KIMLEY-HORN AND ASSOCIATES, INC
NC License #F-0102

MEMORANDUM

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5/19/2021

To:	Mr. Travis Blake NC Building Company, Inc.
From:	Kevin Dean, P.E Kimley-Horn and Associates, Inc,
Date:	May 19, 2021
Subject:	Herndon Farm – Chatham County, NC – Alternative Site Access Traffic Addendum

Kimley-Horn has performed an update to the *Herndon Farm TIA* (Kimley-Horn, July 2020) to evaluate the impact of alternative project access. The original TIA assumed that the development was served via two right-in/right-out driveways on US 15/501 and a full-movement driveway on Vickers Road, while this addendum studied the site without the Vickers Road access in place. A consistent build-out year of 2025 was studied in both analyses.

This report presents trip generation, distribution, traffic analyses, and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the proposed development in the 2025 study year. A limited study area was considered in this addendum analysis as the impacts of the alternative access configuration will not impact most offsite intersections.

Existing and Background Traffic

Projected (2025) background traffic volumes for the AM and PM peak hour traffic volumes were obtained from the original TIA and were not modified for this analysis.

Trip Generation

The trip generation potential of the development for this assessment was determined using the traffic generation data published in the *ITE Trip Generation Handbook* (Institute of Transportation Engineers, Tenth Edition, 2017) and was consistent with approved methodology for the original TIA. The trip generation for the current development plan is summarized in Table 1.

Table 1
ITE Traffic Generation (Vehicles)

Land Use Code	Land Use	Intensity		Daily	AM Peak Hour		PM Peak Hour	
				Total	In	Out	In	Out
251	Senior Adult Housing – Detached	161	d.u.	856	19	40	43	27
253	Congregate Care Facility	140	d.u.	284	11	12	16	12
565	Daycare Center	10,000	s.f.	476	58	52	52	59
Total Net New External Trips				**1,616**	**88**	**104**	**111**	**98**

As shown in Table 1, the development is anticipated to generate approximately 1,616 trips on a typical weekday, with 192 new trips during the AM peak hour and 209 new trips during the PM peak hour.

Site Trip Development and Build-out Traffic

The proposed generated trips were assigned to the surrounding roadway network. The overall directional distribution used for this assessment was consistent with the original TIA, though the site traffic percent assignment was revised to reflect the alternative access configuration and anticipated site traffic U-turns at the existing median break on US 15/501 north of the site at Poplar Street:

- 50% to/from the north on US 15/501
- 40% to/from the south on US 15/501
- 10% to/from the west on Briar Chapel Parkway

The site traffic distribution and percent assignment for the net new site trips are shown on **Figure 1** and projected AM and PM peak hour build-out traffic volumes are shown on **Figures 2** and **3**, respectively.

Capacity Analysis

Capacity analyses were performed using Synchro/SimTraffic Version 10 software. Consistent with the original TIA, peak hour factors (PHF) were obtained from turning movement counts for the existing intersection while a PHF of 0.90 was used at the site driveways. Synchro intersection level-of-service (LOS) reports are attached and the LOS for the study intersections are summarized in Table 2.

Table 2
Level-of-Service Summary

Condition	AM Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
US 15/501 at Briar Chapel Parkway/Vickers Road (Signalized)		
Existing (2021) Traffic	B (10.1)	B (11.1)
Background (2025) Traffic	B (17.5)	B (18.6)
Build-out (2025) Traffic	C (22.7)	C (20.5)
US 15/501 at South Site Driveway (Unsignalized)		
Build-out (2024) Traffic – with Northbound Right-turn Lane	WB – C (24.9)	WB – C (17.2)
US 15/501 at South Site Driveway (Unsignalized)		
Build-out (2024) Traffic – with Northbound Right-turn Lane	WB – C (20.4)	WB – C (15.5)

This analysis assumed the construction of northbound right-turn lanes on US 15/501 at the site driveways consistent with the review of the original TIA by the North Carolina Department of Transportation (NCDOT). With those turn lanes in place, all of the study intersections are expected to operate at acceptable LOS at project build-out, and SimTraffic simulations indicate that no queuing issues are expected at any intersection.

Recommendations

Based on the analysis herein, these study intersections are expected to operate at acceptable LOS and with no queuing issues at project build-out even if site access is only provided along US 15/501. As such, this access configuration is anticipated to be sufficient from a traffic capacity perspective, and no additional improvements are recommended to be performed to accommodate site traffic in this configuration.

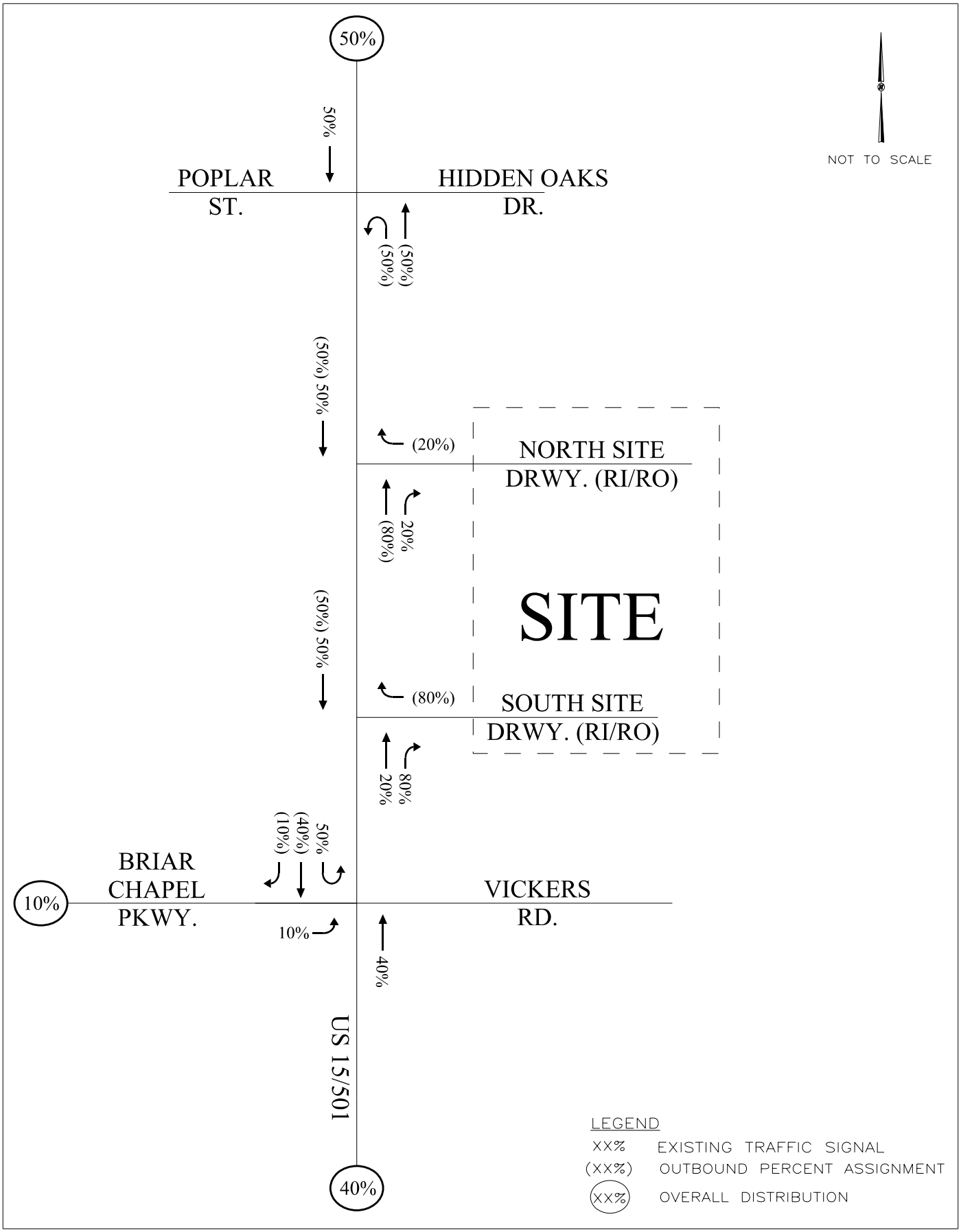
The recommended roadway laneage, consistent with the NCDOT review of the original TIA, is shown on **Figure 4**.

