Locust Bethel

Traffic Impact Analysis

Locust, North Carolina

Prepared for:

Kolter Homes LLC

December 2023

Kimley»Horn

Traffic Impact Analysis for
Locust Bethel
Locust, North Carolina

Prepared for:

Kolter Homes LLC
Charlotte, North Carolina

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1.0 Executive Summary

The purpose of this Traffic Impact Analysis (TIA) is to evaluate the impacts on the surrounding transportation infrastructure as a result of the Locust Bethel development proposed by Kolter Homes LLC. The primary objectives of the study are:

- To estimate trip generation and distribution for the proposed development.
- To perform intersection capacity analyses for each of the identified study area intersections.
- To determine the potential traffic impacts of the proposed development.
- To identify improvements to mitigate the proposed development's traffic impacts.

The proposed Locust Bethel development is located along both sides of Bethel Church Road west of Coley Store Road in Locust, North Carolina. The proposed development is expected to be completed (built-out) by 2033 and is currently envisioned to consist of up to 1,125 senior adult homes. Based on the current site plan, the proposed development will be accessed via three full-movement access locations: along Bethel Church Road, Coley Store Road, and Mission Church Road.

It is noted that this proposed development would be expected to generate approximately 50% of the daily, 36% of the AM peak, and 30% of the PM peak trips associated with a traditional residential product.

The AM and PM peak-hours were analyzed under 2023 existing and 2033 background/build-out conditions to determine the proposed development's traffic impacts at the following study intersections:

- N Central Avenue and Main Street (NC 24)
- N Central Avenue and Bethel Church Road/Meadow Creek Church Road
- N Central Avenue and Mission Church Road
- Coley Store Road and Bethel Church Road
- Coley Store Road and Main Street (NC 24)
- Bethel Church Road and Access A
- Mission Church Road and Access B
- Coley Store Road and Access C

For the purposes of this TIA, Bethel Church Road, Meadow Creek Church Road, Mission Church Road, and Main Street (NC 24) are oriented east-west.

North Carolina Department of Transportation's (NCDOT's) TIA Scoping Checklist was developed that documented the scoping parameters to be used for the TIA and agreed upon by Locust and NCDOT staff.

Kimley-Horn was retained to determine the potential traffic impacts of this development (in accordance with the traffic study guidelines in the *NCDOT Policy on Street and Driveway Access to North Carolina Highways* and *City of Locust, NC – Land Development Ordinances, June 2021*) and to identify traffic improvements that may be required to mitigate these impacts. This report presents trip generation, distribution, capacity analyses, turn lane warrant review, and identified traffic improvements recommended to mitigate anticipated traffic demands produced by the subject development.

Based on the capacity analyses performed at each of the identified study area intersections, along with review of the auxiliary turn-lane warrants contained herein, the following improvements have been identified to mitigate the impact of the proposed development on the adjacent street network:

N Central Avenue and Main Street (NC 24)

- Restripe the painted median on northern leg to provide an additional southbound left-turn lane with 125 feet of storage.
- Perform associated traffic signal modifications.

N Central Ave and Bethel Church Road/Meadow Creek Church Road

- Install a traffic signal if/when warrants are met.

Bethel Church Road and Access A

- Construct Access A to include a single ingress lane, a single egress lane, stop control, and a 100-foot internal protected stem (IPS) on both the north and south legs.
- Construct a westbound left-turn lane with 100 feet of storage.
- Construct an eastbound left-turn lane with 100 feet of storage.

Mission Church Road and Access B

- Construct Access B to include a single ingress lane, a single egress lane, stop control, and a 100-foot IPS.

Coley Store Road and Access C

- Construct Access C to include a single ingress lane, a single egress lane, stop control, and a 100-foot IPS.

The improvements are subject to approval by the City of Locust and NCDOT as applicable. All additions and attachments to the public roadway system shall be properly permitted, designed, and constructed in conformance to NCDOT standards. The site-civil engineer is responsible for confirming that the proposed access points meet current sight distance standards.

2.0 Introduction

The purpose of this Traffic Impact Analysis (TIA) is to evaluate the impacts on the surrounding transportation infrastructure as a result of the Locust Bethel development proposed by Kolter Homes LLC. The primary objectives of the study are:

- To estimate trip generation and distribution for the proposed development.
- To perform intersection capacity analyses for each of the identified study area intersections.
- To determine the potential traffic impacts of the proposed development.
- To identify improvements to mitigate the proposed development's traffic impacts.

The proposed Locust Bethel development is located along both sides of Bethel Church Road west of Coley Store Road in Locust, North Carolina. The proposed development is expected to be completed (built-out) by 2033 and is currently envisioned to consist of up to 1,125 senior adult homes. Based on the current site plan, the proposed development will be accessed via three full-movement access locations: along Bethel Church Road, Coley Store Road, and Mission Church Road.

Figure 2.1 shows the site location. **Figure 2.2** shows the proposed site plan. A full-sized site plan to scale is provided in the **Appendix**.

The AM and PM peak-hours were analyzed under 2023 existing and 2033 background/build-out conditions to determine the proposed development's traffic impacts at the following study intersections:

- N Central Avenue and Main Street (NC 24)
- N Central Avenue and Bethel Church Road/Meadow Creek Church Road
- N Central Avenue and Mission Church Road
- Coley Store Road and Bethel Church Road
- Coley Store Road and Main Street (NC 24)
- Bethel Church Road and Access A
- Mission Church Road and Access B
- Coley Store Road and Access C

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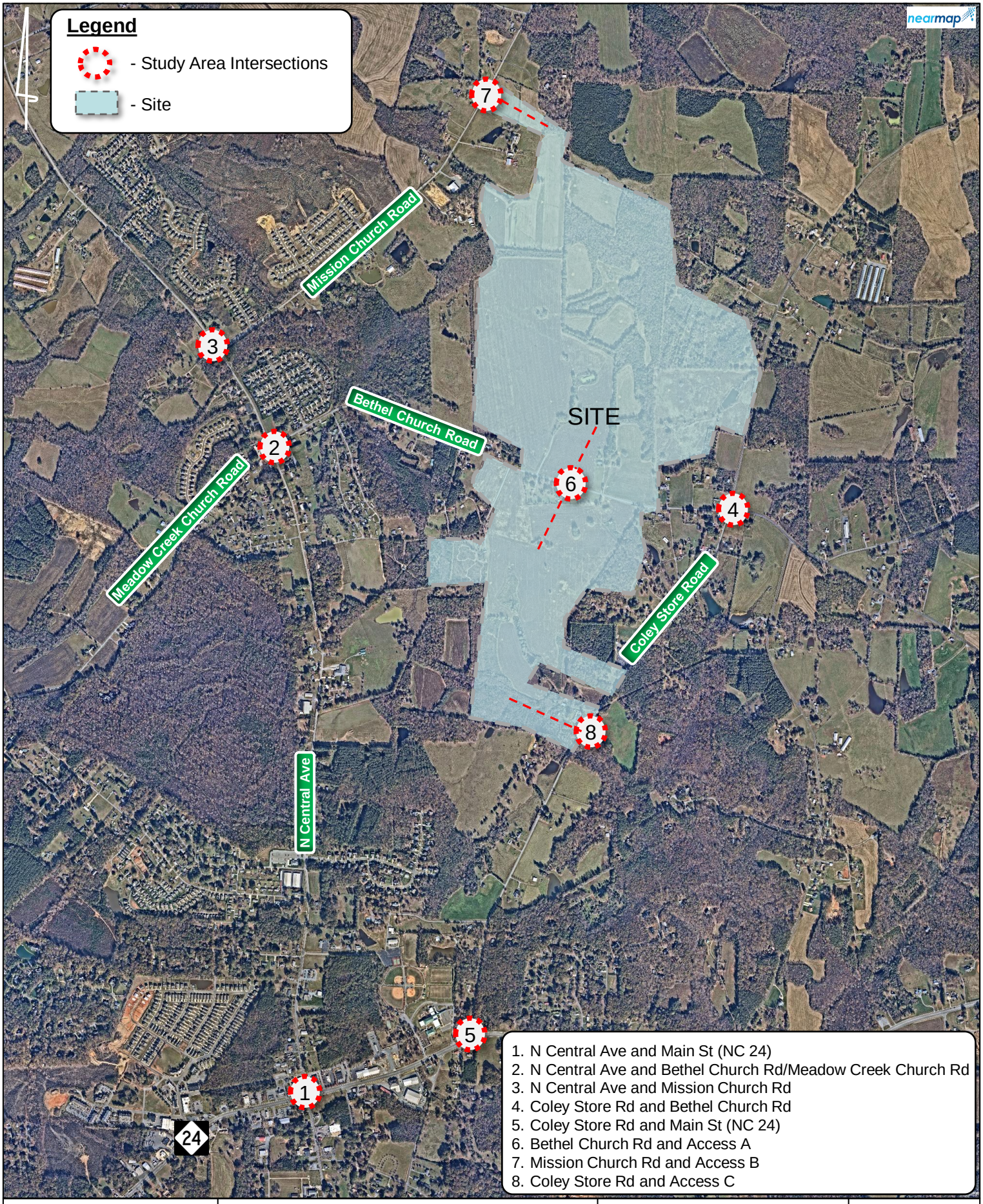


Kimley»Horn	**Locust Bethel Traffic Impact Analysis**	**Study Area/Site Location**	**Figure 2.1**

Kimley»Horn	Locust Bethel Traffic Impact Analysis	Proposed Site Plan	Figure 2.2

3.0 Existing Traffic Conditions

Existing traffic conditions were collected through turning-movement counts, Monday, November 13, 2023, site visit, and online data available to establish the existing conditions baseline analysis.

3.1 STUDY AREA

Based the approved Scoping Checklist, the study area for this TIA includes the following study area intersections:

- N Central Avenue and Main Street (NC 24)
- N Central Avenue and Bethel Church Road/Meadow Creek Church Road
- N Central Avenue and Mission Church Road
- Coley Store Road and Bethel Church Road
- Coley Store Road and Main Street (NC 24)
- Bethel Church Road and Access A
- Mission Church Road and Access B
- Coley Store Road and Access C

Figure 3.1 shows the current roadway geometry at the existing study intersections. Existing conditions for the primary roadways in the vicinity of the site are described in **Table 3.1** for portions of these roadways within the vicinity of the study area including NCDOT functional classification, section type, 2022 NCDOT average annual daily traffic (AADT) in vehicles per day (vpd), and posted speed limit in miles per hour (mph).

Table 3.1- Study Area Roadways

Roadway	Class	Section type	2022 ADT	Posted speed limit
Bethel Church Road (SR 1200)	Local	2-lane undivided	3,168 E of Central	45 W of Coley 55 E of Coley
Coley Store Road (SR 1211)	Local	2-lane undivided	1,926 N of Main 1,468 N of Bethel	45 N of Main 35 at Main
Mission Church Road (SR 1206)	Local	2-lane undivided	1,927 E of Central	35 at N Central 55 E of Prosperous
N Central Avenue (NC 200)	Major collector	2-lane 3-lane N/S of Main	5,862 N of Mission 8,971 S of Main	45 35 at Main
Main Street (NC 24)	Minor arterial	5-lane	27,992 W of Central 16,934 E of Coley	45**
Meadow Creek Church Rd (SR 1200)	Local	2-lane undivided	1,511 W of Central	35

*Bethel Church Road is signed with an axle weight limit of 6.5 tons.
**35 mph school flasher.

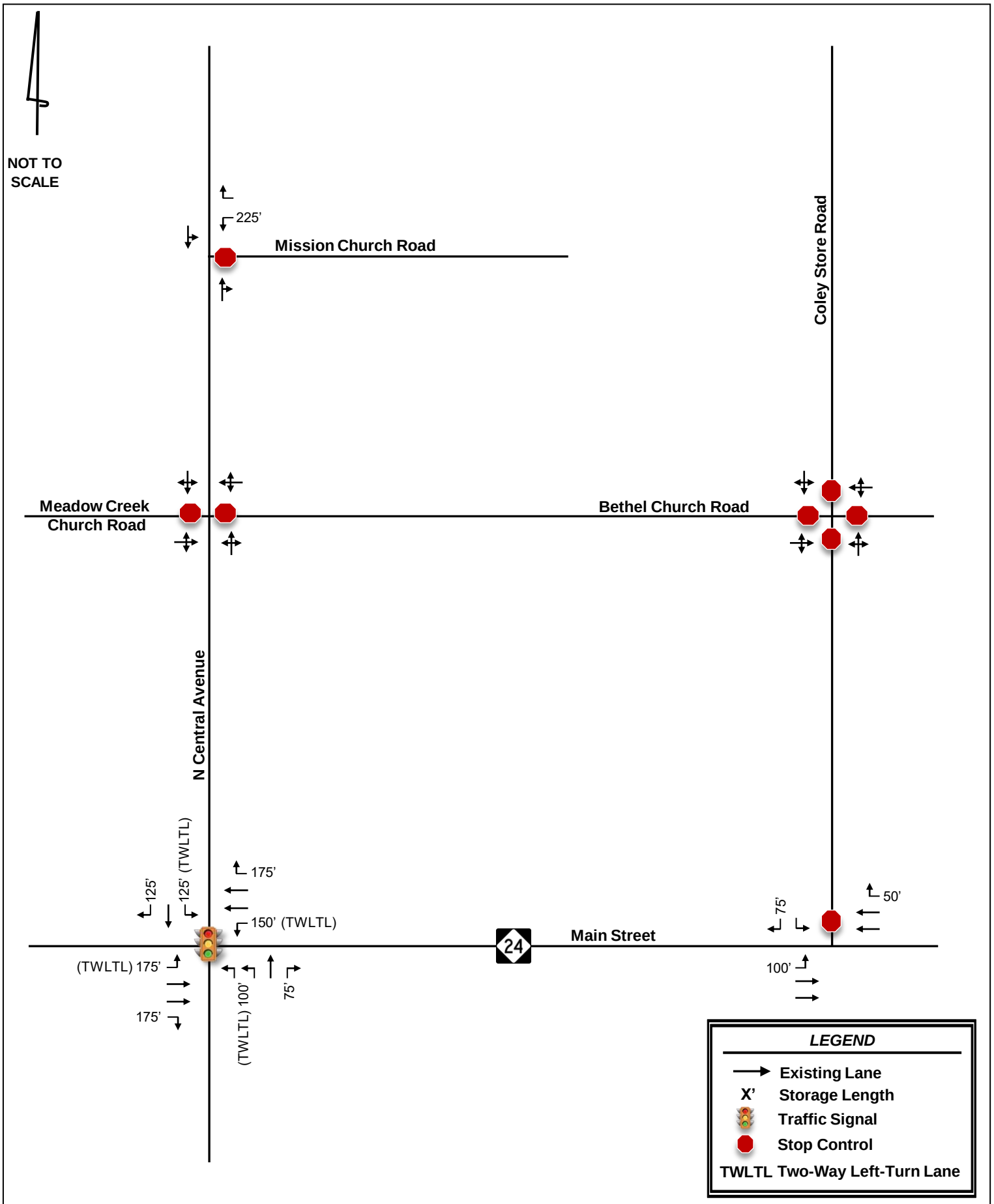
The following is a description of pedestrian and bicycle accommodations at the study area intersections.

- N Central Avenue and Main Street (NC 24) ─ Sidewalk in all four quadrants with marked crosswalks, ramps/truncated dome mats and associated pedestrian push buttons/signalization.
- Coley Store Road and Main Street ─ Sidewalk on both sides of Coley Store Road and both sides of Main Street, with marked crosswalk across Coley Store Road and ramps/truncated dome mats. Raised pedestrian refuge within the marked crosswalk across Coley Store Road.
- Bethel Church Road – Signed, designated bike route SU.

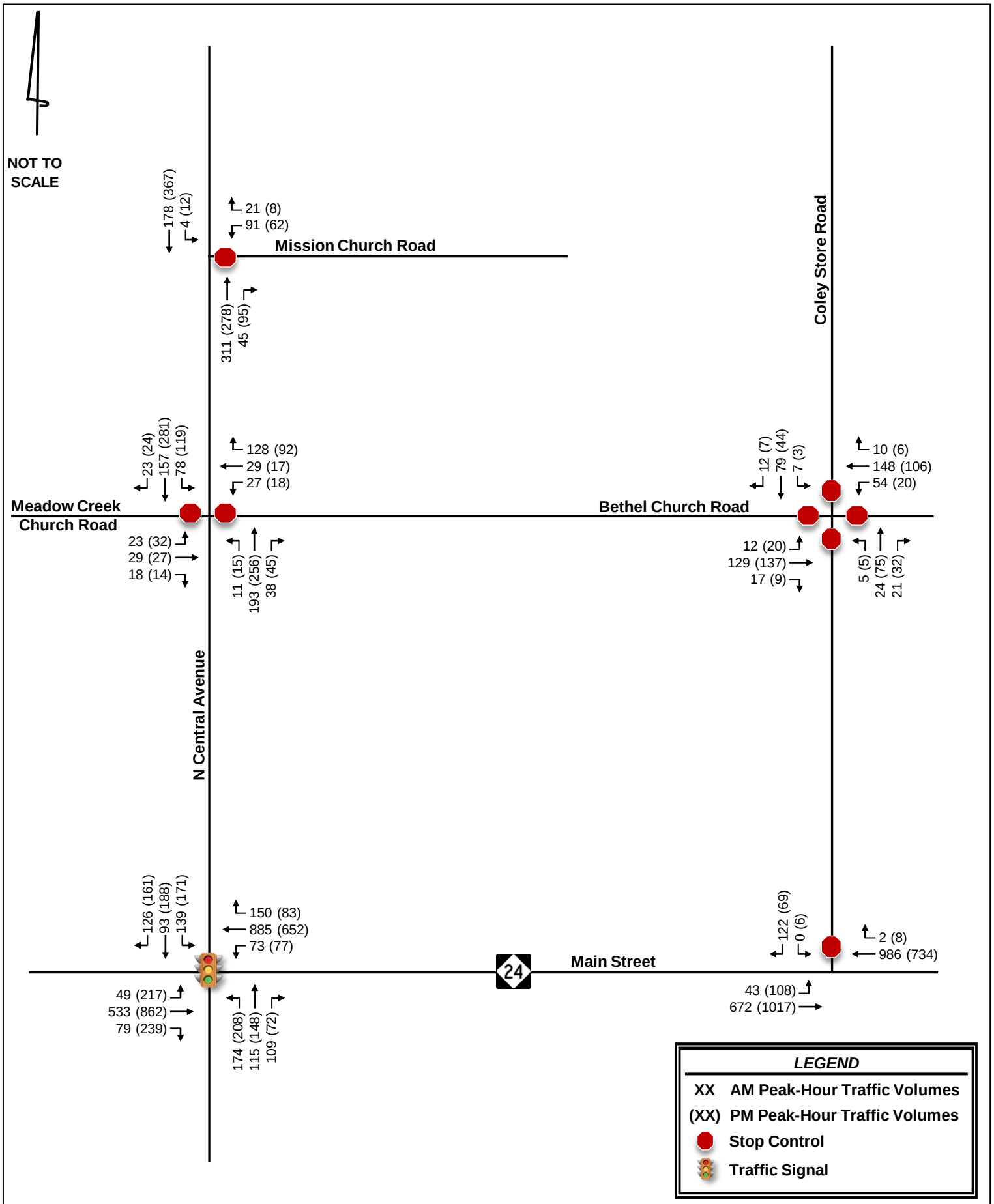
3.2 EXISTING INTERSECTION VOLUME DEVELOPMENT

Peak-hour intersection turning-movement traffic counts were performed on Thursday, November 2, 2023 for the AM (7:00-9:00 AM) and PM (4:00-6:00 PM) peak periods.

Figure 3.2 shows the 2023 existing AM and PM peak-hour traffic volumes. Raw traffic count data is provided in the **Appendix**.



Kimley»Horn	Locust Bethel Traffic Impact Analysis	Existing Roadway Laneage	Figure 3.1



Kimley»Horn	Locust Bethel Traffic Impact Analysis	2023 Existing Traffic Volumes	Figure 3.2

4.0 Background Traffic Volume Development

Projected background (non-project) traffic is defined as the expected growth or change in traffic volumes on the surrounding roadway network between the year the existing counts were collected and the expected build-out year (2033) absent the construction and opening of the proposed project. This includes both non-specific general growth based on historical increases in local traffic volumes (historical growth), and specific growth and/or change in traffic volumes caused by future off-site developments that are not yet fully-constructed; and/or planned transportation projects specifically identified within the horizon year and vicinity of the proposed development.

Figures 4.1 and 4.2 show the projected 2033 background AM and PM peak-hour traffic volumes.

4.1 HISTORIC BACKGROUND GROWTH TRAFFIC

Historical growth is the increase in existing traffic volumes due to usage increases and non-specific growth throughout the area, and accounts for growth that is independent of specific off-site developments or planned transportation projects. Historical growth traffic is calculated using an annual growth rate, which is applied to the existing traffic volumes up to the future horizon year. As shown in the approved NCDOT TIA Scoping Checklist in the **Appendix**, an annual growth rate of 2% was applied to the 2023 peak-hour traffic volumes to calculate 2033 historical growth traffic volumes.

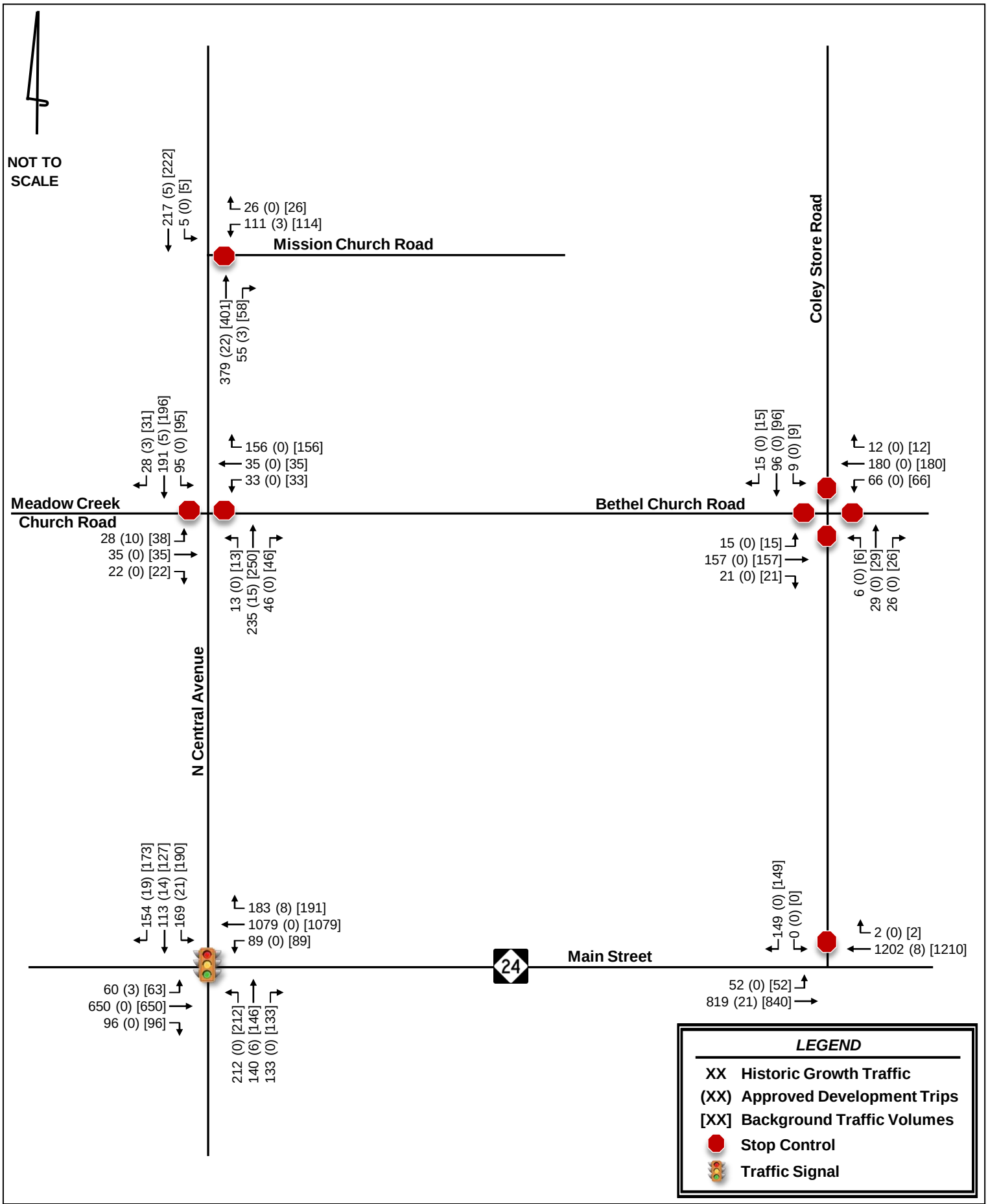
4.2 APPROVED DEVELOPMENTS

Based on input from NCDOT and Locust staff, there are two approved off-site developments included in the background traffic volumes for this TIA, Summer Dunes and Whispering Hills. Both developments were assumed to be fully built out in the 2033 future year analysis scenarios; however, no TIA was available for Whispering Hills so its traffic is assumed to be included in the historical growth. Committed improvements at the study area intersections from these developments are assumed to be completed within the 2033 scenarios and consist of the following:

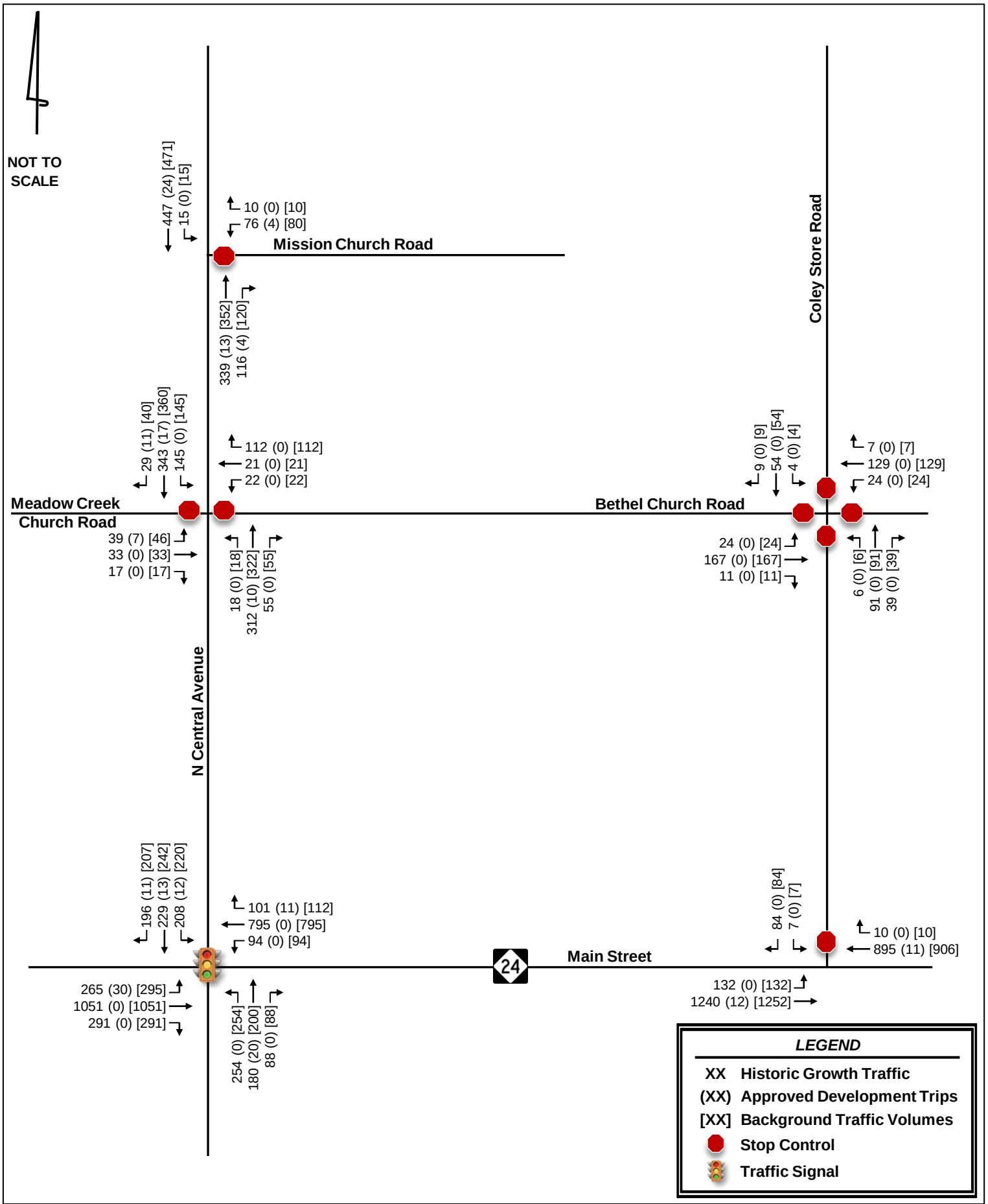
- Eastbound left-turn lane on Meadow Creek Church Road at N Central Avenue with 150 feet of storage.
- Westbound left-turn lane on Bethel Church Road at N Central Avenue with 150 feet of storage.
- Intersection of N Central Avenue and Mission Church Road:
  - Westbound left and right turn lanes on Mission Church Road, creating a three-lane section from N Central Avenue to Whispering Hills Drive.
    - Based on site visit observations, this improvement is already in place and is incorporated into the existing conditions scenario for this analysis.
  - Southbound left-turn lane along N Central Avenue with 150 feet of storage.
  - Northbound right-turn lane along N Central Avenue with 100 feet of storage.

4.3 PLANNED TRANSPORTATION PROJECTS

Based on a review of available online information regarding NCDOT transportation projects, there are no publicly funded transportation improvement projects currently planned in the vicinity.



Kimley»Horn	**Locust Bethel Traffic Impact Analysis**	**2033 Background AM Peak-Hour Traffic Volumes**	**Figure 4.1**



Kimley»Horn	**Locust Bethel Traffic Impact Analysis**	**2033 Background PM Peak-Hour Traffic Volumes**	**Figure 4.2**

5.0 Site Traffic Volume Development

Site traffic developed for this TIA is defined as the site-generated trips expected to be added to the study area by the proposed development, and the distribution and assignment of that traffic to the study intersections.

5.1 SITE ACCESS

Based on the current site plan, the proposed development will be accessed via three full-movement access locations: along Bethel Church Road, Coley Store Road, and Mission Church Road.

5.2 TRAFFIC GENERATION

The traffic generation potential of the proposed development was determined using the trip generation data published in *Trip Generation* (Institute of Transportation Engineers, Eleventh Edition).

Table 5.1 summarizes the projected trip generation for the proposed development. During a typical weekday, the proposed development has the potential to generate 245 and 293 net new trips during the AM and PM peak hours, respectively. As a comparison between the proposed senior adult housing, traditional single-family housing trip generation information is provided for reference. With traditional unrestricted housing, the development would be expected to generate 674 and 967 net new external trips in the AM and PM peak hours, respectively.

Table 5.1 - Trip Generation Comparison

ITE LUC	Land Use	Intensity		Daily	AM Peak Hour			PM Peak Hour			Peak Hour Type/Data Source
					Total	In	Out	Total	In	Out	
251	Senior Adult Housing - Single-Family	1,125	DU	4,636	245	81	164	293	179	114	Adj Street/ITE Eqn
210	Single-Family Attached Housing	1,125	DU	9,353	674	169	505	967	609	358	Adj Street/ITE Eqn

Comparing to the traditional single family, this proposed development would be expected to generate approximately 50% of the daily, 36% of the AM peak, and 30% of the PM peak trips associated with the traditional product.

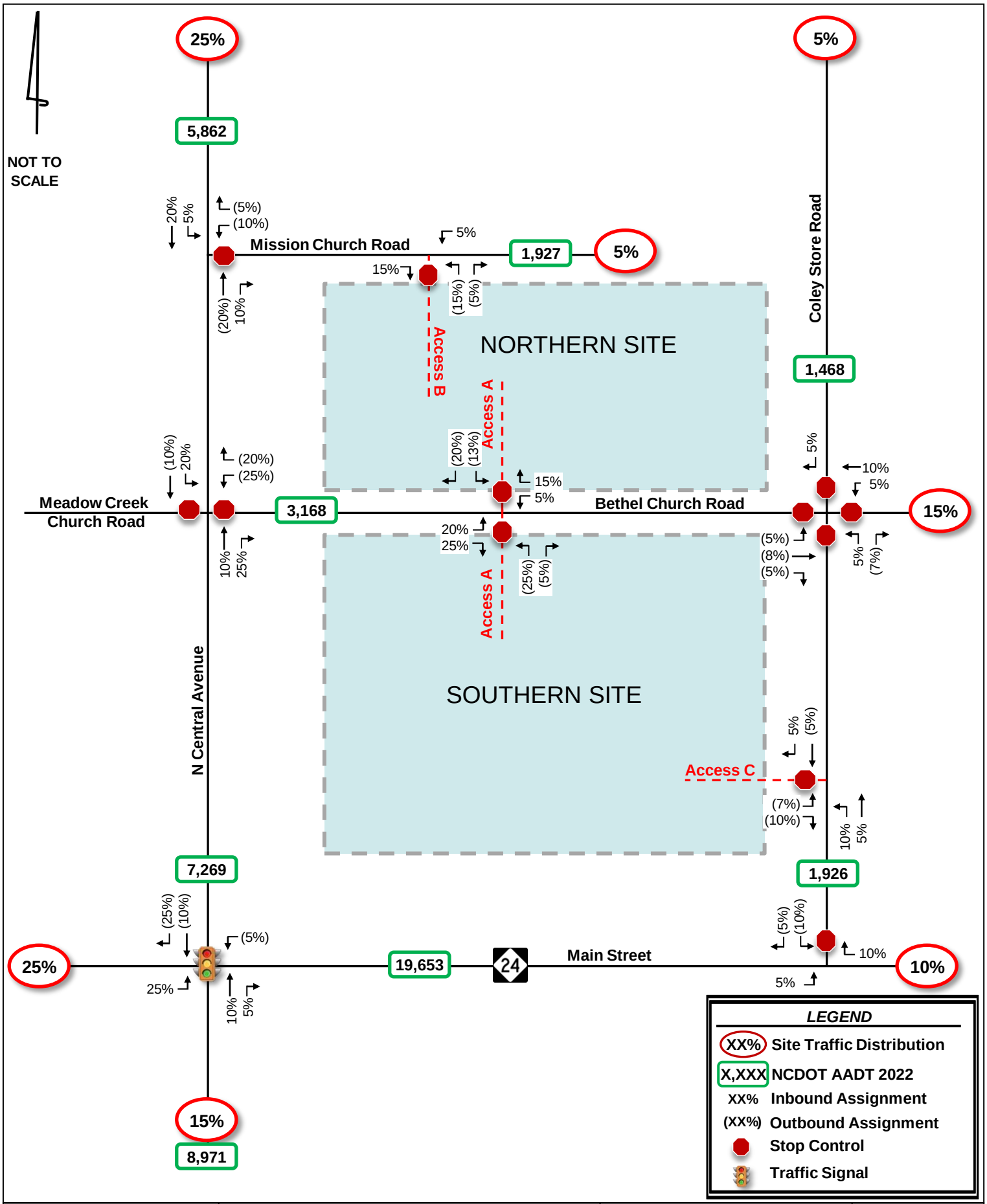
5.3 SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT

The proposed development's trips were assigned to the surrounding network based on existing peak-hour turning movements, surrounding land uses, locations of similar land use and population densities in the area. The site traffic distribution shown in **Figure 5.1** was reviewed and approved by NCDOT and City of Locust staff.

