



Memorandum

To: George J. Retschle, PE
Ballentine Associates, PA
221 Providence Road
Chapel Hill, NC 27514

Date: April 29, 2022

Project #: 39375.00

From: Matt Stygles, PE

Re: Hogan Ridge Subdivision – Carrboro, NC

Introduction

KB Home is planning a new residential subdivision on the east side of Old NC 86 (SR 1009) in Carrboro, NC. The development is planned to consist of up to 72 single-family homes and anticipated to be fully built out by the year 2024. A map illustrating the site's location and surrounding roadways is shown in Figure 1. The Town of Carrboro is not requiring a formal traffic impact analysis (TIA) for this development, but this abbreviated traffic study is completed to help satisfy any traffic related concerns within the vicinity of the site. This memorandum provides an estimate of the traffic that will be generated by the proposed Hogan Ridge Subdivision and provides an estimate of the possible traffic impacts to the surrounding area roadways.

Project Background

The site is located along the east side of Old NC 86, north of Dairyland Road (SR 1104) and Homestead Road (SR 1777). The site is currently bordered by residential land uses, including the Lake Hogan Farms subdivision to the east. The proposed development will be accessed through two new connections:

- Access #1, full movement access on Old NC 86, approximately 2,700 feet north of Dairyland Road/Homestead Road.
- Access #2, access via a cross-connection to existing Blocker Road.

Existing peak hour traffic counts at the intersection of Old NC 86 at Dairyland Road/Homestead Road were obtained from NCDOT records, with data collected on Thursday, February 28, 2019. As the traffic data collection date occurred prior to the COVID-19 pandemic, no adjustment factors are applied to the data to compensate for changes in traffic patterns. An annualized growth rate of 1.5% is applied to the traffic data to convert the data from 2019 to the existing year of this study (2022).

The turning movement volumes that were collected in 2019 are shown in Figure 2. The adjusted Existing (2022) turning movement volumes are shown in Figure 3.

Trip Generation

Trip generation was conducted based on the most appropriate corresponding trip generation codes included in the ITE Trip Generation Manual, 11th Edition. The proposed Hogan Ridge Subdivision is to consist of up to 72 single-family homes; therefore, rates for ITE LUC 210 (Single-Family Detached Housing) were applied in trip generation calculations.

Ref: 39375.00

April 29, 2022

Page 2

based on the engineering guidance of the North Carolina Department of Transportation (NCDOT). Table 1 summarizes the estimated trip generation for the proposed Hogan Ridge subdivision for weekday AM and PM peak hours.

Table 1: Hogan Ridge Subdivision Trip Generation Estimate

Land Use Code ¹	Land Use	Unit	ADT	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Total Site Trips ²									
210	Single-Family Detached Housing	72 du	746	14	41	55	46	27	73
Development Total			746	14	41	55	46	27	73

Notes:

1. Land Use Code and trip generation rates are determined based on *ITE Trip Generation, 11th Edition*
2. Total site trips are determined based on the suggested method in the NCDOT Rate vs Equation Spreadsheet
3. Internal capture was based on NCHRP 684 method and NCDOT IC calculation spreadsheet
4. Unconstrained pass-by trips are calculated based on *ITE Trip Generation Handbook, 3rd Edition*. The final projections are not expected to exceed 10% of adjacent street volumes.

As shown in Table 1, the site is expected to generate approximately 746 daily trips with 55 trips (14 entering, 41 exiting) occurring during the AM peak hour and 73 trips (46 entering, 27 exiting) during the PM peak hour.

Intersection Capacity Analysis

The capacity analysis for the study area intersections was completed within Synchro 10 for the Existing (2022), No-Build (2024), and Build (2024) scenarios. The Existing (2022) scenario was completed using the adjusted traffic volumes calculated to match pre-COVID-19 conditions. The No-Build (2024) scenario was completed by applying a 1.5% annual growth rate to the traffic volumes to account for background growth between the existing year (2022) and the build year (2024). The calculated No-Build (2024) traffic volumes are shown in Figure 4.

The Build (2024) scenario was completed by applying the peak hour site generated traffic to the roadway network to show the turning movement traffic volumes anticipated to occur following completed construction of the proposed development. The assumed site trip distribution percentages for the site are shown in Figure 5, and the calculated site trips are shown in Figure 6. Additionally, existing trips generated by the Lake Hogan Farms subdivision are anticipated to utilize Site Access #1 at Old NC 86 with the proposed connection to Blocker Road. The assumed trip adjustments due to the cross-connection are shown in Figure 7. The Build (2024) traffic volumes, with the addition of site traffic and rerouting of existing traffic, are shown in Figure 8. Table 2 shows the level of service (LOS) results for all three scenarios analyzed.

Table 2: Summary LOS Results

Intersection and Approach	Traffic Control	Existing (2022)		No Build (2024)		Build (2024)	
		AM	PM	AM	PM	AM	PM
Old NC 86 & Dairyland Road/Homestead Road	Signalized	C (29.6)	C (26.9)	C (30.3)	C (27.5)	C (30.3)	C (27.5)
Eastbound		D-48.5	D-49.2	D-49.0	D-50.0	D-49.0	D-50.0
Westbound		C-27.5	C-32.5	C-28.1	C-34.4	C-28.1	C-34.4
Northbound		B-17.8	B-19.3	B-18.5	B-19.6	B-18.5	B-19.6
Southbound		C-26.2	C-25.9	C-27.1	C-25.9	C-27.1	C-25.9
Old NC 86 & Site Access #1	Unsignalized	N/A	N/A	N/A	N/A	A (1.1)	A (0.7)
Westbound		---	---	---	---	D-25.0	C-22.2

X (XX.X) = Overall intersection LOS (average delay), X-XX = Approach LOS and average delay

As shown in Table 2, the signalized intersection at Old NC 86 at Dairyland Road/Homestead Road is expected to operate at LOS C during the AM and PM peak hours with the development in place. The newly constructed Site Access #1 is projected to operate at LOS A during the AM and PM peak hours.

The future (2024) lane geometrics and traffic control recommended with the addition of the development are depicted in Figure 9 and show that no additional offsite lane improvements are recommended. The Synchro reports for this analysis are located at the end of the memorandum.

Recommendations

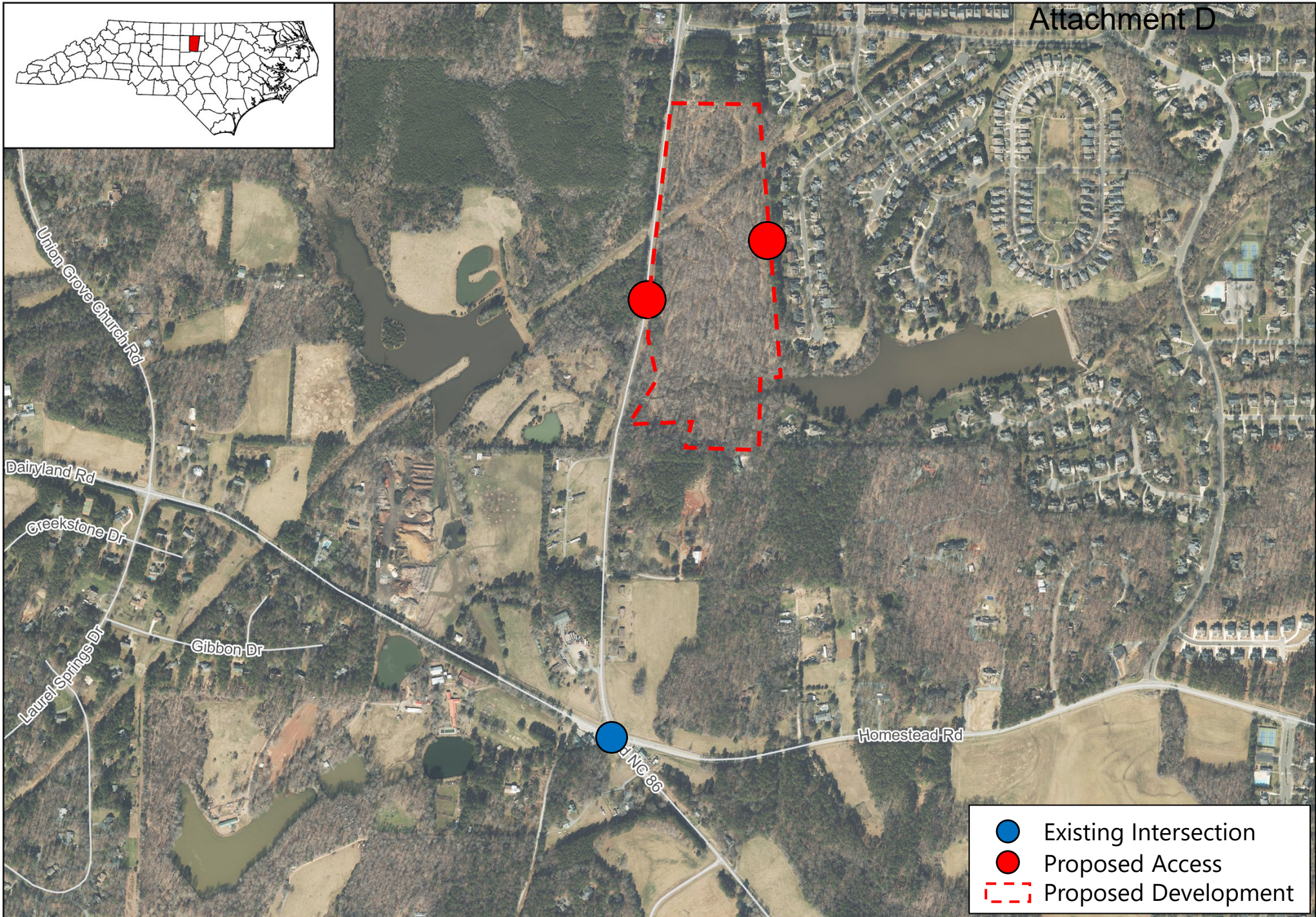
Traffic capacity analyses indicate that the study area intersections are projected to operate acceptably, and no offsite improvements are recommended. Turn lane warrants were evaluated using guidance provided within the NCDOT Policy on Street and Driveway Access to North Carolina Highways. Build (2024) AM and PM peak hour turning movements were utilized to evaluate turn lane warrants presented in the Manual.

Old NC 86 at Site Access #1 (future unsignalized)

The traffic analysis indicates that the stop-controlled, full movement access is projected to operate acceptably during both the AM and PM peak hours. Therefore, the following driveway configuration and roadway improvements are recommended to improve traffic operations and safety:

- Construct the planned access at the location shown on the site plan with one ingress lane and one egress lane.
- Widen the southbound approach of Old NC 86 to provide an exclusive left-turn lane with a minimum of 50 feet of storage and appropriate taper.
- Widen the northbound approach of Old NC 86 to provide an exclusive right-turn lane with a minimum of 50 feet of storage and appropriate taper.

Completed turn lane warrants are shown in Figure 9 and the recommended traffic control and lane geometrics are shown in Figure 10.



- Existing Intersection
- Proposed Access
- Proposed Development

Scale
0 0.1 0.2
Miles



Figure 1:
Vicinity Map

Hogan Ridge Subdivision
Orange County
Carrboro, NC



Attachment D

LEGEND	
—	Existing Roadway
--	Future Roadway
	Existing Signalized Intersection
→	Turning Movement
xx	AM Peak Hour Turning Movement Volume
(xx)	PM Peak Hour Turning Movement Volume

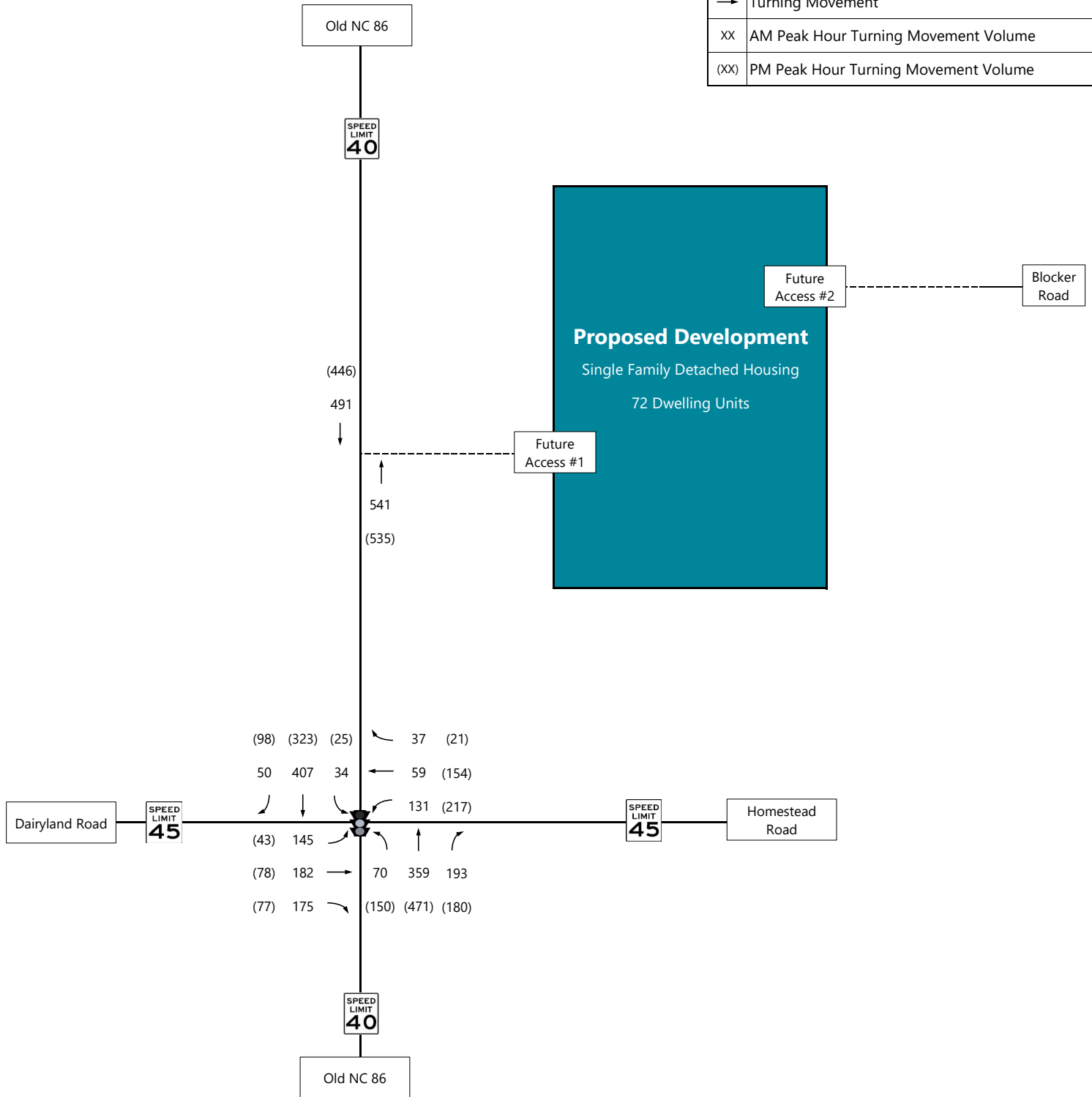


Figure 2
AM and PM Peak Hour Turning Movement Counts (2019)

Hogan Ridge Subdivision
Carrboro, NC

Attachment D

LEGEND	
—	Existing Roadway
--	Future Roadway
	Existing Signalized Intersection
→	Turning Movement
xx	AM Peak Hour Turning Movement Volume
(xx)	PM Peak Hour Turning Movement Volume

