Traffic Impact Analysis

for
Secrest Village
Monroe, North Carolina

Prepared for:

MT Land, LLC
Charlotte, North Carolina

NORTH CAROLINA PROFESSIONAL SEAL 024948 ENGINEER AMY B. MASSEY

9·19·17

Prepared by:

Kimley-Horn and Associates, Inc.
NC License #F - 0102
200 South Tryon Street
Suite 200
Charlotte, NC 28202
(704) 333-5131

015023003
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1.0 Executive Summary

The proposed Secrest Village site is located in the southwest quadrant of NC 75 (Waxhaw Highway) and NC 200 (M.L. King Jr. Boulevard) in Monroe, North Carolina. The development consists of the following elements:

- 279 single family homes
- 219 townhomes
- 25,000 square feet (SF) of retail/commercial space

The following access is proposed:

- One point along NC 75 (Waxhaw Highway) restricted to right-in/right-out (RIRO) or directional crossover operation
- One point along NC 200 (M.L. King Jr. Blvd), with aligned access on each side serving the eastern and western portions of development
- One connection to Rainmaker Drive
- One connection to Kevinshire Court
- One connection to Stevens Street forming the southbound approach of the Stevens Street/Sonny Court intersection

The traffic impact analysis (TIA) scope is based on discussion with North Carolina Department of Transportation (NCDOT) and City of Monroe staff.

Kimley-Horn and Associates, Inc. was retained to determine the potential traffic impacts of this development and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. This report summarizes the analyses of 2017 existing conditions and projected 2022 conditions with and without the proposed development during the AM and PM peak hours.

Based on the results of this study, the following improvements are recommended to accommodate 2022 build-out conditions in addition to committed improvements by others:

<u>NC 75 (Waxhaw Highway) at Monroe-Weddington Road</u>

- Construction of an eastbound left-turn lane with 75 feet of storage.

<u>NC 75 (Waxhaw Highway) at Access #1</u>

- Construction of a westbound left-turn lane with 150 feet of storage.
- Construction of a single-lane right-out approach on the northbound leg of the intersection.

Further discussion is needed on the specific configuration of the left-over (directional crossover) at Access #1.

<u>NC 200 (M.L. King Jr. Blvd) at Access #2/#3</u>

- Construction of a southbound left-turn lane with 100 feet of storage.
- Construction of a southbound right-turn lane with 75 feet of storage.
- Construction of a westbound right-turn lane with 100 feet of storage.

2.0 Introduction

The proposed Secrest Village site is located in the southwest quadrant of NC 75 (Waxhaw Highway) and NC 200 (M.L. King Jr. Boulevard) in Monroe, North Carolina. Figure 2.1 shows the site location, and Figure 2.2 shows the proposed site plan. The development consists of the following elements:

- 279 single family homes
- 219 townhomes
- 25,000 SF of retail/commercial space

The following access is proposed:

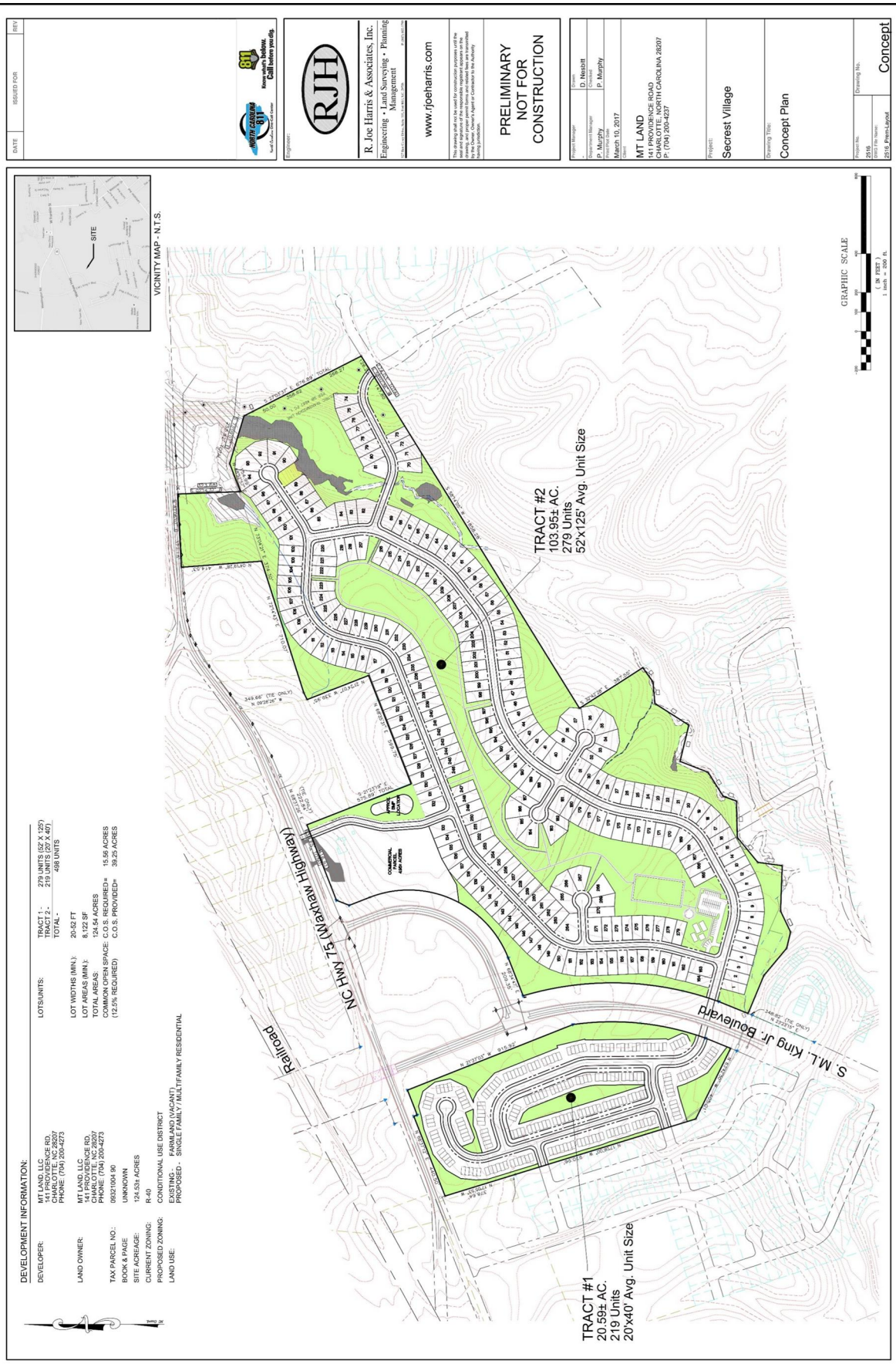
- One point along NC 75 (Waxhaw Highway)
- One point along NC 200 (M.L. King Jr. Blvd), with aligned access on each side serving the eastern and western portions of development
- One connection to Rainmaker Drive
- One connection to Kevinshire Court
- One connection to Stevens Street forming the southbound approach of the Stevens Street/Sonny Court intersection

Based on discussion with NCDOT, the access point along NC 75 will be restricted to a right-in/right-out (RIRO) driveway due to the existing eastbound left-turn lane at the NC 75/NC 200 connector intersection. However, NCDOT noted that a left-over (directional crossover) may also be considered. Therefore, this report summarizes two 2022 projected build-out scenarios: one with a RIRO at Access #1 and one with a left-over at Access #1.

Kimley-Horn and Associates, Inc. was retained to determine the potential traffic impacts of this development and recommendations for transportation improvements required to meet anticipated traffic demands in conjunction with the development. This report summarizes the analyses of 2017 existing conditions and projected 2022 conditions with and without the proposed development during the AM and PM peak hours.

The TIA scope is based on discussion with NCDOT and City of Monroe staff.

Kimley»Horn	**Secrest Village Traffic Impact Analysis**	**Site Location Map**	**Figure 2.1**



Kimley»Horn	Secrest Village Traffic Impact Analysis	Site Plan	Figure 2.2

3.0 Inventory

3.1 Study Area

The study area consists of the following intersections:

- NC 75 (Waxhaw Hwy) at NC 200 Connector
- NC 200 (M.L. King Jr. Blvd) at NC 75 Connector
- NC 75 (Waxhaw Highway)/Franklin Street at Monroe-Weddington Road
- Rainmaker Drive at Sinclair Drive
- Kevinshire Court at Sinclair Drive
- Stevens Street/Access #4 at Sonny Court
- NC 75 (Waxhaw Hwy) at Access #1
- NC 200 (M.L. King Jr. Blvd) at Access #2/#3

This study area was determined based upon discussions with NCDOT and City of Monroe staff.

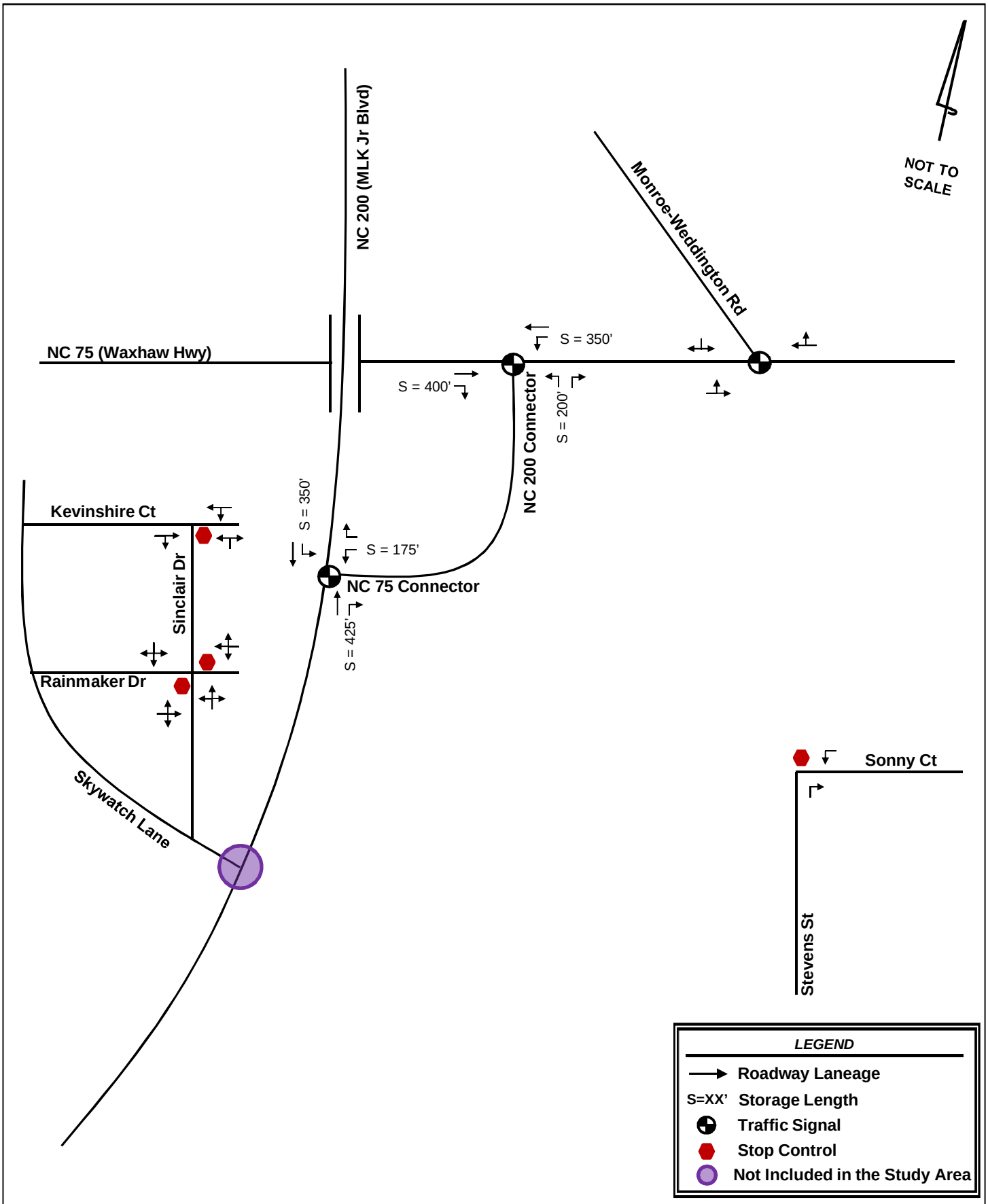
3.2 Existing Conditions

The land immediately surrounding the proposed site consists primarily of single family residential and undeveloped land. Table 3.1 shows facility type, NCDOT average daily traffic (ADT) volumes in vehicles per day (vpd), and posted speed limits for the primary study area roadways.

Table 3.1- Study Area Roadways

Roadway	Section type	2016 ADT	Posted speed limit
NC 75 (Waxhaw Hwy)	2-lane undivided	6,500 vpd west of NC 200 8,700 vpd between NC 200 and Monroe-Weddington 15,000 vpd east of Monroe-Weddington Rd	45 mph
NC 200 (M.L. King Jr. Blvd)	2-lane undivided	10,000 vpd north of NC 75 7,900 vpd south of NC 75	45 mph
Monroe-Weddington Road	2-lane undivided	6,800 vpd east of NC 200	55 mph

Figure 3.1 shows the existing roadway lane geometry.



Kimley»Horn	Secrest Village Traffic Impact Analysis	Existing Roadway Laneage	Figure 3.1

4.0 Traffic Generation

The traffic generation potential of the proposed development was determined using the trip generation rates published in *Trip Generation (Institute of Transportation Engineers, Ninth Edition)*. Table 4.1 summarizes the estimated traffic generation for the proposed development.

Internally captured trips are trips that begin and end within the project site and do not access the external roadway network. The National Cooperative Highway Research Program (NCHRP) Report 684 *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*, produced by the Transportation Research Board, was used to calculate the internal capture for the development. Internal capture calculations are included in the Appendix.

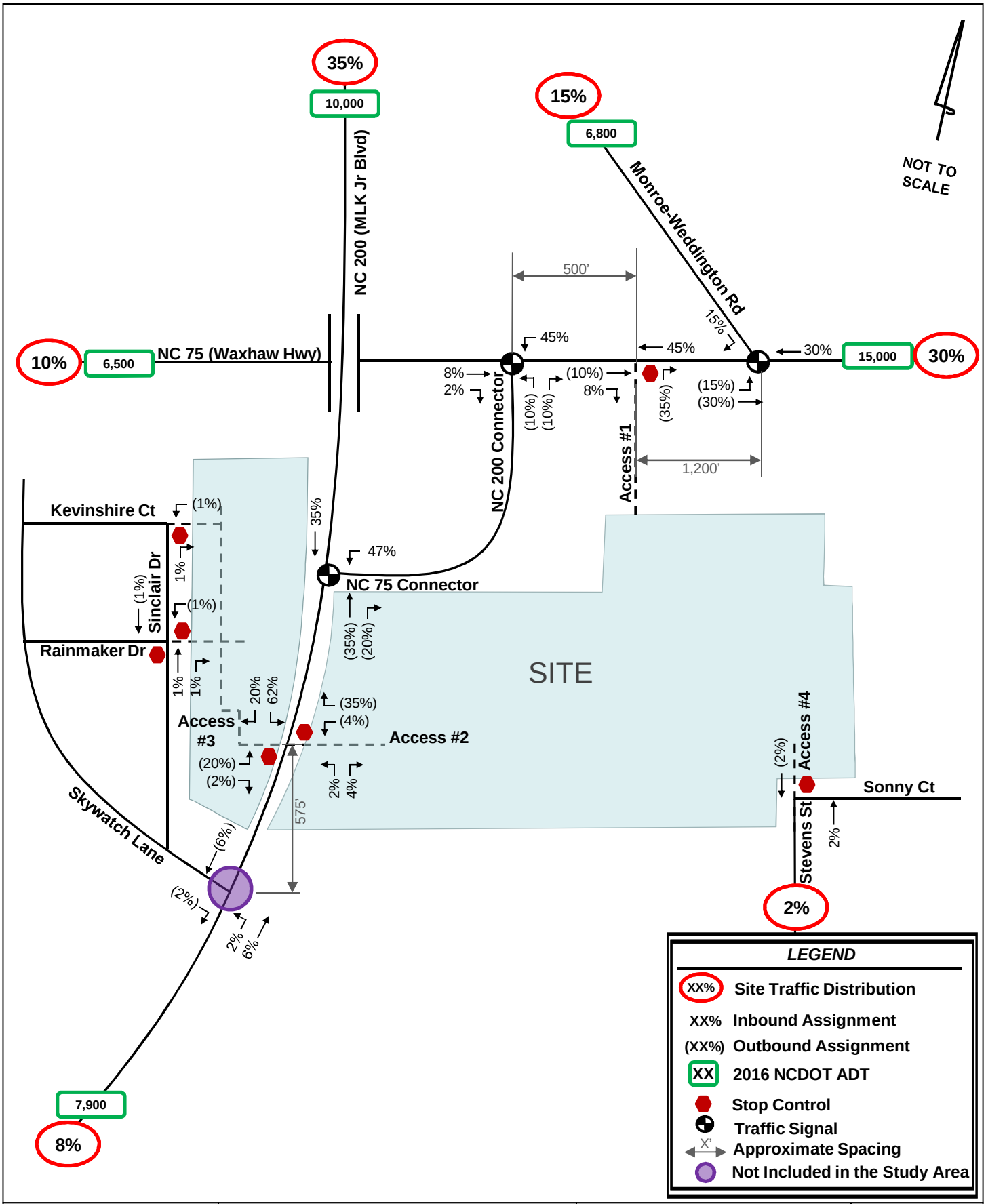
Pass-by trips are trips already on the roadway network that turn into the site as they pass by on the adjacent street. Pass-by percentages were calculated for the retail component of the proposed site based on the equations and data presented in the ITE *Trip Generation Handbook*. Based on NCDOT guidelines, pass-by volumes were limited to ten percent of the adjacent street traffic. Pass-by calculations can be seen in the Appendix.

Table 4.1 - Trip Generation

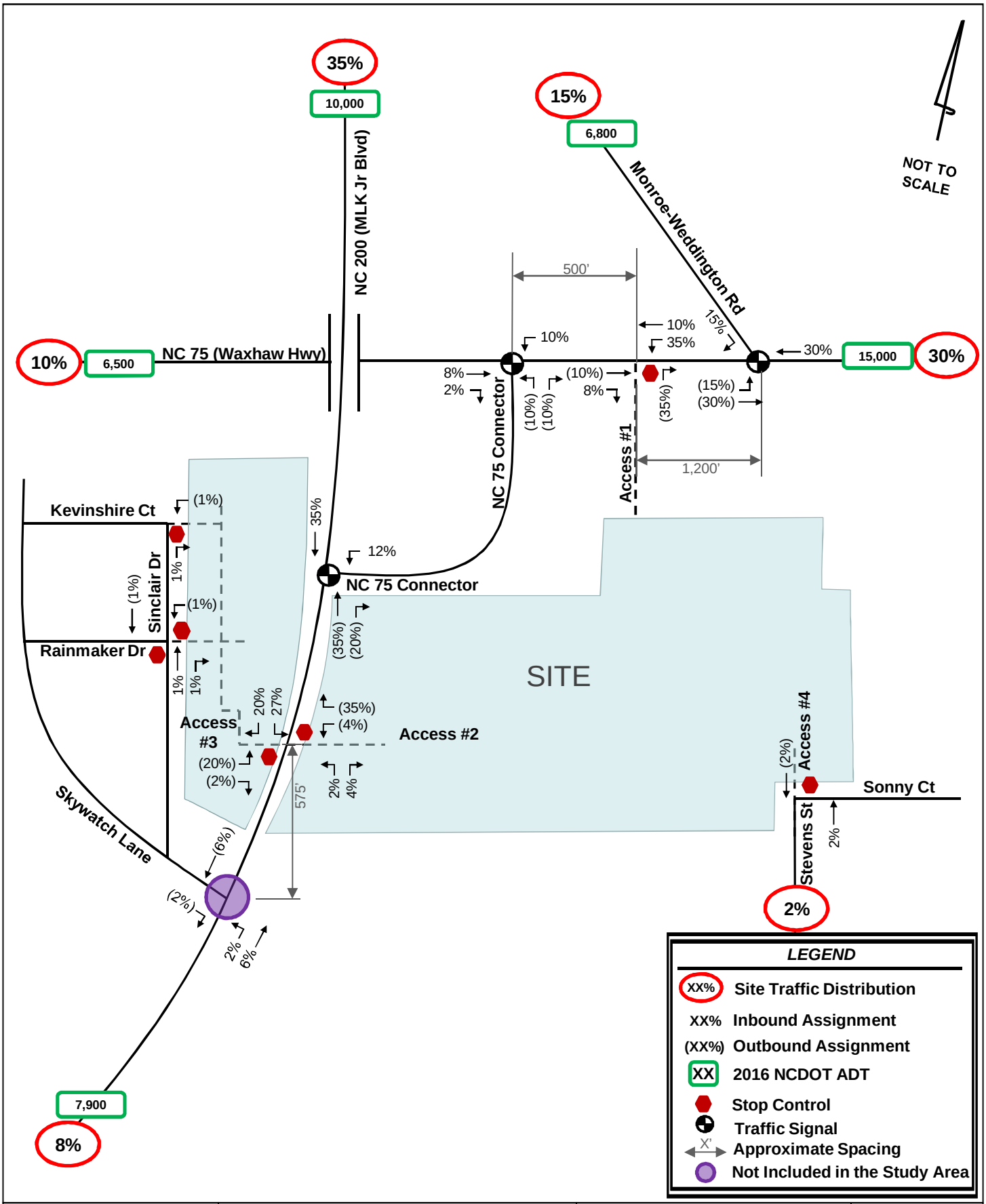
Land Use	Intensity		Daily	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
Shopping Center [ITE 820]	25,000	SF	2,758	67	42	25	237	114	123
Single-Family Homes [ITE 210]	279	DU	2,656	209	52	157	279	176	103
Townhomes [ITE 230]	219	DU	1,272	96	16	80	114	76	38
Subtotal			**6,686**	**372**	**110**	**262**	**630**	**366**	**264**
Internal Capture			**924**	**10**	**5**	**5**	**30**	**15**	**15**
ITE 820 Pass-By - 0% AM / 34% PM			*74*	*0*	*0*	*0*	*74*	*37*	*37*
ITE Pass-By			*74*	*0*	*0*	*0*	*74*	*37*	*37*
Adjacent Street Traffic				*863*			*950*		
10% Adjacent Street Traffic			*364*	*174*	*87*	*87*	*190*	*95*	*95*
Pass-By			**74**	**0**	**0**	**0**	**74**	**37**	**37**
Net New External Trips			**5,688**	**362**	**105**	**257**	**526**	**314**	**212**

5.0 Traffic Distribution & Assignment

The proposed development's trips were assigned to the surrounding roadway network. The directional distribution is based on existing and anticipated travel patterns. The site traffic assignment was developed based on the distribution and proposed site plan for the development. The site traffic distribution and assignment for the build-out scenario with a right-in/right-out driveway at Access #1 and with a left-over driveway at Access #1, approved by NCDOT and City staff, are shown in Figures 5.1 and 5.2, respectively.



Kimley»Horn	Secrest Village Traffic Impact Analysis	Distribution and Assignment Right-in/Right-out at Access #1	Figure 5.1



Kimley»Horn	Secrest Village Traffic Impact Analysis	Distribution and Assignment Left-over at Access #1	Figure 5.2

6.0 Projected Traffic Volumes

Projected traffic volumes for the roadway network were developed for the 2022 background and 2022 build-out traffic scenarios. Calculation worksheets are included in the Appendix.

6.1 2017 Existing Traffic

Peak-hour intersection turning-movement counts were performed 7-9 AM and 4-6 PM on Wednesday, May 24, 2017 at the following study intersections:

- NC 75 (Waxhaw Hwy) at NC 200 Connector
- NC 200 (M.L. King Jr. Blvd) at NC 75 Connector
- NC 75 (Waxhaw Highway)/Franklin Street at Monroe-Weddington Road
- Rainmaker Drive at Sinclair Drive
- Kevinshire Court at Sinclair Drive
- Stevens Street at Sonny Court

The existing 2017 AM and PM peak-hour traffic volumes at the study intersections are shown in Figure 6.1, and the traffic count data are included in the Appendix. Volume balancing was not performed along Sinclair Drive between Rainmaker Drive and Kevinshire Court due to the presence of residential driveways. Additionally, no volume balancing was performed at the Stevens Street/Sonny Court intersection due to the distance to other study intersections. Volume balancing was performed between the remaining intersections.

6.2 Historical Growth Traffic

Historical growth traffic is the increase in traffic due to usage increases and non-specific growth throughout the area. Based on discussions with NCDOT and City of Monroe staff, the existing peak-hour traffic volumes were grown by a rate of 2 percent for five years to the study's 2022 horizon year. This rate is based on a comparison of historical NCDOT ADTs along NC 75, approved by NCDOT and City staff. Historical growth rate calculations can be seen in Table 6.1.

Table 6.1 - Growth Rate

NCDOT ADT Count Location	2016	2015	2014	2013	2012	Growth Rate (2016-2012)
NC 75 (east of Monroe-Weddington)	15000	14000		14000	14000	2%
NC 75 (between Monroe-Weddington and NC 200)	8700	8400		8100	7900	2%
NC 75 (west of NC 200)	6500	6000	5400	5700	5700	3%
				Average		***2%***

6.3 Approved Development Traffic

Approved development traffic is generated by approved, but not yet constructed, projects in the vicinity of the proposed project. Based on conversations with City staff, two approved off-site developments were considered, based on TIAs provided by the City:

- Union Academy
- Food Lion Center

Note that the Union Academy traffic was not included in the PM peak volumes in this study, as its afternoon peak of 2:50-3:50 does not align with the PM peak hour (4-6) of this TIA. The AM peak

hour site traffic volumes for Union Academy were distributed through the network per the Union Academy TIA and based on existing traffic movement splits and ADTs.

6.4 2022 Background Traffic

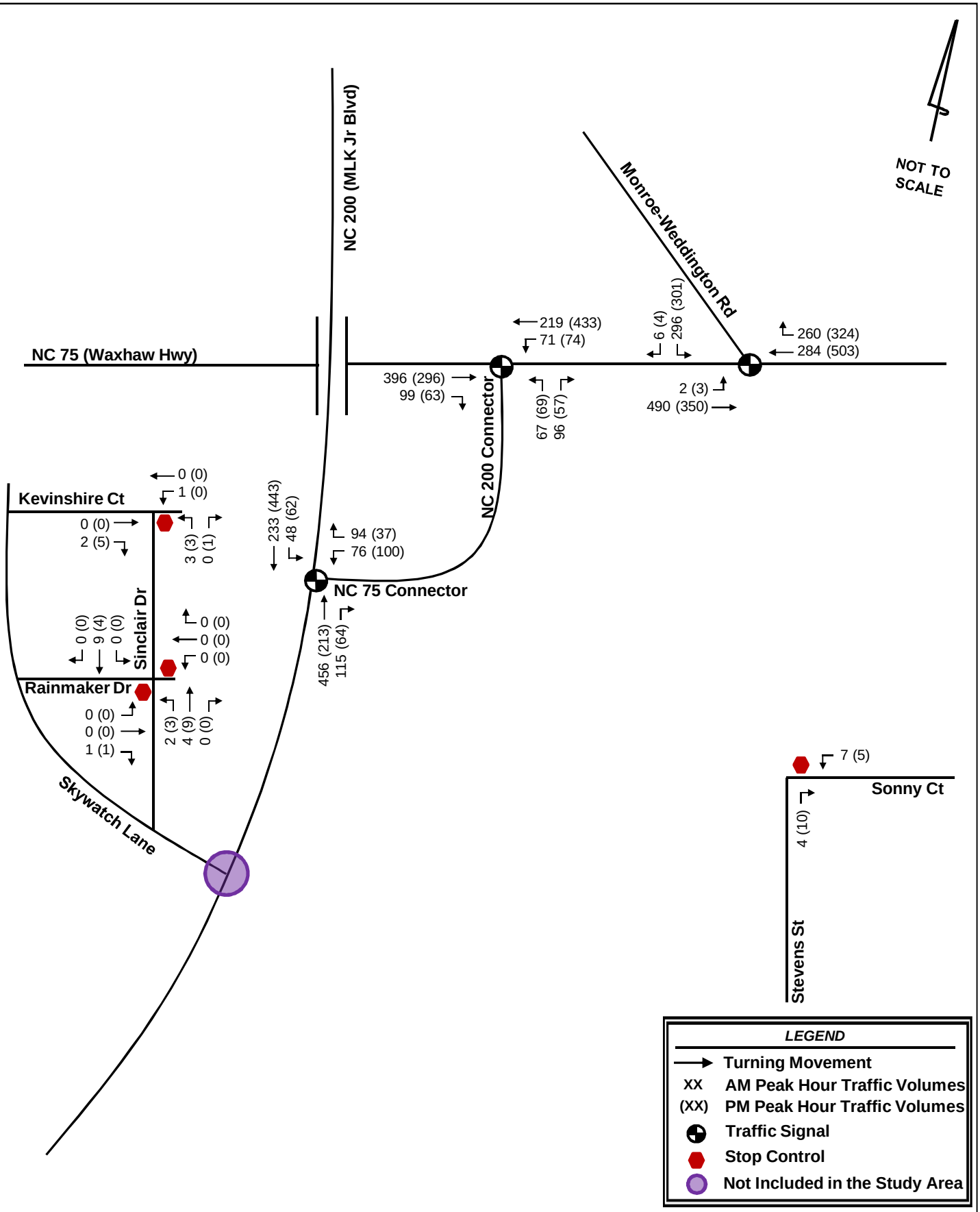
The traffic volumes for the 2022 background conditions include the existing traffic, historical growth traffic, and approved development traffic. Figures 6.2 and 6.3 depict the AM and PM peak-hour 2022 background traffic volumes, respectively.

6.5 Site Traffic

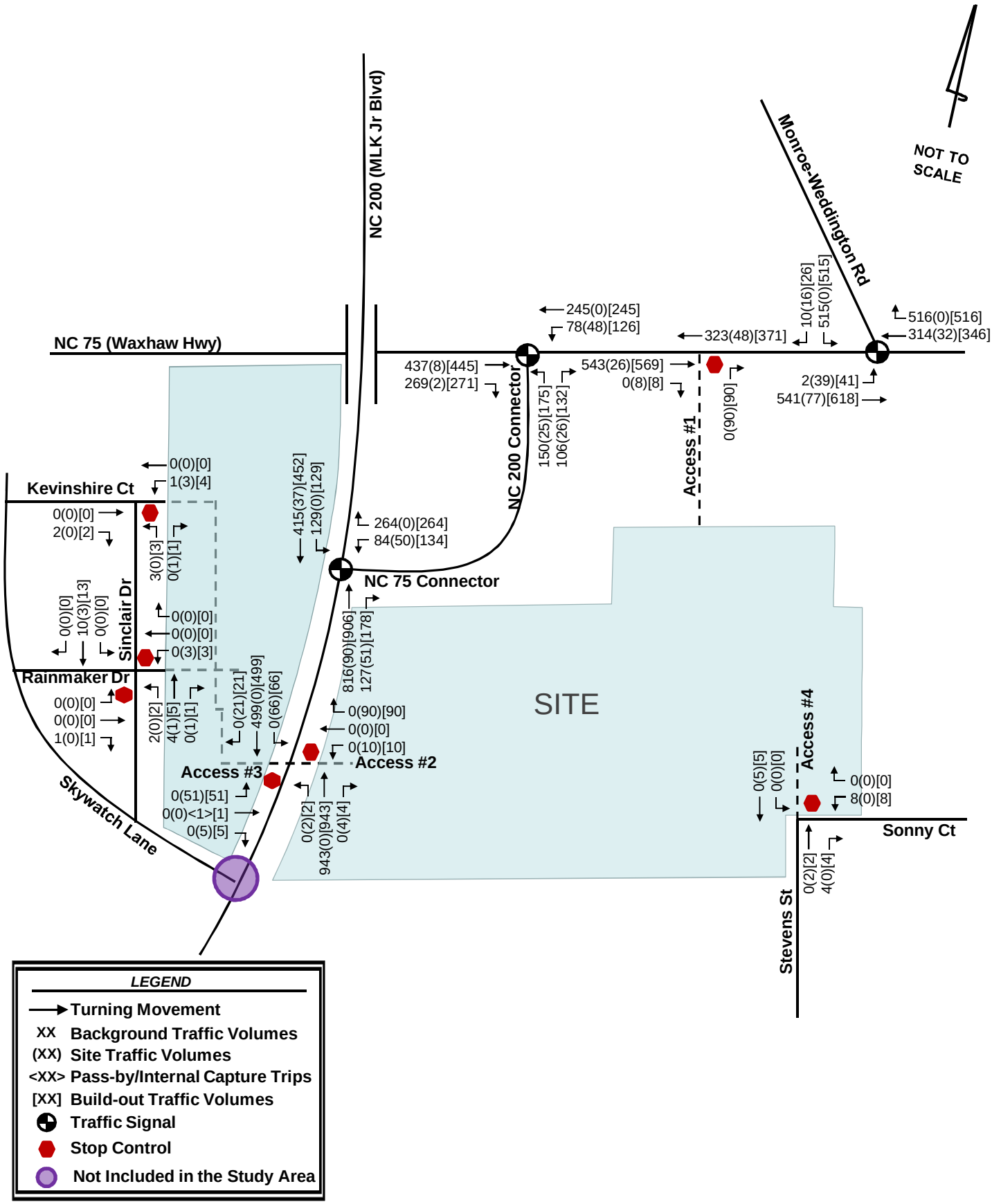
The proposed site traffic was generated, distributed, and assigned to the adjacent roadway network as discussed previously in Sections 4.0 and 5.0.

6.6 2022 Build-Out Traffic

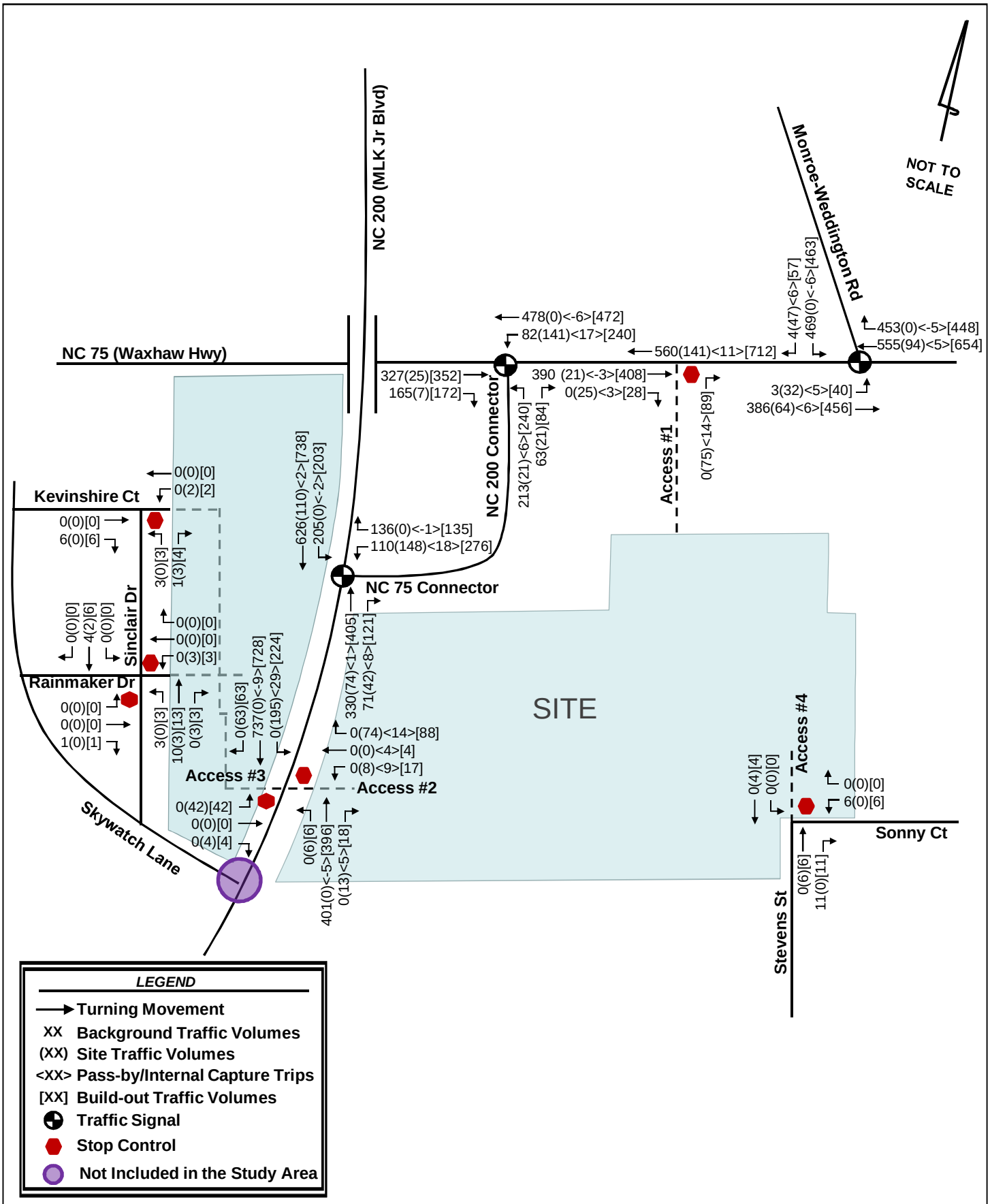
The traffic volumes for the 2022 build-out scenario include the background and the proposed project's traffic indicated in Table 4.0. Figures 6.2 and 6.3 depict the AM and PM peak-hour 2022 build-out traffic volumes, respectively, for the scenario with a right-in/right-out driveway at Access #1. Figures 6.4 and 6.5 depict the AM and PM peak-hour 2022 build-out traffic volumes, respectively, for the scenario with a left-over driveway at Access #1.