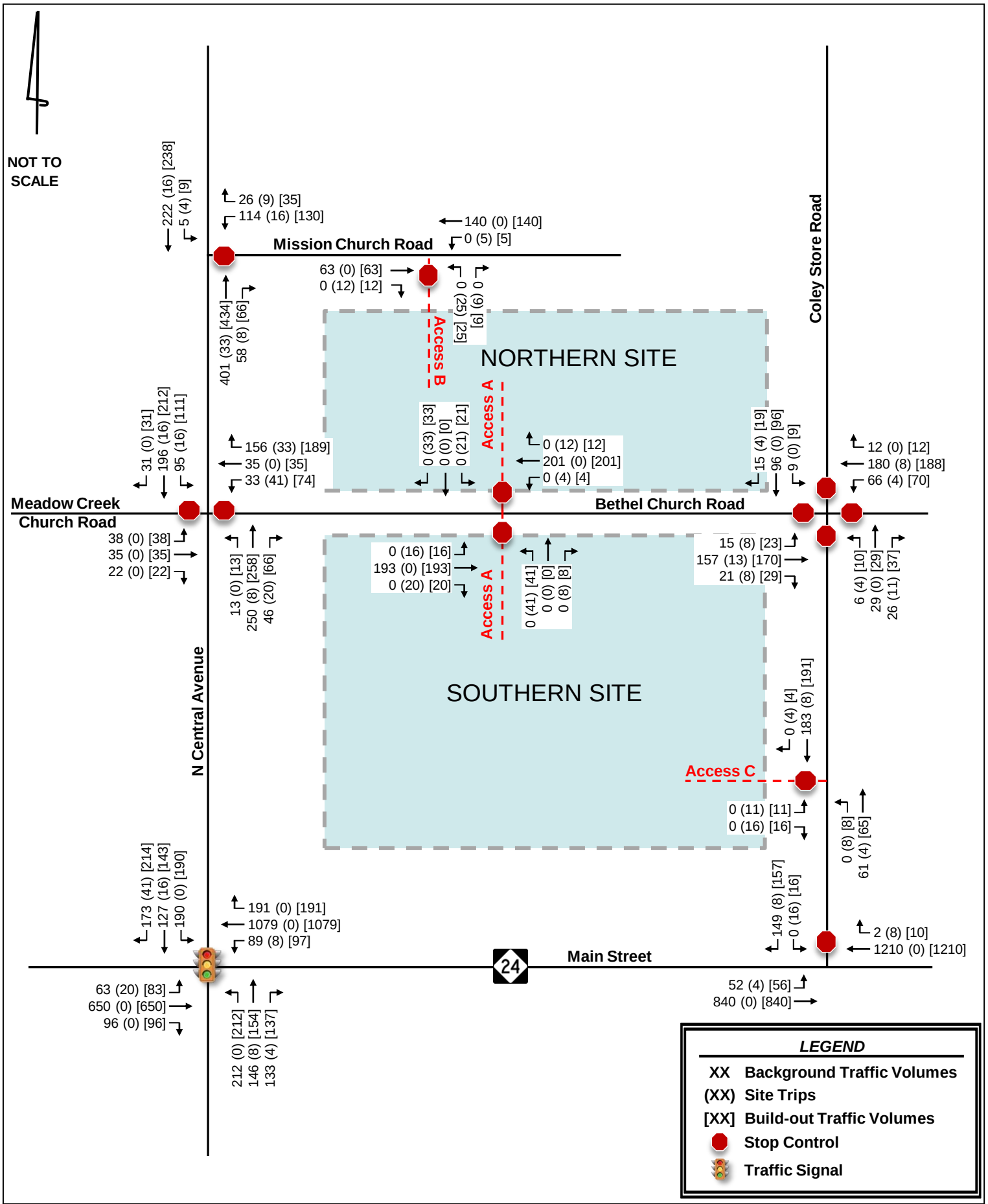
5.4 2033 BUILD-OUT TRAFFIC VOLUMES

The 2033 build-out traffic volumes include the assignment of the projected site traffic generation added to the 2033 background traffic volumes. **Figures 5.2** and **5.3** show the projected 2033 traffic volumes for the AM and PM peak hours, respectively.

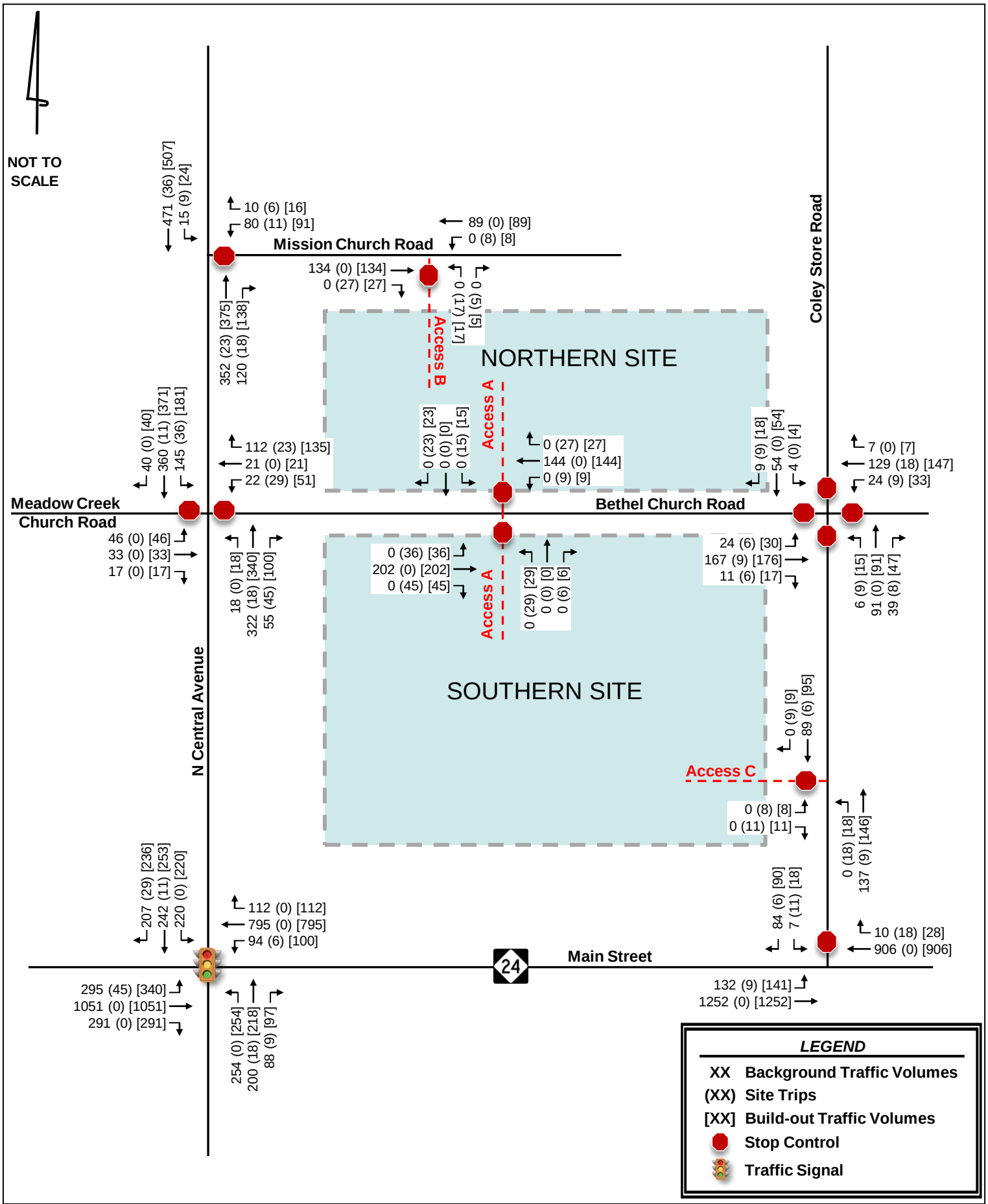
Intersection volume development worksheets for the study area intersections are provided in the **Appendix**.



Kimley»Horn	Locust Bethel Traffic Impact Analysis	Site Traffic Distribution and Assignment	Figure 5.1



Kimley»Horn	**Locust Bethel Traffic Impact Analysis**	**2033 Build AM Peak-Hour Traffic Volumes**	**Figure 5.2**



Kimley»Horn	**Locust Bethel Traffic Impact Analysis**	**2033 Build PM Peak-Hour Traffic Volumes**	**Figure 5.3**

6.0 Vehicular Capacity Analysis

Based on the traffic study guidelines in the *NCDOT Policy on Street and Driveway Access to North Carolina Highways*, capacity analyses were performed at the study area intersections for each of the AM and PM peak-hour under 2023 existing and 2033 background/build-out conditions.

Capacity analyses were performed for the AM and PM peak hours using the Synchro Version 11 software to determine the operating characteristics at the signalized and stop-controlled intersections of the adjacent street network and to evaluate the impacts of the proposed development. SimTraffic Version 11 was used to review network queues. 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 operational, geometric, and controlling conditions within a set time duration. This software program uses methodologies contained in the *Highway Capacity Manual* (HCM) to determine the operating characteristics of an intersection.

The *Highway Capacity Manual* (HCM) defines level-of-service (LOS) as a "quantitative stratification of a performance measure or measures representing quality of service" and is used to "translate complex numerical performance results into a simple A-F system representative of travelers' perceptions of the quality of service provided by a facility or service". The HCM defines six levels of service, LOS A through LOS F, with A having the best operating conditions from the traveler's perspective and F having the worst. However, it must be understood that "the LOS letter result hides much of the complexity of facility performance", and that "the appropriate LOS for a given system element in the community is a decision for local policy makers". According to the HCM, "for cost, environmental impact, and other reasons, roadways are typically designed not to provide LOS A conditions during peak periods but instead to provide some lower LOS that balances individual travelers' desires against society's desires and financial resources. Nevertheless, during low-volume periods of the day, a system element may operate at LOS A."

LOS for a two-way stop-controlled (TWSC) intersection is determined by the control delay and is reported for the side-street approaches, typically during the highest volume periods of the day, the AM and PM peak periods. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. With respect to field measurements, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time the vehicle departs from the stop line. It is typical for stop sign-controlled side streets and driveways intersecting major streets to experience long delays during peak hours, particularly for left-turn movements. The majority of the traffic moving through the intersection on the major street experiences little or no delay.

LOS for all-way stop-controlled (AWSC) intersections are also determined by the control delay and reported for each stop-controlled approach, using the same control delay thresholds as the TWSC intersections. However, if the volume-to-capacity ratio on an approach of the intersection is greater than 1.0, that approach is reported as LOS F regardless of the reported control delay.

LOS for signalized intersections is reported for the intersection as a whole, and typically during the highest volume periods of the day, the AM and PM peak periods. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Table 6.0 list the LOS control delay thresholds published in the HCM for unsignalized and signalized intersections, respectively, as well as the unsignalized operational descriptions assumed herein.

Table 6.0 Average Control Delay (sec/veh)			
Level-of-Service	**Signalized**	**Unsignalized**	
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

The following modifications from the background data collected were applied to the capacity analyses to meet NCDOT *Congestion Management Capacity Analysis Guidelines:*

- A minimum of 4 vehicles per hour were used for permissible movements, excluding movements into and out of the proposed site.
- Permitted-protected left-turn phases were changed to protected only under future-year conditions.

The signal geometric plan for the signalized intersection was obtained from NCDOT and used in the development of the existing conditions Synchro network. The NCDOT signal plans are shown in the Appendix. In existing conditions, the signalized intersection was considered uncoordinated, thus, the cycle length and splits were optimized. Cycle lengths and splits were optimized under future year conditions for the traffic signals in the study area.

A 0.9 peak-hour factor (PHF) was assumed for future year scenarios. Heavy-vehicle percentages collected with the counts were used for all conditions, subject to a two-percent minimum.

It is noted that overall intersection delay may decrease slightly from existing conditions to background conditions. This can be attributed to the following:

- Signal timing optimization from existing signal geometric plan.
- The assumption of a PHF of 0.9 for future-year scenarios may represent a more normal distribution of vehicles over time, leading to less delay.

NCDOT requires consideration of roadway and/or operational improvements when (*NCDOT's Policy on Street and Driveway Access to North Carolina Highways*):

- 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

City of Locust states that "Level of Service (LOS) shall show no signs of degradation or further delays on intersections with a current LOS of E or F" (*City of Locust, NC – Land Development Ordinances, June 2021*).

Capacity analysis and queue reports generated by Synchro and SimTraffic software are included in the **Appendix.** Individual intersections are summarized below.

6.1 N CENTRAL AVE AND MAIN ST (NC 24)

Table 6.1 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the signalized intersection of N Central Ave and Main St (NC 24).

Table 6.1 - N Central Ave and Main St (NC 24)

Condition	Measure	EB			WB			NB			SB			Intersection
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	LOS (Delay)
AM Peak Hour														
2023 Existing	LOS (Delay)	C (21.1)			C (25.6)			D (35.6)			C (29.0)			C (26.6)
	Synchro 95th Q	33'	195'	46'	42'	351'	73'	98'	129'	102'	111'	109'	121'	
2033 Background	LOS (Delay)	C (27.7)			C (33.0)			D (44.3)			D (46.5)			D (35.5)
	Synchro 95th Q	98'	279'	67'	124'	506'	107'	126'	174'	129'	#281'	150'	172'	
2033 Build-out	LOS (Delay)	C (29.8)			C (33.2)			D (46.2)			D (45.9)			D (36.5)
	Synchro 95th Q	#143'	286'	73'	132'	503'	109'	#138'	183'	128'	#297'	163'	207'	
2033 Build-out IMP	LOS (Delay)	C (27.4)			C (31.3)			D (44.4)			D (41.0)			C (34.0)
	Synchro 95th Q	#131'	278'	70'	132'	494'	111'	#138'	183'	128'	115'	167'	210'	
PM Peak Hour														
2023 Existing	LOS (Delay)	C (26.4)			C (30.4)			D (38.9)			C (30.8)			C (30.0)
	Synchro 95th Q	147'	367'	149'	53'	302'	67'	124'	166'	73'	152'	213'	134'	
2033 Background	LOS (Delay)	D (37.7)			D (49.4)			D (54.4)			D (53.3)			D (45.8)
	Synchro 95th Q	#436'	518'	203'	#176'	#467'	95'	#177'	232'	95'	#359'	268'	157'	
2033 Build-out	LOS (Delay)	D (45.8)			D (53.0)			D (54.4)			D (53.3)			D (50.2)
	Synchro 95th Q	#552'	542'	208'	#204'	#486'	99'	#164'	261'	108'	#374'	294'	191'	
2033 Build-out IMP	LOS (Delay)	D (38.5)			D (54.8)			D (53.2)			D (43.9)			D (45.7)
	Synchro 95th Q	#488'	530'	210'	#170'	#502'	105'	#181'	249'	99'	139'	286'	172'	
Background Storage		175'		175'	150'		175'	100'		75'	125'		125'	

Exceeds storage

95th percentile volume exceeds capacity, queue may be longer

As shown in **Table 6.1**, the overall intersection and all approaches are expected to operate at LOS D or better during both peak hours under background and build-out conditions.

Based on review of the Synchro 95th percentile queues, the eastbound left- and right-, and westbound left-turn queues are expected to exceed the existing storage length in both background and build-out conditions during the PM peak hour. It is noted that the eastbound left-turn queue is expected to increase by more than 100 feet during the PM peak hour. Therefore, the following improvement was identified:

- Restriping of the painted median area on the northern leg to provide an additional southbound left-turn lane along N Central Ave with 125 feet of storage.

With this improvement in place, the overall intersection is expected to operate at LOS C during the AM peak hour and LOS D during the PM peak hour, with overall intersection delay slightly less than background conditions.

It is noted that the Synchro 95th percentile queues of the northbound and southbound left- and right-turn movements are expected to exceed the available storage lengths in both background and build-out improved conditions during both peak hours. Additionally, the eastbound and westbound left-turn queues and eastbound right-turn queues are expected to exceed the available storage in the PM peak. Given these queues exceed the available storages under both background and build-out improved conditions, these turn lanes are not recommended to be extended by the developer.

6.2 N CENTRAL AVE AND BETHEL CHURCH RD/MEADOW CREEK CHURCH RD

Table 6.2 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the intersection of N Central Ave and Bethel Church Rd/Meadow Creek Church Rd.

Table 6.2 - N Central Ave and Bethel Church Rd/Meadow Creek Church Rd

Condition	Measure	EB		WB		NB		SB		Intersection
		EBL	EBTR	WBL	WBTR	NBL*	NBTR	SBL*	SBTR	LOS (Delay)
AM Peak Hour										
2023 Existing	LOS (Delay)	C (19.7)		C (18.6)		A (7.7)	A (0.0)	A (8.0)	A (0.0)	-
	Synchro 95th Q	33'		58'		3'	0'	5'	0'	
2033 Background	LOS (Delay)	C (23.5)		C (16.3)		A (7.8)	A (0.0)	A (8.2)	A (0.0)	-
	Synchro 95th Q	25'	15'	13'	43'	0'	0'	8'	0'	
2033 Build-out	LOS (Delay)	D (29.3)		C (21.1)		A (7.8)	A (0.0)	A (8.4)	A (0.0)	-
	Synchro 95th Q	33'	18'	45'	58'	0'	0'	8'	0'	
2033 Build-out IMP	LOS (Delay)	B (13.6)		B (17.6)		B (10.6)		B (13.3)		B (13.6)
	Synchro 95th Q	31'	40'	50'	134'	126'		150'		
PM Peak Hour										
2023 Existing	LOS (Delay)	F (56.9)		D (29.6)		A (8.1)	A (0.0)	A (8.5)	A (0.0)	-
	Synchro 95th Q	75'		83'		3'	0'	13'	0'	
2033 Background	LOS (Delay)	F (57.9)		C (22.4)		A (8.3)	A (0.0)	A (8.7)	A (0.0)	-
	Synchro 95th Q	65'	28'	20'	40'	3'	0'	13'	0'	
2033 Build-out	LOS (Delay)	F (111.9)		F (51.3)		A (8.3)	A (0.0)	A (9.1)	A (0.0)	-
	Synchro 95th Q	98'	40'	93'	58'	3'	0'	18'	0'	
2033 Build-out IMP	LOS (Delay)	C (23.7)		C (34.0)		A (6.4)		B (13.9)		B (15.2)
	Synchro 95th Q	45'	46'	48'	#149'	112'		235'		
Background Storage		150'		150'						

*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions

As shown in **Table 6.2**, the stop-controlled eastbound approach is expected to operate with short delays during the AM peak hour and long delays during the PM peak hour under background conditions. This approach is expected to operate with moderate delays during the AM peak hour and long delays during the PM peak hour under build-out conditions. The stop-controlled westbound approach is expected to operate with short delays during both peak hours under background conditions; under build-out conditions, the westbound approach is expected to operate with short delays during the AM peak hour and long delays during the PM peak hour. Given the LOS degradation and increase in delay on the side streets, the following improvement was identified:

- Installation of a traffic signal

A preliminary peak-hour signal warrant assessment (Warrant 3) was performed at this intersection. The criteria is not satisfied under 2033 background conditions but is satisfied during both peak hours under 2033 build-out conditions. It is noted that the signal was optimized in the analysis such that the northbound/southbound approaches are provided the maximum amount of green time available while meeting NCDOT Congestion Management's minimum cycle length.

6.3 N CENTRAL AVE AND MISSION CHURCH RD

Table 6.3 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the unsignalized intersection of N Central Ave and Mission Church Rd.

Table 6.3 - N Central Ave and Mission Church Rd

Condition	Measure	WB		NB		SB	
		WBL	WBR	NBT	NBR	SBL*	SBT
AM Peak Hour							
2023 Existing	LOS (Delay)	B (14.6)		A (0.0)		A (8.2)	A (0.0)
	Synchro 95th Q	25'	5'	0'		0'	0'
2033 Background	LOS (Delay)	C (16.9)		A (0.0)		A (8.4)	A (0.0)
	Synchro 95th Q	33'	3'	0'	0'	0'	0'
2033 Build-out	LOS (Delay)	C (19.2)		A (0.0)		A (8.6)	A (0.0)
	Synchro 95th Q	45'	5'	0'	0'	0'	0'
PM Peak Hour							
2023 Existing	LOS (Delay)	C (18.0)		A (0.0)		A (8.3)	A (0.0)
	Synchro 95th Q	23'	3'	0'		0'	0'
2033 Background	LOS (Delay)	C (21.9)		A (0.0)		A (8.6)	A (0.0)
	Synchro 95th Q	33'	3'	0'	0'	3'	0'
2033 Build-out	LOS (Delay)	D (26.1)		A (0.0)		A (8.8)	A (0.0)
	Synchro 95th Q	48'	3'	0'	0'	3'	0'
Background Storage		225'			100'	150'	

*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions

As shown in **Table 6.3**, the stop-controlled side street is expected to operate with short to moderate delays during both peak hours under background and build-out conditions. It is noted that the westbound approach degrades from LOS C to D with less than 25% increase in delay. This is due to the build-out delay increasing by approximately 4 seconds just beyond the LOS C/D demarcation of 25 seconds. Additionally, the intersection is expected to be fully built-out under future year conditions, and a change in operational control would be required to improve LOS. Therefore, developer improvements are not recommended.

6.4 COLEY STORE RD AND BETHEL CHURCH RD

Table 6.4 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the AWSC intersection of Coley Store Rd and Bethel Church Rd.

Table 6.4 - Coley Store Rd and Bethel Church Rd

Condition	Measure	EB	WB	NB	SB	Intersection
		EBLTR	WBLTR	NBLTR	SBLTR	LOS (Delay)
AM Peak Hour						
2023 Existing	LOS (Delay)	B (10.2)	B (10.6)	A (8.8)	A (9.6)	B (10.1)
	Synchro 95th Q	33'	40'	10'	18'	
2033 Background	LOS (Delay)	A (9.9)	B (10.7)	A (8.7)	A (9.5)	A (10.0)
	Synchro 95th Q	30'	45'	8'	18'	
2033 Build-out	LOS (Delay)	B (10.5)	B (11.3)	A (9.0)	A (9.8)	B (10.5)
	Synchro 95th Q	38'	50'	10'	20'	
PM Peak Hour						
2023 Existing	LOS (Delay)	A (9.4)	A (9.4)	A (8.9)	A (8.8)	A (9.2)
	Synchro 95th Q	25'	25'	15'	13'	
2033 Background	LOS (Delay)	A (9.7)	A (9.3)	A (9.1)	A (8.7)	A (9.3)
	Synchro 95th Q	30'	23'	20'	8'	
2033 Build-out	LOS (Delay)	B (10.3)	A (9.9)	A (9.6)	A (8.9)	A (9.8)
	Synchro 95th Q	38'	30'	23'	10'	

As shown in **Table 6.4**, the intersection is expected to operate with short delays during both peak hours under background and build-out conditions. Therefore, improvements are not recommended.

6.5 COLEY STORE RD AND MAIN ST (NC 24)

Table 6.5 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the unsignalized intersection of Coley Store Rd and Main St (NC 24).

Table 6.5 - Coley Store Rd and Main St (NC 24)

Condition	Measure	EB		WB		SB	
		EBL	EBT	WBT	WBR	SBL	SBR
AM Peak Hour							
2023 Existing	LOS (Delay)	B (12.1)	A (0.0)	A (0.0)		C (16.6)	
	Synchro 95th Q	10'	0'	0'	0'	3'	33'
2033 Background	LOS (Delay)	B (13.7)	A (0.0)	A (0.0)		C (20.9)	
	Synchro 95th Q	10'	0'	0'	0'	3'	50'
2033 Build-out	LOS (Delay)	B (13.8)	A (0.0)	A (0.0)		C (22.4)	
	Synchro 95th Q	13'	0'	0'	0'	10'	55'
PM Peak Hour							
2023 Existing	LOS (Delay)	B (10.3)	A (0.0)	A (0.0)		B (13.7)	
	Synchro 95th Q	13'	0'	0'	0'	5'	13'
2033 Background	LOS (Delay)	B (11.7)	A (0.0)	A (0.0)		C (15.0)	
	Synchro 95th Q	20'	0'	0'	0'	5'	18'
2033 Build-out	LOS (Delay)	B (11.8)	A (0.0)	A (0.0)		C (17.3)	
	Synchro 95th Q	23'	0'	0'	0'	13'	18'
Background Storage		100'			50'		75'

*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions

As shown in **Table 6.5**, the stop-controlled side street is expected to operate with short delays during both peak hours under background and build-out conditions. Therefore, improvements are not recommended.

6.6 BETHEL CHURCH RD AND ACCESS A

Table 6.6 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the proposed unsignalized intersection of Bethel Church Rd and Access A.

Table 6.6 - Bethel Church Rd and Access A

Condition	Measure	EB		WB		NB	SB
		EBL*	EBTR	WBL*	WBTR	NBLTR	SBLTR
AM Peak Hour							
2033 Build-out	LOS (Delay)	A (7.7)	A (0.0)	A (7.7)	A (0.0)	B (13.5)	B (11.3)
	Synchro 95th Q	0'	0'	0'	0'	10'	8'
PM Peak Hour							
2033 Build-out	LOS (Delay)	A (7.7)	A (0.0)	A (7.8)	A (0.0)	B (13.5)	B (11.1)
	Synchro 95th Q	3'	0'	0'	0'	8'	5'

*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions

As shown in **Table 6.6**, the proposed stop-controlled northbound and southbound approaches of Access A are expected to operate with short delays during both peak hours with a single egress lane for both approaches. Therefore, no improvements are recommended for capacity purposes beyond the construction of Access A with a single ingress and a single egress lane with stop control for both the north and south legs.

Based on review of Synchro 95th percentile queues and SimTraffic maximum queues, the NCDOT minimum 100-foot internal protected stem (IPS) is recommended along Access A.

6.7 MISSION CHURCH RD AND ACCESS B

Table 6.7 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the proposed unsignalized intersection of Mission Church Rd and Access B.

Table 6.7 - Mission Church Rd and Access B

Condition	Measure	EB	WB		NB
		EBTR	WBL*	WBT	WBLR
AM Peak Hour					
2033 Build-out	LOS (Delay)	A (0.0)	A (7.4)	A (0.0)	A (9.8)
	Synchro 95th Q	0'	0'	0'	3'
PM Peak Hour					
2033 Build-out	LOS (Delay)	A (0.0)	A (7.6)	A (0.0)	B (10.0)
	Synchro 95th Q	0'	0'	0'	3'

*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions

As shown in **Table 6.7**, the proposed stop-controlled northbound approach of Access B is expected to operate with short delays under build-out conditions with a single egress lane. Therefore, no improvements are recommended for capacity purposes beyond the construction of Access B with a single ingress and a single egress lane with stop control.

Based on review of Synchro 95th percentile queues and SimTraffic maximum queues, the NCDOT minimum 100-foot IPS is recommended along Access B.

6.8 COLEY STORE RD AND ACCESS C

Table 6.8 summarizes the LOS, average control delay (seconds per vehicle), and 95th percentile queue lengths at the proposed unsignalized intersection of Coley Store Rd and Access C.

Table 6.8 - Coley Store Rd and Access C

Condition	Measure	EB	NB		SB
		EBLR	NBL*	NBT	SBTR
AM Peak Hour					
2033 Build-out	LOS (Delay)	A (9.9)	A (7.7)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'
PM Peak Hour					
2033 Build-out	LOS (Delay)	A (9.6)	A (7.5)	A (0.0)	A (0.0)
	Synchro 95th Q	3'	0'	0'	0'

*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions

As shown in **Table 6.8**, the proposed stop controlled eastbound approach of Access C is expected to operate with short delays under build-out conditions with a single egress lane. Therefore, no improvements are recommended for capacity purposes beyond the construction of Access C with a single ingress and a single egress lane with stop control.

Based on review of Synchro 95th percentile queues and SimTraffic maximum queues, the NCDOT minimum 100-foot IPS is recommended along Access C.

7.0 Auxiliary Turn-Lane Warrants

Warrants for additional turn-lane improvements for unsignalized site access intersections beyond those necessary for capacity were determined 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*. The NCDOT turn-lane warrant graphs are included in the **Appendix.** Based on review of turn-lane warrant figures, no turn-lane improvements are warranted for site specific movements at the study intersections of Bethel Church Rd/Access A, Mission Church Rd/Access B, and Coley Store Rd/Access C.

While turn lane warrants are not met for Bethel Church Rd/Access A, NCDOT-minimum 100-foot left-turn lanes are still recommended for the eastbound and westbound approaches due to the combination of AADT exceeding 4,000 vehicles per day with the addition of site traffic and 45 mph posted speed limit. Additionally, Access A is intended as the main access, and 65% of the entering site traffic is assigned.

8.0 Identified Mitigation Improvements

Based on the capacity analyses performed at each of the identified study area intersections, along with review of NCDOT turn-lane warrants contained herein, the following improvements are identified to mitigate the impact of the proposed development on the surrounding transportation infrastructure:

N Central Avenue and Main Street (NC 24)

- Restripe the painted median on northern leg to provide an additional southbound left-turn lane with 125 feet of storage.
- Perform associated traffic signal modifications.

N Central Ave and Bethel Church Road/Meadow Creek Church Road

- Install a traffic signal if/when warrants are met.

Bethel Church Road and Access A

- Construct Access A to include a single ingress lane, a single egress lane, stop control, and a 100-foot IPS on both the north and south legs.
- Construct a westbound left-turn lane with 100 feet of storage.
- Construct an eastbound left-turn lane with 100 feet of storage.

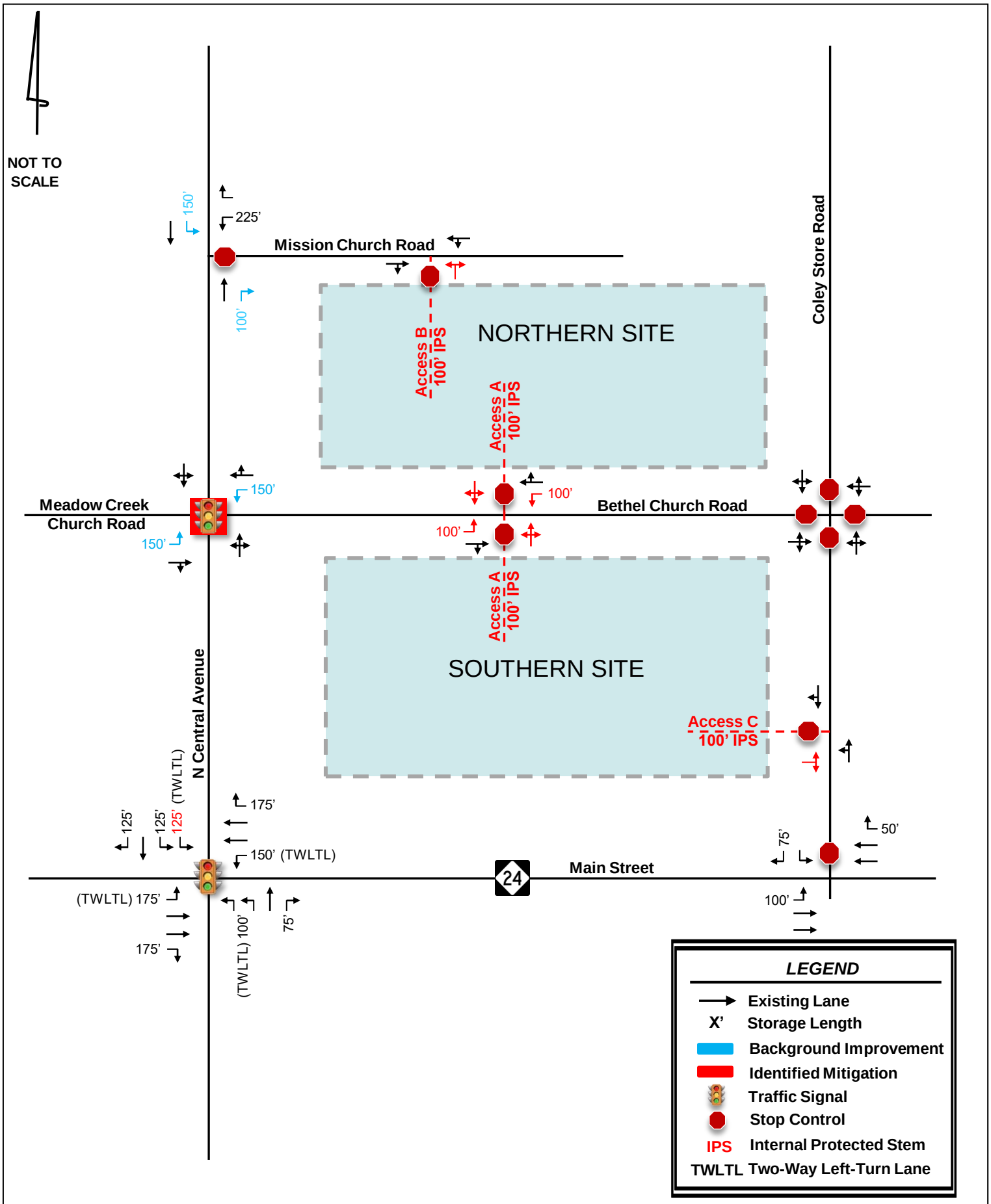
Mission Church Road and Access B

- Construct Access B to include a single ingress lane, a single egress lane, stop control, and a 100-foot IPS.

Coley Store Road and Access C

- Construct Access C to include a single ingress lane, a single egress lane, stop control, and a 100-foot IPS.

The mitigation improvements identified within the study area are shown in **Figure 8.1**. The improvements shown on this figure are subject to approval by Locust and NCDOT as applicable. All additions and attachments to the public roadway system shall be properly permitted, designed and constructed in conformance to standards maintained by NCDOT. The site-civil engineer is responsible for confirming that the proposed access points meet current sight distance standards.



Kimley»Horn	Locust Bethel Traffic Impact Analysis	Identified Mitigation Improvements	Figure 8.1

Appendix

NCDOT Scoping Checklist

NCDOT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need Screening → TIA Scoping → TIA Submittal

A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Name: Locust Bethel **Previous Name:** If Applicable

Location: Along both sides of Bethel Church Road **County:** Stanly **Municipality:** Locust

Project Description: 1,150 age-restricted single-family homes

Project Contact:	Applicant	TIA Consultant
Company Name	Kolter Homes LLC	Kimley-Horn and Associates
Contact Person	Emily Powell	Amy Massey
Phone Number	704-575-9310	704-287-3304
Email	epowell@kolter.com	Amy.Massey@kimley-horn.com
Mailing Address	8913 Silver Springs Court Charlotte, NC 28215	580 Kingsley Park Drive Suite 125 Fort Mill, SC 29715

Site Plan Prepared By: Merrick **Site Plan Date:**

See site plan/vicinity map requirements on page 2.

Parcel Size: ±503.49 Acre(s) **Anticipated Build-Out Year:** 2033

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
251	Senior Adult	1150	DU	4724	Adj. Street	82	167	249	182	116	298	ITE Equation
Total		1150	DU	4724		82	167	249	182	116	298	

Refer to the current *NCDOT Congestion Management Capacity Analysis Guidelines* for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used:

☒ The estimated site trips meet NCDOT's TIA trip threshold of 3,000 daily trips.

☐ The estimated site trips meet the municipal TIA trip threshold of

☐ This project is located in a known STIP and/ or local CIP project #

☒ This project includes a rezoning request.

NCDOT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need Screening → TIA Scoping → TIA Submittal

☐ The proposed site access is located within 1,000 feet of an interchange.

☐ The Applicant requests for a new or modified control-of-access break.

☐ The Applicant requests for a new or modified median break.

Applicant's Signature	Print Name	10/25/2023 Date

Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: Locust Bethel **Project Reference Number:** _____

☐ **A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.

☒ **A TIA is Required by NCDOT,** per the *Policy on Street and Driveway Access to North Carolina Highways*.

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

☐ **A TIA is NOT required**. This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.