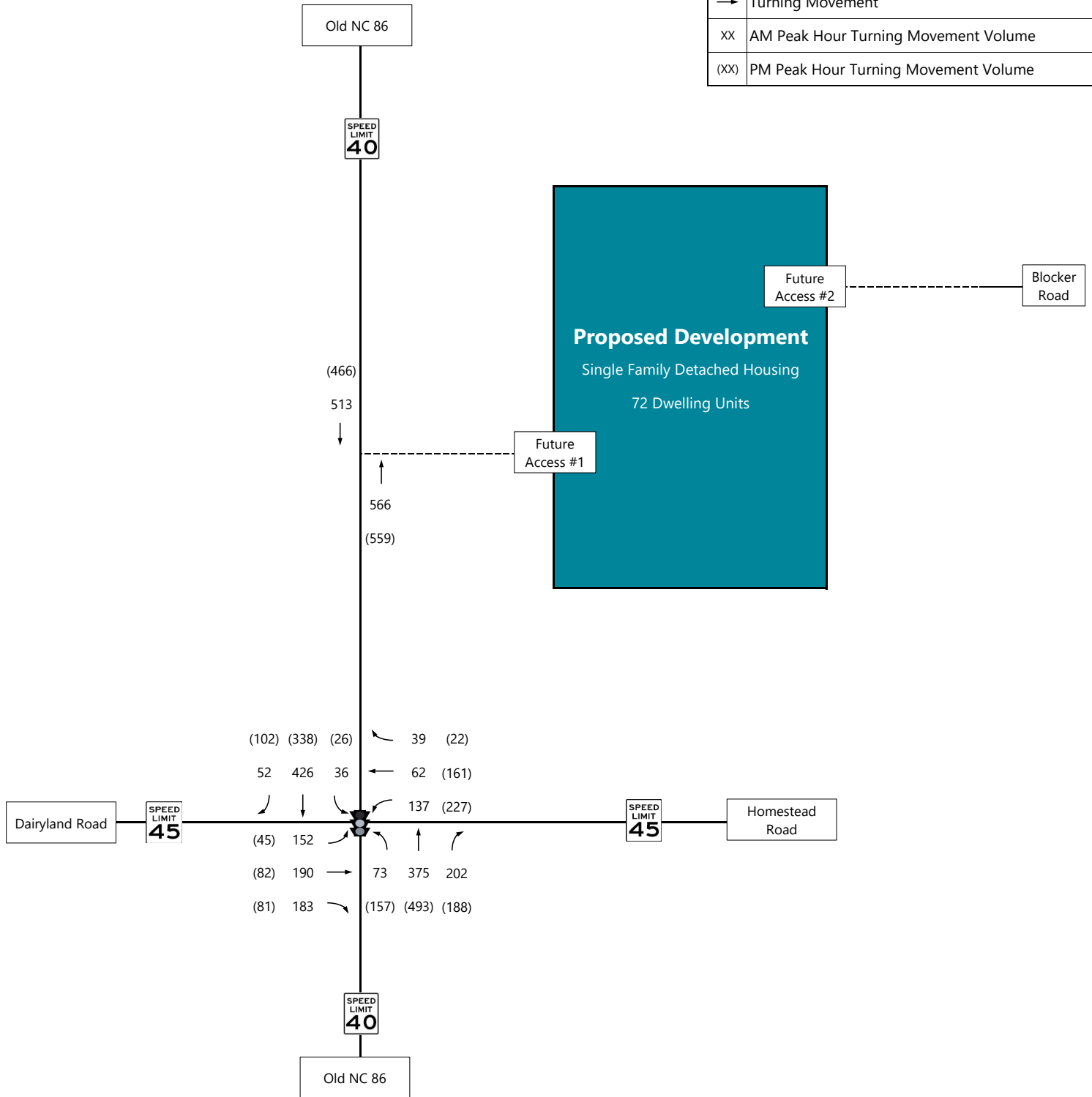


Figure 3
Existing (2022) AM and PM Peak Hour Volumes

Hogan Ridge Subdivision
Carrboro, NC

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LEGEND	
—	Existing Roadway
--	Future Roadway
	Existing Signalized Intersection
→	Turning Movement
xx	AM Peak Hour Turning Movement Volume
(xx)	PM Peak Hour Turning Movement Volume

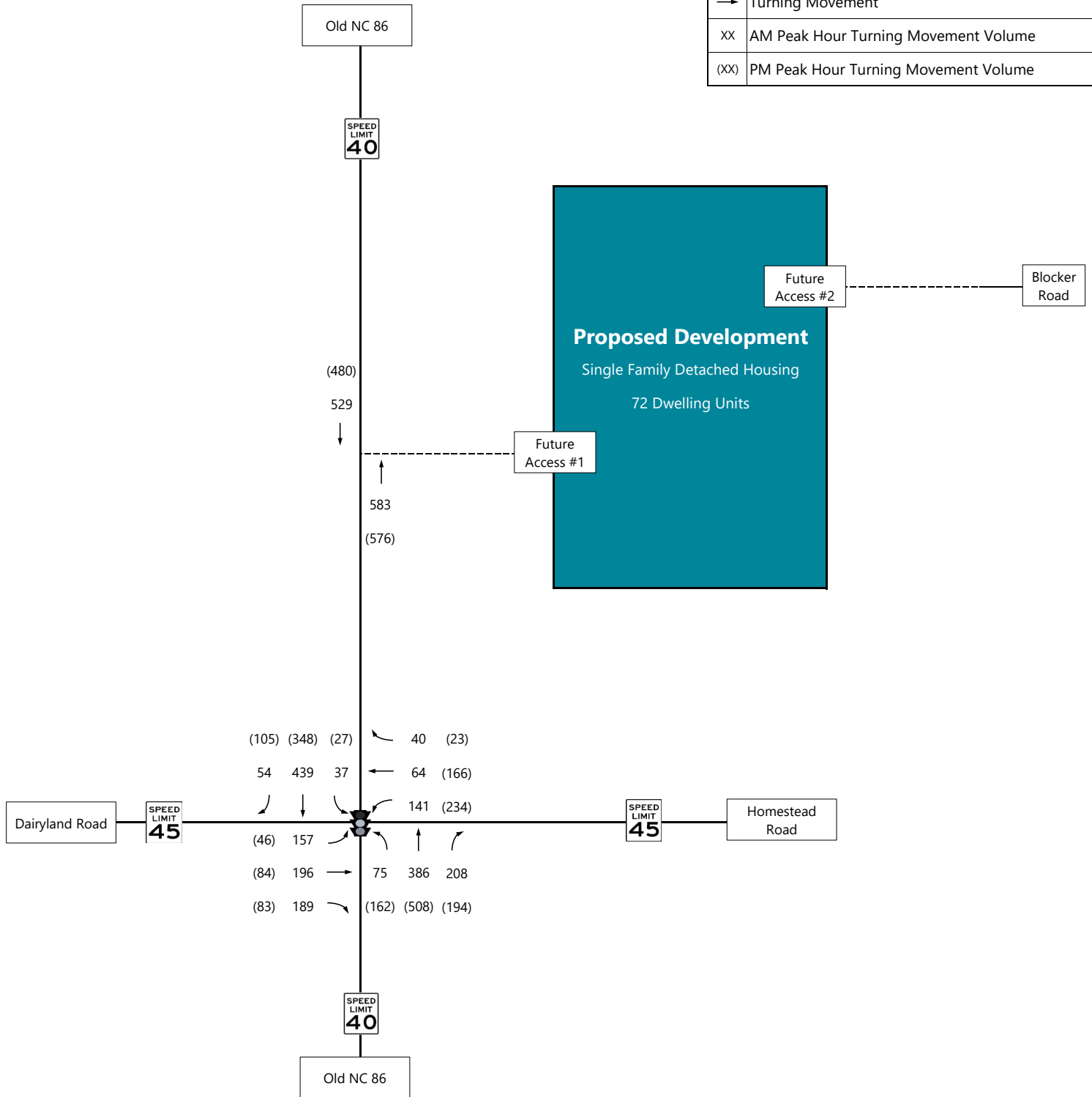


Figure 4
No-Build (2024) AM and PM Peak Hour Turning Movement Volumes

Hogan Ridge Subdivision
Carrboro, NC

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LEGEND	
—	Existing Roadway
- -	Future Roadway
	Future Stop Controlled Approach
	Existing Signalized Intersection
→	Turning Movement
XX%	Percentage of Exiting Trips
XX%	Percentage of Entering Trips

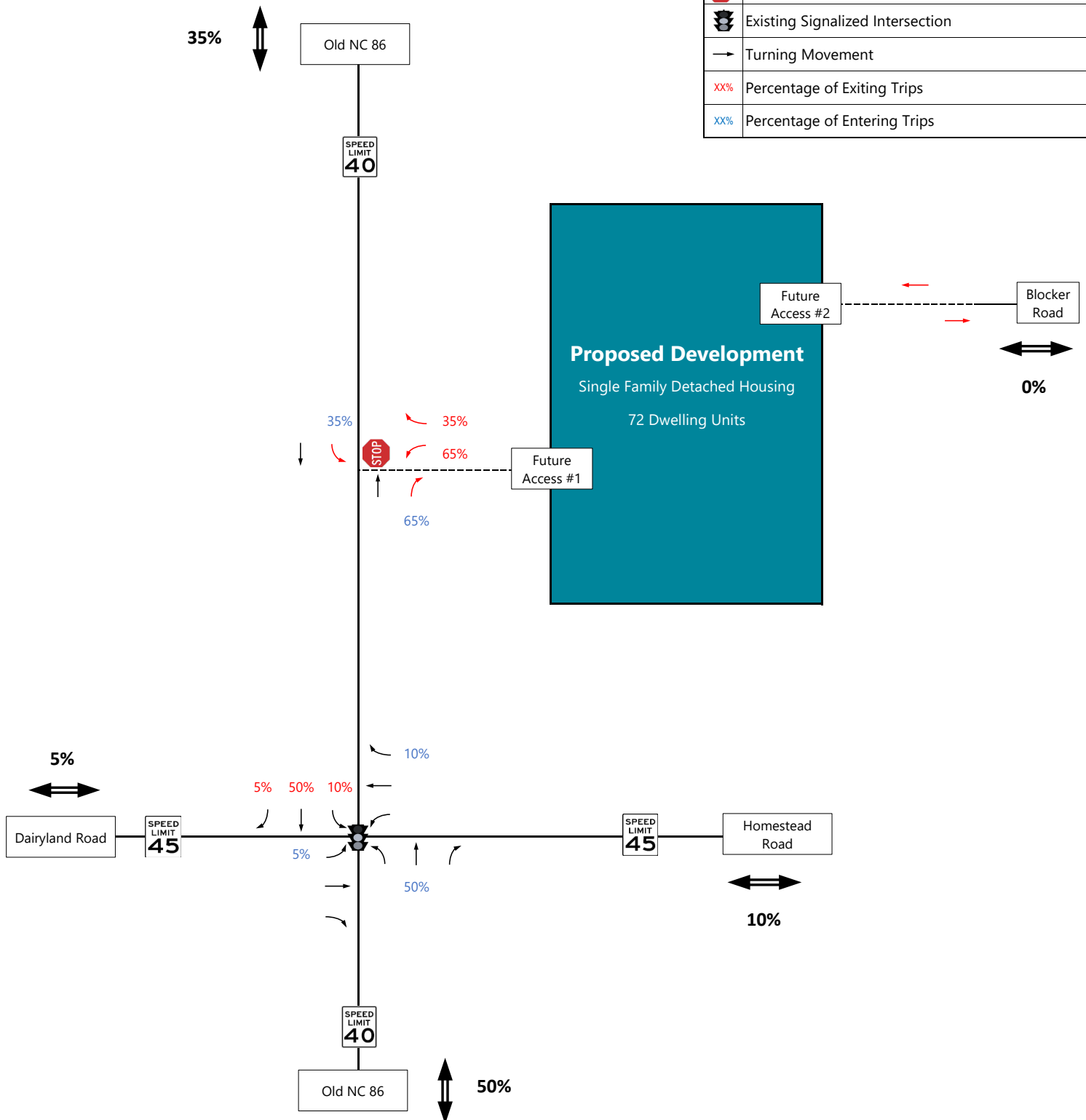


Figure 5
Peak Hour Traffic Distribution Percentages

Hogan Ridge Subdivision
Carrboro, NC

Attachment D

LEGEND	
—	Existing Roadway
--	Future Roadway
	Future Stop Controlled Approach
	Existing Signalized Intersection
→	Turning Movement
XX%	Percentage of Exiting Trips
XX%	Percentage of Entering Trips

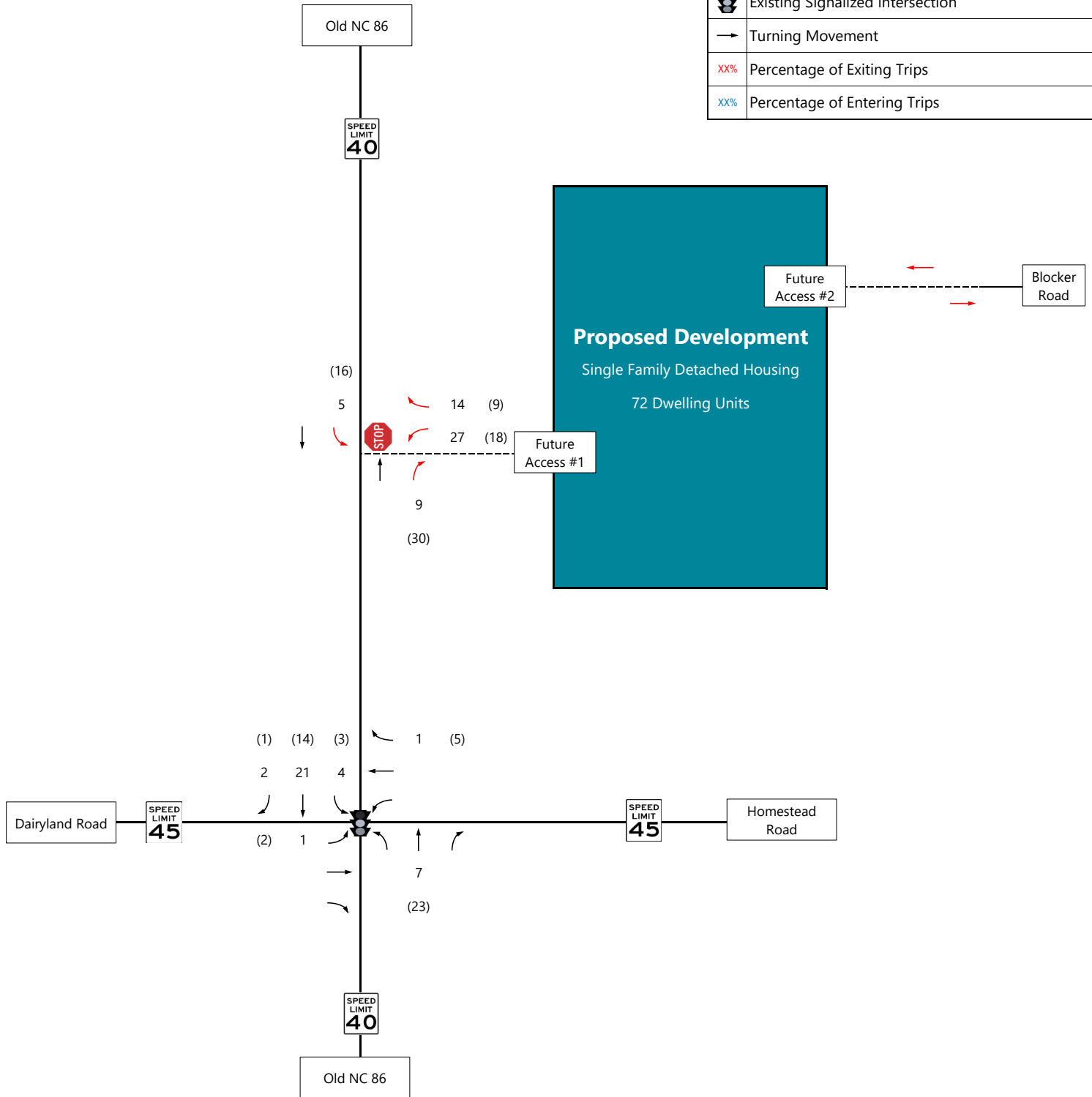


Figure 6
AM and PM Peak Hour Site Trips

Hogan Ridge Subdivision
Carrboro, NC

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LEGEND	
—	Existing Roadway
--	Future Roadway
	Future Stop Controlled Approach
	Existing Signalized Intersection
→	Turning Movement
XX	AM Peak Hour Turning Movement Volume
(XX)	PM Peak Hour Turning Movement Volume