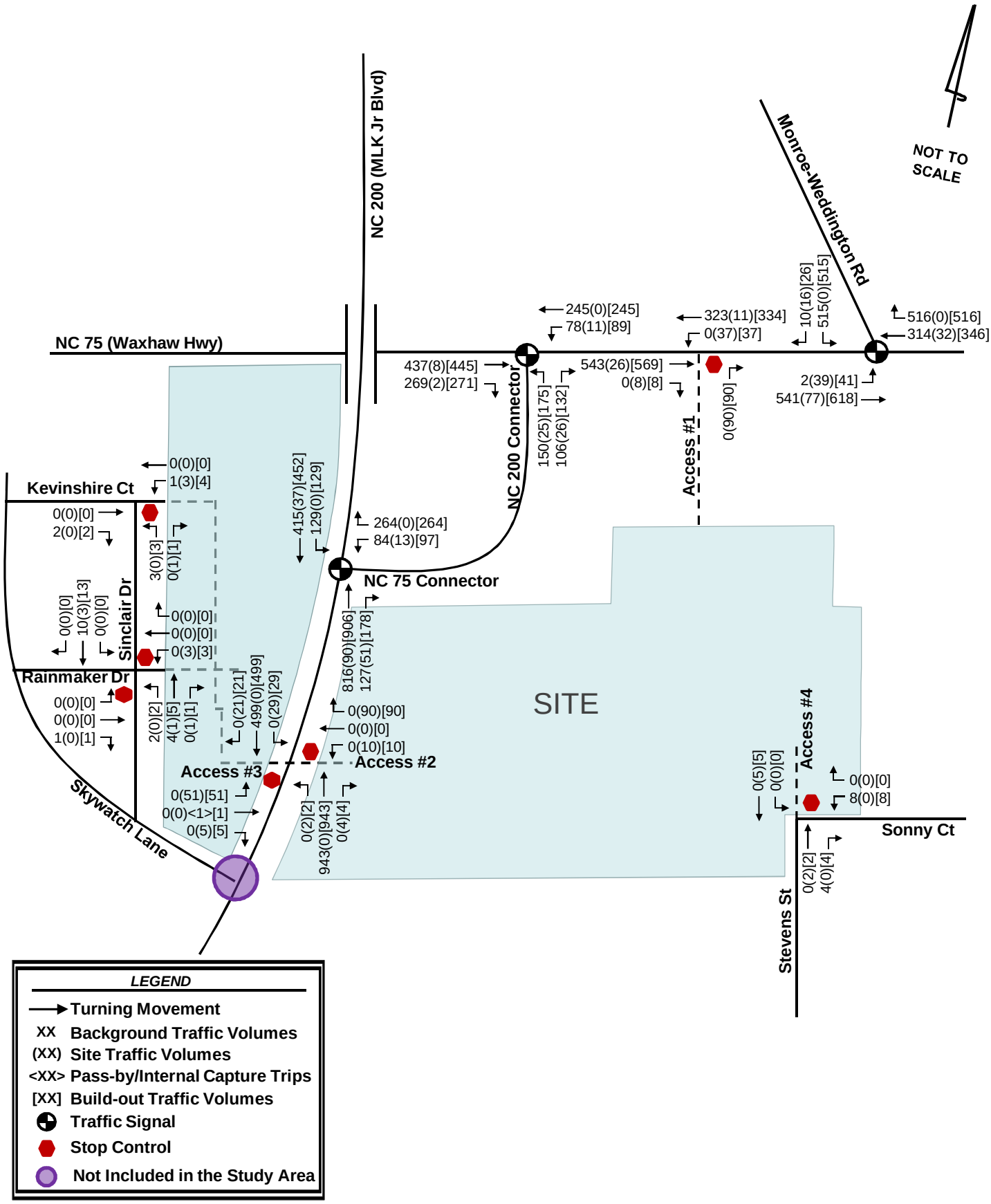
Kimley»Horn	Secrest Village Traffic Impact Analysis	2017 Existing Peak Hour Traffic Volumes	Figure 6.1



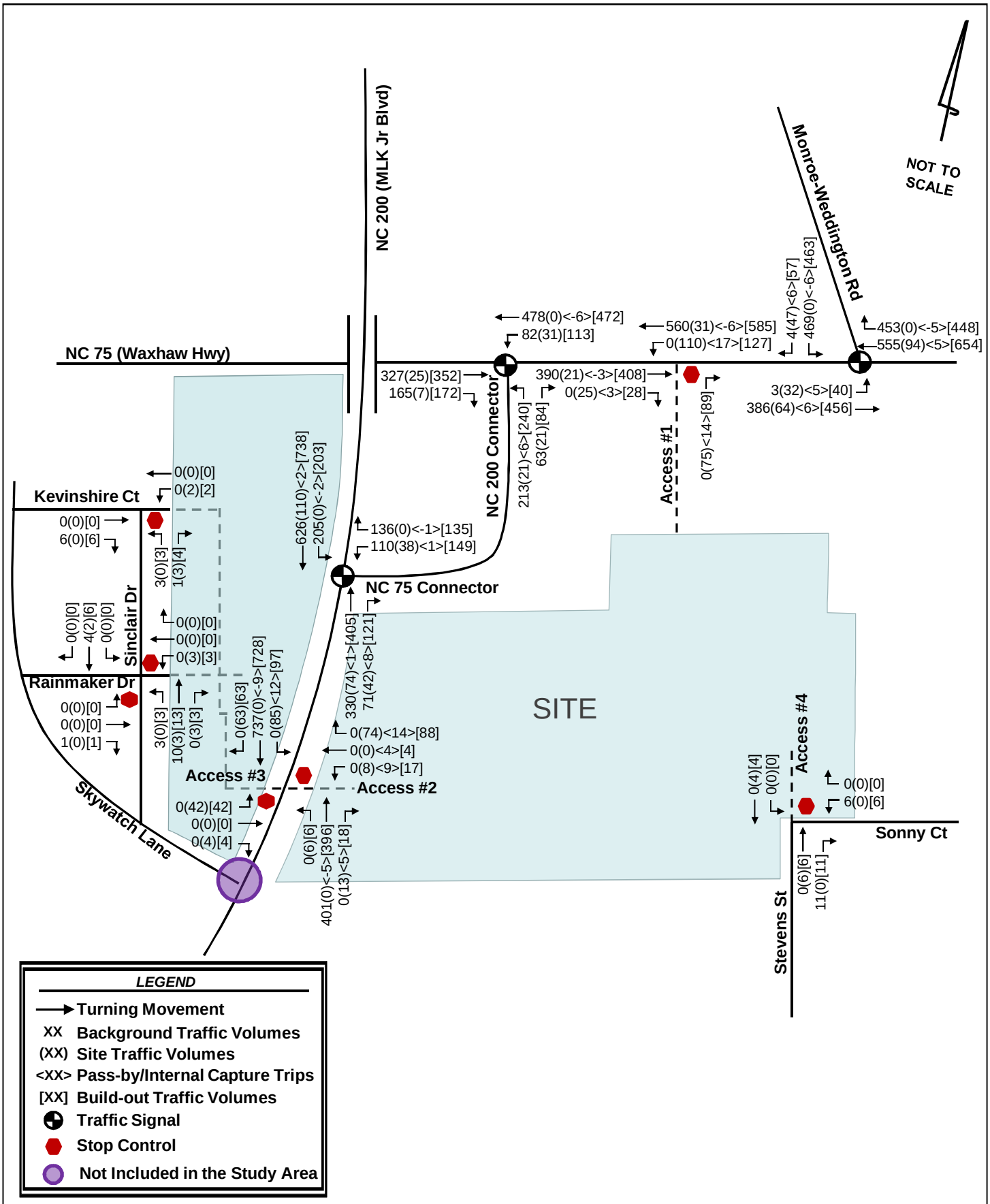
Kimley»Horn	Secrest Village Traffic Impact Analysis	2022 Background and Build-out AM Peak Hour Traffic Volumes with RIRO at Access #1	Figure 6.2



Kimley»Horn	Secrest Village Traffic Impact Analysis	2022 Background and Build-out PM Peak Hour Traffic Volumes with RIRO at Access #1	Figure 6.3



Kimley»Horn	Secrest Village Traffic Impact Analysis	2022 Background and Build-out AM Peak Hour Traffic Volumes with Left-Over at Access #1	Figure 6.4



Kimley»Horn	Secrest Village Traffic Impact Analysis	2022 Background and Build-out PM Peak Hour Traffic Volumes with Left-Over at Access #1	Figure 6.5

7.0 Capacity Analysis

Peak-hour capacity analyses were performed to determine the operating characteristics and impacts of the proposed development at the following intersections:

- NC 75 (Waxhaw Hwy) at NC 200 Connector
- NC 200 (M.L. King Jr. Blvd) at NC 75 Connector
- NC 75 (Waxhaw Highway)/Franklin Street at Monroe-Weddington Road
- Rainmaker Drive at Sinclair Drive
- Kevinshire Court at Sinclair Drive
- Stevens Street/Access #4 at Sonny Court
- NC 75 (Waxhaw Hwy) at Access #1
- NC 200 (M.L. King Jr. Blvd) at Access #2/#3

The capacity analyses were performed under 2017 existing traffic conditions, 2022 background traffic conditions, and 2022 build-out traffic conditions. The analyses were conducted using Synchro Version 9, which uses methodologies contained in the 2000 and 2010 Highway Capacity Manuals to determine the operating characteristics of an intersection. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment, or through a particular intersection, within a specified period of time under prevailing roadway, traffic, and control conditions.

Level-of-service (LOS) is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions of a traffic stream. The Highway Capacity Manual defines six levels of service, LOS A through LOS F, with A being the best and F the worst.

Levels-of-service for unsignalized intersections, with stop control on the minor street(s) only, are reported for the side street approaches. Low levels-of-service for the side street approaches are not uncommon during peak hours, as vehicles may experience long delays turning onto a major roadway.

Levels-of-service for signalized intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Table 7.0 lists the LOS control delay thresholds published in the *Highway Capacity Manual* for signalized and unsignalized intersections, as well as the unsignalized operational descriptions assumed herein.

Table 7.0 Level-of-Service Control Delay Thresholds			
Level-of-Service	**Signalized Intersections Control Delay Per Vehicle [sec/veh]**	**Unsignalized Intersections Average Control Delay [sec/veh]**	
A	≤ 10	≤ 10	Short Delays
B	> 10 – 20	> 10 – 15	
C	> 20 – 35	> 15 – 25	
D	> 35 – 55	> 25 – 35	Moderate Delays
E	> 55 – 80	> 35 – 50	
F	> 80	> 50	Long Delays

Synchro LOS results and 95th percentile queues are reported in the following subsections. SimTraffic for the Build Improved condition was performed and is discussed in Section 8. Capacity analysis and SimTraffic queuing/blocking reports are included in the Appendix.

NCDOT staff provided signal plans for the NC 75/Monroe-Weddinton Road, NC 75/NC 200 Connector, and NC 200/NC 75 Connector intersections, which were used in the development of the existing conditions Synchro network. The splits and offsets were optimized given the timing inputs in the existing conditions network. Heavy vehicle percentages were taken directly from field observations, subject to a two-percent minimum.

Per NCDOT Congestion Management guidelines, the following considerations were made in this analysis:

- Right-turn on red (RTOR) operations were not allowed in this analysis.
- Permitted-protected left-turn movements were modeled as protected-only in future years.
- For all future year analyses, 5 seconds of yellow time, 2 seconds of all red time, and -2 seconds for lost time adjust were assumed.
- Peak-hour factors (PHFs) were taken directly from the count data for the existing conditions scenario. A PHF of 0.9 was assumed for horizon year 2022 scenarios.
- Splits and offsets were optimized in horizon year 2022 scenarios. Congestion Management recommended minimum cycle lengths were maintained.
- Zero-volume movements at existing intersections were modeled as four vehicles per hour, with the exception of the westbound approaches of Rainmaker Drive and Kevinshire Court and the site access intersections. Note that zero-volume movements were not modeled as four vehicles per hour entering/existing the westbound approaches of Rainmaker Drive and Kevinshire Court, since there are only two residential driveway connections to Kevinshire Court and no driveway connections to Rainmaker Drive.

NCDOT requires consideration of roadway and/or operational improvements when:

- the total average delay at an intersection or individual approach increases by 25% or greater, while maintaining the same LOS
- LOS degrades by at least one level
- LOS F

7.1 Monroe-Weddington Road at NC 75 (Waxhaw Highway)

Table 7.1 summarizes the LOS and average control delay (seconds per vehicle) at the signalized intersection.

Table 7.1 - Monroe-Weddington Road and NC 75 (Waxhaw Hwy)								
Condition	Measure	EB		WB		SB		Intersection
		EBL	EBT	WBT	WBR	SBL	SBR	
AM Peak Hour								
2017 Existing	LOS (Delay)	B (16.6)		C (23.3)		C (29.4)		C (22.4)
	Synchro 95th Q	214'	-	247'	-	176'	-	
2022 Background	LOS (Delay)	C (23.0)		A (5.9)		C (28.5)		B (17.0)
	Synchro 95th Q	#288'	-	145'	0'	#353'	-	
2022 Build-out with RIRO at Access #1	LOS (Delay)	C (31.5)		A (5.7)		D (42.8)		C (23.7)
	Synchro 95th Q	#427'	-	151'	0'	#393'	-	
2022 Build-out with Left-over at Access #1	LOS (Delay)	C (31.5)		A (5.7)		D (42.8)		C (23.7)
	Synchro 95th Q	#427'	-	151'	0'	#393'	-	
2022 Build Improved with Left-over at Access #1 SBR turn lane	LOS (Delay)	C (28.5)		A (5.4)		D (39.1)		C (21.7)
	Synchro 95th Q	#415'	-	145'	0'	#377'	22'	
2022 Build Improved with Left-over at Access #1 EBL turn lane	LOS (Delay)	C (28.1)		A (6.5)		C (32.3)		C (20.2)
	Synchro 95th Q	27'	#396'	162'	0'	#370'	-	
PM Peak Hour								
2017 Existing	LOS (Delay)	A (8.2)		C (32.8)		E (62.6)		C (33.5)
	Synchro 95th Q	134'	-	503'	-	#337'	-	
2022 Background	LOS (Delay)	B (16.7)		B (13.2)		C (26.1)		B (17.2)
	Synchro 95th Q	241'	-	392'	0'	365'	-	
2022 Build-out with RIRO at Access #1	LOS (Delay)	D (41.2)		B (15.5)		D (39.3)		C (27.3)
	Synchro 95th Q	#479'	-	471'	0'	#491'	-	
2022 Build-out with Left-over at Access #1	LOS (Delay)	D (41.2)		B (15.5)		D (39.3)		C (27.3)
	Synchro 95th Q	#479'	-	471'	0'	#491'	-	
2022 Build Improved with Left-over at Access #1 SBR turn lane	LOS (Delay)	C (34.0)		B (14.4)		C (32.1)		C (23.3)
	Synchro 95th Q	#447'	-	447'	0'	#429'	54'	
2022 Build Improved with Left-over at Access #1 EBL turn lane	LOS (Delay)	B (18.7)		B (17.4)		C (34.3)		C (21.9)
	Synchro 95th Q	44'	287'	#502'	0'	#467'	-	

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

Table 7.1 shows the overall intersection currently operates at LOS C during both peak hours. Based on the *Martin Luther King Boulevard/NC 84 Traffic Impact Analysis* (Design Resource Group, 2009), the proposed Food Lion development will add a right-turn lane with 100 feet of

storage to the westbound approach of this intersection. This improvement was included in all horizon year 2022 scenarios. With the addition of this turn lane, the overall intersection is expected to improve to LOS B during the both peak hours under background conditions. Upon build-out of the site, the intersection is expected to drop to LOS C during the AM and PM peak hours. It should be noted that the southbound approach is expected to drop from LOS C to LOS D during both peak hours and the eastbound approach is expected to drop from LOS B to LOS D during the PM peak hour.

Due to the degradation of LOS and the increase in delay by more than 25% for the overall intersection and the eastbound and southbound approaches, the construction of a southbound right-turn lane was considered. With this improvement in place, the overall intersection is still expected to drop to LOS C and the delay is still expected to increase by more than 25% during both peak hours. Given that a southbound right-turn lane is not expected to provide a significant benefit to the overall intersection delay (2 seconds during the AM peak hour and 4 seconds during the PM peak hour) and that the existing retaining wall on the southbound approach may constrain widening, a southbound right-turn lane is not recommended at this intersection.

The construction of an eastbound left-turn lane was also considered to mitigate the impacts of the proposed site on this intersection. With this improvement in place, the overall intersection is still expected to drop to LOS C during both peak hours and the delay is expected to increase by more than 25% for the overall intersection during the PM peak hour. Note that with the addition of an eastbound left-turn lane, the LOS on all approaches is expected to remain the same during both peak hours between background and build. Given that an eastbound left-turn lane provides a more significant benefit to the approach LOS and the overall intersection delay than a southbound right-turn lane, it is recommended that an eastbound left-turn lane with 75 feet of storage be constructed at this intersection. This is based on Synchro 95th percentile queue of 44' and SimTraffic queue of 72' during the PM peak hour. It should be noted that utilities on the eastbound approach may constrain widening at this intersection.

7.2 NC 75 (Waxhaw Highway) at NC 200 Connector

Table 7.2 summarizes the LOS and average control delay (seconds per vehicle) at the signalized intersection.

Table 7.2 - NC 200 Connector and NC 75 (Waxhaw Hwy)

Condition	Measure	EB		WB		NB		Intersection
		EBT	EBR	WBL	WBT	NBL	NBR	
AM Peak Hour								
2017 Existing	LOS (Delay)	A (7.2)		A (3.0)		E (56.6)		B (15.5)
	Synchro 95th Q	189'	18'	21'	62'	100'	115'	
2022 Background	LOS (Delay)	B (10.7)		B (18.9)		C (33.9)		B (17.4)
	Synchro 95th Q	342'	80'	118'	105'	182'	109'	
2022 Build-out with RIRO at Access #1	LOS (Delay)	B (14.0)		C (25.0)		C (33.4)		C (21.2)
	Synchro 95th Q	406'	102'	168'	116'	195'	m117'	
2022 Build-out with Left-over at Access #1	LOS (Delay)	B (12.3)		C (21.1)		C (33.2)		B (19.2)
	Synchro 95th Q	378'	85'	130'	116'	229'	m129'	
PM Peak Hour								
2017 Existing	LOS (Delay)	A (5.6)		A (3.7)		E (57.1)		B (11.8)
	Synchro 95th Q	129'	11'	21'	126'	102'	79'	
2022 Background	LOS (Delay)	B (11.7)		B (15.9)		C (24.4)		B (16.1)
	Synchro 95th Q	262'	49'	122'	256'	81'	16'	
2022 Build-out with RIRO at Access #1	LOS (Delay)	C (20.7)		C (25.7)		C (28.4)		C (24.6)
	Synchro 95th Q	375'	90'	277'	266'	177'	m19'	
2022 Build-out with Left-over at Access #1	LOS (Delay)	B (14.3)		B (19.4)		C (28.9)		B (19.7)
	Synchro 95th Q	312'	59'	157'	267'	120'	25'	
	Existing Storage		350'	350'			400'	

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

As shown in Table 7.2, the overall intersection is expected to operate at LOS B under background conditions during both peak hours. Upon build-out of the site, the intersection is expected to drop to LOS C during the AM and PM peak hours with a right-in/right-out driveway at Access #1. With a left-over at Access #1, the overall intersection is expected to operate at LOS B. Note that the westbound approach is expected to drop to LOS C during the AM peak hour; however, given that the delay is not expected to increase by more than 25% and the overall intersection and all approaches are expected to operate at an acceptable LOS, no improvements are recommended for capacity purposes.

7.3 NC 200 (MLK Jr Blvd) at NC 75 Connector

Table 7.3 summarizes the LOS and average control delay (seconds per vehicle) at the signalized intersection.

Table 7.3 - NC 200 (MLK Jr Blvd) and NC 75 Connector

Condition	Measure	WB		NB		SB		Intersection
		WBL	WBR	NBT	NBR	SBL	SBT	
AM Peak Hour								
2017 Existing	LOS (Delay)	E (57.1)		A (7.0)		A (3.4)		B (15.8)
	Synchro 95th Q	102'	105'	236'	19'	16'	67'	
2022 Background	LOS (Delay)	D (50.6)		B (18.0)		B (19.1)		C (24.5)
	Synchro 95th Q	138'	320'	699'	43'	180'	97'	
2022 Build-out with RIRO at Access #1	LOS (Delay)	D (48.6)		C (23.6)		C (20.2)		C (27.5)
	Synchro 95th Q	#215'	263'	#883'	52'	#200'	128'	
2022 Build-out with Left-over at Access #1	LOS (Delay)	D (47.3)		C (22.0)		B (19.7)		C (25.8)
	Synchro 95th Q	127'	264'	#883'	52'	#200'	128'	
PM Peak Hour								
2017 Existing	LOS (Delay)	E (60.0)		A (5.5)		A (3.9)		B (12.8)
	Synchro 95th Q	143'	49'	96'	11'	21'	145'	
2022 Background	LOS (Delay)	D (36.3)		B (14.8)		B (19.1)		C (20.8)
	Synchro 95th Q	138'	125'	269'	36'	246'	259'	
2022 Build-out with RIRO at Access #1	LOS (Delay)	C (30.4)		C (22.4)		C (25.0)		C (25.5)
	Synchro 95th Q	168'	36'	420'	53'	252'	569'	
2022 Build-out with Left-over at Access #1	LOS (Delay)	C (34.4)		B (16.7)		B (19.6)		C (21.1)
	Synchro 95th Q	196'	96'	364'	57'	246'	401'	
	Existing Storage	175'			425'	350'		

Exceeds existing storage

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

As shown in Table 7.3, the overall intersection is expected to operate at LOS C under background conditions during both peak hours. Upon build-out of the site under both Access #1 scenarios, the intersection is expected to continue to operate at LOS C during the AM and PM peak hours. Note that the northbound approach is expected to drop to LOS C during the AM peak hour; however, given that the delay is not expected to increase by more than 25% and the overall intersection and all approaches are expected to operate at an acceptable LOS under the build-out scenario with a left-over at Access #1, no improvements are recommended on the northbound approach of this intersection for capacity purposes.

Under build-out conditions with a left-over at Access #1, the westbound left-turn queue is expected to exceed the existing storage during the PM peak. Note that per NCDOT Congestion Management guidelines, the build-out scenario assumes protected phasing on the southbound left-turn movement even though this movement currently operates as permitted-protected. However, with permitted-protected phasing on the southbound approach, the westbound left-turn queue is expected to drop to 174 feet. See supplemental analysis section of Appendix for Capacity Analysis report. Given that the existing storage is expected to accommodate the

westbound left-turn queue with permitted-protected phasing on the southbound left-turn movement, reflective of field conditions, a turn-lane extension is not recommended.

7.4 Existing Unsignalized Intersections

Table 7.4 summarizes the LOS and average control delay (seconds per vehicle) at the existing unsignalized study intersections.

Table 7.4 - Existing Unsignalized Intersections

Intersection	Stop Controlled Approach	Measure	2017 Existing		2022 Background		2022 Build-out with RIRO at Access #1		2022 Build-out with Left-over at Access #1	
			AM	PM	AM	PM	AM	PM	AM	PM
Sinclair Dr at Rainmaker Dr	Eastbound/ Westbound	LOS (Delay)	A (8.6)/ A (0.0)	A (8.6)/ A (0.0)	A (8.6)/ A (0.0)	A (8.6)/ A (0.0)	A (8.6)/ A (8.7)	A (8.6)/ A (8.7)	A (8.6)/ A (8.7)	A (8.6)/ A (8.7)
		Synchro 95th Q	1'/0'	1'/0'	0'/0'	0'/0'	0'/0'	0'/0'	0'/0'	0'/0'
Sinclair Dr at Kevinshire Ct	Northbound	LOS (Delay)	A (8.6)	A (8.5)	A (8.5)	A (8.5)	A (8.5)	A (8.5)	A (8.5)	A (8.5)
		Synchro 95th Q	1'	1'	0	0'	0'	1'	0'	1'
Stevens St at Sonny Ct	Westbound	LOS (Delay)	A (8.8)	A (8.7)	A (8.8)	A (8.7)	A (8.8)	A (8.8)	A (8.8)	A (8.8)
		Synchro 95th Q	1'	1'	1'	1'	1'	1'	1'	1'

As shown in Table 7.4, the existing unsignalized study intersections are expected to operate with short side street delays and minimal queuing during both the AM and PM peak hours. Since the proposed development is expected to have minimal impact on operations at these intersections, no improvements are recommended for capacity purposes.

7.5 Site Access Intersections

Table 7.5 summarizes the LOS and average control delay (seconds per vehicle) at the proposed unsignalized access intersections.

Table 7.5 - Site Access Intersections

Intersection	Stop Controlled Approach	Measure	2022 Build-out with RIRO at Access #1		2022 Build-out with Left-over at Access #1		2022 Build-out Improved with RIRO at Access #1		2022 Build-out Improved with Left-over at Access #1	
			AM	PM	AM	PM	AM	PM	AM	PM
NC 75 at Access #1	Northbound/ Westbound Left	LOS (Delay)	B (14.1)/-	B (11.7)/ -	B (14.1)/ A (1.4)	B (11.8)/ A (3.1)	-	-	-	-
		Synchro 95th Q	19'/-	14'/-	19'/4'	14'/11'	-	-	-	-
NC 200 at Access #2/#3	Eastbound/ Westbound	LOS (Delay)	F (742.0)/ E (46.2)	F (1138.4)/ F (126.1)	F (542.1)/ E (40.8)	F (279.4)/ D (33.3)	F (599.1)/ D (31.4)	F (690.4)/ E (48.2)	F (435.4)/ D (29.7)	F (180.9)/ C (23.1)
		Synchro 95th Q	183'/78'	169'/155'	168'/70'	113'/63'	173'/40'	151'/89'	157'/40'	95'/31'

As shown in Table 7.5, the proposed NC 200 (MLK Jr Blvd) at Access #2/#3 intersection is expected to operate with long delays on the stop controlled eastbound and westbound approaches. With a left-over at Access #1, the delay on the eastbound approach of Access #3 is expected to decrease by more than 198 seconds during the AM peak hour and by more than 858 seconds during the PM peak hour; however, the eastbound approach is still expected to operate at LOS F. Given that the left-over at Access #1 provides relief to the proposed Access #2/#3

driveway approaches and the westbound left-over movement operates acceptably (see Table 7.5), a left-over configuration at Access #1 is recommended. Further discussion is needed on the specific configuration of the left-over at Access #1.

Note that with a left-over at Access #1 long delays are still expected on the eastbound approach of Access #3. To mitigate the long delay, southbound left- and right-turn lanes and a westbound right-turn lane were considered. With these improvements in place, the delay on the eastbound approach is expected to decrease significantly during the AM and PM peak hours under both build-out scenarios; however, the approach is still expected to operate at LOS F with long delays.

The vehicles making an eastbound left-turn out of Access #3 experience long delays due to the through volume on NC 200, which limits the gaps available for vehicles to make their desired movements. If traffic is unable to turn left out of Access #3, drivers may choose to use Kevinshire Court or Rainmaker Drive to exit the site and then use Skywatch Lane to access NC 200 and travel north. Further, if Skywatch Lane is extended to NC 75 in the future, traffic would likely use this connection to access NC 75 instead of exiting the site via Access #3.

Note that the construction of a roundabout was considered at the intersection of Access #2/#3. With this improvement in place, the overall intersection is expected to operate at LOS E during the AM peak hour and the eastbound and westbound approaches are expected to operate at LOS A and LOS C, respectively; however, the northbound approach of NC 200 is expected to operate at LOS F during the AM peak hour with long queues. See supplemental analysis section of Appendix for the Capacity Analysis report. Based on this analysis, a roundabout would not be recommended.

Additionally, a peak-hour signal warrant analysis was conducted for this intersection, but peak-hour warrants were not met.

The following improvements are recommended for capacity purposes at the intersection at NC 200 and Access #2/#3:

- Construction of a southbound left-turn lane.
- Construction of a southbound right-turn lane.
- Construction of a westbound right-turn lane

8.0 Access Review and Auxiliary Turn Lanes

Based on a review of the figure titled 'Warrant for Left and Right-Turn Lanes' found on page 80 in the NCDOT *Policy on Street And Driveway Access to North Carolina Highways*, Table 8.1 shows turn lane warrants in the unsignalized condition.

Table 8.1 – 2022 Build-out Auxiliary Turn Lane Warrants

Intersection	Scenario	Eastbound (AM/PM)		Westbound (AM/PM)		Northbound (AM/PM)		Southbound (AM/PM)	
		Left	Right	Left	Right	Left	Right	Left	Right
Sinclair Dr at Rainmaker Dr	RIRO at Access #1	-	-	-	-	0'/0'	0'/0'	0'/0'	0'/0'
	Left-over at Access	-	-	-	-	0'/0'	0'/0'	0'/0'	0'/0'
Sinclair Dr at Kevinshire Ct	RIRO at Access #1	-	0'/0'	0'/0'	-	-	-	-	-
	Left-over at Access	-	0'/0'	0'/0'	-	-	-	-	-
Stevens St at Sonny Ct	RIRO at Access #1	-	-	-	-	-	0'/0'	0'/0'	-
	Left-over at Access	-	-	-	-	-	0'/0'	0'/0'	-
NC 75 at Access #1	RIRO at Access #1	-	0'/0'	0'/0'	-	-	-	-	-
	Left-over at Access	-	0'/0'	50'/**125'**	-	-	-	-	-
NC 200 at Access #2/ #3	RIRO at Access #1	-	-	-	-	0'/0'	0'/0'	125'/**200'**	0'/**75'**
	Left-over at Access	-	-	-	-	0'/0'	0'/0'	75'/**100'**	0'/**75'**

As shown in Table 8.1, the following warrants are met:

NC 75 (Waxhaw Highway) at Access #1

- Westbound left-turn lane with 125 feet of storage on NC 75 at Access #1

In the SimTraffic analysis of the 2022 Build Improved condition with a left-over at Access #1, which includes the warranted auxiliary turn lanes, a maximum queue of 138 feet was observed. To accommodate the westbound left-turn queue, it is recommended that 150 feet of storage be provided.

NC 200 (M.L. King Jr. Blvd) at Access #2/#3

Right-in/Right-out at Access #1

- Southbound left-turn lane with 200 feet of storage
- Southbound right-turn lane with 75 feet of storage

Left-over at Access #1

- Southbound left-turn lane with 100 feet of storage
- Southbound right-turn lane with 75 feet of storage

In the SimTraffic analysis of the 2022 Build Improved condition with a left-over at Access #1, which includes the warranted auxiliary turn lanes, the following maximum queues were observed:

- Southbound left – 58'
- Southbound right – 0'
- Westbound right – 154' (Westbound left-through – 40')

Based on the SimTraffic analysis, 100 feet of storage is recommended for the westbound right-turn lane. The southbound left- and right-turn lanes are expected to be accommodated within the warranted storage.

The results of the warrant analysis are included in the Appendix.

9.0 Conclusions

The recommended lane geometry is based on capacity and queuing requirements, traffic signal warrant analysis, and NCDOT turn lane warrants.

Recommendations for roadway and operational improvements for intersections in the study area are summarized in the following listing, subject to approval by the City of Monroe and NCDOT.

The following roadway and operational improvements are recommended due to the impact of the proposed site, as shown in Figure 9.1.

<u>NC 75 (Waxhaw Highway) at Monroe-Weddington Road</u>

- Construction of an eastbound left-turn lane with 75 feet of storage.

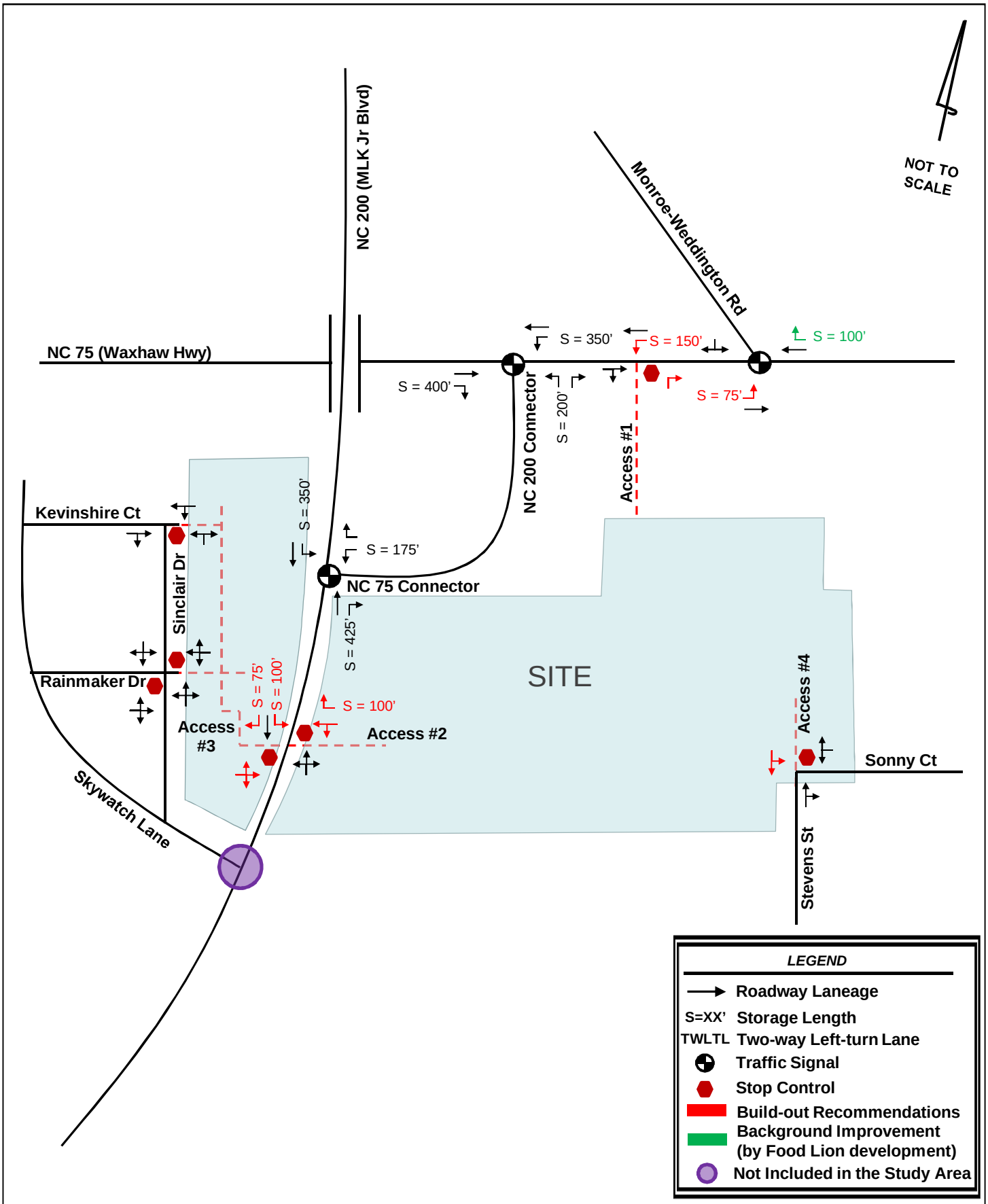
<u>NC 75 (Waxhaw Highway) at Access #1</u>

- Construction of a westbound left-turn lane with 150 feet of storage.
- Construction of a single-lane right-out approach on the northbound leg of the intersection.

Further discussion is needed on the specific configuration of the left-over (directional crossover) at Access #1.

<u>NC 200 (M.L. King Jr. Blvd) at Access #2/#3</u>

- Construction of a southbound left-turn lane with 100 feet of storage.
- Construction of a southbound right-turn lane with 75 feet of storage.
- Construction of a westbound right-turn lane with 100 feet of storage.