Should you have any questions or comments, please do not hesitate to contact me at (919) 678-4185 or kevin.dean@kimley-horn.com.

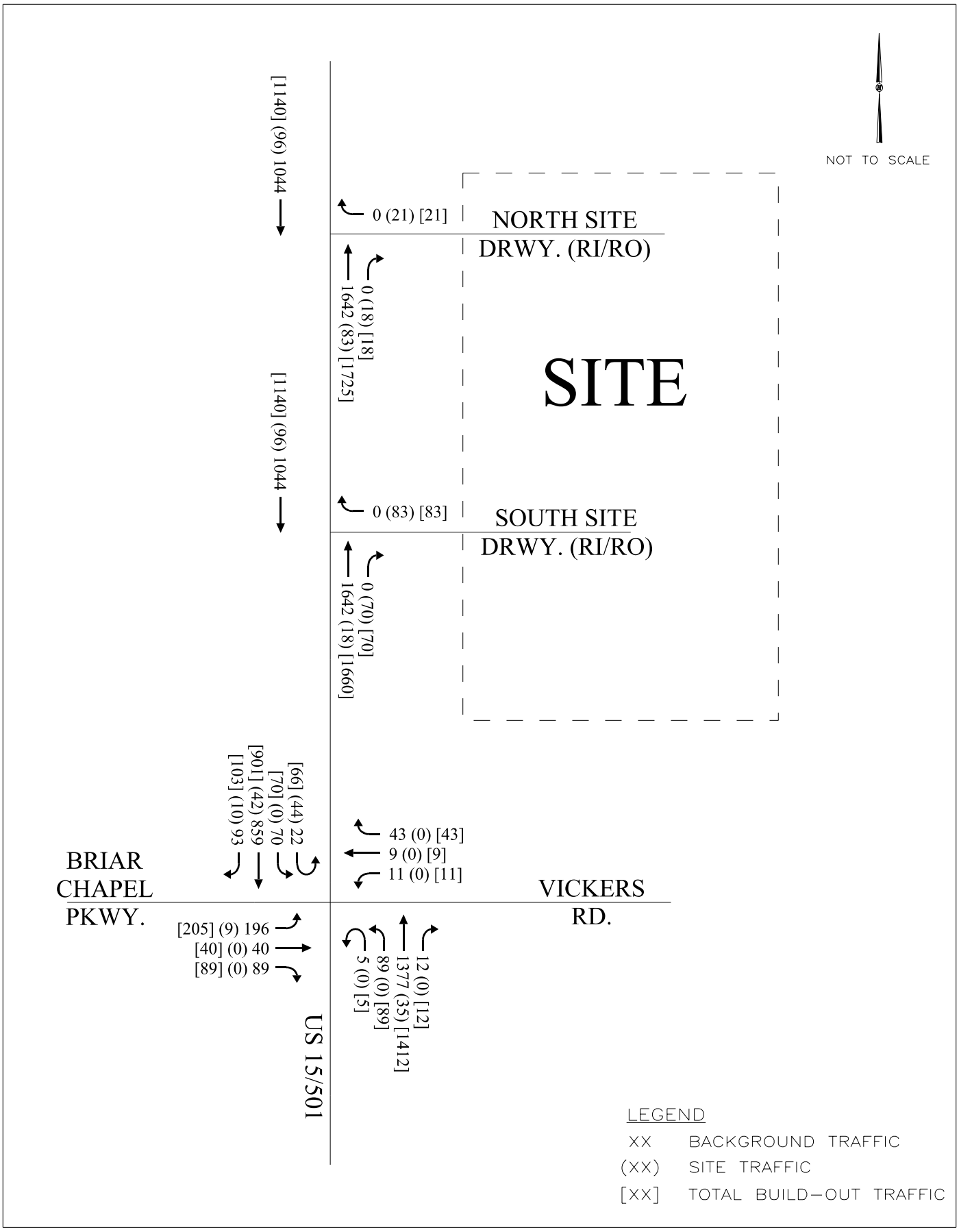
Appendix

Appendix A:

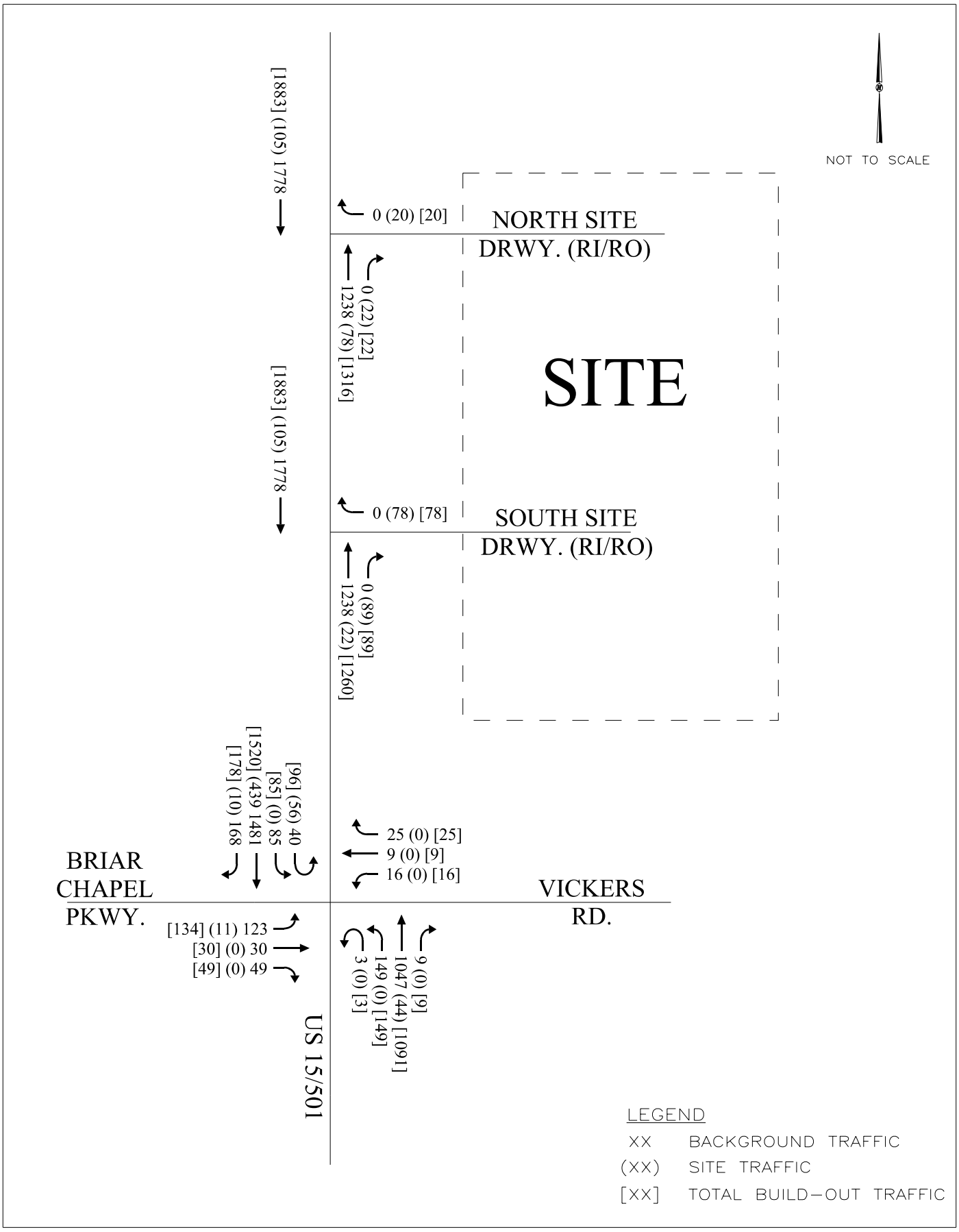
Figures 1-4



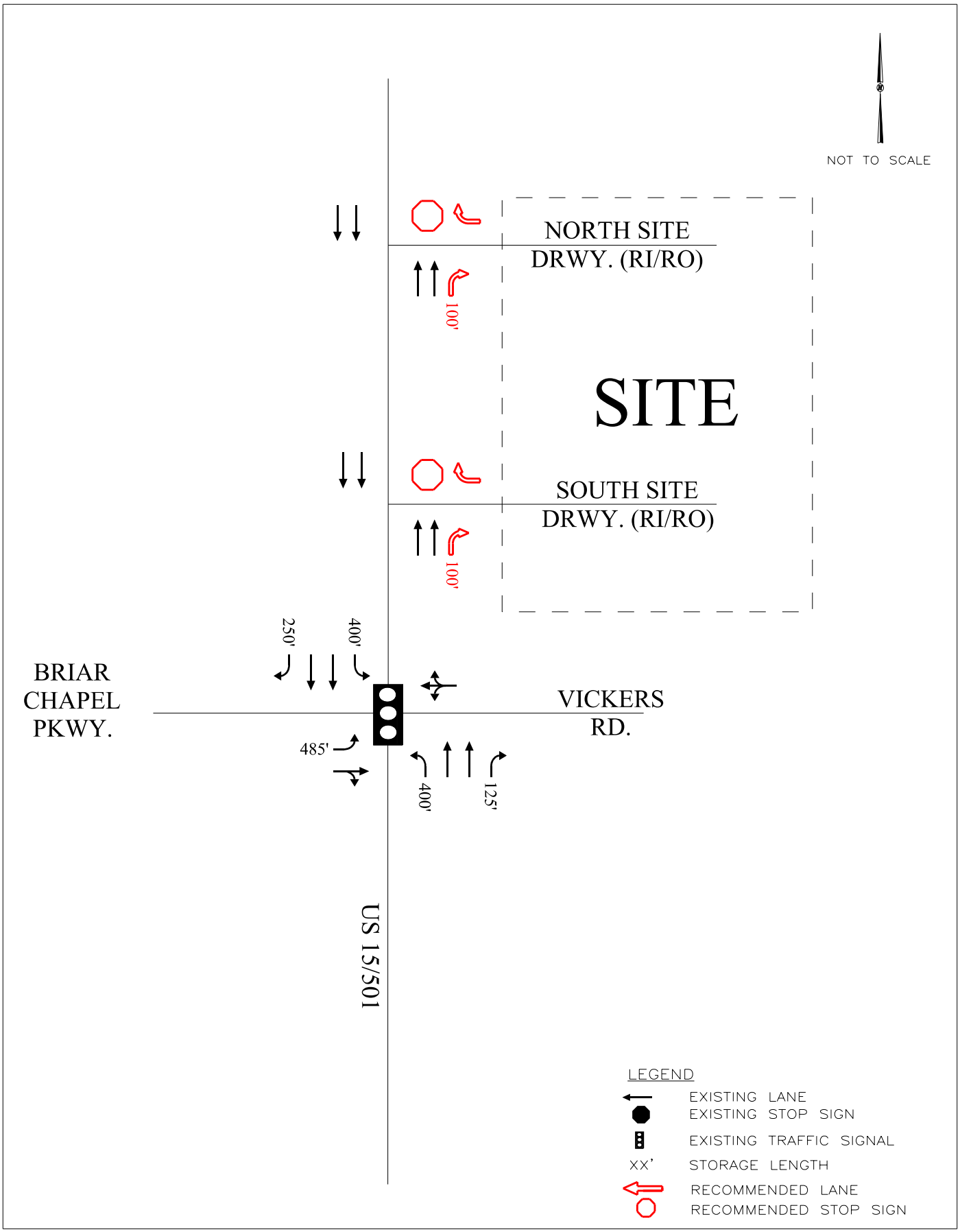
Kimley»Horn	HERNDON FARM CHATHAM COUNTY, NC TRAFFIC CAPACITY ANALYSIS	SITE ACCESS ADDENDUM: SITE TRAFFIC DISTRIBUTION & PERCENT ASSIGNMENT	FIGURE 1



Kimley»Horn	HERNDON FARM CHATHAM COUNTY, NC TRAFFIC CAPACITY ANALYSIS	SITE ACCESS ADDENDUM: PROJECTED (2025) BUILD AM PEAK HOUR TRAFFIC VOLUMES	FIGURE 2



Kimley»Horn	HERNDON FARM CHATHAM COUNTY, NC TRAFFIC CAPACITY ANALYSIS	SITE ACCESS ADDENDUM: PROJECTED (2025) BUILD PM PEAK HOUR TRAFFIC VOLUMES	FIGURE 3



Kimley»Horn	HERNDON FARM CHATHAM COUNTY, NC TRAFFIC CAPACITY ANALYSIS	SITE ACCESS ADDENDUM: RECOMMENDED ROADWAY LANEAGE	FIGURE 4

Appendix B:
Trip Generation
& Intersection Spreadsheets

Herndon Farm

Table 1 - Trip Generation

Land Use		Intensity		Daily	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
251	Senior Adult Housing - Detached	161	d.u.	856	59	19	40	70	43	27
253	Congregate Care Facility[1]	140	d.u.	284	23	11	12	28	16	12
565	Day Care Center	10,000	s.f.	476	110	58	52	111	52	59
Total Net New External Trips				**1,616**	**192**	**88**	**104**	**209**	**111**	**98**

[1]To be conservative, peak hour trip generation for LUC 253 was based on peak hour of the generator as opposed to peak hour of the adjacent street to present a more-conservative approach.

INTERSECTION ANALYSIS SHEET

Project:	**Herndon Farm**
Location:	**Chatham County, NC**
Scenario:	**2021 Access Update - No Vickers Road**
Ct. Date	**2/11/2020**
N/S Street:	**US 15/501**
E/W Street:	**Briar Chapel Parkway/Vickers Road**

	AM In	AM Out	PM In	PM Out
Net New Trips:	88	104	111	98
Pass-By Trips:	0	0	0	0

Annual Growth Rate: 0.5%
Growth Factor: 0.025251

Existing Year: 2020
Buildout Year: 2025

AM PEAK HOUR
AM PHF = 0.96

Description	Briar Chapel Parkway Eastbound			Vickers Road Westbound			US 15/501 Northbound				US 15/501 Southbound			
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2020 Traffic Count	116	2	51	11	3	19	5	52	1047	12	22	15	538	27
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Existing Traffic	116	2	51	11	3	19	5	52	1047	12	22	15	538	27
Growth Factor (0.005 per year)	0.000	0.000	0.000	0.025	0.000	0.025	0.000	0.000	0.025	0.025	0.000	0.025	0.025	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	26	0	0	0	14	0
Committed Projects														
Williams Corner (Updated)	0	0	0	0	0	0	0	0	164	0	0	0	129	0
Polks Village (Remaining Portion)	0	0	0	0	0	0	0	0	34	0	0	0	38	0
Briar Chapel (Remaining Portion)	80	0	38	0	0	0	0	26	59	0	0	0	140	66
Vickers Bennett - Scen. 3	0	38	0	0	6	24	0	11	47	0	0	55	0	0
Total Committed Traffic	80	38	38	0	6	24	0	37	304	0	0	55	307	66
2025 Background Traffic	196	40	89	11	9	43	5	89	1377	12	22	70	859	93
Project Traffic														
Percent Assignment Inbound	10%	0%	0%	0%	0%	0%	0%	0%	40%	0%	50%	0%	0%	0%
Inbound Project Traffic	9	0	0	0	0	0	0	0	35	0	44	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	10%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0	42	10
Total Project Traffic	9	0	0	0	0	0	0	0	35	0	44	0	42	10
2025 Buildout Total	205	40	89	11	9	43	5	89	1412	12	66	70	901	103
Percent Impact (Approach)		2.7%			0.0%				2.3%				8.4%	