Additional Comments:

The TIA need decision is made by the NCDOT Division ____ District____ on _____.

_____ _____

NCDOT District Representative's Signature | Print Name

Email concurrence may be used in lieu of the signature.

NCDOT TIA Scoping Checklist

TIA Need Screening → TIA Scoping → TIA Submittal

Project Name: Locust Bethel **TIA Scoping Date:** 10/25/23

☒ **TIA Need Screening Forms are Attached.** Project Reference #: _____ Decision Date: _____

☒ **Site Plan and Access**

☒ Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.

Refer to NCDOT's *Policy on Street and Driveway Access to North Carolina Highways* pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Bethel Church Rd	Conventional Full-Mvmt	2-Way Stop	1850	West	Coley Store
Access B	Mission Church Rd	Conventional Full-Mvmt	2-Way Stop	5650	North	Bethel Church
Access C	Coley Store Rd	Conventional Full-Mvmt	2-Way Stop	3500	North	Bethel Church
Access D						
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	**Proposed Interconnectivity** (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1				Connector 1		
Access 2				Connector 2		
Access 3				Connector 3		
Access 4				Connector 4		

☐ Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

☐

Proposed K-12 School Site

☐ NCDOT MSTA School Traffic Calculator for _____ shall be used.

☐ Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).

☐ Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.

☐ Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).

☒ Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current *NCDOT Congestion Management Capacity Analysis Guidelines*, and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
251	Senior Adult	1150	DU	4724	Adj. Street	82	167	249	182	116	298	ITE Equation
Unadjusted Site Trips				4724		82	167	249	182	116	298	
Internal Capture Trips (Attach Calculation Sheets)												
Internal Capture % of Unadjusted Site Trips				%		%			%			
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								
				%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)												
Adjacent Street Volumes												
Non-Pass-By Primary Trips				4724		82	167	249	182	116	298	
Diverted Trips, if Applicable and Justifiable												

**Explain local or other data sources, if used:

☐ Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
Total Existing Site Trips												

☒ **Trip Distribution**

☒ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).

☐ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)

☐ Inter-Development Trips (if 'internal" trips cross public streets)

☐ Pass-By Trips

☐ Diverted Trips

☐ Each Analysis Period

☐ **Mode Split**

☐ Provide Data Source and Justification

Mode / Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

☐ Identify proper infrastructure and accommodation for other modes of travel.

☒ **Analysis Peak Periods:**

☒ Weekday AM Peak 7 AM - 9 AM

☒ Weekday PM Peak 4 PM - 6 PM

☐ Weekday Midday Peak _____

☐ Weekday PM School Peak _____

☐ Weekend _____ Peak _____

☐ Other _____

☒ Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under "Site Plan and Access" on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	Main St	N Central	Signal	Require New Counts			
#2	Bethel Church	N Central	2-Way Stop	Require New Counts			
#3	Mission Church	N Central	2-Way Stop	Require New Counts			
#4	Bethel Church	Coley Store	All-Way Stop	Require New Counts			
#5	Main St	Coley Store	2-Way Stop	Require New Counts			
#6	Bethel Church	Access A	2-Way Stop				
#7	Mission Church	Access B	2-Way Stop				
#8	Coley Store	Access C	2-Way Stop				
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101							
#102							
#103							
#104							
#105							

The following data will be collected:

☒ New traffic turning movement counts in ☒ 15-min intervals ☐ 5-min intervals (near schools)

Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.

☐ To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:

intersections numbered: _____

and access points numbered: _____

☐ Traffic Forecast Data for TIP: _____

☒ Roadway/Intersection Configuration & Traffic Control

☒ Traffic Signal Phasing & Timing Data

☐ Crash Data: _____ Period: _____

☐ Other:

☒ Future Year Conditions

☒ Project Build-Out Year: 2033

☒ Future Analysis Year(s): 2033

☒ Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description	Year Complete
None		

Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements
Summer Dunes	W of N Central Ave	184 Single-Family Detached	See Attached
*			

☒ Annual Growth Factor: 2 %

Justification/Data Source: NCDOT AADT in vicinity of the site

☒ Local Comprehensive Transportation Plan Compliance

☒ Identify Applicable Local Transportation Planning Documents

Locust and Red Cross CTP

*Whispering Hills assumed within the growth rate since no TIA was performed. The associated improvements (see attached) will be assumed in place in the future year analyses.

☐ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #

☒ Study Method

The traffic analysis shall follow the current *NCDOT Congestion Management Capacity Analysis Guidelines*, *Policy on Street and Driveway Access to North Carolina Highways*, and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:

☐ 5. TIP Design Year Analysis _____

☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- ☐ Signal Warrant Analysis for accesses/intersections _____
- ☐ Multi-Modal Level of Service Analysis
- ☐ School Loading Zone Traffic Simulation
- ☐ Phasing Analysis (scope separately as needed)
- ☐ Safety/Crash Analysis
- ☐ Control-of-Access Modification Justification
- ☐ Median Break / Modification Justification
- ☐ Other _____

☒ Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

☐ Div. Traffic Engr ☐ Regional Traffic Engr ☐ Congestion Management ☐ Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required			
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

☐ **Additional Comments (**municipal TIA requirements, approved variations from NCDOT guidelines)

Agreement by All Parties

The undersigned agree to the contents and methodology described above for completing the required traffic impact analysis for the proposed development identified herein. Any changes to the above methodology contemplated by the Applicant or the TIA Consultant must be submitted to the District Engineer in writing. If approved by NCDOT, then such changes may be accepted for the TIA report. Subsequent revisions to the development plan (e.g. land use, density, site access, or schedule) may require additional scoping and analysis, and may modify the TIA requirements.

This agreement shall become effective on the date approved by NCDOT, and shall expire____ months after the effective date or upon significant changes to the roadway network and/or development assumptions, whichever occurs first. Once expired, renewal or re-scoping will be required for subsequent TIA submittals.

APPLICANT

_____	_____	_____
Signature	Print Name	Date

TIA CONSULTANT

_____	_____	_____
Signature	Print Name	Date

LOCAL GOVERNMENT REPRESENTATIVE (If Applicable)

_____	_____	_____
Signature	Print Name	Date

Email concurrence may be used in lieu of the signature.

NCDOT DISTRICT REPRESENTATIVE

Reviewed and approved by the NCDOT Division ____District ____ on _____.

_____	_____
Signature	Print Name

Email concurrence may be used in lieu of the signature.

Perimeter Buffer

MISSION CHURCH ROAD

BETHEL CHURCH ROAD

COLEY STORE ROAD

HINSON FARM ROAD

COS

BMP

Pond
23.4 ac.

Pond
10.7 ac.

Pond
13.9 ac.

Clubhouse
and Amenity

Amenity
Site
10.7 ac.

New
Wetlands
8.3 ac

New
Wetlands
3.6 ac

Pump station

Pump station

745 Total Lots
(190) 61'
(555) 51'

Wetland Impacts:
Big Pond area: +/- 185,575 sf
Road Crossing: +/- 2400 sf
Total Wetlands Impacts: 187,975 sf
Say: 190k for discussion (4.36 ac)

Wetland area Created:
Area 1: +/- 357,250 sf
Area 2: +/- 139,600 sf
Total Wetland Created: 496,850 sft (11.4 ac)

Scale: 1" = 200'

0 100 200 400 600 800

N

Q:\CHA\Projects\1571-00-KOL-Locust DD Hourly\CAD\Planning\Site Plan-FULL.dwg 8/21/2023 5:34:40 PM

MERRICK

301 S. MCDOWELL STREET, SUITE 300
CHARLOTTE, NC 28204

NC ENGINEERING FIRM F-0908 PHONE: 704.529.6500

Kolter Signature Homes
4807 PGA Blvd
Palm Beach Gardens

REV	REVISION DESCRIPTION	DATE:	CHANGED BY:

REVISIONS:

Locust Bethel

Locust, NC

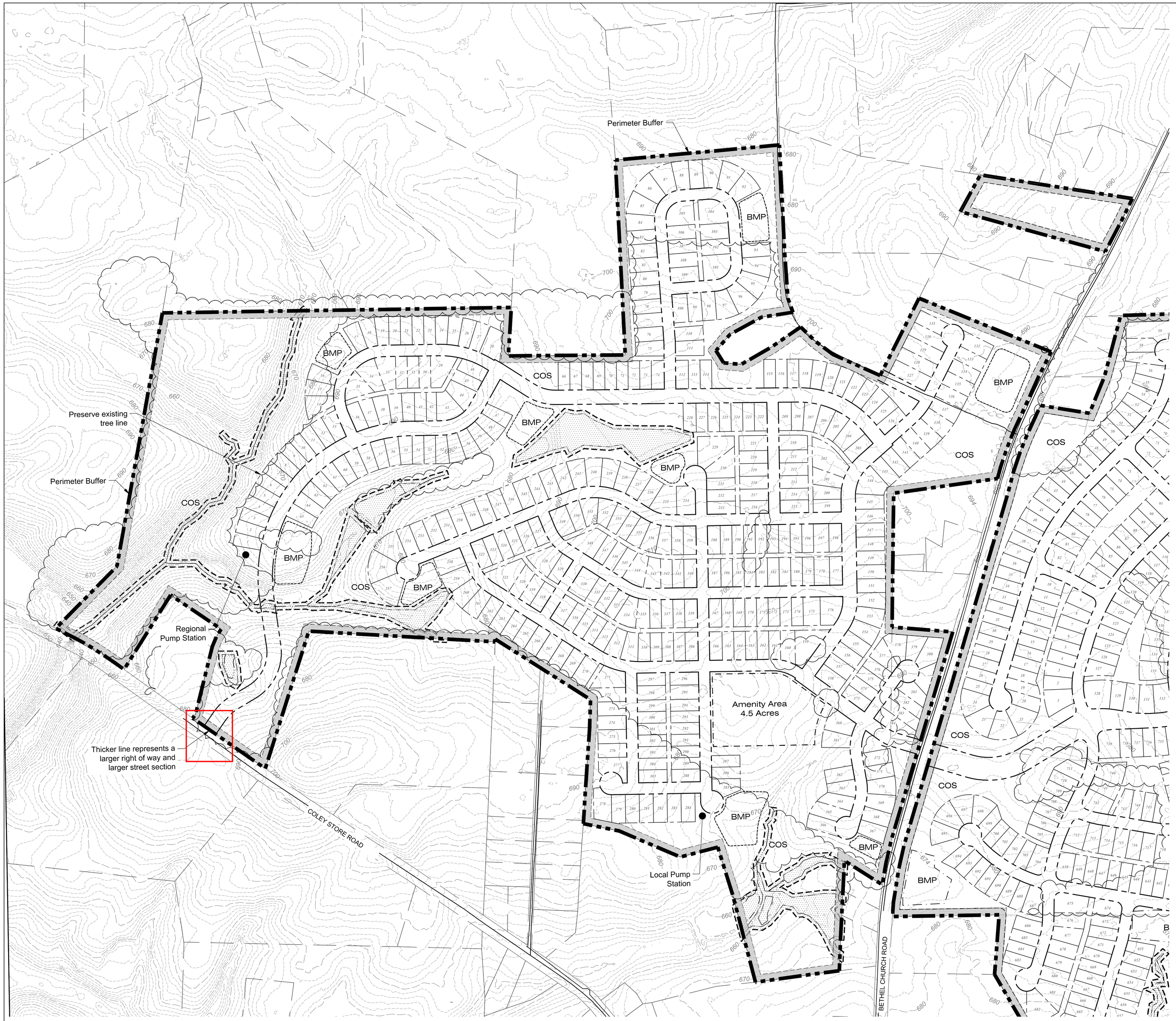
North Side Concept Plan

SEAL(S)

		DATE:
DESIGN BY:	DesignXXX	MM/DD/YY
DRAWN BY:	DrawnXXX	MM/DD/YY
CHECKED BY:	CheckXXX	MM/DD/YY
APPROVED BY:	AppXXX	MM/DD/YY

PROJECT/TRACKING #	
INTERNAL:	JobNumber
MUNICIPAL:	MuniNumber
ORIGINAL DATE:	MM/DD/YYYY

SHEET 1



Lot Summary:

South Side:	
Total Lots:	384
50's:	251 (66%)
60's:	133 (34%)

Scale: 1" = 200'

0 100 200 400 600 800

N

MERRICK
301 S. MCDOWELL STREET, SUITE 300
CHARLOTTE, NC 28204
NC ENGINEERING FIRM: F-0908 PHONE: 704-529-6500

Kolter Signature Homes
4807 PGA Blvd
Palm Beach Gardens

REVISIONS:

REV	REVISION DESCRIPTION	DATE:	CHANGED BY:

Locust Bethel
Locust, NC

South Side Concept Plan

SEAL(S)

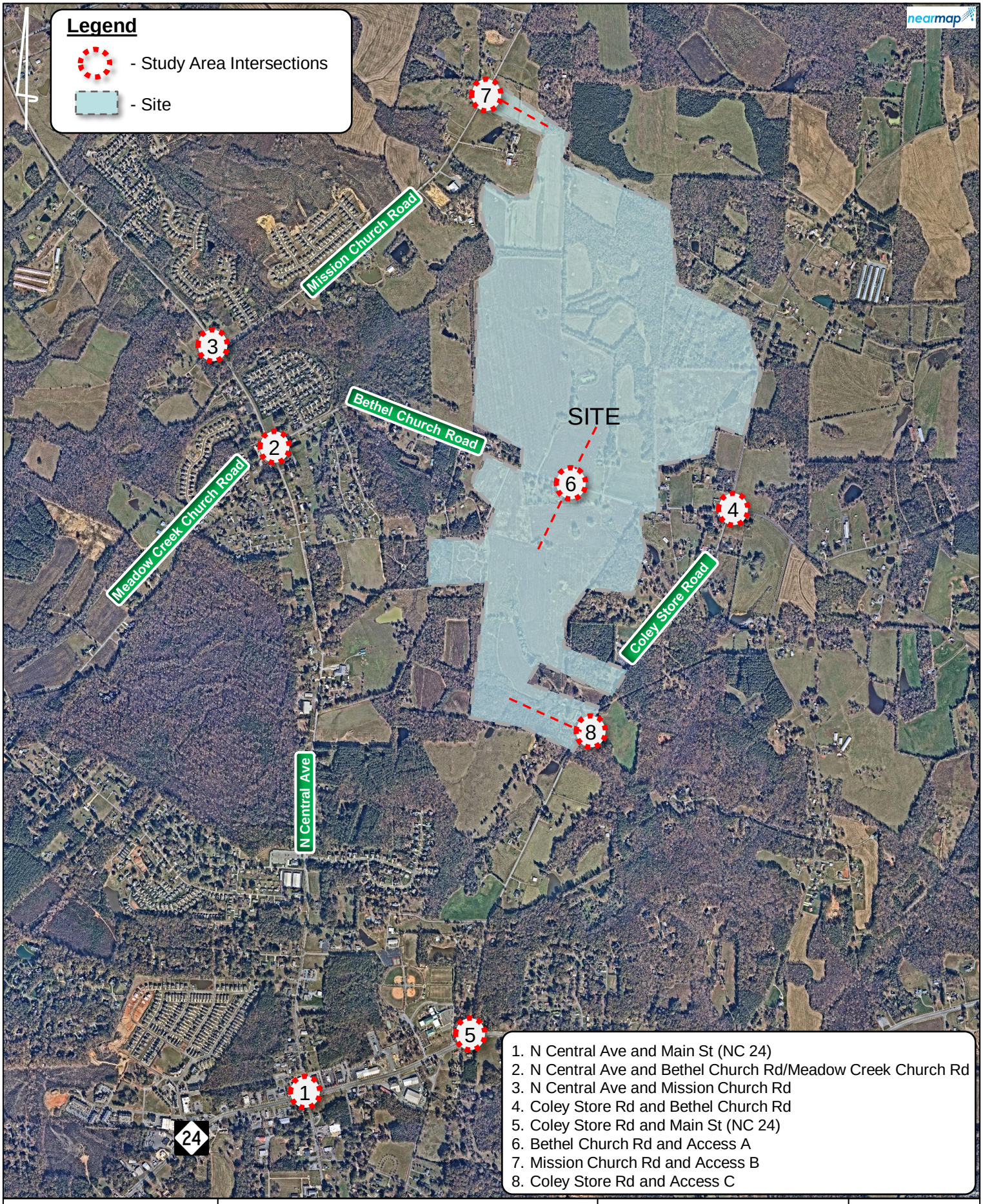
		DATE:
DESIGN BY:	DesignXXX	MM/DD/YY
DRAWN BY:	DrawnXXX	MM/DD/YY
CHECKED BY:	CheckXXX	MM/DD/YY
APPROVED BY:	AppXXX	MM/DD/YY

PROJECT/TRACKING #
INTERNAL: JobNumber
MUNICIPAL: MuniNumber
ORIGINAL DATE: MM/DD/YYYY

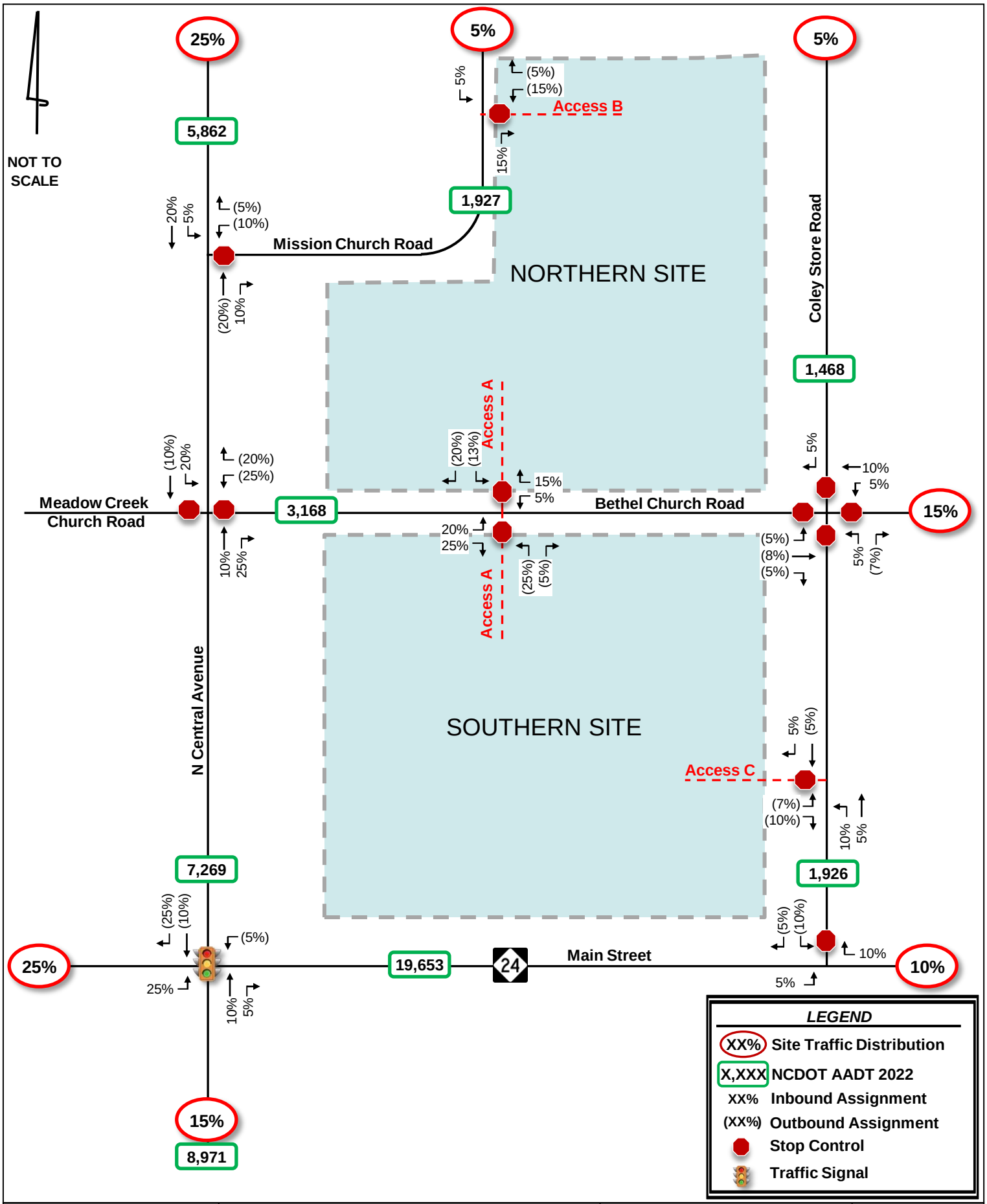
SHEET 1

Q:\CHA\Projects\1571-00-KOL-Locust DD Hourly\CAD\Planning\Site Plan-FULL.dwg 8/21/2023 5:39:57 PM

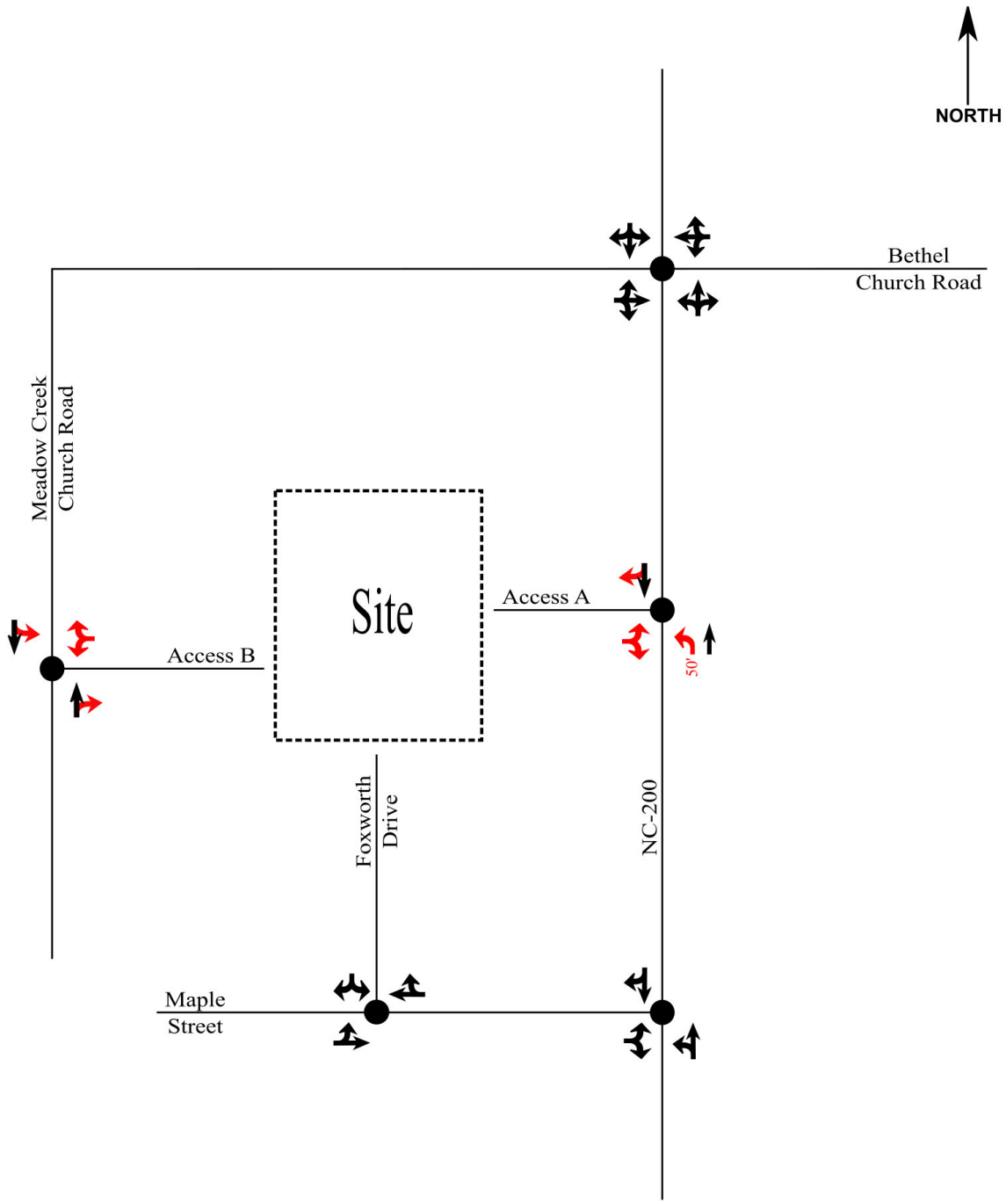
NCDOT AADT												
	2022	2021	2019	2018	2017	2016	2015	2014	2012	2002	Growth Rate (2012-2022)	Growth Rate (2002-2022)
Coley Store Rd (north of Bethel Church Rd)	1,468	1,453	1,532	1,455	1,473	1,506	1,130	1,222	1,200	1,300	2.0%	0.6%
Bethel Church Rd (east of N Central Ave)	3,168	3,152	3,324	3,156	3,195	3,267	3,133	2,444	-	-	-	-
Mission Church Rd (east of N Central Ave)	1,927	878	925	879	890	910	896	969	1,100	800	5.8%	4.5%
Coley Store Rd (north of NC-24)	1,926	1,946	2,052	1,948	1,972	2,016	1,613	1,744	1,800	1,900	0.7%	0.1%
Meadow Creek Church Rd (west of N Central Ave)	1,511	1,120	1,181	1,122	1,136	1,162	1,063	1,150	1,300	820	1.5%	3.1%
N Central Ave (north of Mission Church Rd)	5,862	5,700	5,888	6,316	6,244	5,900	5,500	-	5,400	5,400	0.8%	0.4%
Average											***2.2%***	***1.7%***



Kimley»Horn	**Locust Bethel Traffic Impact Analysis**	**Study Area/Site Location**	**Figure 1**



Kimley»Horn	Locust Bethel Traffic Impact Analysis	Site Traffic Distribution and Assignment	Figure 2



LEGEND

- Signalized Intersection
- Unsignalized Intersection
- Existing Lane
- Recommended Improvement
- X' Storage (In Feet)

IMPACT
Designs, Inc.

Summer Dunes Single Family
Locust, NC

Proposed Lane Configurations
and Traffic Control

Scale: Not to Scale	Figure	9

From: Cesar Correa <CityManager@locustnc.com>
Sent: Tuesday, October 24, 2023 3:11 PM
To: Massey, Amy <Amy.Massey@kimley-horn.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Amy,

And here is the TIA conducted by M/I Homes (not Hopper for Summer Dones) The neighborhood will be called Amber Glen.

Please know that the TIA does not include the final improvements as required per their conditional rezoning. In addition to what is shown in the TIA, the also have to complete the following:

- Installation of Left Turn Lane at proposed access point with minimum 100' storage and appropriate tapers
- Installation of East bound Left Turn Lane (Turning onto NB NC 200) at Meadow Creek Church Road and NC 200 with 150' minimum storage and appropriate tapers.
- Installation of West bound Left turn Lane (Turning onto SB NC 200) at Bethel Church Road and NC 200 with 150' minimum storage and appropriate tapers.

Thanks.

Cesar Correa ICMA-CM
City Manager
City of Locust

Phone: 704-888-5260 ext.101
Email: citymanager@locustnc.com

186 Ray Kennedy Drive
Locust, NC 28097

www.locustnc.com

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

December 21, 2018

Division 10
District 1 – Stanly County

Dependable Development, Incorporated
2649 Breckonridge Centre Drive
Monroe, North Carolina 28110

Subject: Transfer of Driveway Permit No. S-1127 – Whispering Hills Subdivision (Phase1) in Locust, NC

Dear Sir:

Enclosed is an executed copy of the subject Driveway Entrance Permit. The original permit was issued October 11, 2010, to the original developer of the property/subdivision. Since that time Dependable Developments has taken ownership of this development, requiring the original driveway permit to be transferred to the new ownership. Please consider this letter as NCDOT's approval of transfer of the approved driveway permit for this development subject to the original provisions for roadway improvements as noted below for Phase 1.

Construction of one (1) thirty-six foot (36') full movement entrance for the proposed Whispering Hills Subdivision Phase I, in Locust (built by original developer). The entrance location is approximately 500' west of NC 200 at its intersection with SR 1206 (Mission Church Road).

In lieu of the Traffic Impact Analysis requirement for the original developer, the following is a list of the roadway improvements NCDOT shall require, effective with the onset of Phase II (recordation of plat), based on total buildout of Phase 1 and total build out Phase 2 (separate driveway permit)

<u>Intersection of NC 200 and Mission Church Road</u>

- Southbound left-turn lane on NC 200 with a minimum of 150 feet of storage,
- Northbound right-turn lane on NC 200 with a minimum of 100 feet of storage, and
- Westbound left and right turn lanes on Mission Church Road, creating a three-lane section from NC 200 to Whispering Hills Drive.

<u>Intersection of Mission Church Road and Whispering Hills Drive</u>

- Eastbound left-turn lane on Mission Church Road with three-lane section extending from NC 200 as indicated above.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION 10 DISTRICT 1
615 CONCORD ROAD
ALBEMARLE, NORTH CAROLINA 28001

Telephone: (704) 983-4360
Fax: (704) 982-9659
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
615 CONCORD ROAD
ALBEMARLE, NORTH CAROLINA 28001

Once the extent of roadway improvements are determined, all of the proposed improvements would be bonded and built with the access permit process for Phase II.

This approval is subject to the attached Special Provisions.

Sincerely,

Marc Morgan, PE CPM
District Engineer

Atta.
cc: Mr. Scott Efird, Planning Director City of Locust
File

From: Morgan, Marc P <mmorgan@ncdot.gov>
Sent: Monday, November 27, 2023 2:05 PM
To: Massey, Amy <Amy.Massey@kimley-horn.com>; Cesar Correa <CityManager@locustnc.com>
Cc: Emily Jones <parks@locustnc.com>; Gardner, Zachary L <zlgardner@ncdot.gov>; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: [External] RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

No problem. Thank you for the updated info.

Marc

From: Massey, Amy <Amy.Massey@kimley-horn.com>
Sent: Monday, November 27, 2023 10:45 AM
To: Cesar Correa <CityManager@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; Gardner, Zachary L <zlgardner@ncdot.gov>; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: [External] RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Hi Marc and Cesar,
Hope it was a great Thanksgiving!

Just wanted to make you aware that the attached rezoning plan was submitted last week. It shows:

- Property area tweaked up to 507 acres (compared with 503.49 in the approved scoping checklist).
- 1,116 lots, and we've been directed to proceed with trip generation rounded up to 1,125 lots for a buffer (less than the 1,150 lots in the approved scoping checklist).

Have a great day!

Thank you,
Amy

Amy Massey, PE
Kimley-Horn
704-287-3304

From: Massey, Amy
Sent: Wednesday, October 25, 2023 1:37 PM
To: Cesar Correa <CityManager@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

You are very welcome!

Thank you,
Amy

Amy Massey, PE
Kimley-Horn
704-287-3304

From: Cesar Correa <CityManager@locustnc.com>
Sent: Wednesday, October 25, 2023 1:11 PM
To: Massey, Amy <Amy.Massey@kimley-horn.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Received, thank you.

Cesar Correa ICMA-CM
City Manager
City of Locust

Phone: 704-888-5260 ext.101
Email: citymanager@locustnc.com

186 Ray Kennedy Drive
Locust, NC 28097

www.locustnc.com

From: Massey, Amy <Amy.Massey@kimley-horn.com>
Sent: Tuesday, October 24, 2023 16:17
To: Cesar Correa <CityManager@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Thank you Marc and Cesar!
Last follow-up:

1. If there is no TIA for Whispering Pines then it'd have to be assumed within the growth rate. We'd be assuming the associated transportation improvements in the 2033 horizon year.
2. For Summer Dunes we'd assume 0% build-out in 2023, and 100% in 2033 (as well as the associated improvements).

Thank you,
Amy

Amy Massey, PE
Kimley-Horn
704-287-3304

From: Cesar Correa <CityManager@locustnc.com>
Sent: Tuesday, October 24, 2023 3:11 PM
To: Massey, Amy <Amy.Massey@kimley-horn.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Amy,

And here is the TIA conducted by M/I Homes (not Hopper for Summer Dones) The neighborhood will be called Amber Glen.

Please know that the TIA does not include the final improvements as required per their conditional rezoning. In addition to what is shown in the TIA, the also have to complete the following:

- Installation of Left Turn Lane at proposed access point with minimum 100' storage and appropriate tapers
- Installation of East bound Left Turn Lane (Turning onto NB NC 200) at Meadow Creek Church Road and NC 200 with 150' minimum storage and appropriate tapers.
- Installation of West bound Left turn Lane (Turning onto SB NC 200) at Bethel Church Road and NC 200 with 150' minimum storage and appropriate tapers.

Thanks.

Cesar Correa ICMA-CM
City Manager
City of Locust
Phone: 704-888-5260 ext.101
Email: citymanager@locustnc.com
186 Ray Kennedy Drive
Locust, NC 28097
www.locustnc.com

From: Massey, Amy <Amy.Massey@kimley-horn.com>
Sent: Tuesday, October 24, 2023 14:57
To: Cesar Correa <CityManager@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Hi all,

So I've confirmed with Marc that NCDOT wants the Bethel Church/Coley Store intersection, and we are wrapping up the changes. Meanwhile, may we also please get these 2 TIAs, specific committed/required improvements for 2033 scenarios, and estimated build-out % for each for 2023 and 2033?

1. Summer Dunes (Hopper) has improvements at Bethel/Central (E/W lefts Meadow Creek/Bethel).
2. Whispering Hills needs to be added with some level of traffic and improvements at Mission Church/Central.

Thank you!
Amy

Amy Massey, PE
Kimley-Horn
704-287-3304

From: Massey, Amy
Sent: Wednesday, October 18, 2023 1:40 PM
To: Cesar Correa <CityManager@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>
Cc: Emily Jones <parks@locustnc.com>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: Re: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Ok got it, we'll keep both then, as NCDOT wants Bethel Church/Coley Store right Marc?

Amy Massey, PE
Kimley-Horn
Sent from my iPhone

On Oct 18, 2023, at 1:37 PM, Cesar Correa <CityManager@locustnc.com> wrote:

Amy,

I'm sorry, I misunderstood. The City ***is*** interested in your team studying NC24/Coley Store.

Thanks.

<image001.jpg>

Cesar Correa ICMA-CM
City Manager
City of Locust

Phone: 704-888-5260 ext.101
Email: citymanager@locustnc.com

186 Ray Kennedy Drive
Locust, NC 28097

www.locustnc.com

From: Massey, Amy <Amy.Massey@kimley-horn.com>
Sent: Wednesday, October 18, 2023 13:36
To: Cesar Correa <CityManager@locustnc.com>
Cc: Emily Jones <parks@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>; Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>;

Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: Re: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Thanks Cesar!
Just to clarify, we're removing NC 24/Coley Store intersection. And we can make these updates in the scoping checklist to finalize.

Amy Massey, PE
Kimley-Horn
Sent from my iPhone

On Oct 18, 2023, at 1:15 PM, Cesar Correa <CityManager@locustnc.com> wrote:

Amy,

Thanks for the follow up. We have no objection with removing the Bethel Church and Coley Store if NCDOT doesn't think the impact warrants studying it.

Thanks.

<image001.jpg>

Cesar Correa ICMA-CM
City Manager
City of Locust

Phone: 704-888-5260 ext.101
Email: citymanager@locustnc.com

186 Ray Kennedy Drive
Locust, NC 28097

www.locustnc.com

From: Massey, Amy <Amy.Massey@kimley-horn.com>
Sent: Wednesday, October 18, 2023 09:58
To: Cesar Correa <CityManager@locustnc.com>; Emily Jones <parks@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>
Cc: Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope follow-up with NCDOT input included

Marc,
Thanks so much for the discussion this morning! Here are my notes on additional info/changes to consider:

1. Approved developments:
1. Summer Dunes (Hopper) has improvements at Bethel/Central (E/W lefts Meadow Creek/Bethel).
    2. Whispering Hills needs to be added with some level of traffic and improvements at Mission Church/Central.
2. We'll need to get these TIAs, specific committed/required improvements for 2033 scenarios, and estimated build-out % for each for 2023 and 2033.