Kimley»Horn	Secrest Village Traffic Impact Analysis	Recommend Laneage	Figure 9.1

Appendix

Internal Capture Calculations

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Lake Lee TIA	**Organization:**	Kimley-Horn
Project Location:	Monroe, MC	**Performed By:**	LNR
Scenario Description:	AM Peak Hour	**Date:**	4/18/2017
Analysis Year:	Build-Out	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				67	42	25
Restaurant				0		
Cinema/Entertainment				0		
Residential				305	68	237
Hotel				0		
All Other Land Uses[2]				0		
				372	110	262

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses[2]	1.10	0%	0%	1.10	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	410	121	289
Internal Capture Percentage	2%	4%	2%
External Vehicle-Trips[5]	364	105	259
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	7%	7%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	3%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Lake Lee TIA
Analysis Period:	

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.10	0	0	1.10	0	0
Retail	1.10	42	46	1.10	25	28
Restaurant	1.10	0	0	1.10	0	0
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	68	75	1.10	237	261
Hotel	1.10	0	0	1.10	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	8		4	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	5	3	52	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	4		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	8	0	0		0
Hotel	0	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	3	43	46	39	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	73	75	66	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	26	28	24	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	258	261	235	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Lake Lee TIA	**Organization:**	Kimley-Horn
Project Location:	Monroe, MC	**Performed By:**	LNR
Scenario Description:	PM Peak Hour	**Date:**	8/8/2017
Analysis Year:	Build-out	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				237	114	123
Restaurant				0		
Cinema/Entertainment				0		
Residential				393	252	141
Hotel				0		
All Other Land Uses[2]				0		
				630	366	264

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.10	0%	0%	1.10	0%	0%
Retail	1.10	0%	0%	1.10	0%	0%
Restaurant	1.10	0%	0%	1.10	0%	0%
Cinema/Entertainment	1.10	0%	0%	1.10	0%	0%
Residential	1.10	0%	0%	1.10	0%	0%
Hotel	1.10	0%	0%	1.10	0%	0%
All Other Land Uses[2]	1.10	0%	0%	1.10	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					2700	
Restaurant						
Cinema/Entertainment						
Residential		2700				
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	15	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	692	402	290
Internal Capture Percentage	5%	4%	6%
External Vehicle-Trips[5]	600	351	249
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	1%	11%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	5%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Lake Lee TIA
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.10	0	0	1.10	0	0
Retail	1.10	114	125	1.10	123	135
Restaurant	1.10	0	0	1.10	0	0
Cinema/Entertainment	1.10	0	0	1.10	0	0
Residential	1.10	252	277	1.10	141	155
Hotel	1.10	0	0	1.10	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	3		39	5	15	7
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	6	7	33	0		5
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		10	0	0	11	0
Retail	0		0	0	127	0
Restaurant	0	63		0	44	0
Cinema/Entertainment	0	5	0		11	0
Residential	0	1	0	0		0
Hotel	0	3	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	1	124	125	113	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	15	262	277	238	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	15	120	135	109	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	154	155	140	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Table 7.1a Adjusted Internal Trip Capture Rates for Trip Origins within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Office	0.0%	0.0%
	To Retail	28.0%	20.0%
	To Restaurant	63.0%	4.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	1.0%	2.0%
	To Hotel	0.0%	0.0%
From RETAIL	To Office	29.0%	2.0%
	To Retail	0.0%	0.0%
	To Restaurant	13.0%	29.0%
	To Cinema/Entertainment	0.0%	4.0%
	To Residential	14.0%	10.9%
	To Hotel	0.0%	5.0%
From RESTAURANT	To Office	31.0%	3.0%
	To Retail	14.0%	41.0%
	To Restaurant	0.0%	0.0%
	To Cinema/Entertainment	0.0%	8.0%
	To Residential	4.0%	18.0%
	To Hotel	3.0%	7.0%
From CINEMA/ENTERTAINMENT	To Office	0.0%	2.0%
	To Retail	0.0%	21.0%
	To Restaurant	0.0%	31.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	8.0%
	To Hotel	0.0%	2.0%
From RESIDENTIAL	To Office	2.0%	4.0%
	To Retail	1.0%	4.2%
	To Restaurant	20.0%	21.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	0.0%
	To Hotel	0.0%	3.0%
From HOTEL	To Office	75.0%	0.0%
	To Retail	14.0%	16.0%
	To Restaurant	9.0%	68.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	2.0%
	To Hotel	0.0%	0.0%

Table 7.2a Adjusted Internal Trip Capture Rates for Trip Destinations within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Office	0.0%	0.0%
	From Retail	4.0%	31.0%
	From Restaurant	14.0%	30.0%
	From Cinema/Entertainment	0.0%	6.0%
	From Residential	3.0%	57.0%
	From Hotel	3.0%	0.0%
To RETAIL	From Office	32.0%	8.0%
	From Retail	0.0%	0.0%
	From Restaurant	8.0%	50.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	17.0%	1.0%
	From Hotel	4.0%	2.0%
To RESTAURANT	From Office	23.0%	2.0%
	From Retail	50.0%	29.0%
	From Restaurant	0.0%	0.0%
	From Cinema/Entertainment	0.0%	3.0%
	From Residential	20.0%	14.0%
	From Hotel	6.0%	5.0%
To CINEMA/ENTERTAINMENT	From Office	0.0%	1.0%
	From Retail	0.0%	26.0%
	From Restaurant	0.0%	32.0%
	From Cinema/Entertainment	0.0%	0.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To RESIDENTIAL	From Office	0.0%	4.0%
	From Retail	2.0%	46.0%
	From Restaurant	5.0%	16.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To HOTEL	From Office	0.0%	0.0%
	From Retail	0.0%	17.0%
	From Restaurant	4.0%	71.0%
	From Cinema/Entertainment	0.0%	1.0%
	From Residential	0.0%	12.0%
	From Hotel	0.0%	0.0%

Please Note Internal Trips were given as persons. NEED TO DIVIDE BY 1.1

AM (persons)	IN	OUT
Office	0	0
Retail	3	2
Restaurant	0	0
Cinema/ Entertainment	0	0
Residential	2	3
Hotel	0	0
Other	0	0
	5	5

PM (persons)	IN	OUT
Office	0	0
Retail	1	15
Restaurant	0	0
Cinema/ Entertainment	0	0
Residential	15	1
Hotel	0	0
Other	0	0
	16	16

AM (vehicles)	IN	OUT
Office	0	0
Retail	3	2
Restaurant	0	0
Cinema/ Entertainment	0	0
Residential	2	3
Hotel	0	0
Other	0	0
	5	5

PM (vehicles)	IN	OUT
Office	0	0
Retail	1	14
Restaurant	0	0
Cinema/ Entertainment	0	0
Residential	14	1
Hotel	0	0
Other	0	0
	15	15

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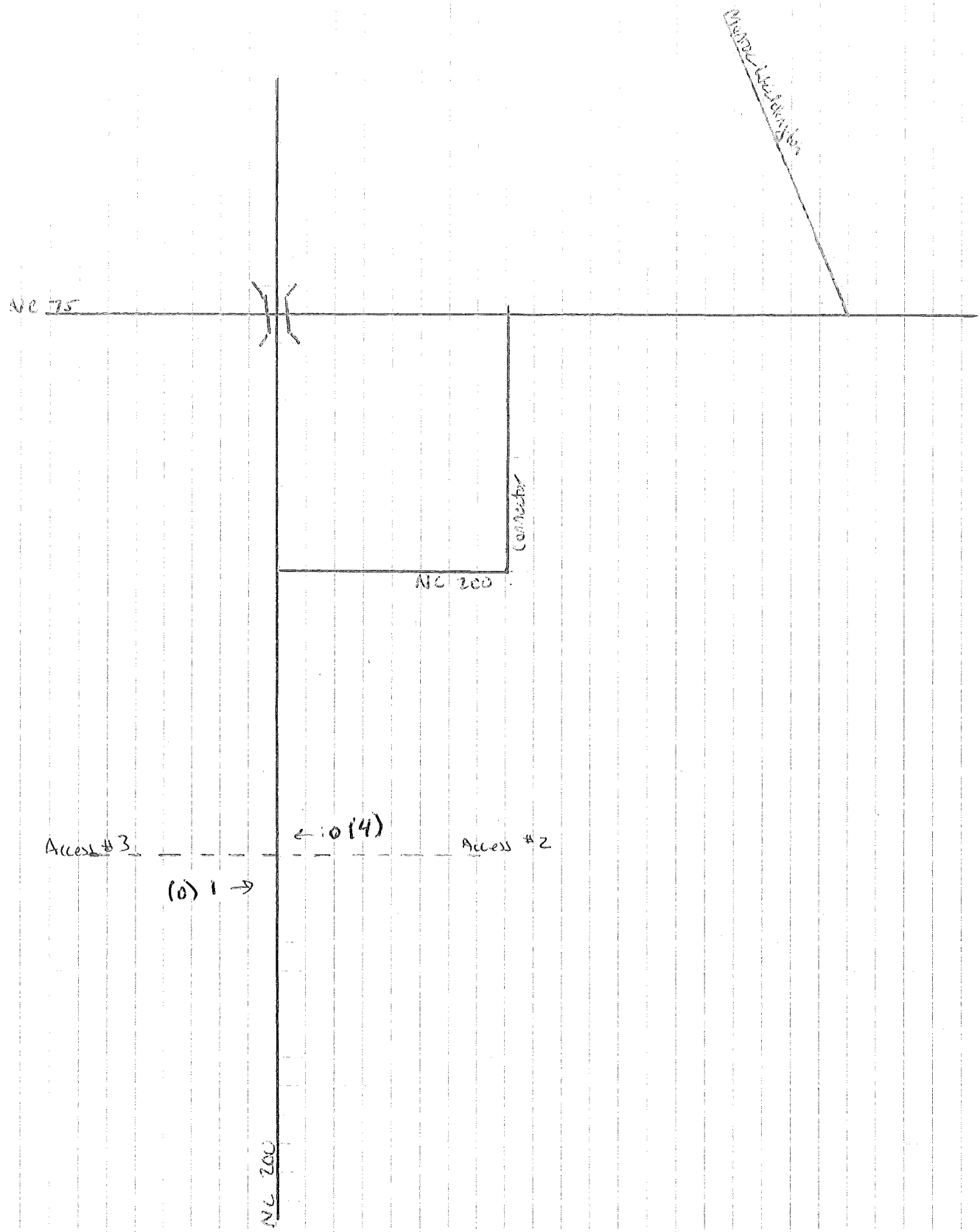
Sheet No. ____ of ____

Job Monroe TIA Subject Internal Capture Job No. ____

Designed By ____ Date ____ Checked By ____ Date ____



Pass-By Calculations

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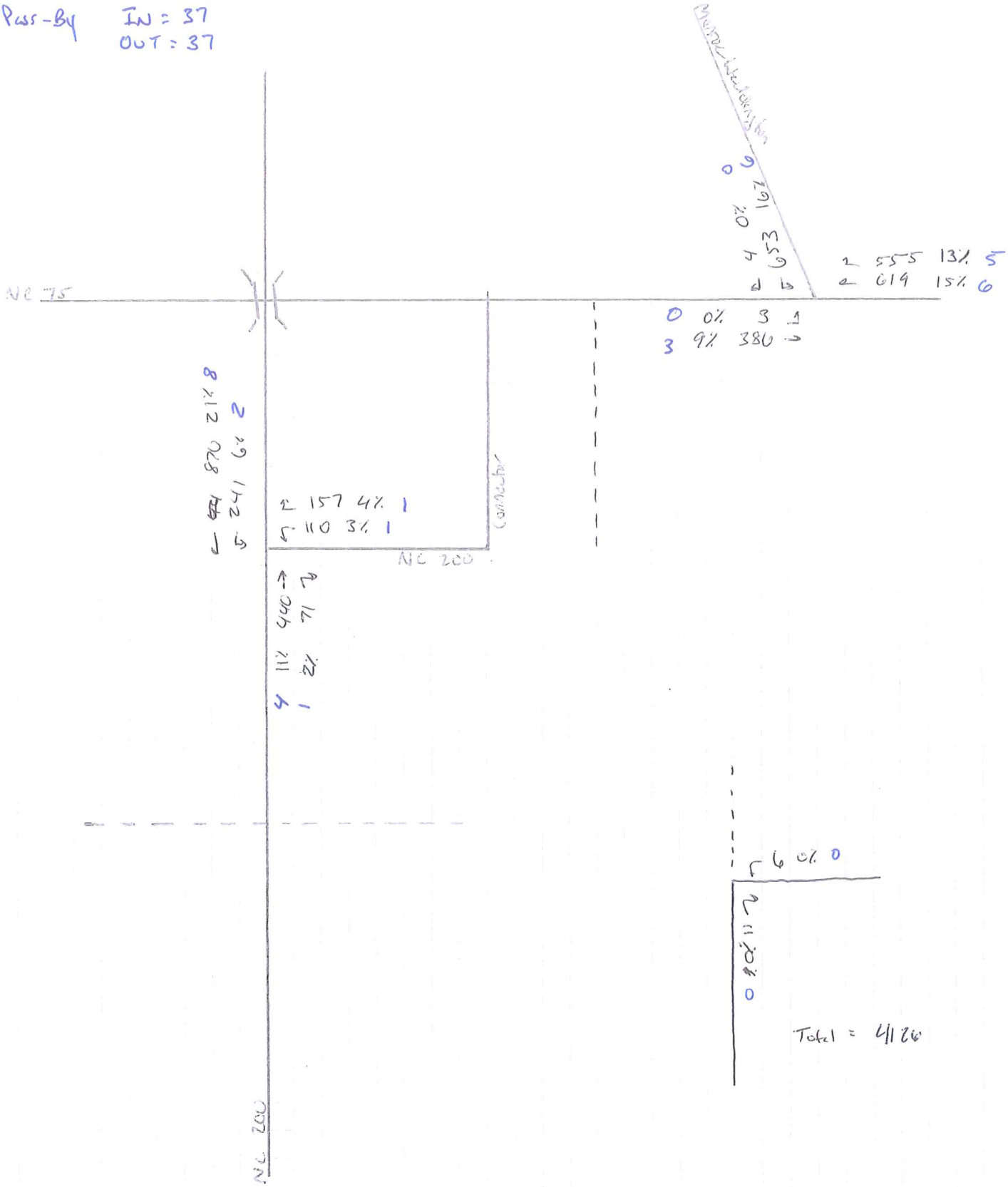
Sheet No. ____ of ____

Job Monroe TIA Subject Pass-by Job No. ____

Designed By ____ Date ____ Checked By ____ Date ____

Pass-By IN = 37
OUT = 37



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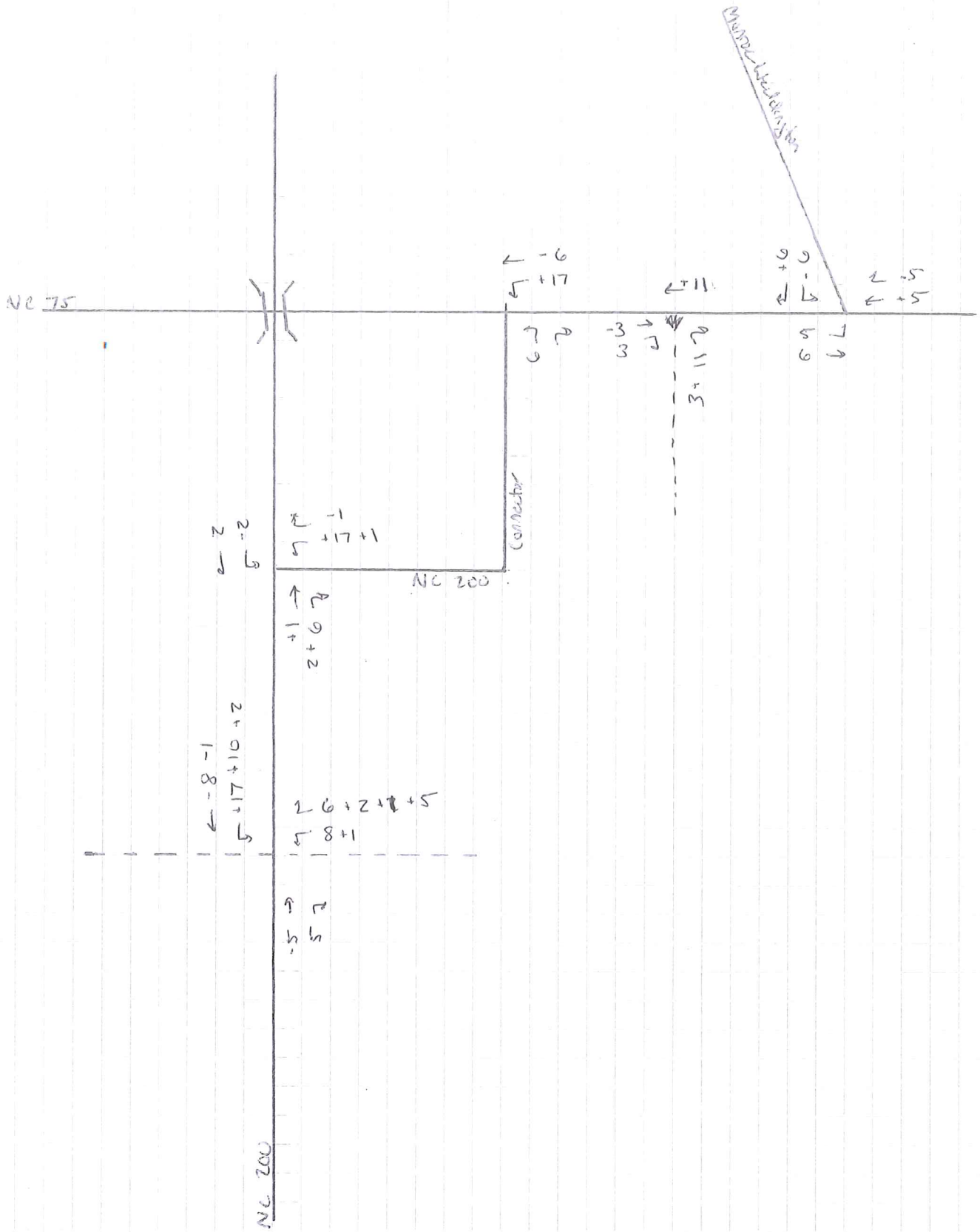
Job Monroe TIA Subject Pass-By 2120 Sheet No. ___ of ___ Job No. ___

Designed By ___ Date ___ Checked By ___ Date ___



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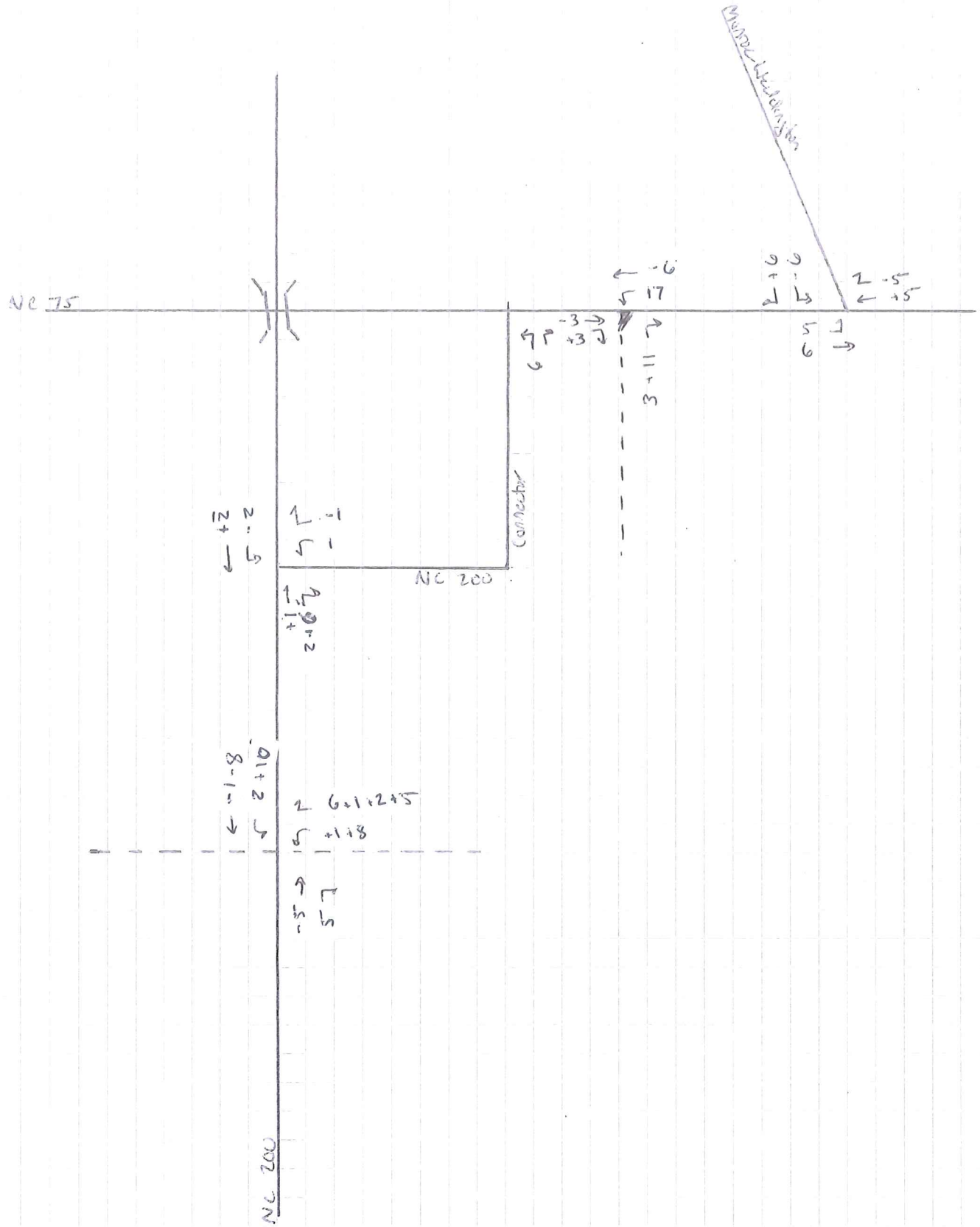
Sheet No. ____ of ____

Job Monroe TIA Subject Pass-by - left over Job No. ____

Designed By ____ Date ____ Checked By ____ Date ____



Approved Developments

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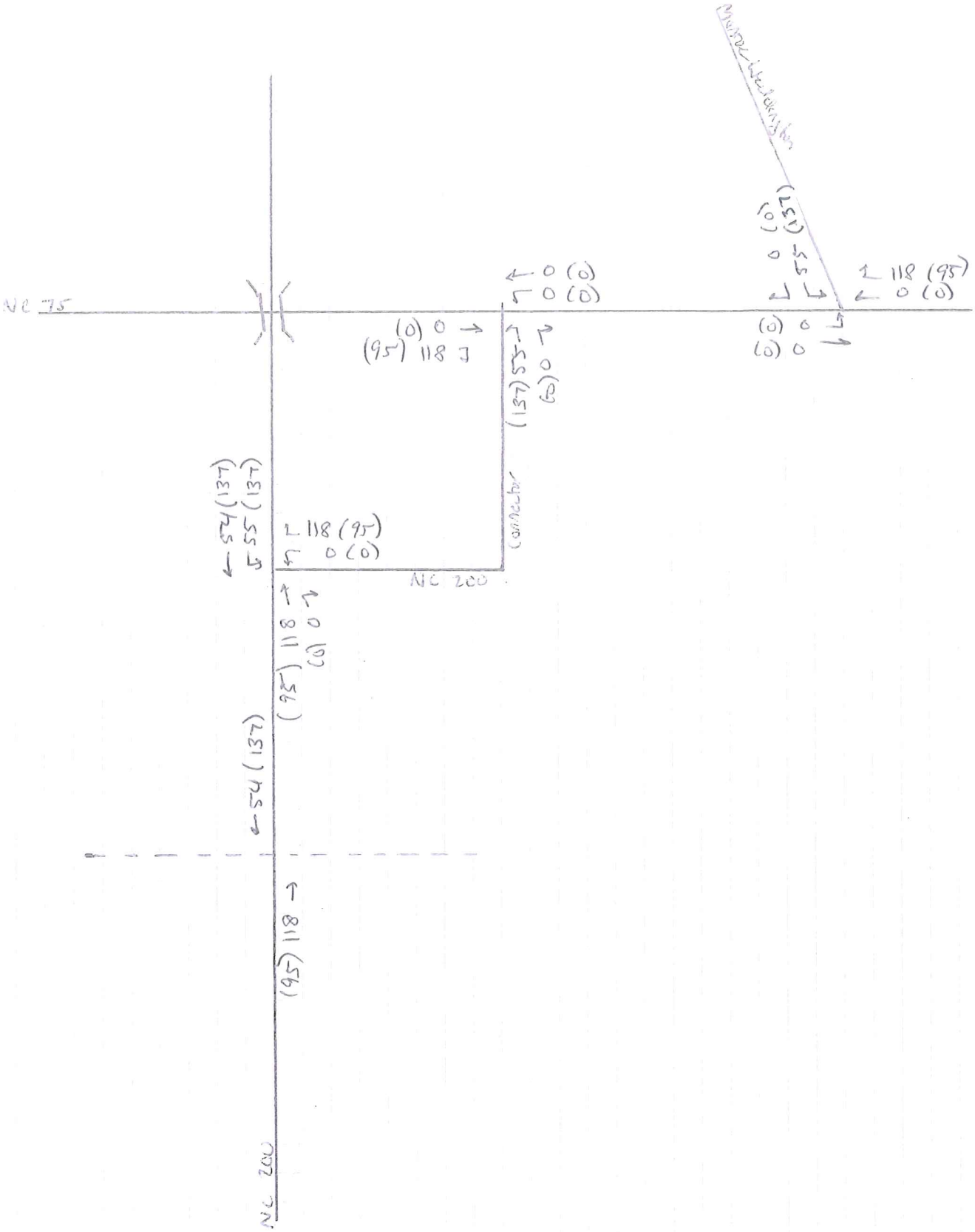
Sheet No. ____ of ____

Job Monroe TIA Subject Food Lion Development Job No. ____

Designed By ____ Date ____ Checked By ____ Date 8/21



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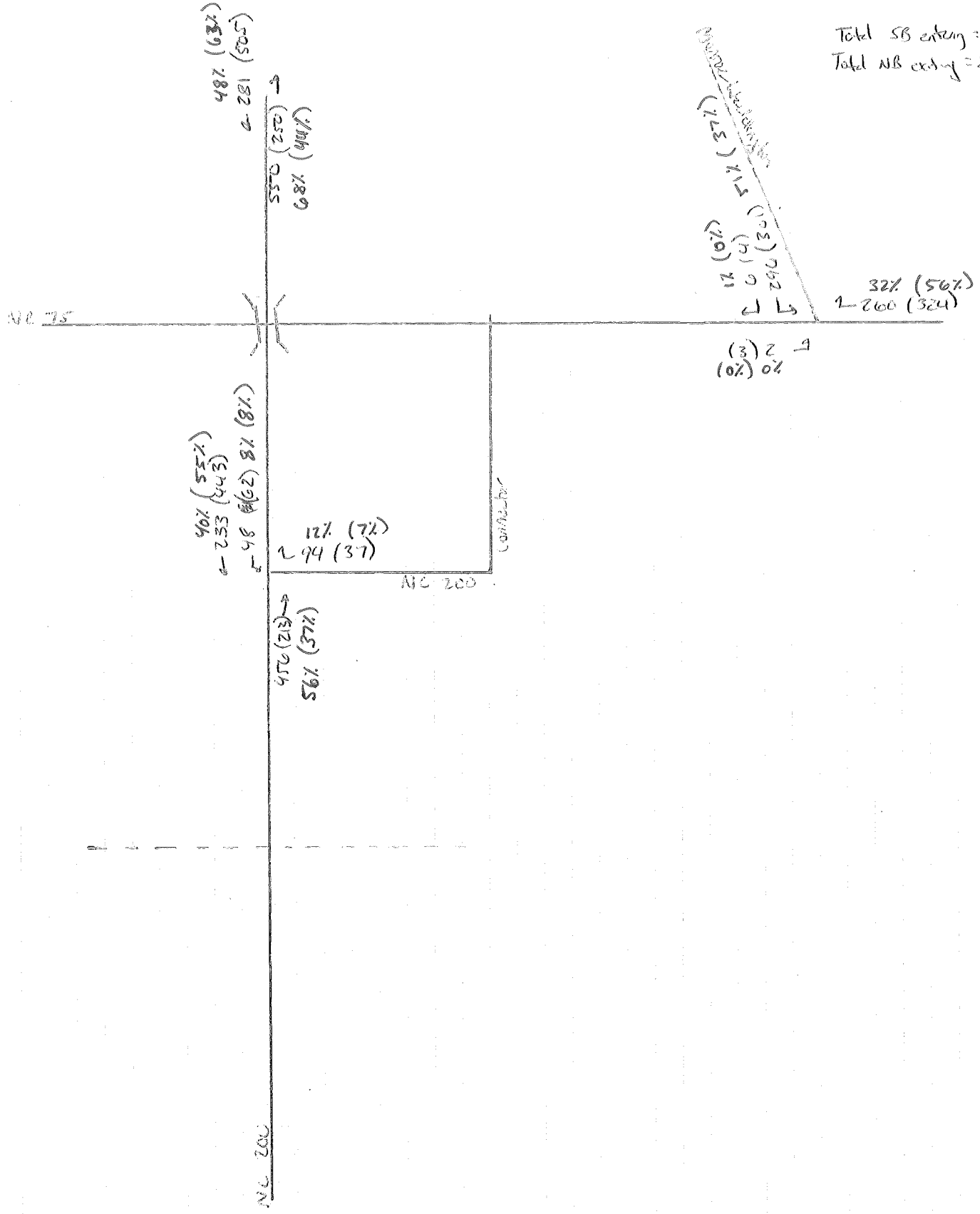
Sheet No. ____ of ____

Job Monroe TIA Subject Union Academy Distribution Job No. ____

Designed By ____ Date ____ Checked By ____ Date ____

Total SB entering = 583 (810)
Total NB entering = 812 (577)



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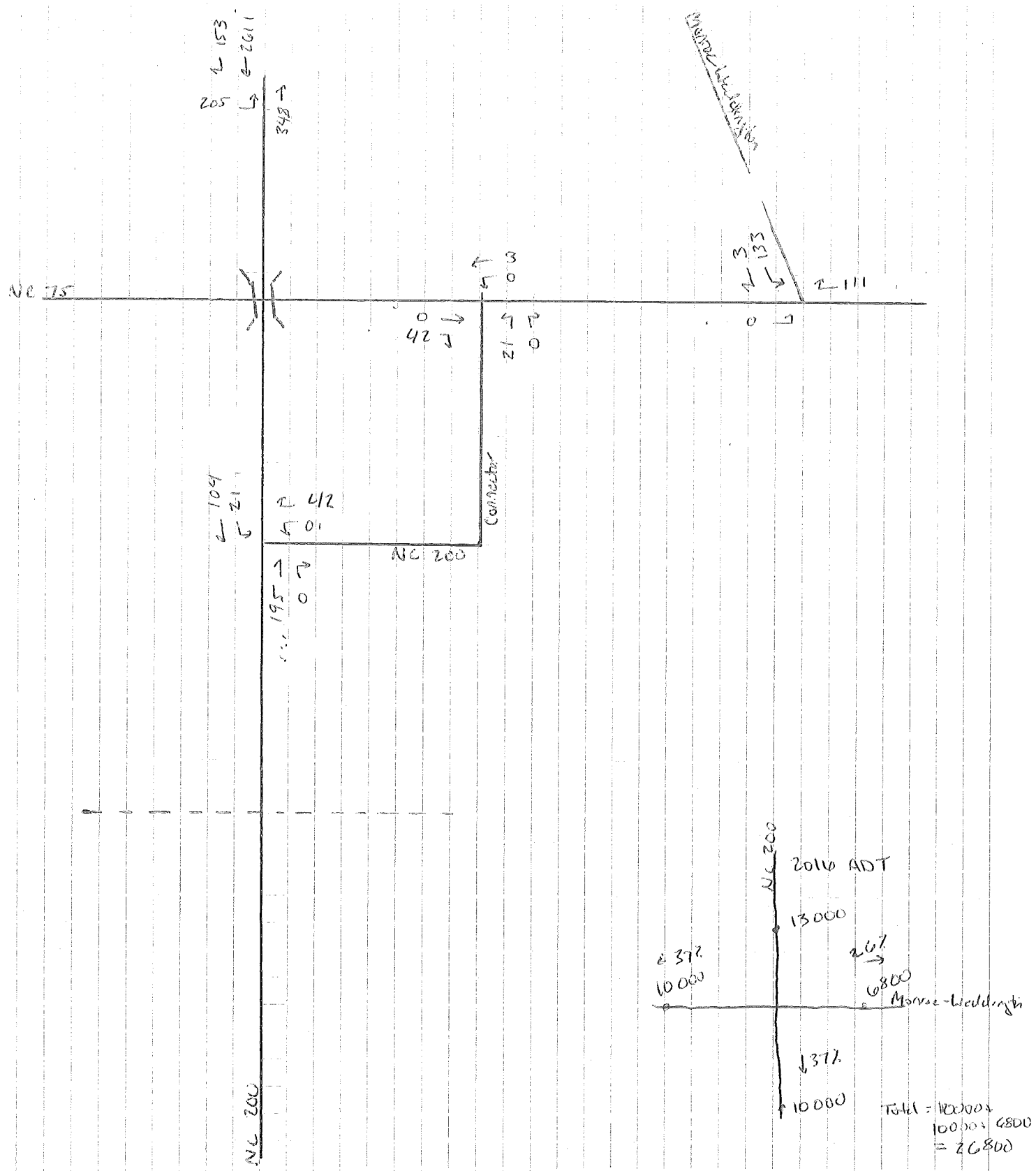
Sheet No. ____ of ____

Job Monroe TIA Subject Union Academy Trips Job No. ____

Designed By ____ Date ____ Checked By ____ Date ____



Turning Movement Counts

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

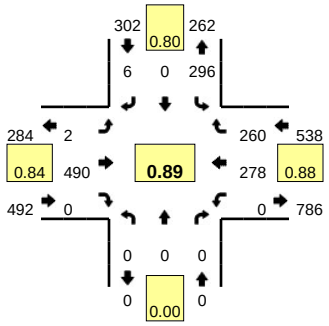
LOCATION: Monroe-Weddington Rd -- Waxhaw Hwy/Franklin St

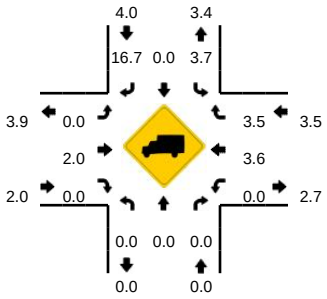
QC JOB #: 14424101

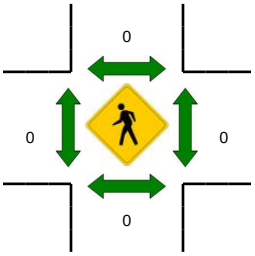
CITY/STATE: Monroe, NC

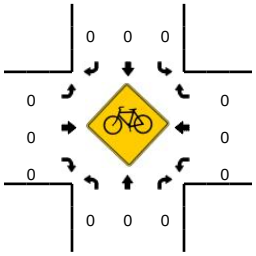
DATE: Wed, May 24 2017

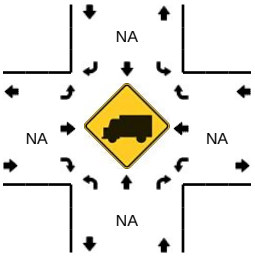
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

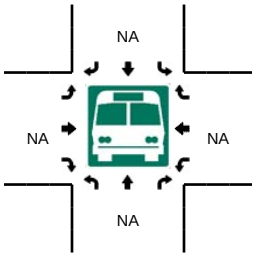












15-Min Count Period Beginning At	Monroe-Weddington Rd (Northbound)				Monroe-Weddington Rd (Southbound)				Waxhaw Hwy/Franklin St (Eastbound)				Waxhaw Hwy/Franklin St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	49	0	2	0	0	111	0	0	0	70	59	0	291	
7:15 AM	0	0	0	0	61	0	4	0	0	120	0	0	0	84	68	0	337	
7:30 AM	0	0	0	0	90	0	0	0	1	146	0	0	0	66	71	0	374	
7:45 AM	0	0	0	0	96	0	0	0	1	113	0	0	0	58	62	0	330	1332
8:00 AM	0	0	0	0	58	0	0	0	0	82	0	0	0	60	53	0	253	1294
8:15 AM	0	0	0	0	54	0	0	0	1	91	0	0	0	41	44	0	231	1188
8:30 AM	0	0	0	0	58	0	1	0	0	72	0	0	0	51	50	0	232	1046
8:45 AM	0	0	0	0	46	0	2	0	0	88	0	0	0	41	37	0	214	930

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	360	0	0	0	4	584	0	0	0	264	284	0	1496
Heavy Trucks	0	0	0		12	0	0		0	24	0		0	4	8		48
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

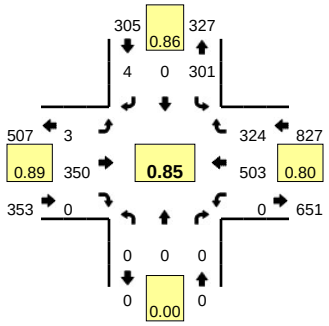
LOCATION: Monroe-Weddington Rd -- Waxhaw Hwy/Franklin St

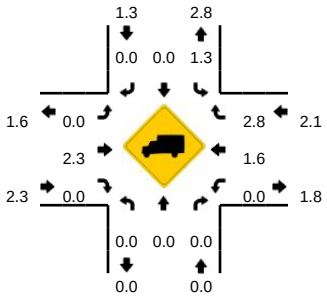
QC JOB #: 14424102

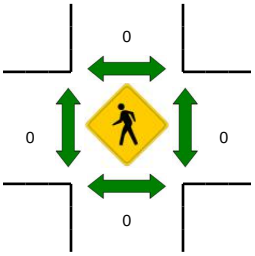
CITY/STATE: Monroe, NC

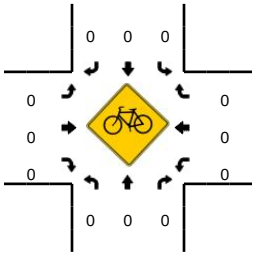
DATE: Wed, May 24 2017

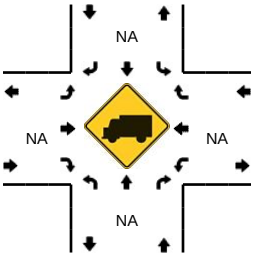
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

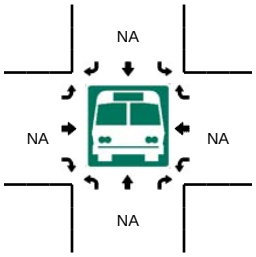












15-Min Count Period Beginning At	Monroe-Weddington Rd (Northbound)				Monroe-Weddington Rd (Southbound)				Waxhaw Hwy/Franklin St (Eastbound)				Waxhaw Hwy/Franklin St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	53	0	1	0	0	89	0	0	0	102	53	0	298	
4:15 PM	0	0	0	0	77	0	2	0	1	69	0	0	0	116	60	0	325	
4:30 PM	0	0	0	0	61	0	2	0	1	78	0	0	0	86	64	0	292	
4:45 PM	0	0	0	0	76	0	1	0	1	92	0	0	0	106	74	0	350	1265
5:00 PM	0	0	0	0	91	0	0	0	1	80	0	0	0	128	90	0	390	1357
5:15 PM	0	0	0	0	81	0	1	0	1	98	0	0	0	159	99	0	439	1471
5:30 PM	0	0	0	0	53	0	2	0	0	80	0	0	0	110	61	0	306	1485
5:45 PM	0	0	0	0	78	0	3	0	1	64	0	0	0	98	64	0	308	1443

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	324	0	4	0	4	392	0	0	0	636	396	0	1756
Heavy Trucks	0	0	0		4	0	0		0	0	0		0	8	0		12
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

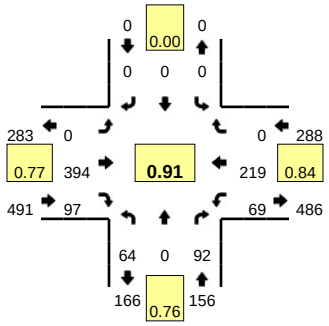
Type of peak hour being reported: Intersection Peak

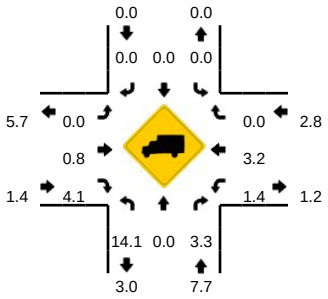
Method for determining peak hour: Total Entering Volume