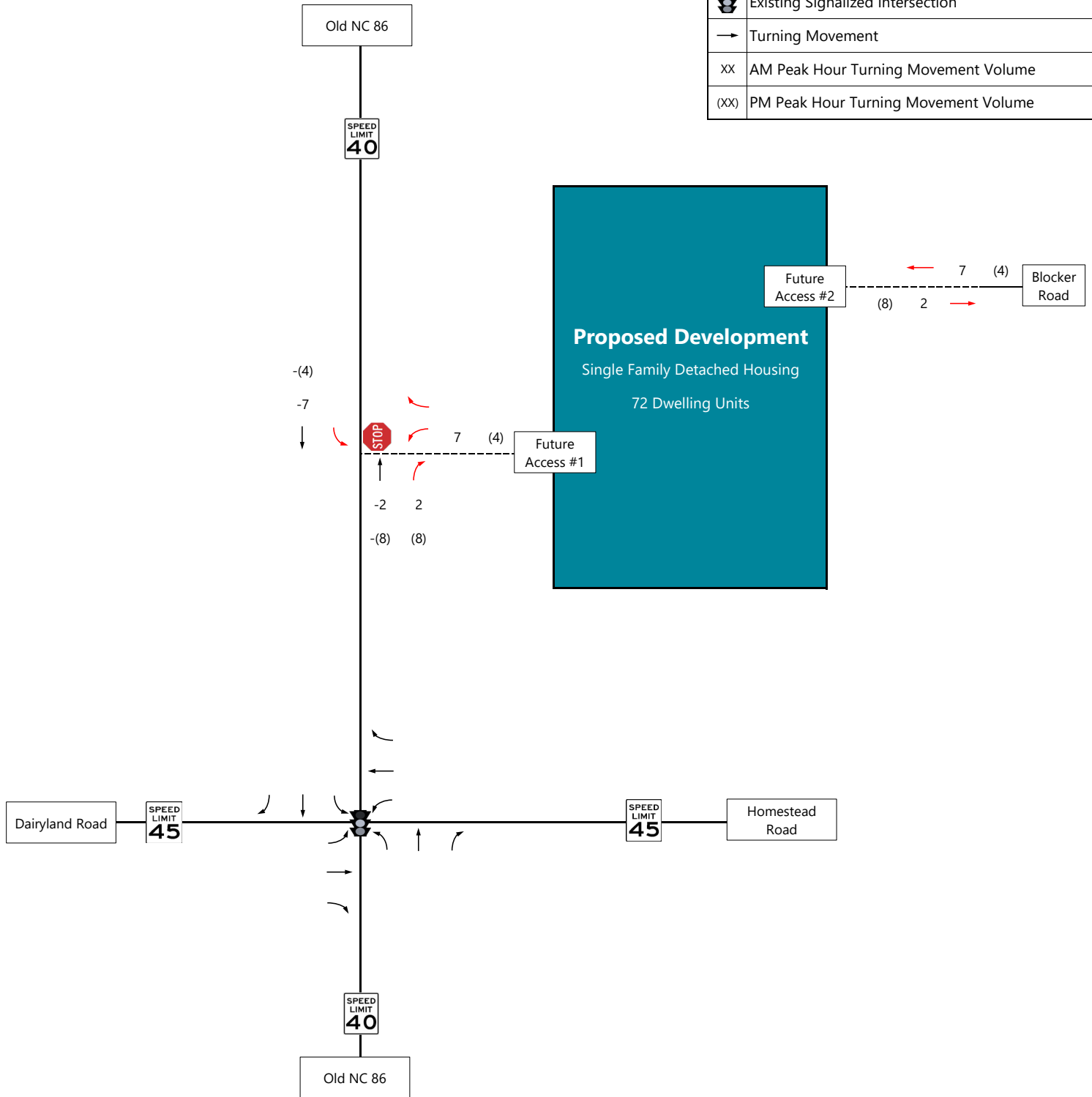


Figure 7
Rerouted Trips from Lake Hogan Farms

Hogan Ridge Subdivision
Carrboro, NC

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LEGEND	
—	Existing Roadway
--	Future Roadway
	Future Stop Controlled Approach
	Existing Signalized Intersection
→	Turning Movement
XX	AM Peak Hour Turning Movement Volume
(XX)	PM Peak Hour Turning Movement Volume

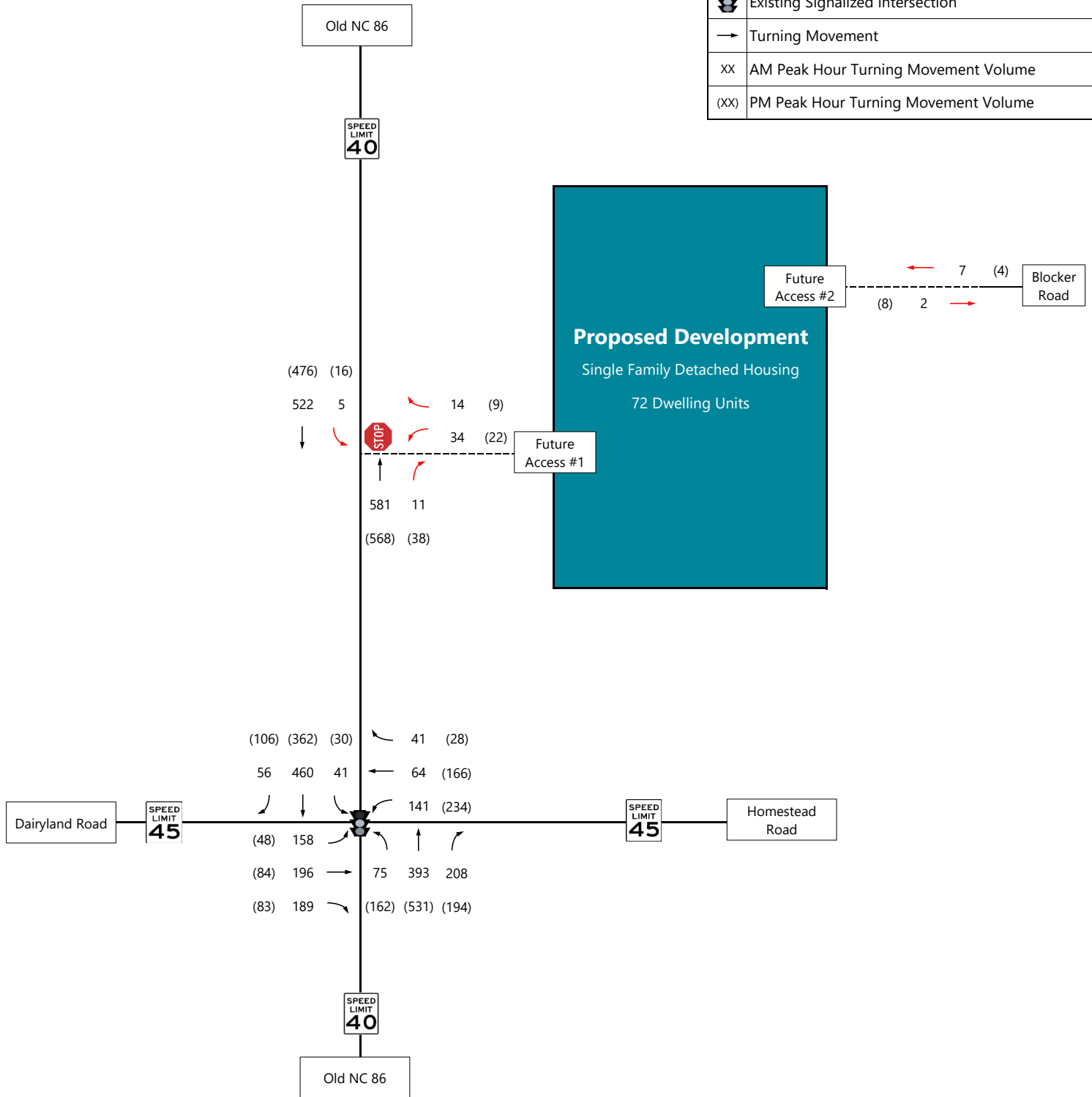


Figure 8
Build (2024) AM and PM Peak Hour Turning Movement Volumes

Hogan Ridge Subdivision
Carrboro, NC

Policy On Street And Driveway Access to North Carolina Highways
July 2003

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS

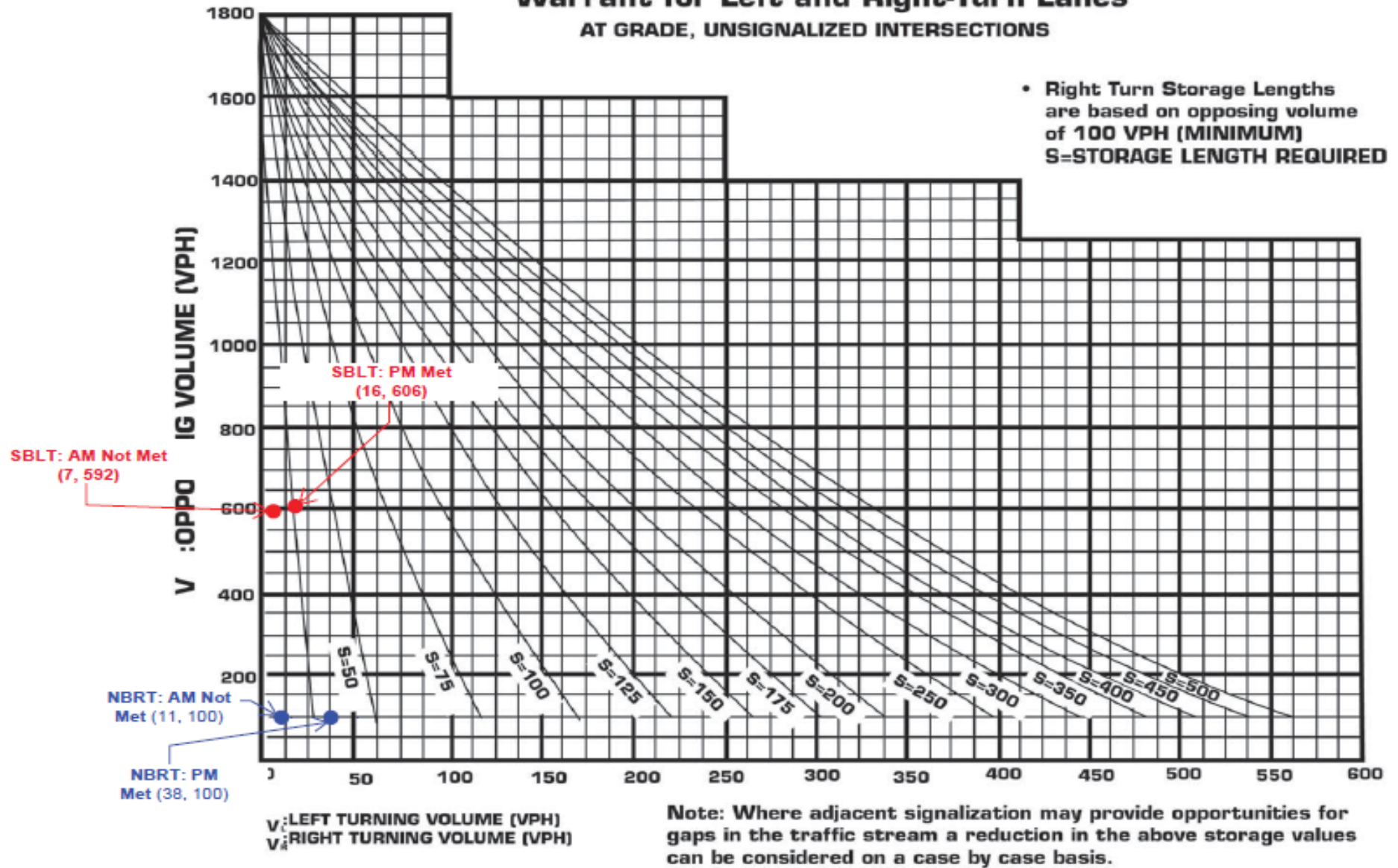


Figure 9
Build (2024) AM and PM Peak Hour Turn Lane Warrants
Old NC 86 at Site Access #1

Hogan Ridge Subdivision
Carrboro, NC

LEGEND	
—	Existing Roadway
--	Future Roadway
	Future Stop Controlled Approach
	Existing Signalized Intersection
→	Turning Movement
XX	AM Peak Hour Turning Movement Volume
(XX)	PM Peak Hour Turning Movement Volume

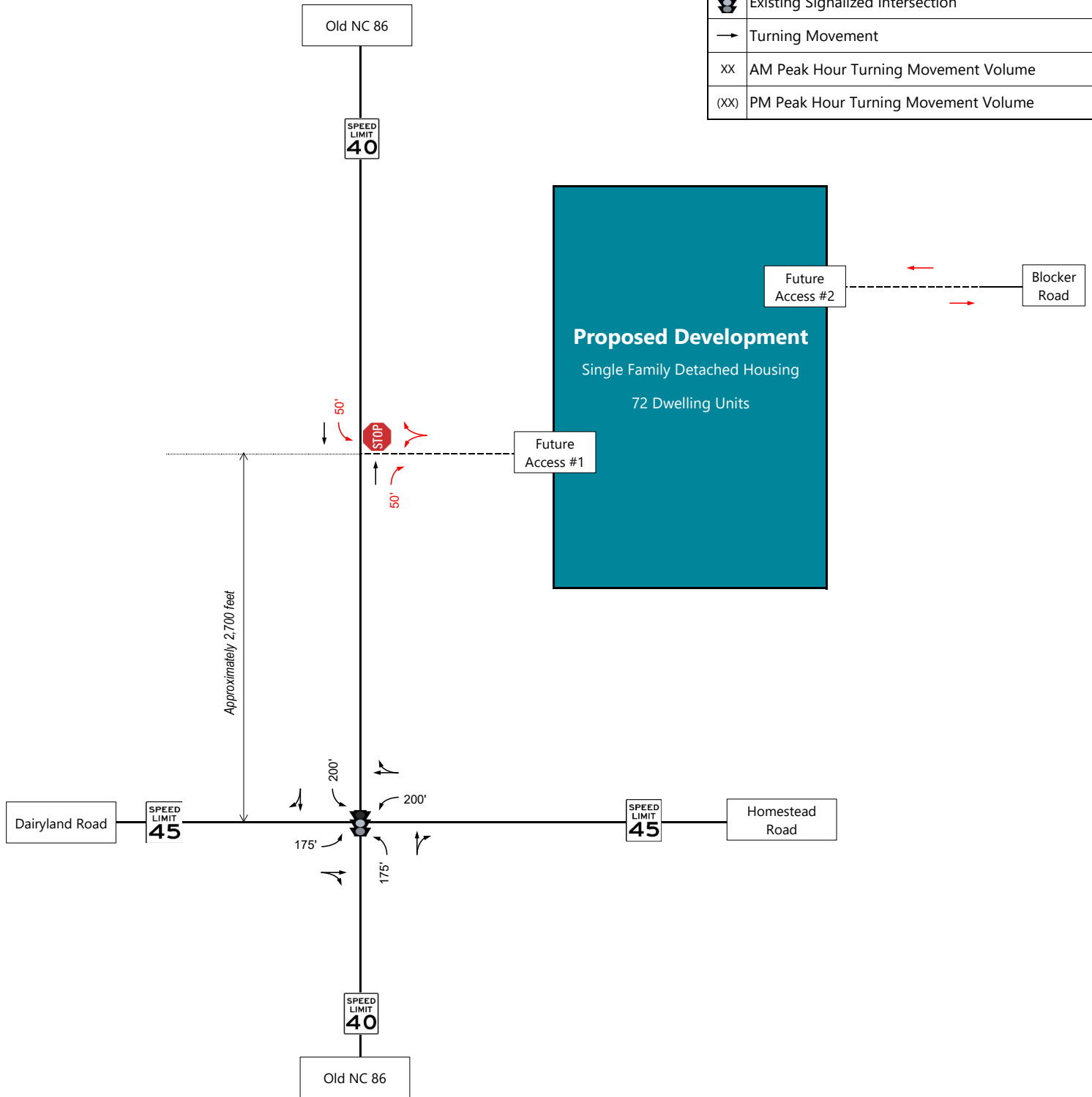


Figure 10
Future (2024) Lane Geometrics and Traffic Control

Hogan Ridge Subdivision
Carrboro, NC



Marr Traffic DATA COLLECTION

Count Number: 1220
 NCDOT Division Number: 7
 County: Orange
 City: Chapel Hill
 Count Type: Turning Movement (Classification)
 13 Hour Count Volume: 14745