3. These 2 intersections will need to be looked at for preliminary peak-hour signal warrants.
4. Last thing is NCDOT and I discussed switching the site traffic distribution between Bethel Church at Coley Store (now 15% to/from the east) and 24 at Coley Store (now 10% to/from the east).

Cesar,
NCDOT is not necessarily interested in having 24/Coley Store as a study intersection- especially in light of this reduction in impact level. Would the City be agreeable to removing that intersection?

Thank you,
Amy

Amy Massey, PE
Kimley-Horn
704-287-3304

From: Massey, Amy
Sent: Wednesday, October 11, 2023 8:34 AM
To: Cesar Correa <CityManager@locustnc.com>; Emily Jones <parks@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>
Cc: Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope submittal

Thanks Cesar!

And just for frame of reference for everyone, the study area intersections cover traffic signals within a mile radius of the site.

Thank you,
Amy

Amy Massey, PE
Kimley-Horn
704-287-3304

From: Cesar Correa <CityManager@locustnc.com>
Sent: Tuesday, October 10, 2023 8:56 AM
To: Massey, Amy <Amy.Massey@kimley-horn.com>; Emily Jones <parks@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>
Cc: Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope submittal

Good morning Amy,

Scope of work looks good for Locust. But I want to confirm with NCDOT whether they want you to study any other intersections. We will follow their recommendations for improvements.

Thanks.

<image001.jpg>

Cesar Correa ICMA-CM
City Manager
City of Locust

Phone: 704-888-5260 ext.101
Email: citymanager@locustnc.com

186 Ray Kennedy Drive
Locust, NC 28097

www.locustnc.com

From: Massey, Amy <Amy.Massey@kimley-horn.com>
Sent: Tuesday, October 10, 2023 08:28
To: Cesar Correa <CityManager@locustnc.com>; Emily Jones <parks@locustnc.com>; Morgan, Marc P <mmorgan@ncdot.gov>; zlgardner@ncdot.gov; Faulkner, Jason S <jsfaulkner@ncdot.gov>
Cc: Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: RE: Locust Bethel TIA- D1/Locust-Stanly- Scope submittal

Good morning everyone,

Following up on the draft scoping checklist for this one. Please let us know if you have any questions or input.

Thank you!
Amy

Amy Massey, PE
Kimley-Horn
704-287-3304

From: Massey, Amy
Sent: Tuesday, September 26, 2023 4:28 PM
To: cityadmin@locustnc.com; parks@locustnc.com; Morgan, Marc P <mmorgan@ncdot.gov>; zlgardner@ncdot.gov
Cc: Emily Powell (epowell@kolter.com) <epowell@kolter.com>; Mark Sergent <msergent@kolter.com>; Richard, Elizabeth <Elizabeth.Richard@kimley-horn.com>; Heath, Lindsey <Lindsey.Heath@kimley-horn.com>
Subject: Locust Bethel TIA- D1/Locust-Stanly- Scope submittal

Hello all,

Please see the attached draft scoping checklist. Kindly feel free to forward to anyone I'm leaving off of this distribution list.
Surely let us know if there are any questions as you review.

Thank you,
Amy

Amy Massey, PE (SC, NC)
Kimley-Horn
Direct: 803-881-3925 **|** Mobile: 704-287-3304
amy.massey@kimley-horn.com

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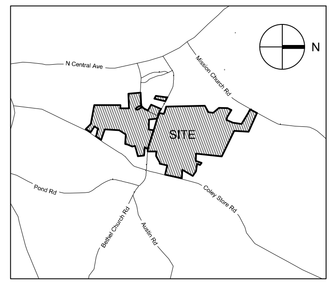
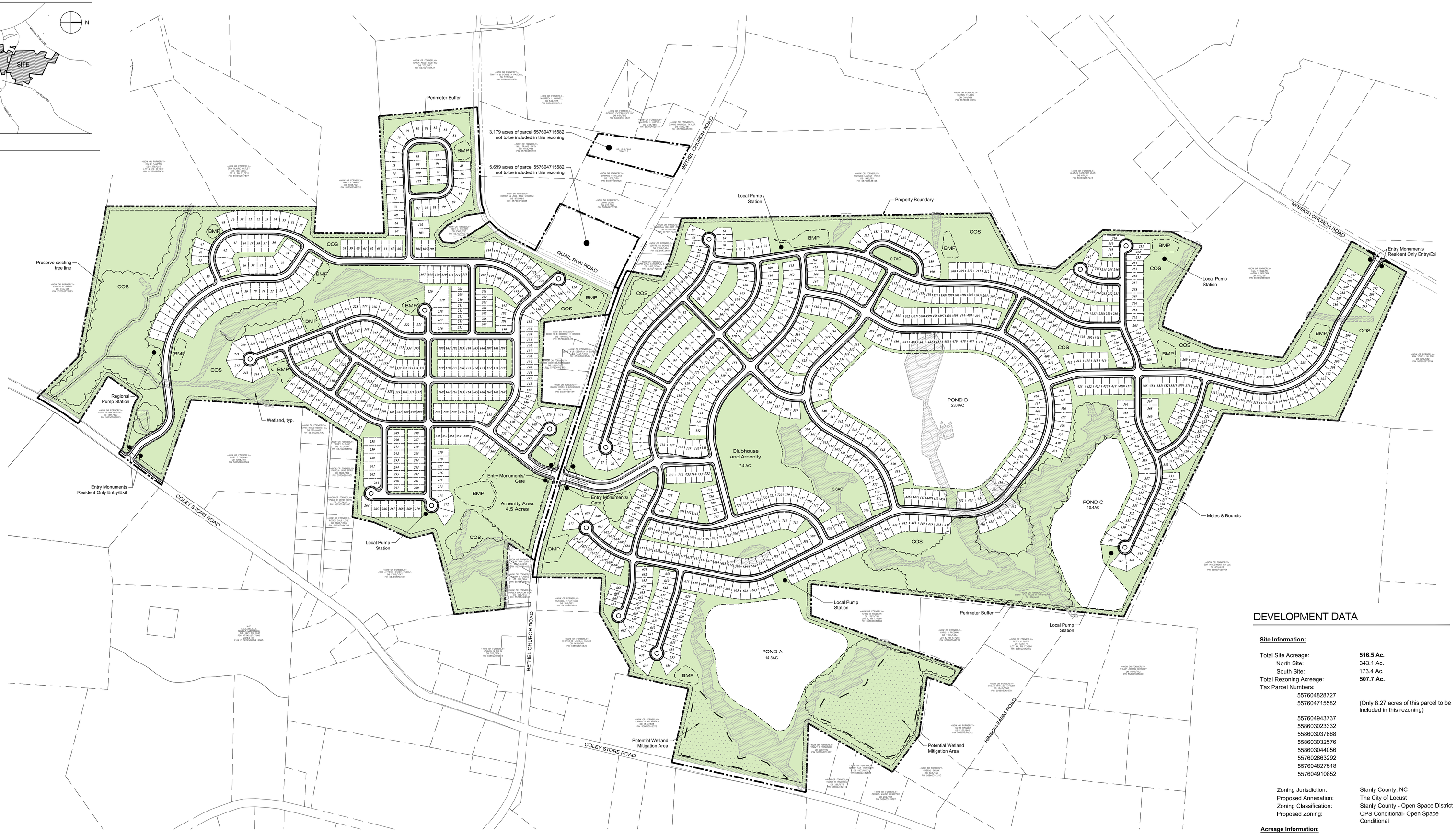
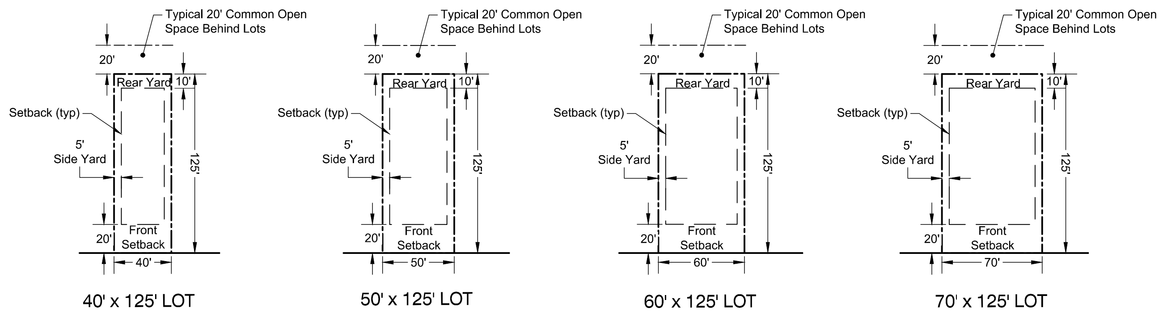
Site Plan



Vicinity Map





40' x 125' LOT

50' x 125' LOT

60' x 125' LOT

70' x 125' LOT

TYPICAL LOT DIMENSIONS

LEGEND

- PROPERTY LINE
- 30' PERIMETER BUFFER
- COMMON OPEN SPACE
- TREE SAVE
- POTENTIAL WETLAND MITIGATION AREA
- PROPOSED BMP
- SURVEY WETLAND TYP.
- 15' WETLAND BUFFER
- LOT BOUNDARY

DEVELOPMENT DATA

Site Information:

Total Site Acreage:	**516.5 Ac.**
North Site:	343.1 Ac.
South Site:	173.4 Ac.
Total Rezoning Acreage:	**507.7 Ac.**
Tax Parcel Numbers:	
557604828727	
557604715582	(Only 8.27 acres of this parcel to be included in this rezoning)
557604943737	
558603023332	
558603037868	
558603032576	
558603044056	
557602863292	
557604827518	
557604910852	
Zoning Jurisdiction:	Stanly County, NC
Proposed Annexation:	The City of Locust
Zoning Classification:	Stanly County - Open Space District
Proposed Zoning:	OPS Conditional- Open Space Conditional

Acreage Information:

Total Open Space Required:	10% (50.8 Ac.)
Total Open Space Provided:	
With Ponds:	51.4% (261.0 Ac.)
Without Ponds:	41.9% (213.0 Ac.)

Building Setbacks:

Primary:	20'
Side Yard:	5'
Side Yard (Corner Lot):	10'
Rear Yard:	10'

Common Open Space Between Backs of Lots to be 20' min.

Lot Information:

Proposed Lot Sizes:
- 40' x 125'
- 50' x 125'
- 60' x 125'
- 70' x 125'

Total Lots Proposed:	North Site	South Site
- 40' Lots: 166 (14.9%)	110	56
- 50' Lots: 557 (49.8%)	381	176
- 60' Lots: 390 (35.0%)	249	141
- 70' Lots: 3 (0.3%)	3	—
1116	**743**	**373**

Proposed Density: 2.2 dua

Scale: 1" = 300'

0 150 300 600 900 1200

MERRICK®
301 S. MCDOWELL STREET, SUITE 300
CHARLOTTE, NC 28204
NC ENGINEERING FIRM # F-0908 PHONE: 704.529.6500

Kolter Signature Homes

4807 PGA Blvd
Palm Beach Gardens

REV	REVISION DESCRIPTION	DATE:	CHKRED BY:

REVISIONS:

Cresswind At Rocky River
Locust, NC

REZONING SITE PLAN

SEAL(S)

		DATE:
DESIGN BY:	DesignXXX	MM/DD/YY
DRAWN BY:	DrawnXXX	MM/DD/YY
CHECKED BY:	CheckXXX	MM/DD/YY
APPROVED BY:	AppXXX	MM/DD/YY

PROJECT/TRACKING #	
INTERNAL:	65121571-00
MUNICIPAL:	MuniNumber
ORIGINAL DATE:	10/05/2023

SHEET L-1

Q:\CHA\Projects\1571-00-KOL-Locust DD Hourly\CAD\Planning\Rezoning Plan.dwg 11/21/2023 8:09:06 AM

Turning Movement Counts

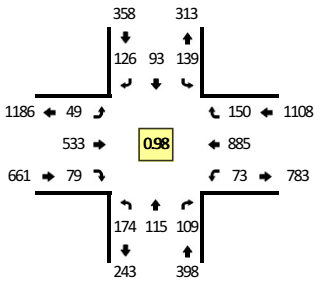
Type of peak hour being reported: Intersection Peak

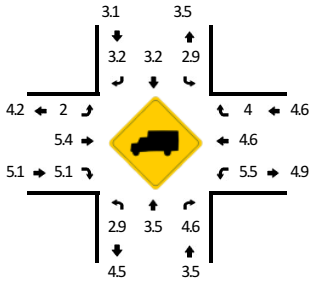
Method for determining peak hour: Total Entering Volume

LOCATION: S Central Ave -- E Main St
CITY/STATE: Locust, NC

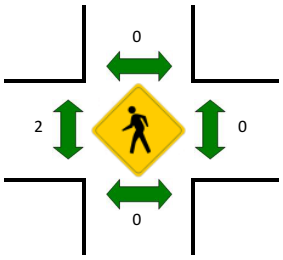
QC JOB #: 16388801
DATE: Thu, Nov 2 2023

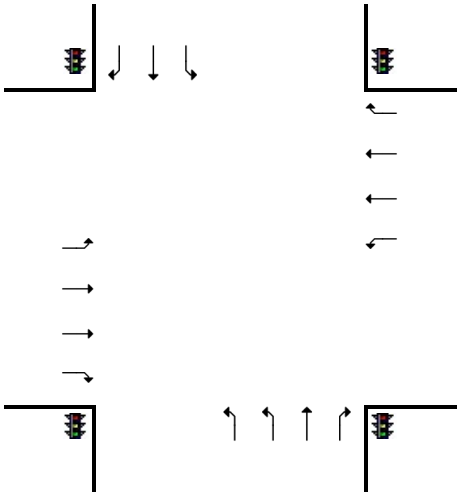
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

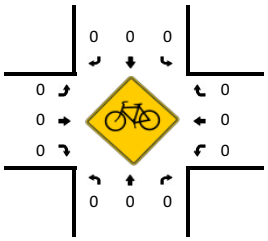


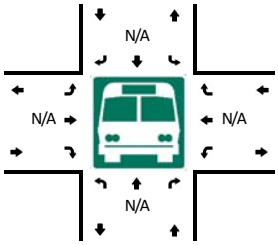


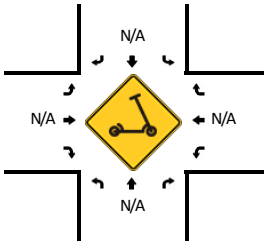
TRUE DATA TO IMPROVE MOBILITY











15-Min Count Period Beginning At	S Central Ave (Northbound)				S Central Ave (Southbound)				E Main St (Eastbound)				E Main St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	50	28	22	0	60	27	36	0	13	111	17	1	6	201	43	1	616	
7:15 AM	40	30	34	0	31	16	31	0	12	141	20	0	14	215	55	0	639	
7:30 AM	36	29	39	0	29	23	24	0	7	151	17	0	19	225	29	1	629	
7:45 AM	48	28	14	0	19	27	35	0	16	130	25	0	32	244	23	0	641	2525
8:00 AM	51	32	13	0	21	24	30	0	17	109	28	0	30	220	22	0	597	2506
8:15 AM	38	26	2	0	12	19	34	0	19	111	35	0	20	203	15	0	534	2401
8:30 AM	46	37	17	0	14	22	34	0	9	120	37	1	20	189	20	2	568	2340
8:45 AM	47	33	28	0	17	38	37	0	14	111	31	2	29	164	13	2	566	2265

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	192	112	56	0	76	108	140	0	64	520	100	0	128	976	92	0	2564
Heavy Trucks	16	4	8		8	4	4		0	24	8		8	32	4		120
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

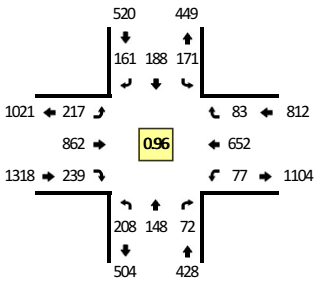
Type of peak hour being reported: Intersection Peak

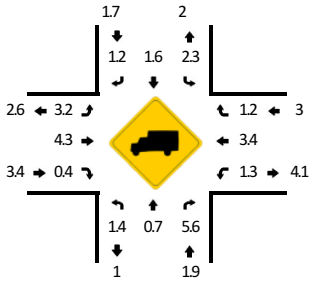
Method for determining peak hour: Total Entering Volume

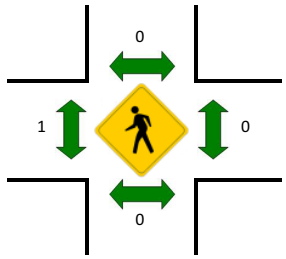
LOCATION: S Central Ave -- E Main St
CITY/STATE: Locust, NC

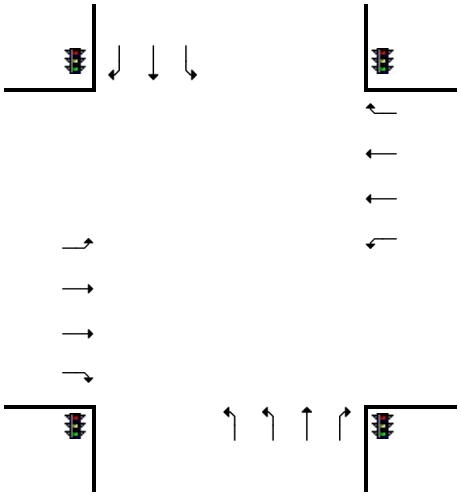
QC JOB #: 16388802
DATE: Thu, Nov 2 2023

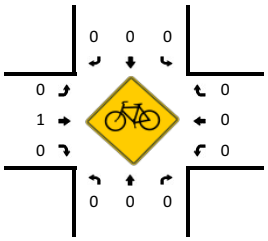
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

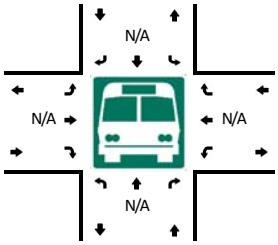


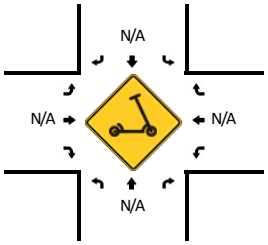












15-Min Count Period Beginning At	S Central Ave (Northbound)				S Central Ave (Southbound)				E Main St (Eastbound)				E Main St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	45	32	18	0	27	38	43	1	33	212	57	0	17	158	29	0	710	
4:15 PM	54	28	25	0	27	40	26	0	46	232	66	0	12	157	17	0	730	
4:30 PM	62	28	23	0	36	44	32	0	52	228	56	0	30	142	20	0	753	
4:45 PM	49	26	13	0	42	43	40	1	57	197	66	0	23	132	25	0	714	2907
5:00 PM	49	36	24	0	53	49	37	0	49	234	72	0	19	161	16	0	799	2996
5:15 PM	56	42	15	0	37	54	49	0	57	200	51	0	26	165	23	0	775	3041
5:30 PM	54	44	20	0	38	42	35	0	54	231	50	0	9	194	19	0	790	3078
5:45 PM	50	34	14	0	27	46	42	0	50	180	58	0	16	151	20	0	688	3052

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	196	144	96	0	212	196	148	0	196	936	288	0	76	644	64	0	3196
Heavy Trucks	4	0	0		0	0	4		12	48	0		0	20	0		88
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

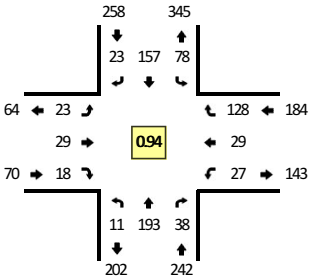
Type of peak hour being reported: Intersection Peak

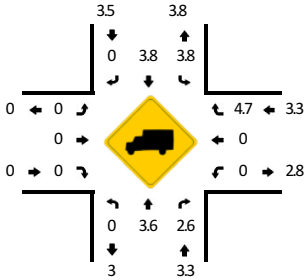
Method for determining peak hour: Total Entering Volume

LOCATION: N Central Ave -- Meadow Creek Church Rd/Bethel Church Rd
CITY/STATE: Locust, NC

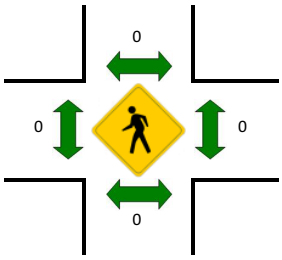
QC JOB #: 16388803
DATE: Thu, Nov 2 2023

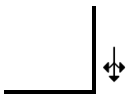
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:00 AM -- 7:15 AM

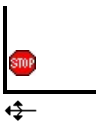


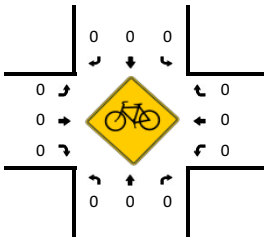


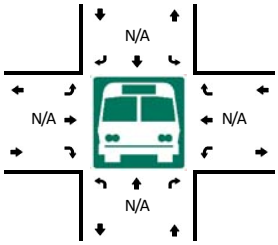
TRUE DATA TO IMPROVE MOBILITY

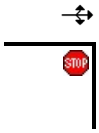


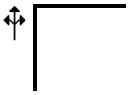


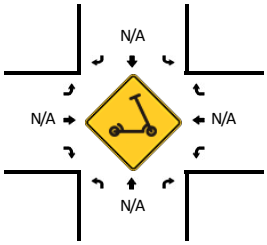












15-Min Count Period Beginning At	N Central Ave (Northbound)				N Central Ave (Southbound)				Meadow Creek Church Rd/Bethel Church Rd (Eastbound)				Meadow Creek Church Rd/Bethel Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	53	11	0	13	46	5	0	7	6	10	0	5	7	31	0	201	
7:15 AM	1	54	14	0	21	20	10	2	6	8	4	0	6	5	33	0	184	
7:30 AM	2	53	12	0	23	46	3	0	5	11	1	0	5	8	30	0	199	
7:45 AM	1	33	1	0	19	45	5	0	4	4	3	1	11	9	34	0	170	754
8:00 AM	4	34	4	0	15	34	5	0	5	3	5	0	2	4	38	0	153	706
8:15 AM	1	37	5	0	11	40	5	0	4	2	3	0	10	5	18	0	141	663
8:30 AM	2	27	3	0	13	41	6	0	4	2	3	0	6	6	23	0	136	600
8:45 AM	1	35	4	0	8	54	12	0	6	1	2	0	3	3	20	0	149	579

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	28	212	44	0	52	184	20	0	28	24	40	0	20	28	124	0	804
Heavy Trucks	0	4	0		0	0	0		0	0	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

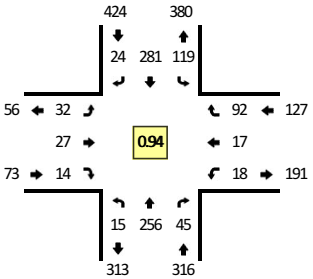
Type of peak hour being reported: Intersection Peak

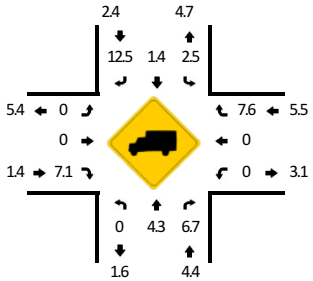
Method for determining peak hour: Total Entering Volume

LOCATION: N Central Ave -- Meadow Creek Church Rd/Bethel Church Rd
CITY/STATE: Locust, NC

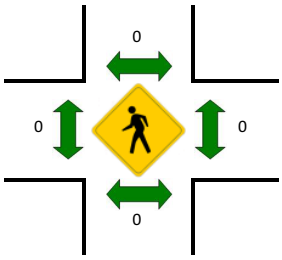
QC JOB #: 16388804
DATE: Thu, Nov 2 2023

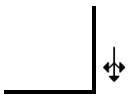
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

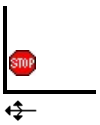


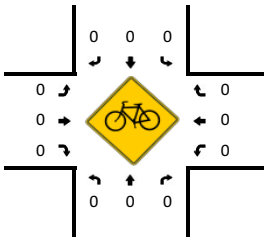


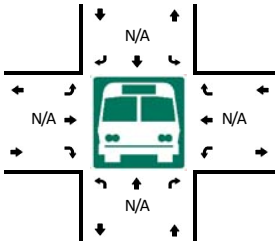
TRUE DATA TO IMPROVE MOBILITY

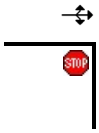


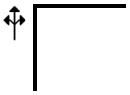


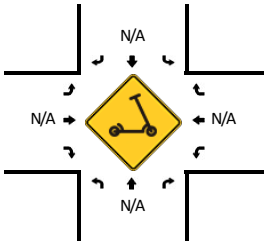












15-Min Count Period Beginning At	N Central Ave (Northbound)				N Central Ave (Southbound)				Meadow Creek Church Rd/Bethel Church Rd (Eastbound)				Meadow Creek Church Rd/Bethel Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	43	11	0	25	61	5	0	4	11	3	0	5	4	12	0	188	
4:15 PM	2	43	9	0	32	57	6	0	5	7	3	0	5	3	25	0	197	
4:30 PM	2	40	10	0	26	62	2	0	12	7	5	0	6	5	19	0	196	
4:45 PM	4	44	8	0	36	62	10	0	4	11	3	0	4	6	18	0	210	791
5:00 PM	6	76	11	0	27	68	5	0	8	7	3	0	5	3	30	0	249	852
5:15 PM	1	65	5	0	39	84	6	0	9	8	4	0	5	2	20	0	248	903
5:30 PM	4	56	17	0	30	70	3	0	6	9	3	0	3	11	15	0	227	934
5:45 PM	4	59	12	0	23	59	10	0	9	3	4	0	5	1	27	0	216	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	24	304	44	0	108	272	20	0	32	28	12	0	20	12	120	0	996
Heavy Trucks	0	4	8		8	0	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

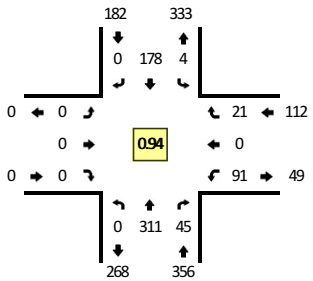
Type of peak hour being reported: Intersection Peak

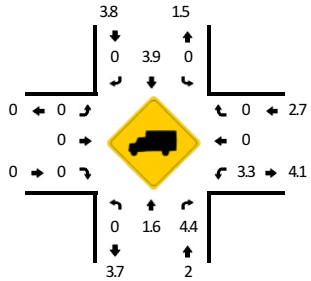
Method for determining peak hour: Total Entering Volume

LOCATION: N Central Ave -- Mission Church Rd
CITY/STATE: Locust, NC

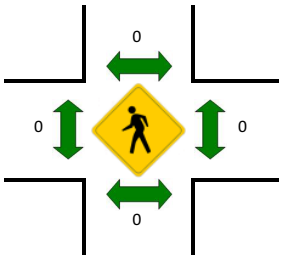
QC JOB #: 16388805
DATE: Thu, Nov 2 2023

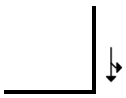
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

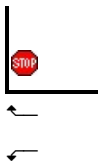


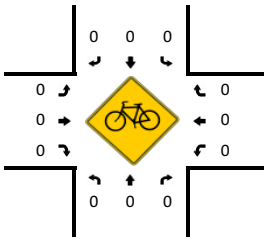


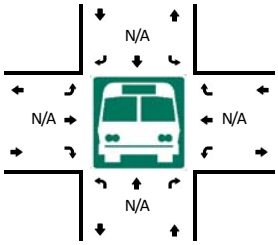
TRUE DATA TO IMPROVE MOBILITY

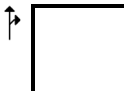


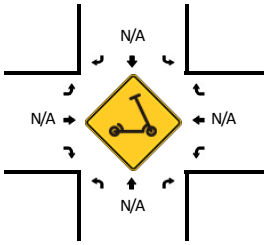












15-Min Count Period Beginning At	N Central Ave (Northbound)				N Central Ave (Southbound)				Mission Church Rd (Eastbound)				Mission Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	75	14	0	0	39	0	1	0	0	0	0	28	0	9	1	167	
7:15 AM	0	94	13	0	1	41	0	0	0	0	0	0	16	0	7	0	172	
7:30 AM	0	80	9	0	0	49	0	0	0	0	0	0	27	0	2	0	167	
7:45 AM	0	62	9	0	2	49	0	0	0	0	0	0	19	0	3	0	144	650
8:00 AM	0	62	8	0	3	36	0	0	0	0	0	0	21	0	4	0	134	617
8:15 AM	0	53	10	0	3	34	0	0	0	0	0	0	18	0	7	0	125	570
8:30 AM	0	45	7	0	0	36	0	0	0	0	0	0	22	0	3	0	113	516
8:45 AM	0	46	12	0	0	50	0	0	0	0	0	0	19	0	3	0	130	502

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	376	52	0	4	164	0	0	0	0	0	0	64	0	28	0	688
Heavy Trucks	0	0	4		0	8	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

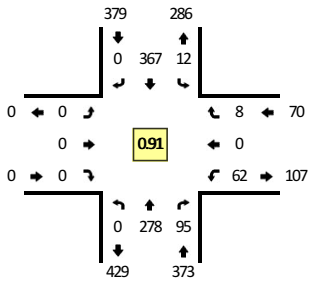
Type of peak hour being reported: Intersection Peak

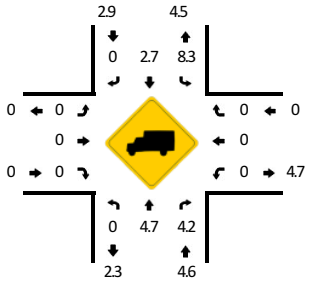
Method for determining peak hour: Total Entering Volume

LOCATION: N Central Ave -- Mission Church Rd
CITY/STATE: Locust, NC

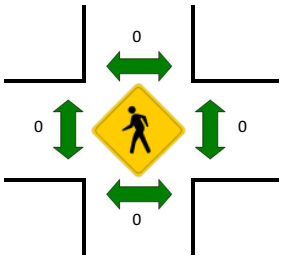
QC JOB #: 16388806
DATE: Thu, Nov 2 2023

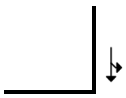
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

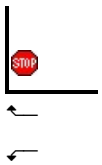


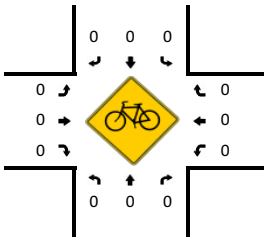


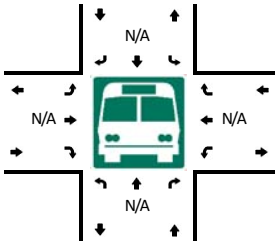
TRUE DATA TO IMPROVE MOBILITY

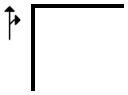


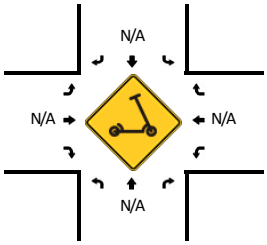












15-Min Count Period Beginning At	N Central Ave (Northbound)				N Central Ave (Southbound)				Mission Church Rd (Eastbound)				Mission Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	42	14	0	3	81	0	0	0	0	0	0	13	0	3	0	156	
4:15 PM	0	58	19	0	4	76	0	0	0	0	0	0	12	0	1	0	170	
4:30 PM	0	60	13	0	1	79	0	0	0	0	0	0	17	0	2	0	172	
4:45 PM	0	43	16	0	3	89	0	0	0	0	0	0	19	0	7	0	177	675
5:00 PM	0	78	27	0	3	82	0	0	0	0	0	0	13	0	1	0	204	723
5:15 PM	0	67	24	0	3	117	0	0	0	0	0	0	14	0	1	0	226	779
5:30 PM	0	64	18	0	3	84	0	0	0	0	0	0	19	0	4	0	192	799
5:45 PM	0	69	26	0	3	84	0	0	0	0	0	0	16	0	2	0	200	822

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	268	96	0	12	468	0	0	0	0	0	0	56	0	4	0	904
Heavy Trucks	0	20	8		0	12	0		0	0	0		0	0	0		40
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

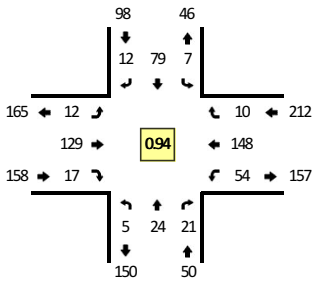
Type of peak hour being reported: Intersection Peak

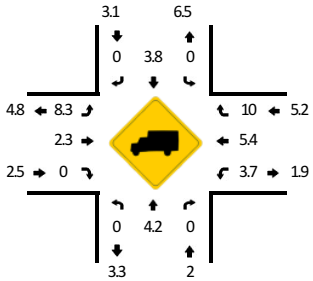
Method for determining peak hour: Total Entering Volume

LOCATION: Coley Store Rd -- Bethel Church Rd
CITY/STATE: Locust, NC

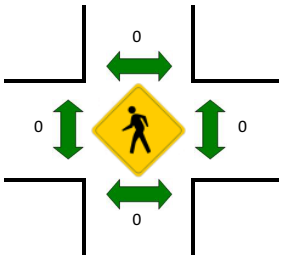
QC JOB #: 16388807
DATE: Thu, Nov 2 2023

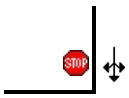
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

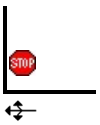


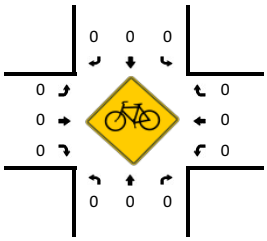


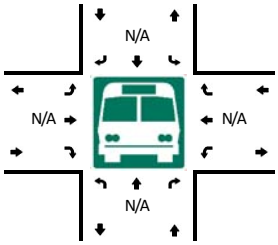
TRUE DATA TO IMPROVE MOBILITY

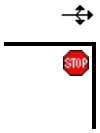


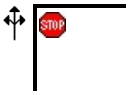


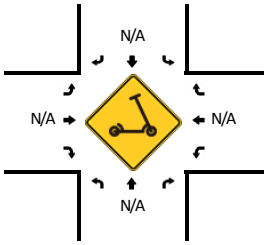












15-Min Count Period Beginning At	Coley Store Rd (Northbound)				Coley Store Rd (Southbound)				Bethel Church Rd (Eastbound)				Bethel Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	6	5	0	0	27	4	0	2	22	13	0	16	25	1	0	125	
7:15 AM	0	6	7	0	2	22	4	0	6	35	3	0	11	37	2	0	135	
7:30 AM	0	8	7	0	4	14	3	0	3	39	1	0	11	46	2	0	138	
7:45 AM	1	4	2	0	1	16	1	0	1	33	0	0	16	40	5	0	120	518
8:00 AM	1	6	3	0	0	14	5	0	1	17	1	0	5	30	0	0	83	476
8:15 AM	1	8	1	0	0	18	4	0	1	14	0	0	8	17	2	0	74	415
8:30 AM	2	4	3	0	0	20	2	0	0	17	2	0	9	23	0	0	82	359
8:45 AM	1	6	5	0	1	13	3	0	1	8	1	0	11	16	1	0	67	306

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	32	28	0	16	56	12	0	12	156	4	0	44	184	8	0	552
Heavy Trucks	0	4	0		0	0	0		0	8	0		0	8	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

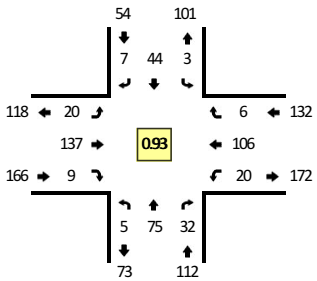
Type of peak hour being reported: Intersection Peak