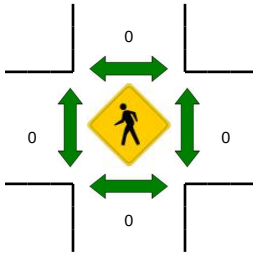
LOCATION: NC 200 Connector -- NC 75 (Waxhaw Hwy)
CITY/STATE: Monroe, NC

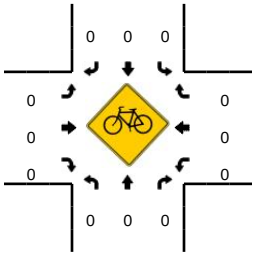
QC JOB #: 14424105
DATE: Wed, May 24 2017

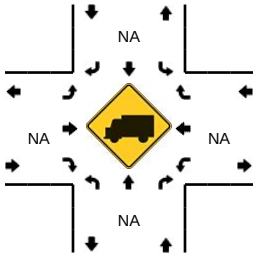
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

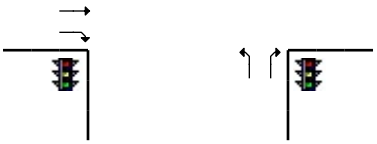


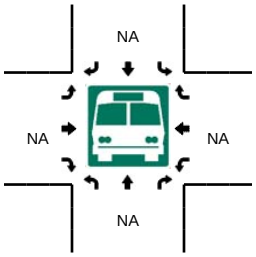












15-Min Count Period Beginning At	NC 200 Connector (Northbound)				NC 200 Connector (Southbound)				NC 75 (Waxhaw Hwy) (Eastbound)				NC 75 (Waxhaw Hwy) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	15	0	27	0	0	0	0	0	0	81	18	0	23	55	0	0	219	
7:15 AM	16	0	35	0	0	0	0	0	0	86	30	0	29	57	0	0	253	
7:30 AM	11	0	20	0	0	0	0	0	0	131	28	0	8	58	0	0	256	
7:45 AM	22	0	10	0	0	0	0	0	0	96	21	0	9	49	0	0	207	935
8:00 AM	17	0	9	0	0	0	0	0	0	70	14	0	5	53	0	0	168	884
8:15 AM	10	0	6	0	0	0	0	0	0	89	12	0	5	41	0	0	163	794
8:30 AM	4	0	13	0	0	0	0	0	0	60	18	0	7	46	0	0	148	686
8:45 AM	10	0	11	0	0	0	0	0	0	81	12	0	7	36	0	0	157	636

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	44	0	80	0	0	0	0	0	0	524	112	0	32	232	0	0	1024
Heavy Trucks	8	0	8		0	0	0		0	8	0		0	4	0		28
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

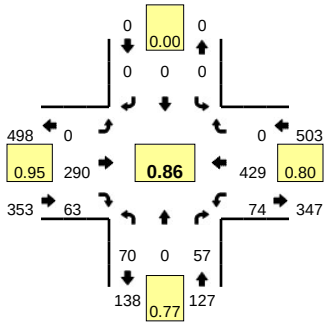
Type of peak hour being reported: Intersection Peak

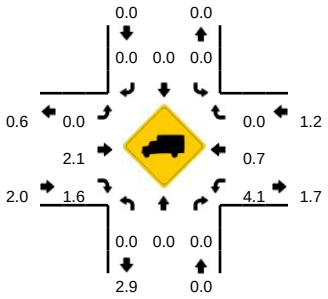
Method for determining peak hour: Total Entering Volume

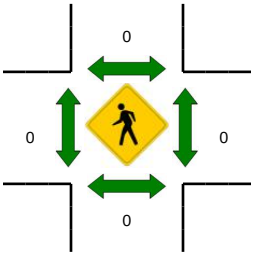
LOCATION: NC 200 Connector -- NC 75 (Waxhaw Hwy)
CITY/STATE: Monroe, NC

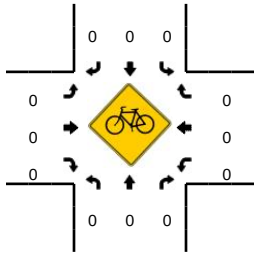
QC JOB #: 14424106
DATE: Wed, May 24 2017

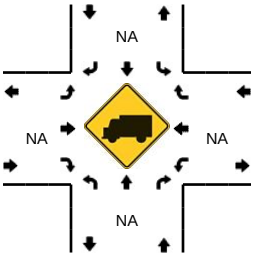
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

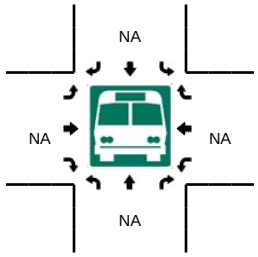












15-Min Count Period Beginning At	NC 200 Connector (Northbound)				NC 200 Connector (Southbound)				NC 75 (Waxhaw Hwy) (Eastbound)				NC 75 (Waxhaw Hwy) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	17	0	14	0	0	0	0	0	0	75	13	0	11	88	0	0	218	
4:15 PM	16	0	11	0	0	0	0	0	0	64	13	0	16	102	0	0	222	
4:30 PM	9	0	5	0	0	0	0	0	0	77	21	0	18	72	0	0	202	
4:45 PM	14	0	14	0	0	0	0	0	0	70	19	0	18	91	0	0	226	868
5:00 PM	20	0	7	0	0	0	0	0	0	77	13	0	19	101	0	0	237	887
5:15 PM	12	0	19	0	0	0	0	0	0	79	17	0	19	139	0	0	285	950
5:30 PM	23	0	17	1	0	0	0	0	0	64	14	0	18	98	0	0	235	983
5:45 PM	11	0	13	0	0	0	0	0	0	55	9	0	20	75	0	0	183	940

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	48	0	76	0	0	0	0	0	0	316	68	0	76	556	0	0	1140
Heavy Trucks	0	0	0		0	0	0		0	4	0		4	4	0		12
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

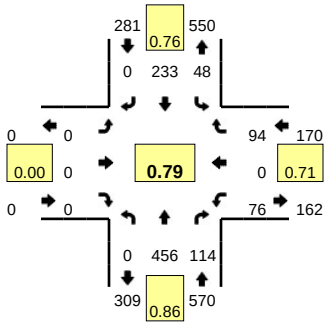
LOCATION: NC 200 (MLK Jr Blvd) -- NC 75 Connector

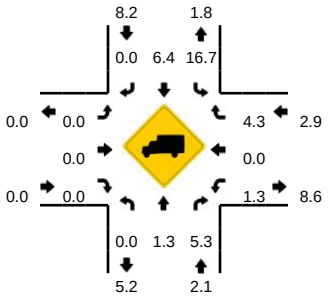
QC JOB #: 14424103

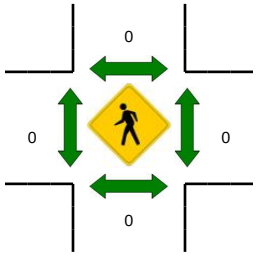
CITY/STATE: Monroe, NC

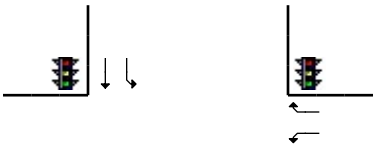
DATE: Wed, May 24 2017

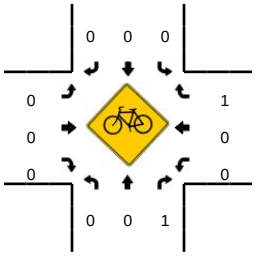
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

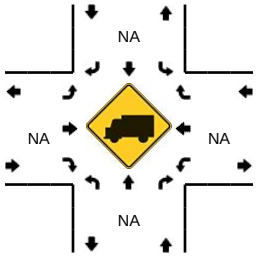


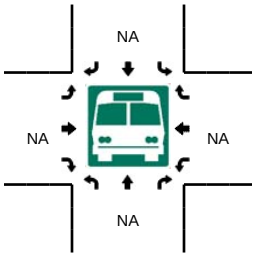












15-Min Count Period Beginning At	NC 200 (MLK Jr Blvd) (Northbound)				NC 200 (MLK Jr Blvd) (Southbound)				NC 75 Connector (Eastbound)				NC 75 Connector (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	125	35	0	7	51	0	0	0	0	0	0	28	0	14	0	260	
7:15 AM	0	128	38	0	16	83	0	0	0	0	0	0	22	0	38	0	325	
7:30 AM	0	109	24	0	5	47	0	0	0	0	0	0	14	0	20	0	219	
7:45 AM	0	94	17	0	20	52	0	0	0	0	0	0	12	0	22	0	217	1021
8:00 AM	0	82	12	0	9	69	0	0	0	0	0	0	7	0	9	0	188	949
8:15 AM	0	70	12	0	5	61	0	0	0	0	0	0	9	0	9	0	166	790
8:30 AM	0	63	15	0	1	58	0	0	0	0	0	0	13	0	13	0	163	734
8:45 AM	0	71	13	0	7	39	0	0	0	0	0	0	7	0	9	0	146	663

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	512	152	0	64	332	0	0	0	0	0	0	88	0	152	0	1300
Heavy Trucks	0	8	4		8	24	0		0	0	0		0	0	8		52
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

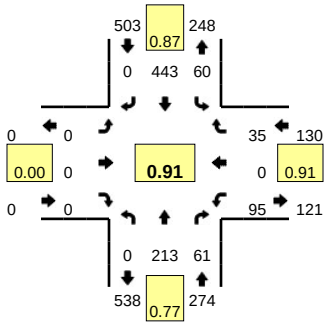
LOCATION: NC 200 (MLK Jr Blvd) -- NC 75 Connector

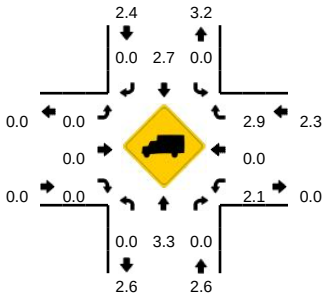
CITY/STATE: Monroe, NC

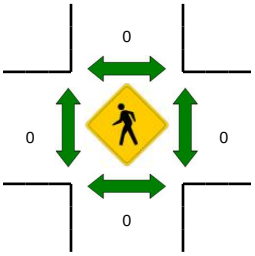
QC JOB #: 14424104

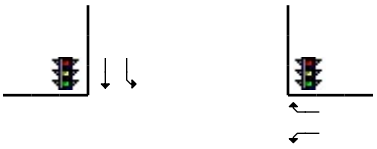
DATE: Wed, May 24 2017

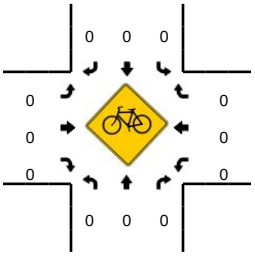
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

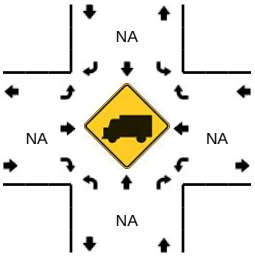


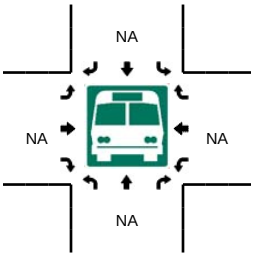












15-Min Count Period Beginning At	NC 200 (MLK Jr Blvd) (Northbound)				NC 200 (MLK Jr Blvd) (Southbound)				NC 75 Connector (Eastbound)				NC 75 Connector (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	53	13	0	13	81	0	0	0	0	0	0	13	0	9	0	182	
4:15 PM	0	51	11	0	16	96	0	0	0	0	0	0	19	0	12	0	205	
4:30 PM	0	45	4	0	12	113	0	0	0	0	0	0	21	0	17	0	212	
4:45 PM	0	39	13	0	13	67	0	0	0	0	0	0	25	0	10	0	167	766
5:00 PM	0	55	14	0	16	129	0	0	0	0	0	0	26	0	8	0	248	832
5:15 PM	0	44	18	0	15	107	0	0	0	0	0	0	21	0	11	0	216	843
5:30 PM	0	70	19	0	15	101	0	0	0	0	0	0	23	0	13	0	241	872
5:45 PM	0	44	10	0	14	106	0	0	0	0	0	0	25	0	3	0	202	907

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	220	56	0	64	516	0	0	0	0	0	0	104	0	32	0	992
Heavy Trucks	0	16	0		0	16	0		0	0	0		4	0	0		36
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

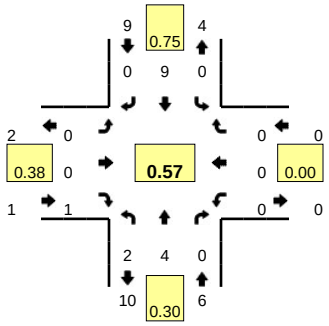
LOCATION: Sinclair Dr -- Rainmaker Dr

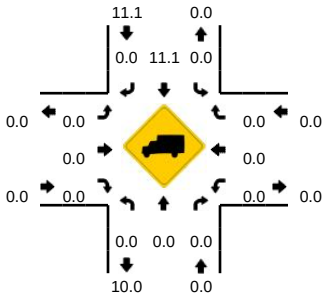
CITY/STATE: Monroe, NC

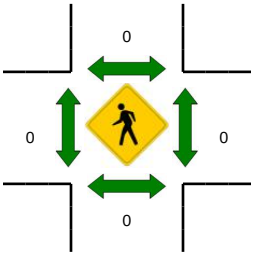
QC JOB #: 14424109

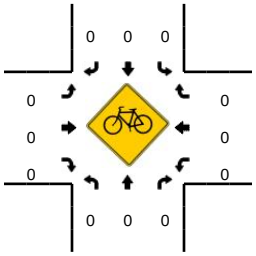
DATE: Wed, May 24 2017

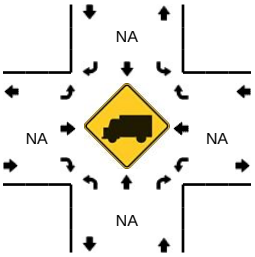
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:00 AM -- 7:15 AM

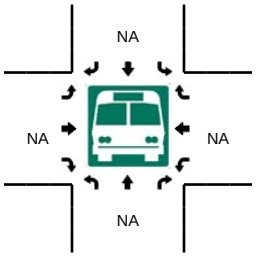












15-Min Count Period Beginning At	Sinclair Dr (Northbound)				Sinclair Dr (Southbound)				Rainmaker Dr (Eastbound)				Rainmaker Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7	
7:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	
7:30 AM	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	4	
7:45 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	16
8:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	12
8:15 AM	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	4	14
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	12
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	16	0	0	0	8	0	0	0	0	0	0	0	0	0	0	28
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	0		4
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

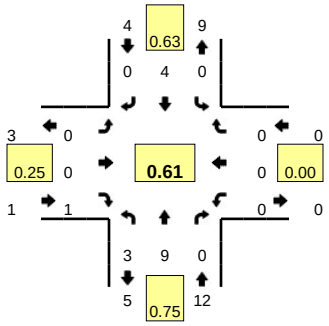
LOCATION: Sinclair Dr -- Rainmaker Dr

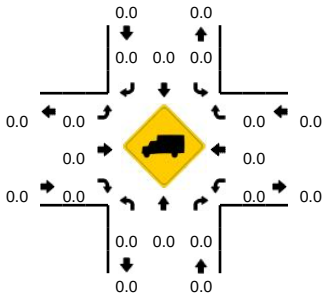
CITY/STATE: Monroe, NC

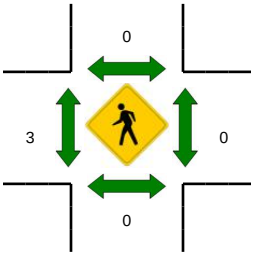
QC JOB #: 14424110

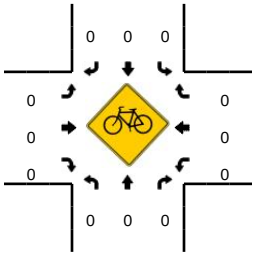
DATE: Wed, May 24 2017

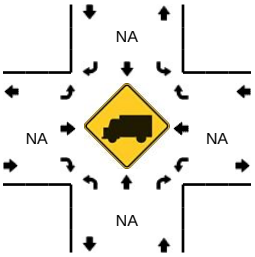
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

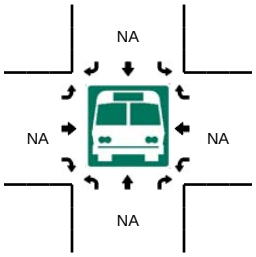












15-Min Count Period Beginning At	Sinclair Dr (Northbound)				Sinclair Dr (Southbound)				Rainmaker Dr (Eastbound)				Rainmaker Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	
4:15 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
4:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	
4:45 PM	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4	13
5:00 PM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	12
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12
5:30 PM	1	3	0	0	0	2	0	0	0	0	1	0	0	0	0	0	7	16
5:45 PM	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	17

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	12	0	0	0	8	0	0	0	0	4	0	0	0	0	0	28
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				12				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

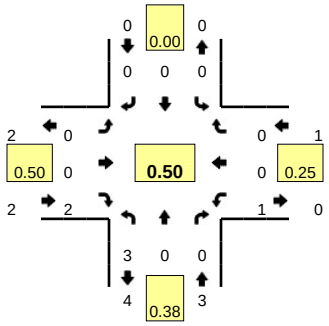
Type of peak hour being reported: Intersection Peak

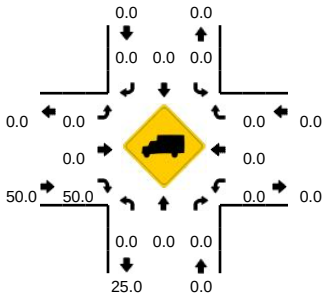
Method for determining peak hour: Total Entering Volume

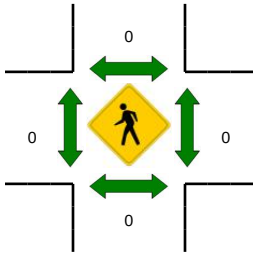
LOCATION: Sinclair Dr -- Kevinshire Ct
CITY/STATE: Monroe, NC

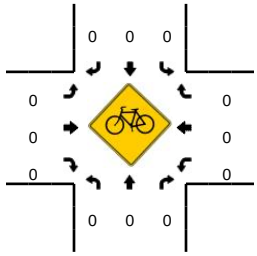
QC JOB #: 14424107
DATE: Wed, May 24 2017

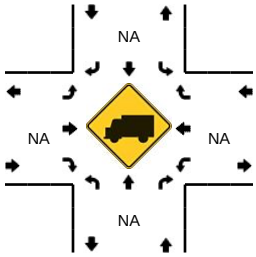
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:00 AM -- 7:15 AM

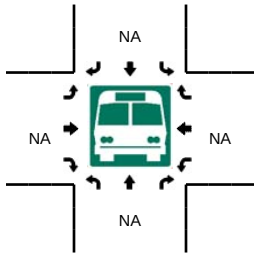












15-Min Count Period Beginning At	Sinclair Dr (Northbound)				Sinclair Dr (Southbound)				Kevinshire Ct (Eastbound)				Kevinshire Ct (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2	
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:00 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2	5
8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	12
Heavy Trucks	0	0	0		0	0	0		0	0	4		0	0	0		4
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

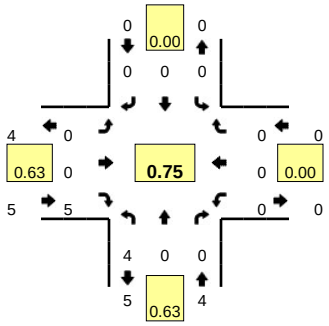
Type of peak hour being reported: Intersection Peak

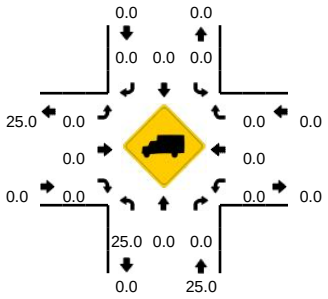
Method for determining peak hour: Total Entering Volume

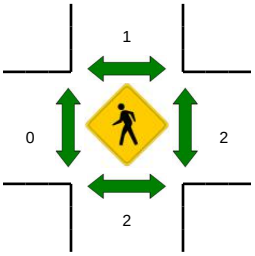
LOCATION: Sinclair Dr -- Kevinshire Ct
CITY/STATE: Monroe, NC

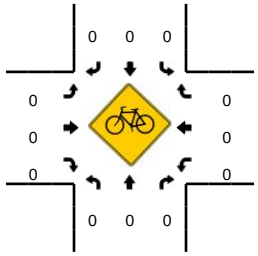
QC JOB #: 14424108
DATE: Wed, May 24 2017

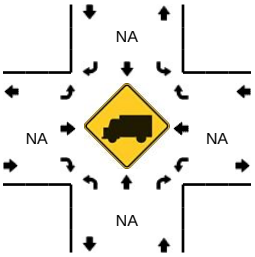
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

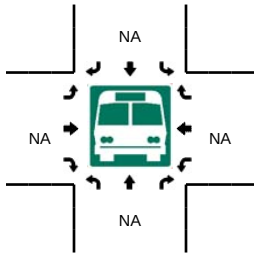












15-Min Count Period Beginning At	Sinclair Dr (Northbound)				Sinclair Dr (Southbound)				Kevinshire Ct (Eastbound)				Kevinshire Ct (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
4:15 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	
4:30 PM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	8
5:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	9
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8
5:30 PM	1	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	4	9
5:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	12
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

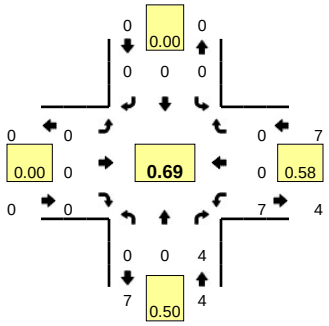
LOCATION: Stevens St -- Sonny Ct

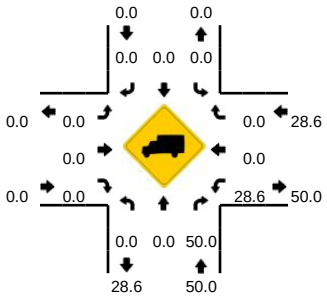
CITY/STATE: Monroe, NC

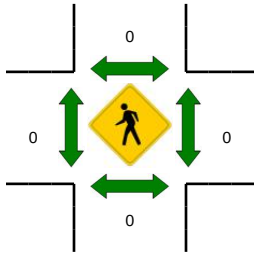
QC JOB #: 14424111

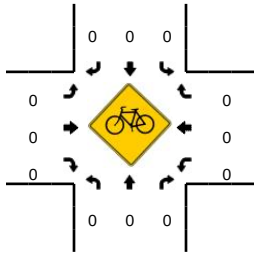
DATE: Wed, May 24 2017

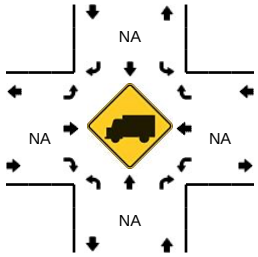
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:00 AM -- 7:15 AM

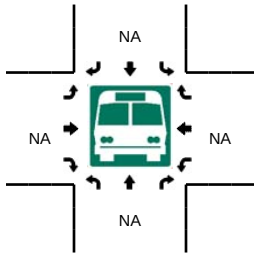












15-Min Count Period Beginning At	Stevens St (Northbound)				Stevens St (Southbound)				Sonny Ct (Eastbound)				Sonny Ct (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	4	
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	4	
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	11
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	10
8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	7
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	6

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	8	0	0	0	0	0	0	0	0	0	8	0	0	0	16
Heavy Trucks	0	0	8		0	0	0		0	0	0		8	0	0		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

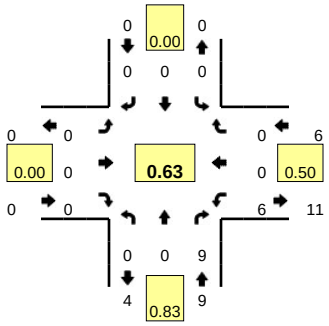
LOCATION: Stevens St -- Sonny Ct

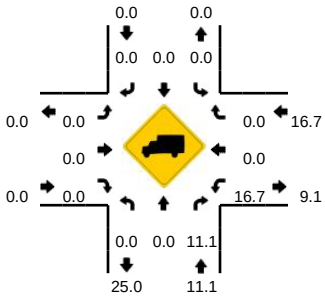
CITY/STATE: Monroe, NC

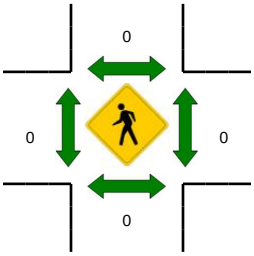
QC JOB #: 14424112

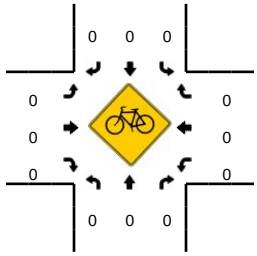
DATE: Wed, May 24 2017

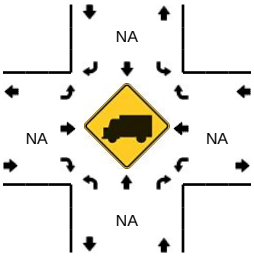
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

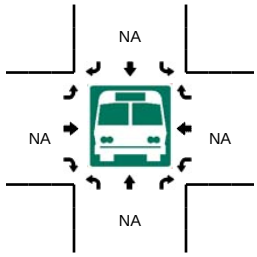












15-Min Count Period Beginning At	Stevens St (Northbound)				Stevens St (Southbound)				Sonny Ct (Eastbound)				Sonny Ct (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
4:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	1	4	
4:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	1	6	
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	13
5:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	15
5:15 PM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4	15
5:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	11
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	11

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	12	0	0	0	0	0	0	0	0	0	8	0	0	4	24
Heavy Trucks	0	0	4		0	0	0		0	0	0		4	0	0		8
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/1/2017 11:38 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Intersection Volume Development

INTERSECTION VOLUME DEVELOPMENT

Monroe-Weddington Road and NC 75 (Waxhaw Highway)
AM PEAK HOUR

Description	- Northbound Left	Northbound Through	Northbound Right	Monroe-Weddington Road Southbound Left	Southbound Through	Southbound Right	NC 75 (Waxhaw Highway) Eastbound Left	Eastbound Through	Eastbound Right	NC 75 (Waxhaw Highway) Westbound Left	Westbound Through	Westbound Right
Observed Volumes	0	0	0	296	0	6	2	490	0	0	278	260
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	6	0
2017 Existing Traffic	0	0	0	296	0	6	2	490	0	0	284	260
2017 PHF	0.90	0.90	0.90	0.77	0.90	0.38	0.50	0.84	0.90	0.90	0.83	0.92
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	4%	2%	17%	2%	2%	2%	2%	4%	3%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	0	0	327	0	7	2	541	0	0	314	287
Food Lion Development	0	0	0	55	0	0	0	0	0	0	0	118
Union Academy	0	0	0	133	0	3	0	0	0	0	0	111
Approved Development Trips	0	0	0	188	0	3	0	0	0	0	0	229
2022 Background Traffic	0	0	0	515	0	10	2	541	0	0	314	516
Percent Inbound Assignment	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	30%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	15%	30%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	0	0	0	0	16	39	77	0	0	32	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	30%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	15%	30%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	0	0	0	0	16	39	77	0	0	32	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	0	0	515	0	26	41	618	0	0	346	516
2022 Buildout Total with Left-over at A	0	0	0	515	0	26	41	618	0	0	346	516

PM PEAK HOUR

Description	- Northbound Left	Northbound Through	Northbound Right	Monroe-Weddington Road Southbound Left	Southbound Through	Southbound Right	NC 75 (Waxhaw Highway) Eastbound Left	Eastbound Through	Eastbound Right	NC 75 (Waxhaw Highway) Westbound Left	Westbound Through	Westbound Right
Observed Volumes	0	0	0	301	0	4	3	350	0	0	503	324
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	0	0	301	0	4	3	350	0	0	503	324
2017 PHF	0.90	0.90	0.90	0.83	0.90	0.50	0.75	0.89	0.90	0.90	0.79	0.82
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	0	0	332	0	4	3	386	0	0	555	358
Food Lion Development	0	0	0	137	0	0	0	0	0	0	0	95
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	137	0	0	0	0	0	0	0	95
2022 Background Traffic	0	0	0	469	0	4	3	386	0	0	555	453
Percent Inbound Assignment	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	30%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	15%	30%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	0	0	0	0	47	32	64	0	0	94	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	30%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	15%	30%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	0	0	0	0	47	32	64	0	0	94	0
Pass-By Traffic RIRO	0	0	0	-6	0	6	5	6	0	0	5	-5
Pass-By Traffic Left-Over	0	0	0	-6	0	6	5	6	0	0	5	-5
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	0	0	463	0	57	40	456	0	0	654	448
2022 Buildout Total with Left-over at A	0	0	0	463	0	57	40	456	0	0	654	448

INTERSECTION VOLUME DEVELOPMENT

NC 200 Connector and NC 75 (Waxhaw Hwy)
AM PEAK HOUR

Description	NC 200 Connector Northbound Left	Through	Right	- Southbound Left	Through	Right	NC 75 (Waxhaw Hwy) Eastbound Left	Through	Right	NC 75 (Waxhaw Hwy) Westbound Left	Through	Right
Observed Volumes	64	0	92	0	0	0	0	394	97	69	219	0
Balanced Volumes	3	0	4	0	0	0	0	2	2	2	0	0
2017 Existing Traffic	67	0	96	0	0	0	0	396	99	71	219	0
2017 PHF	0.73	0.90	0.66	0.90	0.90	0.90	0.90	0.75	0.81	0.60	0.94	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	14%	2%	3%	2%	2%	2%	2%	2%	4%	2%	3%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	74	0	106	0	0	0	0	437	109	78	242	0
Food Lion Development	55	0	0	0	0	0	0	0	118	0	0	0
Union Academy	21	0	0	0	0	0	0	0	42	0	3	0
Approved Development Trips	76	0	0	0	0	0	0	0	160	0	3	0
2022 Background Traffic	150	0	106	0	0	0	0	437	269	78	245	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	8%	2%	45%	0%	0%
Percent Outbound Assignment	10%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	25	0	26	0	0	0	0	8	2	48	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	8%	2%	10%	0%	0%
Percent Outbound Assignment	10%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	25	0	26	0	0	0	0	8	2	11	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	175	0	132	0	0	0	0	445	271	126	245	0
2022 Buildout Total with Left-over at A	175	0	132	0	0	0	0	445	271	89	245	0

PM PEAK HOUR

Description	NC 200 Connector Northbound Left	Through	Right	- Southbound Left	Through	Right	NC 75 (Waxhaw Hwy) Eastbound Left	Through	Right	NC 75 (Waxhaw Hwy) Westbound Left	Through	Right
Observed Volumes	69	0	57	0	0	0	0	290	63	74	429	0
Balanced Volumes	0	0	0	0	0	0	0	6	0	0	4	0
2017 Existing Traffic	69	0	57	0	0	0	0	296	63	74	433	0
2017 PHF	0.75	0.90	0.75	0.90	0.90	0.90	0.90	0.92	0.83	0.97	0.77	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	76	0	63	0	0	0	0	327	70	82	478	0
Food Lion Development	137	0	0	0	0	0	0	0	95	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	137	0	0	0	0	0	0	0	95	0	0	0
2022 Background Traffic	213	0	63	0	0	0	0	327	165	82	478	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	8%	2%	45%	0%	0%
Percent Outbound Assignment	10%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	21	0	21	0	0	0	0	25	7	141	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	8%	2%	10%	0%	0%
Percent Outbound Assignment	10%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	21	0	21	0	0	0	0	25	7	31	0	0
Pass-By Traffic RIRO	6	0	0	0	0	0	0	0	0	17	-6	0
Pass-By Traffic Left-Over	6	0	0	0	0	0	0	0	0	0	-6	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	240	0	84	0	0	0	0	352	172	240	472	0
2022 Buildout Total with Left-over at A	240	0	84	0	0	0	0	352	172	113	472	0

INTERSECTION VOLUME DEVELOPMENT

NC 200 (MLK Jr Blvd) and NC 75 Connector
AM PEAK HOUR

	NC 200 (MLK Jr Blvd)			NC 200 (MLK Jr Blvd)			-			NC 75 Connector		
	Northbound			**Southbound**			**Eastbound**			**Westbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	456	114	48	233	0	0	0	0	76	0	94
Balanced Volumes	0	0	1	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	456	115	48	233	0	0	0	0	76	0	94
2017 PHF	0.90	0.89	0.75	0.60	0.70	0.90	0.90	0.90	0.90	0.68	0.90	0.62
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	5%	17%	6%	2%	2%	2%	2%	2%	2%	4%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	503	127	53	257	0	0	0	0	84	0	104
Food Lion Development	0	118	0	55	54	0	0	0	0	0	0	118
Union Academy	0	195	0	21	104	0	0	0	0	0	0	42
Approved Development Trips	0	313	0	76	158	0	0	0	0	0	0	160
2022 Background Traffic	0	816	127	129	415	0	0	0	0	84	0	264
Percent Inbound Assignment	0%	0%	0%	0%	35%	0%	0%	0%	0%	47%	0%	0%
Percent Outbound Assignment	0%	35%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	90	51	0	37	0	0	0	0	50	0	0
Percent Inbound Assignment	0%	0%	0%	0%	35%	0%	0%	0%	0%	12%	0%	0%
Percent Outbound Assignment	0%	35%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	90	51	0	37	0	0	0	0	13	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	906	178	129	452	0	0	0	0	134	0	264
2022 Buildout Total with Left-over at A	0	906	178	129	452	0	0	0	0	97	0	264

PM PEAK HOUR

	NC 200 (MLK Jr Blvd)			NC 200 (MLK Jr Blvd)			-			NC 75 Connector		
	Northbound			**Southbound**			**Eastbound**			**Westbound**		
Description	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Observed Volumes	0	213	61	60	443	0	0	0	0	95	0	35
Balanced Volumes	0	0	3	2	0	0	0	0	0	5	0	2
2017 Existing Traffic	0	213	64	62	443	0	0	0	0	100	0	37
2017 PHF	0.90	0.76	0.80	0.94	0.86	0.90	0.90	0.90	0.90	0.91	0.90	0.67
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	3%	2%	2%	3%	2%	2%	2%	2%	2%	2%	3%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	235	71	68	489	0	0	0	0	110	0	41
Food Lion Development	0	95	0	137	137	0	0	0	0	0	0	95
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	95	0	137	137	0	0	0	0	0	0	95
2022 Background Traffic	0	330	71	205	626	0	0	0	0	110	0	136
Percent Inbound Assignment	0%	0%	0%	0%	35%	0%	0%	0%	0%	47%	0%	0%
Percent Outbound Assignment	0%	35%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	74	42	0	110	0	0	0	0	148	0	0
Percent Inbound Assignment	0%	0%	0%	0%	35%	0%	0%	0%	0%	12%	0%	0%
Percent Outbound Assignment	0%	35%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	74	42	0	110	0	0	0	0	38	0	0
Pass-By Traffic RIRO	0	1	8	-2	2	0	0	0	0	18	0	-1
Pass-By Traffic Left-Over	0	1	8	-2	2	0	0	0	0	1	0	-1
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	405	121	203	738	0	0	0	0	276	0	135
2022 Buildout Total with Left-over at A	0	405	121	203	738	0	0	0	0	149	0	135

INTERSECTION VOLUME DEVELOPMENT

Sinclair Dr and Rainmaker Dr
AM PEAK HOUR

Description	Sinclair Dr Northbound Left	Sinclair Dr Northbound Through	Sinclair Dr Northbound Right	Sinclair Dr Southbound Left	Sinclair Dr Southbound Through	Sinclair Dr Southbound Right	Rainmaker Dr Eastbound Left	Rainmaker Dr Eastbound Through	Rainmaker Dr Eastbound Right	Rainmaker Dr Westbound Left	Rainmaker Dr Westbound Through	Rainmaker Dr Westbound Right
Observed Volumes	2	4	0	0	9	0	0	0	1	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	2	4	0	0	9	0	0	0	1	0	0	0
2017 PHF	0.50	0.25	0.90	0.90	0.75	0.90	0.90	0.90	0.25	0.90	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	11%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	2	4	0	0	10	0	0	0	1	0	0	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0
2022 Background Traffic	2	4	0	0	10	0	0	0	1	0	0	0
Percent Inbound Assignment	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%
RIRO at Access #1 Project Trips	0	1	1	0	3	0	0	0	0	3	0	0
Percent Inbound Assignment	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%
Left-over at Access #1 Project Trips	0	1	1	0	3	0	0	0	0	3	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	2	5	1	0	13	0	0	0	1	3	0	0
2022 Buildout Total with Left-over at A	2	5	1	0	13	0	0	0	1	3	0	0

PM PEAK HOUR

Description	Sinclair Dr Northbound Left	Sinclair Dr Northbound Through	Sinclair Dr Northbound Right	Sinclair Dr Southbound Left	Sinclair Dr Southbound Through	Sinclair Dr Southbound Right	Rainmaker Dr Eastbound Left	Rainmaker Dr Eastbound Through	Rainmaker Dr Eastbound Right	Rainmaker Dr Westbound Left	Rainmaker Dr Westbound Through	Rainmaker Dr Westbound Right
Observed Volumes	3	9	0	0	4	0	0	0	1	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	3	9	0	0	4	0	0	0	1	0	0	0
2017 PHF	0.75	0.75	0.90	0.90	0.50	0.90	0.90	0.90	0.25	0.90	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	3	10	0	0	4	0	0	0	1	0	0	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0
2022 Background Traffic	3	10	0	0	4	0	0	0	1	0	0	0
Percent Inbound Assignment	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%
RIRO at Access #1 Project Trips	0	3	3	0	2	0	0	0	0	3	0	0
Percent Inbound Assignment	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%
Left-over at Access #1 Project Trips	0	3	3	0	2	0	0	0	0	3	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	3	13	3	0	6	0	0	0	1	3	0	0
2022 Buildout Total with Left-over at A	3	13	3	0	6	0	0	0	1	3	0	0