Overall Percent Impact 4.6%

PM PEAK HOUR
PM PHF = 0.95

Description	Briar Chapel Parkway Eastbound			Vickers Road Westbound			US 15/501 Northbound				US 15/501 Southbound			
	Left	Through	Right	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right
2020 Traffic Count	68	3	26	16	6	12	3	82	652	9	40	15	1107	88
Count Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020 Existing Traffic	68	3	26	16	6	12	3	82	652	9	40	15	1107	88
Growth Factor (0.005 per year)	0.000	0.000	0.000	0.025	0.000	0.025	0.000	0.000	0.025	0.025	0.000	0.025	0.025	0.000
2025 Background Growth	0	0	0	0	0	0	0	0	16	0	0	0	28	0
Committed Projects														
Williams Corner (Updated)	0	0	0	0	0	0	0	0	158	0	0	0	204	0
Polks Village (Remaining Portion)	0	0	0	0	0	0	0	0	32	0	0	0	32	0
Briar Chapel (Remaining Portion)	55	0	23	0	0	0	0	35	138	0	0	0	110	80
Vickers Bennett - Scen. 3	0	27	0	0	3	13	0	32	51	0	0	70	0	0
Total Committed Traffic	55	27	23	0	3	13	0	67	379	0	0	70	346	80
2025 Background Traffic	123	30	49	16	9	25	3	149	1047	9	40	85	1481	168
Project Traffic														
Percent Assignment Inbound	10%	0%	0%	0%	0%	0%	0%	0%	40%	0%	50%	0%	0%	0%
Inbound Project Traffic	11	0	0	0	0	0	0	0	44	0	56	0	0	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	10%
Outbound Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0	39	10
Total Project Traffic	11	0	0	0	0	0	0	0	44	0	56	0	39	10
2025 Buildout Total	134	30	49	16	9	25	3	149	1091	9	96	85	1520	178
Percent Impact (Approach)		5.2%			0.0%				3.5%				5.6%	

Overall Percent Impact 4.7%

INTERSECTION ANALYSIS SHEET

Project:	**Herndon Farm**
Location:	**Chatham County, NC**
Scenario:	**2021 Access Update - No Vickers Road**
Ct. Date	**Balanced with 15/501 @ Vickers**
N/S Street:	**US 15/501**
E/W Street:	**South Site Driveway (RI/RO)**

	AM In	AM Out	PM In	PM Out
Net New Trips:	88	104	111	98
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	0.5%	**Existing Year:**	2020
Growth Factor:	0.025251	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	- Eastbound			South Site Driveway (RI/RO) Westbound			US 15/501 Northbound			US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	1204	0	0	602	0
2020 Existing Traffic	0	0	0	0	0	0	0	1204	0	0	602	0
Growth Factor (0.005 per year)	0.025	0.025	0.025	0.000	0.000	0.000	0.000	0.025	0.000	0.000	0.025	0.000
2025 Background Growth	0	0	0	0	0	0	0	30	0	0	15	0
Committed Projects												
Williams Corner (Updated)	0	0	0	0	0	0	0	164	0	0	129	0
Polks Village (Remaining Portion)	0	0	0	0	0	0	0	34	0	0	38	0
Briar Chapel (Remaining Portion)	0	0	0	0	0	0	0	139	0	0	205	0
Vickers Bennett - Scen. 3	0	0	0	0	0	0	0	71	0	0	55	0
Total Committed Traffic	0	0	0	0	0	0	0	408	0	0	427	0
2025 Background Traffic	0	0	0	0	0	0	0	1642	0	0	1044	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	20%	80%	0%	50%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	18	70	0	44	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	80%	0%	0%	0%	0%	50%	0%
Outbound Project Traffic	0	0	0	0	0	83	0	0	0	0	52	0
Total Project Traffic	0	0	0	0	0	83	0	18	70	0	96	0
2025 Buildout Total	0	0	0	0	0	83	0	1660	70	0	1140	0
Percent Impact (Approach)		-			100.0%			5.1%			8.4%	

Overall Percent Impact 9.0%

PM PEAK HOUR
PM PHF = 0.90

Description	- Eastbound			South Site Driveway (RI/RO) Westbound			US 15/501 Northbound			US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	772	0	0	1250	0
2020 Existing Traffic	0	0	0	0	0	0	0	772	0	0	1250	0
Growth Factor (0.005 per year)	0.025	0.025	0.025	0.000	0.000	0.000	0.000	0.025	0.000	0.000	0.025	0.000
2025 Background Growth	0	0	0	0	0	0	0	19	0	0	32	0
Committed Projects												
Williams Corner (Updated)	0	0	0	0	0	0	0	158	0	0	204	0
Polks Village (Remaining Portion)	0	0	0	0	0	0	0	32	0	0	32	0
Briar Chapel (Remaining Portion)	0	0	0	0	0	0	0	193	0	0	190	0
Vickers Bennett - Scen. 3	0	0	0	0	0	0	0	64	0	0	70	0
Total Committed Traffic	0	0	0	0	0	0	0	447	0	0	496	0
2025 Background Traffic	0	0	0	0	0	0	0	1238	0	0	1778	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	20%	80%	0%	50%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	22	89	0	56	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	80%	0%	0%	0%	0%	50%	0%
Outbound Project Traffic	0	0	0	0	0	78	0	0	0	0	49	0
Total Project Traffic	0	0	0	0	0	78	0	22	89	0	105	0
2025 Buildout Total	0	0	0	0	0	78	0	1260	89	0	1883	0
Percent Impact (Approach)		-			100.0%			8.2%			5.6%	

Overall Percent Impact 8.9%

INTERSECTION ANALYSIS SHEET

Project:	**Herndon Farm**
Location:	**Chatham County, NC**
Scenario:	**2021 Access Update - No Vickers Road**
Ct. Date	**Balanced with 15/501 @ Vickers**
N/S Street:	**US 15/501**
E/W Street:	**North Site Driveway (Left-in)**

	AM In	AM Out	PM In	PM Out
Net New Trips:	88	104	111	98
Pass-By Trips:	0	0	0	0

Annual Growth Rate:	0.5%	**Existing Year:**	2020
Growth Factor:	0.025251	**Buildout Year:**	2025