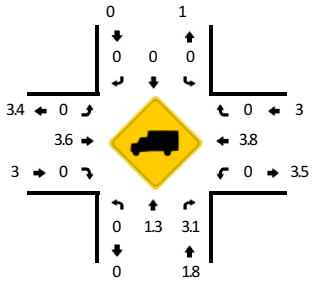
Method for determining peak hour: Total Entering Volume

LOCATION: Coley Store Rd -- Bethel Church Rd
CITY/STATE: Locust, NC

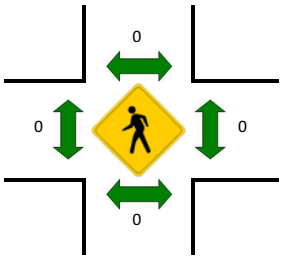
QC JOB #: 16388808
DATE: Thu, Nov 2 2023

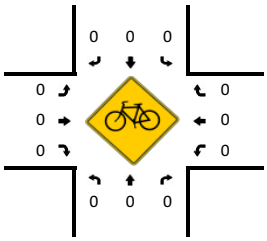
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

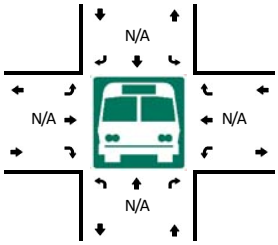


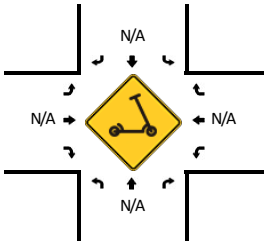


TRUE DATA TO IMPROVE MOBILITY









15-Min Count Period Beginning At	Coley Store Rd (Northbound)				Coley Store Rd (Southbound)				Bethel Church Rd (Eastbound)				Bethel Church Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	19	5	0	2	8	2	0	1	33	3	0	3	19	2	0	99	
4:15 PM	0	14	15	0	2	7	1	0	3	26	0	0	3	28	3	0	102	
4:30 PM	1	20	9	0	1	9	2	0	4	37	2	0	4	27	4	0	120	
4:45 PM	1	20	8	0	0	8	2	0	7	28	1	0	6	20	0	0	101	422
5:00 PM	1	13	8	0	0	7	3	0	3	34	4	0	5	38	2	0	118	441
5:15 PM	2	22	7	0	2	20	0	0	6	38	2	0	5	21	0	0	125	464
5:30 PM	1	18	5	0	1	9	2	0	5	38	2	0	5	22	2	0	110	454
5:45 PM	3	19	5	0	2	15	3	0	4	27	2	0	4	25	1	0	110	463

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	88	28	0	8	80	0	0	24	152	8	0	20	84	0	0	500
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

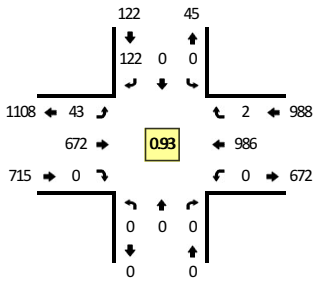
Type of peak hour being reported: Intersection Peak

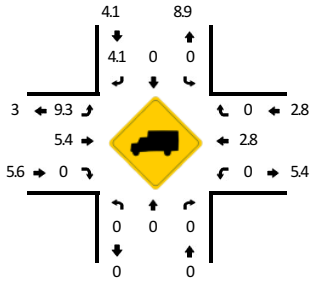
Method for determining peak hour: Total Entering Volume

LOCATION: Coley Store Rd -- E Main St
CITY/STATE: Locust, NC

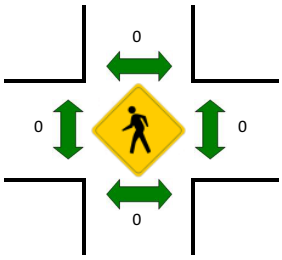
QC JOB #: 16388809
DATE: Thu, Nov 2 2023

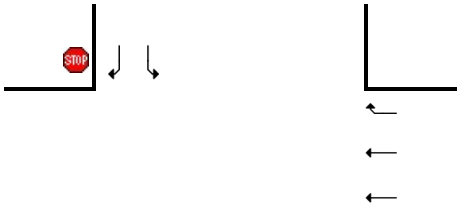
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

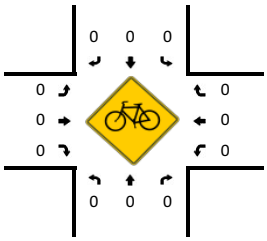


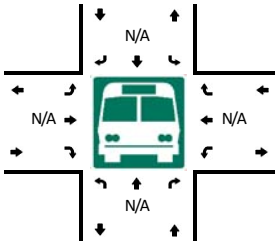


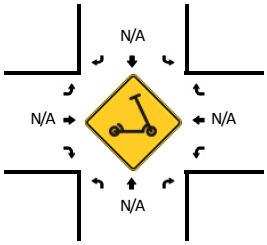
TRUE DATA TO IMPROVE MOBILITY











15-Min Count Period Beginning At	Coley Store Rd (Northbound)				Coley Store Rd (Southbound)				E Main St (Eastbound)				E Main 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	3	0	63	0	22	134	0	0	0	188	5	0	415	
7:15 AM	0	0	0	0	0	0	36	0	16	165	0	0	0	226	1	0	444	
7:30 AM	0	0	0	0	0	0	29	0	12	221	0	0	0	230	0	0	492	
7:45 AM	0	0	0	0	0	0	33	0	6	149	0	0	0	282	0	0	470	1821
8:00 AM	0	0	0	0	0	0	24	0	9	137	0	0	0	248	1	0	419	1825
8:15 AM	0	0	0	0	0	0	26	0	9	127	0	0	0	217	0	0	379	1760
8:30 AM	0	0	0	0	0	0	33	0	7	144	0	0	0	169	1	0	354	1622
8:45 AM	0	0	0	0	0	0	33	0	12	160	0	0	0	182	0	0	387	1539

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	0	0	116	0	48	884	0	0	0	920	0	0	1968
Heavy Trucks	0	0	0		0	0	0		8	56	0		0	28	0		92
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 11/9/2023 9:52 AM

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

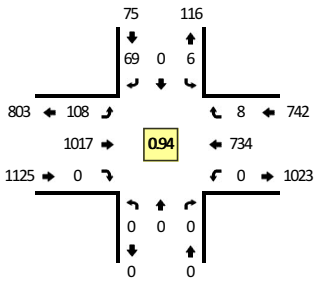
Type of peak hour being reported: Intersection Peak

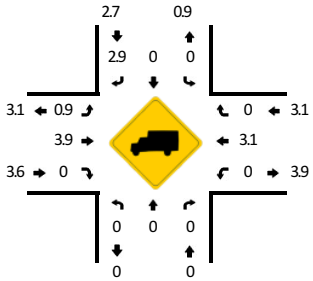
Method for determining peak hour: Total Entering Volume

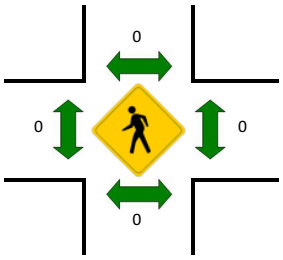
LOCATION: Coley Store Rd -- E Main St
CITY/STATE: Locust, NC

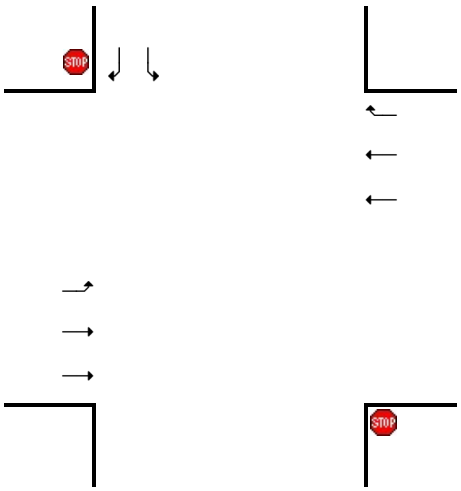
QC JOB #: 16388810
DATE: Thu, Nov 2 2023

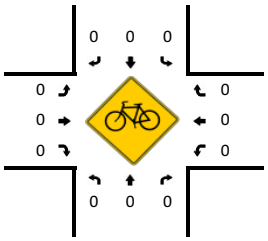
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

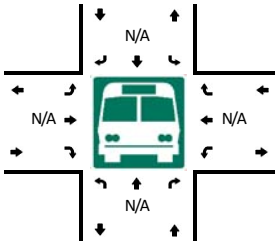


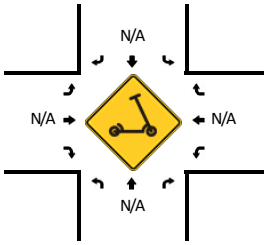












15-Min Count Period Beginning At	Coley Store Rd (Northbound)				Coley Store Rd (Southbound)				E Main St (Eastbound)				E Main St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	1	0	15	0	23	225	0	0	0	175	0	0	439	
4:15 PM	0	0	0	0	0	0	13	0	34	255	0	0	0	164	0	0	466	
4:30 PM	0	0	0	0	0	0	13	0	35	245	0	0	0	169	0	0	462	
4:45 PM	0	0	0	0	2	0	11	0	26	242	0	0	0	162	1	0	444	1811
5:00 PM	0	0	0	0	1	0	20	0	29	285	0	0	0	179	2	0	516	1888
5:15 PM	0	0	0	0	3	0	18	0	30	230	0	0	0	206	3	0	490	1912
5:30 PM	0	0	0	0	0	0	20	0	23	260	0	0	0	187	2	0	492	1942
5:45 PM	0	0	0	0	0	0	20	0	30	197	0	0	0	178	0	0	425	1923

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	4	0	80	0	116	1140	0	0	0	716	8	0	2064
Heavy Trucks	0	0	0		0	0	0		0	40	0		0	16	0		56
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

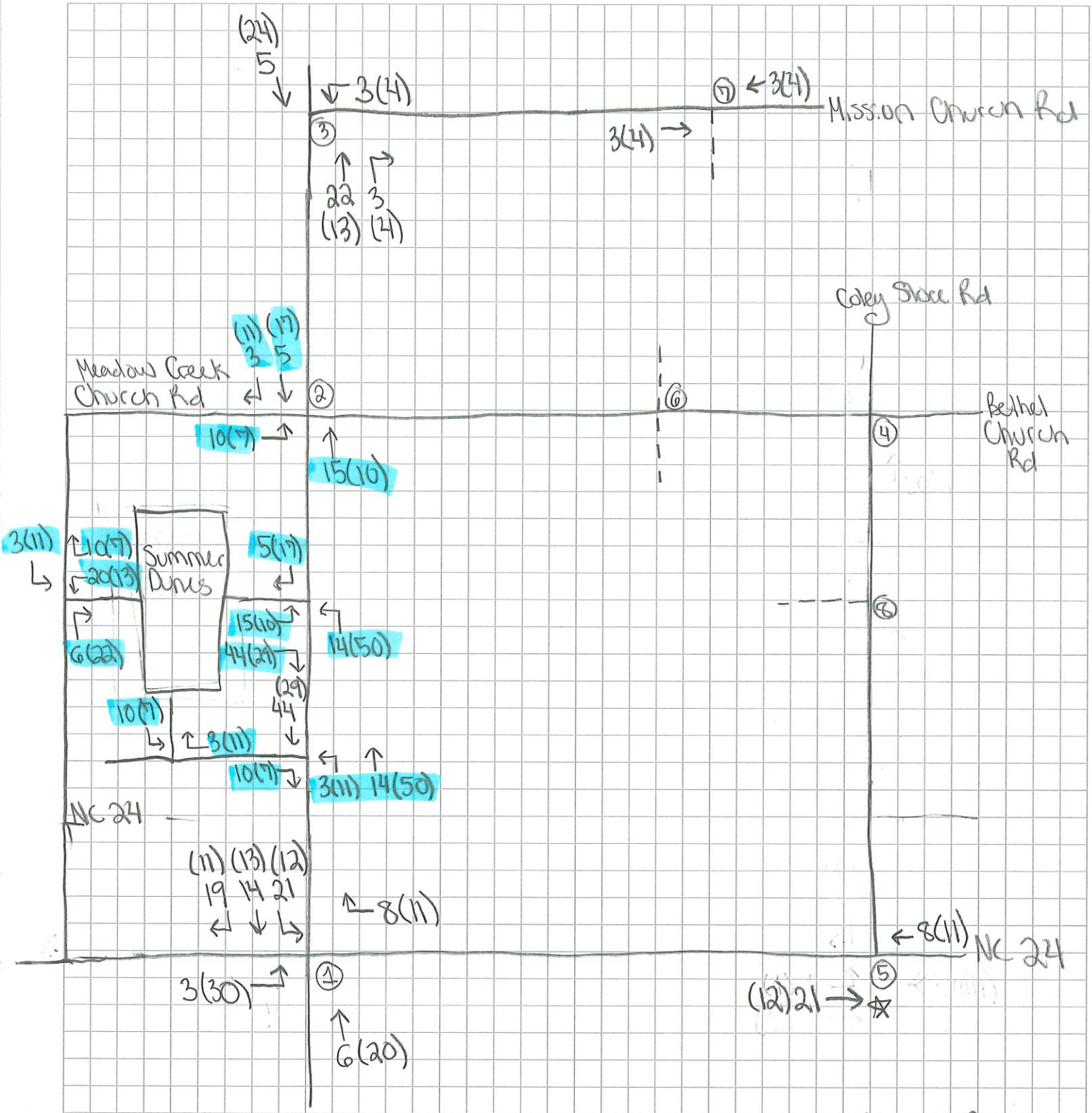
Report generated on 11/9/2023 9:52 AM

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

Approved Development Calculations

Kimley»Horn
Expect More. Experience Better.

Job: Summer Dunes AD | Subject: | Sheet No. ___ of ___
Job No.:
Designed By: | Date: | Checked By: | Date:

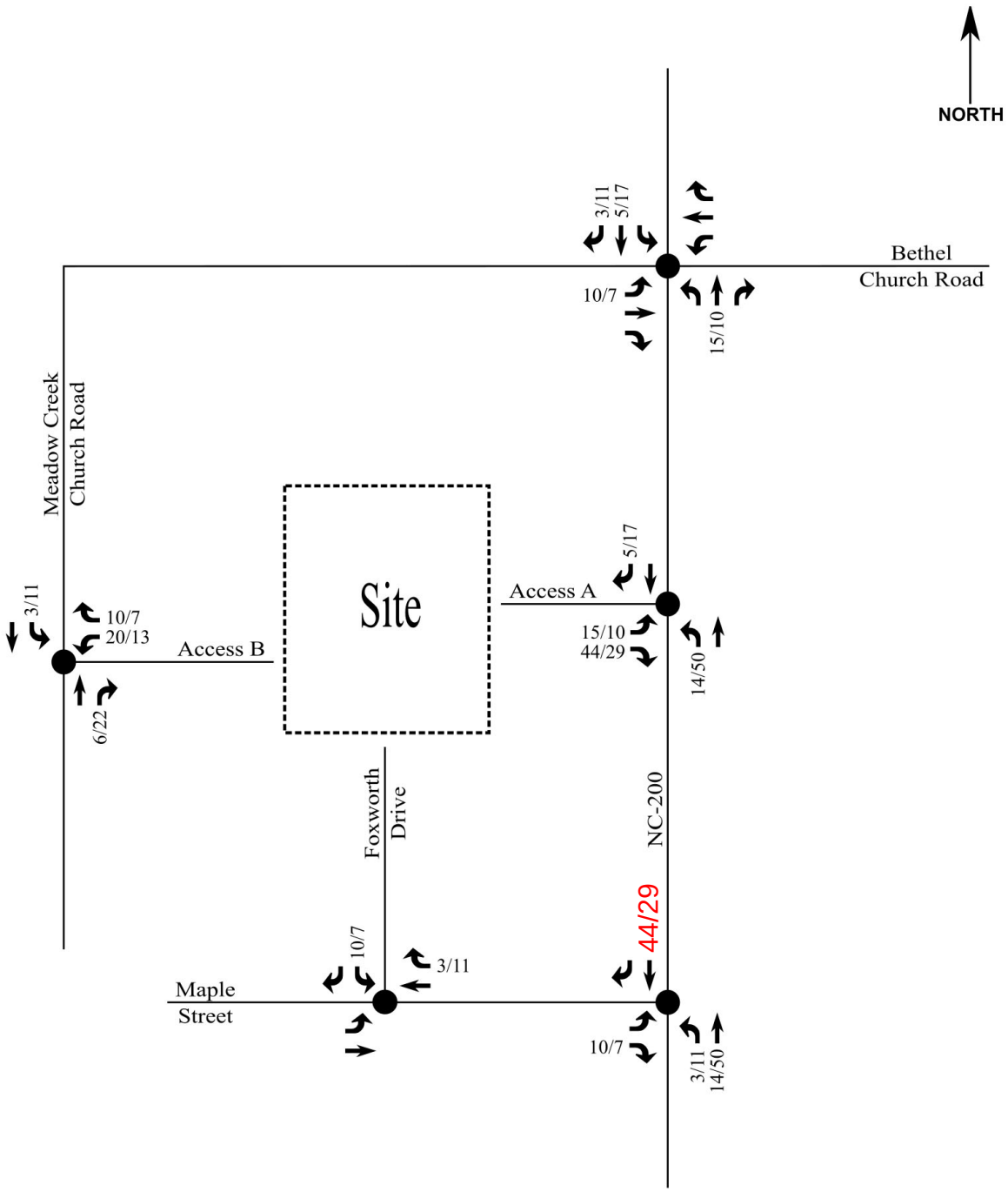


☆ no trips assigned to SBR or EBR movements because they would use Mission Church Rd

Directly from TIA

(#) study intersection

all other movements determined by existing splits



LEGEND

Signalized Intersection

Unsignalized Intersection

X / Y → AM / PM Primary Trips

IMPACT
Designs, Inc.

Summer Dunes Single Family
Locust, NC

Primary Trip
Assignments

Scale: Not to Scale	Figure	7

Intersection Volume Development

INTERSECTION VOLUME DEVELOPMENT

N Central Ave and Main St (NC 24)
AM PEAK HOUR

	N Central Ave				N Central Ave				Main St (NC 24)				Main St (NC 24)			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	174	115	109	0	139	93	126	0	49	533	79	0	73	885	150	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	174	115	109	0	139	93	126	0	49	533	79	0	73	885	150	0
2023 Existng PHF	0.87	0.96	0.70	0.90	0.58	0.86	0.88	0.90	0.77	0.88	0.79	0.90	0.57	0.91	0.68	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	3%	3%	5%	2%	3%	3%	3%	2%	2%	5%	5%	2%	5%	5%	4%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	212	140	133	0	169	113	154	0	60	650	96	0	89	1,079	183	0
Summer Dunes AD	0	6	0	0	21	14	19	0	3	0	0	0	0	0	8	0
2033 Background Traffic	212	146	133	0	190	127	173	0	63	650	96	0	89	1,079	191	0
Percent Inbound Assignment	0%	10%	5%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	10%	25%	0%	0%	0%	0%	0%	5%	0%	0%	0%
Project Trips	0	8	4	0	0	16	41	0	20	0	0	0	8	0	0	0
2033 Buildout Total	212	154	137	0	190	143	214	0	83	650	96	0	97	1,079	191	0

PM PEAK HOUR

	N Central Ave				N Central Ave				Main St (NC 24)				Main St (NC 24)			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	208	148	72	0	171	188	161	0	217	862	239	0	77	652	83	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	208	148	72	0	171	188	161	0	217	862	239	0	77	652	83	0
2023 Existng PHF	0.93	0.84	0.75	0.90	0.81	0.87	0.82	0.90	0.95	0.92	0.83	0.90	0.74	0.84	0.83	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	6%	2%	2%	2%	2%	2%	3%	4%	2%	2%	2%	3%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	254	180	88	0	208	229	196	0	265	1,051	291	0	94	795	101	0
Summer Dunes AD	0	20	0	0	12	13	11	0	30	0	0	0	0	0	11	0
2033 Background Traffic	254	200	88	0	220	242	207	0	295	1,051	291	0	94	795	112	0
Percent Inbound Assignment	0%	10%	5%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	10%	25%	0%	0%	0%	0%	0%	5%	0%	0%	0%
Project Trips	0	18	9	0	0	11	29	0	45	0	0	0	6	0	0	0
2033 Buildout Total	254	218	97	0	220	253	236	0	340	1,051	291	0	100	795	112	0

INTERSECTION VOLUME DEVELOPMENT

N Central Ave and Meadow Creek Crhuch Rd/Bethel Church Rd
AM PEAK HOUR

	N Central Ave				N Central Ave				Meadow Creek Crhuch Rd				Bethel Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	11	193	38	0	78	157	23	0	23	29	18	0	27	29	128	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	11	193	38	0	78	157	23	0	23	29	18	0	27	29	128	0
2023 Existng PHF	0.39	0.89	0.68	0.90	0.85	0.85	0.58	0.90	0.82	0.66	0.45	0.90	0.61	0.81	0.94	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	4%	3%	2%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	5%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #2	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	13	235	46	0	95	191	28	0	28	35	22	0	33	35	156	0
Summer Dunes AD	0	15	0	0	0	5	3	0	10	0	0	0	0	0	0	0
2033 Background Traffic	13	250	46	0	95	196	31	0	38	35	22	0	33	35	156	0
Percent Inbound Assignment	0%	10%	25%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	25%	0%	20%	0%
Project Trips	0	8	20	0	16	16	0	0	0	0	0	0	41	0	33	0
2033 Buildout Total	13	258	66	0	111	212	31	0	38	35	22	0	74	35	189	0

PM PEAK HOUR

	N Central Ave				N Central Ave				Meadow Creek Crhuch Rd				Bethel Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	15	256	45	0	119	281	24	0	32	27	14	0	18	17	92	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	15	256	45	0	119	281	24	0	32	27	14	0	18	17	92	0
2023 Existng PHF	0.63	0.84	0.66	0.90	0.76	0.84	0.60	0.90	0.89	0.75	0.88	0.90	0.90	0.39	0.77	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	4%	7%	2%	3%	2%	**13%**	2%	2%	2%	7%	2%	2%	2%	8%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #2	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	18	312	55	0	145	343	29	0	39	33	17	0	22	21	112	0
Summer Dunes AD	0	10	0	0	0	17	11	0	7	0	0	0	0	0	0	0
2033 Background Traffic	18	322	55	0	145	360	40	0	46	33	17	0	22	21	112	0
Percent Inbound Assignment	0%	10%	25%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	25%	0%	20%	0%
Project Trips	0	18	45	0	36	11	0	0	0	0	0	0	29	0	23	0
2033 Buildout Total	18	340	100	0	181	371	40	0	46	33	17	0	51	21	135	0

INTERSECTION VOLUME DEVELOPMENT

N Central Ave and Mission Church Rd
AM PEAK HOUR

	N Central Ave				N Central Ave				-				Mission Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	0	311	45	0	4	178	0	0	0	0	0	0	91	0	21	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	0	311	45	0	4	178	0	0	0	0	0	0	91	0	21	0
2023 Existng PHF	0.90	0.83	0.80	0.90	0.50	0.91	0.90	0.90	0.90	0.90	0.90	0.90	0.78	0.90	0.58	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	3%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #3	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	379	55	0	5	217	0	0	0	0	0	0	111	0	26	0
Summer Dunes AD	0	22	3	0	0	5	0	0	0	0	0	0	3	0	0	0
2033 Background Traffic	0	401	58	0	5	222	0	0	0	0	0	0	114	0	26	0
Percent Inbound Assignment	0%	0%	10%	0%	5%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	5%	0%
Project Trips	0	33	8	0	4	16	0	0	0	0	0	0	16	0	9	0
2033 Buildout Total	0	434	66	0	9	238	0	0	0	0	0	0	130	0	35	0

PM PEAK HOUR

	N Central Ave				N Central Ave				-				Mission Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	0	278	95	0	12	367	0	0	0	0	0	0	62	0	8	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	0	278	95	0	12	367	0	0	0	0	0	0	62	0	8	0
2023 Existng PHF	0.90	0.89	0.88	0.90	1.00	0.78	0.90	0.90	0.90	0.90	0.90	0.90	0.82	0.90	0.50	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	5%	4%	2%	8%	3%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #3	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	339	116	0	15	447	0	0	0	0	0	0	76	0	10	0
Summer Dunes AD	0	13	4	0	0	24	0	0	0	0	0	0	4	0	0	0
2033 Background Traffic	0	352	120	0	15	471	0	0	0	0	0	0	80	0	10	0
Percent Inbound Assignment	0%	0%	10%	0%	5%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	5%	0%
Project Trips	0	23	18	0	9	36	0	0	0	0	0	0	11	0	6	0
2033 Buildout Total	0	375	138	0	24	507	0	0	0	0	0	0	91	0	16	0

INTERSECTION VOLUME DEVELOPMENT

Coley Store Rd and Bethel Church Rd
AM PEAK HOUR

Description	Coley Store Rd Northbound Left	Through	Right	U-turn	Coley Store Rd Southbound Left	Through	Right	U-turn	Bethel Church Rd Eastbound Left	Through	Right	U-turn	Bethel Church Rd Westbound Left	Through	Right	U-turn
Observed Volumes	5	24	21	0	7	79	12	0	12	129	17	0	54	148	10	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	5	24	21	0	7	79	12	0	12	129	17	0	54	148	10	0
2023 Existng PHF	0.31	0.75	0.75	0.90	0.44	0.73	0.75	0.90	0.50	0.83	0.33	0.90	0.84	0.80	0.50	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	4%	2%	2%	2%	4%	2%	2%	8%	2%	2%	2%	4%	5%	**10%**	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #4	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	6	29	26	0	9	96	15	0	15	157	21	0	66	180	12	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 Background Traffic	6	29	26	0	9	96	15	0	15	157	21	0	66	180	12	0
Percent Inbound Assignment	5%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	10%	0%	0%
Percent Outbound Assignment	0%	0%	7%	0%	0%	0%	0%	0%	5%	8%	5%	0%	0%	0%	0%	0%
Project Trips	4	0	11	0	0	0	4	0	8	13	8	0	4	8	0	0
2033 Buildout Total	10	29	37	0	9	96	19	0	23	170	29	0	70	188	12	0

PM PEAK HOUR

Description	Coley Store Rd Northbound Left	Through	Right	U-turn	Coley Store Rd Southbound Left	Through	Right	U-turn	Bethel Church Rd Eastbound Left	Through	Right	U-turn	Bethel Church Rd Westbound Left	Through	Right	U-turn
Observed Volumes	5	75	32	0	3	44	7	0	20	137	9	0	20	106	6	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	5	75	32	0	3	44	7	0	20	137	9	0	20	106	6	0
2023 Existng PHF	0.63	0.85	0.89	0.90	0.38	0.55	0.58	0.90	0.71	0.90	0.56	0.90	0.83	0.70	0.38	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	3%	2%	2%	2%	2%	2%	2%	4%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #4	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	6	91	39	0	4	54	9	0	24	167	11	0	24	129	7	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 Background Traffic	6	91	39	0	4	54	9	0	24	167	11	0	24	129	7	0
Percent Inbound Assignment	5%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	5%	10%	0%	0%
Percent Outbound Assignment	0%	0%	7%	0%	0%	0%	0%	0%	5%	8%	5%	0%	0%	0%	0%	0%
Project Trips	9	0	8	0	0	0	9	0	6	9	6	0	9	18	0	0
2033 Buildout Total	15	91	47	0	4	54	18	0	30	176	17	0	33	147	7	0

INTERSECTION VOLUME DEVELOPMENT

Coley Store Rd and Main St (NC 24)
AM PEAK HOUR

	-				Coley Store Rd				Main St (NC 24)				Main St (NC 24)			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	0	0	0	0	0	0	122	0	43	672	0	0	0	986	2	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	0	0	0	0	0	0	122	0	43	672	0	0	0	986	2	0
2023 Existng PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.85	0.90	0.67	0.76	0.90	0.90	0.90	0.87	0.50	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	4%	2%	9%	5%	2%	2%	2%	3%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	0	0	0	0	0	149	0	52	819	0	0	0	1,202	2	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	21	0	0	0	8	0	0
2033 Background Traffic	0	0	0	0	0	0	149	0	52	840	0	0	0	1,210	2	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	10%	0%
Percent Outbound Assignment	0%	0%	0%	0%	10%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	16	0	8	0	4	0	0	0	0	0	8	0
2033 Buildout Total	0	0	0	0	16	0	157	0	56	840	0	0	0	1,210	10	0

PM PEAK HOUR

	-				Coley Store Rd				Main St (NC 24)				Main St (NC 24)			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
Observed Volumes	0	0	0	0	6	0	69	0	108	1,017	0	0	0	734	8	0
Balanced Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2023 Existing Traffic	0	0	0	0	6	0	69	0	108	1,017	0	0	0	734	8	0
2023 Existng PHF	0.90	0.90	0.90	0.90	0.50	0.90	0.86	0.90	0.90	0.89	0.90	0.90	0.90	0.89	0.67	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	3%	2%	2%	4%	2%	2%	2%	3%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	0	0	0	7	0	84	0	132	1,240	0	0	0	895	10	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	12	0	0	0	11	0	0
2033 Background Traffic	0	0	0	0	7	0	84	0	132	1,252	0	0	0	906	10	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	10%	0%
Percent Outbound Assignment	0%	0%	0%	0%	10%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	0	0	0	0	11	0	6	0	9	0	0	0	0	0	18	0
2033 Buildout Total	0	0	0	0	18	0	90	0	141	1,252	0	0	0	906	28	0

INTERSECTION VOLUME DEVELOPMENT

Bethel Church Rd and Access A
AM PEAK HOUR

	Access A				Access A				Bethel Church Rd				Bethel Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2023 Existing Traffic	0	0	0	0	0	0	0	0	0	158	0	0	0	165	0	0
2023 Existng PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.75	0.90	0.90	0.90	0.78	0.90	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	193	0	0	0	201	0	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 Background Traffic	0	0	0	0	0	0	0	0	0	193	0	0	0	201	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	25%	0%	5%	0%	15%	0%
Percent Outbound Assignment	25%	0%	5%	0%	13%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	41	0	8	0	21	0	33	0	16	0	20	0	4	0	12	0
2033 Buildout Total	41	0	8	0	21	0	33	0	16	193	20	0	4	201	12	0

PM PEAK HOUR

	Access A				Access A				Bethel Church Rd				Bethel Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2023 Existing Traffic	0	0	0	0	0	0	0	0	0	166	0	0	0	118	0	0
2023 Existng PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.86	0.90	0.90	0.90	0.69	0.90	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	202	0	0	0	144	0	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 Background Traffic	0	0	0	0	0	0	0	0	0	202	0	0	0	144	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	25%	0%	5%	0%	15%	0%
Percent Outbound Assignment	25%	0%	5%	0%	13%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	29	0	6	0	15	0	23	0	36	0	45	0	9	0	27	0
2033 Buildout Total	29	0	6	0	15	0	23	0	36	202	45	0	9	144	27	0

INTERSECTION VOLUME DEVELOPMENT

Mission Church Rd and Access B
AM PEAK HOUR

	Access B				-				Mission Church Rd				Mission Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2023 Existing Traffic	0	0	0	0	0	0	0	0	0	49	0	0	0	112	0	0
2023 Existng PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.78	0.90	0.90	0.90	0.74	0.90	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	2%	2%	2%	3%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	60	0	0	0	137	0	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0
2033 Background Traffic	0	0	0	0	0	0	0	0	0	63	0	0	0	140	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	5%	0%	0%	0%
Percent Outbound Assignment	15%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	25	0	9	0	0	0	0	0	0	0	12	0	5	0	0	0
2033 Buildout Total	25	0	9	0	0	0	0	0	0	63	12	0	5	140	0	0

PM PEAK HOUR

	Access B				-				Mission Church Rd				Mission Church Rd			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2023 Existing Traffic	0	0	0	0	0	0	0	0	0	107	0	0	0	70	0	0
2023 Existng PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.90	0.90	0.90	0.78	0.90	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	130	0	0	0	85	0	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0
2033 Background Traffic	0	0	0	0	0	0	0	0	0	134	0	0	0	89	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	5%	0%	0%	0%
Percent Outbound Assignment	15%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Project Trips	17	0	5	0	0	0	0	0	0	0	27	0	8	0	0	0
2033 Buildout Total	17	0	5	0	0	0	0	0	0	134	27	0	8	89	0	0

INTERSECTION VOLUME DEVELOPMENT

Coley Store Rd and Access C
AM PEAK HOUR

	Coley Store Rd				Coley Store Rd				Access C				-			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2023 Existing Traffic	0	50	0	0	0	150	0	0	0	0	0	0	0	0	0	0
2023 Existng PHF	0.90	0.71	0.90	0.90	0.90	0.72	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	3%	2%	2%	2%	4%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	61	0	0	0	183	0	0	0	0	0	0	0	0	0	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 Background Traffic	0	61	0	0	0	183	0	0	0	0	0	0	0	0	0	0
Percent Inbound Assignment	10%	5%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	5%	0%	0%	7%	0%	10%	0%	0%	0%	0%	0%
Project Trips	8	4	0	0	0	8	4	0	11	0	16	0	0	0	0	0
2033 Buildout Total	8	65	0	0	0	191	4	0	11	0	16	0	0	0	0	0

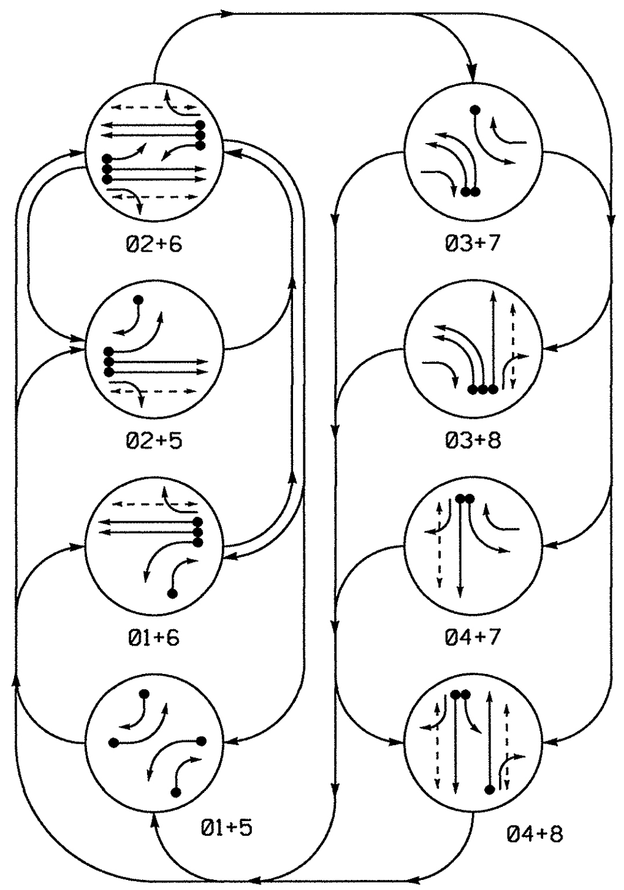
PM PEAK HOUR

	Coley Store Rd				Coley Store Rd				Access C				-			
	Northbound				**Southbound**				**Eastbound**				**Westbound**			
Description	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn	Left	Through	Right	U-turn
2023 Existing Traffic	0	112	0	0	0	73	0	0	0	0	0	0	0	0	0	0
2023 Existng PHF	0.90	0.85	0.90	0.90	0.90	0.63	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Future 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	0.90	0.90	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	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%	2.0%	2.0%	2.0%	2.0%
Growth Factor #5	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219	1.219
2033 Background Traffic (No AD)	0	137	0	0	0	89	0	0	0	0	0	0	0	0	0	0
Summer Dunes AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033 Background Traffic	0	137	0	0	0	89	0	0	0	0	0	0	0	0	0	0
Percent Inbound Assignment	10%	5%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Outbound Assignment	0%	0%	0%	0%	0%	5%	0%	0%	7%	0%	10%	0%	0%	0%	0%	0%
Project Trips	18	9	0	0	0	6	9	0	8	0	11	0	0	0	0	0
2033 Buildout Total	18	146	0	0	0	95	9	0	8	0	11	0	0	0	0	0

Signal Plans

PROJECT REFERENCE NO.	SHEET NO.
41790	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8	FLASH
21	↘R	R	↘G	G	R	R	R	R	Y
22	R	R	G	G	R	R	R	R	Y
23	R	R	G	G	R↘	R↘	R	R	Y
31, 32	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~←~~	~~R~~	~~R~~	~~R~~
41	R	R	R	R	↘R	R	↘G	G	R
42	R↘	R	R↘	R	R	R	G	G	R
61	↘R	↘G	R	G	R	R	R	R	Y
62	R	G	R	G	R	R	R	R	Y
63	R	G	R	G	R↘	R	R↘	R	Y
81	R	R	R	R	R	G	R	G	R
82	R↘	R↘	R	R	R	G	R	G	R
P21, P22	DW	DW	W	W	DW	DW	DW	DW	DRK
P41, P42	DW	DW	DW	DW	DW	DW	W	W	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DRK
P81, P82	DW	DW	DW	DW	DW	W	DW	W	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.

