR	L	TR
Maximum Queue (ft)	107	149	87	6	36	367	291	112	104	60	45
Average Queue (ft)	38	48	22	0	9	146	92	15	32	21	9
95th Queue (ft)	89	117	65	3	31	308	219	63	76	47	33
Link Distance (ft)		852	852			788	788		642	24	24
Upstream Blk Time (%)										40	9
Queuing Penalty (veh)										8	2
Storage Bay Dist (ft)	225			200	200			150			
Storage Blk Time (%)						3	2				
Queuing Penalty (veh)						0	2				

Intersection: 2: Farmwell Road & Milburnie Lake Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	82	58	26	68	31
Average Queue (ft)	24	11	2	18	8
95th Queue (ft)	63	39	14	51	28
Link Distance (ft)	566	617	24	587	
Upstream Blk Time (%)			1		
Queuing Penalty (veh)			1		
Storage Bay Dist (ft)				225	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 13

Intersection: 1: Westover Drive/Farmwell Road & US 64 Bus (Knightdale Boulevard)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	UL	T	T	R	LTR	L	TR
Maximum Queue (ft)	157	599	516	105	151	374	325	38	67	32	34
Average Queue (ft)	14	279	197	7	36	176	110	4	21	25	20
95th Queue (ft)	78	514	417	65	98	327	242	21	56	34	36
Link Distance (ft)		852	852			788	788		642	24	24
Upstream Blk Time (%)										59	18
Queuing Penalty (veh)										43	13
Storage Bay Dist (ft)	225			200	200			150			
Storage Blk Time (%)		11	6			5	2				
Queuing Penalty (veh)		2	2			2	1				

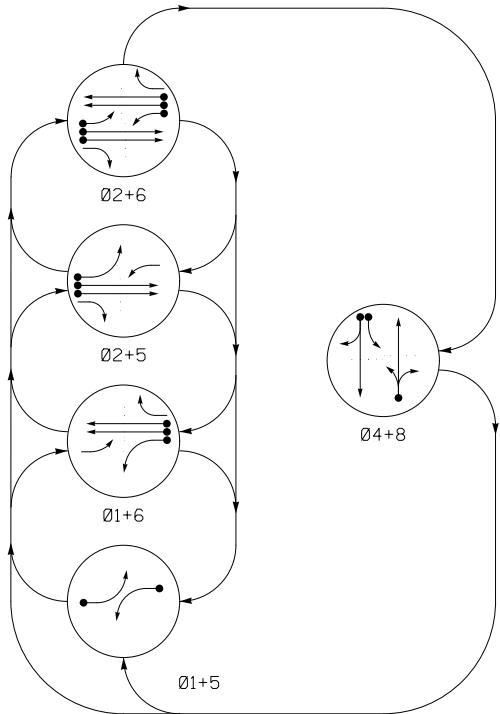
Intersection: 2: Farmwell Road & Milburnie Lake Drive

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	85	33	11	165	119
Average Queue (ft)	23	9	0	58	30
95th Queue (ft)	61	30	7	137	87
Link Distance (ft)	566	617	24	587	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				225	
Storage Blk Time (%)				1	0
Queuing Penalty (veh)				1	0

Network Summary

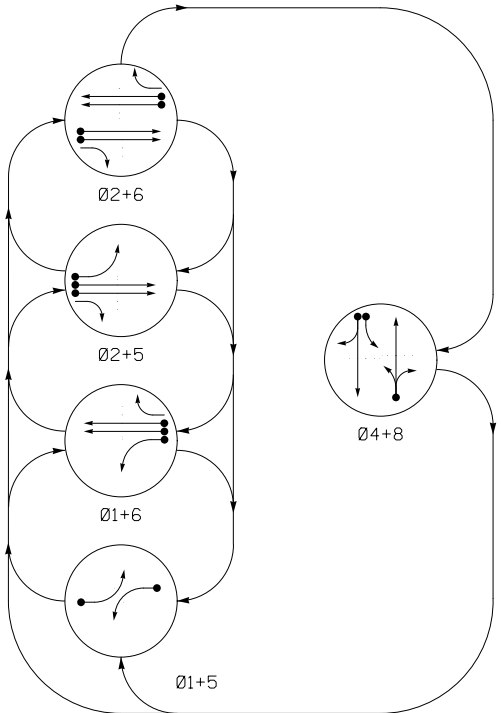
Network wide Queuing Penalty: 62

DEFAULT PHASING DIAGRAM



SIGNAL FACE	PHASE					
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	Ø 4 + 8	F L E E D
11	←	←	←	←	←	←
21, 22	R	R	G	G	R	Y
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	Y
81, 82, 83	R	R	R	R	G	R