AM PEAK HOUR
AM PHF = 0.90

Description	- Eastbound			North Site Driveway (Left-in) Westbound			US 15/501 Northbound			US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	1204	0	0	602	0
2020 Existing Traffic	0	0	0	0	0	0	0	1204	0	0	602	0
Growth Factor (0.005 per year)	0.025	0.025	0.025	0.000	0.000	0.000	0.000	0.025	0.000	0.000	0.025	0.000
2025 Background Growth	0	0	0	0	0	0	0	30	0	0	15	0
Committed Projects												
Williams Corner (Updated)	0	0	0	0	0	0	0	164	0	0	129	0
Polks Village (Remaining Portion)	0	0	0	0	0	0	0	34	0	0	38	0
Briar Chapel (Remaining Portion)	0	0	0	0	0	0	0	139	0	0	205	0
Vickers Bennett - Scen. 3	0	0	0	0	0	0	0	71	0	0	55	0
Total Committed Traffic	0	0	0	0	0	0	0	408	0	0	427	0
2025 Background Traffic	0	0	0	0	0	0	0	1642	0	0	1044	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	50%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	18	0	44	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	20%	0%	80%	0%	0%	50%	0%
Outbound Project Traffic	0	0	0	0	0	21	0	83	0	0	52	0
Total Project Traffic	0	0	0	0	0	21	0	83	18	0	96	0
2025 Buildout Total	0	0	0	0	0	21	0	1725	18	0	1140	0
Percent Impact (Approach)		-			100.0%			5.8%			8.4%	

Overall Percent Impact 7.5%

PM PEAK HOUR
PM PHF = 0.90

Description	- Eastbound			North Site Driveway (Left-in) Westbound			US 15/501 Northbound			US 15/501 Southbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2020 Traffic Count	0	0	0	0	0	0	0	0	0	0	0	0
Count Balancing	0	0	0	0	0	0	0	772	0	0	1250	0
2020 Existing Traffic	0	0	0	0	0	0	0	772	0	0	1250	0
Growth Factor (0.005 per year)	0.025	0.025	0.025	0.000	0.000	0.000	0.000	0.025	0.000	0.000	0.025	0.000
2025 Background Growth	0	0	0	0	0	0	0	19	0	0	32	0
Committed Projects												
Williams Corner (Updated)	0	0	0	0	0	0	0	158	0	0	204	0
Polks Village (Remaining Portion)	0	0	0	0	0	0	0	32	0	0	32	0
Briar Chapel (Remaining Portion)	0	0	0	0	0	0	0	193	0	0	190	0
Vickers Bennett - Scen. 3	0	0	0	0	0	0	0	64	0	0	70	0
Total Committed Traffic	0	0	0	0	0	0	0	447	0	0	496	0
2025 Background Traffic	0	0	0	0	0	0	0	1238	0	0	1778	0
Project Traffic												
Percent Assignment Inbound	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	50%	0%
Inbound Project Traffic	0	0	0	0	0	0	0	0	22	0	56	0
Percent Assignment Outbound	0%	0%	0%	0%	0%	20%	0%	80%	0%	0%	50%	0%
Outbound Project Traffic	0	0	0	0	0	20	0	78	0	0	49	0
Total Project Traffic	0	0	0	0	0	20	0	78	22	0	105	0
2025 Buildout Total	0	0	0	0	0	20	0	1316	22	0	1883	0
Percent Impact (Approach)		-			100.0%			7.5%			5.6%	

Overall Percent Impact 6.9%

Appendix C:
Synchro LOS Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	116	4	51	11	4	19	5	52	1047	12	22	15	538	27
Future Volume (vph)	116	4	51	11	4	19	5	52	1047	12	22	15	538	27
Ideal Flow (vphpl)	1900	1900	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	12	12
Grade (%)		-1%			-5%				1%				-2%	
Storage Length (ft)	485		0	0		0		400		125		400		250
Storage Lanes	1		0	0		0		1		1		1		1
Taper Length (ft)	100			100				100				100		
Satd. Flow (prot)	1778	1612	0	0	1581	0	0	1761	3522	1575	0	1770	3540	1584
Flt Permitted	0.989				0.873			0.418				0.206		
Satd. Flow (perm)	1851	1612	0	0	1401	0	0	775	3522	1575	0	384	3540	1584
Right Turn on Red			Yes			Yes				Yes				Yes
Satd. Flow (RTOR)		53			20					152				95
Link Speed (mph)		35			35				55				55	
Link Distance (ft)		1355			868				1385				1800	
Travel Time (s)		26.4			16.9				17.2				22.3	
Confl. Peds. (#/hr)														
Confl. Bikes (#/hr)														
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	12%	12%	12%	2%	2%	2%	2%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)														
Mid-Block Traffic (%)		0%			0%				0%				0%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	121	57	0	0	35	0	0	59	1091	13	0	39	560	28
Turn Type	D.P+P	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA	pm+ov
Protected Phases	7	4			8		5	5	2		1	1	6	7
Permitted Phases	8			8			6	6		2	2	2		6
Detector Phase	7	4		8	8		5	5	2	2	1	1	6	7
Switch Phase														
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0	14.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0		15.0	15.0	22.0	22.0	15.0	15.0	35.5	15.0
Total Split (s)	20.0	40.0		20.0	20.0		15.0	15.0	65.0	65.0	15.0	15.0	65.0	20.0
Total Split (%)	16.7%	33.3%		16.7%	16.7%		12.5%	12.5%	54.2%	54.2%	12.5%	12.5%	54.2%	16.7%
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0	5.4	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3	1.1	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3	-1.5	-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max	C-Max	None	None	C-Max	None
Act Effct Green (s)	18.3	21.3			9.4			84.7	80.7	80.7		85.7	77.9	96.3
Actuated g/C Ratio	0.15	0.18			0.08			0.71	0.67	0.67		0.71	0.65	0.80
v/c Ratio	0.44	0.17			0.28			0.10	0.46	0.01		0.11	0.24	0.02
Control Delay	46.2	11.7			34.9			2.5	5.6	0.0		6.9	11.2	0.0
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	46.2	11.7			34.9			2.5	5.6	0.0		6.9	11.2	0.0
LOS	D	B			C			A	A	A		A	B	A
Approach Delay		35.2			34.9				5.4				10.4	
Approach LOS		D			C				A				B	
Queue Length 50th (ft)	79	2			11			3	264	0		8	106	0
Queue Length 95th (ft)	128	36			44			8	155	m0		22	154	0
Internal Link Dist (ft)		1275			788				1305				1720	
Turn Bay Length (ft)	485							400		125		400		250
Base Capacity (vph)	311	507			192			636	2369	1109		393	2296	1306
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	0.39	0.11			0.18			0.09	0.46	0.01		0.10	0.24	0.02