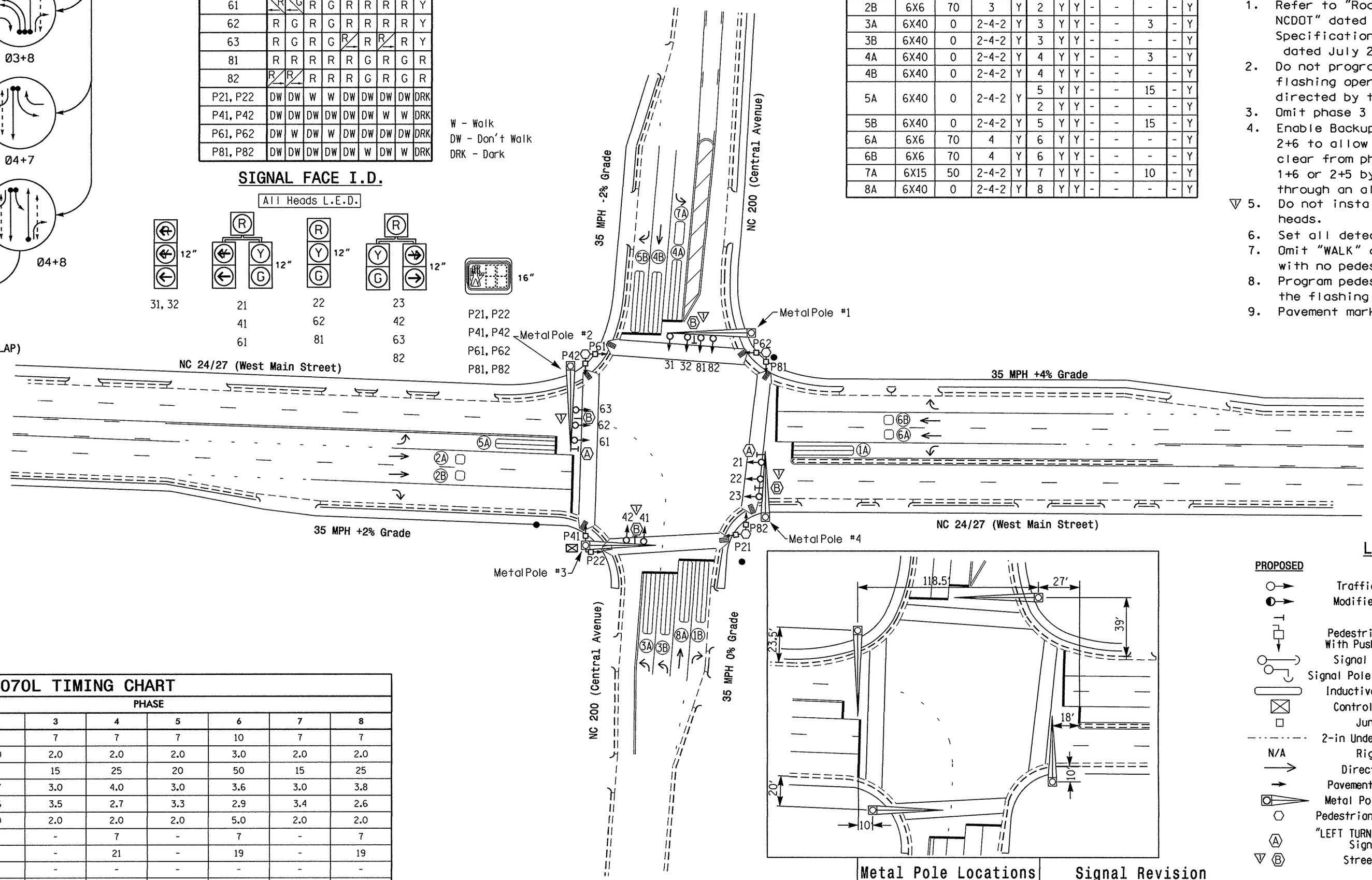
2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
					6	Y	Y	-	-	-	-	Y
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A	6X6	70	3	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	70	3	Y	2	Y	Y	-	-	-	-	Y
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	3	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
					2	Y	Y	-	-	-	-	Y
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A	6X6	70	4	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	70	4	Y	6	Y	Y	-	-	-	-	Y
7A	6X15	50	2-4-2	Y	7	Y	Y	-	-	10	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y

8 Phase
Fully Actuated
(Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Omit phase 3 during phase 4 on.
4. Enable Backup Protect for phase 2+6 to allow the controller to clear from phase 2+6 to phase 1+6 or 2+5 by progressing through an all red display.
5. ▽ Do not install backplates on any signal heads.
6. Set all detector units to presence mode.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Pavement markings are existing.



Metal Pole Locations

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Pavement Marking Arrow	
	Metal Pole with Mastarm	
	Pedestrian Signal Pedestal	
A	"LEFT TURN YIELD ON GREEN" Sign (R10-12)	A
▽ B	Street Name Sign	B

2070L TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1 *	20	50	15	25	20	50	15	25
Yellow Clearance	3.0	3.7	3.0	4.0	3.0	3.6	3.0	3.8
Red Clearance	3.5	2.6	3.5	2.7	3.3	2.9	3.4	2.6
Red Revert	2.0	5.0	2.0	2.0	2.0	5.0	2.0	2.0
Walk 1 *	-	7	-	7	-	7	-	7
Don't Walk 1	-	16	-	21	-	19	-	19
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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

This plan shall supersede the plan sealed on 2/20/08 by Nathaniel Bitting.

Signal Revision

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals and Geometrics Section
750 N. Greenfield Pkwy, Garner, NC 27529

SCALE 0 40 1"=40'

NC 24/27 (West Main Street)
at
NC 200 (Central Avenue)

Division 10 Stanly County Locust

PLAN DATE: October 2008 REVIEWED BY: M. Mahbooba
PREPARED BY: R. Hough REVIEWED BY:

REVISIONS	INIT.	DATE
▽ Add street name signs and Note 5. (mkm)	RMH	3/16/10

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 30530 ENGINEER ZACHARY M. LITTLE
SIGNATURE DATE 11/7/08
SIG. INVENTORY NO. 10-0320

16-MAR-2010 14:47
S:*HTS Signals*Signal Design Section*Western Region*Div-10*10-0320*100320Rev_sig_dsn_20100316.dgn
2011 11:16

Intersection Capacity Analysis

2023 Existing Conditions

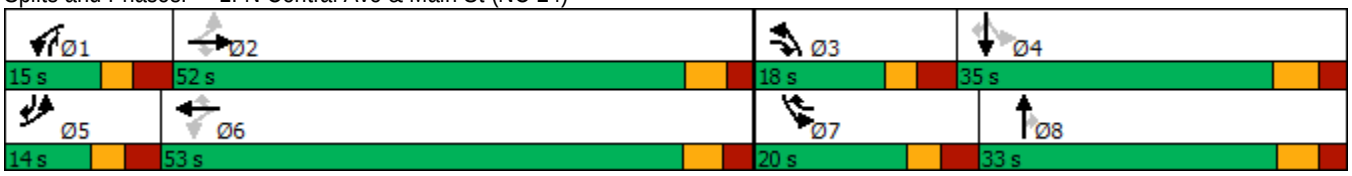
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	533	79	73	885	150	174	115	109	139	93	126
Future Volume (vph)	49	533	79	73	885	150	174	115	109	139	93	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3404	1523	1685	3369	1522	3400	1845	1538	1770	1863	1584
Flt Permitted	0.132			0.314			0.950			0.680		
Satd. Flow (perm)	243	3404	1523	557	3369	1522	3400	1845	1538	1267	1863	1584
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
Peak Hour Factor	0.77	0.88	0.79	0.57	0.91	0.68	0.87	0.96	0.70	0.58	0.86	0.88
Heavy Vehicles (%)	2%	5%	5%	5%	5%	4%	3%	3%	5%	3%	3%	3%
Adj. Flow (vph)	64	606	100	128	973	221	200	120	156	240	108	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	606	100	128	973	221	200	120	156	240	108	143
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	14.0	52.0	18.0	15.0	53.0	20.0	18.0	33.0	15.0	20.0	35.0	14.0
Total Split (%)	11.7%	43.3%	15.0%	12.5%	44.2%	16.7%	15.0%	27.5%	12.5%	16.7%	29.2%	11.7%
Maximum Green (s)	7.7	45.7	11.5	8.5	46.5	13.6	11.5	26.6	8.5	13.6	28.3	7.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	39.0	30.3	50.6	40.4	31.0	50.1	15.1	12.0	26.5	26.3	14.4	24.8
Actuated g/C Ratio	0.45	0.35	0.59	0.47	0.36	0.58	0.18	0.14	0.31	0.31	0.17	0.29
v/c Ratio	0.24	0.51	0.11	0.33	0.80	0.25	0.34	0.47	0.33	0.51	0.35	0.31
Control Delay	13.4	23.7	10.2	13.7	30.8	9.8	37.9	42.7	27.2	27.1	37.3	26.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	23.7	10.2	13.7	30.8	9.8	37.9	42.7	27.2	27.1	37.3	26.1
LOS	B	C	B	B	C	A	D	D	C	C	D	C
Approach Delay		21.1			25.6			35.6			29.0	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	17	135	25	34	245	52	52	61	65	93	51	56
Queue Length 95th (ft)	33	195	46	42	351	73	98	129	102	111	109	121
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	272	1895	912	399	1916	907	639	612	488	493	662	463
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.32	0.11	0.32	0.51	0.24	0.31	0.20	0.32	0.49	0.16	0.31

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 86.2
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 57.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: N Central Ave & Main St (NC 24)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	29	18	27	29	128	11	193	38	78	157	23
Future Volume (vph)	23	29	18	27	29	128	11	193	38	78	157	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.952			0.915			0.975			0.983	
Flt Protected		0.988			0.990			0.995			0.986	
Satd. Flow (prot)	0	1752	0	0	1657	0	0	1779	0	0	1775	0
Flt Permitted		0.988			0.990			0.995			0.986	
Satd. Flow (perm)	0	1752	0	0	1657	0	0	1779	0	0	1775	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.82	0.66	0.45	0.61	0.81	0.94	0.39	0.89	0.68	0.85	0.85	0.58
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%	2%	4%	3%	4%	4%	2%
Adj. Flow (vph)	28	44	40	44	36	136	28	217	56	92	185	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	0	0	216	0	0	301	0	0	317	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	29	18	27	29	128	11	193	38	78	157	23
Future Vol, veh/h	23	29	18	27	29	128	11	193	38	78	157	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	66	45	61	81	94	39	89	68	85	85	58
Heavy Vehicles, %	2	2	2	2	2	5	2	4	3	4	4	2
Mvmt Flow	28	44	40	44	36	136	28	217	56	92	185	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	776	718	205	732	710	245	225	0	0	273	0	0
Stage 1	389	389	-	301	301	-	-	-	-	-	-	-
Stage 2	387	329	-	431	409	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.25	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.345	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	315	355	836	337	359	786	1344	-	-	1279	-	-
Stage 1	635	608	-	708	665	-	-	-	-	-	-	-
Stage 2	637	646	-	603	596	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	219	317	836	264	321	786	1344	-	-	1279	-	-
Mov Cap-2 Maneuver	219	317	-	264	321	-	-	-	-	-	-	-
Stage 1	619	558	-	690	648	-	-	-	-	-	-	-
Stage 2	485	630	-	485	547	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.7	18.6	0.7	2.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1344	-	-	356	478	1279	-	-
HCM Lane V/C Ratio	0.021	-	-	0.315	0.452	0.072	-	-
HCM Control Delay (s)	7.7	0	-	19.7	18.6	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	2.3	0.2	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	21	311	45	4	178
Future Volume (vph)	91	21	311	45	4	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.982			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1752	1583	1825	0	0	1825
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1752	1583	1825	0	0	1825
Link Speed (mph)	35		45			45
Link Distance (ft)	3873		1634			1053
Travel Time (s)	75.4		24.8			16.0
Peak Hour Factor	0.78	0.58	0.83	0.80	0.50	0.91
Heavy Vehicles (%)	3%	2%	2%	4%	2%	4%
Adj. Flow (vph)	117	36	375	56	8	196
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	36	431	0	0	204
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	21	311	45	4	178
Future Vol, veh/h	91	21	311	45	4	178
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	58	83	80	50	91
Heavy Vehicles, %	3	2	2	4	2	4
Mvmt Flow	117	36	375	56	8	196

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	615	403	0	0	431	0
Stage 1	403	-	-	-	-	-
Stage 2	212	-	-	-	-	-
Critical Hdwy	6.43	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	453	647	-	-	1129	-
Stage 1	673	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	449	647	-	-	1129	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	814	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	449	647	1129	-
HCM Lane V/C Ratio	-	-	0.26	0.056	0.007	-
HCM Control Delay (s)	-	-	15.8	10.9	8.2	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	1	0.2	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	129	17	54	148	10	5	24	21	7	79	12
Future Volume (vph)	12	129	17	54	148	10	5	24	21	7	79	12
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		0.970			0.990			0.950			0.985	
Flt Protected		0.995			0.988			0.990			0.994	
Satd. Flow (prot)	0	1787	0	0	1768	0	0	1738	0	0	1797	0
Flt Permitted		0.995			0.988			0.990			0.994	
Satd. Flow (perm)	0	1787	0	0	1768	0	0	1738	0	0	1797	0
Link Speed (mph)		45			55			45			45	
Link Distance (ft)		1851			1309			3604			1025	
Travel Time (s)		28.0			16.2			54.6			15.5	
Peak Hour Factor	0.50	0.83	0.33	0.84	0.80	0.50	0.31	0.75	0.75	0.44	0.73	0.75
Heavy Vehicles (%)	8%	2%	2%	4%	5%	10%	2%	4%	2%	2%	4%	2%
Adj. Flow (vph)	24	155	52	64	185	20	16	32	28	16	108	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	231	0	0	269	0	0	76	0	0	140	0
Sign Control		Stop			Stop			Stop			Stop	

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

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	129	17	54	148	10	5	24	21	7	79	12
Future Vol, veh/h	12	129	17	54	148	10	5	24	21	7	79	12
Peak Hour Factor	0.50	0.83	0.33	0.84	0.80	0.50	0.31	0.75	0.75	0.44	0.73	0.75
Heavy Vehicles, %	8	2	2	4	5	10	2	4	2	2	4	2
Mvmt Flow	24	155	52	64	185	20	16	32	28	16	108	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.2	10.6	8.8	9.6
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	8%	25%	7%
Vol Thru, %	48%	82%	70%	81%
Vol Right, %	42%	11%	5%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	158	212	98
LT Vol	5	12	54	7
Through Vol	24	129	148	79
RT Vol	21	17	10	12
Lane Flow Rate	76	231	269	140
Geometry Grp	1	1	1	1
Degree of Util (X)	0.108	0.312	0.361	0.201
Departure Headway (Hd)	5.099	4.866	4.824	5.169
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	695	732	741	688
Service Time	3.189	2.935	2.89	3.249
HCM Lane V/C Ratio	0.109	0.316	0.363	0.203
HCM Control Delay	8.8	10.2	10.6	9.6
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.4	1.3	1.6	0.7

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	672	986	4	4	122
Future Volume (vph)	43	672	986	4	4	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			50	0	75
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	3438	3505	1583	1770	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	3438	3505	1583	1770	1553
Link Speed (mph)		35	45		35	
Link Distance (ft)		992	1035		1912	
Travel Time (s)		19.3	15.7		37.2	
Peak Hour Factor	0.67	0.76	0.87	0.50	0.90	0.85
Heavy Vehicles (%)	9%	5%	3%	2%	2%	4%
Adj. Flow (vph)	64	884	1133	8	4	144
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	884	1133	8	4	144
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	672	986	4	4	122
Future Vol, veh/h	43	672	986	4	4	122
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	100	-	-	50	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	67	76	87	50	90	85
Heavy Vehicles, %	9	5	3	2	2	4
Mvmt Flow	64	884	1133	8	4	144

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1133	0	-	0	1703	567
Stage 1	-	-	-	-	1133	-
Stage 2	-	-	-	-	570	-
Critical Hdwy	4.28	-	-	-	6.84	6.98
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.29	-	-	-	3.52	3.34
Pot Cap-1 Maneuver	574	-	-	-	83	462
Stage 1	-	-	-	-	269	-
Stage 2	-	-	-	-	529	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	574	-	-	-	74	462
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	239	-
Stage 2	-	-	-	-	529	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	574	-	-	-	178	462
HCM Lane V/C Ratio	0.112	-	-	-	0.025	0.311
HCM Control Delay (s)	12.1	-	-	-	25.7	16.3
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	1.3

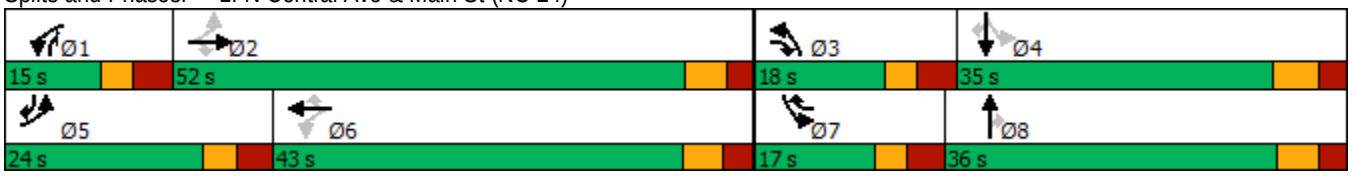
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	862	239	77	652	83	208	148	72	171	188	161
Future Volume (vph)	217	862	239	77	652	83	208	148	72	171	188	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1735	3436	1567	1734	3435	1552	3433	1863	1524	1787	1881	1599
Flt Permitted	0.161			0.167			0.950			0.527		
Satd. Flow (perm)	294	3436	1567	305	3435	1552	3433	1863	1524	991	1881	1599
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
Peak Hour Factor	0.95	0.92	0.83	0.74	0.84	0.83	0.93	0.84	0.75	0.81	0.87	0.82
Heavy Vehicles (%)	3%	4%	2%	2%	3%	2%	2%	2%	6%	2%	2%	2%
Adj. Flow (vph)	228	937	288	104	776	100	224	176	96	211	216	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	228	937	288	104	776	100	224	176	96	211	216	196
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	24.0	52.0	18.0	15.0	43.0	17.0	18.0	36.0	15.0	17.0	35.0	24.0
Total Split (%)	20.0%	43.3%	15.0%	12.5%	35.8%	14.2%	15.0%	30.0%	12.5%	14.2%	29.2%	20.0%
Maximum Green (s)	17.7	45.7	11.5	8.5	36.5	10.6	11.5	29.6	8.5	10.6	28.3	17.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	44.6	31.8	48.4	36.9	27.5	44.4	11.5	16.8	31.4	28.7	17.1	35.9
Actuated g/C Ratio	0.49	0.35	0.54	0.41	0.30	0.49	0.13	0.19	0.35	0.32	0.19	0.40
v/c Ratio	0.63	0.78	0.34	0.38	0.74	0.13	0.51	0.51	0.18	0.51	0.61	0.31
Control Delay	22.5	31.3	13.6	17.7	34.1	15.0	44.5	40.1	23.7	26.9	43.4	21.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	31.3	13.6	17.7	34.1	15.0	44.5	40.1	23.7	26.9	43.4	21.1
LOS	C	C	B	B	C	B	D	D	C	C	D	C
Approach Delay		26.4			30.4			38.9			30.8	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	69	244	85	29	207	29	60	89	37	81	112	74
Queue Length 95th (ft)	147	367	149	53	302	67	124	166	73	152	213	134
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	464	1848	874	291	1494	774	510	661	545	432	645	741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.51	0.33	0.36	0.52	0.13	0.44	0.27	0.18	0.49	0.33	0.26

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 90.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 64.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: N Central Ave & Main St (NC 24)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	27	14	18	17	92	15	256	45	119	281	24
Future Volume (vph)	32	27	14	18	17	92	15	256	45	119	281	24
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		0.975			0.912			0.977			0.990	
Flt Protected		0.980			0.995			0.997			0.985	
Satd. Flow (prot)	0	1764	0	0	1628	0	0	1773	0	0	1797	0
Flt Permitted		0.980			0.995			0.997			0.985	
Satd. Flow (perm)	0	1764	0	0	1628	0	0	1773	0	0	1797	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.89	0.75	0.88	0.90	0.39	0.77	0.63	0.84	0.66	0.76	0.84	0.60
Heavy Vehicles (%)	2%	2%	7%	2%	2%	8%	2%	4%	7%	3%	2%	13%
Adj. Flow (vph)	36	36	16	20	44	119	24	305	68	157	335	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	183	0	0	397	0	0	532	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 59.5%	ICU Level of Service B
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	27	14	18	17	92	15	256	45	119	281	24
Future Vol, veh/h	32	27	14	18	17	92	15	256	45	119	281	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	75	88	90	39	77	63	84	66	76	84	60
Heavy Vehicles, %	2	2	7	2	2	8	2	4	7	3	2	13
Mvmt Flow	36	36	16	20	44	119	24	305	68	157	335	40

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1138	1090	355	1082	1076	339	375	0	0	373	0	0
Stage 1	669	669	-	387	387	-	-	-	-	-	-	-
Stage 2	469	421	-	695	689	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.28	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.372	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	179	215	678	195	219	690	1183	-	-	1180	-	-
Stage 1	447	456	-	637	610	-	-	-	-	-	-	-
Stage 2	575	589	-	433	446	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	103	174	678	137	177	690	1183	-	-	1180	-	-
Mov Cap-2 Maneuver	103	174	-	137	177	-	-	-	-	-	-	-
Stage 1	435	379	-	620	594	-	-	-	-	-	-	-
Stage 2	429	574	-	318	371	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	56.9	29.6	0.5	2.5
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1183	-	-	152	324	1180	-	-
HCM Lane V/C Ratio	0.02	-	-	0.578	0.565	0.133	-	-
HCM Control Delay (s)	8.1	0	-	56.9	29.6	8.5	0	-
HCM Lane LOS	A	A	-	F	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3	3.3	0.5	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	62	8	278	95	12	367
Future Volume (vph)	62	8	278	95	12	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.965			
Flt Protected	0.950					0.999
Satd. Flow (prot)	1770	1583	1750	0	0	1841
Flt Permitted	0.950					0.999
Satd. Flow (perm)	1770	1583	1750	0	0	1841
Link Speed (mph)	35		45			45
Link Distance (ft)	3873		1634			1053
Travel Time (s)	75.4		24.8			16.0
Peak Hour Factor	0.82	0.50	0.89	0.88	1.00	0.78
Heavy Vehicles (%)	2%	2%	5%	4%	8%	3%
Adj. Flow (vph)	76	16	312	108	12	471
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	16	420	0	0	483
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 39.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	8	278	95	12	367
Future Vol, veh/h	62	8	278	95	12	367
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	50	89	88	100	78
Heavy Vehicles, %	2	2	5	4	8	3
Mvmt Flow	76	16	312	108	12	471

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	861	366	0	0	420	0
Stage 1	366	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.18	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.272	-
Pot Cap-1 Maneuver	326	679	-	-	1108	-
Stage 1	702	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	321	679	-	-	1108	-
Mov Cap-2 Maneuver	321	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	604	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	321	679	1108	-
HCM Lane V/C Ratio	-	-	0.236	0.024	0.011	-
HCM Control Delay (s)	-	-	19.6	10.4	8.3	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	137	9	20	106	6	5	75	32	4	44	7
Future Volume (vph)	20	137	9	20	106	6	5	75	32	4	44	7
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		0.989			0.989			0.963			0.984	
Flt Protected		0.993			0.994			0.997			0.995	
Satd. Flow (prot)	0	1802	0	0	1803	0	0	1784	0	0	1824	0
Flt Permitted		0.993			0.994			0.997			0.995	
Satd. Flow (perm)	0	1802	0	0	1803	0	0	1784	0	0	1824	0
Link Speed (mph)		45			55			45			45	
Link Distance (ft)		1851			1309			3604			1025	
Travel Time (s)		28.0			16.2			54.6			15.5	
Peak Hour Factor	0.71	0.90	0.56	0.83	0.70	0.38	0.63	0.85	0.89	0.38	0.55	0.58
Heavy Vehicles (%)	2%	4%	2%	2%	4%	2%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	28	152	16	24	151	16	8	88	36	11	80	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	0	0	191	0	0	132	0	0	103	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	137	9	20	106	6	5	75	32	4	44	7
Future Vol, veh/h	20	137	9	20	106	6	5	75	32	4	44	7
Peak Hour Factor	0.71	0.90	0.56	0.83	0.70	0.38	0.63	0.85	0.89	0.38	0.55	0.58
Heavy Vehicles, %	2	4	2	2	4	2	2	2	3	2	2	2
Mvmt Flow	28	152	16	24	151	16	8	88	36	11	80	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.4	9.4	8.9	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	12%	15%	7%
Vol Thru, %	67%	83%	80%	80%
Vol Right, %	29%	5%	5%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	166	132	55
LT Vol	5	20	20	4
Through Vol	75	137	106	44
RT Vol	32	9	6	7
Lane Flow Rate	132	196	191	103
Geometry Grp	1	1	1	1
Degree of Util (X)	0.177	0.258	0.252	0.141
Departure Headway (Hd)	4.824	4.73	4.747	4.963
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	740	756	754	718
Service Time	2.882	2.783	2.8	3.024
HCM Lane V/C Ratio	0.178	0.259	0.253	0.143
HCM Control Delay	8.9	9.4	9.4	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	1	1	0.5

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	108	1017	734	8	6	69
Future Volume (vph)	108	1017	734	8	6	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			50	0	75
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3471	3505	1583	1770	1568
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3471	3505	1583	1770	1568
Link Speed (mph)		45	45		35	
Link Distance (ft)		992	1035		1912	
Travel Time (s)		15.0	15.7		37.2	
Peak Hour Factor	0.90	0.89	0.89	0.67	0.50	0.86
Heavy Vehicles (%)	2%	4%	3%	2%	2%	3%
Adj. Flow (vph)	120	1143	825	12	12	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	1143	825	12	12	80
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	108	1017	734	8	6	69
Future Vol, veh/h	108	1017	734	8	6	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	100	-	-	50	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	89	89	67	50	86
Heavy Vehicles, %	2	4	3	2	2	3
Mvmt Flow	120	1143	825	12	12	80

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	825	0	-	0	1637	413
Stage 1	-	-	-	-	825	-
Stage 2	-	-	-	-	812	-
Critical Hdwy	4.14	-	-	-	6.84	6.96
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.33
Pot Cap-1 Maneuver	801	-	-	-	91	585
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	397	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	801	-	-	-	77	585
Mov Cap-2 Maneuver	-	-	-	-	200	-
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	397	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	801	-	-	-	200	585
HCM Lane V/C Ratio	0.15	-	-	-	0.06	0.137
HCM Control Delay (s)	10.3	-	-	-	24.1	12.1
HCM Lane LOS	B	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.2	0.5

2033 Background Conditions

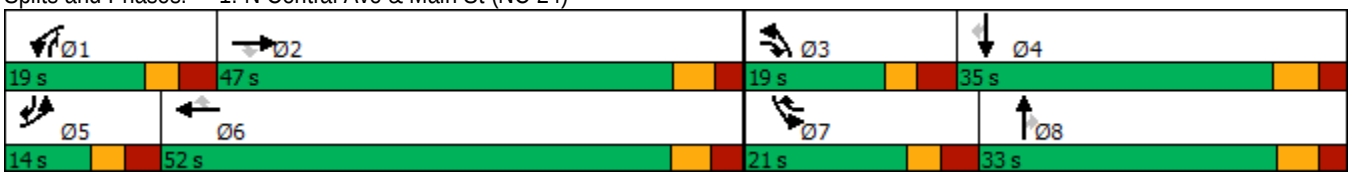
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	650	96	89	1079	191	212	146	133	190	127	173
Future Volume (vph)	63	650	96	89	1079	191	212	146	133	190	127	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3404	1523	1685	3369	1522	3400	1845	1538	1770	1863	1584
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	3404	1523	1685	3369	1522	3400	1845	1538	1770	1863	1584
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
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%	5%	5%	5%	5%	4%	3%	3%	5%	3%	3%	3%
Adj. Flow (vph)	70	722	107	99	1199	212	236	162	148	211	141	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	722	107	99	1199	212	236	162	148	211	141	192
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	14.0	47.0	19.0	19.0	52.0	21.0	19.0	33.0	19.0	21.0	35.0	14.0
Total Split (%)	11.7%	39.2%	15.8%	15.8%	43.3%	17.5%	15.8%	27.5%	15.8%	17.5%	29.2%	11.7%
Maximum Green (s)	7.7	40.7	12.5	12.5	45.5	14.6	12.5	26.6	12.5	14.6	28.3	7.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	8.8	38.8	56.2	11.6	41.6	62.3	12.4	14.9	31.6	15.6	18.1	32.0
Actuated g/C Ratio	0.09	0.38	0.56	0.11	0.41	0.62	0.12	0.15	0.31	0.15	0.18	0.32
v/c Ratio	0.46	0.55	0.13	0.51	0.87	0.23	0.57	0.60	0.31	0.77	0.42	0.38
Control Delay	58.0	27.1	12.0	54.2	35.4	9.8	49.2	51.2	28.9	63.1	42.7	31.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	27.1	12.0	54.2	35.4	9.8	49.2	51.2	28.9	63.1	42.7	31.0
LOS	E	C	B	D	D	A	D	D	C	E	D	C
Approach Delay		27.7			33.0			44.3			46.5	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	46	191	31	64	368	57	78	104	76	139	86	102
Queue Length 95th (ft)	98	279	67	124	506	107	126	174	129	#281	150	172
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	157	1431	873	236	1584	945	476	517	518	283	559	505
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.50	0.12	0.42	0.76	0.22	0.50	0.31	0.29	0.75	0.25	0.38

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 101.2
Natural Cycle: 105
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 35.5 Intersection LOS: D
Intersection Capacity Utilization 70.5% 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: N Central Ave & Main St (NC 24)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	35	22	33	35	156	13	250	46	95	196	31
Future Volume (vph)	38	35	22	33	35	156	13	250	46	95	196	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			25			25		
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		0.943			0.878			0.980			0.987	
Flt Protected	0.950			0.950				0.998			0.985	
Satd. Flow (prot)	1770	1757	0	1770	1597	0	0	1791	0	0	1779	0
Flt Permitted	0.950			0.950				0.998			0.985	
Satd. Flow (perm)	1770	1757	0	1770	1597	0	0	1791	0	0	1779	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%	2%	4%	3%	4%	4%	2%
Adj. Flow (vph)	42	39	24	37	39	173	14	278	51	106	218	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	63	0	37	212	0	0	343	0	0	358	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 62.2%	ICU Level of Service B
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	35	22	33	35	156	13	250	46	95	196	31
Future Vol, veh/h	38	35	22	33	35	156	13	250	46	95	196	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	5	2	4	3	4	4	2
Mvmt Flow	42	39	24	37	39	173	14	278	51	106	218	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	885	804	235	811	796	304	252	0	0	329	0	0
Stage 1	447	447	-	332	332	-	-	-	-	-	-	-
Stage 2	438	357	-	479	464	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.25	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.345	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	266	316	804	298	320	729	1313	-	-	1219	-	-
Stage 1	591	573	-	681	644	-	-	-	-	-	-	-
Stage 2	597	628	-	568	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	166	280	804	236	284	729	1313	-	-	1219	-	-
Mov Cap-2 Maneuver	166	280	-	236	284	-	-	-	-	-	-	-
Stage 1	583	515	-	672	636	-	-	-	-	-	-	-
Stage 2	422	620	-	457	506	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.5	16.3	0.3	2.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1313	-	-	166	374	236	566	1219	-	-
HCM Lane V/C Ratio	0.011	-	-	0.254	0.169	0.155	0.375	0.087	-	-
HCM Control Delay (s)	7.8	0	-	33.9	16.6	23	15.1	8.2	0	-
HCM Lane LOS	A	A	-	D	C	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1	0.6	0.5	1.7	0.3	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	26	401	58	5	222
Future Volume (vph)	114	26	401	58	5	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1583	1863	1553	1770	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1583	1863	1553	1770	1827
Link Speed (mph)	35		45			45
Link Distance (ft)	3873		1634			1053
Travel Time (s)	75.4		24.8			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	4%	2%	4%
Adj. Flow (vph)	127	29	446	64	6	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	29	446	64	6	247
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	26	401	58	5	222
Future Vol, veh/h	114	26	401	58	5	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	2	2	4	2	4
Mvmt Flow	127	29	446	64	6	247

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	705	446	0	0	510	0
Stage 1	446	-	-	-	-	-
Stage 2	259	-	-	-	-	-
Critical Hdwy	6.43	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	401	612	-	-	1055	-
Stage 1	643	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	399	612	-	-	1055	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	399	612	1055	-
HCM Lane V/C Ratio	-	-	0.317	0.047	0.005	-
HCM Control Delay (s)	-	-	18.2	11.2	8.4	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	157	21	66	180	12	6	29	26	9	96	15
Future Volume (vph)	15	157	21	66	180	12	6	29	26	9	96	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.994			0.942			0.983	
Flt Protected		0.996			0.987			0.995			0.996	
Satd. Flow (prot)	0	1819	0	0	1776	0	0	1730	0	0	1796	0
Flt Permitted		0.996			0.987			0.995			0.996	
Satd. Flow (perm)	0	1819	0	0	1776	0	0	1730	0	0	1796	0
Link Speed (mph)		45			55			45			45	
Link Distance (ft)		1851			1309			3604			1025	
Travel Time (s)		28.0			16.2			54.6			15.5	
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 (%)	8%	2%	2%	4%	5%	10%	2%	4%	2%	2%	4%	2%
Adj. Flow (vph)	17	174	23	73	200	13	7	32	29	10	107	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	0	286	0	0	68	0	0	134	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.2%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	157	21	66	180	12	6	29	26	9	96	15
Future Vol, veh/h	15	157	21	66	180	12	6	29	26	9	96	15
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, %	8	2	2	4	5	10	2	4	2	2	4	2
Mvmt Flow	17	174	23	73	200	13	7	32	29	10	107	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	10.7	8.7	9.5
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	8%	26%	7%
Vol Thru, %	48%	81%	70%	80%
Vol Right, %	43%	11%	5%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	193	258	120
LT Vol	6	15	66	9
Through Vol	29	157	180	96
RT Vol	26	21	12	15
Lane Flow Rate	68	214	287	133
Geometry Grp	1	1	1	1
Degree of Util (X)	0.096	0.288	0.379	0.191
Departure Headway (Hd)	5.077	4.841	4.763	5.149
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	698	738	751	691
Service Time	3.162	2.907	2.823	3.224
HCM Lane V/C Ratio	0.097	0.29	0.382	0.192
HCM Control Delay	8.7	9.9	10.7	9.5
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	0.3	1.2	1.8	0.7