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Intersection: SR-1009 Hillsborough Rd / SR-1777 Homestead Rd /
 SR-1104 Dairyland Rd

Count Date: Thursday 28 February 2019

Count Time: 0600—1900 (Weekday 13h Session)

Weather Conditions: Cloudy, 42°F to 62°F

Precipitation: 0.00

Counted By: Mike Chase
 Data Processor: Murray Allan
 Method Used: OmniCam 30
 Equipment Operating: Yes

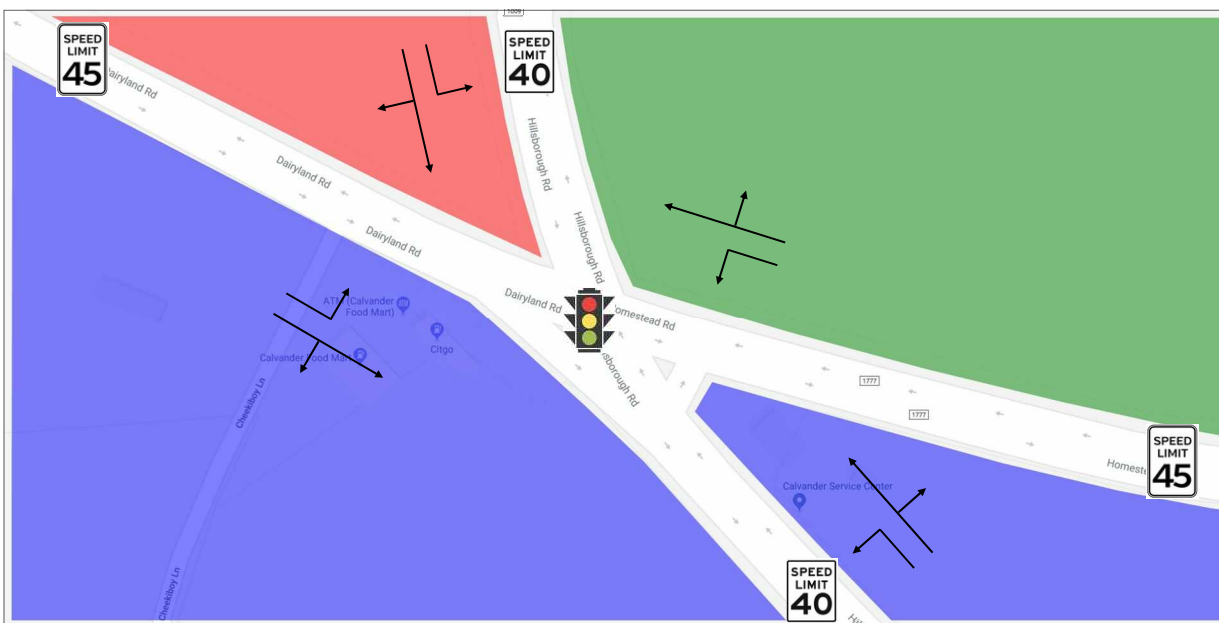
Area Lighting Present: No
 Traffic Control: Yes
 Signal Cabinet Number: 07-1013

Pedestrians Counted: Yes
 Disabled Pedestrians: No

School In Session: Yes

Construction: No
 Traffic Flow Disruption: No
 Classes 11-13 Observed: No

Approach	Stop Sign Within 300ft	Signal Within 300ft	Railroad Within 300ft
North	-	-	-
East	-	-	-
South	-	-	-
West	-	-	-



Open Space	Residential	Commercial	Industrial	Institutional
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Marr Traffic DATA COLLECTION

Count Number:	1220
NCDOT Division Number:	7
County:	Orange
City:	Chapel Hill
Count Type:	Turning Movement (Classification)
13 Hour Count Volume:	14745

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North Approach: SR-1009 Hillsborough Rd (North)

Looking From Intersection



Looking To Intersection



East Approach: SR-1777 Homestead Rd

Looking From Intersection



Looking To Intersection



South Approach: SR-1009 Hillsborough Rd (South)

Looking From Intersection



Looking To Intersection



West Approach: SR-1104 Dairyland Rd

Looking From Intersection



Looking To Intersection





Marr Traffic DATA COLLECTION

Count Number:
NCDOT Division Number:
County:
City:
Count Type:
13 Hour Count Volume:

1220
7
Orange
Chapel Hill
Turning Movement (Classification)
14745

Attachment D

Signal Cabinet



Attachment D

PV (%)	0.00	96.83	96.76	93.84	-	96.24	0.00	93.49	87.11	95.97	-	91.27	0.00	89.98	96.89	94.81	-	95.06	0.00	95.18	90.15	91.37	-	91.91
DUALS (%)	0.00	3.17	3.01	5.44	-	3.45	0.00	6.43	12.89	4.03	-	8.69	0.00	9.64	2.95	4.96	-	4.72	0.00	4.69	9.85	8.63	-	8.05
TTST (%)	0.00	0.00	0.24	0.72	-	0.31	0.00	0.08	0.00	0.00	-	0.04	0.00	0.38	0.16	0.23	-	0.22	0.00	0.13	0.00	0.00	-	0.03
TWINS (%)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00

Attachment D

TTST (%)	0.00	0.00	0.25	2.00	-	0.41	0.00	0.76	0.00	0.00	-	0.44	0.00	2.86	0.56	0.52	-	0.80	0.00	0.00	0.00	0.00	-	0.00	0.43
TWINS (%)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00

Attachment D

TWINS	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0			
PV (%)	0.00	100.00	99.69	95.92	-	98.88	0.00	95.85	100.00	100.00	-	97.70	0.00	99.33	98.51	99.44	-	98.88	0.00	93.02	96.15	97.40	-	95.96	98.31
DUALS (%)	0.00	0.00	0.31	3.06	-	0.90	0.00	4.15	0.00	0.00	-	2.30	0.00	0.67	1.27	0.56	-	1.00	0.00	6.98	3.85	2.60	-	4.04	1.58
TTST (%)	0.00	0.00	0.00	1.02	-	0.22	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.21	0.00	-	0.12	0.00	0.00	0.00	0.00	-	0.00	0.11
TWINS (%)	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00

Attachment D

Chapel Hill, NC
Classified Turn Movement Count

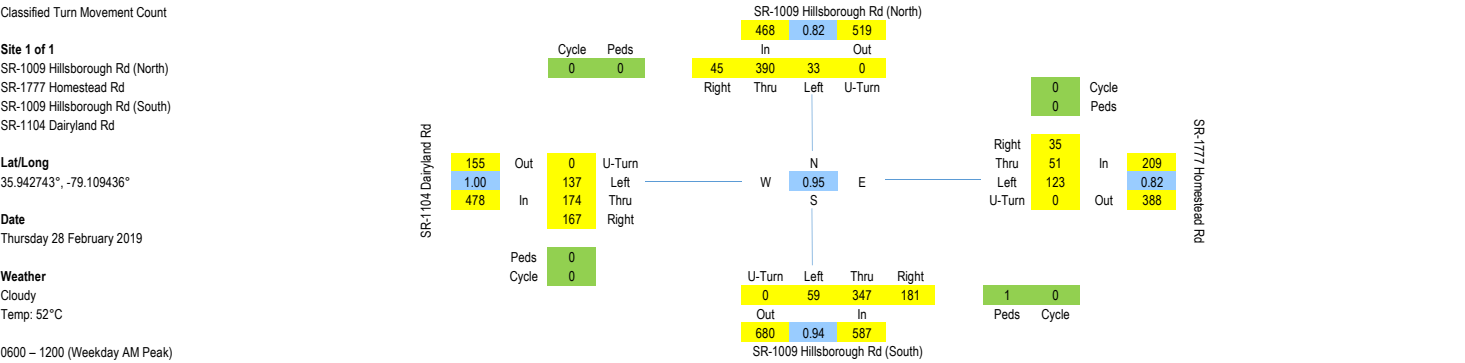
Site 1 of 1
SR-1009 Hillsborough Rd (North)
SR-1777 Homestead Rd
SR-1009 Hillsborough Rd (South)
SR-1104 Dairyland Rd

Lat/Long
35.942743°, -79.109436°

Date
Thursday 28 February 2019

Weather
Cloudy
Temp: 52°C

0600 – 1200 (Weekday AM Peak)
Classification: PV



TIME	Southbound							Westbound							Northbound							Eastbound							Int Total	Rolling Hour
	SR-1009 Hillsborough Rd (North)							SR-1777 Homestead Rd							SR-1009 Hillsborough Rd (South)							SR-1104 Dairyland Rd								
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total		U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total		U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total		U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total			
0600 - 0615	0	0	17	1	0	18		0	4	1	0	0	5		0	0	8	5	0	13		0	7	6	10	0	23	59	421	
0615 - 0630	0	1	14	0	0	15		0	9	2	4	0	15		0	0	21	4	0	25		0	9	9	10	0	28	83	590	
0630 - 0645	0	1	29	3	0	33		0	9	3	2	0	14		0	1	29	3	0	33		0	20	12	13	0	45	125	846	
0645 - 0700	0	3	44	10	0	57		0	14	3	1	0	18		0	3	26	4	0	33		0	17	11	18	0	46	154	1144	
Hourly Total	0	5	104	14	0	123		0	36	9	7	0	52		0	4	84	16	0	104		0	53	38	51	0	142	421	-	
0700 - 0715	0	1	67	6	0	74		0	12	5	5	0	22		0	3	45	12	2	62		0	25	20	27	0	72	230	1447	
0715 - 0730	0	5	88	6	0	99		0	29	3	11	0	43		0	8	61	20	0	89		0	33	28	47	0	108	339	1640	
0730 - 0745	0	10	82	19	0	111		0	43	10	11	0	64		0	10	91	27	1	129		0	23	46	51	0	120	424	1742	
0745 - 0800	0	12	119	11	0	142		0	22	13	7	0	42		0	17	95	41	0	153		0	38	33	49	0	120	457	1679	
Hourly Total	0	28	356	42	0	426		0	106	31	34	0	171		0	38	292	100	3	433		0	119	127	174	0	420	1450	-	
0800 - 0815	0	5	98	7	0	110		0	27	10	7	0	44		0	17	80	52	0	149		0	42	46	30	0	118	421	1541	
0815 - 0830	0	6	91	8	0	105		0	31	18	10	0	59		0	15	81	61	0	157		0	34	49	37	0	120	441	1367	
0830 - 0845	0	4	76	11	0	91		0	51	17	13	0	81		0	7	68	31	0	106		0	28	23	31	0	82	360	1159	
0845 - 0900	0	4	92	11	0	107		0	32	14	6	0	52		0	14	55	23	0	92		0	15	22	31	0	68	319	1015	
Hourly Total	0	19	357	37	0	413		0	141	59	36	0	236		0	53	284	167	0	504		0	119	140	129	0	388	1541	-	
0900 - 0915	0	5	60	6	0	71		0	13	10	6	0	29		0	18	42	23	0	83		0	11	32	21	0	64	247	892	
0915 - 0930	0	3	42	14	0	59		0	16	7	5	0	28		0	14	48	17	0	79		0	17	30	20	0	67	233	809	
0930 - 0945	0	2	51	12	0	65		0	19	7	2	0	28		0	8	53	20	0	81		0	9	17	16	0	42	216	747	
0945 - 1000	0	1	48	9	0	58		0	21	10	4	0	35		0	10	34	17	0	61		0	16	13	13	0	42	196	723	
Hourly Total	0	11	201	41	0	253		0	69	34	17	0	120		0	50	177	77	0	304		0	53	92	70	0	215	892	-	
1000 - 1015	0	3	29	14	0	46		0	16	8	7	0	31		0	9	26	18	0	53		0	10	11	13	0	34	164	732	
1015 - 1030	0	3	37	9	0	49		0	16	9	5	0	30		0	14	41	10	0	65		0	11	6	10	0	27	171	748	
1030 - 1045	0	1	37	10	0	48		0	14	7	5	0	26		0	19	39	12	0	70		0	7	15	26	0	48	192	760	
1045 - 1100	0	4	43	10	0	57		0	13	12	1	0	26		0	18	40	18	0	76		0	9	23	14	0	46	205	760	
Hourly Total	0	11	146	43	0	200		0	59	36	18	0	113		0	60	146	58	0	264		0	37	55	63	0	155	732	-	
1100 - 1115	0	1	24	7	0	32		0	22	9	2	0	33		0	15	44	16	0	75		0	8	12	20	0	40	180	782	
1115 - 1130	0	1	34	5	0	40		0	12	13	1	0	26		0	20	41	19	0	80		0	14	11	12	0	37	183	602	
1130 - 1145	0	1	36	7	0	44		0	17	13	4	0	34		0	13	39	19	0	71		0	11	10	22	0	43	192	419	
1145 - 1200	0	8	48	10	0	66		0	12	20	2	0	34		0	19	38	24	0	81		0	13	15	18	0	46	227	227	
Hourly Total	0	11	142	29	0	182		0	63	55	9	0	127		0	67	162	78	0	307		0	46	48	72	0	166	782	-	
Grand Total	0	85	1306	206	0	1597		0	474	224	121	0	819		0	272	1145	496	3	1916		0	427	500	559	0	1486	5818		
Approach (%)	0.00	5.32	81.78	12.90	0.00			0.00	57.88	27.35	14.77	0.00			0.00	14.20	59.76	25.89	0.16			0.00	28.73	33.65	37.62	0.00				
Total (%)	0.00	1.46	22.45	3.54	0.00	27.45		0.00	8.15	3.85	2.08	0.00	14.08		0.00	4.68	19.68	8.53	0.05	32.93		0.00	7.34	8.59	9.61	0.00	25.54			