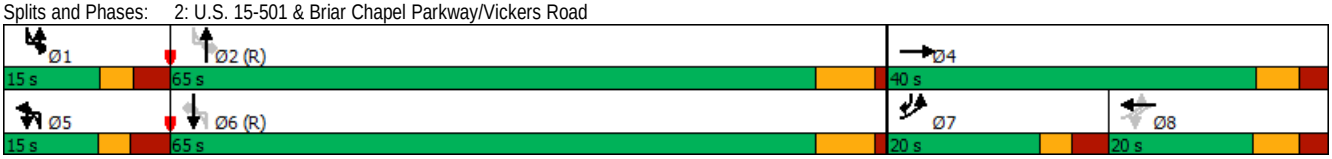
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	
Description: 08-1090	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U.S. 15-501 & Briar Chapel Parkway/Vickers Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	68	4	26	16	6	12	4	82	652	9	40	15	1107	88
Future Volume (vph)	68	4	26	16	6	12	4	82	652	9	40	15	1107	88
Ideal Flow (vphpl)	1900	1900	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	12	12
Grade (%)		-1%			-5%				1%				-2%	
Storage Length (ft)	485		0	0		0		400		125		400		250
Storage Lanes	1		0	0		0		1		1		1		1
Taper Length (ft)	100			100				100				100		
Satd. Flow (prot)	1778	1627	0	0	1774	0	0	1761	3522	1575	0	1787	3575	1599
Flt Permitted	0.948				0.834			0.184				0.361		
Satd. Flow (perm)	1775	1627	0	0	1514	0	0	341	3522	1575	0	679	3575	1599
Right Turn on Red			Yes			Yes				Yes				Yes
Satd. Flow (RTOR)		27			13					152				95
Link Speed (mph)		35			35				55				55	
Link Distance (ft)		1355			868				1385				1800	
Travel Time (s)		26.4			16.9				17.2				22.3	
Confl. Peds. (#/hr)														
Confl. Bikes (#/hr)														
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	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%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)														
Mid-Block Traffic (%)		0%			0%				0%				0%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	72	31	0	0	36	0	0	90	686	9	0	58	1165	93
Turn Type	D.P+P	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA	pm+ov
Protected Phases	7	4			8		5	5	2		1	1	6	7
Permitted Phases	8			8			6	6		2	2	2		6
Detector Phase	7	4		8	8		5	5	2	2	1	1	6	7
Switch Phase														
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0	14.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0		15.0	15.0	22.0	22.0	15.0	15.0	35.5	15.0
Total Split (s)	15.0	35.0		20.0	20.0		15.0	15.0	70.0	70.0	15.0	15.0	70.0	15.0
Total Split (%)	12.5%	29.2%		16.7%	16.7%		12.5%	12.5%	58.3%	58.3%	12.5%	12.5%	58.3%	12.5%
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0	5.4	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3	1.1	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3	-1.5	-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max	C-Max	None	None	C-Max	None
Act Effct Green (s)	15.4	18.4			9.5			86.6	81.0	81.0		87.6	77.9	92.4
Actuated g/C Ratio	0.13	0.15			0.08			0.72	0.68	0.68		0.73	0.65	0.77
v/c Ratio	0.32	0.11			0.27			0.26	0.29	0.01		0.10	0.50	0.07
Control Delay	45.8	16.4			42.5			5.4	4.8	0.0		5.3	13.1	1.2
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	45.8	16.4			42.5			5.4	4.8	0.0		5.3	13.1	1.2
LOS	D	B			D			A	A	A		A	B	A
Approach Delay		36.9			42.5				4.8				11.9	
Approach LOS		D			D				A				B	
Queue Length 50th (ft)	47	3			17			3	147	0		12	260	0
Queue Length 95th (ft)	88	29			51			28	198	m0		26	345	14
Internal Link Dist (ft)		1275			788				1305				1720	
Turn Bay Length (ft)	485							400		125		400		250
Base Capacity (vph)	235	427			200			368	2376	1112		595	2321	1259
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	0.31	0.07			0.18			0.24	0.29	0.01		0.10	0.50	0.07

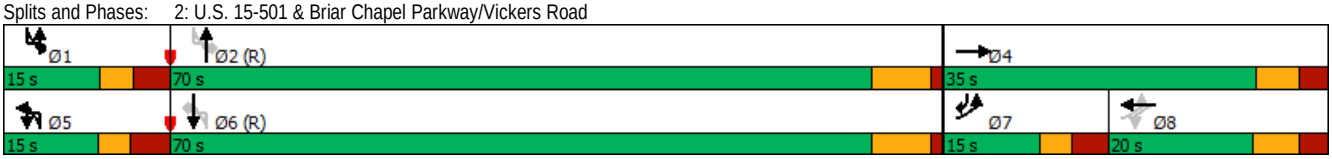
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	
Description: 08-1090	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U.S. 15-501 & Briar Chapel Parkway/Vickers Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	196	40	89	11	9	43	5	89	1377	12	22	70	859	93
Future Volume (vph)	196	40	89	11	9	43	5	89	1377	12	22	70	859	93
Ideal Flow (vphpl)	1900	1900	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	12	12
Grade (%)		-1%			-5%				1%				-2%	
Storage Length (ft)	485		0	0		0		400		125		400		250
Storage Lanes	1		0	0		0		1		1		1		1
Taper Length (ft)	100			100				100				100		
Satd. Flow (prot)	1778	1679	0	0	1622	0	0	1761	3522	1575	0	1787	3575	1599
Flt Permitted	0.688				0.910			0.255				0.095		
Satd. Flow (perm)	1288	1679	0	0	1488	0	0	473	3522	1575	0	179	3575	1599
Right Turn on Red			Yes			Yes				Yes				Yes
Satd. Flow (RTOR)		93			45					152				97
Link Speed (mph)		35			35				55				55	
Link Distance (ft)		1355			868				545				1800	
Travel Time (s)		26.4			16.9				6.8				22.3	
Confl. Peds. (#/hr)														
Confl. Bikes (#/hr)														
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	8%	8%	8%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)														
Mid-Block Traffic (%)		0%			0%				0%				0%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	204	135	0	0	65	0	0	98	1434	13	0	96	895	97
Turn Type	D.P+P	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA	pm+ov
Protected Phases	7	4			8		5	5	2		1	1	6	7
Permitted Phases	8			8			6	6		2	2	2		6
Detector Phase	7	4		8	8		5	5	2	2	1	1	6	7
Switch Phase														
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0	14.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0		15.0	15.0	22.0	22.0	15.0	15.0	35.5	15.0
Total Split (s)	20.0	40.0		20.0	20.0		15.0	15.0	65.0	65.0	15.0	15.0	65.0	20.0
Total Split (%)	16.7%	33.3%		16.7%	16.7%		12.5%	12.5%	54.2%	54.2%	12.5%	12.5%	54.2%	16.7%
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0	5.4	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3	1.1	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3	-1.5	-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max	C-Max	None	None	C-Max	None
Act Effct Green (s)	22.6	26.6			9.8			78.4	69.0	69.0		78.4	69.4	89.0
Actuated g/C Ratio	0.19	0.22			0.08			0.65	0.58	0.58		0.65	0.58	0.74
v/c Ratio	0.68	0.30			0.40			0.24	0.71	0.01		0.40	0.43	0.08
Control Delay	52.0	14.7			29.3			5.7	15.7	0.0		12.5	16.1	1.3
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	52.0	14.7			29.3			5.7	15.7	0.0		12.5	16.1	1.3
LOS	D	B			C			A	B	A		B	B	A
Approach Delay		37.2			29.3				14.9				14.4	
Approach LOS		D			C				B				B	
Queue Length 50th (ft)	136	25			15			18	387	0		23	202	0
Queue Length 95th (ft)	204	75			59			m25	516	m0		47	281	16
Internal Link Dist (ft)		1275			788				465				1720	
Turn Bay Length (ft)	485							400		125		400		250
Base Capacity (vph)	308	555			225			421	2025	970		259	2068	1216
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	0.66	0.24			0.29			0.23	0.71	0.01		0.37	0.43	0.08