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	840	1210	4	4	149
Future Volume (vph)	52	840	1210	4	4	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			50	0	75
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	3438	3505	1583	1770	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	3438	3505	1583	1770	1553
Link Speed (mph)		35	45		35	
Link Distance (ft)		992	1035		1912	
Travel Time (s)		19.3	15.7		37.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	9%	5%	3%	2%	2%	4%
Adj. Flow (vph)	58	933	1344	4	4	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	933	1344	4	4	166
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 50.1%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	840	1210	4	4	149
Future Vol, veh/h	52	840	1210	4	4	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	100	-	-	50	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	9	5	3	2	2	4
Mvmt Flow	58	933	1344	4	4	166

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1344	0	-	0	1927	672
Stage 1	-	-	-	-	1344	-
Stage 2	-	-	-	-	583	-
Critical Hdwy	4.28	-	-	-	6.84	6.98
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.29	-	-	-	3.52	3.34
Pot Cap-1 Maneuver	473	-	-	-	58	394
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	473	-	-	-	51	394
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	20.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	473	-	-	-	140	394
HCM Lane V/C Ratio	0.122	-	-	-	0.032	0.42
HCM Control Delay (s)	13.7	-	-	-	31.6	20.6
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	2

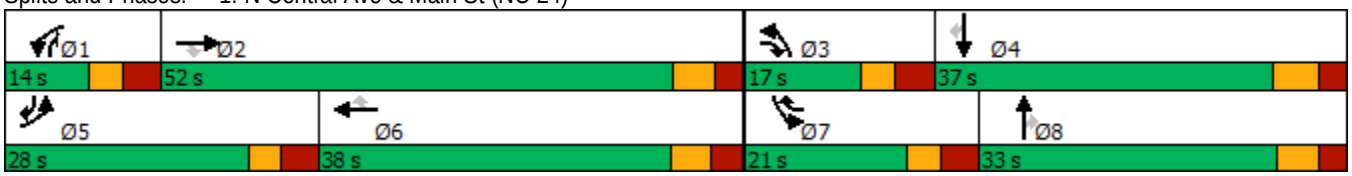
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	1051	291	94	795	112	254	200	88	220	242	207
Future Volume (vph)	295	1051	291	94	795	112	254	200	88	220	242	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1735	3436	1567	1734	3435	1552	3433	1863	1524	1787	1881	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1735	3436	1567	1734	3435	1552	3433	1863	1524	1787	1881	1599
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
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 (%)	3%	4%	2%	2%	3%	2%	2%	2%	6%	2%	2%	2%
Adj. Flow (vph)	328	1168	323	104	883	124	282	222	98	244	269	230
Shared Lane Traffic (%)												
Lane Group Flow (vph)	328	1168	323	104	883	124	282	222	98	244	269	230
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	28.0	52.0	17.0	14.0	38.0	21.0	17.0	33.0	14.0	21.0	37.0	28.0
Total Split (%)	23.3%	43.3%	14.2%	11.7%	31.7%	17.5%	14.2%	27.5%	11.7%	17.5%	30.8%	23.3%
Maximum Green (s)	21.7	45.7	10.5	7.5	31.5	14.6	10.5	26.6	7.5	14.6	30.3	21.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	23.1	45.7	62.6	9.0	31.6	52.7	11.9	18.8	32.8	16.1	23.0	51.1
Actuated g/C Ratio	0.21	0.42	0.57	0.08	0.29	0.48	0.11	0.17	0.30	0.15	0.21	0.47
v/c Ratio	0.90	0.82	0.36	0.73	0.89	0.17	0.76	0.70	0.21	0.93	0.68	0.31
Control Delay	71.4	34.5	14.8	79.9	50.3	17.8	62.6	54.9	30.1	88.9	49.6	19.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.4	34.5	14.8	79.9	50.3	17.8	62.6	54.9	30.1	88.9	49.6	19.7
LOS	E	C	B	E	D	B	E	D	C	F	D	B
Approach Delay		37.7			49.4			54.4			53.3	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	230	373	115	74	312	48	102	151	52	174	179	101
Queue Length 95th (ft)	#436	518	203	#176	#467	95	#177	232	95	#359	268	157
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	365	1479	897	142	1038	745	377	477	456	262	551	745
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.79	0.36	0.73	0.85	0.17	0.75	0.47	0.21	0.93	0.49	0.31

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 109.6
Natural Cycle: 115
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 45.8 Intersection LOS: D
Intersection Capacity Utilization 77.7% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: N Central Ave & Main St (NC 24)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	33	17	22	21	112	18	322	55	145	360	40
Future Volume (vph)	46	33	17	22	21	112	18	322	55	145	360	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			25			25		
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		0.949			0.873			0.981			0.990	
Flt Protected	0.950			0.950				0.998			0.987	
Satd. Flow (prot)	1770	1739	0	1770	1549	0	0	1783	0	0	1801	0
Flt Permitted	0.950			0.950				0.998			0.987	
Satd. Flow (perm)	1770	1739	0	1770	1549	0	0	1783	0	0	1801	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	7%	2%	2%	8%	2%	4%	7%	3%	2%	13%
Adj. Flow (vph)	51	37	19	24	23	124	20	358	61	161	400	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	56	0	24	147	0	0	439	0	0	605	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	33	17	22	21	112	18	322	55	145	360	40
Future Vol, veh/h	46	33	17	22	21	112	18	322	55	145	360	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	8	2	4	7	3	2	13
Mvmt Flow	51	37	19	24	23	124	20	358	61	161	400	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1246	1203	422	1201	1195	389	444	0	0	419	0	0
Stage 1	744	744	-	429	429	-	-	-	-	-	-	-
Stage 2	502	459	-	772	766	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.28	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.372	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	151	184	621	162	186	646	1116	-	-	1135	-	-
Stage 1	407	421	-	604	584	-	-	-	-	-	-	-
Stage 2	552	566	-	392	412	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	90	146	621	107	147	646	1116	-	-	1135	-	-
Mov Cap-2 Maneuver	90	146	-	107	147	-	-	-	-	-	-	-
Stage 1	397	341	-	590	570	-	-	-	-	-	-	-
Stage 2	417	552	-	275	334	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	57.9	22.4	0.4	2.3
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1116	-	-	90	197	107	421	1135	-	-
HCM Lane V/C Ratio	0.018	-	-	0.568	0.282	0.228	0.351	0.142	-	-
HCM Control Delay (s)	8.3	0	-	88	30.3	48.3	18.1	8.7	0	-
HCM Lane LOS	A	A	-	F	D	E	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.6	1.1	0.8	1.6	0.5	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	10	352	120	15	471
Future Volume (vph)	80	10	352	120	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1810	1553	1671	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1810	1553	1671	1845
Link Speed (mph)	35		45			45
Link Distance (ft)	3873		1634			1053
Travel Time (s)	75.4		24.8			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	4%	8%	3%
Adj. Flow (vph)	89	11	391	133	17	523
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	11	391	133	17	523
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	10	352	120	15	471
Future Vol, veh/h	80	10	352	120	15	471
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	4	8	3
Mvmt Flow	89	11	391	133	17	523

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	948	391	0	0	524	0
Stage 1	391	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.18	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.272	-
Pot Cap-1 Maneuver	289	658	-	-	1013	-
Stage 1	683	-	-	-	-	-
Stage 2	574	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	284	658	-	-	1013	-
Mov Cap-2 Maneuver	284	-	-	-	-	-
Stage 1	683	-	-	-	-	-
Stage 2	564	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.9	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	284	658	1013	-
HCM Lane V/C Ratio	-	-	0.313	0.017	0.016	-
HCM Control Delay (s)	-	-	23.3	10.6	8.6	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	167	11	24	129	7	6	91	39	4	54	9
Future Volume (vph)	24	167	11	24	129	7	6	91	39	4	54	9
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		0.993			0.994			0.962			0.982	
Flt Protected		0.994			0.992			0.998			0.997	
Satd. Flow (prot)	0	1809	0	0	1808	0	0	1783	0	0	1824	0
Flt Permitted		0.994			0.992			0.998			0.997	
Satd. Flow (perm)	0	1809	0	0	1808	0	0	1783	0	0	1824	0
Link Speed (mph)		45			55			45			45	
Link Distance (ft)		1851			1309			3604			1025	
Travel Time (s)		28.0			16.2			54.6			15.5	
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%	4%	2%	2%	4%	2%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	27	186	12	27	143	8	7	101	43	4	60	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	225	0	0	178	0	0	151	0	0	74	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 29.2%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	167	11	24	129	7	6	91	39	4	54	9
Future Vol, veh/h	24	167	11	24	129	7	6	91	39	4	54	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	4	2	2	4	2	2	2	3	2	2	2
Mvmt Flow	27	186	12	27	143	8	7	101	43	4	60	10
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	9.3	9.1	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	12%	15%	6%
Vol Thru, %	67%	83%	81%	81%
Vol Right, %	29%	5%	4%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	136	202	160	67
LT Vol	6	24	24	4
Through Vol	91	167	129	54
RT Vol	39	11	7	9
Lane Flow Rate	151	224	178	74
Geometry Grp	1	1	1	1
Degree of Util (X)	0.202	0.293	0.235	0.104
Departure Headway (Hd)	4.816	4.693	4.759	5.015
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	740	763	750	709
Service Time	2.874	2.742	2.812	3.08
HCM Lane V/C Ratio	0.204	0.294	0.237	0.104
HCM Control Delay	9.1	9.7	9.3	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	1.2	0.9	0.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	132	1252	906	10	7	84
Future Volume (vph)	132	1252	906	10	7	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			50	0	75
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3471	3505	1583	1770	1568
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3471	3505	1583	1770	1568
Link Speed (mph)		45	45		35	
Link Distance (ft)		992	1035		1912	
Travel Time (s)		15.0	15.7		37.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	3%	2%	2%	3%
Adj. Flow (vph)	147	1391	1007	11	8	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	1391	1007	11	8	93
Sign Control		Free	Free		Stop	

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

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	132	1252	906	10	7	84
Future Vol, veh/h	132	1252	906	10	7	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	100	-	-	50	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	3	2	2	3
Mvmt Flow	147	1391	1007	11	8	93

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1007	0	-	0	1997	504
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	990	-
Critical Hdwy	4.14	-	-	-	6.84	6.96
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.33
Pot Cap-1 Maneuver	684	-	-	-	52	510
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	320	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	684	-	-	-	41	510
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	246	-
Stage 2	-	-	-	-	320	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	684	-	-	-	145	510
HCM Lane V/C Ratio	0.214	-	-	-	0.054	0.183
HCM Control Delay (s)	11.7	-	-	-	31.2	13.6
HCM Lane LOS	B	-	-	-	D	B
HCM 95th %tile Q(veh)	0.8	-	-	-	0.2	0.7

2033 Build-out Conditions

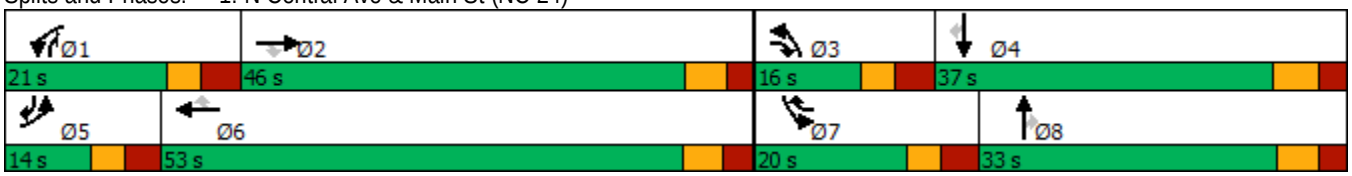
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	650	96	97	1079	191	212	154	137	190	143	214
Future Volume (vph)	83	650	96	97	1079	191	212	154	137	190	143	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3404	1523	1685	3369	1522	3400	1845	1538	1770	1863	1584
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	3404	1523	1685	3369	1522	3400	1845	1538	1770	1863	1584
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
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%	5%	5%	5%	5%	4%	3%	3%	5%	3%	3%	3%
Adj. Flow (vph)	92	722	107	108	1199	212	236	171	152	211	159	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	722	107	108	1199	212	236	171	152	211	159	238
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	14.0	46.0	16.0	21.0	53.0	20.0	16.0	33.0	21.0	20.0	37.0	14.0
Total Split (%)	11.7%	38.3%	13.3%	17.5%	44.2%	16.7%	13.3%	27.5%	17.5%	16.7%	30.8%	11.7%
Maximum Green (s)	7.7	39.7	9.5	14.5	46.5	13.6	9.5	26.6	14.5	13.6	30.3	7.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	8.9	38.1	54.0	12.3	41.5	61.8	10.8	15.4	32.8	15.2	19.8	33.8
Actuated g/C Ratio	0.09	0.38	0.53	0.12	0.41	0.61	0.11	0.15	0.32	0.15	0.20	0.33
v/c Ratio	0.60	0.56	0.13	0.53	0.87	0.23	0.65	0.61	0.31	0.80	0.44	0.45
Control Delay	64.5	27.8	13.7	53.4	35.5	10.2	54.7	51.0	27.7	66.6	41.2	30.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.5	27.8	13.7	53.4	35.5	10.2	54.7	51.0	27.7	66.6	41.2	30.8
LOS	E	C	B	D	D	B	D	D	C	E	D	C
Approach Delay		29.8			33.2			46.2			45.9	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	60	192	33	68	364	58	78	108	76	138	95	125
Queue Length 95th (ft)	#143	286	73	132	503	109	#138	183	128	#297	163	207
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	157	1402	816	269	1616	928	373	516	556	265	595	531
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.51	0.13	0.40	0.74	0.23	0.63	0.33	0.27	0.80	0.27	0.45

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 101.3
Natural Cycle: 105
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 36.5 Intersection LOS: D
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: N Central Ave & Main St (NC 24)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	35	22	74	35	189	13	258	66	111	212	31
Future Volume (vph)	38	35	22	74	35	189	13	258	66	111	212	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			25			25		
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		0.943			0.873			0.974			0.988	
Flt Protected	0.950			0.950				0.998			0.985	
Satd. Flow (prot)	1770	1757	0	1770	1587	0	0	1780	0	0	1781	0
Flt Permitted	0.950			0.950				0.998			0.985	
Satd. Flow (perm)	1770	1757	0	1770	1587	0	0	1780	0	0	1781	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%	2%	4%	3%	4%	4%	2%
Adj. Flow (vph)	42	39	24	82	39	210	14	287	73	123	236	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	63	0	82	249	0	0	374	0	0	393	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 67.7%	ICU Level of Service C
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	35	22	74	35	189	13	258	66	111	212	31
Future Vol, veh/h	38	35	22	74	35	189	13	258	66	111	212	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	5	2	4	3	4	4	2
Mvmt Flow	42	39	24	82	39	210	14	287	73	123	236	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	975	887	253	883	868	324	270	0	0	360	0	0
Stage 1	499	499	-	352	352	-	-	-	-	-	-	-
Stage 2	476	388	-	531	516	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.25	4.12	-	-	4.14	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.345	2.218	-	-	2.236	-	-
Pot Cap-1 Maneuver	231	283	786	266	290	710	1293	-	-	1188	-	-
Stage 1	554	544	-	665	632	-	-	-	-	-	-	-
Stage 2	570	609	-	532	534	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	129	245	786	204	251	710	1293	-	-	1188	-	-
Mov Cap-2 Maneuver	129	245	-	204	251	-	-	-	-	-	-	-
Stage 1	546	478	-	656	623	-	-	-	-	-	-	-
Stage 2	371	600	-	416	469	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.3	21.1	0.3	2.6
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1293	-	-	129	334	204	552	1188	-	-
HCM Lane V/C Ratio	0.011	-	-	0.327	0.19	0.403	0.451	0.104	-	-
HCM Control Delay (s)	7.8	0	-	45.9	18.3	34.1	16.8	8.4	0	-
HCM Lane LOS	A	A	-	E	C	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0.7	1.8	2.3	0.3	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	130	35	434	66	9	238
Future Volume (vph)	130	35	434	66	9	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1752	1583	1863	1553	1770	1827
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1752	1583	1863	1553	1770	1827
Link Speed (mph)	35		45			45
Link Distance (ft)	3873		1634			1053
Travel Time (s)	75.4		24.8			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	4%	2%	4%
Adj. Flow (vph)	144	39	482	73	10	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	39	482	73	10	264
Sign Control	Stop		Free			Free

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

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	130	35	434	66	9	238
Future Vol, veh/h	130	35	434	66	9	238
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	2	2	4	2	4
Mvmt Flow	144	39	482	73	10	264

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	766	482	0	0	555	0
Stage 1	482	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.43	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	369	584	-	-	1015	-
Stage 1	619	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	584	-	-	1015	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.2	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	365	584	1015	-
HCM Lane V/C Ratio	-	-	0.396	0.067	0.01	-
HCM Control Delay (s)	-	-	21.2	11.6	8.6	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.8	0.2	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	170	29	70	188	12	10	29	37	9	96	19
Future Volume (vph)	23	170	29	70	188	12	10	29	37	9	96	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.983			0.994			0.934			0.979	
Flt Protected		0.995			0.987			0.993			0.996	
Satd. Flow (prot)	0	1811	0	0	1776	0	0	1715	0	0	1789	0
Flt Permitted		0.995			0.987			0.993			0.996	
Satd. Flow (perm)	0	1811	0	0	1776	0	0	1715	0	0	1789	0
Link Speed (mph)		45			55			45			45	
Link Distance (ft)		1851			1309			3604			1025	
Travel Time (s)		28.0			16.2			54.6			15.5	
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 (%)	8%	2%	2%	4%	5%	10%	2%	4%	2%	2%	4%	2%
Adj. Flow (vph)	26	189	32	78	209	13	11	32	41	10	107	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	300	0	0	84	0	0	138	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 43.0%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	170	29	70	188	12	10	29	37	9	96	19
Future Vol, veh/h	23	170	29	70	188	12	10	29	37	9	96	19
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, %	8	2	2	4	5	10	2	4	2	2	4	2
Mvmt Flow	26	189	32	78	209	13	11	32	41	10	107	21
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.5	11.3	9	9.8
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	10%	26%	7%
Vol Thru, %	38%	77%	70%	77%
Vol Right, %	49%	13%	4%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	222	270	124
LT Vol	10	23	70	9
Through Vol	29	170	188	96
RT Vol	37	29	12	19
Lane Flow Rate	84	247	300	138
Geometry Grp	1	1	1	1
Degree of Util (X)	0.124	0.337	0.406	0.206
Departure Headway (Hd)	5.287	4.921	4.872	5.378
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	681	723	729	671
Service Time	3.292	3.015	2.961	3.378
HCM Lane V/C Ratio	0.123	0.342	0.412	0.206
HCM Control Delay	9	10.5	11.3	9.8
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.4	1.5	2	0.8

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	840	1210	10	16	157
Future Volume (vph)	56	840	1210	10	16	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			50	0	75
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1656	3438	3505	1583	1770	1553
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1656	3438	3505	1583	1770	1553
Link Speed (mph)		35	45		35	
Link Distance (ft)		992	1035		1912	
Travel Time (s)		19.3	15.7		37.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	9%	5%	3%	2%	2%	4%
Adj. Flow (vph)	62	933	1344	11	18	174
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	933	1344	11	18	174
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	56	840	1210	10	16	157
Future Vol, veh/h	56	840	1210	10	16	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	100	-	-	50	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	9	5	3	2	2	4
Mvmt Flow	62	933	1344	11	18	174

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1344	0	-	0	1935	672
Stage 1	-	-	-	-	1344	-
Stage 2	-	-	-	-	591	-
Critical Hdwy	4.28	-	-	-	6.84	6.98
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.29	-	-	-	3.52	3.34
Pot Cap-1 Maneuver	473	-	-	-	58	394
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	516	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	473	-	-	-	50	394
Mov Cap-2 Maneuver	-	-	-	-	139	-
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	516	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	22.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	473	-	-	-	139	394
HCM Lane V/C Ratio	0.132	-	-	-	0.128	0.443
HCM Control Delay (s)	13.8	-	-	-	34.7	21.2
HCM Lane LOS	B	-	-	-	D	C
HCM 95th %tile Q(veh)	0.5	-	-	-	0.4	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	193	20	4	201	12	41	0	8	21	0	33
Future Volume (vph)	16	193	20	4	201	12	41	0	8	21	0	33
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		0.988			0.993			0.978			0.917	
Flt Protected		0.996			0.999			0.960			0.981	
Satd. Flow (prot)	0	1833	0	0	1799	0	0	1749	0	0	1676	0
Flt Permitted		0.996			0.999			0.960			0.981	
Satd. Flow (perm)	0	1833	0	0	1799	0	0	1749	0	0	1676	0
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		5315			1851			1051			1002	
Travel Time (s)		80.5			28.0			28.7			27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	18	214	22	4	223	13	46	0	9	23	0	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	254	0	0	240	0	0	55	0	0	60	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.2%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	193	20	4	201	12	41	0	8	21	0	33
Future Vol, veh/h	16	193	20	4	201	12	41	0	8	21	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	5	2	2	2	2	2	2	2
Mvmt Flow	18	214	22	4	223	13	46	0	9	23	0	37

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	236	0	0	236	0	0	517	505	225	504	510	230
Stage 1	-	-	-	-	-	-	261	261	-	238	238	-
Stage 2	-	-	-	-	-	-	256	244	-	266	272	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1331	-	-	1331	-	-	469	470	814	478	467	809
Stage 1	-	-	-	-	-	-	744	692	-	765	708	-
Stage 2	-	-	-	-	-	-	749	704	-	739	685	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1331	-	-	1331	-	-	441	461	814	466	458	809
Mov Cap-2 Maneuver	-	-	-	-	-	-	441	461	-	466	458	-
Stage 1	-	-	-	-	-	-	732	681	-	753	706	-
Stage 2	-	-	-	-	-	-	713	702	-	719	674	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	13.5	11.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	477	1331	-	-	1331	-	-	629
HCM Lane V/C Ratio	0.114	0.013	-	-	0.003	-	-	0.095
HCM Control Delay (s)	13.5	7.7	0	-	7.7	0	-	11.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	63	12	5	140	25	9
Future Volume (vph)	63	12	5	140	25	9
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	0.979				0.964	
Flt Protected				0.998	0.964	
Satd. Flow (prot)	1794	0	0	1842	1731	0
Flt Permitted				0.998	0.964	
Satd. Flow (perm)	1794	0	0	1842	1731	0
Link Speed (mph)	55			55	25	
Link Distance (ft)	1690			1024	1014	
Travel Time (s)	21.0			12.7	27.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	70	13	6	156	28	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	83	0	0	162	38	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 21.4%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	12	5	140	25	9
Future Vol, veh/h	63	12	5	140	25	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	4	2	2	3	2	2
Mvmt Flow	70	13	6	156	28	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	83	0	245	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	168	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1514	-	743	984
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1514	-	740	984
Mov Cap-2 Maneuver	-	-	-	-	740	-
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	859	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	792	-	-	1514	-
HCM Lane V/C Ratio	0.048	-	-	0.004	-
HCM Control Delay (s)	9.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	16	8	65	191	4
Future Volume (vph)	11	16	8	65	191	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	0.919				0.997	
Flt Protected	0.980			0.994		
Satd. Flow (prot)	1678	0	0	1836	1822	0
Flt Permitted	0.980			0.994		
Satd. Flow (perm)	1678	0	0	1836	1822	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1018			3275	3604	
Travel Time (s)	27.8			49.6	54.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	4%	2%
Adj. Flow (vph)	12	18	9	72	212	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	0	81	216	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 20.3%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	16	8	65	191	4
Future Vol, veh/h	11	16	8	65	191	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	3	4	2
Mvmt Flow	12	18	9	72	212	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	304	214	216	0	-	0
Stage 1	214	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	688	826	1354	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	683	826	1354	-	-	-
Mov Cap-2 Maneuver	683	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	934	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1354	-	761	-	-
HCM Lane V/C Ratio	0.007	-	0.039	-	-
HCM Control Delay (s)	7.7	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	1051	291	100	795	112	254	218	97	220	253	236
Future Volume (vph)	340	1051	291	100	795	112	254	218	97	220	253	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1735	3436	1567	1734	3435	1552	3433	1863	1524	1787	1881	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1735	3436	1567	1734	3435	1552	3433	1863	1524	1787	1881	1599
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
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 (%)	3%	4%	2%	2%	3%	2%	2%	2%	6%	2%	2%	2%
Adj. Flow (vph)	378	1168	323	111	883	124	282	242	108	244	281	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	378	1168	323	111	883	124	282	242	108	244	281	262
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	29.0	55.0	19.0	14.0	40.0	22.0	19.0	34.0	14.0	22.0	37.0	29.0
Total Split (%)	23.2%	44.0%	15.2%	11.2%	32.0%	17.6%	15.2%	27.2%	11.2%	17.6%	29.6%	23.2%
Maximum Green (s)	22.7	48.7	12.5	7.5	33.5	15.6	12.5	27.6	7.5	15.6	30.3	22.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.1	48.1	66.5	9.0	33.0	55.1	13.4	20.7	34.8	17.1	24.4	53.6
Actuated g/C Ratio	0.21	0.42	0.58	0.08	0.29	0.48	0.12	0.18	0.30	0.15	0.21	0.47
v/c Ratio	1.04	0.81	0.36	0.82	0.90	0.17	0.71	0.72	0.23	0.92	0.70	0.35
Control Delay	103.3	35.7	14.9	94.5	52.6	18.7	60.5	57.4	31.6	88.1	52.6	21.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.3	35.7	14.9	94.5	52.6	18.7	60.5	57.4	31.6	88.1	52.6	21.6
LOS	F	D	B	F	D	B	E	E	C	F	D	C
Approach Delay		45.8			53.0			54.4			53.3	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	~313	393	118	84	329	50	106	174	61	184	200	126
Queue Length 95th (ft)	#552	542	208	#204	#486	99	#164	261	108	#374	294	191
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	364	1501	915	136	1050	743	420	472	460	265	526	744
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.78	0.35	0.82	0.84	0.17	0.67	0.51	0.23	0.92	0.53	0.35

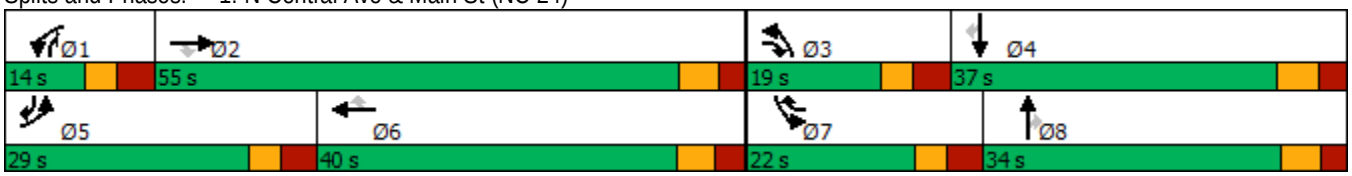
Intersection Summary

Area Type: Other
Cycle Length: 125
Actuated Cycle Length: 115
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 50.2 Intersection LOS: D
Intersection Capacity Utilization 81.1% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 1: N Central Ave & Main St (NC 24)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	33	17	51	21	135	18	340	100	181	371	40
Future Volume (vph)	46	33	17	51	21	135	18	340	100	181	371	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			25			25		
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		0.949			0.870			0.971			0.991	
Flt Protected	0.950			0.950				0.998			0.985	
Satd. Flow (prot)	1770	1739	0	1770	1542	0	0	1761	0	0	1800	0
Flt Permitted	0.950			0.950				0.998			0.985	
Satd. Flow (perm)	1770	1739	0	1770	1542	0	0	1761	0	0	1800	0
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	7%	2%	2%	8%	2%	4%	7%	3%	2%	13%
Adj. Flow (vph)	51	37	19	57	23	150	20	378	111	201	412	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	56	0	57	173	0	0	509	0	0	657	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 83.0%	ICU Level of Service E
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	17.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	33	17	51	21	135	18	340	100	181	371	40
Future Vol, veh/h	46	33	17	51	21	135	18	340	100	181	371	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	7	2	2	8	2	4	7	3	2	13
Mvmt Flow	51	37	19	57	23	150	20	378	111	201	412	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1396	1365	434	1338	1332	434	456	0	0	489	0	0
Stage 1	836	836	-	474	474	-	-	-	-	-	-	-
Stage 2	560	529	-	864	858	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.27	7.12	6.52	6.28	4.12	-	-	4.13	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.363	3.518	4.018	3.372	2.218	-	-	2.227	-	-
Pot Cap-1 Maneuver	119	147	611	130	154	609	1105	-	-	1069	-	-
Stage 1	362	382	-	571	558	-	-	-	-	-	-	-
Stage 2	513	527	-	349	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	107	611	74	112	609	1105	-	-	1069	-	-
Mov Cap-2 Maneuver	60	107	-	74	112	-	-	-	-	-	-	-
Stage 1	353	285	-	557	544	-	-	-	-	-	-	-
Stage 2	361	514	-	220	279	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	111.9	51.3	0.3	2.8
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1105	-	-	60	149	74	381	1069	-	-
HCM Lane V/C Ratio	0.018	-	-	0.852	0.373	0.766	0.455	0.188	-	-
HCM Control Delay (s)	8.3	0	-	186.9	42.9	140.7	22.1	9.1	0	-
HCM Lane LOS	A	A	-	F	E	F	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.9	1.6	3.7	2.3	0.7	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	16	375	138	24	507
Future Volume (vph)	91	16	375	138	24	507
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225	0		100	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1810	1553	1671	1845
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1810	1553	1671	1845
Link Speed (mph)	35		45			45
Link Distance (ft)	3873		1634			1053
Travel Time (s)	75.4		24.8			16.0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	5%	4%	8%	3%
Adj. Flow (vph)	101	18	417	153	27	563
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	18	417	153	27	563
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	16	375	138	24	507
Future Vol, veh/h	91	16	375	138	24	507
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	225	0	-	100	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	5	4	8	3
Mvmt Flow	101	18	417	153	27	563

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1034	417	0	0	570	0
Stage 1	417	-	-	-	-	-
Stage 2	617	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.18	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.272	-
Pot Cap-1 Maneuver	257	636	-	-	973	-
Stage 1	665	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	250	636	-	-	973	-
Mov Cap-2 Maneuver	250	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	523	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.1	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	250	636	973	-
HCM Lane V/C Ratio	-	-	0.404	0.028	0.027	-
HCM Control Delay (s)	-	-	28.8	10.8	8.8	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	176	17	33	147	7	15	91	47	4	54	18
Future Volume (vph)	30	176	17	33	147	7	15	91	47	4	54	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.995			0.959			0.968	
Flt Protected		0.993			0.991			0.995			0.998	
Satd. Flow (prot)	0	1803	0	0	1809	0	0	1772	0	0	1800	0
Flt Permitted		0.993			0.991			0.995			0.998	
Satd. Flow (perm)	0	1803	0	0	1809	0	0	1772	0	0	1800	0
Link Speed (mph)		45			55			45			45	
Link Distance (ft)		1851			1309			3604			1025	
Travel Time (s)		28.0			16.2			54.6			15.5	
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%	4%	2%	2%	4%	2%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	33	196	19	37	163	8	17	101	52	4	60	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	248	0	0	208	0	0	170	0	0	84	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 34.5%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	176	17	33	147	7	15	91	47	4	54	18
Future Vol, veh/h	30	176	17	33	147	7	15	91	47	4	54	18
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	4	2	2	4	2	2	2	3	2	2	2
Mvmt Flow	33	196	19	37	163	8	17	101	52	4	60	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.3	9.9	9.6	8.9
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	13%	18%	5%
Vol Thru, %	59%	79%	79%	71%
Vol Right, %	31%	8%	4%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	153	223	187	76
LT Vol	15	30	33	4
Through Vol	91	176	147	54
RT Vol	47	17	7	18
Lane Flow Rate	170	248	208	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.235	0.331	0.282	0.12
Departure Headway (Hd)	4.969	4.808	4.886	5.127
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	716	741	729	692
Service Time	3.048	2.878	2.959	3.218
HCM Lane V/C Ratio	0.237	0.335	0.285	0.121
HCM Control Delay	9.6	10.3	9.9	8.9
HCM Lane LOS	A	B	A	A
HCM 95th-tile Q	0.9	1.5	1.2	0.4

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	141	1252	906	28	18	90
Future Volume (vph)	141	1252	906	28	18	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			50	0	75
Storage Lanes	1			1	1	1
Taper Length (ft)	100				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3471	3505	1583	1770	1568
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3471	3505	1583	1770	1568
Link Speed (mph)		45	45		35	
Link Distance (ft)		992	1035		1912	
Travel Time (s)		15.0	15.7		37.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	3%	2%	2%	3%
Adj. Flow (vph)	157	1391	1007	31	20	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	1391	1007	31	20	100
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	141	1252	906	28	18	90
Future Vol, veh/h	141	1252	906	28	18	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Yield	-	None
Storage Length	100	-	-	50	0	75
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	3	2	2	3
Mvmt Flow	157	1391	1007	31	20	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1007	0	-	0	2017	504
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	1010	-
Critical Hdwy	4.14	-	-	-	6.84	6.96
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.33
Pot Cap-1 Maneuver	684	-	-	-	51	510
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	313	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	684	-	-	-	39	510
Mov Cap-2 Maneuver	-	-	-	-	142	-
Stage 1	-	-	-	-	242	-
Stage 2	-	-	-	-	313	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	684	-	-	-	142	510
HCM Lane V/C Ratio	0.229	-	-	-	0.141	0.196
HCM Control Delay (s)	11.8	-	-	-	34.5	13.8
HCM Lane LOS	B	-	-	-	D	B
HCM 95th %tile Q(veh)	0.9	-	-	-	0.5	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	202	45	9	144	27	29	0	6	15	0	23
Future Volume (vph)	36	202	45	9	144	27	29	0	6	15	0	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979			0.980			0.976			0.918	
Flt Protected		0.994			0.998			0.961			0.981	
Satd. Flow (prot)	0	1788	0	0	1794	0	0	1747	0	0	1678	0
Flt Permitted		0.994			0.998			0.961			0.981	
Satd. Flow (perm)	0	1788	0	0	1794	0	0	1747	0	0	1678	0
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		5315			1851			1051			1002	
Travel Time (s)		80.5			28.0			28.7			27.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	4%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	40	224	50	10	160	30	32	0	7	17	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	314	0	0	200	0	0	39	0	0	43	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 37.2%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	202	45	9	144	27	29	0	6	15	0	23
Future Vol, veh/h	36	202	45	9	144	27	29	0	6	15	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	4	2	2	4	2	2	2	2	2	2	2
Mvmt Flow	40	224	50	10	160	30	32	0	7	17	0	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	190	0	0	274	0	0	537	539	249	528	549	175
Stage 1	-	-	-	-	-	-	329	329	-	195	195	-
Stage 2	-	-	-	-	-	-	208	210	-	333	354	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1384	-	-	1289	-	-	455	449	790	461	443	868
Stage 1	-	-	-	-	-	-	684	646	-	807	739	-
Stage 2	-	-	-	-	-	-	794	728	-	681	630	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1384	-	-	1289	-	-	427	430	790	442	424	868
Mov Cap-2 Maneuver	-	-	-	-	-	-	427	430	-	442	424	-
Stage 1	-	-	-	-	-	-	661	624	-	780	732	-
Stage 2	-	-	-	-	-	-	764	721	-	652	609	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.4	13.5	11.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	464	1384	-	-	1289	-	-	629
HCM Lane V/C Ratio	0.084	0.029	-	-	0.008	-	-	0.067
HCM Control Delay (s)	13.5	7.7	0	-	7.8	0	-	11.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	134	27	8	89	17	5
Future Volume (vph)	134	27	8	89	17	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	0.977				0.968	
Flt Protected				0.996	0.963	
Satd. Flow (prot)	1791	0	0	1855	1736	0
Flt Permitted				0.996	0.963	
Satd. Flow (perm)	1791	0	0	1855	1736	0
Link Speed (mph)	55			55	25	
Link Distance (ft)	1690			1024	1014	
Travel Time (s)	21.0			12.7	27.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	149	30	9	99	19	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	179	0	0	108	25	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	134	27	8	89	17	5
Future Vol, veh/h	134	27	8	89	17	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	4	2	2	2	2	2
Mvmt Flow	149	30	9	99	19	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	179	0	281	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	117	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1397	-	709	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1397	-	704	881
Mov Cap-2 Maneuver	-	-	-	-	704	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	902	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	738	-	-	1397	-
HCM Lane V/C Ratio	0.033	-	-	0.006	-
HCM Control Delay (s)	10	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	11	18	146	95	9
Future Volume (vph)	8	11	18	146	95	9
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	0.923				0.988	
Flt Protected	0.979			0.995		
Satd. Flow (prot)	1683	0	0	1853	1840	0
Flt Permitted	0.979			0.995		
Satd. Flow (perm)	1683	0	0	1853	1840	0
Link Speed (mph)	25			45	45	
Link Distance (ft)	1018			3275	3604	
Travel Time (s)	27.8			49.6	54.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	12	20	162	106	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	182	116	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 25.3%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	11	18	146	95	9
Future Vol, veh/h	8	11	18	146	95	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	12	20	162	106	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	313	111	116	0	-	0
Stage 1	111	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	680	942	1473	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	832	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	670	942	1473	-	-	-
Mov Cap-2 Maneuver	670	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	832	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1473	-	804	-	-
HCM Lane V/C Ratio	0.014	-	0.026	-	-
HCM Control Delay (s)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