INTERSECTION VOLUME DEVELOPMENT

Sinclair Drive and Kevinshire Ct
AM PEAK HOUR

Description	Sinclair Drive Northbound Left	Sinclair Drive Northbound Through	Sinclair Drive Northbound Right	Sinclair Drive Southbound Left	Sinclair Drive Southbound Through	Sinclair Drive Southbound Right	Kevinshire Ct Eastbound Left	Kevinshire Ct Eastbound Through	Kevinshire Ct Eastbound Right	Kevinshire Ct Westbound Left	Kevinshire Ct Westbound Through	Kevinshire Ct Westbound Right
Observed Volumes	3	0	0	0	0	0	0	0	2	1	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	3	0	0	0	0	0	0	0	2	1	0	0
2017 PHF	0.38	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.50	0.25	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	3	0	0	0	0	0	0	0	2	1	0	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0
2022 Background Traffic	3	0	0	0	0	0	0	0	2	1	0	0
Percent Inbound Assignment	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
RIRO at Access #1 Project Trips	0	0	1	0	0	0	0	0	0	3	0	0
Percent Inbound Assignment	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Left-over at Access #1 Project Trips	0	0	1	0	0	0	0	0	0	3	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	3	0	1	0	0	0	0	0	2	4	0	0
2022 Buildout Total with Left-over at A	3	0	1	0	0	0	0	0	2	4	0	0

PM PEAK HOUR

Description	Sinclair Drive Northbound Left	Sinclair Drive Northbound Through	Sinclair Drive Northbound Right	Sinclair Drive Southbound Left	Sinclair Drive Southbound Through	Sinclair Drive Southbound Right	Kevinshire Ct Eastbound Left	Kevinshire Ct Eastbound Through	Kevinshire Ct Eastbound Right	Kevinshire Ct Westbound Left	Kevinshire Ct Westbound Through	Kevinshire Ct Westbound Right
Observed Volumes	3	0	1	0	0	0	0	0	5	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	3	0	1	0	0	0	0	0	5	0	0	0
2017 PHF	0.38	0.90	0.25	0.90	0.90	0.90	0.90	0.90	0.63	0.90	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	3	0	1	0	0	0	0	0	6	0	0	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0
2022 Background Traffic	3	0	1	0	0	0	0	0	6	0	0	0
Percent Inbound Assignment	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
RIRO at Access #1 Project Trips	0	0	3	0	0	0	0	0	0	2	0	0
Percent Inbound Assignment	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Left-over at Access #1 Project Trips	0	0	3	0	0	0	0	0	0	2	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	3	0	4	0	0	0	0	0	6	2	0	0
2022 Buildout Total with Left-over at A	3	0	4	0	0	0	0	0	6	2	0	0

INTERSECTION VOLUME DEVELOPMENT

Stevens St and Sonny Ct
AM PEAK HOUR

Description	Stevens St Northbound Left	Stevens St Northbound Through	Stevens St Northbound Right	Access #4 Southbound Left	Access #4 Southbound Through	Access #4 Southbound Right	- Eastbound Left	- Eastbound Through	- Eastbound Right	Sonny Ct Westbound Left	Sonny Ct Westbound Through	Sonny Ct Westbound Right
Observed Volumes	0	0	4	0	0	0	0	0	0	7	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	0	4	0	0	0	0	0	0	7	0	0
2017 PHF	0.90	0.90	0.50	0.90	0.90	0.90	0.90	0.90	0.90	0.58	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	50%	2%	2%	2%	2%	2%	2%	29%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	0	4	0	0	0	0	0	0	8	0	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0
2022 Background Traffic	0	0	4	0	0	0	0	0	0	8	0	0
Percent Inbound Assignment	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	2	0	0	5	0	0	0	0	0	0	0
Percent Inbound Assignment	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	2	0	0	5	0	0	0	0	0	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	2	4	0	5	0	0	0	0	8	0	0
2022 Buildout Total with Left-over at A	0	2	4	0	5	0	0	0	0	8	0	0

PM PEAK HOUR

Description	Stevens St Northbound Left	Stevens St Northbound Through	Stevens St Northbound Right	Access #4 Southbound Left	Access #4 Southbound Through	Access #4 Southbound Right	- Eastbound Left	- Eastbound Through	- Eastbound Right	Sonny Ct Westbound Left	Sonny Ct Westbound Through	Sonny Ct Westbound Right
Observed Volumes	0	0	10	0	0	0	0	0	0	5	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	0	10	0	0	0	0	0	0	5	0	0
2017 PHF	0.90	0.90	0.83	0.90	0.90	0.90	0.90	0.90	0.90	0.42	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	10%	2%	2%	2%	2%	2%	2%	20%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	0	11	0	0	0	0	0	0	6	0	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0
2022 Background Traffic	0	0	11	0	0	0	0	0	0	6	0	0
Percent Inbound Assignment	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	6	0	0	4	0	0	0	0	0	0	0
Percent Inbound Assignment	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	6	0	0	4	0	0	0	0	0	0	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	6	11	0	4	0	0	0	0	6	0	0
2022 Buildout Total with Left-over at A	0	6	11	0	4	0	0	0	0	6	0	0

INTERSECTION VOLUME DEVELOPMENT

NC 75 (Waxhaw Highway) at Access #1
AM PEAK HOUR

Description	Access #1 Northbound Left	Through	Right	- Southbound Left	Through	Right	NC 75 (Waxhaw Highway) Eastbound Left	Through	Right	NC 75 (Waxhaw Highway) Westbound Left	Through	Right
Observed Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	0	0	0	0	0	0	492	0	0	290	0
2017 PHF	0.90	0.90	0.50	0.90	0.90	0.90	0.90	0.90	0.90	0.58	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	0	0	0	0	0	0	543	0	0	320	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	3	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	3	0
2022 Background Traffic	0	0	0	0	0	0	0	543	0	0	323	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	45%	0%
Percent Outbound Assignment	0%	0%	35%	0%	0%	0%	0%	10%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	0	90	0	0	0	0	26	8	0	48	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	8%	35%	10%	0%
Percent Outbound Assignment	0%	0%	35%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	0	90	0	0	0	0	26	8	37	11	0
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	0	90	0	0	0	0	569	8	0	371	0
2022 Buildout Total with Left-over at A	0	0	90	0	0	0	0	569	8	37	334	0

PM PEAK HOUR

Description	Access #1 Northbound Left	Through	Right	- Southbound Left	Through	Right	NC 75 (Waxhaw Highway) Eastbound Left	Through	Right	NC 75 (Waxhaw Highway) Westbound Left	Through	Right
Observed Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	0	0	0	0	0	0	353	0	0	507	0
2017 PHF	0.90	0.90	0.83	0.90	0.90	0.90	0.90	0.90	0.90	0.42	0.90	0.90
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	0	0	0	0	0	0	390	0	0	560	0
Food Lion Development	0	0	0	0	0	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	0	0	0
2022 Background Traffic	0	0	0	0	0	0	0	390	0	0	560	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	45%	0%
Percent Outbound Assignment	0%	0%	35%	0%	0%	0%	0%	10%	0%	0%	0%	0%
RIRO at Access #1 Project Trips	0	0	75	0	0	0	0	21	25	0	141	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	8%	35%	10%	0%
Percent Outbound Assignment	0%	0%	35%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Left-over at Access #1 Project Trips	0	0	75	0	0	0	0	21	25	110	31	0
Pass-By Traffic RIRO	0	0	14	0	0	0	0	-3	3	0	11	0
Pass-By Traffic Left-Over	0	0	14	0	0	0	0	-3	3	17	-6	0
Internal Capture	0	0	0	0	0	0	0	0	0	0	0	0
2022 Buildout Total with RIRO	0	0	89	0	0	0	0	408	28	0	712	0
2022 Buildout Total with Left-over at A	0	0	89	0	0	0	0	408	28	127	585	0

INTERSECTION VOLUME DEVELOPMENT

NC 200 (MLK Jr Blvd) at Access #2/#3
AM PEAK HOUR

Description	NC 200 (MLK Jr Blvd) Northbound Left	Through	Right	NC 200 (MLK Jr Blvd) Southbound Left	Through	Right	Access #3 Eastbound Left	Through	Right	Access #2 Westbound Left	Through	Right
Observed Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	571	0	0	309	0	0	0	0	0	0	0
2017 PHF	0.90	0.89	0.75	0.60	0.70	0.90	0.90	0.90	0.90	0.68	0.90	0.62
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	630	0	0	341	0	0	0	0	0	0	0
Food Lion Development	0	118	0	0	54	0	0	0	0	0	0	0
Union Academy	0	195	0	0	104	0	0	0	0	0	0	0
Approved Development Trips	0	313	0	0	158	0	0	0	0	0	0	0
2022 Background Traffic	0	943	0	0	499	0	0	0	0	0	0	0
Percent Inbound Assignment	2%	0%	4%	62%	0%	20%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	20%	0%	2%	4%	0%	35%
RIRO at Access #1 Project Trips	2	0	4	66	0	21	51	0	5	10	0	90
Percent Inbound Assignment	2%	0%	4%	27%	0%	20%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	20%	0%	2%	4%	0%	35%
Left-over at Access #1 Project Trips	2	0	4	29	0	21	51	0	5	10	0	90
Pass-By Traffic RIRO	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic Left-Over	0	0	0	0	0	0	0	0	0	0	0	0
Internal Capture	0	0	0	0	0	0	0	1	0	0	0	0
2022 Buildout Total with RIRO	2	943	4	66	499	21	51	1	5	10	0	90
2022 Buildout Total with Left-over at A	2	943	4	29	499	21	51	1	5	10	0	90

PM PEAK HOUR

Description	NC 200 (MLK Jr Blvd) Northbound Left	Through	Right	NC 200 (MLK Jr Blvd) Southbound Left	Through	Right	Access #3 Eastbound Left	Through	Right	Access #2 Westbound Left	Through	Right
Observed Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0
2017 Existing Traffic	0	277	0	0	543	0	0	0	0	0	0	0
2017 PHF	0.90	0.76	0.80	0.94	0.86	0.90	0.90	0.90	0.90	0.91	0.90	0.67
2022 PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
2022 Background Traffic (No AD)	0	306	0	0	600	0	0	0	0	0	0	0
Food Lion Development	0	95	0	0	137	0	0	0	0	0	0	0
Union Academy	0	0	0	0	0	0	0	0	0	0	0	0
Approved Development Trips	0	95	0	0	137	0	0	0	0	0	0	0
2022 Background Traffic	0	401	0	0	737	0	0	0	0	0	0	0
Percent Inbound Assignment	2%	0%	4%	62%	0%	20%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	20%	0%	2%	4%	0%	35%
RIRO at Access #1 Project Trips	6	0	13	195	0	63	42	0	4	8	0	74
Percent Inbound Assignment	2%	0%	4%	27%	0%	20%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	0%	20%	0%	2%	4%	0%	35%
Left-over at Access #1 Project Trips	6	0	13	85	0	63	42	0	4	8	0	74
Pass-By Traffic RIRO	0	-5	5	29	-9	0	0	0	0	9	0	14
Pass-By Traffic Left-Over	0	-5	5	12	-9	0	0	0	0	9	0	14
Internal Capture	0	0	0	0	0	0	0	0	0	0	4	0
2022 Buildout Total with RIRO	6	396	18	224	728	63	42	0	4	17	4	88
2022 Buildout Total with Left-over at A	6	396	18	97	728	63	42	0	4	17	4	88

Intersection Capacity Analysis

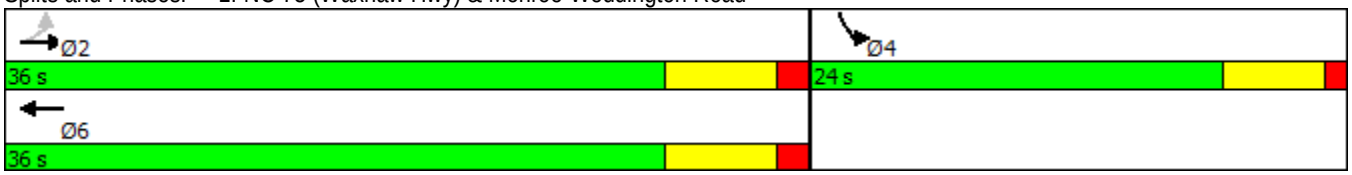
2017 Existing Conditions

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	490	284	260	296	6
Future Volume (vph)	2	490	284	260	296	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.939		0.995	
Flt Protected					0.954	
Satd. Flow (prot)	0	1891	1706	0	1734	0
Flt Permitted		0.995			0.954	
Satd. Flow (perm)	0	1881	1706	0	1734	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1737	2716		3842	
Travel Time (s)		26.3	41.2		47.6	
Peak Hour Factor	0.50	0.84	0.83	0.92	0.77	0.38
Heavy Vehicles (%)	2%	2%	4%	3%	4%	17%
Adj. Flow (vph)	4	583	342	283	384	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	587	625	0	400	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	18.5	18.5	18.5		12.6	
Total Split (s)	36.0	36.0	36.0		24.0	
Total Split (%)	60.0%	60.0%	60.0%		40.0%	
Maximum Green (s)	29.5	29.5	29.5		18.4	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	1.5	1.5	1.5		1.1	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		6.5	6.5		5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		22.0	22.0		14.9	
Actuated g/C Ratio		0.44	0.44		0.30	
v/c Ratio		0.70	0.83		0.77	
Control Delay		16.6	23.3		29.4	
Queue Delay		0.0	0.0		0.0	
Total Delay		16.6	23.3		29.4	
LOS		B	C		C	
Approach Delay		16.6	23.3		29.4	
Approach LOS		B	C		C	
Queue Length 50th (ft)		135	156		108	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (ft)		214	247		176	
Internal Link Dist (ft)		1657	2636		3762	
Turn Bay Length (ft)						
Base Capacity (vph)		1179	1070		678	
Starvation Cap Reductn		0	0		0	
Spillback Cap Reductn		0	0		0	
Storage Cap Reductn		0	0		0	
Reduced v/c Ratio		0.50	0.58		0.59	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 49.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 22.4	Intersection LOS: C
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



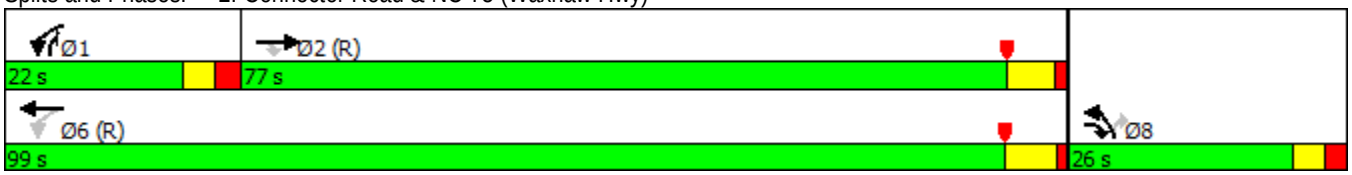
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	396	99	71	219	67	96
Future Volume (vph)	396	99	71	219	67	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1553	1787	1863	1591	1576
Flt Permitted			0.397		0.950	
Satd. Flow (perm)	1863	1553	747	1863	1591	1576
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			1737	1240	
Travel Time (s)	71.6			26.3	28.2	
Peak Hour Factor	0.75	0.81	0.60	0.94	0.73	0.66
Heavy Vehicles (%)	2%	4%	2%	3%	14%	3%
Adj. Flow (vph)	528	122	118	233	92	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	528	122	118	233	92	145
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	17.8	12.3	12.4	18.0	12.3	12.4
Total Split (s)	77.0	26.0	22.0	99.0	26.0	22.0
Total Split (%)	61.6%	20.8%	17.6%	79.2%	20.8%	17.6%
Maximum Green (s)	71.2	20.7	16.6	93.0	20.7	16.6
Yellow Time (s)	4.5	3.0	3.0	4.8	3.0	3.0
All-Red Time (s)	1.3	2.3	2.4	1.2	2.3	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.3	5.4	6.0	5.3	5.4
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	89.6	107.1	102.6	102.0	11.7	24.2
Actuated g/C Ratio	0.72	0.86	0.82	0.82	0.09	0.19
v/c Ratio	0.40	0.09	0.18	0.15	0.62	0.48
Control Delay	8.5	1.6	3.1	3.0	70.2	48.0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	1.6	3.1	3.0	70.2	48.0
LOS	A	A	A	A	E	D
Approach Delay	7.2			3.0	56.6	
Approach LOS	A			A	E	
Queue Length 50th (ft)	149	11	14	31	73	105
Queue Length 95th (ft)	189	18	21	62	100	115
Internal Link Dist (ft)	4643			1657	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	1335	1443	751	1520	263	423
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.08	0.16	0.15	0.35	0.34

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 88 (70%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 46.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)



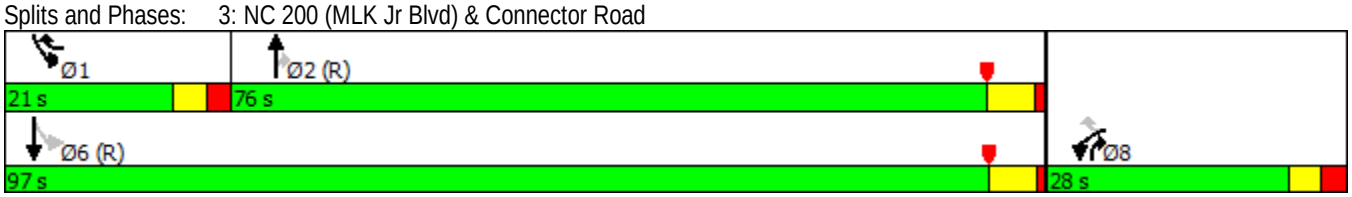
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	76	94	456	115	48	233
Future Volume (vph)	76	94	456	115	48	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1537	1853	1530	1543	1792
Flt Permitted	0.950				0.404	
Satd. Flow (perm)	1752	1537	1853	1530	656	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		2415			1401
Travel Time (s)	28.2		36.6			21.2
Peak Hour Factor	0.68	0.62	0.89	0.75	0.60	0.70
Heavy Vehicles (%)	2%	4%	2%	5%	17%	6%
Adj. Flow (vph)	112	152	512	153	80	333
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	152	512	153	80	333
Turn Type	Prot	pm+ov	NA	pm+ov	pm+pt	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	6	
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	12.6	12.3	17.6	12.6	12.3	17.5
Total Split (s)	28.0	21.0	76.0	28.0	21.0	97.0
Total Split (%)	22.4%	16.8%	60.8%	22.4%	16.8%	77.6%
Maximum Green (s)	22.4	15.7	70.4	22.4	15.7	91.5
Yellow Time (s)	3.0	3.0	4.4	3.0	3.0	4.5
All-Red Time (s)	2.6	2.3	1.2	2.6	2.3	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.3	5.6	5.6	5.3	5.5
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.4	25.0	89.1	107.0	101.7	101.5
Actuated g/C Ratio	0.10	0.20	0.71	0.86	0.81	0.81
v/c Ratio	0.65	0.50	0.39	0.12	0.14	0.23
Control Delay	69.4	48.0	8.6	1.6	3.2	3.4

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	48.0	8.6	1.6	3.2	3.4
LOS	E	D	A	A	A	A
Approach Delay	57.1		7.0			3.4
Approach LOS	E		A			A
Queue Length 50th (ft)	83	102	147	14	10	50
Queue Length 95th (ft)	102	105	236	19	16	67
Internal Link Dist (ft)	1160		2335			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	313	414	1320	1433	645	1455
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.37	0.39	0.11	0.12	0.23

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 16 (13%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 49.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	0	0	0	2	4	0	0	9	4
Future Volume (vph)	4	0	1	0	0	0	2	4	0	0	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932									0.966	
Flt Protected		0.976						0.990				
Satd. Flow (prot)	0	1694	0	0	1863	0	0	1844	0	0	1688	0
Flt Permitted		0.976						0.990				
Satd. Flow (perm)	0	1694	0	0	1863	0	0	1844	0	0	1688	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			109			528			656	
Travel Time (s)		8.6			3.0			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.25	0.90	0.90	0.90	0.50	0.25	0.90	0.90	0.75	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	11%	2%
Adj. Flow (vph)	4	0	4	0	0	0	4	16	0	0	12	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	20	0	0	16	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	0	0	0	2	4	0	0	9	4
Future Volume (Veh/h)	4	0	1	0	0	0	2	4	0	0	9	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.25	0.90	0.90	0.90	0.50	0.25	0.90	0.90	0.75	0.90
Hourly flow rate (vph)	4	0	4	0	0	0	4	16	0	0	12	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	38	38	14	42	40	16	16			16		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	38	38	14	42	40	16	16			16		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	965	852	1066	956	850	1063	1602			1602		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	0	20	16
Volume Left	4	0	4	0
Volume Right	4	0	0	4
cSH	1013	1700	1602	1602
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	8.6	0.0	1.5	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	0.0	1.5	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay		2.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)		15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	2	1	0	3	0
Future Volume (vph)	0	2	1	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1611	0	0	1770	1770	0
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1611	0	0	1770	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			138	656	
Travel Time (s)	6.6			3.8	17.9	
Peak Hour Factor	0.90	0.50	0.25	0.90	0.38	0.90
Adj. Flow (vph)	0	4	4	0	8	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	4	8	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	1	0	3	0
Future Volume (Veh/h)	0	2	1	0	3	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.50	0.25	0.90	0.38	0.90
Hourly flow rate (vph)	0	4	4	0	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			4		10	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			4		10	2
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1618		1008	1082

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	4	4	8
Volume Left	0	4	8
Volume Right	4	0	0
cSH	1700	1618	1008
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	7.2	8.6
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.6
Approach LOS			A

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	0	0	4	0	0
Future Volume (vph)	7	0	0	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1399	0	0	1096	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1399	0	0	1096	0	0
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			132
Travel Time (s)	10.5		32.1			3.6
Peak Hour Factor	0.58	0.90	0.90	0.50	0.90	0.90
Heavy Vehicles (%)	29%	2%	2%	50%	2%	2%
Adj. Flow (vph)	12	0	0	8	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	8	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 6.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	0	4	0	0
Future Volume (Veh/h)	7	0	0	4	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.90	0.90	0.50	0.90	0.90
Hourly flow rate (vph)	12	0	0	8	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0	0			8	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			8	
tC, single (s)	6.7	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	957	1085			1612	

Direction, Lane #	WB 1	NB 1
Volume Total	12	8
Volume Left	12	0
Volume Right	0	8
cSH	957	1700
Volume to Capacity	0.01	0.00
Queue Length 95th (ft)	1	0
Control Delay (s)	8.8	0.0
Lane LOS	A	
Approach Delay (s)	8.8	0.0
Approach LOS	A	

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

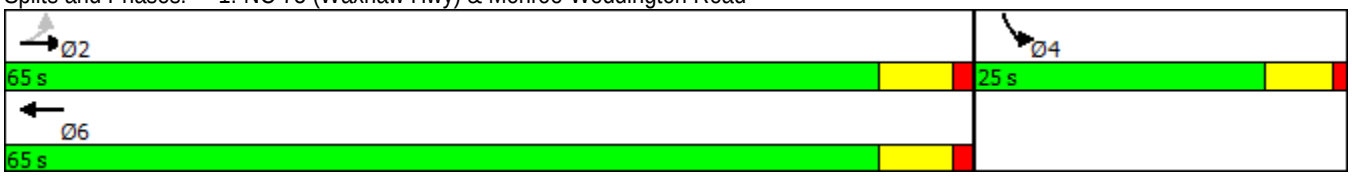
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	350	503	324	301	4
Future Volume (vph)	3	350	503	324	301	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.948		0.997	
Flt Protected		0.999			0.953	
Satd. Flow (prot)	0	1889	1742	0	1779	0
Flt Permitted		0.992			0.953	
Satd. Flow (perm)	0	1876	1742	0	1779	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1737	2716		3842	
Travel Time (s)		26.3	41.2		47.6	
Peak Hour Factor	0.75	0.89	0.79	0.82	0.83	0.50
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	4	393	637	395	363	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	397	1032	0	371	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	18.5	18.5	18.5		12.6	
Total Split (s)	65.0	65.0	65.0		25.0	
Total Split (%)	72.2%	72.2%	72.2%		27.8%	
Maximum Green (s)	58.5	58.5	58.5		19.4	
Yellow Time (s)	5.0	5.0	5.0		4.5	
All-Red Time (s)	1.5	1.5	1.5		1.1	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		6.5	6.5		5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		52.6	52.6		19.2	
Actuated g/C Ratio		0.63	0.63		0.23	
v/c Ratio		0.34	0.95		0.91	
Control Delay		8.2	32.8		62.6	
Queue Delay		0.0	0.0		0.0	
Total Delay		8.2	32.8		62.6	
LOS		A	C		E	
Approach Delay		8.2	32.8		62.6	
Approach LOS		A	C		E	
Queue Length 50th (ft)		89	449		210	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 95th (ft)		134	503		#337	
Internal Link Dist (ft)		1657	2636		3762	
Turn Bay Length (ft)						
Base Capacity (vph)		1321	1227		415	
Starvation Cap Reductn		0	0		0	
Spillback Cap Reductn		0	0		0	
Storage Cap Reductn		0	0		0	
Reduced v/c Ratio		0.30	0.84		0.89	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 84.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 33.5 Intersection LOS: C
Intersection Capacity Utilization 73.2% 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: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	296	63	74	433	69	57
Future Volume (vph)	296	63	74	433	69	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1583	1753	1881	1778	1591
Flt Permitted			0.523		0.950	
Satd. Flow (perm)	1863	1583	965	1881	1778	1591
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			1737	1240	
Travel Time (s)	71.6			26.3	28.2	
Peak Hour Factor	0.92	0.83	0.97	0.77	0.75	0.75
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	322	76	76	562	92	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	322	76	76	562	92	76
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	17.8	12.3	12.4	18.0	12.3	12.4
Total Split (s)	77.0	29.0	19.0	96.0	29.0	19.0
Total Split (%)	61.6%	23.2%	15.2%	76.8%	23.2%	15.2%
Maximum Green (s)	71.2	23.7	13.6	90.0	23.7	13.6
Yellow Time (s)	4.5	3.0	3.0	4.8	3.0	3.0
All-Red Time (s)	1.3	2.3	2.4	1.2	2.3	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.3	5.4	6.0	5.3	5.4
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	90.5	107.3	103.3	102.7	11.0	23.3
Actuated g/C Ratio	0.72	0.86	0.83	0.82	0.09	0.19
v/c Ratio	0.24	0.06	0.09	0.36	0.59	0.26
Control Delay	6.6	1.4	2.6	3.8	68.2	43.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	1.4	2.6	3.8	68.2	43.6
LOS	A	A	A	A	E	D
Approach Delay	5.6			3.7	57.1	
Approach LOS	A			A	E	
Queue Length 50th (ft)	77	6	9	90	73	54
Queue Length 95th (ft)	129	11	21	126	102	79
Internal Link Dist (ft)	4643			1657	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	1348	1519	883	1544	337	380
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.05	0.09	0.36	0.27	0.20

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 24 (19%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 41.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)

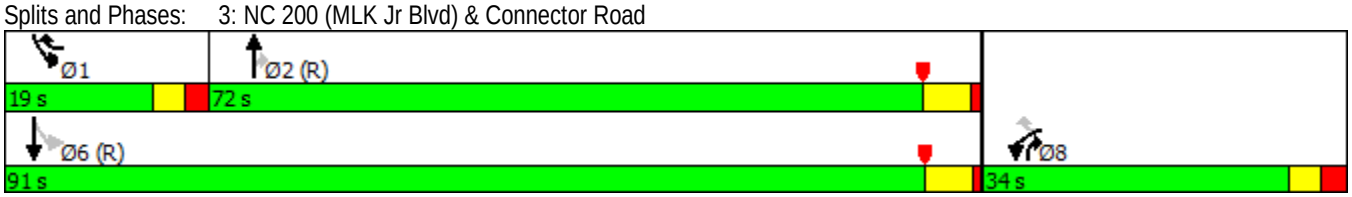
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	100	37	213	64	62	443
Future Volume (vph)	100	37	213	64	62	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1552	1835	1575	1770	1845
Flt Permitted	0.950				0.551	
Satd. Flow (perm)	1752	1552	1835	1575	1026	1845
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		2415			1401
Travel Time (s)	28.2		36.6			21.2
Peak Hour Factor	0.91	0.67	0.76	0.80	0.94	0.86
Heavy Vehicles (%)	2%	3%	3%	2%	2%	3%
Adj. Flow (vph)	110	55	280	80	66	515
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	55	280	80	66	515
Turn Type	Prot	pm+ov	NA	pm+ov	pm+pt	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	6	
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	12.6	12.3	17.6	12.6	12.3	17.5
Total Split (s)	34.0	19.0	72.0	34.0	19.0	91.0
Total Split (%)	27.2%	15.2%	57.6%	27.2%	15.2%	72.8%
Maximum Green (s)	28.4	13.7	66.4	28.4	13.7	85.5
Yellow Time (s)	3.0	3.0	4.4	3.0	3.0	4.5
All-Red Time (s)	2.6	2.3	1.2	2.6	2.3	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	5.3	5.6	5.6	5.3	5.5
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	12.2	24.8	91.7	110.7	101.9	101.7
Actuated g/C Ratio	0.10	0.20	0.73	0.89	0.82	0.81
v/c Ratio	0.64	0.18	0.21	0.06	0.08	0.34
Control Delay	69.8	40.5	6.6	1.4	2.9	4.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	40.5	6.6	1.4	2.9	4.0
LOS	E	D	A	A	A	A
Approach Delay	60.0		5.5			3.9
Approach LOS	E		A			A
Queue Length 50th (ft)	88	37	68	7	8	86
Queue Length 95th (ft)	143	49	96	11	21	145
Internal Link Dist (ft)	1160		2335			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	398	391	1346	1543	917	1500
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.14	0.21	0.05	0.07	0.34

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 80 (64%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 38.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	0	0	0	3	9	0	0	4	4
Future Volume (vph)	4	0	1	0	0	0	3	9	0	0	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932									0.955	
Flt Protected		0.976						0.988				
Satd. Flow (prot)	0	1694	0	0	1863	0	0	1840	0	0	1779	0
Flt Permitted		0.976						0.988				
Satd. Flow (perm)	0	1694	0	0	1863	0	0	1840	0	0	1779	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			109			528			656	
Travel Time (s)		8.6			3.0			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.25	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.50	0.90
Adj. Flow (vph)	4	0	4	0	0	0	4	12	0	0	8	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	8	0	0	0	0	0	16	0	0	12	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	0	0	0	3	9	0	0	4	4
Future Volume (Veh/h)	4	0	1	0	0	0	3	9	0	0	4	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.25	0.90	0.90	0.90	0.75	0.75	0.90	0.90	0.50	0.90
Hourly flow rate (vph)	4	0	4	0	0	0	4	12	0	0	8	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	30	30	10	34	32	12	12			12		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30	30	10	34	32	12	12			12		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	977	861	1071	967	859	1069	1607			1607		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	0	16	12
Volume Left	4	0	4	0
Volume Right	4	0	0	4
cSH	1022	1700	1607	1607
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	8.6	0.0	1.8	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	0.0	1.8	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	0	3	1
Future Volume (vph)	0	5	0	0	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.955	
Flt Protected					0.968	
Satd. Flow (prot)	1611	0	0	1863	1722	0
Flt Permitted					0.968	
Satd. Flow (perm)	1611	0	0	1863	1722	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			138	656	
Travel Time (s)	6.6			3.8	17.9	
Peak Hour Factor	0.90	0.63	0.90	0.90	0.38	0.25
Adj. Flow (vph)	0	8	0	0	8	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	0	12	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	0	0	3	1
Future Volume (Veh/h)	0	5	0	0	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.63	0.90	0.90	0.38	0.25
Hourly flow rate (vph)	0	8	0	0	8	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			8		4	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			8		4	4
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1612		1018	1080

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	8	0	12
Volume Left	0	0	8
Volume Right	8	0	4
cSH	1700	1700	1038
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	0	0	10	0	0
Future Volume (vph)	5	0	0	10	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1504	0	0	1494	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1504	0	0	1494	0	0
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			132
Travel Time (s)	10.5		32.1			3.6
Peak Hour Factor	0.42	0.90	0.90	0.83	0.90	0.90
Heavy Vehicles (%)	20%	2%	2%	10%	2%	2%
Adj. Flow (vph)	12	0	0	12	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	12	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 6.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	10	0	0
Future Volume (Veh/h)	5	0	0	10	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.42	0.90	0.90	0.83	0.90	0.90
Hourly flow rate (vph)	12	0	0	12	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0	0			12	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			12	
tC, single (s)	6.6	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.7	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	978	1085			1607	

Direction, Lane #	WB 1	NB 1
Volume Total	12	12
Volume Left	12	0
Volume Right	0	12
cSH	978	1700
Volume to Capacity	0.01	0.01
Queue Length 95th (ft)	1	0
Control Delay (s)	8.7	0.0
Lane LOS	A	
Approach Delay (s)	8.7	0.0
Approach LOS	A	

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

2022 Background Conditions

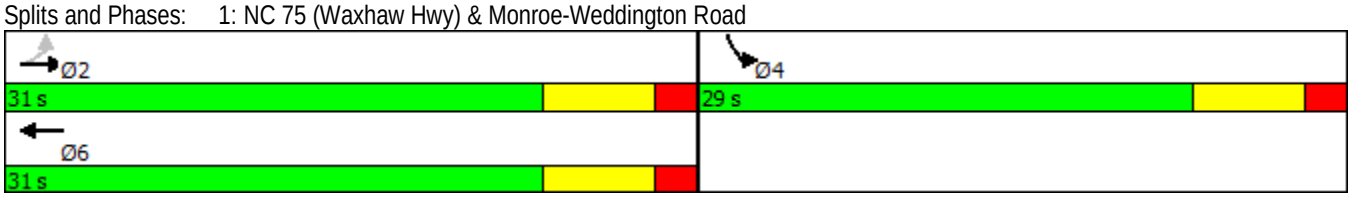
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	541	314	516	515	10
Future Volume (vph)	2	541	314	516	515	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.997	
Flt Protected					0.953	
Satd. Flow (prot)	0	1891	1809	1552	1740	0
Flt Permitted		0.999			0.953	
Satd. Flow (perm)	0	1889	1809	1552	1740	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1737	2716		3842	
Travel Time (s)		26.3	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	3%	4%	17%
Adj. Flow (vph)	2	601	349	573	572	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	603	349	573	583	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	31.0	31.0	31.0		29.0	
Total Split (%)	51.7%	51.7%	51.7%		48.3%	
Maximum Green (s)	24.0	24.0	24.0		22.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0		-2.0	
Total Lost Time (s)		5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		22.0	22.0	54.0	21.8	
Actuated g/C Ratio		0.41	0.41	1.00	0.40	
v/c Ratio		0.79	0.47	0.37	0.83	
Control Delay		23.0	14.6	0.7	28.5	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		23.0	14.6	0.7	28.5	
LOS		C	B	A	C	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		23.0	5.9		28.5	
Approach LOS		C	A		C	
Queue Length 50th (ft)		172	84	0	174	
Queue Length 95th (ft)		#288	145	0	#353	
Internal Link Dist (ft)		1657	2636		3762	
Turn Bay Length (ft)				100		
Base Capacity (vph)		934	894	1552	794	
Starvation Cap Reductn		0	0	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.65	0.39	0.37	0.73	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 54	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 67.5%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	437	269	78	245	150	106
Future Volume (vph)	437	269	78	245	150	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1553	1787	1863	1591	1576
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1553	1787	1863	1591	1576
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			1737	1240	
Travel Time (s)	71.6			26.3	28.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	3%	14%	3%
Adj. Flow (vph)	486	299	87	272	167	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	486	299	87	272	167	118
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	19.0	14.3	14.4	19.0	14.3	14.4
Total Split (s)	67.0	36.0	22.0	89.0	36.0	22.0
Total Split (%)	53.6%	28.8%	17.6%	71.2%	28.8%	17.6%
Maximum Green (s)	60.0	29.0	15.0	82.0	29.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	77.2	102.4	12.6	94.8	20.2	37.8
Actuated g/C Ratio	0.62	0.82	0.10	0.76	0.16	0.30
v/c Ratio	0.42	0.24	0.48	0.19	0.65	0.25
Control Delay	15.3	3.3	61.6	5.3	43.6	20.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	3.3	61.6	5.3	43.6	20.2
LOS	B	A	E	A	D	C
Approach Delay	10.7			18.9	33.9	
Approach LOS	B			B	C	
Queue Length 50th (ft)	191	42	68	54	103	40
Queue Length 95th (ft)	342	80	118	105	182	109
Internal Link Dist (ft)	4643			1657	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	1151	1406	243	1413	394	531
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.21	0.36	0.19	0.42	0.22

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 111 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 49.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)

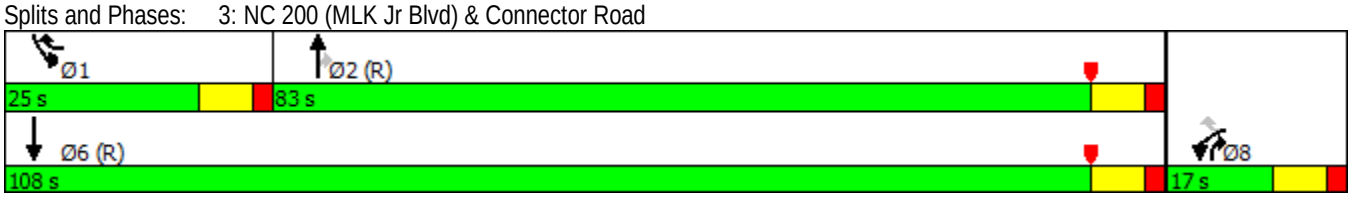
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	84	264	816	127	129	415
Future Volume (vph)	84	264	816	127	129	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1537	1853	1530	1543	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1537	1853	1530	1543	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		2415			1401
Travel Time (s)	28.2		36.6			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	5%	17%	6%
Adj. Flow (vph)	93	293	907	141	143	461
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	293	907	141	143	461
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	14.6	14.3	19.0	14.6	14.3	19.0
Total Split (s)	17.0	25.0	83.0	17.0	25.0	108.0
Total Split (%)	13.6%	20.0%	66.4%	13.6%	20.0%	86.4%
Maximum Green (s)	10.0	18.0	76.0	10.0	18.0	101.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.5	32.8	82.2	98.6	16.4	103.5
Actuated g/C Ratio	0.09	0.26	0.66	0.79	0.13	0.83
v/c Ratio	0.58	0.73	0.75	0.12	0.71	0.31
Control Delay	65.1	46.0	20.2	3.7	70.6	3.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	46.0	20.2	3.7	70.6	3.2
LOS	E	D	C	A	E	A
Approach Delay	50.6		18.0			19.1
Approach LOS	D		B			B
Queue Length 50th (ft)	70	224	474	22	112	73
Queue Length 95th (ft)	138	320	699	43	180	97
Internal Link Dist (ft)	1160		2335			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	171	448	1218	1216	246	1487
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.65	0.74	0.12	0.58	0.31