Peak Rolling Hour Flow Rates
Classification: PV

TIME	Southbound						Westbound						Northbound						Eastbound						Int Total
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd						
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total	
0730 - 0745	0	10	82	19	0	111	0	43	10	11	0	64	0	10	91	27	1	129	0	23	46	51	0	120	424
0745 - 0800	0	12	119	11	0	142	0	22	13	7	0	42	0	17	95	41	0	153	0	38	33	49	0	120	457
0800 - 0815	0	5	98	7	0	110	0	27	10	7	0	44	0	17	80	52	0	149	0	42	46	30	0	118	421
0815 - 0830	0	6	91	8	0	105	0	31	18	10	0	59	0	15	81	61	0	157	0	34	49	37	0	120	441
Grand Total	0	33	390	45	0	468	0	123	51	35	0	209	0	59	347	181	1	588	0	137	174	167	0	478	1743
Approach (%)	0.00	7.05	83.33	9.62	0.00		0.00	58.85	24.40	16.75	0.00		0.00	10.03	59.01	30.78	0.17		0.00	28.66	36.40	34.94	0.00		
Total (%)	0.00	1.89	22.38	2.58	0.00	26.85	0.00	7.06	2.93	2.01	0.00	11.99	0.00	3.38	19.91	10.38	0.06	33.73	0.00	7.86	9.98	9.58	0.00	27.42	
PHF	82%						82%						94%						100%						95%
	0%	69%	82%	59%			0%	72%	71%	80%			0%	87%	91%	74%			0%	82%	89%	82%			

Attachment D

Chapel Hill, NC
Classified Turn Movement Count

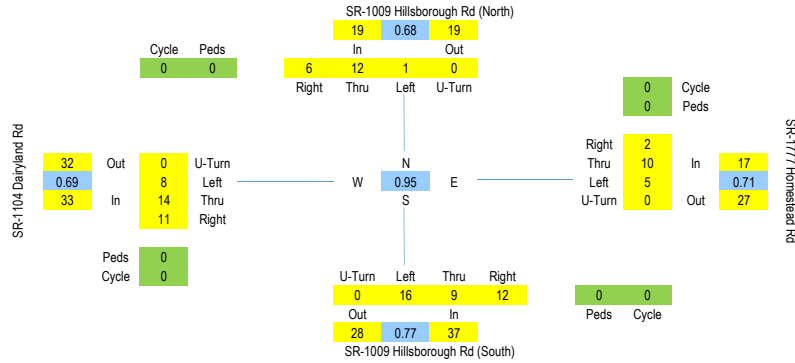
Site 1 of 1
SR-1009 Hillsborough Rd (North)
SR-1777 Homestead Rd
SR-1009 Hillsborough Rd (South)
SR-1104 Dairyland Rd

Lat/Long
35.942743°, -79.109436°

Date
Thursday 28 February 2019

Weather
Cloudy
Temp: 52°C

0600 – 1200 (Weekday AM Peak)
Classification: DUALS



TIME	Southbound						Westbound						Northbound						Eastbound						Int	Rolling Hour
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd							
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total		
0600 - 0615	0	0	2	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	26
0615 - 0630	0	0	4	0	0	4	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	36
0630 - 0645	0	0	2	0	0	2	0	2	1	0	0	3	0	0	0	2	0	2	0	0	0	0	0	0	7	38
0645 - 0700	0	0	4	0	0	4	0	4	2	0	0	6	0	0	1	0	0	1	0	0	0	0	0	0	11	46
Hourly Total	0	0	12	0	0	12	0	7	3	0	0	10	0	0	2	2	0	4	0	0	0	0	0	0	26	-
0700 - 0715	0	1	3	3	0	7	0	3	0	1	0	4	0	0	0	0	2	2	0	1	1	0	0	2	15	58
0715 - 0730	0	0	2	0	0	2	0	1	0	0	0	1	0	3	1	0	0	4	0	0	0	0	0	0	7	72
0730 - 0745	0	0	2	2	0	4	0	1	1	0	0	2	0	1	4	1	1	7	0	1	0	2	0	3	16	92
0745 - 0800	0	0	7	1	0	8	0	3	2	0	0	5	0	2	2	0	0	4	0	3	2	1	0	6	23	101
Hourly Total	0	1	14	6	0	21	0	8	3	1	0	12	0	6	7	1	3	17	0	5	3	3	0	11	61	-
0800 - 0815	0	1	5	0	0	6	0	2	1	2	0	5	0	3	2	3	0	8	0	2	2	4	0	8	27	106
0815 - 0830	0	0	2	1	0	3	0	1	4	0	0	5	0	3	2	7	0	12	0	2	4	1	0	7	27	105
0830 - 0845	0	0	1	2	0	3	0	1	5	0	0	6	0	5	4	0	0	9	0	2	2	2	0	6	24	94
0845 - 0900	0	0	4	3	0	7	0	1	0	0	0	1	0	5	1	2	0	8	0	2	6	4	0	12	28	92
Hourly Total	0	1	12	6	0	19	0	5	10	2	0	17	0	16	9	12	0	37	0	8	14	11	0	33	106	-
0900 - 0915	0	0	5	3	0	8	0	1	4	0	0	5	0	2	2	1	0	5	0	1	1	6	0	8	26	81
0915 - 0930	0	0	2	1	0	3	0	1	4	0	0	5	0	1	0	2	0	3	0	1	3	1	0	5	16	76
0930 - 0945	0	0	1	0	0	1	0	1	2	0	0	3	0	7	2	0	0	9	0	2	5	2	0	9	22	74
0945 - 1000	0	0	0	0	0	0	0	0	3	0	0	3	0	3	1	1	0	5	0	1	2	6	0	9	17	69
Hourly Total	0	0	8	4	0	12	0	3	13	0	0	16	0	13	5	4	0	22	0	5	11	15	0	31	81	-
1000 - 1015	0	0	1	1	0	2	0	4	5	1	0	10	0	1	2	0	0	3	0	1	3	2	0	6	21	70
1015 - 1030	0	0	3	0	0	3	0	1	3	0	0	4	0	3	0	0	0	3	0	0	4	0	0	4	14	63
1030 - 1045	0	0	1	0	0	1	0	2	2	2	0	6	0	3	2	0	0	5	0	1	1	3	0	5	17	73
1045 - 1100	0	0	0	2	0	2	0	2	6	0	0	8	0	1	0	0	0	1	0	0	4	3	0	7	18	82
Hourly Total	0	0	5	3	0	8	0	9	16	3	0	28	0	8	4	0	0	12	0	2	12	8	0	22	70	-
1100 - 1115	0	0	1	0	0	1	0	2	2	0	0	4	0	2	3	0	0	5	0	0	3	1	0	4	14	83
1115 - 1130	0	0	1	1	0	2	0	0	5	0	0	5	0	2	4	2	0	8	0	0	5	4	0	9	24	69
1130 - 1145	0	0	1	4	0	5	0	1	4	1	0	6	0	3	2	1	0	6	0	3	1	5	0	9	26	45
1145 - 1200	0	0	1	1	0	2	0	3	2	0	0	5	0	2	2	0	0	4	0	0	4	4	0	8	19	19
Hourly Total	0	0	4	6	0	10	0	6	13	1	0	20	0	9	11	3	0	23	0	3	13	14	0	30	83	-
Grand Total	0	2	55	25	0	82	0	38	58	7	0	103	0	52	38	22	3	115	0	23	53	51	0	127	427	
Approach (%)	0.00	2.44	67.07	30.49	0.00		0.00	36.89	56.31	6.80	0.00		0.00	45.22	33.04	19.13	2.61		0.00	18.11	41.73	40.16	0.00			
Total (%)	0.00	0.47	12.88	5.85	0.00	19.20	0.00	8.90	13.58	1.64	0.00	24.12	0.00	12.18	8.90	5.15	0.70	26.93	0.00	5.39	12.41	11.94	0.00	29.74		

Peak Rolling Hour Flow Rates
Classification: DUALS

	Southbound						Westbound						Northbound						Eastbound						Int Total	
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd							
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total		
TIME																										
0800 - 0815	0	1	5	0	0	6	0	2	1	2	0	5	0	3	2	3	0	8	0	2	2	4	0	8	27	
0815 - 0830	0	0	2	1	0	3	0	1	4	0	0	5	0	3	2	7	0	12	0	2	4	1	0	7	27	
0830 - 0845	0	0	1	2	0	3	0	1	5	0	0	6	0	5	4	0	0	9	0	2	2	2	0	6	24	
0845 - 0900	0	0	4	3	0	7	0	1	0	0	0	1	0	5	1	2	0	8	0	2	6	4	0	12	28	
Grand Total	0	1	12	6	0	19	0	5	10	2	0	17	0	16	9	12	0	37	0	8	14	11	0	33	106	
Approach (%)	0.00	5.26	63.16	31.58	0.00		0.00	29.41	58.82	11.76	0.00		0.00	43.24	24.32	32.43	0.00		0.00	24.24	42.42	33.33	0.00			
Total (%)	0.00	0.94	11.32	5.66	0.00	17.92	0.00	4.72	9.43	1.89	0.00	16.04	0.00	15.09	8.49	11.32	0.00	34.91	0.00	7.55	13.21	10.38	0.00	31.13		
PHF	68%						71%						77%						69%							95%
	0%	25%	60%	50%			0%	63%	50%	25%			0%	80%	56%	43%			0%	100%	58%	69%				

Attachment D

Chapel Hill, NC
Classified Turn Movement Count

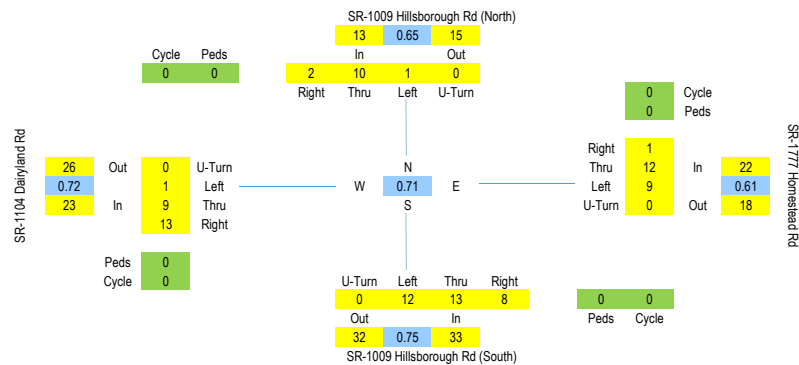
Site 1 of 1
SR-1009 Hillsborough Rd (North)
SR-1777 Homestead Rd
SR-1009 Hillsborough Rd (South)
SR-1104 Dairyland Rd

Lat/Long
35.942743°, -79.109436°

Date
Thursday 28 February 2019

Weather
Cloudy
Temp: 52°C

1200 – 1900 (Weekday PM Peak)
Classification: DUALS



TIME	Southbound						Westbound						Northbound						Eastbound						Int Total	Rolling Hour	
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd								
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total			
1200 - 1215	0	0	2	0	0	2	0	3	2	0	0	5	0	2	2	0	0	4	0	4	2	5	5	0	12	23	82
1215 - 1230	0	1	1	1	0	3	0	1	4	0	0	5	0	4	2	4	0	10	0	0	4	2	0	6	24	78	
1230 - 1245	0	0	1	0	0	1	0	1	2	0	0	3	0	4	2	3	0	9	0	1	2	6	0	9	22	76	
1245 - 1300	0	0	0	0	0	0	0	0	2	0	0	2	0	3	4	1	1	9	0	1	1	1	0	3	14	64	
Hourly Total	0	1	4	1	0	6	0	5	10	0	0	15	0	13	10	8	1	32	0	4	12	14	0	30	83	-	
1300 - 1315	0	0	0	1	0	1	0	2	5	0	0	7	0	1	2	3	0	6	0	0	4	1	0	5	19	66	
1315 - 1330	0	0	3	0	0	3	0	2	6	1	0	9	0	5	1	0	0	6	0	0	2	2	0	4	22	70	
1330 - 1345	0	0	1	0	0	1	0	0	3	0	0	3	0	0	1	0	0	1	0	0	1	4	0	5	10	66	
1345 - 1400	0	0	3	0	0	3	0	0	4	0	0	4	0	2	0	1	0	3	0	0	4	1	0	5	15	73	
Hourly Total	0	0	7	1	0	8	0	4	18	1	0	23	0	8	4	4	0	16	0	0	11	8	0	19	66	-	
1400 - 1415	0	0	3	1	0	4	0	7	2	0	0	9	0	3	2	0	0	5	0	0	3	2	0	5	23	77	
1415 - 1430	0	0	3	0	0	3	0	1	4	0	0	5	0	2	2	0	0	4	0	1	2	3	0	6	18	75	
1430 - 1445	0	0	1	0	0	1	0	0	3	1	0	4	0	2	1	2	0	5	0	0	5	2	0	7	17	89	
1445 - 1500	0	0	3	2	0	5	0	3	2	0	0	5	0	2	1	2	0	5	0	0	2	2	0	4	19	91	
Hourly Total	0	0	10	3	0	13	0	11	11	1	0	23	0	9	6	4	0	19	0	1	12	9	0	22	77	-	
1500 - 1515	0	0	2	0	0	2	0	1	4	0	0	5	0	4	3	2	0	9	0	1	1	3	0	5	21	81	
1515 - 1530	0	0	4	0	0	4	0	3	5	1	0	9	0	4	5	2	0	11	0	0	2	6	0	8	32	80	
1530 - 1545	0	1	1	0	0	2	0	2	1	0	0	3	0	2	4	2	0	8	0	0	4	2	0	6	19	71	
1545 - 1600	0	0	0	1	0	1	0	0	3	0	0	3	0	0	1	3	0	4	0	0	1	0	0	1	9	64	
Hourly Total	0	1	7	1	0	9	0	6	13	1	0	20	0	10	13	9	0	32	0	1	8	11	0	20	81	-	
1600 - 1615	0	0	2	0	0	2	0	5	6	0	0	11	0	3	2	0	0	5	0	0	2	0	0	2	20	65	
1615 - 1630	0	3	0	1	0	4	0	3	3	0	0	6	0	3	0	9	0	12	0	0	1	0	0	1	23	58	
1630 - 1645	0	0	0	1	0	1	0	0	3	0	0	3	0	0	1	5	0	6	0	0	1	1	0	2	12	40	
1645 - 1700	0	0	1	1	0	2	0	2	2	0	0	4	0	1	0	2	0	3	0	1	0	0	0	1	10	36	
Hourly Total	0	3	3	3	0	9	0	10	14	0	0	24	0	7	3	16	0	26	0	1	4	1	0	6	65	-	
1700 - 1715	0	0	0	3	0	3	0	3	0	0	0	3	0	1	3	1	0	5	0	0	1	1	0	2	13	29	
1715 - 1730	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	1	0	0	1	5	20	
1730 - 1745	0	0	0	0	0	0	0	2	0	0	0	2	0	0	3	0	0	3	0	1	1	1	0	3	8	18	
1745 - 1800	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3	14	
Hourly Total	0	0	1	3	0	4	0	9	0	0	0	9	0	1	6	1	0	8	0	3	3	2	0	8	29	-	
1800 - 1815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	4	19	
1815 - 1830	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	3	
1830 - 1845	0	0	1	0	0	1	0	0	1	0	0	1	0	0	2	0	0	2	0	0	0	0	0	0	0	4	
1845 - 1900	0	0	1	0	0	1	0	0	0	0	0	0	0	1	4	0	0	5	0	2	0	0	0	2	8		
Hourly Total	0	0	2	1	0	3	0	0	1	0	0	1	0	1	11	1	0	13	0	2	0	0	0	2	19		
Grand Total	0	5	34	13	0	52	0	45	67	3	0	115	0	49	53	43	1	146	0	12	50	45	0	107	420		
Approach (%)	0.00	9.62	65.38	25.00	0.00		0.00	39.13	58.26	2.61	0.00		0.00	33.56	36.30	29.45	0.68		0.00	11.21	46.73	42.06	0.00				
Total (%)	0.00	1.19	8.10	3.10	0.00	12.38	0.00	10.71	15.95	0.71	0.00	27.38	0.00	11.67	12.62	10.24	0.24	34.76	0.00	2.86	11.90	10.71	0.00	25.48			