ALTERNATE PHASING DIAGRAM



SIGNAL FACE	PHASE					
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	Ø 4 + 8	F L E E D
11	←	←	←	←	←	←
21, 22	R	R	G	G	R	Y
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	Y
81, 82, 83	R	R	R	R	G	R

MAXTIME DETECTOR INSTALLATION CHART

DETECTOR				PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND INITIAL	CALL DELAY DURING GREEN	NEW CARD
1A	6X40	0	2-4-2	X	1 6 #	15*	-	X	-	X
2A	6X6	300	6	X	2	-	-	X	X	X
2B	6X6	300	6	X	2	-	-	X	X	X
4A	6X30	0	2-4-2	X	4	3	-	X	-	X
4B	6X30	0	2-4-2	X	4	10	-	X	-	X
4C	6X40	0	2-4-2	X	4	5	-	X	-	X
4D	6X40	0	2-4-2	X	4	5	-	X	-	X
4E	6X15	0	2-4-2	X	4	15	-	X	-	X
5A	6X40	0	2-4-2	X	5 2 #	15*	-	X	-	X
6A	6X6	300	6	X	6	-	-	X	X	X
6B	6X6	300	6	X	6	-	-	X	X	X
8A	6X40	0	2-4-2	X	8	5	-	X	-	X
8B	6X6	0	4	X	8	10	-	X	-	X

5 Phase
Fully Actuated
(Knightdale Signal System)

NOTES

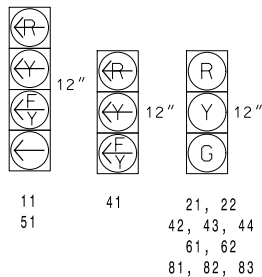
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018, "Standard Specifications for Roads and Structures" dated January 2018, and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: <https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or 5 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing unless otherwise shown.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset # 0930.

PHASING DIAGRAM DETECTION LEGEND

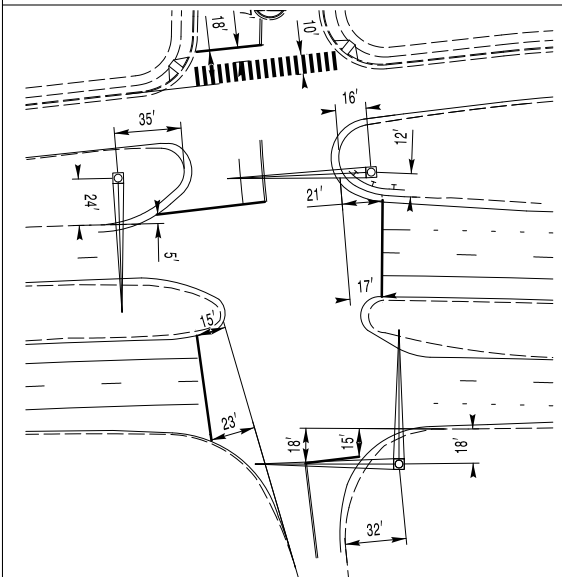
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.

All Heads L.E.D.