2033 Build-out IMP Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	650	96	97	1079	191	212	154	137	190	143	214
Future Volume (vph)	83	650	96	97	1079	191	212	154	137	190	143	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3404	1523	1685	3369	1522	3400	1845	1538	3434	1863	1584
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	3404	1523	1685	3369	1522	3400	1845	1538	3434	1863	1584
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
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%	5%	5%	5%	5%	4%	3%	3%	5%	3%	3%	3%
Adj. Flow (vph)	92	722	107	108	1199	212	236	171	152	211	159	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	722	107	108	1199	212	236	171	152	211	159	238
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	15.0	48.0	16.0	21.0	54.0	18.0	16.0	33.0	21.0	18.0	35.0	15.0
Total Split (%)	12.5%	40.0%	13.3%	17.5%	45.0%	15.0%	13.3%	27.5%	17.5%	15.0%	29.2%	12.5%
Maximum Green (s)	8.7	41.7	9.5	14.5	47.5	11.6	9.5	26.6	14.5	11.6	28.3	8.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	9.7	38.3	54.2	12.3	40.9	57.5	10.8	15.5	32.9	11.5	16.1	30.9
Actuated g/C Ratio	0.10	0.39	0.55	0.13	0.42	0.59	0.11	0.16	0.34	0.12	0.16	0.32
v/c Ratio	0.53	0.54	0.13	0.51	0.85	0.24	0.63	0.59	0.29	0.53	0.52	0.48
Control Delay	58.4	25.7	12.5	51.9	33.1	10.8	52.6	48.9	26.7	48.2	45.2	31.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	25.7	12.5	51.9	33.1	10.8	52.6	48.9	26.7	48.2	45.2	31.8
LOS	E	C	B	D	C	B	D	D	C	D	D	C
Approach Delay		27.4			31.3			44.4			41.0	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	58	183	31	66	353	59	76	104	73	67	95	123
Queue Length 95th (ft)	#131	278	70	132	494	111	#138	183	128	115	167	210
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	182	1535	849	281	1722	921	390	538	579	465	583	508
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.47	0.13	0.38	0.70	0.23	0.61	0.32	0.26	0.45	0.27	0.47

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 98
Natural Cycle: 95
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 34.0 Intersection LOS: C
Intersection Capacity Utilization 66.3% 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: N Central Ave & Main St (NC 24)

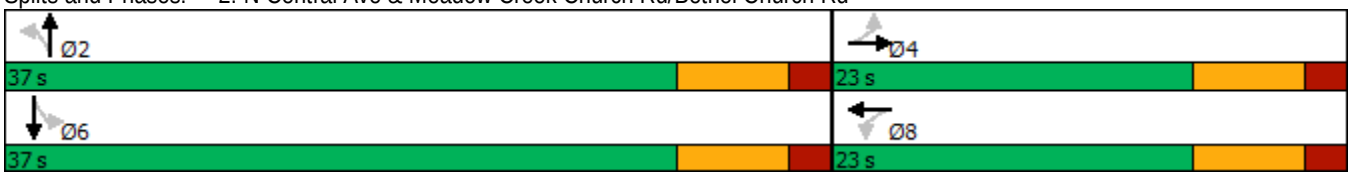
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	35	22	74	35	189	13	258	66	111	212	31
Future Volume (vph)	38	35	22	74	35	189	13	258	66	111	212	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			25			25		
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		0.943			0.873			0.974			0.988	
Flt Protected	0.950			0.950				0.998			0.985	
Satd. Flow (prot)	1770	1757	0	1770	1587	0	0	1780	0	0	1781	0
Flt Permitted	0.601			0.716				0.979			0.794	
Satd. Flow (perm)	1120	1757	0	1334	1587	0	0	1747	0	0	1436	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%	2%	4%	3%	4%	4%	2%
Adj. Flow (vph)	42	39	24	82	39	210	14	287	73	123	236	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	63	0	82	249	0	0	374	0	0	393	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0	
Total Split (s)	23.0	23.0		23.0	23.0		37.0	37.0		37.0	37.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
Maximum Green (s)	16.0	16.0		16.0	16.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	5.0	5.0		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		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 Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	13.9	13.9		13.9	13.9			21.7			21.7	
Actuated g/C Ratio	0.30	0.30		0.30	0.30			0.47			0.47	
v/c Ratio	0.12	0.12		0.20	0.52			0.45			0.58	
Control Delay	14.0	13.4		14.5	18.6			10.6			13.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.0	13.4		14.5	18.6			10.6			13.3	
LOS	B	B		B	B			B			B	
Approach Delay		13.6			17.6			10.6			13.3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	7	10		14	47			59			67	
Queue Length 95th (ft)	31	40		50	134			126			150	
Internal Link Dist (ft)		952			5235			2359			1554	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	452	709		539	641			1255			1031	
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	0.09	0.09		0.15	0.39			0.30			0.38	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 45.8
Natural Cycle: 40
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: N Central Ave & Meadow Creek Church Rd/Bethel Church Rd



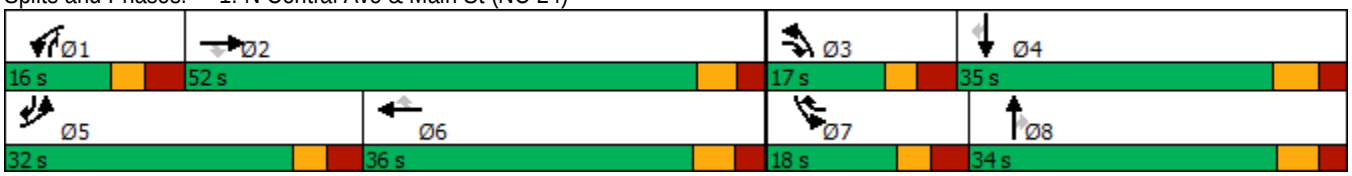
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	1051	291	100	795	112	254	218	97	220	253	236
Future Volume (vph)	340	1051	291	100	795	112	254	218	97	220	253	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			4%			0%			-2%	
Storage Length (ft)	175		175	150		175	100		75	125		125
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (ft)	150			150			100			100		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1735	3436	1567	1734	3435	1552	3433	1863	1524	3467	1881	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1735	3436	1567	1734	3435	1552	3433	1863	1524	3467	1881	1599
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1068			1527			1048			328	
Travel Time (s)		16.2			23.1			20.4			6.4	
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 (%)	3%	4%	2%	2%	3%	2%	2%	2%	6%	2%	2%	2%
Adj. Flow (vph)	378	1168	323	111	883	124	282	242	108	244	281	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	378	1168	323	111	883	124	282	242	108	244	281	262
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	13.3	29.3	13.5	13.5	32.5	13.4	13.5	32.4	13.5	13.4	34.7	13.3
Total Split (s)	32.0	52.0	17.0	16.0	36.0	18.0	17.0	34.0	16.0	18.0	35.0	32.0
Total Split (%)	26.7%	43.3%	14.2%	13.3%	30.0%	15.0%	14.2%	28.3%	13.3%	15.0%	29.2%	26.7%
Maximum Green (s)	25.7	45.7	10.5	9.5	29.5	11.6	10.5	27.6	9.5	11.6	28.3	25.7
Yellow Time (s)	3.0	3.7	3.0	3.0	3.6	3.0	3.0	3.8	3.0	3.0	4.0	3.0
All-Red Time (s)	3.3	2.6	3.5	3.5	2.9	3.4	3.5	2.6	3.5	3.4	2.7	3.3
Lost Time Adjust (s)	-1.3	-1.3	-1.5	-1.5	-1.5	-1.4	-1.5	-1.4	-1.5	-1.4	-1.7	-1.3
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	Min	None	None	Min	None	None	None	None	None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		16.0			19.0			19.0			21.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	26.9	47.5	64.4	10.5	31.1	48.2	11.9	22.2	37.8	12.1	22.5	54.4
Actuated g/C Ratio	0.24	0.42	0.57	0.09	0.28	0.43	0.11	0.20	0.34	0.11	0.20	0.48
v/c Ratio	0.91	0.81	0.36	0.69	0.93	0.19	0.78	0.66	0.21	0.65	0.75	0.34
Control Delay	70.0	34.7	15.4	72.4	57.2	21.8	65.2	50.7	27.5	57.7	55.1	19.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.0	34.7	15.4	72.4	57.2	21.8	65.2	50.7	27.5	57.7	55.1	19.1
LOS	E	C	B	E	E	C	E	D	C	E	E	B
Approach Delay		38.5			54.8			53.2			43.9	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	268	386	121	79	328	54	104	164	56	88	193	113
Queue Length 95th (ft)	#488	530	210	#170	#502	105	#181	249	99	139	286	172
Internal Link Dist (ft)		988			1447			968			248	
Turn Bay Length (ft)	175		175	150		175	100		75	125		125
Base Capacity (vph)	417	1450	898	170	949	678	367	482	519	402	503	776
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.81	0.36	0.65	0.93	0.18	0.77	0.50	0.21	0.61	0.56	0.34

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 112.4
Natural Cycle: 115
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 45.7 Intersection LOS: D
Intersection Capacity Utilization 78.0% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: N Central Ave & Main St (NC 24)



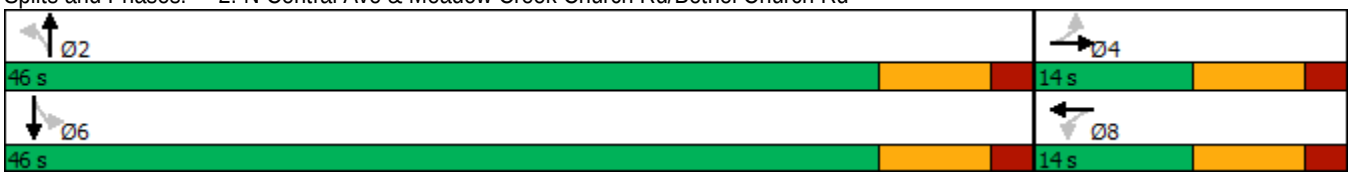
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	33	17	51	21	135	18	340	100	181	371	40
Future Volume (vph)	46	33	17	51	21	135	18	340	100	181	371	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	100			100			25			25		
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		0.949			0.870			0.971			0.991	
Flt Protected	0.950			0.950				0.998			0.985	
Satd. Flow (prot)	1770	1739	0	1770	1542	0	0	1761	0	0	1800	0
Flt Permitted	0.648			0.720				0.968			0.736	
Satd. Flow (perm)	1207	1739	0	1341	1542	0	0	1708	0	0	1345	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		35			45			45			45	
Link Distance (ft)		1032			5315			2439			1634	
Travel Time (s)		20.1			80.5			37.0			24.8	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	7%	2%	2%	8%	2%	4%	7%	3%	2%	13%
Adj. Flow (vph)	51	37	19	57	23	150	20	378	111	201	412	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	56	0	57	173	0	0	509	0	0	657	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	14.0	14.0		14.0	14.0		19.0	19.0		19.0	19.0	
Total Split (s)	14.0	14.0		14.0	14.0		46.0	46.0		46.0	46.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%		76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)	7.0	7.0		7.0	7.0		39.0	39.0		39.0	39.0	
Yellow Time (s)	5.0	5.0		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		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 Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	9.1	9.1		9.1	9.1			33.7			33.7	
Actuated g/C Ratio	0.17	0.17		0.17	0.17			0.64			0.64	
v/c Ratio	0.25	0.19		0.25	0.65			0.47			0.77	
Control Delay	24.7	22.7		24.3	37.2			6.4			13.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	24.7	22.7		24.3	37.2			6.4			13.9	
LOS	C	C		C	D			A			B	
Approach Delay		23.7			34.0			6.4			13.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			C			A			B	
Queue Length 50th (ft)	13	14		15	48			66			117	
Queue Length 95th (ft)	45	46		48	#149			112			235	
Internal Link Dist (ft)		952			5235			2359			1554	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	207	299		230	265			1338			1054	
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	0.25	0.19		0.25	0.65			0.38			0.62	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 53
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 88.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N Central Ave & Meadow Creek Church Rd/Bethel Church Rd



Queuing and Blocking Reports

2033 Background Conditions

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B21	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	L	L	T
Maximum Queue (ft)	95	265	206	97	144	365	362	171	5	152	183	178
Average Queue (ft)	41	161	116	27	61	212	218	48	0	45	98	81
95th Queue (ft)	82	231	195	70	117	322	330	118	4	121	164	140
Link Distance (ft)		1016	1016			1449	1449		946			987
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	800			450	305			300		265	265	
Storage Blk Time (%)						1	2					
Queuing Penalty (veh)						1	3					

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	NB	SB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (ft)	137	190	204	184
Average Queue (ft)	51	109	84	86
95th Queue (ft)	109	171	157	157
Link Distance (ft)			241	
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)	250	225		225
Storage Blk Time (%)		0	0	0
Queuing Penalty (veh)		1	1	0

Intersection: 2: N Central Ave & Meadow Creek Church Rd/Bethel Church Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	52	73	46	140	51	74
Average Queue (ft)	18	30	18	59	5	20
95th Queue (ft)	43	57	43	106	31	54
Link Distance (ft)		994		5248	2368	1556
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 3: N Central Ave & Mission Church Rd

Movement	WB	WB	NB	SB
Directions Served	L	R	T	L
Maximum Queue (ft)	96	55	4	26
Average Queue (ft)	43	13	0	2
95th Queue (ft)	74	36	3	12
Link Distance (ft)		3798	1556	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	225			150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Coley Store Rd & Bethel Church Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	86	96	58	80
Average Queue (ft)	45	50	22	34
95th Queue (ft)	71	81	45	58
Link Distance (ft)	1788	1277	3541	993
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Main St (NC 24) & Coley Store Rd

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	L	R
Maximum Queue (ft)	91	16	5	16	23	236	148
Average Queue (ft)	37	1	0	1	1	29	73
95th Queue (ft)	80	12	4	9	9	145	135
Link Distance (ft)		946	946	988	988	1829	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	100						75
Storage Blk Time (%)	0	0			0	1	18
Queuing Penalty (veh)	1	0			0	1	1

Network Summary

Network wide Queuing Penalty: 9

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	L	T	R
Maximum Queue (ft)	437	446	443	278	241	382	417	283	206	234	213	146
Average Queue (ft)	224	254	233	94	99	221	232	49	94	138	108	45
95th Queue (ft)	395	400	382	215	210	353	362	146	194	211	187	105
Link Distance (ft)		1016	1016			1449	1449				987	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	800			450	305			300	265	265		250
Storage Blk Time (%)			1			3	4		0	0	0	
Queuing Penalty (veh)			2			3	4		0	0	1	

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	SB	SB	SB	B19
Directions Served	L	T	R	T
Maximum Queue (ft)	236	298	227	134
Average Queue (ft)	152	152	87	5
95th Queue (ft)	226	253	193	52
Link Distance (ft)		241		1669
Upstream Blk Time (%)	0	3	0	
Queuing Penalty (veh)	0	12	0	
Storage Bay Dist (ft)	225		225	
Storage Blk Time (%)	1	4	0	
Queuing Penalty (veh)	5	16	1	

Intersection: 2: N Central Ave & Meadow Creek Church Rd/Bethel Church Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	77	79	46	129	124	132
Average Queue (ft)	25	31	13	51	13	39
95th Queue (ft)	56	59	35	97	66	95
Link Distance (ft)		994		5248	2368	1556
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 3: N Central Ave & Mission Church Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	78	22	36
Average Queue (ft)	33	5	4
95th Queue (ft)	64	20	20
Link Distance (ft)		3798	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	225		150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Coley Store Rd & Bethel Church Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	91	63	92	49
Average Queue (ft)	48	36	38	24
95th Queue (ft)	77	55	70	40
Link Distance (ft)	1788	1277	3541	993
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Main St (NC 24) & Coley Store Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	L	R
Maximum Queue (ft)	127	89	8	7	43	88
Average Queue (ft)	43	4	1	0	8	35
95th Queue (ft)	87	43	7	5	30	68
Link Distance (ft)		946	988	988	1829	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100					75
Storage Blk Time (%)	1	0		0		1
Queuing Penalty (veh)	6	0		0		0

Network Summary

Network wide Queuing Penalty: 51

2033 Build-out IMP Conditions

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	L	T	R
Maximum Queue (ft)	124	248	211	91	168	342	323	142	157	186	192	173
Average Queue (ft)	52	143	105	26	65	198	202	56	46	99	80	58
95th Queue (ft)	103	223	190	71	127	295	285	114	123	165	146	128
Link Distance (ft)		1015	1015			1449	1449				987	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	800			450	305			300	265	265		250
Storage Blk Time (%)						0	0					
Queuing Penalty (veh)						0	1					

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	SB	SB	SB	SB
Directions Served	L	L	T	R
Maximum Queue (ft)	119	118	167	182
Average Queue (ft)	66	56	80	104
95th Queue (ft)	112	102	143	177
Link Distance (ft)			241	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	225	225		225
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: N Central Ave & Meadow Creek Church Rd/Bethel Church Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	72	71	72	205	192	253
Average Queue (ft)	25	27	30	86	85	104
95th Queue (ft)	58	58	59	154	165	193
Link Distance (ft)		994		5246	2368	1556
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)				1		
Queuing Penalty (veh)				1		

Intersection: 3: N Central Ave & Mission Church Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	106	59	27
Average Queue (ft)	49	16	2
95th Queue (ft)	88	38	12
Link Distance (ft)		3798	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	225		150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Coley Store Rd & Bethel Church Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	99	94	59	65
Average Queue (ft)	50	51	24	34
95th Queue (ft)	78	82	48	56
Link Distance (ft)	1784	1276	3530	987
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Main St (NC 24) & Coley Store Rd

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	L	R
Maximum Queue (ft)	105	40	20	40	207	148
Average Queue (ft)	37	2	1	2	40	73
95th Queue (ft)	78	25	10	21	139	132
Link Distance (ft)		946	988	988	1829	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	100					75
Storage Blk Time (%)	1	0		0	3	18
Queuing Penalty (veh)	2	0		0	4	3

Intersection: 6: Access A & Bethel Church Rd

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	27	9	62	57
Average Queue (ft)	4	0	28	28
95th Queue (ft)	19	3	56	50
Link Distance (ft)			1015	969
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Access B & Mission Church Rd

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	5	51
Average Queue (ft)	0	21
95th Queue (ft)	4	47
Link Distance (ft)	1000	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Coley Store Rd & Access C

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	39	16
Average Queue (ft)	16	1
95th Queue (ft)	41	11
Link Distance (ft)	986	3220
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 11

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	L	T	R
Maximum Queue (ft)	437	357	347	206	162	345	366	186	203	231	244	121
Average Queue (ft)	231	240	216	84	74	210	224	49	90	138	123	40
95th Queue (ft)	400	340	320	158	144	307	326	122	188	209	207	95
Link Distance (ft)		1015	1015			1449	1449				987	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	800			450	305			300	265	265		250
Storage Blk Time (%)						2	3			0	0	
Queuing Penalty (veh)						2	3			0	1	

Intersection: 1: N Central Ave & Main St (NC 24)

Movement	SB	SB	SB	SB
Directions Served	L	L	T	R
Maximum Queue (ft)	141	216	261	224
Average Queue (ft)	81	82	140	90
95th Queue (ft)	130	155	217	172
Link Distance (ft)			241	
Upstream Blk Time (%)		0	1	0
Queuing Penalty (veh)		0	2	0
Storage Bay Dist (ft)	225	225		225
Storage Blk Time (%)		0	1	0
Queuing Penalty (veh)		0	4	0

Intersection: 2: N Central Ave & Meadow Creek Church Rd/Bethel Church Rd

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	82	72	80	178	227	537
Average Queue (ft)	30	29	29	85	96	219
95th Queue (ft)	64	61	63	152	182	455
Link Distance (ft)		994		5246	2368	1556
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)				2		
Queuing Penalty (veh)				1		

Intersection: 3: N Central Ave & Mission Church Rd

Movement	WB	WB	SB
Directions Served	L	R	L
Maximum Queue (ft)	90	21	50
Average Queue (ft)	40	8	7
95th Queue (ft)	75	24	29
Link Distance (ft)		3798	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	225		150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Coley Store Rd & Bethel Church Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	95	87	81	57
Average Queue (ft)	50	41	40	27
95th Queue (ft)	78	68	68	45
Link Distance (ft)	1784	1276	3530	987
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Main St (NC 24) & Coley Store Rd

Movement	EB	EB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	92	18	68	94
Average Queue (ft)	41	1	19	39
95th Queue (ft)	76	13	51	70
Link Distance (ft)		946	1829	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100			75
Storage Blk Time (%)	0	0	1	1
Queuing Penalty (veh)	1	0	1	0

Intersection: 6: Access A & Bethel Church Rd

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	34	28	56	53
Average Queue (ft)	5	2	21	23
95th Queue (ft)	24	13	48	50
Link Distance (ft)			1015	969
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	100	100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Access B & Mission Church Rd

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	17	31
Average Queue (ft)	1	15
95th Queue (ft)	9	39
Link Distance (ft)	1000	984
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Coley Store Rd & Access C

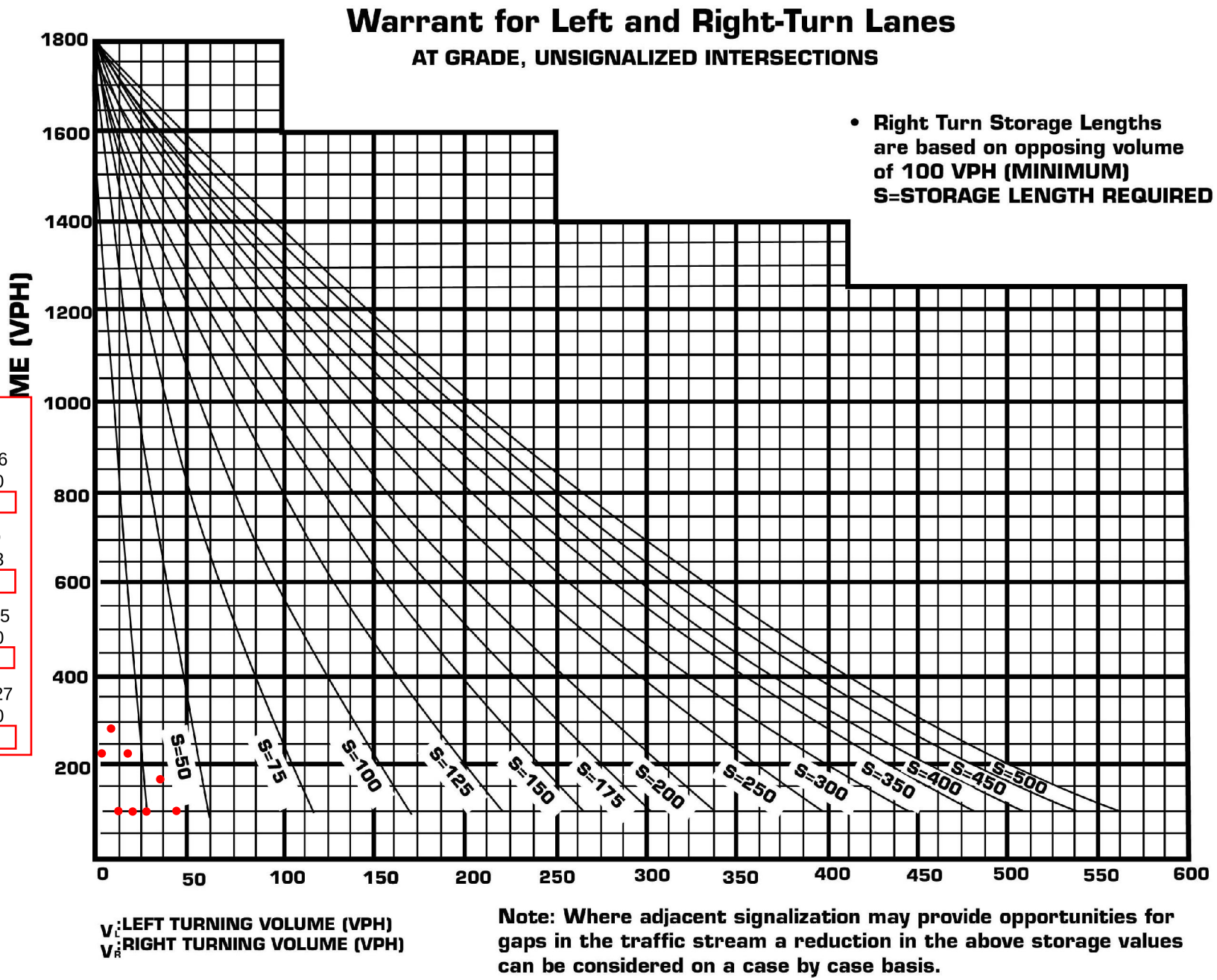
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	34	24
Average Queue (ft)	16	1
95th Queue (ft)	41	12
Link Distance (ft)	986	3220
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 15

Auxiliary Turn-Lane Warrants

Int. # 6: Bethel Church Rd and Access A

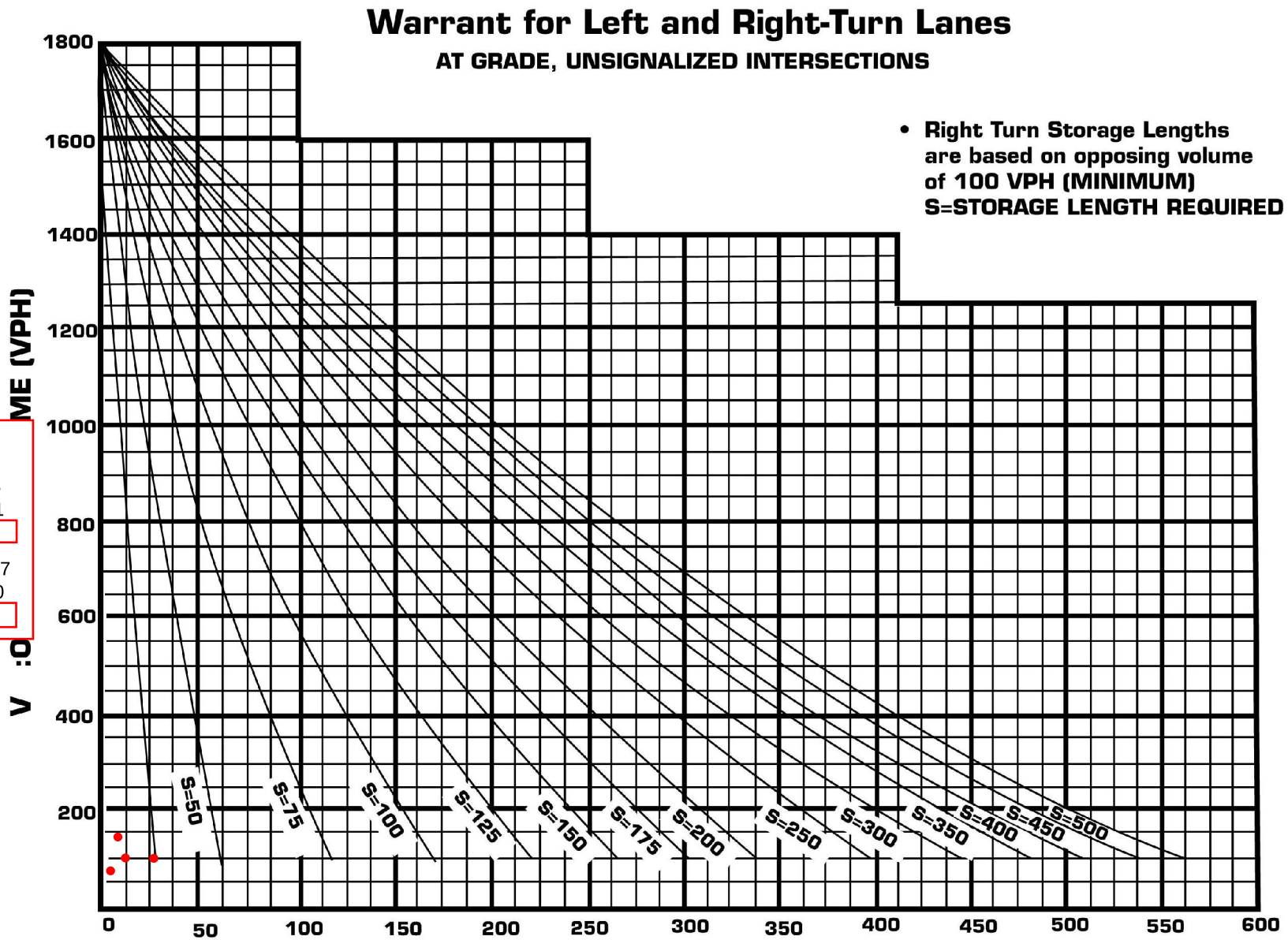


Note: Where adjacent signalization may provide opportunities for gaps in the traffic stream a reduction in the above storage values can be considered on a case by case basis.

2033 Build

AM	PM
V_{EBL} = 16	V_{EBL} = 36
V_o = 217	V_o = 180
S = 0'	S = 0'
V_{WBL} = 4	V_{WBL} = 9
V_o = 229	V_o = 283
S = 0'	S = 0'
V_{EBR} = 20	V_{EBR} = 45
V_o = 100	V_o = 100
S = 0'	S = 0'
V_{WBR} = 12	V_{WBR} = 27
V_o = 100	V_o = 100
S = 0'	S = 0'

Int. # 7: Mission Church Rd and Access B



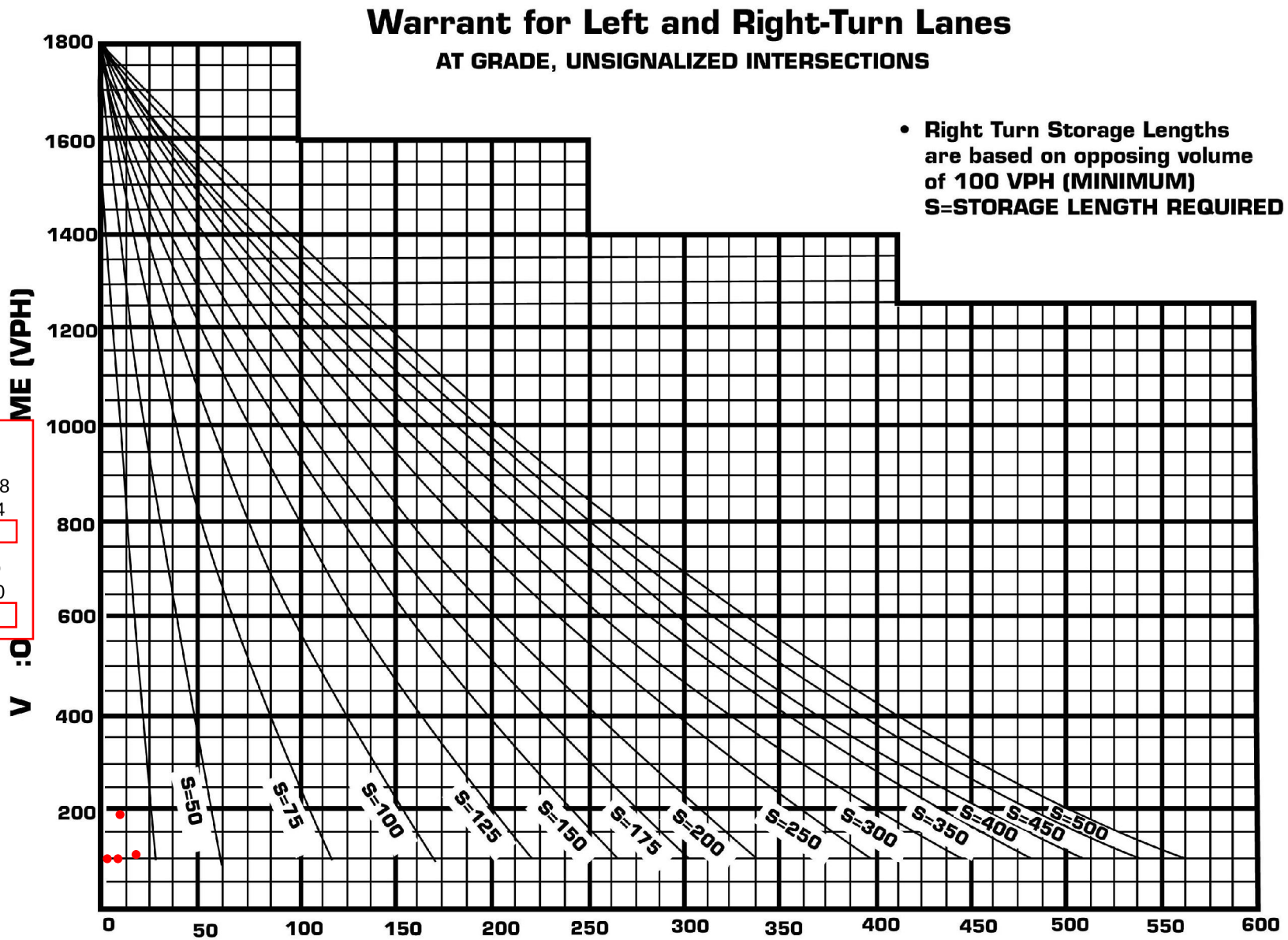
2033 Build

AM	PM
$V_{WBL} = 5$	$V_{WBL} = 8$
$V_o = 75$	$V_o = 161$
S = 0'	S = 0'
$V_{EBR} = 12$	$V_{EBR} = 27$
$V_o = 100$	$V_o = 100$
S = 0'	S = 0'

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.

Int. # 8: Coley Store Rd and Access C



2033 Build

AM	PM
V_{NBL} = 8	V_{NBL} = 18
V_o = 195	V_o = 104
S = 0'	S = 0'
V_{SBR} = 4	V_{SBR} = 9
V_o = 100	V_o = 100
S = 0'	S = 0'

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.