Peak Rolling Hour Flow Rates
Classification: DUALS

TIME	Southbound						Westbound						Northbound						Eastbound						Int Total
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd						
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total	
1445 - 1500	0	0	3	2	0	5	0	3	2	0	0	5	0	2	1	2	0	5	0	0	2	2	0	4	19
1500 - 1515	0	0	2	0	0	2	0	1	4	0	0	5	0	4	3	2	0	9	0	1	1	3	0	5	21
1515 - 1530	0	0	4	0	0	4	0	3	5	1	0	9	0	4	5	2	0	11	0	0	2	6	0	8	32
1530 - 1545	0	1	1	0	0	2	0	2	1	0	0	3	0	2	4	2	0	8	0	0	4	2	0	6	19
Grand Total	0	1	10	2	0	13	0	9	12	1	0	22	0	12	13	8	0	33	0	1	9	13	0	23	91
Approach (%)	0.00	7.69	76.92	15.38	0.00		0.00	40.91	54.55	4.55	0.00		0.00	36.36	39.39	24.24	0.00		0.00	4.35	39.13	56.52	0.00		
Total (%)	0.00	1.10	10.99	2.20	0.00	14.29	0.00	9.89	13.19	1.10	0.00	24.18	0.00	13.19	14.29	8.79	0.00	36.26	0.00	1.10	9.89	14.29	0.00	25.27	
PHF	65%						61%						75%						72%						71%
	0%	25%	63%	25%			0%	75%	60%	25%			0%	75%	65%	100%			0%	25%	56%	54%			

Attachment D

Chapel Hill, NC
Classified Turn Movement Count

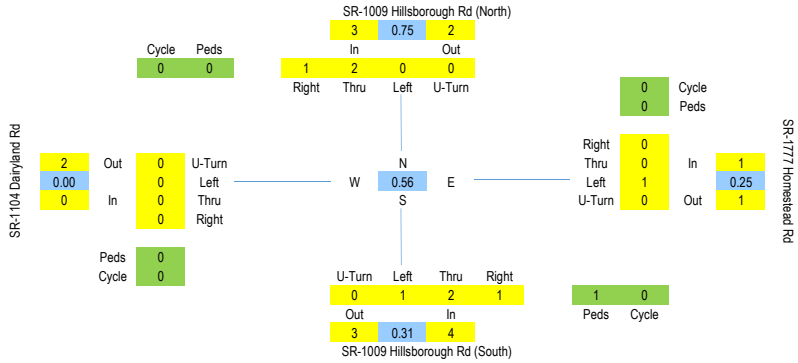
Site 1 of 1
SR-1009 Hillsborough Rd (North)
SR-1777 Homestead Rd
SR-1009 Hillsborough Rd (South)
SR-1104 Dairyland Rd

Lat/Long
35.942743°, -79.109436°

Date
Thursday 28 February 2019

Weather
Cloudy
Temp: 52°C

0600 – 1200 (Weekday AM Peak)
Classification: TTST



TIME	Southbound							Westbound							Northbound							Eastbound							Int Total	Rolling Hour
	SR-1009 Hillsborough Rd (North)							SR-1777 Homestead Rd							SR-1009 Hillsborough Rd (South)							SR-1104 Dairyland Rd								
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total		U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total		U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total		U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total			
0600 - 0615	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	1	
0615 - 0630	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	1	
0630 - 0645	0	0	0	1	0	1		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	1	2	
0645 - 0700	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	4	
Hourly Total	0	0	0	1	0	1		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	1	-	
0700 - 0715	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	2	2		0	0	0	0	0	2	5	
0715 - 0730	0	0	1	0	0	1		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	1	8	
0730 - 0745	0	0	0	0	0	0		0	0	0	0	0	0		0	1	1	1	1	4		0	0	0	0	0	0	4	8	
0745 - 0800	0	0	0	1	0	1		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	1	6	
Hourly Total	0	0	1	1	0	2		0	0	0	0	0	0		0	1	1	1	3	6		0	0	0	0	0	0	8	-	
0800 - 0815	0	0	1	0	0	1		0	1	0	0	0	1		0	0	1	0	0	1		0	0	0	0	0	0	3	6	
0815 - 0830	0	0	0	0	0	0		0	0	0	0	0	0		0	1	0	0	0	1		0	0	0	0	0	0	1	5	
0830 - 0845	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	1	0	1		0	0	0	0	0	0	1	6	
0845 - 0900	0	0	1	0	0	1		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	1	5	
Hourly Total	0	0	2	0	0	2		0	1	0	0	0	1		0	1	1	1	0	3		0	0	0	0	0	0	6	-	
0900 - 0915	0	0	1	0	0	1		0	0	0	0	0	0		0	1	0	0	0	1		0	0	0	0	0	0	2	4	
0915 - 0930	0	0	0	1	0	1		0	0	0	0	0	0		0	1	0	0	0	1		0	0	0	0	0	0	2	2	
0930 - 0945	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	
0945 - 1000	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	
Hourly Total	0	0	1	1	0	2		0	0	0	0	0	0		0	2	0	0	0	2		0	0	0	0	0	0	4	-	
1000 - 1015	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	
1015 - 1030	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	
1030 - 1045	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	
1045 - 1100	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	-	
1100 - 1115	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	1	
1115 - 1130	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	1	
1130 - 1145	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	1	
1145 - 1200	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	1	0	0	0	1	1	1	
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	1	0	0	0	1	1	-	
Grand Total	0	0	4	3	0	7		0	1	0	0	0	1		0	4	2	2	3	11		0	1	0	0	0	1		20	
Approach (%)	0.00	0.00	57.14	42.86	0.00		0.00	100.00	0.00	0.00	0.00		0.00	36.36	18.18	18.18	27.27		0.00	100.00	0.00	0.00	0.00		0.00	100.00	0.00	0.00		
Total (%)	0.00	0.00	20.00	15.00	0.00	35.00	0.00	5.00	0.00	0.00	0.00	5.00	0.00	20.00	10.00	10.00	15.00	55.00	0.00	5.00	0.00	0.00	0.00	5.00						

Peak Rolling Hour Flow Rates
Classification: TTST

	Southbound						Westbound						Northbound						Eastbound						Int Total	
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd							
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total		
TIME	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0715 - 0730	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	4	0	0	0	0	0	0	4
0745 - 0800	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0800 - 0815	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	3
Grand Total	0	0	2	1	0	3	0	1	0	0	0	1	0	1	2	1	1	5	0	0	0	0	0	0	0	9
Approach (%)	0.00	0.00	66.67	33.33	0.00		0.00	100.00	0.00	0.00	0.00		0.00	20.00	40.00	20.00	20.00		0.00	0.00	0.00	0.00	0.00			
Total (%)	0.00	0.00	22.22	11.11	0.00	33.33	0.00	11.11	0.00	0.00	0.00	11.11	0.00	11.11	22.22	11.11	11.11	55.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PHF	75%						25%						31%						0%						56%	
	0%	0%	50%	25%			0%	25%	0%	0%			0%	25%	50%	25%			0%	0%	0%	0%				

Attachment D

Chapel Hill, NC
Classified Turn Movement Count

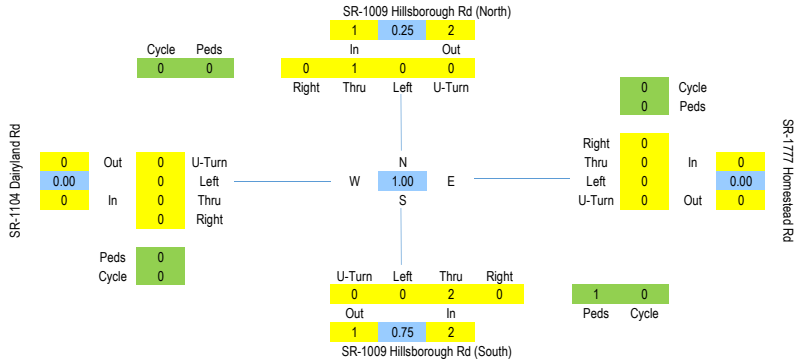
Site 1 of 1
SR-1009 Hillsborough Rd (North)
SR-1777 Homestead Rd
SR-1009 Hillsborough Rd (South)
SR-1104 Dairyland Rd

Lat/Long
35.942743°, -79.109436°

Date
Thursday 28 February 2019

Weather
Cloudy
Temp: 52°C

1200 – 1900 (Weekday PM Peak)
Classification: TTST



TIME	Southbound						Westbound						Northbound						Eastbound						Int Total	Rolling Hour	
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd								
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total			
1200 - 1215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1215 - 1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
1230 - 1245	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
1245 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	3
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	-
1300 - 1315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	3
1315 - 1330	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
1330 - 1345	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	2
1345 - 1400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Hourly Total	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	3	-
1400 - 1415	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1415 - 1430	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
1430 - 1445	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2
1445 - 1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	-
1500 - 1515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1530 - 1545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1545 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
1600 - 1615	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1615 - 1630	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1630 - 1645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hourly Total	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1730 - 1745	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	2
1745 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	-
1800 - 1815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1815 - 1830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1830 - 1845	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1845 - 1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	3	2	0	5	0	0	0	0	0	0	0	0	3	1	1	5	0	0	0	0	0	0	0	10	
Approach (%)	0.00	0.00	60.00	40.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	60.00	20.00	20.00		0.00	0.00	0.00	0.00	0.00				
Total (%)	0.00	0.00	30.00	20.00	0.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	10.00	10.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00			

Peak Rolling Hour Flow Rates
Classification: TTST

TIME	Southbound						Westbound						Northbound						Eastbound						Int Total	
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd							
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total		
1245 - 1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
1300 - 1315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
1315 - 1330	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1330 - 1345	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
Grand Total	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	0	0	0	4
Approach (%)	0.00	0.00	100.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	66.67	0.00	33.33		0.00	0.00	0.00	0.00	0.00			
Total (%)	0.00	0.00	25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	0.00	25.00	75.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PHF	25%						0%						75%						0%							100%
	0%	0%	25%	0%			0%	0%	0%	0%			0%	0%	50%	0%			0%	0%	0%	0%				

Attachment D

Chapel Hill, NC

Classified Turn Movement Count

Site 1 of 1

SR-1009 Hillsborough Rd (North)

SR-1777 Homestead Rd

SR-1009 Hillsborough Rd (South)

SR-1104 Dairyland Rd

Lat/Long

35.942743°, -79.109436°

Date _____

Thursday 28 February 2019

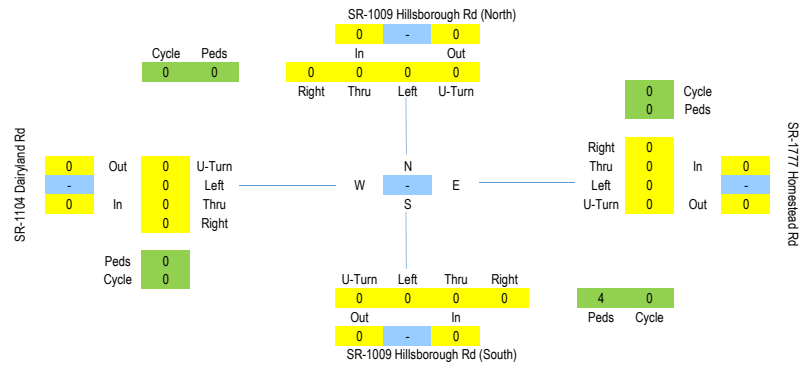
Weather

Cloudy

Temp: 52°C

0600 – 1900 (Weekday 13h Session)

Classification: TWINS

[illegible]

Attachment D

Chapel Hill, NC
Classified Turn Movement Count

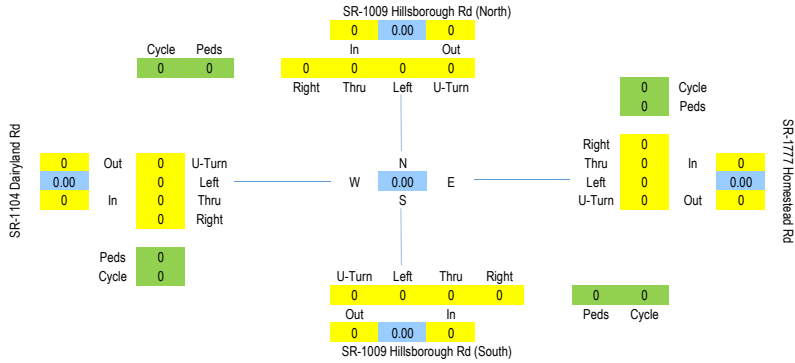
Site 1 of 1
SR-1009 Hillsborough Rd (North)
SR-1777 Homestead Rd
SR-1009 Hillsborough Rd (South)
SR-1104 Dairyland Rd

Lat/Long
35.942743°, -79.109436°

Date
Thursday 28 February 2019

Weather
Cloudy
Temp: 52°C

0600 – 1200 (Weekday AM Peak)
Classification: TWINS



TIME	Southbound							Westbound							Northbound							Eastbound							Int Total	Rolling Hour
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total		U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total		U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total		U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total			
0600 - 0615	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0
0615 - 0630	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0
0630 - 0645	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0
0645 - 0700	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	-
0700 - 0715	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	2	2		0	0	0	0	0	0	2	0
0715 - 0730	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
0730 - 0745	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	1	1		0	0	0	0	0	0	1	0
0745 - 0800	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	3	3		0	0	0	0	0	0	3	-
0800 - 0815	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
0815 - 0830	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
0845 - 0900	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	-
0900 - 0915	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
0915 - 0930	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
0930 - 0945	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
0945 - 1000	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	-
1000 - 1015	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
1015 - 1030	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
1030 - 1045	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
1045 - 1100	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	-
1100 - 1115	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
1115 - 1130	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
1130 - 1145	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
1145 - 1200	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0	-
Grand Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	3	3		0	0	0	0	0	0	3		
Approach (%)	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	100.00			0.00	0.00	0.00	0.00	0.00				
Total (%)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	100.00	100.00		0.00	0.00	0.00	0.00	0.00	0.00			

Peak Rolling Hour Flow Rates
Classification: TWINS

TIME	Southbound							Westbound							Northbound							Eastbound							Int Total
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total		U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total		U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total		U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total		
0600 - 0615	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0
0615 - 0630	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0
0630 - 0645	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0
0645 - 0700	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0	0
Approach (%)	0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00			0.00	0.00	0.00	0.00	0.00			
Total (%)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00		
PHF	0%							0%							0%							0%							

Attachment D

Classified Turn Movement Count

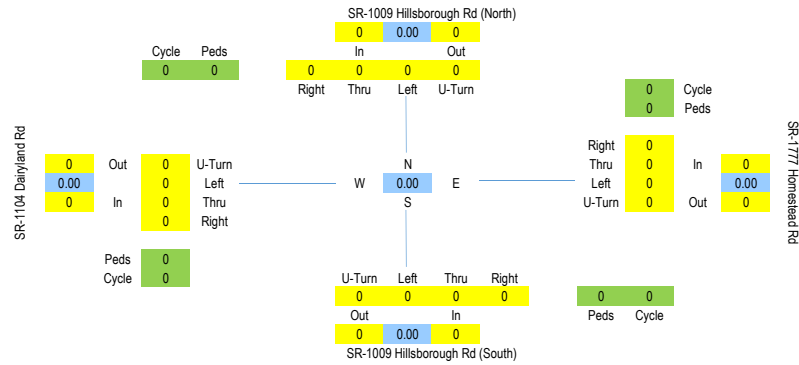
SR-1009 Hillsborough Rd (North)
SR-1777 Homestead Rd
SR-1009 Hillsborough Rd (South)
SR-1104 Dairyland Rd