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 32 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 24.5 Intersection LOS: C
Intersection Capacity Utilization 68.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	0	0	0	2	4	0	0	10	4
Future Volume (vph)	4	0	1	0	0	0	2	4	0	0	10	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973									0.964	
Flt Protected		0.962						0.984				
Satd. Flow (prot)	0	1744	0	0	1863	0	0	1833	0	0	1687	0
Flt Permitted		0.962						0.984				
Satd. Flow (perm)	0	1744	0	0	1863	0	0	1833	0	0	1687	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			109			528			656	
Travel Time (s)		8.6			3.0			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	11%	2%
Adj. Flow (vph)	4	0	1	0	0	0	2	4	0	0	11	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	0	0	0	6	0	0	15	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	0	0	0	2	4	0	0	10	4
Future Volume (Veh/h)	4	0	1	0	0	0	2	4	0	0	10	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	0	1	0	0	0	2	4	0	0	11	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	21	21	13	22	23	4	15			4		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21	21	13	22	23	4	15			4		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	991	872	1067	988	869	1080	1603			1618		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	0	6	15
Volume Left	4	0	2	0
Volume Right	1	0	0	4
cSH	1005	1700	1603	1618
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.6	0.0	2.4	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	0.0	2.4	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	2	1	0	3	0
Future Volume (vph)	0	2	1	0	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1611	0	0	1770	1770	0
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1611	0	0	1770	1770	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			138	656	
Travel Time (s)	6.6			3.8	17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2	1	0	3	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	1	3	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	1	0	3	0
Future Volume (Veh/h)	0	2	1	0	3	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2	1	0	3	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2		3	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2		3	1
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1620		1019	1084

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	2	1	3
Volume Left	0	1	3
Volume Right	2	0	0
cSH	1700	1620	1019
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	7.2	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.5
Approach LOS			A

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	0	0	4	0	0
Future Volume (vph)	8	0	0	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1399	0	0	1096	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1399	0	0	1096	0	0
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			132
Travel Time (s)	10.5		32.1			3.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	29%	2%	2%	50%	2%	2%
Adj. Flow (vph)	9	0	0	4	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	0	4	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 6.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	0	0	4	0	0
Future Volume (Veh/h)	8	0	0	4	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	0	0	4	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0	0			4	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			4	
tC, single (s)	6.7	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	957	1085			1618	

Direction, Lane #	WB 1	NB 1
Volume Total	9	4
Volume Left	9	0
Volume Right	0	4
cSH	957	1700
Volume to Capacity	0.01	0.00
Queue Length 95th (ft)	1	0
Control Delay (s)	8.8	0.0
Lane LOS	A	
Approach Delay (s)	8.8	0.0
Approach LOS	A	

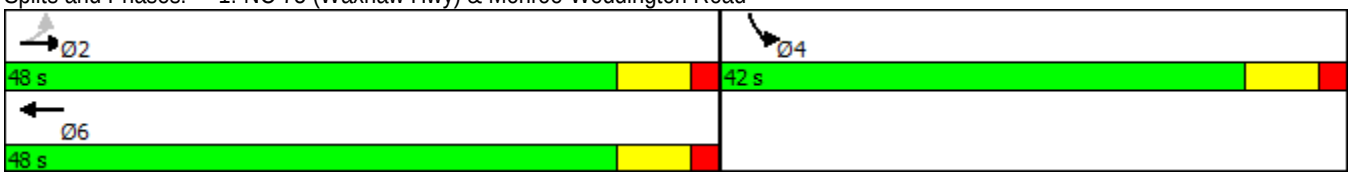
Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	386	555	453	469	4
Future Volume (vph)	3	386	555	453	469	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.999	
Flt Protected					0.953	
Satd. Flow (prot)	0	1891	1844	1552	1782	0
Flt Permitted		0.996			0.953	
Satd. Flow (perm)	0	1883	1844	1552	1782	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1737	2716		3842	
Travel Time (s)		26.3	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	3	429	617	503	521	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	432	617	503	525	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	48.0	48.0	48.0		42.0	
Total Split (%)	53.3%	53.3%	53.3%		46.7%	
Maximum Green (s)	41.0	41.0	41.0		35.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0		-2.0	
Total Lost Time (s)		5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		28.9	28.9	65.8	26.0	
Actuated g/C Ratio		0.44	0.44	1.00	0.40	
v/c Ratio		0.52	0.76	0.32	0.75	
Control Delay		16.7	23.4	0.6	26.1	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		16.7	23.4	0.6	26.1	
LOS		B	C	A	C	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		16.7	13.2		26.1	
Approach LOS		B	B		C	
Queue Length 50th (ft)		117	193	0	170	
Queue Length 95th (ft)		241	392	0	365	
Internal Link Dist (ft)		1657	2636		3762	
Turn Bay Length (ft)				100		
Base Capacity (vph)		1310	1284	1552	1092	
Starvation Cap Reductn		0	0	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.33	0.48	0.32	0.48	

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 65.8	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 17.2	Intersection LOS: B
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	327	165	82	478	213	63
Future Volume (vph)	327	165	82	478	213	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1583	1753	1881	1778	1591
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1753	1881	1778	1591
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			1737	1240	
Travel Time (s)	71.6			26.3	28.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	363	183	91	531	237	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	363	183	91	531	237	70
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	19.0	14.3	14.4	19.0	14.3	14.4
Total Split (s)	58.0	43.0	24.0	82.0	43.0	24.0
Total Split (%)	46.4%	34.4%	19.2%	65.6%	34.4%	19.2%
Maximum Green (s)	51.0	36.0	17.0	75.0	36.0	17.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	73.3	102.0	13.0	91.3	23.7	41.7
Actuated g/C Ratio	0.59	0.82	0.10	0.73	0.19	0.33
v/c Ratio	0.33	0.14	0.50	0.39	0.71	0.13
Control Delay	16.1	3.0	61.6	8.1	29.5	7.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	3.0	61.6	8.1	29.5	7.1
LOS	B	A	E	A	C	A
Approach Delay	11.7			15.9	24.4	
Approach LOS	B			B	C	
Queue Length 50th (ft)	141	24	71	140	54	10
Queue Length 95th (ft)	262	49	122	256	81	16
Internal Link Dist (ft)	4643			1657	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	1092	1464	266	1374	540	606
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.13	0.34	0.39	0.44	0.12

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 123 (98%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 47.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)

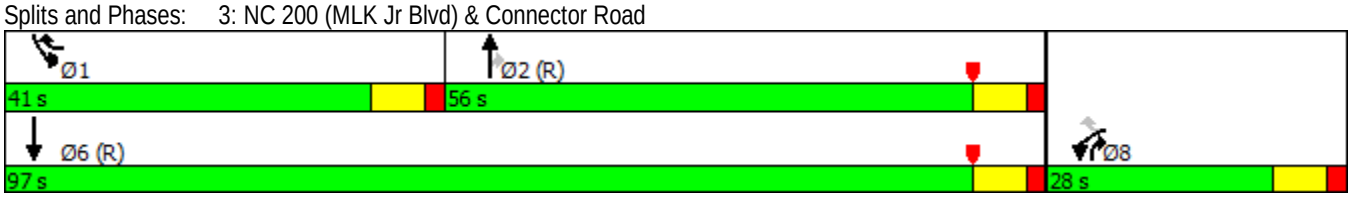
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	136	330	71	205	626
Future Volume (vph)	110	136	330	71	205	626
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1552	1835	1575	1770	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1552	1835	1575	1770	1845
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		2415			1401
Travel Time (s)	28.2		36.6			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	3%	2%	2%	3%
Adj. Flow (vph)	122	151	367	79	228	696
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	151	367	79	228	696
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	14.6	14.3	19.0	14.6	14.3	19.0
Total Split (s)	28.0	41.0	56.0	28.0	41.0	97.0
Total Split (%)	22.4%	32.8%	44.8%	22.4%	32.8%	77.6%
Maximum Green (s)	21.0	34.0	49.0	21.0	34.0	90.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	15.1	42.6	72.4	92.4	22.6	99.9
Actuated g/C Ratio	0.12	0.34	0.58	0.74	0.18	0.80
v/c Ratio	0.58	0.29	0.35	0.07	0.71	0.47
Control Delay	49.8	25.3	16.8	5.5	60.2	5.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	25.3	16.8	5.5	60.2	5.7
LOS	D	C	B	A	E	A
Approach Delay	36.3		14.8			19.1
Approach LOS	D		B			B
Queue Length 50th (ft)	99	104	149	15	175	149
Queue Length 95th (ft)	138	125	269	36	246	259
Internal Link Dist (ft)	1160		2335			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	322	696	1062	1264	509	1474
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.22	0.35	0.06	0.45	0.47

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 72 (58%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 47.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	0	0	0	3	10	0	0	4	4
Future Volume (vph)	4	0	1	0	0	0	3	10	0	0	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973									0.932	
Flt Protected		0.962						0.989				
Satd. Flow (prot)	0	1744	0	0	1863	0	0	1842	0	0	1736	0
Flt Permitted		0.962						0.989				
Satd. Flow (perm)	0	1744	0	0	1863	0	0	1842	0	0	1736	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			109			528			656	
Travel Time (s)		8.6			3.0			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	0	1	0	0	0	3	11	0	0	4	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	0	0	0	14	0	0	8	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	0	0	0	3	10	0	0	4	4
Future Volume (Veh/h)	4	0	1	0	0	0	3	10	0	0	4	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	0	1	0	0	0	3	11	0	0	4	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	23	23	6	24	25	11	8			11		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	23	23	6	24	25	11	8			11		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	987	869	1077	985	867	1070	1612			1608		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	0	14	8
Volume Left	4	0	3	0
Volume Right	1	0	0	4
cSH	1004	1700	1612	1608
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.6	0.0	1.6	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	0.0	1.6	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	6	0	0	3	1
Future Volume (vph)	0	6	0	0	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.966	
Flt Protected					0.964	
Satd. Flow (prot)	1611	0	0	1863	1735	0
Flt Permitted					0.964	
Satd. Flow (perm)	1611	0	0	1863	1735	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			138	656	
Travel Time (s)	6.6			3.8	17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	7	0	0	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	0	4	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	0	0	3	1
Future Volume (Veh/h)	0	6	0	0	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	7	0	0	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			7		4	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			7		4	4
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1614		1019	1080

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	7	0	4
Volume Left	0	0	3
Volume Right	7	0	1
cSH	1700	1700	1033
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	8.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.5
Approach LOS			A

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	0	0	11	0	0
Future Volume (vph)	6	0	0	11	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1504	0	0	1494	0	0
Flt Permitted	0.950					
Satd. Flow (perm)	1504	0	0	1494	0	0
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			132
Travel Time (s)	10.5		32.1			3.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	20%	2%	2%	10%	2%	2%
Adj. Flow (vph)	7	0	0	12	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	12	0	0
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 6.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	0	0	11	0	0
Future Volume (Veh/h)	6	0	0	11	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	0	0	12	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0	0			12	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			12	
tC, single (s)	6.6	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.7	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	978	1085			1607	

Direction, Lane #	WB 1	NB 1
Volume Total	7	12
Volume Left	7	0
Volume Right	0	12
cSH	978	1700
Volume to Capacity	0.01	0.01
Queue Length 95th (ft)	1	0
Control Delay (s)	8.7	0.0
Lane LOS	A	
Approach Delay (s)	8.7	0.0
Approach LOS	A	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

2022 Build-out Conditions
with RIRO at Access #1

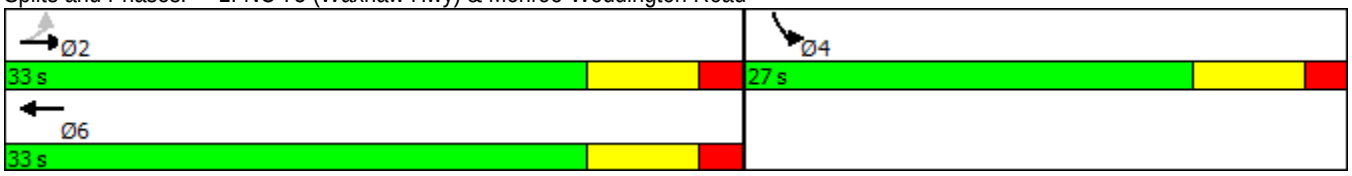
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	618	346	516	515	26
Future Volume (vph)	41	618	346	516	515	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.993	
Flt Protected		0.997			0.955	
Satd. Flow (prot)	0	1885	1809	1552	1731	0
Flt Permitted		0.954			0.955	
Satd. Flow (perm)	0	1804	1809	1552	1731	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	3%	4%	17%
Adj. Flow (vph)	46	687	384	573	572	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	733	384	573	601	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	33.0	33.0	33.0		27.0	
Total Split (%)	55.0%	55.0%	55.0%		45.0%	
Maximum Green (s)	26.0	26.0	26.0		20.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0		-2.0	
Total Lost Time (s)		5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		26.3	26.3	58.2	21.8	
Actuated g/C Ratio		0.45	0.45	1.00	0.37	
v/c Ratio		0.90	0.47	0.37	0.93	
Control Delay		31.5	13.3	0.7	42.8	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		31.5	13.3	0.7	42.8	
LOS		C	B	A	D	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		31.5	5.7		42.8	
Approach LOS		C	A		D	
Queue Length 50th (ft)		224	88	0	205	
Queue Length 95th (ft)		#427	151	0	#393	
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)				100		
Base Capacity (vph)		871	874	1552	656	
Starvation Cap Reductn		0	0	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.84	0.44	0.37	0.92	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 58.2	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 23.7	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



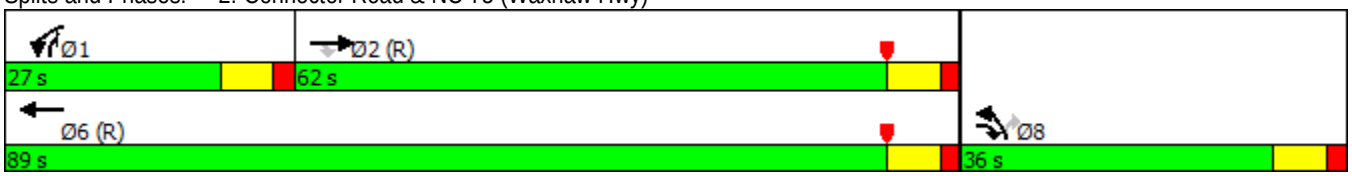
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	445	271	126	245	175	132
Future Volume (vph)	445	271	126	245	175	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1553	1787	1863	1591	1576
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1553	1787	1863	1591	1576
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			515	1240	
Travel Time (s)	71.6			7.8	28.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	3%	14%	3%
Adj. Flow (vph)	494	301	140	272	194	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	494	301	140	272	194	147
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	19.0	14.3	14.4	19.0	14.3	14.4
Total Split (s)	62.0	36.0	27.0	89.0	36.0	27.0
Total Split (%)	49.6%	28.8%	21.6%	71.2%	28.8%	21.6%
Maximum Green (s)	55.0	29.0	20.0	82.0	29.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	71.2	98.7	16.3	92.4	22.6	43.8
Actuated g/C Ratio	0.57	0.79	0.13	0.74	0.18	0.35
v/c Ratio	0.47	0.25	0.60	0.20	0.68	0.27
Control Delay	19.9	4.4	61.5	6.1	45.2	17.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	4.4	61.5	6.1	45.2	17.7
LOS	B	A	E	A	D	B
Approach Delay	14.0			25.0	33.4	
Approach LOS	B			C	C	
Queue Length 50th (ft)	223	52	109	59	99	48
Queue Length 95th (ft)	406	102	168	116	195	m117
Internal Link Dist (ft)	4643			435	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	1063	1332	315	1378	395	626
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.23	0.44	0.20	0.49	0.23

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 102 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 52.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)



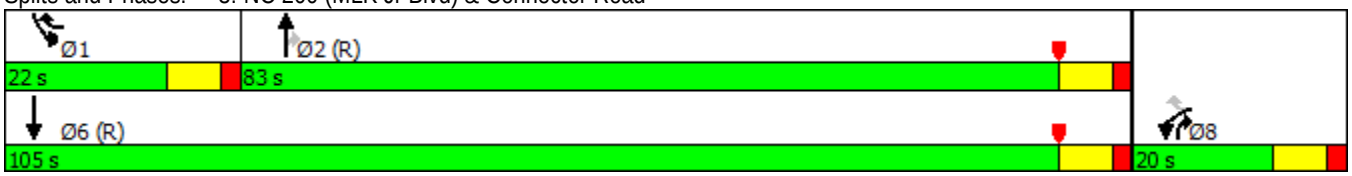
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	134	264	906	178	129	452
Future Volume (vph)	134	264	906	178	129	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1537	1853	1530	1543	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1537	1853	1530	1543	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		1000			1401
Travel Time (s)	28.2		15.2			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	5%	17%	6%
Adj. Flow (vph)	149	293	1007	198	143	502
Shared Lane Traffic (%)						
Lane Group Flow (vph)	149	293	1007	198	143	502
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	14.6	14.3	19.0	14.6	14.3	19.0
Total Split (s)	20.0	22.0	83.0	20.0	22.0	105.0
Total Split (%)	16.0%	17.6%	66.4%	16.0%	17.6%	84.0%
Maximum Green (s)	13.0	15.0	76.0	13.0	15.0	98.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	14.7	35.2	79.8	99.5	15.5	100.3
Actuated g/C Ratio	0.12	0.28	0.64	0.80	0.12	0.80
v/c Ratio	0.72	0.68	0.85	0.16	0.75	0.35
Control Delay	64.1	40.7	27.5	3.5	76.4	4.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	40.7	27.5	3.5	76.4	4.2
LOS	E	D	C	A	E	A
Approach Delay	48.6		23.6			20.2
Approach LOS	D		C			C
Queue Length 50th (ft)	120	220	670	34	111	103
Queue Length 95th (ft)	#215	263	#883	52	#200	128
Internal Link Dist (ft)	1160		920			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	216	452	1190	1226	210	1444
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.65	0.85	0.16	0.68	0.35

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 32 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 27.5 Intersection LOS: C
Intersection Capacity Utilization 74.8% 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: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	3	0	0	2	5	1	0	13	4
Future Volume (vph)	4	0	1	3	0	0	2	5	1	0	13	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973						0.985			0.970	
Flt Protected		0.962			0.950			0.989				
Satd. Flow (prot)	0	1744	0	0	1770	0	0	1815	0	0	1691	0
Flt Permitted		0.962			0.950			0.989				
Satd. Flow (perm)	0	1744	0	0	1770	0	0	1815	0	0	1691	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			379			528			656	
Travel Time (s)		8.6			10.3			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	11%	2%
Adj. Flow (vph)	4	0	1	3	0	0	2	6	1	0	14	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	3	0	0	9	0	0	18	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	3	0	0	2	5	1	0	13	4
Future Volume (Veh/h)	4	0	1	3	0	0	2	5	1	0	13	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	0	1	3	0	0	2	6	1	0	14	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	26	27	16	28	28	6	18			7		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26	27	16	28	28	6	18			7		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	983	865	1063	980	863	1076	1599			1614		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	3	9	18
Volume Left	4	3	2	0
Volume Right	1	0	1	4
cSH	998	980	1599	1614
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.6	8.7	1.6	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	8.7	1.6	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	2	4	0	3	1
Future Volume (vph)	0	2	4	0	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.966	
Flt Protected				0.950	0.964	
Satd. Flow (prot)	1611	0	0	1770	1735	0
Flt Permitted				0.950	0.964	
Satd. Flow (perm)	1611	0	0	1770	1735	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			345	656	
Travel Time (s)	6.6			9.4	17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2	4	0	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	4	4	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	4	0	3	1
Future Volume (Veh/h)	0	2	4	0	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2	4	0	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2		9	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2		9	1
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1620		1009	1084

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	2	4	4
Volume Left	0	4	3
Volume Right	2	0	1
cSH	1700	1620	1027
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	7.2	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.5
Approach LOS			A

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	0	2	4	0	5
Future Volume (vph)	8	0	2	4	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.910			
Flt Protected	0.950					
Satd. Flow (prot)	1399	0	1290	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1399	0	1290	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			772
Travel Time (s)	10.5		32.1			21.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	29%	2%	2%	50%	2%	2%
Adj. Flow (vph)	9	0	2	4	0	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	6	0	0	6
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	0	2	4	0	5
Future Volume (Veh/h)	8	0	2	4	0	5
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	0	2	4	0	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	10	4			6	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10	4			6	
tC, single (s)	6.7	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	944	1080			1615	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	6	6
Volume Left	9	0	0
Volume Right	0	4	0
cSH	944	1700	1615
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	569	8	0	371	0	90
Future Volume (vph)	569	8	0	371	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					0.865
Flt Protected						
Satd. Flow (prot)	1887	0	0	1881	0	1611
Flt Permitted						
Satd. Flow (perm)	1887	0	0	1881	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	515			1215	1200	
Travel Time (s)	7.8			18.4	32.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	632	9	0	412	0	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	641	0	0	412	0	100
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.7%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	569	8	0	371	0	90
Future Volume (Veh/h)	569	8	0	371	0	90
Sign Control	Free			Free	Stop	
Grade	-3%			-2%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	632	9	0	412	0	100
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	515			1215		
pX, platoon unblocked			0.84		0.90	0.84
vC, conflicting volume			641		1048	636
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			477		704	471
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	80
cM capacity (veh/h)			911		362	497

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	641	412	100
Volume Left	0	0	0
Volume Right	9	0	100
cSH	1700	1700	497
Volume to Capacity	0.38	0.24	0.20
Queue Length 95th (ft)	0	0	19
Control Delay (s)	0.0	0.0	14.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.1
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	1	5	10	0	90	2	943	4	66	499	21
Future Volume (vph)	51	1	5	10	0	90	2	943	4	66	499	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.878			0.999			0.995	
Flt Protected		0.957			0.995						0.994	
Satd. Flow (prot)	0	1759	0	0	1627	0	0	1852	0	0	1842	0
Flt Permitted		0.957			0.995						0.994	
Satd. Flow (perm)	0	1759	0	0	1627	0	0	1852	0	0	1842	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	1	6	11	0	100	2	1048	4	73	554	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	111	0	0	1054	0	0	650	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 96.7%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	1	5	10	0	90	2	943	4	66	499	21
Future Volume (Veh/h)	51	1	5	10	0	90	2	943	4	66	499	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	57	1	6	11	0	100	2	1048	4	73	554	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.93	0.93	0.93	0.93	0.93		0.93					
vC, conflicting volume	1866	1768	566	1772	1777	1050	577			1052		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1895	1789	491	1794	1799	1050	503			1052		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	99	79	100	64	100			89		
cM capacity (veh/h)	29	67	535	52	66	276	983			662		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	64	111	1054	650
Volume Left	57	11	2	73
Volume Right	6	100	4	23
cSH	32	193	983	662
Volume to Capacity	2.02	0.58	0.00	0.11
Queue Length 95th (ft)	183	78	0	9
Control Delay (s)	742.0	46.2	0.1	2.9
Lane LOS	F	E	A	A
Approach Delay (s)	742.0	46.2	0.1	2.9
Approach LOS	F	E		

Intersection Summary			
Average Delay	29.0		
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

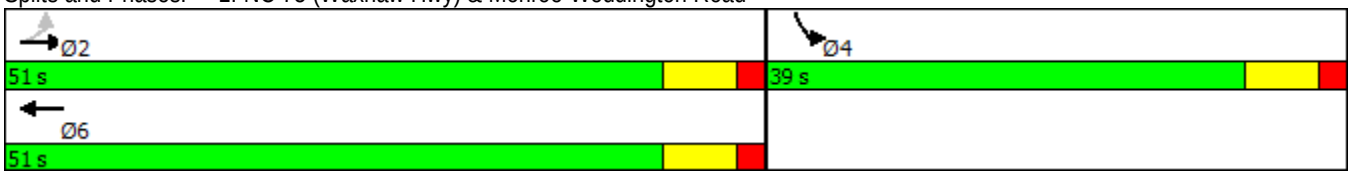
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	40	456	654	448	463	57
Future Volume (vph)	40	456	654	448	463	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.985	
Flt Protected		0.996			0.957	
Satd. Flow (prot)	0	1883	1844	1552	1765	0
Flt Permitted		0.653			0.957	
Satd. Flow (perm)	0	1235	1844	1552	1765	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	44	507	727	498	514	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	551	727	498	577	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	51.0	51.0	51.0		39.0	
Total Split (%)	56.7%	56.7%	56.7%		43.3%	
Maximum Green (s)	44.0	44.0	44.0		32.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0		-2.0	
Total Lost Time (s)		5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		38.9	38.9	79.5	30.2	
Actuated g/C Ratio		0.49	0.49	1.00	0.38	
v/c Ratio		0.91	0.81	0.32	0.86	
Control Delay		41.2	25.7	0.5	39.3	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		41.2	25.7	0.5	39.3	
LOS		D	C	A	D	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		41.2	15.5		39.3	
Approach LOS		D	B		D	
Queue Length 50th (ft)		263	317	0	296	
Queue Length 95th (ft)		#479	471	0	#491	
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)				100		
Base Capacity (vph)		745	1112	1552	787	
Starvation Cap Reductn		0	0	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.74	0.65	0.32	0.73	

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 79.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 27.3	Intersection LOS: C
Intersection Capacity Utilization 94.6%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



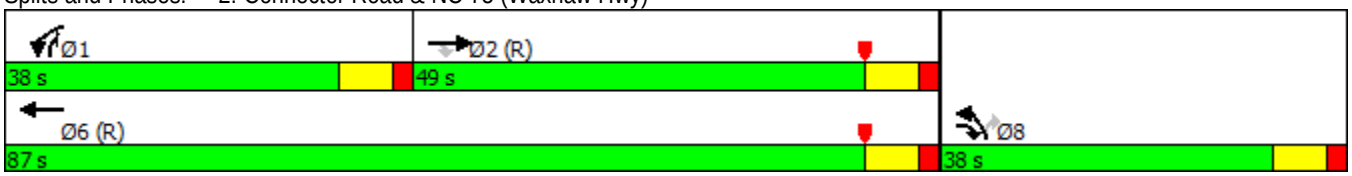
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	352	172	240	472	240	84
Future Volume (vph)	352	172	240	472	240	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1583	1753	1881	1778	1591
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1753	1881	1778	1591
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			515	1240	
Travel Time (s)	71.6			7.8	28.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	391	191	267	524	267	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	191	267	524	267	93
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	19.0	14.3	14.4	19.0	14.3	14.4
Total Split (s)	49.0	38.0	38.0	87.0	38.0	38.0
Total Split (%)	39.2%	30.4%	30.4%	69.6%	30.4%	30.4%
Maximum Green (s)	42.0	31.0	31.0	80.0	31.0	31.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	58.6	89.3	25.7	89.3	25.7	56.4
Actuated g/C Ratio	0.47	0.71	0.21	0.71	0.21	0.45
v/c Ratio	0.45	0.17	0.74	0.39	0.73	0.13
Control Delay	27.4	7.1	58.7	8.9	35.3	8.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	7.1	58.7	8.9	35.3	8.7
LOS	C	A	E	A	D	A
Approach Delay	20.7			25.7	28.4	
Approach LOS	C			C	C	
Queue Length 50th (ft)	208	44	205	152	202	35
Queue Length 95th (ft)	375	90	277	266	177	m19
Internal Link Dist (ft)	4643			435	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	879	1226	464	1347	472	813
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.16	0.58	0.39	0.57	0.11

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 103 (82%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 57.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)



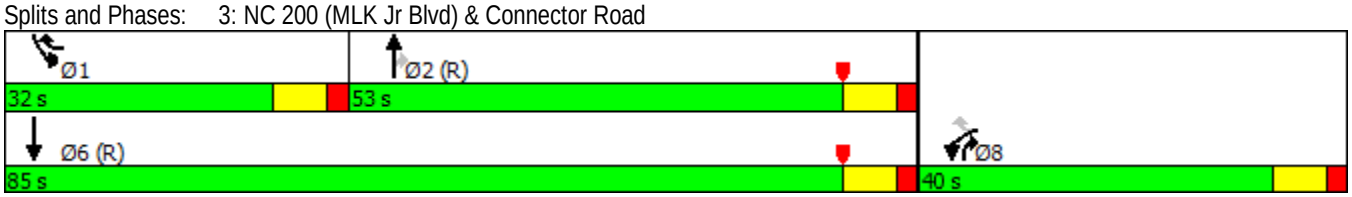
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	276	135	405	121	203	738
Future Volume (vph)	276	135	405	121	203	738
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1552	1835	1575	1770	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1552	1835	1575	1770	1845
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		1000			1401
Travel Time (s)	28.2		15.2			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	3%	2%	2%	3%
Adj. Flow (vph)	307	150	450	134	226	820
Shared Lane Traffic (%)						
Lane Group Flow (vph)	307	150	450	134	226	820
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	14.6	14.3	19.0	14.6	14.3	19.0
Total Split (s)	40.0	32.0	53.0	40.0	32.0	85.0
Total Split (%)	32.0%	25.6%	42.4%	32.0%	25.6%	68.0%
Maximum Green (s)	33.0	25.0	46.0	33.0	25.0	78.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	28.2	55.0	60.0	93.2	21.8	86.8
Actuated g/C Ratio	0.23	0.44	0.48	0.75	0.17	0.69
v/c Ratio	0.78	0.22	0.51	0.11	0.73	0.64
Control Delay	41.2	8.5	27.5	5.3	62.7	14.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	8.5	27.5	5.3	62.7	14.6
LOS	D	A	C	A	E	B
Approach Delay	30.4		22.4			25.0
Approach LOS	C		C			C
Queue Length 50th (ft)	115	29	247	27	174	331
Queue Length 95th (ft)	168	36	420	53	252	569
Internal Link Dist (ft)	1160		920			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	494	747	884	1263	382	1285
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.20	0.51	0.11	0.59	0.64

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 32 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 62.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	3	0	0	3	13	3	0	6	4
Future Volume (vph)	4	0	1	3	0	0	3	13	3	0	6	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973						0.980			0.951	
Flt Protected		0.962			0.950			0.993				
Satd. Flow (prot)	0	1744	0	0	1770	0	0	1813	0	0	1771	0
Flt Permitted		0.962			0.950			0.993				
Satd. Flow (perm)	0	1744	0	0	1770	0	0	1813	0	0	1771	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			379			528			656	
Travel Time (s)		8.6			10.3			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	0	1	3	0	0	3	14	3	0	7	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	3	0	0	20	0	0	11	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	3	0	0	3	13	3	0	6	4
Future Volume (Veh/h)	4	0	1	3	0	0	3	13	3	0	6	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	0	1	3	0	0	3	14	3	0	7	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	30	32	9	32	32	16	11			17		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30	32	9	32	32	16	11			17		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	976	859	1073	974	859	1064	1608			1600		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	3	20	11
Volume Left	4	3	3	0
Volume Right	1	0	3	4
cSH	994	974	1608	1600
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.6	8.7	1.1	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	8.7	1.1	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	6	2	0	3	4
Future Volume (vph)	0	6	2	0	3	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.923	
Flt Protected				0.950	0.979	
Satd. Flow (prot)	1611	0	0	1770	1683	0
Flt Permitted				0.950	0.979	
Satd. Flow (perm)	1611	0	0	1770	1683	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			345	656	
Travel Time (s)	6.6			9.4	17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	7	2	0	3	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	2	7	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	2	0	3	4
Future Volume (Veh/h)	0	6	2	0	3	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	7	2	0	3	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			7		8	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			7		8	4
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1614		1012	1080

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	7	2	7
Volume Left	0	2	3
Volume Right	7	0	4
cSH	1700	1614	1050
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	7.2	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.5
Approach LOS			A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	0	6	11	0	4
Future Volume (vph)	6	0	6	11	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.915			
Flt Protected	0.950					
Satd. Flow (prot)	1504	0	1624	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1504	0	1624	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			772
Travel Time (s)	10.5		32.1			21.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	20%	2%	2%	10%	2%	2%
Adj. Flow (vph)	7	0	7	12	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	19	0	0	4
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	0	6	11	0	4
Future Volume (Veh/h)	6	0	6	11	0	4
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	0	7	12	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	17	13			19	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17	13			19	
tC, single (s)	6.6	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.7	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	957	1067			1597	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	7	19	4
Volume Left	7	0	0
Volume Right	0	12	0
cSH	957	1700	1597
Volume to Capacity	0.01	0.01	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	408	28	0	712	0	89
Future Volume (vph)	408	28	0	712	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991					0.865
Flt Protected						
Satd. Flow (prot)	1874	0	0	1881	0	1611
Flt Permitted						
Satd. Flow (perm)	1874	0	0	1881	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	515			1215	1200	
Travel Time (s)	7.8			18.4	32.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	453	31	0	791	0	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	484	0	0	791	0	99
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 40.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	408	28	0	712	0	89
Future Volume (Veh/h)	408	28	0	712	0	89
Sign Control	Free			Free	Stop	
Grade	-3%			-2%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	453	31	0	791	0	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	515			1215		
pX, platoon unblocked			0.86		0.70	0.86
vC, conflicting volume			484		1260	468
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			314		691	296
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	84
cM capacity (veh/h)			1068		286	637

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	484	791	99
Volume Left	0	0	0
Volume Right	31	0	99
cSH	1700	1700	637
Volume to Capacity	0.28	0.47	0.16
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.0	0.0	11.7
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.7
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	4	17	4	88	6	396	18	224	728	63
Future Volume (vph)	42	0	4	17	4	88	6	396	18	224	728	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.891			0.994			0.992	
Flt Protected		0.956			0.992			0.999			0.989	
Satd. Flow (prot)	0	1761	0	0	1646	0	0	1840	0	0	1828	0
Flt Permitted		0.956			0.992			0.999			0.989	
Satd. Flow (perm)	0	1761	0	0	1646	0	0	1840	0	0	1828	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	0	4	19	4	98	7	440	20	249	809	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	121	0	0	467	0	0	1128	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 96.0%	ICU Level of Service F
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	0	4	17	4	88	6	396	18	224	728	63
Future Volume (Veh/h)	42	0	4	17	4	88	6	396	18	224	728	63
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	47	0	4	19	4	98	7	440	20	249	809	70
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72					
vC, conflicting volume	1906	1816	844	1810	1841	450	879			460		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2065	1940	587	1931	1974	450	636			460		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	99	35	88	84	99			77		
cM capacity (veh/h)	18	36	366	29	34	609	681			1101		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	51	121	467	1128
Volume Left	47	19	7	249
Volume Right	4	98	20	70
cSH	20	130	681	1101
Volume to Capacity	2.61	0.93	0.01	0.23
Queue Length 95th (ft)	169	155	1	22
Control Delay (s)	1138.4	126.1	0.3	5.4
Lane LOS	F	F	A	A
Approach Delay (s)	1138.4	126.1	0.3	5.4
Approach LOS	F	F		

Intersection Summary			
Average Delay	45.0		
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

2022 Build-out Conditions
with Left-over at Access #1

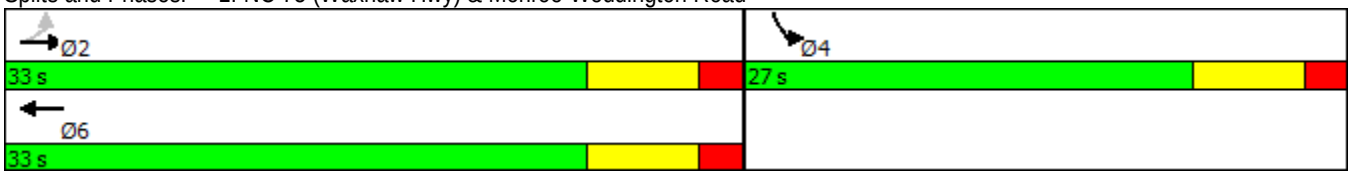
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	618	346	516	515	26
Future Volume (vph)	41	618	346	516	515	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.993	
Flt Protected		0.997			0.955	
Satd. Flow (prot)	0	1885	1809	1552	1731	0
Flt Permitted		0.954			0.955	
Satd. Flow (perm)	0	1804	1809	1552	1731	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	3%	4%	17%
Adj. Flow (vph)	46	687	384	573	572	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	733	384	573	601	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	33.0	33.0	33.0		27.0	
Total Split (%)	55.0%	55.0%	55.0%		45.0%	
Maximum Green (s)	26.0	26.0	26.0		20.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0		-2.0	
Total Lost Time (s)		5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		26.3	26.3	58.2	21.8	
Actuated g/C Ratio		0.45	0.45	1.00	0.37	
v/c Ratio		0.90	0.47	0.37	0.93	
Control Delay		31.5	13.3	0.7	42.8	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		31.5	13.3	0.7	42.8	
LOS		C	B	A	D	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		31.5	5.7		42.8	
Approach LOS		C	A		D	
Queue Length 50th (ft)		224	88	0	205	
Queue Length 95th (ft)		#427	151	0	#393	
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)				100		
Base Capacity (vph)		871	874	1552	656	
Starvation Cap Reductn		0	0	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.84	0.44	0.37	0.92	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 58.2	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 23.7	Intersection LOS: C
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