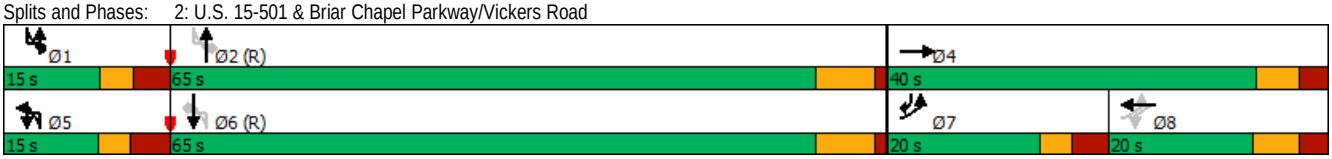
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	
Description: 08-1090	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U.S. 15-501 & Briar Chapel Parkway/Vickers Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	123	30	49	16	9	25	4	149	1047	9	40	85	1481	168
Future Volume (vph)	123	30	49	16	9	25	4	149	1047	9	40	85	1481	168
Ideal Flow (vphpl)	1900	1900	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	12	12
Grade (%)		-1%			-5%				1%				-2%	
Storage Length (ft)	485		0	0		0		400		125		400		250
Storage Lanes	1		0	0		0		1		1		1		1
Taper Length (ft)	100			100				100				100		
Satd. Flow (prot)	1778	1698	0	0	1595	0	0	1761	3522	1575	0	1787	3575	1599
Flt Permitted	0.796				0.858			0.074				0.196		
Satd. Flow (perm)	1490	1698	0	0	1390	0	0	137	3522	1575	0	369	3575	1599
Right Turn on Red			Yes			Yes				Yes				Yes
Satd. Flow (RTOR)		52			26					152				177
Link Speed (mph)		35			35				55				55	
Link Distance (ft)		1355			868				545				1800	
Travel Time (s)		26.4			16.9				6.8				22.3	
Confl. Peds. (#/hr)														
Confl. Bikes (#/hr)														
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	12%	12%	12%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)														
Mid-Block Traffic (%)		0%			0%				0%				0%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	129	84	0	0	52	0	0	161	1102	9	0	131	1559	177
Turn Type	D.P+P	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA	pm+ov
Protected Phases	7	4			8		5	5	2		1	1	6	7
Permitted Phases	8			8			6	6		2	2	2		6
Detector Phase	7	4		8	8		5	5	2	2	1	1	6	7
Switch Phase														
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0	14.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0		15.0	15.0	22.0	22.0	15.0	15.0	35.5	15.0
Total Split (s)	15.0	35.0		20.0	20.0		20.0	20.0	65.0	65.0	20.0	20.0	65.0	15.0
Total Split (%)	12.5%	29.2%		16.7%	16.7%		16.7%	16.7%	54.2%	54.2%	16.7%	16.7%	54.2%	12.5%
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0	5.4	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3	1.1	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3	-1.5	-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max	C-Max	None	None	C-Max	None
Act Effct Green (s)	18.0	22.0			10.0			83.0	74.0	74.0		83.0	70.4	85.2
Actuated g/C Ratio	0.15	0.18			0.08			0.69	0.62	0.62		0.69	0.59	0.71
v/c Ratio	0.52	0.24			0.37			0.61	0.51	0.01		0.36	0.74	0.15
Control Delay	49.8	19.1			38.1			31.7	10.1	0.0		8.5	22.9	1.5
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	49.8	19.1			38.1			31.7	10.1	0.0		8.5	22.9	1.5
LOS	D	B			D			C	B	A		A	C	A
Approach Delay		37.7			38.1				12.8				19.9	
Approach LOS		D			D				B				B	
Queue Length 50th (ft)	87	20			19			58	187	0		27	458	0
Queue Length 95th (ft)	141	62			59			m128	216	m0		53	657	26
Internal Link Dist (ft)		1275			788				465				1720	
Turn Bay Length (ft)	485							400		125		400		250
Base Capacity (vph)	250	463			196			306	2171	1029		447	2096	1188
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	0.52	0.18			0.27			0.53	0.51	0.01		0.29	0.74	0.15

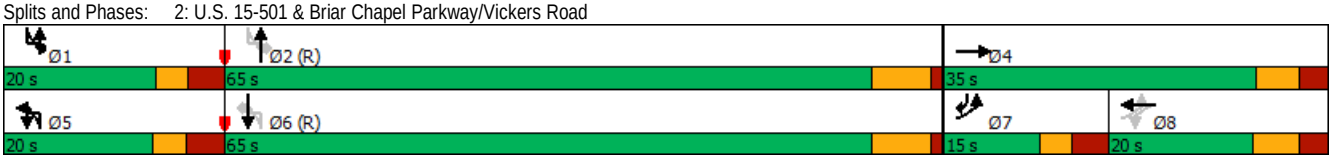
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 12 (10%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	
Description: 08-1090	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: U.S. 15-501 & Briar Chapel Parkway/Vickers Road



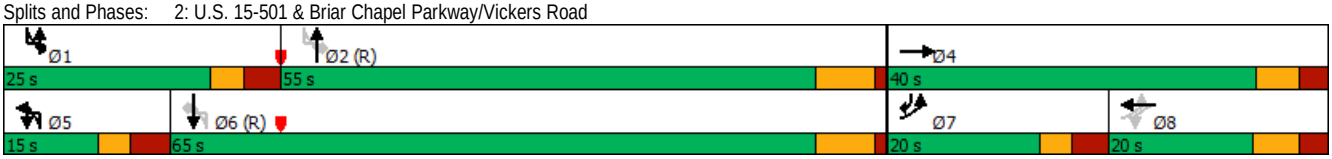
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	205	40	89	11	9	43	5	89	1412	12	66	70	901	103
Future Volume (vph)	205	40	89	11	9	43	5	89	1412	12	66	70	901	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			-5%				1%				-2%	
Storage Length (ft)	485		0	0		0		400		125		400		250
Storage Lanes	1		0	0		0		1		1		1		1
Taper Length (ft)	100			100				100				100		
Satd. Flow (prot)	1778	1679	0	0	1669	0	0	1761	3522	1575	0	1787	3575	1599
Flt Permitted	0.687				0.910			0.239				0.080		
Satd. Flow (perm)	1286	1679	0	0	1531	0	0	443	3522	1575	0	151	3575	1599
Right Turn on Red			Yes			Yes				Yes				Yes
Satd. Flow (RTOR)		93			45					209				107
Link Speed (mph)		35			35				55				55	
Link Distance (ft)		1355			783				1147				457	
Travel Time (s)		26.4			15.3				14.2				5.7	
Confl. Peds. (#/hr)														
Confl. Bikes (#/hr)														
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)														
Mid-Block Traffic (%)		0%			0%				0%				0%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	214	135	0	0	65	0	0	98	1471	13	0	142	939	107
Turn Type	D.P+P	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA	pm+ov
Protected Phases	7	4			8		5	5	2		1	1	6	7
Permitted Phases	8			8			6	6		2	2	2		6
Detector Phase	7	4		8	8		5	5	2	2	1	1	6	7
Switch Phase														
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0	14.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0		15.0	15.0	22.0	22.0	15.0	15.0	35.5	15.0
Total Split (s)	20.0	40.0		20.0	20.0		15.0	15.0	55.0	55.0	25.0	25.0	65.0	20.0
Total Split (%)	16.7%	33.3%		16.7%	16.7%		12.5%	12.5%	45.8%	45.8%	20.8%	20.8%	54.2%	16.7%
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0	5.4	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3	1.1	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3	-1.5	-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max	C-Max	None	None	C-Max	None
Act Effct Green (s)	22.6	26.6			9.7			78.4	66.9	66.9		78.4	69.4	89.1
Actuated g/C Ratio	0.19	0.22			0.08			0.65	0.56	0.56		0.65	0.58	0.74
v/c Ratio	0.71	0.30			0.39			0.25	0.75	0.01		0.56	0.45	0.09
Control Delay	54.0	14.8			29.0			8.7	25.2	0.0		23.9	16.3	1.3
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	54.0	14.8			29.0			8.7	25.2	0.0		23.9	16.3	1.3
LOS	D	B			C			A	C	A		C	B	A
Approach Delay		38.8			29.0				24.0				15.9	
Approach LOS		D			C				C				B	
Queue Length 50th (ft)	144	25			15			24	451	0		36	216	0
Queue Length 95th (ft)	214	76			59			47	644	0		106	297	17
Internal Link Dist (ft)		1275			703				1067				377	
Turn Bay Length (ft)	485							400		125		400		250
Base Capacity (vph)	307	555			230			404	1962	970		377	2068	1218
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	0.70	0.24			0.28			0.24	0.75	0.01		0.38	0.45	0.09

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 22.7	Intersection LOS: C
Intersection Capacity Utilization 77.1%	ICU Level of Service D
Analysis Period (min) 15	
Description: 08-1090	