Lat/Long
35.942743°, -79.109436°

Date
Thursday 28 February 2019

Weather
Cloudy
Temp: 52°C

1200 – 1900 (Weekday PM Peak)
Classification: TWINS

[illegible]

Peak Rolling Hour Flow Rates
Classification: TWINS

	Southbound						Westbound						Northbound						Eastbound							
	SR-1009 Hillsborough Rd (North)						SR-1777 Homestead Rd						SR-1009 Hillsborough Rd (South)						SR-1104 Dairyland Rd							
TIME	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds 1a	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds 1b	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds 1c	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds 1d	App Total	Int Total	
0600 - 0615	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0615 - 0630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0630 - 0645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0645 - 0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach (%)	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00			
Total (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	%
PHF	0%						0%						0%						0%						%	
	0%	0%	0%	0%			0%	0%	0%	0%			0%	0%	0%	0%		0%	0%	0%	0%					

Attachment D

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead RoadExisting (2022) AM
Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	190	183	137	62	39	73	375	202	36	426	52
Future Volume (vph)	152	190	183	137	62	39	73	375	202	36	426	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		10	200		0	175		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.942			0.948			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1755	0	1770	1766	0	1770	1833	0
Flt Permitted	0.685			0.452			0.281			0.292		
Satd. Flow (perm)	1276	1863	1583	842	1755	0	523	1766	0	544	1833	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		973			1626			1819			2719	
Travel Time (s)		14.7			24.6			31.0			46.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	211	203	152	69	43	81	417	224	40	473	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	211	203	152	112	0	81	641	0	40	531	0
Turn Type	D.Pm	NA	Perm	D.P+P	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	8		4	4			6			2		
Detector Phase	8	4	4	3	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		12.0	12.0	
Minimum Split (s)	13.2	13.2	13.2	12.3	13.2		13.5	18.6		18.6	18.6	
Total Split (s)	35.4	23.0	23.0	12.4	35.4		13.5	54.6		54.6	41.1	
Total Split (%)	39.3%	25.6%	25.6%	13.8%	39.3%		15.0%	60.7%		60.7%	45.7%	
Maximum Green (s)	29.2	16.8	16.8	7.1	29.2		7.0	48.0		48.0	34.5	
Yellow Time (s)	4.5	4.5	4.5	3.0	4.5		3.0	4.6		4.6	4.6	
All-Red Time (s)	1.7	1.7	1.7	2.3	1.7		3.5	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	5.3	6.2		6.5	6.6		6.6	6.6	
Lead/Lag		Lag	Lag	Lead			Lead				Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes				Yes	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	2.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	C-Min		C-Min	C-Min	
Act Effect Green (s)	27.0	14.0	14.0	22.6	27.0		45.1	50.2		50.2	39.4	
Actuated g/C Ratio	0.30	0.16	0.16	0.25	0.30		0.50	0.56		0.56	0.44	
v/c Ratio	0.44	0.73	0.83	0.52	0.21		0.23	0.65		0.13	0.66	
Control Delay	28.8	50.7	62.8	30.3	23.8		12.0	18.5		12.0	27.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.8	50.7	62.8	30.3	23.8		12.0	18.5		12.0	27.2	
LOS	C	D	E	C	C		B	B		B	C	
Approach Delay		48.5			27.5			17.8			26.2	
Approach LOS		D			C			B			C	

Hogan Ridge TIA

1: Old NC 86 & Dairyland Road/Homestead Road

Existing (2022) AM

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	74	114	111	62	45		21	254		11	259	
Queue Length 95th (ft)	133	184	#201	110	86		43	378		29	384	
Internal Link Dist (ft)		893			1546			1739			2639	
Turn Bay Length (ft)	175		10	200			175			200		
Base Capacity (vph)	416	347	295	291	573		358	987		304	805	
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	0.41	0.61	0.69	0.52	0.20		0.23	0.65		0.13	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.6

Intersection LOS: C

Intersection Capacity Utilization 80.2%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Old NC 86 & Dairyland Road/Homestead Road

 Ø2 (R)	 Ø3	 Ø4
54.6 s	12.4 s	23 s
 Ø5	 Ø8	
13.5 s	35.4 s	
 Ø6 (R)		
41.1 s		

Attachment D

Hogan Ridge TIA

Existing (2022) PM

1: Old NC 86 & Dairyland Road/Homestead Road

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	82	81	227	161	22	157	493	188	26	338	102
Future Volume (vph)	45	82	81	227	161	22	157	493	188	26	338	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		10	200		0	175		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.982			0.959			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1829	0	1770	1786	0	1770	1798	0
Flt Permitted	0.583			0.698			0.317			0.221		
Satd. Flow (perm)	1086	1863	1583	1300	1829	0	590	1786	0	412	1798	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		973			1626			1819			2719	
Travel Time (s)		14.7			24.6			31.0			46.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	91	90	252	179	24	174	548	209	29	376	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	91	90	252	203	0	174	757	0	29	489	0
Turn Type	D.Pm	NA	Perm	D.P+P	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	8		4	4			6			2		
Detector Phase	8	4	4	3	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		12.0	12.0	
Minimum Split (s)	13.2	13.2	13.2	12.3	13.2		13.5	18.6		18.6	18.6	
Total Split (s)	32.0	15.0	15.0	17.0	32.0		14.0	58.0		58.0	44.0	
Total Split (%)	35.6%	16.7%	16.7%	18.9%	35.6%		15.6%	64.4%		64.4%	48.9%	
Maximum Green (s)	25.8	8.8	8.8	11.7	25.8		7.5	51.4		51.4	37.4	
Yellow Time (s)	4.5	4.5	4.5	3.0	4.5		3.0	4.6		4.6	4.6	
All-Red Time (s)	1.7	1.7	1.7	2.3	1.7		3.5	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	5.3	6.2		6.5	6.6		6.6	6.6	
Lead/Lag		Lag	Lag	Lead			Lead				Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes				Yes	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	2.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	C-Min		C-Min	C-Min	
Act Effct Green (s)	25.8	8.1	8.1	21.4	25.8		45.0	51.4		51.4	37.5	
Actuated g/C Ratio	0.29	0.09	0.09	0.24	0.29		0.50	0.57		0.57	0.42	
v/c Ratio	0.16	0.55	0.64	0.67	0.39		0.45	0.74		0.12	0.65	
Control Delay	24.7	51.8	60.3	36.3	27.8		13.8	20.6		11.3	26.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.7	51.8	60.3	36.3	27.8		13.8	20.6		11.3	26.7	
LOS	C	D	E	D	C		B	C		B	C	
Approach Delay		49.2			32.5			19.3			25.9	
Approach LOS		D			C			B			C	

ExistingPM.syn

VHB

Attachment D

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead Road

Existing (2022) PM
Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	20	50	50	112	89		47	318		8	230	
Queue Length 95th (ft)	50	98	#111	#193	155		75	449		21	327	
Internal Link Dist (ft)		893			1546			1739			2639	
Turn Bay Length (ft)	175		10	200			175			200		
Base Capacity (vph)	326	182	154	385	550		395	1045		241	776	
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	0.50	0.58	0.65	0.37		0.44	0.72		0.12	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 26.9

Intersection LOS: C

Intersection Capacity Utilization 86.4%

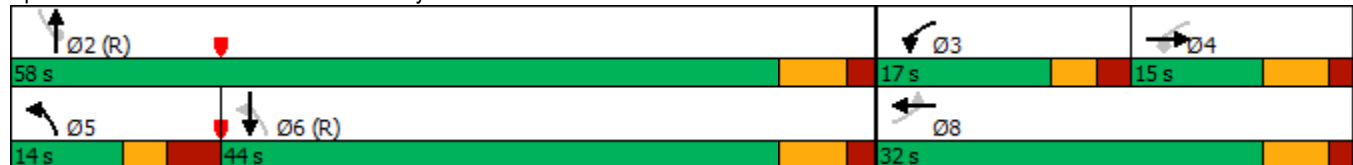
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Old NC 86 & Dairyland Road/Homestead Road



Attachment D

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead Road

No Build (2024) AM

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	196	189	141	64	40	75	386	208	37	439	54
Future Volume (vph)	157	196	189	141	64	40	75	386	208	37	439	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		10	200		0	175		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.943			0.947			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1757	0	1770	1764	0	1770	1833	0
Flt Permitted	0.683			0.438			0.263			0.277		
Satd. Flow (perm)	1272	1863	1583	816	1757	0	490	1764	0	516	1833	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		973			1626			1819			2719	
Travel Time (s)		14.7			24.6			31.0			46.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	174	218	210	157	71	44	83	429	231	41	488	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	174	218	210	157	115	0	83	660	0	41	548	0
Turn Type	D.Pm	NA	Perm	D.P+P	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	8		4	4			6			2		
Detector Phase	8	4	4	3	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		12.0	12.0	
Minimum Split (s)	13.2	13.2	13.2	12.3	13.2		13.5	18.6		18.6	18.6	
Total Split (s)	35.3	23.0	23.0	12.3	35.3		13.5	54.7		54.7	41.2	
Total Split (%)	39.2%	25.6%	25.6%	13.7%	39.2%		15.0%	60.8%		60.8%	45.8%	
Maximum Green (s)	29.1	16.8	16.8	7.0	29.1		7.0	48.1		48.1	34.6	
Yellow Time (s)	4.5	4.5	4.5	3.0	4.5		3.0	4.6		4.6	4.6	
All-Red Time (s)	1.7	1.7	1.7	2.3	1.7		3.5	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	5.3	6.2		6.5	6.6		6.6	6.6	
Lead/Lag		Lag	Lag	Lead			Lead				Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes				Yes	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	2.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	C-Min		C-Min	C-Min	
Act Effect Green (s)	27.2	14.3	14.3	22.8	27.2		44.9	50.0		50.0	39.2	
Actuated g/C Ratio	0.30	0.16	0.16	0.25	0.30		0.50	0.56		0.56	0.44	
v/c Ratio	0.45	0.74	0.84	0.55	0.22		0.24	0.67		0.14	0.69	
Control Delay	29.0	50.9	63.7	31.2	23.8		12.2	19.3		12.3	28.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.0	50.9	63.7	31.2	23.8		12.2	19.3		12.3	28.2	
LOS	C	D	E	C	C		B	B		B	C	
Approach Delay		49.0			28.1			18.5			27.1	
Approach LOS		D			C			B			C	

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead Road

No Build (2024) AM
Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	75	117	115	63	46		22	272		12	275	
Queue Length 95th (ft)	137	191	#212	113	88		44	395		30	#409	
Internal Link Dist (ft)		893			1546			1739			2639	
Turn Bay Length (ft)	175		10	200			175			200		
Base Capacity (vph)	414	347	295	288	573		343	983		287	802	
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	0.42	0.63	0.71	0.55	0.20		0.24	0.67		0.14	0.68	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 30.3

Intersection LOS: C

Intersection Capacity Utilization 81.7%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Old NC 86 & Dairyland Road/Homestead Road

 Ø2 (R)	 Ø3	 Ø4
54.7 s	12.3 s	23 s
 Ø5	 Ø6 (R)	 Ø8
13.5 s	41.2 s	35.3 s

Attachment D

Hogan Ridge TIA

No Build (2024) PM

1: Old NC 86 & Dairyland Road/Homestead Road

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	84	83	234	166	23	162	508	194	27	348	105
Future Volume (vph)	46	84	83	234	166	23	162	508	194	27	348	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		10	200		0	175		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.981			0.958			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1827	0	1770	1785	0	1770	1798	0
Flt Permitted	0.569			0.697			0.306			0.209		
Satd. Flow (perm)	1060	1863	1583	1298	1827	0	570	1785	0	389	1798	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		973			1626			1819			2719	
Travel Time (s)		14.7			24.6			31.0			46.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	51	93	92	260	184	26	180	564	216	30	387	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	93	92	260	210	0	180	780	0	30	504	0
Turn Type	D.Pm	NA	Perm	D.P+P	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	8		4	4			6			2		
Detector Phase	8	4	4	3	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		12.0	12.0	
Minimum Split (s)	13.2	13.2	13.2	12.3	13.2		13.5	18.6		18.6	18.6	
Total Split (s)	32.0	15.0	15.0	17.0	32.0		14.0	58.0		58.0	44.0	
Total Split (%)	35.6%	16.7%	16.7%	18.9%	35.6%		15.6%	64.4%		64.4%	48.9%	
Maximum Green (s)	25.8	8.8	8.8	11.7	25.8		7.5	51.4		51.4	37.4	
Yellow Time (s)	4.5	4.5	4.5	3.0	4.5		3.0	4.6		4.6	4.6	
All-Red Time (s)	1.7	1.7	1.7	2.3	1.7		3.5	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	5.3	6.2		6.5	6.6		6.6	6.6	
Lead/Lag		Lag	Lag	Lead			Lead				Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes				Yes	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	2.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	C-Min		C-Min	C-Min	
Act Effect Green (s)	25.4	8.1	8.1	21.0	25.4		45.4	51.8		51.8	37.9	
Actuated g/C Ratio	0.28	0.09	0.09	0.23	0.28		0.50	0.58		0.58	0.42	
v/c Ratio	0.17	0.56	0.65	0.71	0.41		0.47	0.76		0.13	0.67	
Control Delay	25.5	52.2	61.2	39.1	28.6		13.9	20.9		11.2	26.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.5	52.2	61.2	39.1	28.6		13.9	20.9		11.2	26.7	
LOS	C	D	E	D	C		B	C		B	C	
Approach Delay		50.0			34.4			19.6			25.9	
Approach LOS		D			C			B			C	

NoBuildPM.syn

VHB

Hogan Ridge TIA

No Build (2024) PM

1: Old NC 86 & Dairyland Road/Homestead Road

Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	21	51	51	116	91		49	341		8	243	
Queue Length 95th (ft)	51	100	#114	#207	160		78	476		22	341	
Internal Link Dist (ft)		893			1546			1739			2639	
Turn Bay Length (ft)	175		10	200			175			200		
Base Capacity (vph)	311	182	154	376	537		390	1040		227	773	
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	0.16	0.51	0.60	0.69	0.39		0.46	0.75		0.13	0.65	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 87.9%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Old NC 86 & Dairyland Road/Homestead Road

 Ø2 (R)	 Ø3	 Ø4
58 s	17 s	15 s
 Ø5	 Ø8	
14 s	44 s	32 s
 Ø6 (R)		