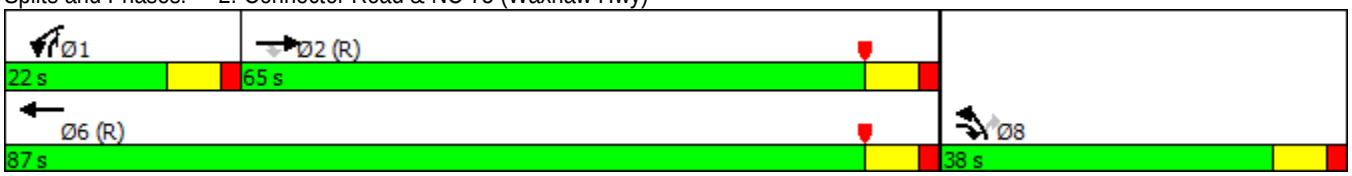
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	445	271	89	245	175	132
Future Volume (vph)	445	271	89	245	175	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1553	1787	1863	1591	1576
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1553	1787	1863	1591	1576
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			515	1240	
Travel Time (s)	71.6			7.8	28.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	3%	14%	3%
Adj. Flow (vph)	494	301	99	272	194	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	494	301	99	272	194	147
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	19.0	14.3	14.4	19.0	14.3	14.4
Total Split (s)	65.0	38.0	22.0	87.0	38.0	22.0
Total Split (%)	52.0%	30.4%	17.6%	69.6%	30.4%	17.6%
Maximum Green (s)	58.0	31.0	15.0	80.0	31.0	15.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	74.1	101.7	13.3	92.4	22.6	40.9
Actuated g/C Ratio	0.59	0.81	0.11	0.74	0.18	0.33
v/c Ratio	0.45	0.24	0.52	0.20	0.68	0.29
Control Delay	17.7	3.5	62.1	6.2	42.2	21.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	3.5	62.1	6.2	42.2	21.2
LOS	B	A	E	A	D	C
Approach Delay	12.3			21.1	33.2	
Approach LOS	B			C	C	
Queue Length 50th (ft)	208	44	77	59	140	74
Queue Length 95th (ft)	378	85	130	116	229	m129
Internal Link Dist (ft)	4643			435	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	1104	1392	245	1376	420	564
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.22	0.40	0.20	0.46	0.26

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 80 (64%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 19.2 Intersection LOS: B
Intersection Capacity Utilization 51.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)



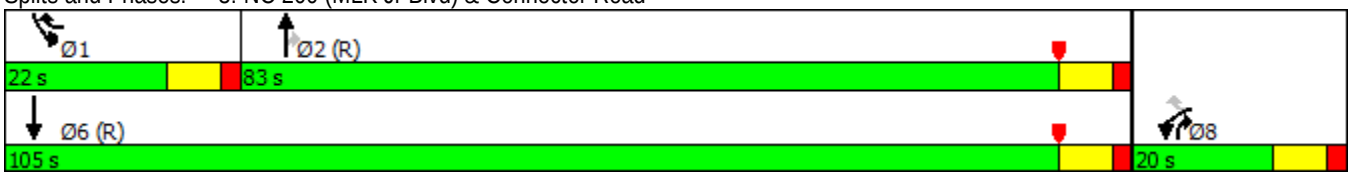
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	264	906	178	129	452
Future Volume (vph)	97	264	906	178	129	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1537	1853	1530	1543	1792
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1537	1853	1530	1543	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		1000			1401
Travel Time (s)	28.2		15.2			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	5%	17%	6%
Adj. Flow (vph)	108	293	1007	198	143	502
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	293	1007	198	143	502
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	19.6	14.3	19.0	19.6	14.3	19.0
Total Split (s)	20.0	22.0	83.0	20.0	22.0	105.0
Total Split (%)	16.0%	17.6%	66.4%	16.0%	17.6%	84.0%
Maximum Green (s)	13.0	15.0	76.0	13.0	15.0	98.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	13.0	33.6	81.4	99.4	15.6	102.0
Actuated g/C Ratio	0.10	0.27	0.65	0.80	0.12	0.82
v/c Ratio	0.59	0.71	0.83	0.16	0.74	0.34
Control Delay	58.6	43.2	25.6	3.6	75.4	3.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	43.2	25.6	3.6	75.4	3.8
LOS	E	D	C	A	E	A
Approach Delay	47.3		22.0			19.7
Approach LOS	D		C			B
Queue Length 50th (ft)	74	220	632	35	110	87
Queue Length 95th (ft)	127	264	#883	52	#200	128
Internal Link Dist (ft)	1160		920			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	210	433	1206	1240	212	1462
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.68	0.83	0.16	0.67	0.34

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 25.8 Intersection LOS: C
Intersection Capacity Utilization 73.2% 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: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	3	0	0	2	5	1	0	13	4
Future Volume (vph)	4	0	1	3	0	0	2	5	1	0	13	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973						0.985			0.970	
Flt Protected		0.962			0.950			0.989				
Satd. Flow (prot)	0	1744	0	0	1770	0	0	1815	0	0	1691	0
Flt Permitted		0.962			0.950			0.989				
Satd. Flow (perm)	0	1744	0	0	1770	0	0	1815	0	0	1691	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			379			528			656	
Travel Time (s)		8.6			10.3			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	11%	2%
Adj. Flow (vph)	4	0	1	3	0	0	2	6	1	0	14	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	3	0	0	9	0	0	18	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	3	0	0	2	5	1	0	13	4
Future Volume (Veh/h)	4	0	1	3	0	0	2	5	1	0	13	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	0	1	3	0	0	2	6	1	0	14	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	26	27	16	28	28	6	18			7		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	26	27	16	28	28	6	18			7		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	983	865	1063	980	863	1076	1599			1614		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	3	9	18
Volume Left	4	3	2	0
Volume Right	1	0	1	4
cSH	998	980	1599	1614
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.6	8.7	1.6	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	8.7	1.6	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	2	4	0	3	1
Future Volume (vph)	0	2	4	0	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.966	
Flt Protected				0.950	0.964	
Satd. Flow (prot)	1611	0	0	1770	1735	0
Flt Permitted				0.950	0.964	
Satd. Flow (perm)	1611	0	0	1770	1735	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			345	656	
Travel Time (s)	6.6			9.4	17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2	4	0	3	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	4	4	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	4	0	3	1
Future Volume (Veh/h)	0	2	4	0	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2	4	0	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2		9	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2		9	1
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1620		1009	1084

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	2	4	4
Volume Left	0	4	3
Volume Right	2	0	1
cSH	1700	1620	1027
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	7.2	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.5
Approach LOS			A

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	0	2	4	0	5
Future Volume (vph)	8	0	2	4	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.910			
Flt Protected	0.950					
Satd. Flow (prot)	1399	0	1290	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1399	0	1290	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			772
Travel Time (s)	10.5		32.1			21.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	29%	2%	2%	50%	2%	2%
Adj. Flow (vph)	9	0	2	4	0	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	6	0	0	6
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	0	2	4	0	5
Future Volume (Veh/h)	8	0	2	4	0	5
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	0	2	4	0	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	10	4			6	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	10	4			6	
tC, single (s)	6.7	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	944	1080			1615	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	6	6
Volume Left	9	0	0
Volume Right	0	4	0
cSH	944	1700	1615
Volume to Capacity	0.01	0.00	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	569	8	37	334	0	90
Future Volume (vph)	569	8	37	334	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					0.865
Flt Protected				0.995		
Satd. Flow (prot)	1887	0	0	1872	0	1611
Flt Permitted				0.995		
Satd. Flow (perm)	1887	0	0	1872	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	515			1215	1200	
Travel Time (s)	7.8			18.4	32.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	632	9	41	371	0	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	641	0	0	412	0	100
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 51.8%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	569	8	37	334	0	90
Future Volume (Veh/h)	569	8	37	334	0	90
Sign Control	Free			Free	Stop	
Grade	-3%			-2%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	632	9	41	371	0	100
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	515			1215		
pX, platoon unblocked			0.85		0.91	0.85
vC, conflicting volume			641		1090	636
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			487		757	482
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	80
cM capacity (veh/h)			912		325	496

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	641	412	100
Volume Left	0	41	0
Volume Right	9	0	100
cSH	1700	912	496
Volume to Capacity	0.38	0.04	0.20
Queue Length 95th (ft)	0	4	19
Control Delay (s)	0.0	1.4	14.1
Lane LOS		A	B
Approach Delay (s)	0.0	1.4	14.1
Approach LOS			B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	1	5	10	0	90	2	943	4	29	499	21
Future Volume (vph)	51	1	5	10	0	90	2	943	4	29	499	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.878			0.999			0.995	
Flt Protected		0.957			0.995						0.997	
Satd. Flow (prot)	0	1759	0	0	1627	0	0	1852	0	0	1848	0
Flt Permitted		0.957			0.995						0.997	
Satd. Flow (perm)	0	1759	0	0	1627	0	0	1852	0	0	1848	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	1	6	11	0	100	2	1048	4	32	554	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	111	0	0	1054	0	0	609	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 67.0%	ICU Level of Service C
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	1	5	10	0	90	2	943	4	29	499	21
Future Volume (Veh/h)	51	1	5	10	0	90	2	943	4	29	499	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	57	1	6	11	0	100	2	1048	4	32	554	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.93	0.93	0.93	0.93	0.93		0.93					
vC, conflicting volume	1784	1686	566	1690	1695	1050	577			1052		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1804	1699	498	1704	1709	1050	511			1052		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	99	83	100	64	100			95		
cM capacity (veh/h)	35	82	534	64	80	276	984			662		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	64	111	1054	609
Volume Left	57	11	2	32
Volume Right	6	100	4	23
cSH	39	207	984	662
Volume to Capacity	1.65	0.54	0.00	0.05
Queue Length 95th (ft)	168	70	0	4
Control Delay (s)	542.1	40.8	0.1	1.3
Lane LOS	F	E	A	A
Approach Delay (s)	542.1	40.8	0.1	1.3
Approach LOS	F	E		

Intersection Summary			
Average Delay	21.8		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

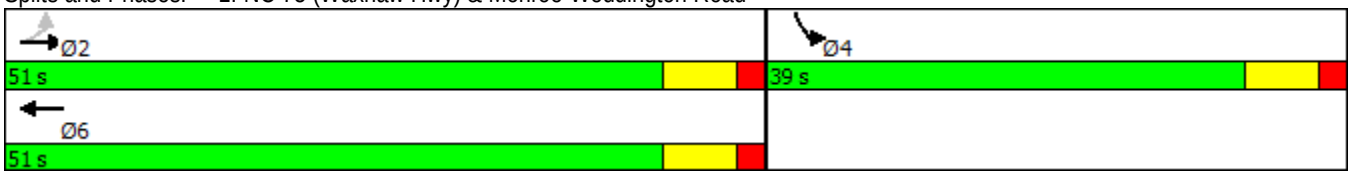
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	40	456	654	448	463	57
Future Volume (vph)	40	456	654	448	463	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	0
Storage Lanes	0			1	1	0
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.985	
Flt Protected		0.996			0.957	
Satd. Flow (prot)	0	1883	1844	1552	1765	0
Flt Permitted		0.653			0.957	
Satd. Flow (perm)	0	1235	1844	1552	1765	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	44	507	727	498	514	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	551	727	498	577	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	51.0	51.0	51.0		39.0	
Total Split (%)	56.7%	56.7%	56.7%		43.3%	
Maximum Green (s)	44.0	44.0	44.0		32.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)		-2.0	-2.0		-2.0	
Total Lost Time (s)		5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)		38.9	38.9	79.5	30.2	
Actuated g/C Ratio		0.49	0.49	1.00	0.38	
v/c Ratio		0.91	0.81	0.32	0.86	
Control Delay		41.2	25.7	0.5	39.3	
Queue Delay		0.0	0.0	0.0	0.0	
Total Delay		41.2	25.7	0.5	39.3	
LOS		D	C	A	D	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		41.2	15.5		39.3	
Approach LOS		D	B		D	
Queue Length 50th (ft)		263	317	0	296	
Queue Length 95th (ft)		#479	471	0	#491	
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)				100		
Base Capacity (vph)		745	1112	1552	787	
Starvation Cap Reductn		0	0	0	0	
Spillback Cap Reductn		0	0	0	0	
Storage Cap Reductn		0	0	0	0	
Reduced v/c Ratio		0.74	0.65	0.32	0.73	

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 79.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 27.3	Intersection LOS: C
Intersection Capacity Utilization 94.6%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	352	172	113	472	240	84
Future Volume (vph)	352	172	113	472	240	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-2%	-1%	
Storage Length (ft)		400	350		200	0
Storage Lanes		1	1		1	1
Taper Length (ft)			200		125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1863	1583	1753	1881	1778	1591
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1863	1583	1753	1881	1778	1591
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (mph)	45			45	30	
Link Distance (ft)	4723			515	1240	
Travel Time (s)	71.6			7.8	28.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	2%	2%	2%
Adj. Flow (vph)	391	191	126	524	267	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	191	126	524	267	93
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	12.0	7.0	7.0	12.0	7.0	7.0
Minimum Split (s)	19.0	14.3	14.4	19.0	14.3	14.4
Total Split (s)	55.0	43.0	27.0	82.0	43.0	27.0
Total Split (%)	44.0%	34.4%	21.6%	65.6%	34.4%	21.6%
Maximum Green (s)	48.0	36.0	20.0	75.0	36.0	20.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	6.0	2.0	2.0	6.0	2.0	2.0
Minimum Gap (s)	3.0	2.0	2.0	3.0	2.0	2.0
Time Before Reduce (s)	15.0	0.0	0.0	15.0	0.0	0.0
Time To Reduce (s)	30.0	0.0	0.0	30.0	0.0	0.0
Recall Mode	C-Min	None	None	C-Min	None	None
Act Effct Green (s)	68.8	99.7	15.3	89.1	25.9	46.2
Actuated g/C Ratio	0.55	0.80	0.12	0.71	0.21	0.37
v/c Ratio	0.38	0.15	0.59	0.39	0.73	0.16
Control Delay	19.5	3.6	62.4	9.0	35.6	9.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	3.6	62.4	9.0	35.6	9.9
LOS	B	A	E	A	D	A
Approach Delay	14.3			19.4	28.9	
Approach LOS	B			B	C	
Queue Length 50th (ft)	174	29	98	152	179	17
Queue Length 95th (ft)	312	59	157	267	120	25
Internal Link Dist (ft)	4643			435	1160	
Turn Bay Length (ft)		400	350		200	
Base Capacity (vph)	1024	1413	308	1340	540	673
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.14	0.41	0.39	0.49	0.14

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 83 (66%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 50.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Connector Road & NC 75 (Waxhaw Hwy)

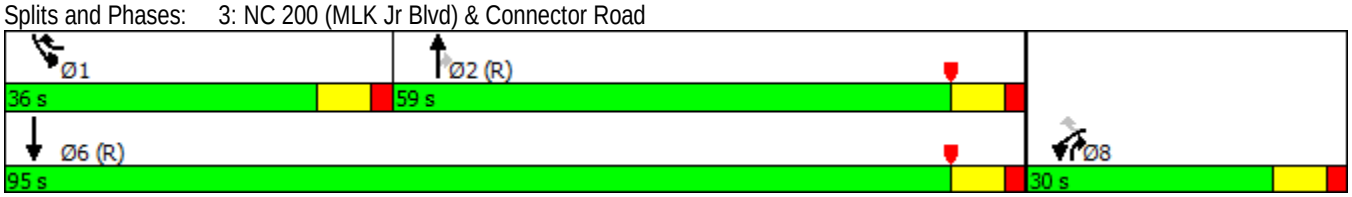
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	149	135	405	121	203	738
Future Volume (vph)	149	135	405	121	203	738
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1552	1835	1575	1770	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1552	1835	1575	1770	1845
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		1000			1401
Travel Time (s)	28.2		15.2			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	3%	2%	2%	3%
Adj. Flow (vph)	166	150	450	134	226	820
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	150	450	134	226	820
Turn Type	Prot	pm+ov	NA	pm+ov	Prot	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	14.6	14.3	19.0	14.6	14.3	19.0
Total Split (s)	30.0	36.0	59.0	30.0	36.0	95.0
Total Split (%)	24.0%	28.8%	47.2%	24.0%	28.8%	76.0%
Maximum Green (s)	23.0	29.0	52.0	23.0	29.0	88.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	18.2	45.5	69.5	92.7	22.3	96.8
Actuated g/C Ratio	0.15	0.36	0.56	0.74	0.18	0.77
v/c Ratio	0.65	0.27	0.44	0.11	0.72	0.57
Control Delay	47.7	19.7	20.1	5.6	60.7	8.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	19.7	20.1	5.6	60.7	8.3
LOS	D	B	C	A	E	A
Approach Delay	34.4		16.7			19.6
Approach LOS	C		B			B
Queue Length 50th (ft)	121	92	205	27	174	228
Queue Length 95th (ft)	196	96	364	57	246	401
Internal Link Dist (ft)	1160		920			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	350	672	1021	1254	438	1429
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.22	0.44	0.11	0.52	0.57

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 28 (22%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 21.1 Intersection LOS: C
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: NC 200 (MLK Jr Blvd) & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	1	3	0	0	3	13	3	0	6	4
Future Volume (vph)	4	0	1	3	0	0	3	13	3	0	6	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.973						0.980			0.951	
Flt Protected		0.962			0.950			0.993				
Satd. Flow (prot)	0	1744	0	0	1770	0	0	1813	0	0	1771	0
Flt Permitted		0.962			0.950			0.993				
Satd. Flow (perm)	0	1744	0	0	1770	0	0	1813	0	0	1771	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		315			379			528			656	
Travel Time (s)		8.6			10.3			14.4			17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	0	1	3	0	0	3	14	3	0	7	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	0	3	0	0	20	0	0	11	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	3	0	0	3	13	3	0	6	4
Future Volume (Veh/h)	4	0	1	3	0	0	3	13	3	0	6	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	0	1	3	0	0	3	14	3	0	7	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	30	32	9	32	32	16	11			17		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30	32	9	32	32	16	11			17		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	976	859	1073	974	859	1064	1608			1600		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	3	20	11
Volume Left	4	3	3	0
Volume Right	1	0	3	4
cSH	994	974	1608	1600
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.6	8.7	1.1	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.6	8.7	1.1	0.0
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	6	2	0	3	4
Future Volume (vph)	0	6	2	0	3	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.923	
Flt Protected				0.950	0.979	
Satd. Flow (prot)	1611	0	0	1770	1683	0
Flt Permitted				0.950	0.979	
Satd. Flow (perm)	1611	0	0	1770	1683	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	241			345	656	
Travel Time (s)	6.6			9.4	17.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	7	2	0	3	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	2	7	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	2	0	3	4
Future Volume (Veh/h)	0	6	2	0	3	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	7	2	0	3	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			7		8	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			7		8	4
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1614		1012	1080

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	7	2	7
Volume Left	0	2	3
Volume Right	7	0	4
cSH	1700	1614	1050
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	7.2	8.5
Lane LOS		A	A
Approach Delay (s)	0.0	7.2	8.5
Approach LOS			A

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	0	6	11	0	4
Future Volume (vph)	6	0	6	11	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.915			
Flt Protected	0.950					
Satd. Flow (prot)	1504	0	1624	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1504	0	1624	0	0	1863
Link Speed (mph)	25		25			25
Link Distance (ft)	384		1176			772
Travel Time (s)	10.5		32.1			21.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	20%	2%	2%	10%	2%	2%
Adj. Flow (vph)	7	0	7	12	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	19	0	0	4
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	0	6	11	0	4
Future Volume (Veh/h)	6	0	6	11	0	4
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	0	7	12	0	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	17	13			19	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17	13			19	
tC, single (s)	6.6	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.7	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	957	1067			1597	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	7	19	4
Volume Left	7	0	0
Volume Right	0	12	0
cSH	957	1700	1597
Volume to Capacity	0.01	0.01	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	408	28	127	585	0	89
Future Volume (vph)	408	28	127	585	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991					0.865
Flt Protected				0.991		
Satd. Flow (prot)	1874	0	0	1864	0	1611
Flt Permitted				0.991		
Satd. Flow (perm)	1874	0	0	1864	0	1611
Link Speed (mph)	45			45	25	
Link Distance (ft)	515			1215	1200	
Travel Time (s)	7.8			18.4	32.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	453	31	141	650	0	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	484	0	0	791	0	99
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 67.6%	ICU Level of Service C
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	408	28	127	585	0	89
Future Volume (Veh/h)	408	28	127	585	0	89
Sign Control	Free			Free	Stop	
Grade	-3%			-2%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	453	31	141	650	0	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	515			1215		
pX, platoon unblocked			0.88		0.69	0.88
vC, conflicting volume			484		1400	468
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			343		955	325
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		100	84
cM capacity (veh/h)			1068		171	629

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	484	791	99
Volume Left	0	141	0
Volume Right	31	0	99
cSH	1700	1068	629
Volume to Capacity	0.28	0.13	0.16
Queue Length 95th (ft)	0	11	14
Control Delay (s)	0.0	3.1	11.8
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	11.8
Approach LOS			B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	4	17	4	88	6	396	18	97	728	63
Future Volume (vph)	42	0	4	17	4	88	6	396	18	97	728	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.891			0.994			0.990	
Flt Protected		0.956			0.992			0.999			0.995	
Satd. Flow (prot)	0	1761	0	0	1646	0	0	1840	0	0	1835	0
Flt Permitted		0.956			0.992			0.999			0.995	
Satd. Flow (perm)	0	1761	0	0	1646	0	0	1840	0	0	1835	0
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	0	4	19	4	98	7	440	20	108	809	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	121	0	0	467	0	0	987	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 89.0%	ICU Level of Service E
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	0	4	17	4	88	6	396	18	97	728	63
Future Volume (Veh/h)	42	0	4	17	4	88	6	396	18	97	728	63
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	47	0	4	19	4	98	7	440	20	108	809	70
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.78	0.78	0.78	0.78	0.78		0.78					
vC, conflicting volume	1624	1534	844	1528	1559	450	879			460		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1658	1543	662	1536	1575	450	707			460		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	99	72	95	84	99			90		
cM capacity (veh/h)	45	80	361	67	77	609	698			1101		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	51	121	467	987
Volume Left	47	19	7	108
Volume Right	4	98	20	70
cSH	48	244	698	1101
Volume to Capacity	1.05	0.49	0.01	0.10
Queue Length 95th (ft)	113	63	1	8
Control Delay (s)	279.4	33.3	0.3	2.5
Lane LOS	F	D	A	A
Approach Delay (s)	279.4	33.3	0.3	2.5
Approach LOS	F	D		

Intersection Summary			
Average Delay	12.8		
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

2022 Build-out Conditions
Improved
with a Left-Over at Access #1

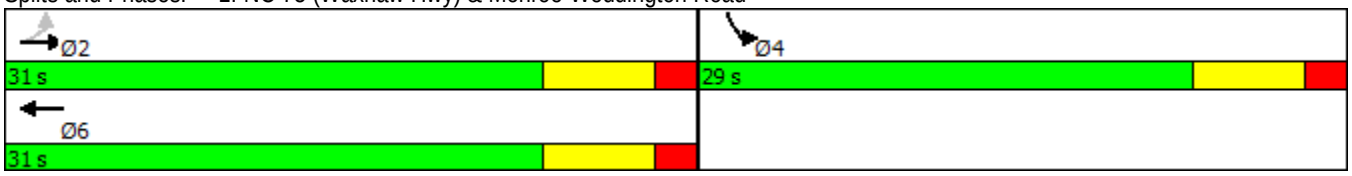
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	618	346	516	515	26
Future Volume (vph)	41	618	346	516	515	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	100			100	0	0
Storage Lanes	1			1	1	0
Taper Length (ft)	100				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.993	
Flt Protected	0.950				0.955	
Satd. Flow (prot)	1796	1891	1809	1552	1731	0
Flt Permitted	0.448				0.955	
Satd. Flow (perm)	847	1891	1809	1552	1731	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	3%	4%	17%
Adj. Flow (vph)	46	687	384	573	572	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	687	384	573	601	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	31.0	31.0	31.0		29.0	
Total Split (%)	51.7%	51.7%	51.7%		48.3%	
Maximum Green (s)	24.0	24.0	24.0		22.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)	23.7	23.7	23.7	56.5	22.6	
Actuated g/C Ratio	0.42	0.42	0.42	1.00	0.40	
v/c Ratio	0.13	0.87	0.51	0.37	0.87	
Control Delay	11.4	29.2	15.1	0.7	32.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.4	29.2	15.1	0.7	32.3	
LOS	B	C	B	A	C	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		28.1	6.5		32.3	
Approach LOS		C	A		C	
Queue Length 50th (ft)	10	210	95	0	192	
Queue Length 95th (ft)	27	#396	162	0	#370	
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)	100			100		
Base Capacity (vph)	396	884	845	1552	747	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.78	0.45	0.37	0.80	

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 56.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	1	5	10	0	90	2	943	4	29	499	21
Future Volume (vph)	51	1	5	10	0	90	2	943	4	29	499	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Storage Length (ft)	0		0	0		100	0		0	100		100
Storage Lanes	0		0	0		1	0		0	1		1
Taper Length (ft)	0			0			0			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		0.987				0.850		0.999				0.850
Flt Protected		0.957			0.950					0.950		
Satd. Flow (prot)	0	1759	0	0	1770	1583	0	1852	0	1770	1863	1583
Flt Permitted		0.957			0.950					0.950		
Satd. Flow (perm)	0	1759	0	0	1770	1583	0	1852	0	1770	1863	1583
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	1	6	11	0	100	2	1048	4	32	554	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	11	100	0	1054	0	32	554	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	1	5	10	0	90	2	943	4	29	499	21
Future Volume (Veh/h)	51	1	5	10	0	90	2	943	4	29	499	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	57	1	6	11	0	100	2	1048	4	32	554	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	1722	1674	554	1678	1695	1050	577			1052		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1733	1683	505	1688	1705	1050	530			1052		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	99	83	100	64	100			95		
cM capacity (veh/h)	40	85	539	67	83	276	987			662		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2	SB 3
Volume Total	64	111	1054	32	554	23
Volume Left	57	11	2	32	0	0
Volume Right	6	100	4	0	0	23
cSH	44	306	987	662	1700	1700
Volume to Capacity	1.44	0.36	0.00	0.05	0.33	0.01
Queue Length 95th (ft)	157	40	0	4	0	0
Control Delay (s)	435.4	29.7	0.1	10.7	0.0	0.0
Lane LOS	F	D	A	B		
Approach Delay (s)	435.4	29.7	0.1	0.6		
Approach LOS	F	D				

Intersection Summary				
Average Delay	17.2			
Intersection Capacity Utilization	68.9%	ICU Level of Service	C	
Analysis Period (min)	15			

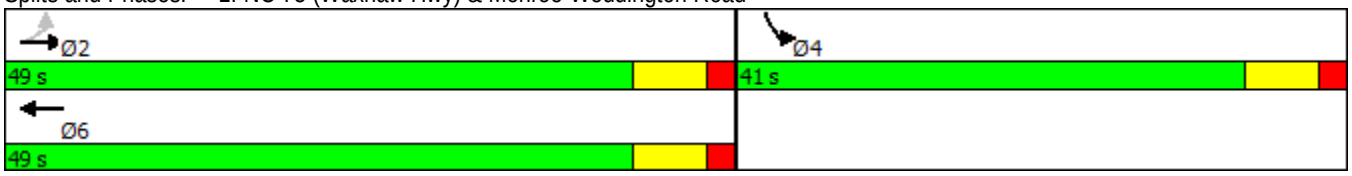
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	40	456	654	448	463	57
Future Volume (vph)	40	456	654	448	463	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	100			100	0	100
Storage Lanes	1			1	1	0
Taper Length (ft)	100				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850	0.985	
Flt Protected	0.950				0.957	
Satd. Flow (prot)	1796	1891	1844	1552	1765	0
Flt Permitted	0.149				0.957	
Satd. Flow (perm)	282	1891	1844	1552	1765	0
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	44	507	727	498	514	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	507	727	498	577	0
Turn Type	Perm	NA	NA	Free	Prot	
Protected Phases		2	6		4	
Permitted Phases	2			Free		
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	
Minimum Split (s)	19.0	19.0	19.0		14.0	
Total Split (s)	49.0	49.0	49.0		41.0	
Total Split (%)	54.4%	54.4%	54.4%		45.6%	
Maximum Green (s)	42.0	42.0	42.0		34.0	
Yellow Time (s)	5.0	5.0	5.0		5.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		-2.0	
Total Lost Time (s)	5.0	5.0	5.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Recall Mode	Min	Min	Min		None	
Act Effct Green (s)	36.1	36.1	36.1	76.9	30.3	
Actuated g/C Ratio	0.47	0.47	0.47	1.00	0.39	
v/c Ratio	0.33	0.57	0.84	0.32	0.83	
Control Delay	22.5	18.3	29.0	0.5	34.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	22.5	18.3	29.0	0.5	34.3	
LOS	C	B	C	A	C	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		18.7	17.4		34.3	
Approach LOS		B	B		C	
Queue Length 50th (ft)	14	186	322	0	268	
Queue Length 95th (ft)	44	287	#502	0	#467	
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)	100			100		
Base Capacity (vph)	169	1138	1110	1552	869	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.26	0.45	0.65	0.32	0.66	

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 76.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 21.9	Intersection LOS: C
Intersection Capacity Utilization 71.9%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	4	17	4	88	6	396	18	97	728	63
Future Volume (vph)	42	0	4	17	4	88	6	396	18	97	728	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Storage Length (ft)	0		0	0		100	0		0	100		100
Storage Lanes	0		0	0		1	0		0	1		1
Taper Length (ft)	0			0			0			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		0.989				0.850		0.994				0.850
Flt Protected		0.956			0.960			0.999		0.950		
Satd. Flow (prot)	0	1761	0	0	1788	1583	0	1840	0	1770	1863	1583
Flt Permitted		0.956			0.960			0.999		0.950		
Satd. Flow (perm)	0	1761	0	0	1788	1583	0	1840	0	1770	1863	1583
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	0	4	19	4	98	7	440	20	108	809	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	23	98	0	467	0	108	809	70
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	0	4	17	4	88	6	396	18	97	728	63
Future Volume (Veh/h)	42	0	4	17	4	88	6	396	18	97	728	63
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	47	0	4	19	4	98	7	440	20	108	809	70
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	1540	1499	809	1493	1559	450	879			460		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1548	1499	663	1492	1571	450	748			460		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	17	100	99	75	95	84	99			90		
cM capacity (veh/h)	57	90	381	76	81	609	711			1101		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2	SB 3
Volume Total	51	121	467	108	809	70
Volume Left	47	19	7	108	0	0
Volume Right	4	98	20	0	0	70
cSH	61	406	711	1101	1700	1700
Volume to Capacity	0.84	0.30	0.01	0.10	0.48	0.04
Queue Length 95th (ft)	95	31	1	8	0	0
Control Delay (s)	180.9	23.1	0.3	8.6	0.0	0.0
Lane LOS	F	C	A	A		
Approach Delay (s)	180.9	23.1	0.3	0.9		
Approach LOS	F	C				

Intersection Summary				
Average Delay	8.0			
Intersection Capacity Utilization	79.8%	ICU Level of Service	D	
Analysis Period (min)	15			

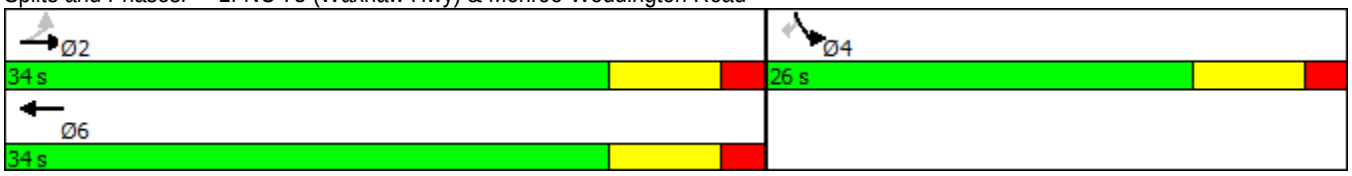
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	618	346	516	515	26
Future Volume (vph)	41	618	346	516	515	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	100
Storage Lanes	0			1	1	1
Taper Length (ft)	100				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.997			0.950	
Satd. Flow (prot)	0	1885	1809	1552	1744	1387
Flt Permitted		0.955			0.950	
Satd. Flow (perm)	0	1806	1809	1552	1744	1387
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	4%	3%	4%	17%
Adj. Flow (vph)	46	687	384	573	572	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	733	384	573	572	29
Turn Type	Perm	NA	NA	Free	Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2			Free		4
Detector Phase	2	2	6		4	4
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	7.0
Minimum Split (s)	19.0	19.0	19.0		14.0	14.0
Total Split (s)	34.0	34.0	34.0		26.0	26.0
Total Split (%)	56.7%	56.7%	56.7%		43.3%	43.3%
Maximum Green (s)	27.0	27.0	27.0		19.0	19.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Recall Mode	Min	Min	Min		None	None
Act Effct Green (s)		26.3	26.3	57.1	20.7	20.7
Actuated g/C Ratio		0.46	0.46	1.00	0.36	0.36
v/c Ratio		0.88	0.46	0.37	0.91	0.06
Control Delay		28.5	12.6	0.7	40.4	13.4
Queue Delay		0.0	0.0	0.0	0.0	0.0
Total Delay		28.5	12.6	0.7	40.4	13.4
LOS		C	B	A	D	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		28.5	5.4		39.1	
Approach LOS		C	A		D	
Queue Length 50th (ft)		215	85	0	195	7
Queue Length 95th (ft)		#415	145	0	#377	22
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)				100		100
Base Capacity (vph)		923	925	1552	646	513
Starvation Cap Reductn		0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.79	0.42	0.37	0.89	0.06

Intersection Summary	
Area Type: Other	
Cycle Length: 60	
Actuated Cycle Length: 57.1	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 94.0%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



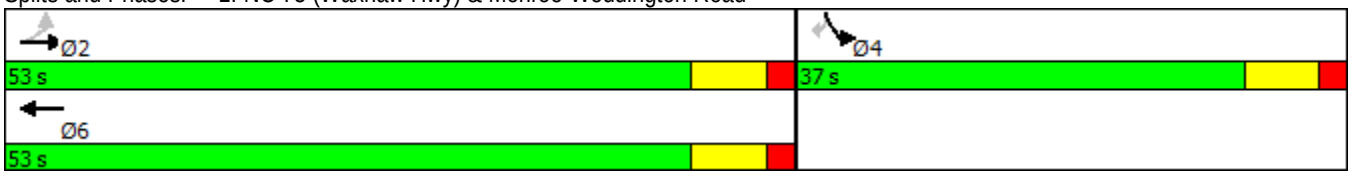
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	40	456	654	448	463	57
Future Volume (vph)	40	456	654	448	463	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-3%	2%		-1%	
Storage Length (ft)	0			100	0	100
Storage Lanes	0			1	1	1
Taper Length (ft)	100				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.996			0.950	
Satd. Flow (prot)	0	1883	1844	1552	1778	1591
Flt Permitted		0.678			0.950	
Satd. Flow (perm)	0	1282	1844	1552	1778	1591
Right Turn on Red				No		No
Satd. Flow (RTOR)						
Link Speed (mph)		45	45		55	
Link Distance (ft)		1215	2716		3842	
Travel Time (s)		18.4	41.2		47.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	44	507	727	498	514	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	551	727	498	514	63
Turn Type	Perm	NA	NA	Free	Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2			Free		4
Detector Phase	2	2	6		4	4
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0		7.0	7.0
Minimum Split (s)	19.0	19.0	19.0		14.0	14.0
Total Split (s)	53.0	53.0	53.0		37.0	37.0
Total Split (%)	58.9%	58.9%	58.9%		41.1%	41.1%
Maximum Green (s)	46.0	46.0	46.0		30.0	30.0
Yellow Time (s)	5.0	5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-2.0	-2.0		-2.0	0.0
Total Lost Time (s)		5.0	5.0		5.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Recall Mode	Min	Min	Min		None	None
Act Effct Green (s)		35.6	35.6	72.6	26.3	24.2
Actuated g/C Ratio		0.49	0.49	1.00	0.36	0.33
v/c Ratio		0.88	0.80	0.32	0.80	0.12
Control Delay		34.0	23.8	0.5	33.6	20.0
Queue Delay		0.0	0.0	0.0	0.0	0.0
Total Delay		34.0	23.8	0.5	33.6	20.0
LOS		C	C	A	C	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		34.0	14.4		32.1	
Approach LOS		C	B		C	
Queue Length 50th (ft)		221	275	0	209	20
Queue Length 95th (ft)		#447	447	0	#429	54
Internal Link Dist (ft)		1135	2636		3762	
Turn Bay Length (ft)				100		100
Base Capacity (vph)		891	1282	1552	834	699
Starvation Cap Reductn		0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0
Reduced v/c Ratio		0.62	0.57	0.32	0.62	0.09

Intersection Summary	
Area Type: Other	
Cycle Length: 90	
Actuated Cycle Length: 72.6	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 23.3	Intersection LOS: C
Intersection Capacity Utilization 91.1%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road



2022 Build-out Conditions
Improved
with a RIRO at Access #1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	1	5	10	0	90	2	943	4	66	499	21
Future Volume (vph)	51	1	5	10	0	90	2	943	4	66	499	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Storage Length (ft)	0		0	0		100	0		0	100		100
Storage Lanes	0		0	0		1	0		0	1		1
Taper Length (ft)	0			0			0			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		0.987				0.850		0.999				0.850
Flt Protected		0.957			0.950					0.950		
Satd. Flow (prot)	0	1759	0	0	1770	1583	0	1852	0	1770	1863	1583
Flt Permitted		0.957			0.950					0.950		
Satd. Flow (perm)	0	1759	0	0	1770	1583	0	1852	0	1770	1863	1583
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	57	1	6	11	0	100	2	1048	4	73	554	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	11	100	0	1054	0	73	554	23
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 69.7%	ICU Level of Service C
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	1	5	10	0	90	2	943	4	66	499	21
Future Volume (Veh/h)	51	1	5	10	0	90	2	943	4	66	499	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	57	1	6	11	0	100	2	1048	4	73	554	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	1804	1756	554	1760	1777	1050	577			1052		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1821	1770	501	1775	1792	1050	526			1052		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	99	99	80	100	64	100			89		
cM capacity (veh/h)	33	70	540	55	68	276	986			662		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2	SB 3
Volume Total	64	111	1054	73	554	23
Volume Left	57	11	2	73	0	0
Volume Right	6	100	4	0	0	23
cSH	37	306	986	662	1700	1700
Volume to Capacity	1.75	0.36	0.00	0.11	0.33	0.01
Queue Length 95th (ft)	173	40	0	9	0	0
Control Delay (s)	599.1	31.4	0.1	11.1	0.0	0.0
Lane LOS	F	D	A	B		
Approach Delay (s)	599.1	31.4	0.1	1.2		
Approach LOS	F	D				