Splits and Phases: 2: U.S. 15-501 & Briar Chapel Parkway/Vickers Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	83	1660	70	0	1140
Future Volume (vph)	0	83	1660	70	0	1140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			-2%
Storage Length (ft)	0	0		100	0	
Storage Lanes	0	1		1	0	
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	1611	3539	1583	0	3575
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	1583	0	3575
Link Speed (mph)	25		55			55
Link Distance (ft)	525		457			1278
Travel Time (s)	14.3		5.7			15.8
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%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	92	1844	78	0	1267
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	83	1660	70	0	1140
Future Vol, veh/h	0	83	1660	70	0	1140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	-2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	92	1844	78	0	1267

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	922	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	272	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	272	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	272	-
HCM Lane V/C Ratio	-	-	0.339	-
HCM Control Delay (s)	-	-	24.9	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	1.4	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	21	1725	18	0	1140
Future Volume (vph)	0	21	1725	18	0	1140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			-2%
Storage Length (ft)	0	0		100	0	
Storage Lanes	0	1		1	0	
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	1611	3539	1583	0	3575
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	1583	0	3575
Link Speed (mph)	25		55			55
Link Distance (ft)	490		1278			1027
Travel Time (s)	13.4		15.8			12.7
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%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	1917	20	0	1267
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	21	1725	18	0	1140
Future Vol, veh/h	0	21	1725	18	0	1140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	-2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	23	1917	20	0	1267

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	959	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	257	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	257	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	257	-
HCM Lane V/C Ratio	-	-	0.091	-
HCM Control Delay (s)	-	-	20.4	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.3	-

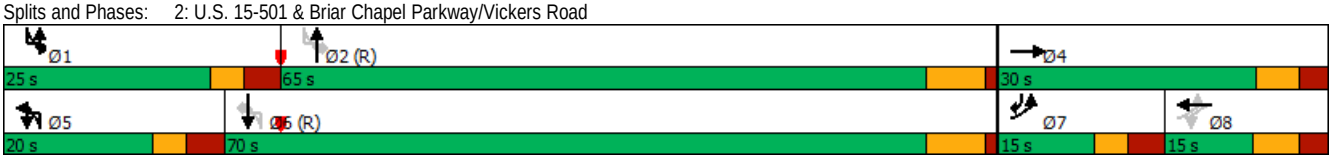
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	134	30	49	16	9	25	4	149	1091	9	96	85	1520	178
Future Volume (vph)	134	30	49	16	9	25	4	149	1091	9	96	85	1520	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		-1%			-5%				1%				-2%	
Storage Length (ft)	485		0	0		0		400		125		400		250
Storage Lanes	1		0	0		0		1		1		1		1
Taper Length (ft)	100			100				100				100		
Satd. Flow (prot)	1778	1698	0	0	1595	0	0	1761	3522	1575	0	1787	3575	1599
Flt Permitted	0.800				0.858			0.069				0.179		
Satd. Flow (perm)	1498	1698	0	0	1390	0	0	128	3522	1575	0	337	3575	1599
Right Turn on Red			Yes			Yes				Yes				Yes
Satd. Flow (RTOR)		52			26					152				187
Link Speed (mph)		35			35				55				55	
Link Distance (ft)		1355			783				1147				457	
Travel Time (s)		26.4			15.3				14.2				5.7	
Confl. Peds. (#/hr)														
Confl. Bikes (#/hr)														
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	12%	12%	12%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)														
Mid-Block Traffic (%)		0%			0%				0%				0%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	141	84	0	0	52	0	0	161	1148	9	0	190	1600	187
Turn Type	D.P+P	NA		Perm	NA		D.P+P	D.P+P	NA	Perm	D.P+P	D.P+P	NA	pm+ov
Protected Phases	7	4			8		5	5	2		1	1	6	7
Permitted Phases	8			8			6	6		2	2	2		6
Detector Phase	7	4		8	8		5	5	2	2	1	1	6	7
Switch Phase														
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0	14.0	14.0	7.0	7.0	14.0	7.0
Minimum Split (s)	15.0	15.0		15.0	15.0		15.0	15.0	22.0	22.0	15.0	15.0	35.5	15.0
Total Split (s)	15.0	30.0		15.0	15.0		20.0	20.0	65.0	65.0	25.0	25.0	70.0	15.0
Total Split (%)	12.5%	25.0%		12.5%	12.5%		16.7%	16.7%	54.2%	54.2%	20.8%	20.8%	58.3%	12.5%
Yellow Time (s)	3.0	3.9		4.2	4.2		3.0	3.0	5.4	5.4	3.0	3.0	5.4	3.0
All-Red Time (s)	3.3	2.7		2.7	2.7		3.5	3.5	1.1	1.1	3.3	3.3	1.1	3.3
Lost Time Adjust (s)	-1.3	-1.6			-1.9			-1.5	-1.5	-1.5		-1.3	-1.5	-1.3
Total Lost Time (s)	5.0	5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag		Lead	Lead	Lag	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	None	C-Max	C-Max	None	None	C-Max	None
Act Effct Green (s)	17.5	21.5			9.3			83.5	72.5	72.5		83.5	71.3	86.2
Actuated g/C Ratio	0.15	0.18			0.08			0.70	0.60	0.60		0.70	0.59	0.72
v/c Ratio	0.59	0.24			0.39			0.63	0.54	0.01		0.52	0.75	0.16
Control Delay	53.4	19.7			40.1			32.1	16.3	0.0		10.8	22.3	1.3
Queue Delay	0.0	0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	53.4	19.7			40.1			32.1	16.3	0.0		10.8	22.3	1.3
LOS	D	B			D			C	B	A		B	C	A
Approach Delay		40.8			40.1				18.1				19.2	
Approach LOS		D			D				B				B	
Queue Length 50th (ft)	96	20			19			58	266	0		41	481	0
Queue Length 95th (ft)	158	64			61			131	378	0		68	623	23
Internal Link Dist (ft)		1275			703				1067				377	
Turn Bay Length (ft)	485							400		125		400		250
Base Capacity (vph)	242	394			139			295	2129	1012		489	2124	1202
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	0.58	0.21			0.37			0.55	0.54	0.01		0.39	0.75	0.16

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 77.1%	ICU Level of Service D
Analysis Period (min) 15	
Description: 08-1090	

Splits and Phases: 2: U.S. 15-501 & Briar Chapel Parkway/Vickers Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	78	1260	89	0	1883
Future Volume (vph)	0	78	1260	89	0	1883
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			-2%
Storage Length (ft)	0	0		100	0	
Storage Lanes	0	1		1	0	
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	1611	3539	1583	0	3575
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	1583	0	3575
Link Speed (mph)	25		55			55
Link Distance (ft)	525		457			1278
Travel Time (s)	14.3		5.7			15.8
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%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	87	1400	99	0	2092
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	78	1260	89	0	1883
Future Vol, veh/h	0	78	1260	89	0	1883
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	-2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	87	1400	99	0	2092

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	700	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	382	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	382	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	382	-
HCM Lane V/C Ratio	-	-	0.227	-
HCM Control Delay (s)	-	-	17.2	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.9	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	20	1316	22	0	1883
Future Volume (vph)	0	20	1316	22	0	1883
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			-2%
Storage Length (ft)	0	0		100	0	
Storage Lanes	0	1		1	0	
Taper Length (ft)	100				100	
Satd. Flow (prot)	0	1611	3539	1583	0	3575
Flt Permitted						
Satd. Flow (perm)	0	1611	3539	1583	0	3575
Link Speed (mph)	25		55			55
Link Distance (ft)	490		1278			1027
Travel Time (s)	13.4		15.8			12.7
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%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	1462	24	0	2092
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	20	1316	22	0	1883
Future Vol, veh/h	0	20	1316	22	0	1883
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	-2
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	1462	24	0	2092

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	731	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	364	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	364	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	364	-
HCM Lane V/C Ratio	-	-	0.061	-
HCM Control Delay (s)	-	-	15.5	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.2	-