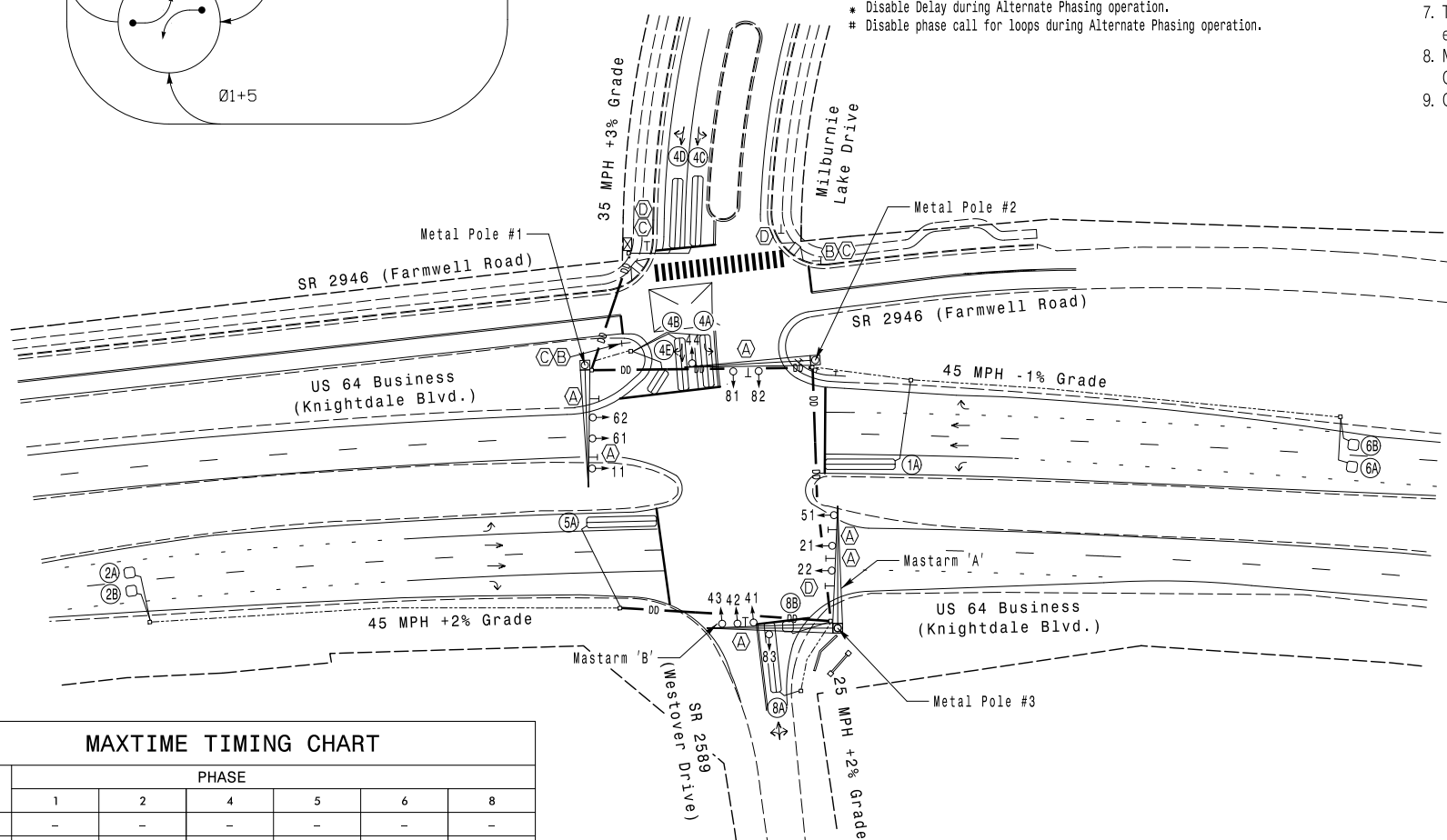
STOPLINE AND POLE LOCATION DIAGRAM



MAXTIME TIMING CHART

FEATURE	PHASE					
	1	2	4	5	6	8
Walk *	-	-	-	-	-	-
Ped Clear *	-	-	-	-	-	-
Min Green	7	12	7	7	12	7
Passage *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	30	120	30	30	30	30
Yellow Change	3.0	4.6	3.7	3.0	4.6	3.1
Red Clear	3.4	1.9	2.5	3.2	1.9	3.4
Added Initial *	-	1.5	-	-	1.5	-
Maximum Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	45	-	-	45	-
Minimum Gap	-	3.0	-	-	3.0	-
Advance Walk	-	-	-	-	-	-
Non Lock Detector	X	-	X	X	-	X
Vehicle Recall	-	MIN RECALL	-	-	MIN RECALL	-
Dual Entry	-	-	X	-	-	X

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



This plan supersedes the plan signed and sealed on 11/20/2023

LEGEND	
PROPOSED	EXISTING
Traffic Signal Head	N/A
Modified Signal Head	N/A
Sign	N/A
Pedestrian Signal Head With Push Button & Sign	N/A
Metal Pole with Mastarm	N/A
Inductive Loop Detector	N/A
Controller & Cabinet	N/A
Junction Box	N/A
2-in Underground Conduit	N/A
Directional Drill	N/A
Right of Way	N/A
Directional Arrow	N/A
Guardrail	N/A
Street Name Sign (D3-1)	N/A
"STOP" Sign (R1-1)	N/A
"DO NOT BLOCK INTERSECTION" Sign (R10-7)	N/A
Pedestrian Crossing Sign (W11-2) w/ Downward Diagonal Arrow (W16-7p)	N/A

NC Dept of Transportation
Division of Highways
Final Drawing Date: 5/10/2024
ITS & Signals Unit

PLANS PREPARED IN THE OFFICE OF:
Kimley-Horn
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

New Installation

US 64 Business(Knightdale Blvd.)
at
SR 2589 (Westover Drive) and
Milburnie Lake Drive

Division 5 Wake County Knightdale

PLAN DATE: September 2022 REVIEWED BY: Stacie Phillips

PREPARED BY: SP Pennington REVIEWED BY:

REVISIONS

INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032607

ENGINEER STACIE L. PHILLIPS

5/10/2024

SIG. INVENTORY NO. 05-0930