Attachment D

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead Road

Build (2024) AM
Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	196	189	141	64	41	75	393	208	41	460	56
Future Volume (vph)	158	196	189	141	64	41	75	393	208	41	460	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		10	200		0	175		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.941			0.948			0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1753	0	1770	1766	0	1770	1833	0
Flt Permitted	0.682			0.434			0.241			0.273		
Satd. Flow (perm)	1270	1863	1583	808	1753	0	449	1766	0	509	1833	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		973			1626			1819			2719	
Travel Time (s)		14.7			24.6			31.0			46.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	176	218	210	157	71	46	83	437	231	46	511	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	218	210	157	117	0	83	668	0	46	573	0
Turn Type	D.Pm	NA	Perm	D.P+P	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	8		4	4			6			2		
Detector Phase	8	4	4	3	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		12.0	12.0	
Minimum Split (s)	13.2	13.2	13.2	12.3	13.2		13.5	18.6		18.6	18.6	
Total Split (s)	34.5	22.2	22.2	12.3	34.5		13.5	55.5		55.5	42.0	
Total Split (%)	38.3%	24.7%	24.7%	13.7%	38.3%		15.0%	61.7%		61.7%	46.7%	
Maximum Green (s)	28.3	16.0	16.0	7.0	28.3		7.0	48.9		48.9	35.4	
Yellow Time (s)	4.5	4.5	4.5	3.0	4.5		3.0	4.6		4.6	4.6	
All-Red Time (s)	1.7	1.7	1.7	2.3	1.7		3.5	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	5.3	6.2		6.5	6.6		6.6	6.6	
Lead/Lag		Lag	Lag	Lead			Lead				Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes				Yes	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	2.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	C-Min		C-Min	C-Min	
Act Effct Green (s)	27.0	14.1	14.1	22.6	27.0		45.1	50.2		50.2	39.4	
Actuated g/C Ratio	0.30	0.16	0.16	0.25	0.30		0.50	0.56		0.56	0.44	
v/c Ratio	0.46	0.75	0.85	0.55	0.22		0.25	0.68		0.16	0.72	
Control Delay	29.6	52.1	66.0	31.9	24.2		12.2	19.2		12.4	29.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.6	52.1	66.0	31.9	24.2		12.2	19.2		12.4	29.1	
LOS	C	D	E	C	C		B	B		B	C	
Approach Delay		50.4			28.6			18.4			27.8	
Approach LOS		D			C			B			C	

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead Road

Build (2024) AM
Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	76	117	115	63	47		23	279		13	294	
Queue Length 95th (ft)	141	#196	#220	115	91		43	394		32	#454	
Internal Link Dist (ft)		893			1546			1739			2639	
Turn Bay Length (ft)	175		10	200			175			200		
Base Capacity (vph)	405	331	281	284	560		327	992		286	810	
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	0.43	0.66	0.75	0.55	0.21		0.25	0.67		0.16	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 30.8

Intersection LOS: C

Intersection Capacity Utilization 82.1%

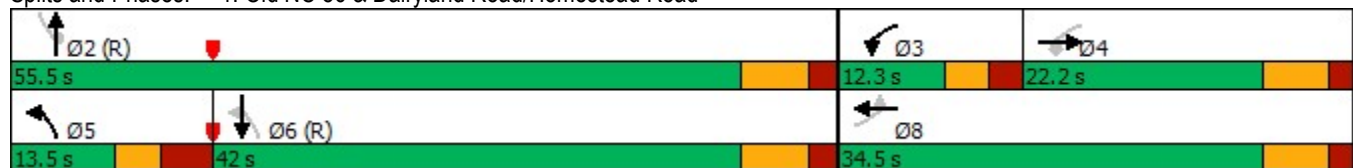
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Old NC 86 & Dairyland Road/Homestead Road



Hogan Ridge TIA
5: Old NC 86 & Site Access #1

Build (2024) AM
Lanes, Volumes, Timings

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	14	581	11	5	522
Future Volume (vph)	34	14	581	11	5	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		50	50	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.960			0.850		
Flt Protected	0.966				0.950	
Satd. Flow (prot)	1727	0	1863	1583	1770	1863
Flt Permitted	0.966				0.950	
Satd. Flow (perm)	1727	0	1863	1583	1770	1863
Link Speed (mph)	25		40			40
Link Distance (ft)	655		2719			1465
Travel Time (s)	17.9		46.3			25.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	16	646	12	6	580
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	646	12	6	580
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	40.6%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	14	581	11	5	522
Future Vol, veh/h	34	14	581	11	5	522
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	16	646	12	6	580
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1238	646	0	0	658	0
Stage 1	646	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	194	472	-	-	930	-
Stage 1	522	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	193	472	-	-	930	-
Mov Cap-2 Maneuver	193	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	25	0		0.1		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	233	930	-	
HCM Lane V/C Ratio	-	-	0.229	0.006	-	
HCM Control Delay (s)	-	-	25	8.9	-	
HCM Lane LOS	-	-	D	A	-	
HCM 95th %tile Q(veh)	-	-	0.9	0	-	

Attachment D

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead Road

Build (2024) PM
Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	84	83	234	166	28	162	531	194	30	362	106
Future Volume (vph)	48	84	83	234	166	28	162	531	194	30	362	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		10	200		0	175		0	200		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.978			0.960			0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1822	0	1770	1788	0	1770	1799	0
Flt Permitted	0.560			0.697			0.291			0.192		
Satd. Flow (perm)	1043	1863	1583	1298	1822	0	542	1788	0	358	1799	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		973			1626			1819			2719	
Travel Time (s)		14.7			24.6			31.0			46.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	93	92	260	184	31	180	590	216	33	402	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	93	92	260	215	0	180	806	0	33	520	0
Turn Type	D.Pm	NA	Perm	D.P+P	NA		D.P+P	NA		D.Pm	NA	
Protected Phases		4		3	8		5	2			6	
Permitted Phases	8		4	4			6			2		
Detector Phase	8	4	4	3	8		5	2		2	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		7.0	12.0		12.0	12.0	
Minimum Split (s)	13.2	13.2	13.2	12.3	13.2		13.5	18.6		18.6	18.6	
Total Split (s)	32.0	15.0	15.0	17.0	32.0		14.0	58.0		58.0	44.0	
Total Split (%)	35.6%	16.7%	16.7%	18.9%	35.6%		15.6%	64.4%		64.4%	48.9%	
Maximum Green (s)	25.8	8.8	8.8	11.7	25.8		7.5	51.4		51.4	37.4	
Yellow Time (s)	4.5	4.5	4.5	3.0	4.5		3.0	4.6		4.6	4.6	
All-Red Time (s)	1.7	1.7	1.7	2.3	1.7		3.5	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	5.3	6.2		6.5	6.6		6.6	6.6	
Lead/Lag		Lag	Lag	Lead			Lead				Lag	
Lead-Lag Optimize?		Yes	Yes	Yes			Yes				Yes	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	2.0		2.0	2.0	
Recall Mode	None	None	None	None	None		None	C-Min		C-Min	C-Min	
Act Effct Green (s)	25.3	8.1	8.1	20.9	25.3		45.5	51.9		51.9	38.0	
Actuated g/C Ratio	0.28	0.09	0.09	0.23	0.28		0.51	0.58		0.58	0.42	
v/c Ratio	0.18	0.56	0.65	0.72	0.42		0.48	0.78		0.16	0.69	
Control Delay	25.9	52.2	61.2	39.5	29.0		14.2	21.9		11.8	27.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.9	52.2	61.2	39.5	29.0		14.2	21.9		11.8	27.3	
LOS	C	D	E	D	C		B	C		B	C	
Approach Delay		49.8			34.8			20.5			26.4	
Approach LOS		D			C			C			C	

Hogan Ridge TIA
1: Old NC 86 & Dairyland Road/Homestead Road

Build (2024) PM
Lanes, Volumes, Timings

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	21	51	51	116	94		49	361		9	254	
Queue Length 95th (ft)	53	100	#114	#207	164		78	503		25	355	
Internal Link Dist (ft)		893			1546			1739			2639	
Turn Bay Length (ft)	175		10	200			175			200		
Base Capacity (vph)	305	182	154	373	533		379	1042		208	773	
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	0.17	0.51	0.60	0.70	0.40		0.47	0.77		0.16	0.67	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBSB and 6:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization 89.1%

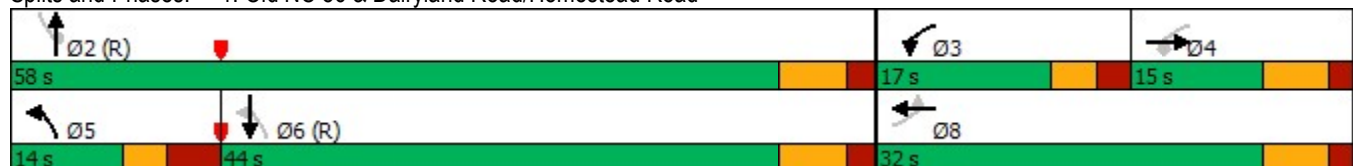
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

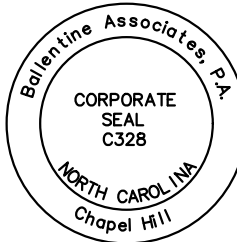
Queue shown is maximum after two cycles.

Splits and Phases: 1: Old NC 86 & Dairyland Road/Homestead Road



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	22	9	568	38	16	476
Future Volume (vph)	22	9	568	38	16	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		50	50	
Storage Lanes	1	0		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.960			0.850		
Flt Protected	0.966				0.950	
Satd. Flow (prot)	1727	0	1863	1583	1770	1863
Flt Permitted	0.966				0.950	
Satd. Flow (perm)	1727	0	1863	1583	1770	1863
Link Speed (mph)	25		40			40
Link Distance (ft)	655		2719			1465
Travel Time (s)	17.9		46.3			25.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	10	631	42	18	529
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	0	631	42	18	529
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	39.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	9	568	38	16	476
Future Vol, veh/h	22	9	568	38	16	476
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	10	631	42	18	529
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1196	631	0	0	673	0
Stage 1	631	-	-	-	-	-
Stage 2	565	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	206	481	-	-	918	-
Stage 1	530	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	202	481	-	-	918	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	22.2	0		0.3		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 243		918	-	
HCM Lane V/C Ratio	-	- 0.142		0.019	-	
HCM Control Delay (s)	-	- 22.2		9	-	
HCM Lane LOS	-	- C		A	-	
HCM 95th %tile Q(veh)	-	- 0.5		0.1	-	

[illegible][illegible]

OWNER INFORMATION
KB HOME
 4506 S. MIAMI BLVD.
 #100
 DURHAM NC 27703
OWNERS REPRESENTATIVE:
 THURM BOWEN
 PH. (919) 768-7972
 FAX
 EMAIL rtbowen@kbhome.com

[illegible]

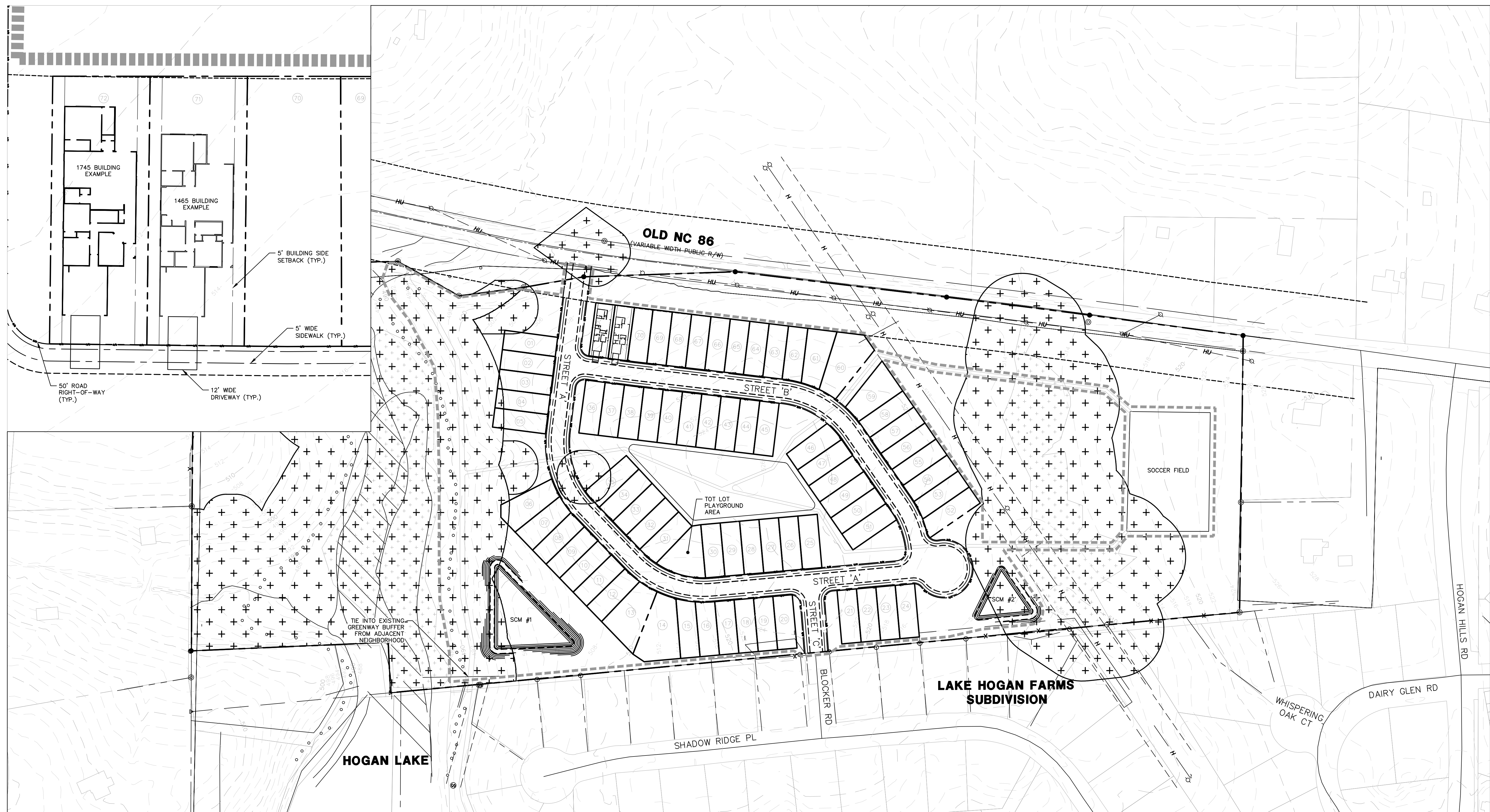
HOGAN RIDGE SUBDIVISION
CARRBORO, NORTH CAROLINA

CONCEPTUAL DRAWINGS

JOB NUMBER: 121010.00
DATE: 31 AUG 21
SCALE: AS SHOWN
DRAWN BY: SRH
REVIEWED BY: GJR

SHEET

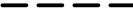
C1004



SITE DATA TABLE

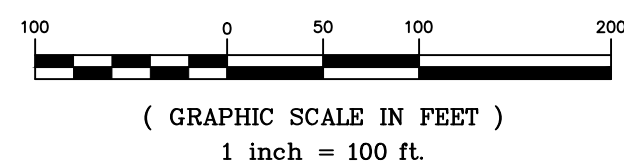
PROPERTY OWNER:	BLOCKER PROPERTIES LLC
APPLICANT:	KB HOME
PROPERTY ADDRESS:	OLD NC 86
PIN NUMBER:	9860-81-0089
EXISTING ZONING:	R-20
PROPOSED ZONING:	R-20
EXISTING USE:	VACANT
PROPOSED USE:	SINGLE FAMILY RESIDENTIAL SUBDIVISION
LOT AREA:	1,594,997 S.F. (36.62 AC)
PROPOSED LOTS:	72
MAXIMUM LOTS:	108
MINIMUM LOT AREA:	4,400 S.F.

DRAWING LEGEND

SYMBOL/ABBREVIATION		DESCRIPTION
EXISTING	PROPOSED	
		IRON PIPE/PROPERTY CORNER
		PROPERTY LINE
		BUILDING SETBACK
		ADJOINER PROPERTY LINE
		ROAD BUFFER
		WETLAND AREA
		MAJOR CONTOUR
		MINOR CONTOUR
		CONSTRAINT SETBACK AREAS
		ROAD EDGE OF PAVEMENT
		ROAD RIGHT-OF-WAY
		SIDEWALK
		LIMITS OF DISTURBANCE



STEP 4: LOT LINES



**REVIEW DRAWING
NOT FOR CONSTRUCTION**