Intersection Summary				
Average Delay	22.7			
Intersection Capacity Utilization	69.7%	ICU Level of Service	C	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	0	4	17	4	88	6	396	18	224	728	63
Future Volume (vph)	42	0	4	17	4	88	6	396	18	224	728	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			0%	
Storage Length (ft)	0		0	0		100	0		0	100		100
Storage Lanes	0		0	0		1	0		0	1		1
Taper Length (ft)	0			0			0			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		0.989				0.850		0.994				0.850
Flt Protected		0.956			0.960			0.999		0.950		
Satd. Flow (prot)	0	1761	0	0	1788	1583	0	1840	0	1770	1863	1583
Flt Permitted		0.956			0.960			0.999		0.950		
Satd. Flow (perm)	0	1761	0	0	1788	1583	0	1840	0	1770	1863	1583
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		1121			1661			1456			1000	
Travel Time (s)		30.6			45.3			22.1			15.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	0	4	19	4	98	7	440	20	249	809	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	23	98	0	467	0	249	809	70
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	0	4	17	4	88	6	396	18	224	728	63
Future Volume (Veh/h)	42	0	4	17	4	88	6	396	18	224	728	63
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			1%			0%	
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
Hourly flow rate (vph)	47	0	4	19	4	98	7	440	20	249	809	70
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)						4						
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1000	
pX, platoon unblocked	0.79	0.79	0.79	0.79	0.79		0.79					
vC, conflicting volume	1822	1781	809	1775	1841	450	879			460		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1909	1857	623	1849	1933	450	712			460		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	99	48	90	84	99			77		
cM capacity (veh/h)	26	44	383	36	40	609	699			1101		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2	SB 3
Volume Total	51	121	467	249	809	70
Volume Left	47	19	7	249	0	0
Volume Right	4	98	20	0	0	70
cSH	28	195	699	1101	1700	1700
Volume to Capacity	1.82	0.62	0.01	0.23	0.48	0.04
Queue Length 95th (ft)	151	89	1	22	0	0
Control Delay (s)	690.4	48.2	0.3	9.2	0.0	0.0
Lane LOS	F	E	A	A		
Approach Delay (s)	690.4	48.2	0.3	2.0		
Approach LOS	F	E				

Intersection Summary			
Average Delay	24.6		
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

Supplemental Analysis

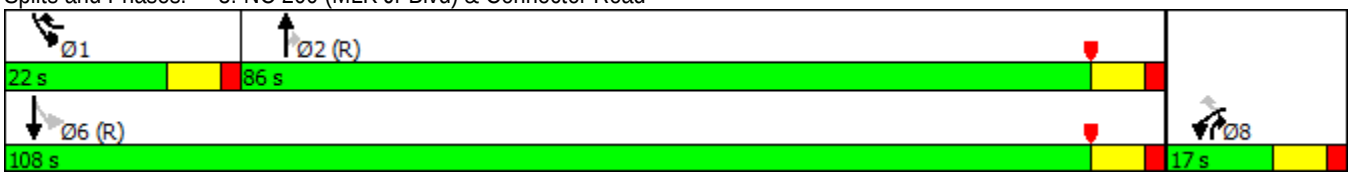
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	97	264	906	178	129	452
Future Volume (vph)	97	264	906	178	129	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1537	1853	1530	1543	1792
Flt Permitted	0.950				0.125	
Satd. Flow (perm)	1752	1537	1853	1530	203	1792
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		1000			1401
Travel Time (s)	28.2		15.2			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	5%	17%	6%
Adj. Flow (vph)	108	293	1007	198	143	502
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	293	1007	198	143	502
Turn Type	Prot	pm+ov	NA	pm+ov	pm+pt	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	6	
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	14.6	14.3	19.0	14.6	14.3	19.0
Total Split (s)	17.0	22.0	86.0	17.0	22.0	108.0
Total Split (%)	13.6%	17.6%	68.8%	13.6%	17.6%	86.4%
Maximum Green (s)	10.0	15.0	79.0	10.0	15.0	101.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	11.5	30.8	84.2	100.7	103.5	103.5
Actuated g/C Ratio	0.09	0.25	0.67	0.81	0.83	0.83
v/c Ratio	0.68	0.78	0.81	0.16	0.45	0.34
Control Delay	79.5	55.9	21.9	3.3	8.0	3.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	55.9	21.9	3.3	8.0	3.3
LOS	E	E	C	A	A	A
Approach Delay	62.2		18.9			4.3
Approach LOS	E		B			A
Queue Length 50th (ft)	75	219	560	31	18	78
Queue Length 95th (ft)	#152	274	817	52	44	108
Internal Link Dist (ft)	1160		920			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	168	411	1248	1239	350	1484
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.71	0.81	0.16	0.41	0.34

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 40 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 22.4 Intersection LOS: C
Intersection Capacity Utilization 73.2% 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: 3: NC 200 (MLK Jr Blvd) & Connector Road



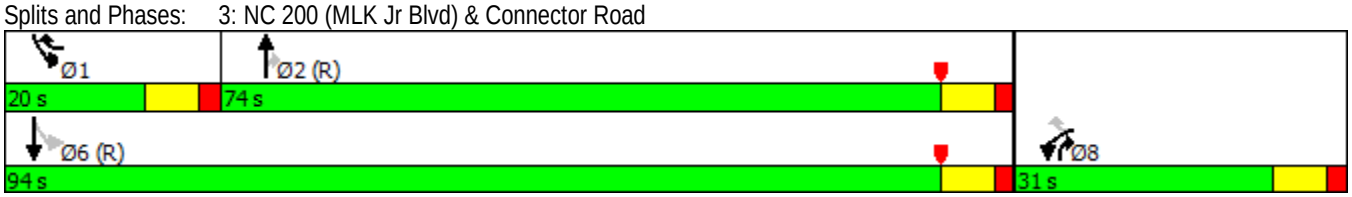
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	149	135	405	121	203	738
Future Volume (vph)	149	135	405	121	203	738
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%		1%			0%
Storage Length (ft)	175	0		425	350	
Storage Lanes	1	1		1	1	
Taper Length (ft)	125				150	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1552	1835	1575	1770	1845
Flt Permitted	0.950				0.416	
Satd. Flow (perm)	1752	1552	1835	1575	775	1845
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	30		45			45
Link Distance (ft)	1240		1000			1401
Travel Time (s)	28.2		15.2			21.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	3%	2%	2%	3%
Adj. Flow (vph)	166	150	450	134	226	820
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	150	450	134	226	820
Turn Type	Prot	pm+ov	NA	pm+ov	pm+pt	NA
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2	6	
Detector Phase	8	1	2	8	1	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	12.0	7.0	7.0	12.0
Minimum Split (s)	14.6	14.3	19.0	14.6	14.3	19.0
Total Split (s)	31.0	20.0	74.0	31.0	20.0	94.0
Total Split (%)	24.8%	16.0%	59.2%	24.8%	16.0%	75.2%
Maximum Green (s)	24.0	13.0	67.0	24.0	13.0	87.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lag		Lead	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)	2.0	2.0	6.0	2.0	2.0	6.0
Minimum Gap (s)	2.0	2.0	3.0	2.0	2.0	3.0
Time Before Reduce (s)	0.0	0.0	15.0	0.0	0.0	15.0
Time To Reduce (s)	0.0	0.0	30.0	0.0	0.0	30.0
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effct Green (s)	18.2	34.2	80.8	104.0	96.8	96.8
Actuated g/C Ratio	0.15	0.27	0.65	0.83	0.77	0.77
v/c Ratio	0.65	0.35	0.38	0.10	0.33	0.57
Control Delay	58.4	34.1	12.6	2.3	5.4	8.3

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	34.1	12.6	2.3	5.4	8.3
LOS	E	C	B	A	A	A
Approach Delay	46.9		10.2			7.7
Approach LOS	D		B			A
Queue Length 50th (ft)	119	90	157	15	40	228
Queue Length 95th (ft)	174	127	276	31	78	401
Internal Link Dist (ft)	1160		920			1321
Turn Bay Length (ft)	175			425	350	
Base Capacity (vph)	364	474	1185	1408	719	1428
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.32	0.38	0.10	0.31	0.57

Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 125
Offset: 28 (22%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 14.8 Intersection LOS: B
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: NC 200 (MLK Jr Blvd) & Connector Road



MOVEMENT SUMMARY

Site: 101 [AM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NC 200											
3	L2	2	2.0	1.043	60.3	LOS F	61.8	1570.0	1.00	1.18	15.5
8	T1	1048	2.0	1.043	60.3	LOS F	61.8	1570.0	1.00	1.18	15.3
18	R2	4	2.0	1.043	60.3	LOS F	61.8	1570.0	1.00	1.18	15.1
Approach		1054	2.0	1.043	60.3	LOS F	61.8	1570.0	1.00	1.18	15.3
East: Access #2											
1	L2	11	2.0	0.300	15.2	LOS C	1.0	26.3	0.73	0.77	22.1
6	T1	1	2.0	0.300	15.2	LOS C	1.0	26.3	0.73	0.77	21.8
16	R2	100	2.0	0.300	15.2	LOS C	1.0	26.3	0.73	0.77	21.3
Approach		112	2.0	0.300	15.2	LOS C	1.0	26.3	0.73	0.77	21.4
North: NC 200											
7	L2	32	2.0	0.559	10.2	LOS B	4.0	101.8	0.14	0.04	23.5
4	T1	554	2.0	0.559	10.2	LOS B	4.0	101.8	0.14	0.04	23.1
14	R2	23	2.0	0.559	10.2	LOS B	4.0	101.8	0.14	0.04	22.6
Approach		610	2.0	0.559	10.2	LOS B	4.0	101.8	0.14	0.04	23.1
West: Access #3											
5	L2	57	2.0	0.105	7.2	LOS A	0.4	8.9	0.53	0.52	23.2
2	T1	1	2.0	0.105	7.2	LOS A	0.4	8.9	0.53	0.52	22.9
12	R2	6	2.0	0.105	7.2	LOS A	0.4	8.9	0.53	0.52	22.4
Approach		63	2.0	0.105	7.2	LOS A	0.4	8.9	0.53	0.52	23.1
All Vehicles		1840	2.0	1.043	39.1	LOS E	61.8	1570.0	0.68	0.76	17.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: NC 200											
3	L2	7	2.0	0.462	9.3	LOS A	2.5	62.5	0.42	0.30	23.7
8	T1	410	2.0	0.462	9.3	LOS A	2.5	62.5	0.42	0.30	23.3
18	R2	20	2.0	0.462	9.3	LOS A	2.5	62.5	0.42	0.30	22.8
Approach		437	2.0	0.462	9.3	LOS A	2.5	62.5	0.42	0.30	23.3
East: Access #2											
1	L2	19	2.0	0.175	7.2	LOS A	0.6	15.9	0.50	0.48	23.9
6	T1	4	2.0	0.175	7.2	LOS A	0.6	15.9	0.50	0.48	23.5
16	R2	98	2.0	0.175	7.2	LOS A	0.6	15.9	0.50	0.48	23.0
Approach		121	2.0	0.175	7.2	LOS A	0.6	15.9	0.50	0.48	23.1
North: NC 200											
7	L2	108	2.0	0.918	31.1	LOS D	23.9	606.5	0.79	0.32	19.3
4	T1	809	2.0	0.918	31.1	LOS D	23.9	606.5	0.79	0.32	19.0
14	R2	70	2.0	0.918	31.1	LOS D	23.9	606.5	0.79	0.32	18.7
Approach		987	2.0	0.918	31.1	LOS D	23.9	606.5	0.79	0.32	19.0
West: Access #3											
5	L2	47	2.0	0.122	10.2	LOS B	0.4	9.9	0.64	0.64	22.5
2	T1	1	2.0	0.122	10.2	LOS B	0.4	9.9	0.64	0.64	22.2
12	R2	4	2.0	0.122	10.2	LOS B	0.4	9.9	0.64	0.64	21.7
Approach		52	2.0	0.122	10.2	LOS B	0.4	9.9	0.64	0.64	22.5
All Vehicles		1597	2.0	0.918	22.6	LOS C	23.9	606.5	0.66	0.33	20.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Queuing and Blocking Reports

2022 Build-out Conditions
Improved
with a Left-Over at Access #1

Intersection: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (ft)	52	470	194	168	390
Average Queue (ft)	16	207	88	24	207
95th Queue (ft)	43	381	157	102	348
Link Distance (ft)	1148	1148	2692		3789
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)			4	0	
Queuing Penalty (veh)			21	1	

Intersection: 2: Connector Road & NC 75 (Waxhaw Hwy)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	284	142	219	122	281	268
Average Queue (ft)	116	44	92	41	130	68
95th Queue (ft)	222	106	176	103	230	182
Link Distance (ft)	4691			465		1140
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		400	350		200	
Storage Blk Time (%)	0				2	0
Queuing Penalty (veh)	0				3	0

Intersection: 3: NC 200 (MLK Jr Blvd) & Connector Road

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	266	347	685	524	224	131
Average Queue (ft)	83	131	372	81	102	48
95th Queue (ft)	175	277	608	313	189	111
Link Distance (ft)		1140	918			1381
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	175			425	350	
Storage Blk Time (%)	0	8	7			
Queuing Penalty (veh)	1	8	13			

Intersection: 4: Sinclair Dr & Rainmaker Dr

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	25
Average Queue (ft)	4	2
95th Queue (ft)	21	15
Link Distance (ft)	285	351
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Sinclair Dr & Kevinshire Ct

Movement	NB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	3
95th Queue (ft)	17
Link Distance (ft)	600
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Stevens St/Access #4 & Sonny Ct

Movement	WB
Directions Served	LR
Maximum Queue (ft)	63
Average Queue (ft)	11
95th Queue (ft)	42
Link Distance (ft)	356
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Access #1 & NC 75 (Waxhaw Hwy)

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	63	96
Average Queue (ft)	18	38
95th Queue (ft)	49	69
Link Distance (ft)		1151
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	125	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: NC 200 (MLK Jr Blvd) & Access #3/Access #2

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	L
Maximum Queue (ft)	209	40	154	24	58
Average Queue (ft)	81	8	63	1	13
95th Queue (ft)	214	31	141	11	37
Link Distance (ft)	1075	1624	1624	1424	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					100
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 48

Intersection: 1: NC 75 (Waxhaw Hwy) & Monroe-Weddington Road

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (ft)	72	277	1144	200	334
Average Queue (ft)	24	128	430	127	201
95th Queue (ft)	55	244	1096	281	309
Link Distance (ft)	1148	1148	2692		3789
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				100	
Storage Blk Time (%)			30	0	
Queuing Penalty (veh)			137	2	

Intersection: 2: Connector Road & NC 75 (Waxhaw Hwy)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	294	98	284	347	297	308
Average Queue (ft)	120	28	120	123	135	28
95th Queue (ft)	237	74	238	285	259	136
Link Distance (ft)	4691			465		1140
Upstream Blk Time (%)				1		
Queuing Penalty (veh)				6		
Storage Bay Dist (ft)		400	350		200	
Storage Blk Time (%)			1	1	5	0
Queuing Penalty (veh)			4	2	4	0

Intersection: 3: NC 200 (MLK Jr Blvd) & Connector Road

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	227	238	305	91	280	261
Average Queue (ft)	96	41	131	27	154	101
95th Queue (ft)	189	155	244	71	249	214
Link Distance (ft)		1140	918			1381
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	175			425	350	
Storage Blk Time (%)	2	0				0
Queuing Penalty (veh)	3	1				0

Intersection: 4: Sinclair Dr & Rainmaker Dr

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	31	5
Average Queue (ft)	5	3	0
95th Queue (ft)	23	17	0
Link Distance (ft)	285	351	498
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Sinclair Dr & Kevinshire Ct

Movement	NB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	7
95th Queue (ft)	27
Link Distance (ft)	600
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Stevens St/Access #4 & Sonny Ct

Movement	WB
Directions Served	LR
Maximum Queue (ft)	47
Average Queue (ft)	6
95th Queue (ft)	29
Link Distance (ft)	356
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Access #1 & NC 75 (Waxhaw Hwy)

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	R
Maximum Queue (ft)	7	138	202	84
Average Queue (ft)	1	51	10	35
95th Queue (ft)	6	104	100	68
Link Distance (ft)	465		1148	1151
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		125		
Storage Blk Time (%)		0	1	
Queuing Penalty (veh)		2	1	

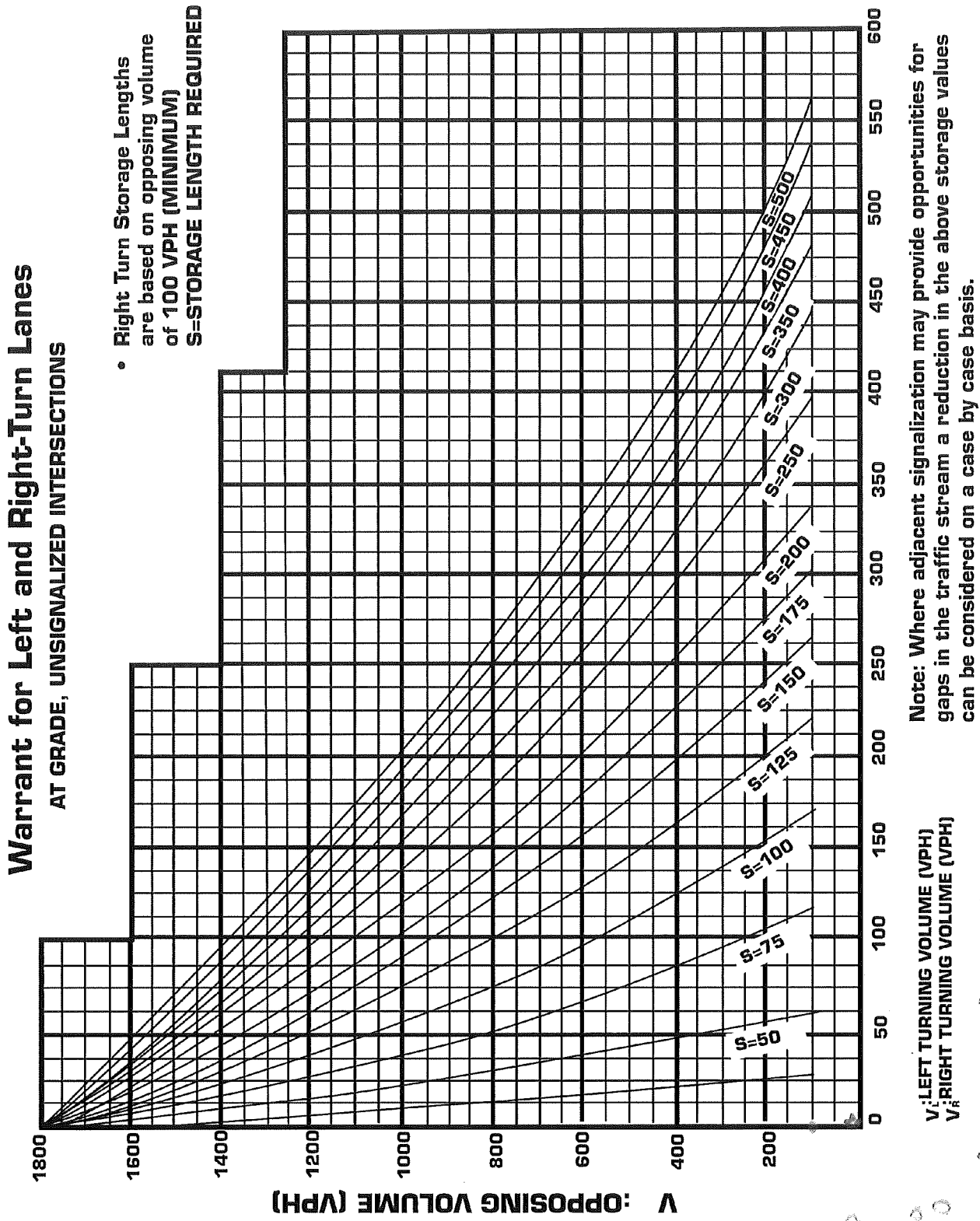
Intersection: 8: NC 200 (MLK Jr Blvd) & Access #3/Access #2

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	L
Maximum Queue (ft)	104	54	91	64	42
Average Queue (ft)	32	17	40	6	17
95th Queue (ft)	76	46	71	35	38
Link Distance (ft)	1075	1624	1624	1424	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					100
Storage Blk Time (%)					
Queuing Penalty (veh)					

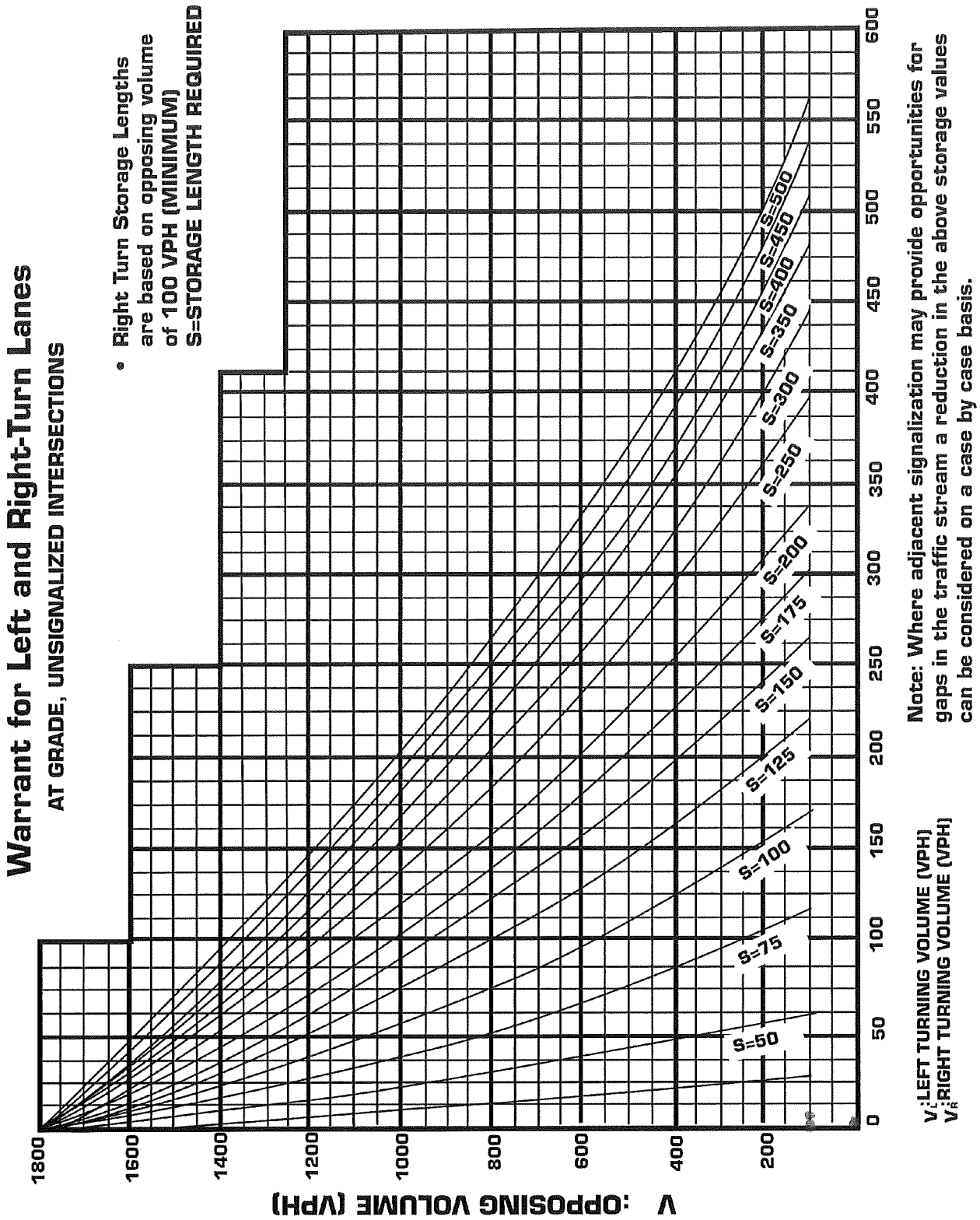
Network Summary

Network wide Queuing Penalty: 159

Turn Lane Warrants



Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.



Sinclair Dr @ Kennestone Ct

Background

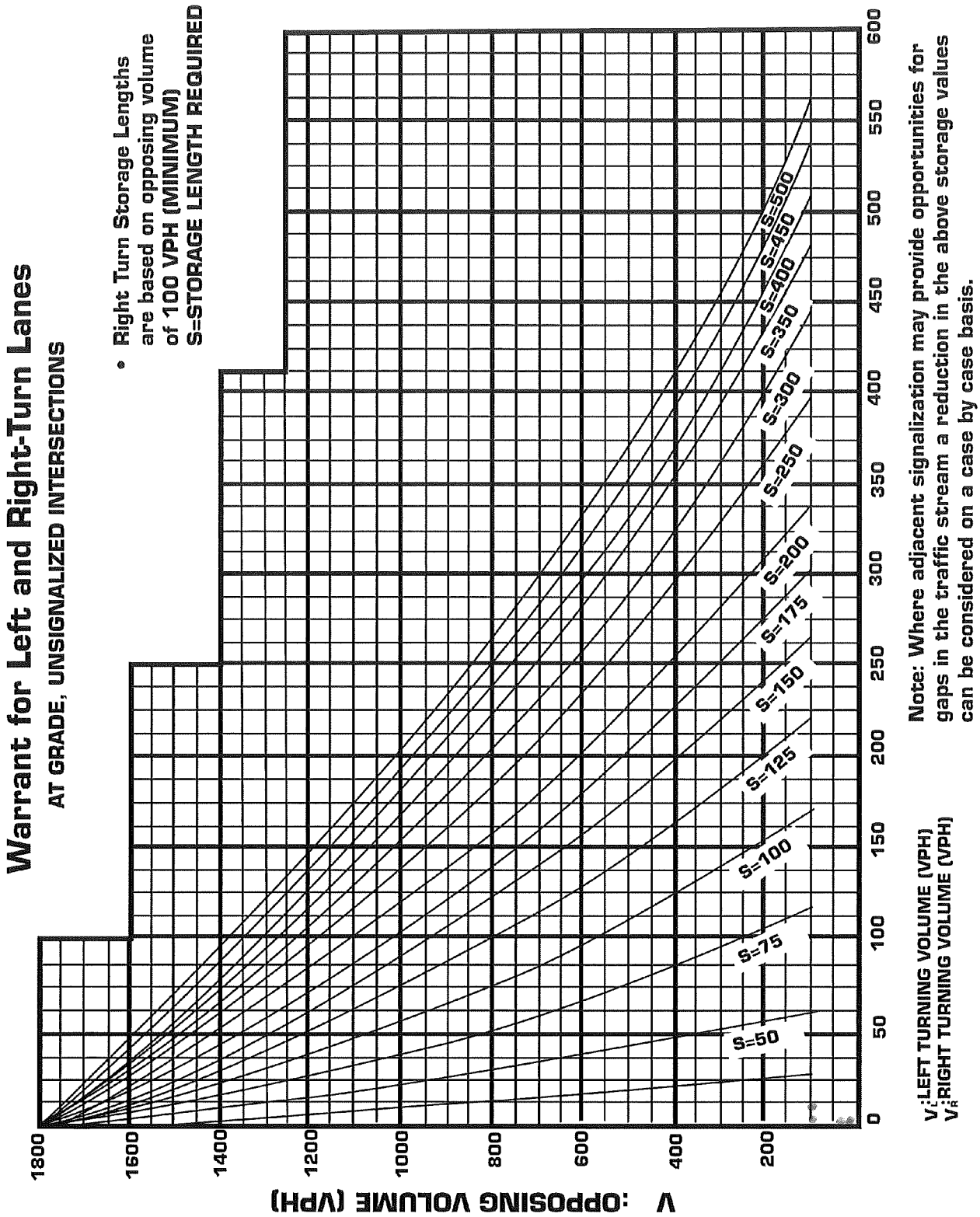
AM V_{ESB} = 2
V_O = 100
S = 0
V_{WBL} = 1
V_O = 2
S = 0

PM V_{ESB} = 6
V_O = 100
S = 0
V_{WBL} = 0
V_O = 6
S = 0

Build

AM V_{ESB} = 2
V_O = 100
S = 0
V_{WBL} = 4
V_O = 2
S = 0

PM V_{ESB} = 6
V_O = 100
S = 0
V_{WBL} = 2
V_O = 6
S = 0



Stevens St @ Sunny Ct

[illegible]

AM V_{opp} = 4
V_L = 40
S = 0
V_{opp} = 0
V_R = 6
S = 0

PM V_{opp} = 11
V_L = 100
S = 0
V_{opp} = 0
V_R = 17
S = 0

NC 75 @ Access #1

Build w/RIRO

AM $V_{EBL} = 8$
$V_o = 100$
$S = 0$
$V_{WBL} = 0$
$V_o = 577$
$S = 0$

PM $V_{EBL} = 28$
$V_o = 100$
$S = 0$
$V_{WBL} = 0$
$V_o = 436$
$S = 0$

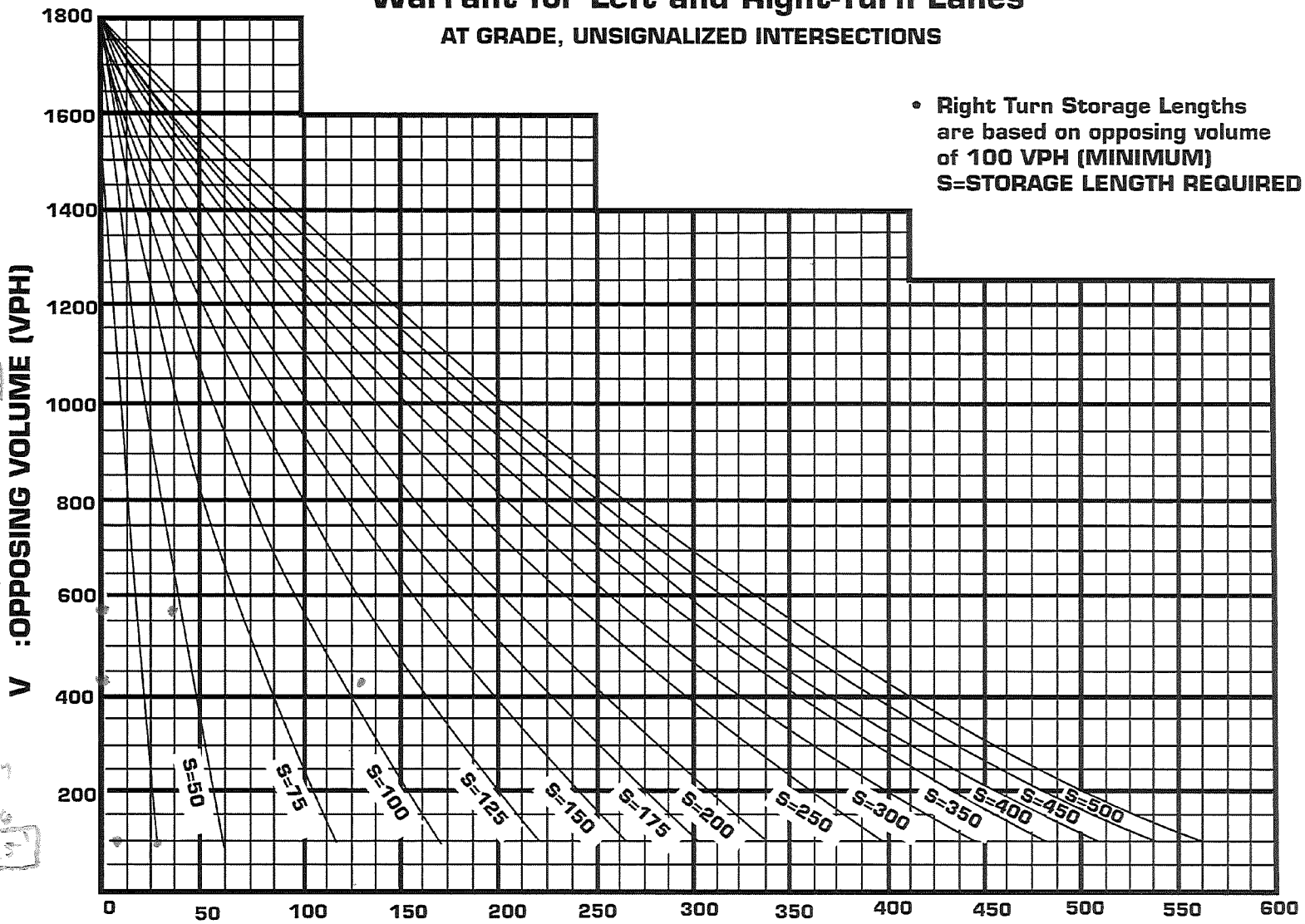
Build w/GrA-pro

AM $V_{EBL} = 8$
$V_o = 100$
$S = 0$
$V_{WBL} = 37$
$V_o = 577$
$S = 50'$

PM $V_{EBL} = 28$
$V_o = 100$
$S = 0$
$V_{WBL} = 127$
$V_o = 436$
$S = 125'$

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS



- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED

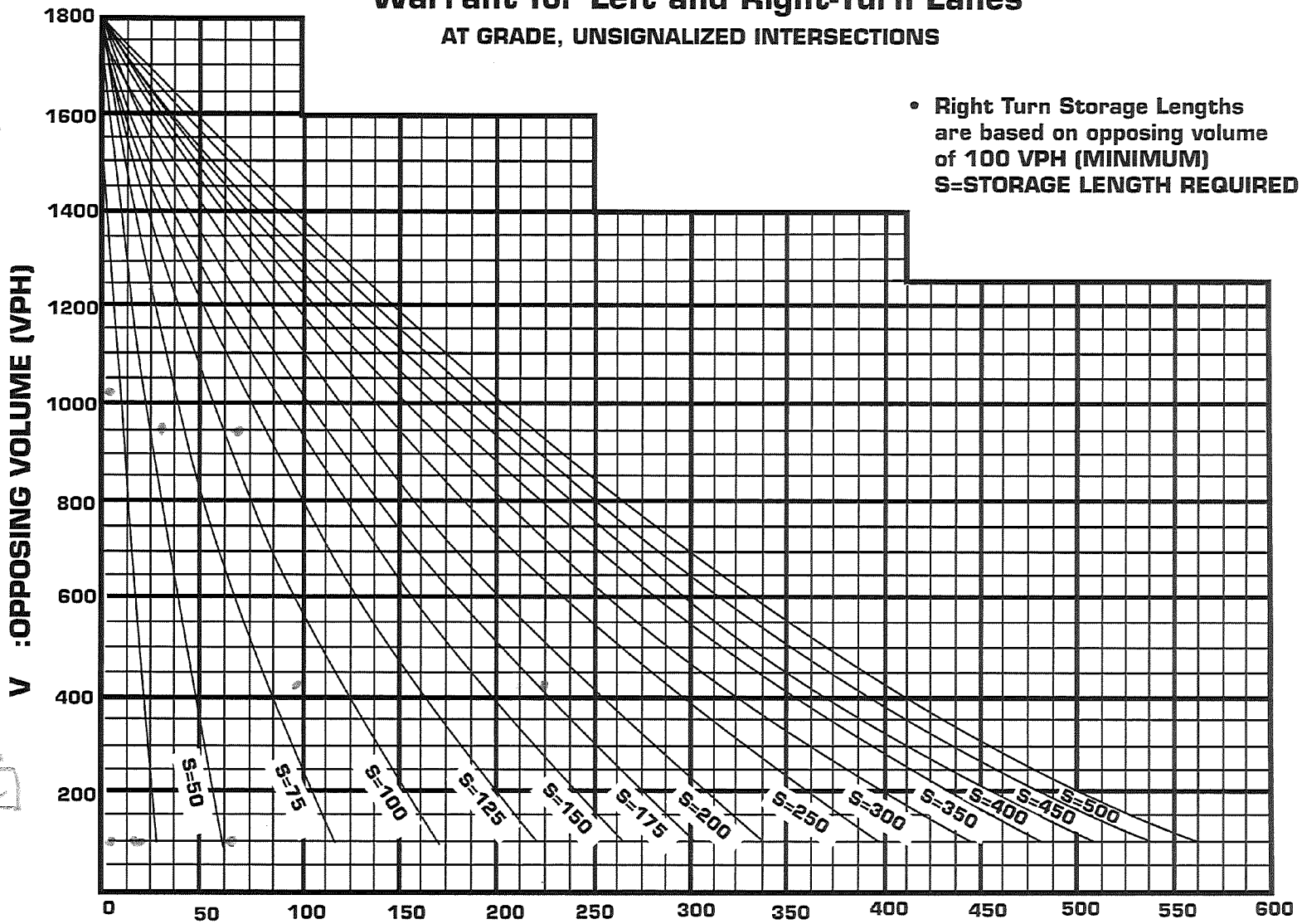
V_L:LEFT TURNING VOLUME (VPH)
V_R:RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

Warrant for Left and Right-Turn Lanes

AT GRADE, UNSIGNALIZED INTERSECTIONS

- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED



V_L:LEFT TURNING VOLUME (VPH)
V_R:RIGHT TURNING VOLUME (VPH)

Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

NC 200 @ Access #2/#3

Build w/ LTRO

AM V_{NBL} = 4
V_O = 100
S = 0

V_{NBL} = 2
V_O = 586
S = 0

V_{SBL} = 66
V_O = 949
S = 125'

V_{SBR} = 21
V_O = 100
S = 0

PM V_{NBL} = 18
V_O = 100
S = 0

V_{NBL} = 6
V_O = 1015
S = 0

V_{SBL} = 224
V_O = 420
S = 200'

V_{SBR} = 68
V_O = 100
S = 75'

Build w/ Left Over

AM V_{NBL} = 4
V_O = 100
S = 0

V_{NBL} = 2
V_O = 949
S = 0

V_{SBL} = 29
V_O = 949
S = 75'

V_{SBR} = 21
V_O = 100
S = 0

PM V_{NBL} = 18
V_O = 100
S = 0

V_{NBL} = 6
V_O = 888

V_{SBL} = 97
V_O = 949
S = 100'

V_{SBR} = 45
V_O = 100
S = 75'